PROPOSED BUILDING RENOVATION FOR:

HAWAIIAN BROS

OVERLAND PARK, KANSAS

PROJECT CONTACTS (EXCEL)

OWNER INFORMATION:
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1220 WASHINGTON STREET
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PROJECT CONTACTS (DRAWINGS BY OTHERS)

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STEVEN MUNSON
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LOW VOLTAGE:
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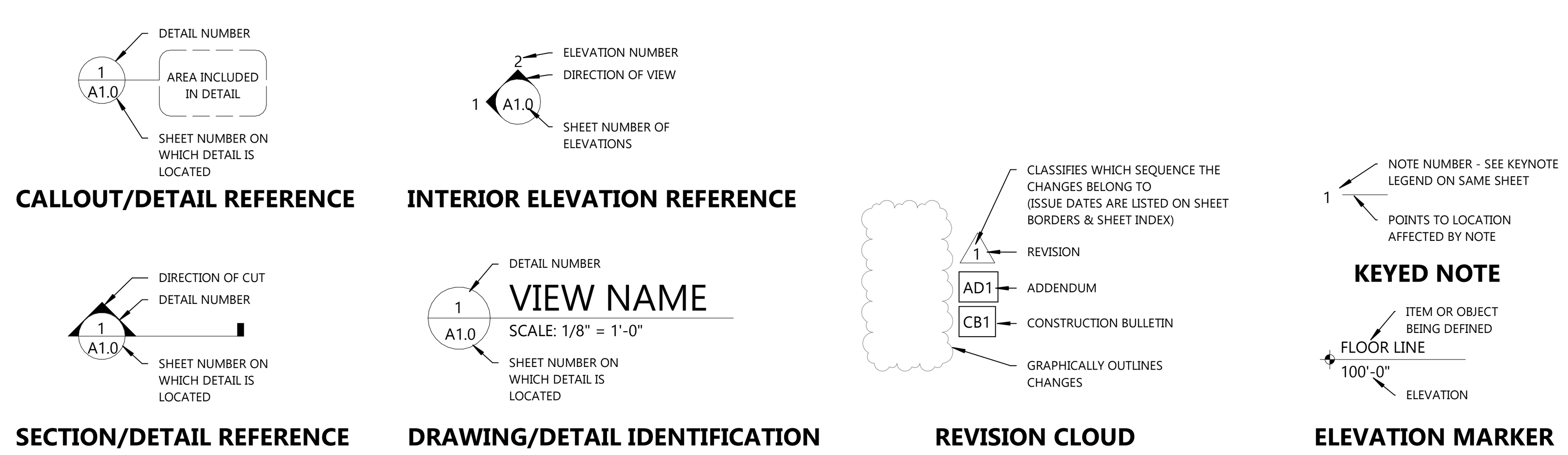
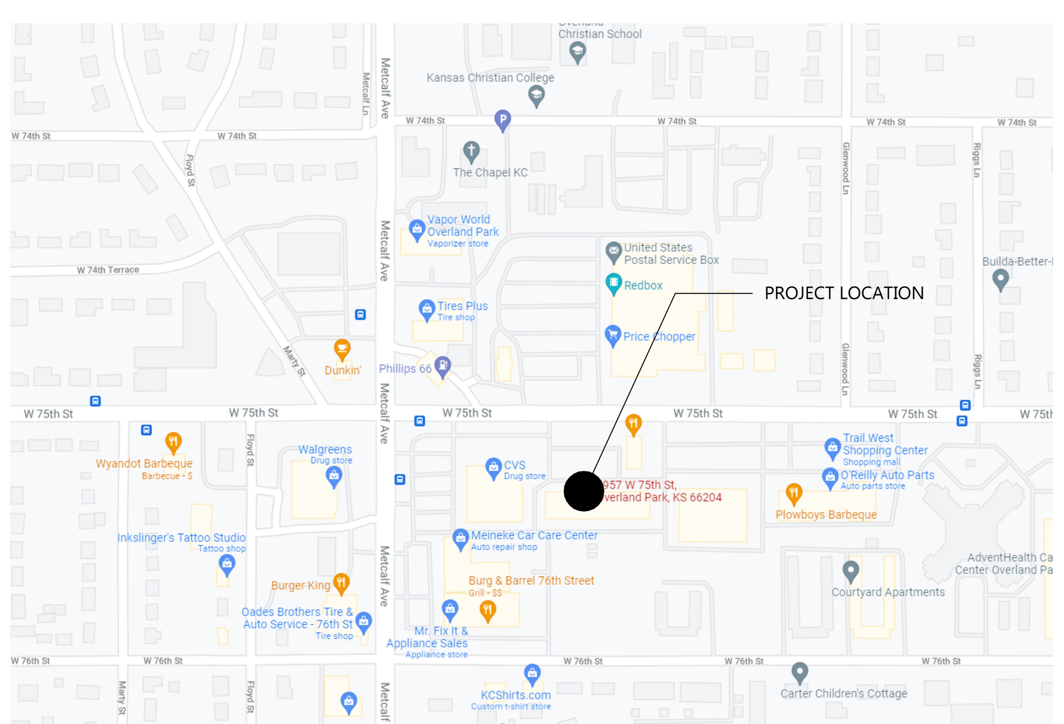
E-mail: tony@shieldkc.com

KITCHEN:
EDWARD DON & COMPANY
JESSE WILSON
Phone: (800) 777-4366
E-mail: jessewilson@don.com

SYMBOLS LEGEND



LOCATION MAP



ABBREVIATIONS

ADD.	ADDITION
&	AND
ACOUS.	ACOUSTICAL
A/C	AIR CONDITIONING
A.F.F.	ABOVE FINISH FLOOR
ALUM.	ALUMINUM
ALT.	ALTERNATE
APPROX.	APPROXIMATELY
ARCH.	ARCHITECT
ASPH.	ASPHALT
A.B.	ANCHOR BOLT
ADJ.	ADJUSTABLE
APT.	APARTMENT
@	AT
AVE.	AVENUE
AGGR.	AGGREGATE
AUTO.	AUTOMATIC
B.F.	BARRIER FREE
BD.	BOARD
BLDG.	BUILDING
B.L.	BUILDING LINE
BLK.	BLOCK
BLK'G	BLOCKING
B.O.J.	BOTTOM OF JOIST
BOT.	BOTTOM
B.W.	BOTH WAY
B.M.	BENCH MARK
BM.	BEAM
BRG.	BEARING
BRK	BRICK
B.T.U.	BRITISH THERMAL UNITS
B.O.W.	BOTTOM OF WALL
B.O.C.	BOTTOM OF CURB
CA	CARPET
CAB.	CABINET
CLKG.	CAULKING
C.I.	CAST IRON
CLG.	CEILING
CEM.	CEMENT
CTR.	CENTER
C/C	CENTER TO CENTER
C.J.	CONSTRUCTION JOINT/ CONTROL JOINT
CL.	CENTER LINE
C.T.	CERAMIC TILE
C.O.	CLEAN OUT
CLR.	CLEAR
CLO.	CLOSET
COL.	COLUMN
COMP.	COMPOSITION/COMPACT
CMU	CONCRETE MASONRY UNIT
CONC.	CONCRETE
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
C.B.	CATCH BASIN
CONN.	CONNECTION
CTSK.	COUNTER-SINK
CORR.	CORRUGATED
C.W.	COLD WATER
DBL.	DOUBLE
DEG.	DEGREE
DET.	DETAIL
DIAG.	DIAGONAL
DIA. / ⌀	DIAMETER
DIM.	DIMENSION
do.	DITTO
DIV.	DIVISION
DR.	DOOR
DN.	DOWN
DS.	DOWNSPOUT
DWG.	DRAWING
DEPT.	DEPARTMENT
D.F.	DRINKING FOUNTAIN
DISP.	DISPENSER
D.W.	DRYWALL
EA.	EACH
E.I.F.S.	EXTERIOR INSULATION FINISH SYSTEM
E.J.	EXPANSION JOINT
EL.	ELEVATION
ELEC. / E	ELECTRICAL
ELEV.	ELEVATOR
ENCL.	ENCLOSED
ENG.	ENGINEER
E.W.	EACH WAY
E.W.C.	ELECTRIC WATER COOLER
EQ.	EQUAL
EQUIP.	EQUIPMENT
EXCAV.	EXCAVATE
EXIST.	EXISTING
EXT.	EXTERIOR
EXP.	EXPANSION
EMER.	EMERGENCY
EXPO.	EXPOSED
F.D.	FLOOR DRAIN
FOUND.	FOUNDATION
FEX.	FIRE EXTINGUISHER
FEC.	FIRE EXTINGUISHER CABINET
F/R	FIRE RESISTANT
F.F.	FINISH FLOOR
FG.	FINISH GRADE
FIN.	FINISH
FLR.	FLOOR
FLSH.	FLASHING
FLUOR.	FLUORESCENT
FT.	FOOT/FEET
FTG.	FOOTING
FRM'G	FRAMING
FR.	FRAME
FURN.	FURNACE
FAB.	FABRICATED
FIX.	FIXTURE
F.R.	FIRE RATED
F.O.S.	FACE OF STUD
F.O.B.	FACE OF BRICK
F.C.O.	FLOOR CLEAN OUT
F.B.	FLAT BAR
F.O.C.	FACE OF CONCRETE
F.O. CMU	FACE OF CMU
FRPR.	FIRE-PROOFING
FURR.	FURRING
F.V.	FIELD VERIFY
G	GAS
GA.	GAUGE
G.C.	GENERAL CONTRACTOR
G.I.	GALVANIZED IRON
GL.	GLASS
G.M.	GAS METER
GYP.	GYPSUM
G.B.	GYPSUM BOARD
GALV.	GALVANIZED
GR.	GRADE
HC.	HANDICAPPED
HD.	HEAD
HDR.	HEADER
HTR.	HEATER
HGT.	HEIGHT
HOR.	HORIZONTAL
H.W.	HOT WATER
H.C.	HOLLOW CORE
HB	HOSE BIB
HDWD.	HARDWOOD
HDWR.	HARDWARE
H.M.	HOLLOW METAL
HR.	HOUR
HVAC	HEATING, VENTILATING & AIR CONDITIONING
I.D.	IDENTIFICATION
INSUL.	INSULATED
INST.	INSTALL
INT.	INTERIOR
INV.	INVERT
JST.	JOIST
JT.	JOINT
JAN.	JANITOR
KIT.	KITCHEN
LOUV.	LOUVER
LAM.	LAMINATED
LAV.	LAVATORY
Lb.	POUND
LT.	LIGHT
MACH.	MACHINE
MAX.	MAXIMUM
MAINT.	MAINTENANCE
MIN.	MINIMUM
MECH.	MECHANICAL
MTL.	METAL
MFR.	MANUFACTURE
M.H.	MAN HOLE
MISC.	MISCELLANEOUS
M.S.	MACHINE SCREW
M.B.	MACHINE BOLT
MR	MOISTURE RESISTANT
MTD.	MOUNTED
MAT'L	MATERIAL
MEMB	MEMBRANE
MEZZ.	MEZZANINE
M.C.	MISCELLANEOUS CHANNEL
MWFRS.	MAIN WIND FORCE RESISTING SYSTEM
N.I.C.	NOT IN CONTRACT
NO. /#	NUMBER
N.T.S.	NOT TO SCALE
NOM.	NOMINAL
NAT.	NATURAL
OF/CI -	OWNER FURNISHED CONTRACTOR INSTALLED
OF/OI -	OWNER FURNISHED OWNER INSTALLED
O/O	OUT TO OUT
OF.	OVERFLOW
O.F.S.	OUTSIDE FACE OF STUD
O.F.SH.	OUTSIDE FACE OF SHEATHING
OA.	OVERALL
OPP.	OPPOSITE
O.C.	ON CENTER
O.H.	OVERHEAD
O.F.C.	OUTSIDE FACE OF CONCRETE
OPN'G	OPENING
PA.	PAINT
P.D.F.	POWER DRIVEN FASTENER
P.L.	PLASTIC LAMINATE
PL.	PLATE
PLAS.	PLASTER
PLYWD.	PLYWOOD
PR.	PAIR
PREH.	PREHUNG
P.T.	PRESSURE TREATED
PF.	PREFINISHED
PC.	PIECE
PLB.	PLUMBING
PREFAB.	PREFABRICATED
R.	RISER
R.O.	ROUGH OPENING
REQ'D.	REQUIRED
RM.	ROOM
REV.	REVISION
REG.	REGISTER
REINF. / R/F	REINFORCING
RS	RELIEF SCUPPER
RAD.	RADIUS
R.D.	ROOF DRAIN
REF.	REFERENCE
R.F.E.	REGIONAL FLOODPLAIN ELEVATION
SAN.	SANITARY SEWER
SCHED.	SCHEDULE
SEC.	SECTION
SERV.	SERVICE
SFRS.	SEISMIC FORCE RESISTING SYSTEM
SHT.	SHEET
SHT'G.	SHEATHING
SID'G.	SIDING
ST.	STORM SEWER
STM.	STEAM
SIM.	SIMILAR
SPKLR.	SPRINKLER
SPEC.	SPECIFICATION
SQ.	SQUARE
STD.	STANDARD
SECUR.	SECURITY
STL.	STEEL
STOR.	STORAGE
STR.	STAIR
STRUC.	STRUCTURAL
SYS.	SYSTEM
SS	SERVICE SINK
S.C.	SOLID CORE
SH.	SHELF
S.S.	STAINLESS STEEL
SUSP.	SUSPENDED
T.	TREAD
T.O.S.	TOP OF STUD
T.O.B.	TOP OF BEARING
T.O.W.	TOP OF WALL
T.O.P.	TOP OF PIER
T.O.F.	TOP OF FOOTING
T&B.	TOP & BOTTOM
T.C.	TOP OF CURB
TEL.	TELEPHONE
T&G.	TONGUE & GROOVE
THK.	THICK
T.O. STL.	TOP OF STEEL
T.P.	TOP PLATE
T.S.	TUBE STEEL
TYP.	TYPICAL
TEMP.	TEMPERED
TOT.	TOTAL
U.N.O.	UNLESS NOTED OTHERWISE
UNFIN.	UNFINISHED
UTIL.	UTILITIES
VERT.	VERTICAL
VEST.	VESTIBULE
V.C.T.	VINYL COMPOSITION TILE
V.I.F.	VERIFY IN FIELD
V	VALVE
V.T.R.	VENT THOUGH ROOF
VT.	VENT PIPE
VENT.	VENTILATION
VOL.	VOLUME
W	WATER
W/	WITH
W.C.	WATER CLOSET
W.C.O.	WALL CLEAN OUT
WD.	WOOD
W.H.	WATER HEATER
W.S.	WEATHER STRIPPING
WDW.	WINDOW
W.I.	WROUGHT IRON
W.R.	WEATHER RESISTANT
W.C.	WATER COOLER
WC	WALL COVERING
W.P.	WATER PROOF
W.W.F.	WELDED WIRE FABRIC
YD.	YARD

(ABBREVIATIONS PERTAIN TO CIVIL, ARCHITECTURAL, & STRUCTURAL DRAWINGS ONLY)

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H1.1	FIRST FLOOR PLAN	NOV. 23, 2021	AD1	JAN. 24, 2022
H1.2	ROOF PLAN	NOV. 23, 2021	AD1	JAN. 24, 2022
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E1.1P	FIRST FLOOR PLAN - POWER	NOV. 23, 2021	AD2	JAN. 28, 2022
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E4.1	PANEL SCHEDULES	NOV. 23, 2021	AD2	JAN. 28, 2022
DRAWINGS BY OTHERS FOR REFERENCE ONLY				
QF100-QF500	KITCHEN EQUIPMENT PLANS - EDWARD DON AND COMPANY	PRELIM		
1-6	HOOD DRAWINGS - CAPTIVE AIR	PRELIM		

ARCHITECTURAL TITLE SHEET

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ARCHITECTS • ENGINEERS • SURVEYORS
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100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE: NOV. 23, 2021

REVISIONS

AD1	JAN. 24, 2022
AD2	JAN. 28, 2022

JOB NUMBER
2172060

SHEET NUMBER
T1.0

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APPLICABLE BUILDING CODES

2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL EXISTING BUILDING CODE

BUILDING SIZE

TOTAL TENANT SPACE AREA 1,226 S.F.

CONSTRUCTION CLASSIFICATION

2018 IBC SECTION 602.5 TYPE II(B) CONSTRUCTION AD1

ENTIRE BUILDING IS NOT EQUIPPED w/ AN AUTOMATIC SPRINKLER SYSTEM

OCCUPANCY CLASSIFICATIONS

NON-SEPARATED USES w/ MIXED OCCUPANCY
BUILDING IS DESIGNED FOR B OCCUPANCY (MOST RESTRICTIVE)

OCCUPANCY CLASSIFICATIONS WITHIN BUILDING INCLUDE:
ASSEMBLY GROUP B 2018 IBC SECTION 304 - BUSINESS

MEANS OF EGRESS

2018 IBC TABLE 1017.2 200 FT. EXIT ACCESS TRAVEL DISTANCE (NON-SPRINKLERED)

2018 IBC SECTION 1005.3.2 EGRESS WIDTH PER OCCUPANT SERVED = 0.2" (NON-SPRINKLERED)
(18) TOTAL OCCUPANTS x 0.2" = 3.6" EGRESS WIDTH REQUIRED
PROVIDED EGRESS WIDTH = 72"

OCCUPANT LOADS

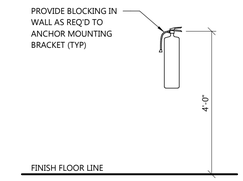
OCCUPANT LOADS BASED ON 2018 IBC TABLE 1004.1.2

ROOM OR SPACE DESIGNATION	CLASSIFICATION OF OCCUPANCY FOR USE	FLOOR AREA (S.F.)	DENSITY SF/PERSON	OCCUPANT LOAD BY CALCULATION	OCCUPANT LOAD BY ACTUAL NO.
RESTAURANT QUEUING	KITCHEN, COMMERCIAL	187 S.F.	15 NET	13	-
KITCHEN RESTAURANT	ASSEMBLY UNCONCENTRATED	740 S.F.	200 GROSS	4	-
STORAGE ROOM	ACCESSORY STORAGE AREAS	154 S.F.	300 GROSS	1	-

TOTAL OCCUPANT LOAD OF THE BUILDING = 18 OCCUPANTS

SANITARY FIXTURES

SINGLE OCCUPANCY PRIVACY UNISEX TO BE PROVIDED PER 2018 IBC 2902.2 EXCEPTION 2



FIRE EXTINGUISHER SPECIFICATION:

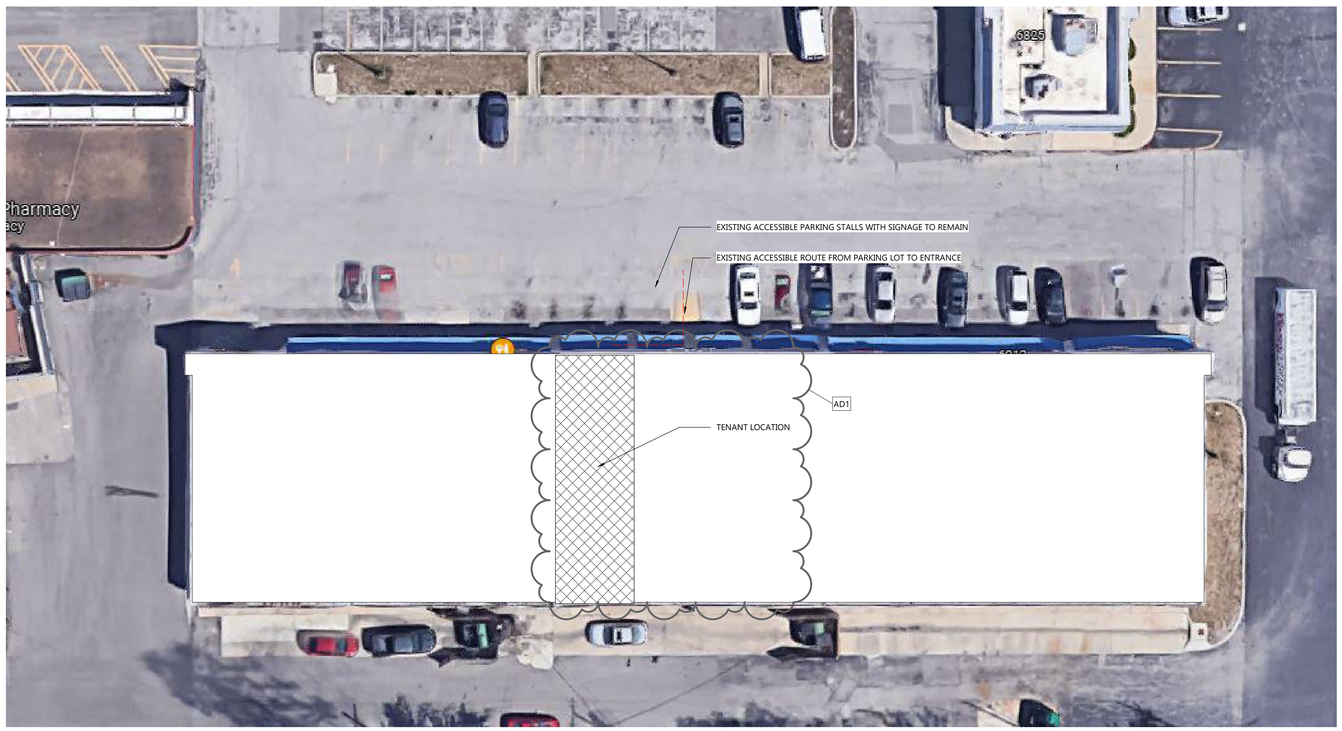
MANUFACTURER: JL INDUSTRIES, INC.
PRODUCT: FIRE EXTINGUISHER:
- 'COSMIC' 10E
10 lb. CAPACITY ; 4A-80BC RATING
BRACKET:
- MARK 'MB846' WALL BRACKET

FIRE EXTINGUISHER

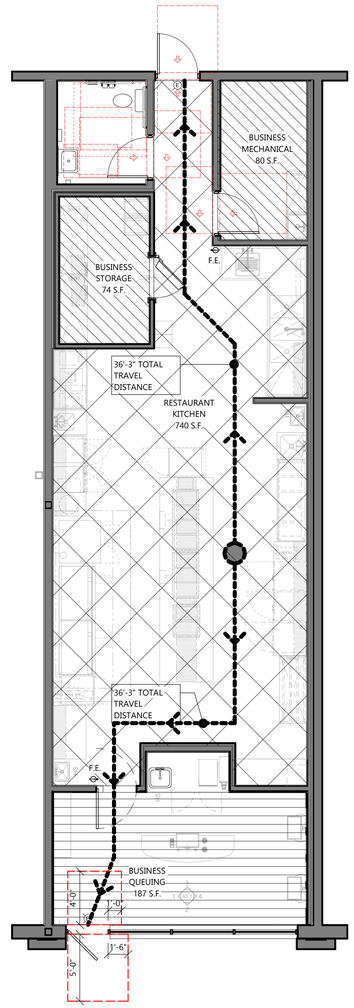
NOT TO SCALE

SYMBOLS LEGEND

- EXIT SIGNAGE
- FIRE EXTINGUISHER -SEE T1.1 SHEET
- PATH OF TRAVEL
- START PATH OF TRAVEL
- COMMON PATH OF TRAVEL



NORTH Site Plan
NOT TO SCALE
FOR REFERENCE ONLY



NORTH LIFE SAFETY PLAN
SCALE: 3/16" = 1'-0"
5' 0' 5' 10'

LIFE SAFETY PLAN

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2172060

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T1.1

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RESPONSIBILITY MATRIX

ITEM	ITEM		LANDLORD PROVIDED/ INSTALLED	HBROS PROVIDED HBROS INSTALLED	HBROS PROVIDED G.C. INSTALLED	VENDOR SUPPLIED VENDOR INSTALLED	VENDOR SUPPLIED G.C. INSTALLED	G.C. SUPPLIED G.C. INSTALLED	COMMENTS
SITE	SITE ACCESSABILITY TO...							X	N/A
	PARKING LOT							X	N/A
	SITE LIGHTING							X	N/A
	LANDSCAPING							X	N/A
	FLOOR SLAB	FLOOR SLAB						X	
		FLOOR SLAB SAWCUTTING						X	
	WALLS	EXTERIOR WALLS						X	
		INTERIOR ROOM WALLS						X	
		STOREFRONT GLAZING						X	
		PERIMETER WALL PATCHING						X	
	TOILET ROOMS	TOILET FIXTURES						X	
		WALL HUNG MIRROR					X		
		GRAB BARS						X	
		SOAP DISPENSER					X		
		ELECTRIC HAND DRYER					X		N/A
		TOILET PAPER DISPENSER					X		
	OFFICE	SAFE			X				
		OFFICE EQUIPMENT		X					
	FIRE EXTINGUISHERS							X	
	ROOFING AND ROOF STURCTURE							X	
	DOORS	EXTERIOR...						X	
		INTERIOR...						X	
		OVERHEAD...						X	N/A
		STOREFRONT...						X	
	CASEWORK	INTERIOR SEATING					X		N/A
		EXTERIOR SEATING					X		N/A
		SURF TABLE (SPECILITY SEATING)							N/A
		SODA COUNTER				X			
		MERCHANDISE DISPLAY					X		
		ORDERING PODS					X		
		CABINETS/COUNTERTOP					X		
	KITCHEN EQUIPMENT	KITCHEN EQUIPMENT				X			
		WALK-IN COOLERS				X			
		SODA DISPENSOR				X			
		CO2 TANK				X			
		CO2 ALARM/SENSOR						X	
		PAPER TOWELS/SOAP					X		
	FOOD SERVING	TRAYS/SILVERWARE		X					
		FLOOR SCRUBER				X			
		CLEANING CHEMICALS				X			
	INTERIOR FINISHES	PAINTING						X	
		WALL TILE						X	
		WALL PANELING - WOOD						X	
		EPOXY FLOORING/BASE						X	
		DRYWALL						X	
		SUSPENDED CEILING						X	
		SUSPENDED CLOUD						X	
		EXPOSED STRUCTURE						X	
		DECORATIVE METAL PANELS					X		
		DECORATIVE METAL RAILING					X		
		WINDOW SILLS						X	
		ROLLER SHADES						X	
FIRE PROTECTION	FIRE PROTECTION	FIRE SPRINKLERS							N/A
		FIRE ALARM							N/A
PLUMBING	PLUMBING FIXTURE							X	
	ROOF DRAINAGE							X	
	WATER SERVICE		X						
	WATER METER		X						
	BACKFLOW PREVENTER							X	
	WATER SOFTENER SYSTEM							X	
	INTERIOR PLUMBING							X	
HVAC	GAS PIPING	GAS PIPING TO RTU						X	
		GAS PIPING TO KITCHEN...						X	
		GAS PIPING TO MISC EQUIPMENT						X	
	HVAC UNITS							X	
	HVAC DUCTWORK							X	
	EXHAUST	TOILET EXHAUST						X	
		KITCHEN EXHAUST						X	
ELECTRICAL	ELECTRIC METER		X						
	800 AMP ELECTRICAL SERVICE		X						
	INTERIOR ELECTRICAL	DUPLEX OUTLETS AT PERIMETER...						X	SPACED PER CODE, PER DWG'S
	ELECTRICAL PANEL	MAIN DISTRUBUTION...						X	
		BUILDING SERVICE						X	
		EXTERIOR LIGHTING/SIGNAGE...						X	WITH TIME CLOCK & PHOTO CELL
	LIGHTING	INTERIOR LIGHTING						X	
		EXTERIOR LIGHTING						X	
		DECORATIVE LIGHTING						X	
		SITE LIGHTING						X	
	SIGNAGE	EXTERIOR SIGNAGE - POWER						X	
		INTERIOR SIGNAGE - POWER						X	
	EMERGENCY LIGHTING	EXIT SIGNS						X	
		EMERGENCY LIGHTS						X	
	LOW VOLTAGE	CONDUIT FOR CABLE TV						X	
		CONDUIT FOR TELEPHONE						X	
		TELEPHONE/EQUIPMENT						X	
		POS SYSTEM				X			
		SECURITY SYSTEM/CAMERAS				X			
		MUSIC/SPEAKER SYSTEM					X		
SIGNAGE	EXTERIOR SIGNAGE	BUILDING SIGNAGE				X			
		SITE WAY FINDING SIGNAGE				X			N/A
	INTERIOR SIGNAGE	ADA SIGNAGE					X		
		TOILET ROOM SIGNAGE					X		
		BRANDING SIGNAGE				X			

RESPONSIBILITY MATRIX

EXCEL
ARCHITECTS • ENGINEERS • SURVEYORS
Always a **Better Plan**
100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE NOV. 23, 2021

REVISIONS

JOB NUMBER
2172060

SHEET NUMBER
T1.2

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ARCHITECTURAL SPECIFICATIONS

DIVISION 00 PROCUREMENT AND CONTRACTING

00 72 00 GENERAL CONDITIONS

A. THE AIA GENERAL CONDITIONS A201 LATEST EDITION IS A PART OF THESE DOCUMENTS. COPIES ARE On FILE AT THE OFFICE OF EXCEL ENGINEERING, INC.

00 73 16 INSURANCE REQUIREMENTS

A. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL SUBMIT TO THE OWNER CERTIFICATE OF INSURANCE FOR NOT LESS THAN THE FOLLOWING LIMITS:
1. WORKER'S COMPENSATION AND EMPLOYERS LIABILITY:
a. PER STATUTORY LIMITS
2. COMMERCIAL GENERAL LIABILITY:
a. GENERAL AGGREGATE: $2,000,000
b. PRODUCTS AND COMPLETED OPERATIONS AGGREGATE: $2,000,000
c. PERSONAL AND ADVERTISING INJURY: $1,000,000
d. EACH OCCURRENCE: $1,000,000
e. CONTRACTOR SHALL LIST EXCEL ENGINEERING, INC. AS ADDITIONAL INSURED.

DIVISION 01 GENERAL REQUIREMENTS

01 11 00 SUMMARY OF WORK

A. THE PLANS AND SPECIFICATIONS ARE INTENDED TO GIVE A DESCRIPTION OF THE WORK. NO DEVIATION FROM THE PLANS AND SPECIFICATIONS SHALL BE MADE WITHOUT THE WRITTEN CONSENT OF EXCEL ENGINEERING, INC. THE CONTRACTOR IS TO CLARIFY ANY DISCREPANCIES WITH EXCEL ENGINEERING, INC. PRIOR TO BIDDING. THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS AND ACCESS TO THE WORK AREA.
B. REFERENCE TO “GENERAL CONTRACTOR” OR “GC” IN THE CONSTRUCTION DOCUMENTS IS INTENDED TO REPRESENT THE CONTRACTOR RESPONSIBLE FOR OVERALL CONSTRUCTION AND COORDINATION OF THE WORK. THE “GC” COULD BE A GENERAL CONTRACTOR, CONSTRUCTION MANAGER OR ANY OTHER CONTRACTOR RESPONSIBLE FOR THE OVERALL PROJECT. IT IS THE RESPONSIBILITY OF THE GC TO ASSIGN RESPONSIBILITY FOR ALL WORK.
C. THE FOLLOWING LIST IS INTENDED TO AID THE GC IN DIRECTING THE SUBCONTRACTORS REGARDING RESPONSIBILITY OF WORK. THE DRAWINGS MAY OR MAY NOT IDENTIFY RESPONSIBILITY FOR THESE SCOPES OF WORK. THE LIST IS INTENDED TO INCLUDE ITEMS WHICH HAVE TYPICALLY BEEN DETAILED TO BE “BY GC” OR “BY OTHERS”. THIS LIST IS INTENDED TO PROVIDE THE GC AN AID TO ASSIGN THIS WORK SO SCOPE OF WORK IS PROPERLY BID. THE LIST IS NOT INTENDED TO BE ALL INCLUSIVE AND IT REMAINS THE RESPONSIBILITY OF THE GC TO ENSURE ALL SCOPES OF WORK ARE ASSIGNED AND PROVIDED.
1. TEMPORARY ELECTRIC SERVICE
2. TEMPORARY HEATING
3. TEMPORARY WATER
4. TEMPORARY TOILETS
5. PERMITS, CODES, ORDINANCES AND SALES TAX
6. INTERIOR CONCRETE EQUIPMENT PADS
7. EXTERIOR CONCRETE EQUIPMENT PADS AND POLE BASES
8. OPENINGS IN EXISTING CONSTRUCTION
9. LARGE OPENINGS IN METAL DECK
10. SMALL OPENINGS IN METAL DECK
11. OPENINGS IN PRECAST PLANK AND DOUBLE TEES
12. CORE DRILLING HOLES IN PRECAST WALLS, PLANKS AND DOUBLE TEES
13. PIPE SLEEVES IN MASONRY, POURED CONCRETE AND FOUNDATION WALLS
14. BOX OUT OPENINGS IN POURED CONCRETE AND FOUNDATION WALLS.
15. LARGE OPENINGS IN INSULATED METAL PANELS
16. SMALL OPENINGS IN INSULATED METAL PANELS
17. TRIM AROUND INSULATED METAL PANEL OPENINGS
18. PATCHING OPENINGS IN WALLS AND ROOF
19. SAWCUTTING AND REMOVAL OF FLOOR FOR UTILITIES
20. CONCRETE FLOOR REPLACEMENT WHERE SAWCUT
21. RADIANT FLOOR, SNOW MELT, FREEZER UNDERSLAB INSULATION
22. LAY-IN CEILING TILE REMOVAL AND REPLACEMENT IN EXISTING AREAS
23. LAY-IN CEILING GRID REMOVAL AND REPLACEMENT IN EXISTING AREAS
24. INSTALLATION OF CEILING/WALL ACCESS PANELS
25. INSTALLATION OF ROOF CURBS AND ASSOCIATED BLOCKING
26. PAINTING
27. SEALANTS
28. INTERIOR AND EXTERIOR DRAIN TILES AND BLEEDERS
29. TUB, SHOWERS, MOP SINK, FLOOR DRAIN SAFING.
30. WATERPROOF MEMBRANES AT ABOVE GRADE FLOORS.

01 25 13 PRODUCT SUBSTITUTION PROCEDURES

A. REFERENCE TO MATERIALS OR SYSTEMS HEREIN BY NAME, MAKE OR CATALOG NUMBER IS INTENDED TO ESTABLISH A QUALITY STANDARD, AND NOT TO LIMIT COMPETITION. THE WORDS "OR APPROVED EQUIVALENT" ARE IMPLIED FOLLOWING EACH BRAND NAME/MODEL NUMBER UNLESS STATED OTHERWISE. "OR APPROVED EQUIVALENT" MATERIALS SHALL BE APPROVED BY EXCEL ENGINEERING, INC. PRIOR TO BIDS BEING ACCEPTED AND ACCEPTANCE FOR USE. PROVIDE A LETTER FROM THE MANUFACTURER CERTIFYING THAT THE PRODUCT MEETS OR EXCEEDS THE SPECIFIED PRODUCT.

01 31 00 PROJECT MANAGEMENT AND COORDINATION

A. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR AND SHALL HAVE CONTROL OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND SAFETY PRECAUTIONS AND PROCEDURES USED TO CONSTRUCT THE WORK.
B. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL (INCLUDING TAXES) AND EQUIPMENT AS NECESSARY TO COMPLETE THE WORK. PERMITS SHALL BE OBTAINED AND PAID FOR BY THE RESPECTIVE CONTRACTOR, INCLUDING TEMPORARY OCCUPANCY PERMIT IF REQUIRED.
C. AUTOCAD FILES OF CONSTRUCTION DOCUMENTS MAY BE OBTAINED BY CONTACTING EXCEL ENGINEERING, INC. REVIT FILES WILL NOT BE MADE AVAILABLE. AUTOCAD FILE REQUESTS SHALL BE EMAILED TO EXCEL PROJECT MANAGER AND PROJECT ASSISTANT AND SHALL INCLUDE THE FOLLOWING INFORMATION:
1. EXCEL ENGINEERING PROJECT NAME
2. EXCEL ENGINEERING PROJECT NUMBER
3. SHEET NUMBERS REQUESTED
D. AUTOCAD FILES REQUEST SHALL BE MADE TO:
1. PROJECT MANAGER: (JAY JOHNSON jay.j@excelengineer.com)
2. PROJECT ASSISTANT: (LYDIA GREENFIELD archretail.@excelengineer.com)
E. AUTOCAD FILES WILL BE SENT BY METHOD OF EXCEL ENGINEERING, INC. CHOOSING AS SOON AS POSSIBLE.
F. AUTOCAD FILES SHALL NOT BE USED FOR COMPONENT SUBMITTALS OR SHOP DRAWINGS. SUBMITTALS AND SHOP DRAWINGS USING EXCEL ENGINEERING, INC. CAD FILES WILL BE RETURNED REJECTED AND UN-REVIEWED.
G. ALL “REQUEST FOR INFORMATION” (RFI) SHALL BE MADE THROUGH THE GENERAL CONTRACTOR FOR LOGGING AND TRACKING PURPOSES. RFI'S SHALL BE SUBMITTED TO THE EXCEL ENGINEERING PROJECT ASSISTANT. RFI'S SHALL BE SUBMITTED ON AN ARCHITECT APPROVED FORM, NUMBER SEQUENCE AND INCLUDE THE FOLLOWING INFORMATION:
1. EXCEL ENGINEERING PROJECT NAME
2. EXCEL ENGINEERING PROJECT NUMBER
3. DIVISION OF CONSTRUCTION REFERENCED
4. POTENTIAL SCHEDULE IMPACTS
5. POTENTIAL COST IMPACTS OF ANY SUGGESTED ALTERNATES FROM THE CONSTRUCTION DOCUMENTS

01 32 00 SCHEDULING OF WORK

A. THE CONTRACTOR SHALL OBTAIN THE OWNER'S APPROVAL OF THE CONSTRUCTION SCHEDULE PRIOR TO PROCEEDING WITH THE WORK.

01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

A. SUBMIT FOR APPROVAL ARCHITECTURAL, STRUCTURAL, HVAC, PLUMBING, AND ELECTRICAL SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS AND SAMPLES INDICATED IN THE CONSTRUCTION ADMINISTRATION SUBMITTAL LIST (CASL). SEE DISCIPLINE SPECIFICATIONS FOR DISCIPLINE SPECIFIC CASL.
B. SHOP DRAWING SUBMITTALS SHALL BE MADE TO EXCEL ENGINEERING, INC. FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.
C. SUBMITTALS SHALL BE MADE BY ELECTRONIC SUBMISSION IN PORTABLE DOCUMENT FORMAT (PDF) UNLESS NOTED OTHERWISE. WHEN HARD COPY SUBMISSIONS ARE REQUIRED, COORDINATE WITH EXCEL ENGINEERING, INC. PRIOR TO SUBMISSION.
D. SUBMITTALS SHALL BE MADE TO THE EXCEL ENGINEERING, INC. PROJECT ASSISTANT.
1. LYDIA GREENFIELD AT ARCHRETAIL@EXCELENGINEER.COM
E. SUBMITTAL SHALL BE MADE USING APPROVED SUBMITTAL FORM CONTAINING AT MINIMUM THE FOLLOWING INFORMATION:
1. EXCEL ENGINEERING PROJECT NAME
2. EXCEL ENGINEERING PROJECT NUMBER
3. SUBMITTAL DIVISION OF CONSTRUCTION
4. MATERIAL SUPPLIER / SUB CONTRACTOR
5. SUBMITTAL DESCRIPTION (i.e. CONCRETE MIX DESIGN)
F. SUBMITTALS SHALL BE REVIEWED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMITTING FOR APPROVAL. CONTRACTOR SHALL COMPLETE ALL FIELD VERIFICATIONS PRIOR TO SUBMITTAL SUBMISSION.
G. SUBMITTALS MUST BE 100% COMPLETE AND IN ONE (1) PACKAGE FOR THE ITEM BEING SUBMITTED. NON-COMPLETE SUBMITTALS WILL BE RETURNED TO THE CONTRACTOR WITHOUT COMMENT AND STAMPED "REJECTED-RESUBMIT". CONTRACTORS WHO KNOWINGLY WANT TO SUBMIT NON-COMPLETE SUBMITTALS OR BREAK SINGLE SYSTEM SUBMITTALS INTO MULTIPLE SUBMITTALS WILL BE RESPONSIBLE TO ARRANGE WITH EXCEL ENGINEERING, PRIOR TO SUBMITTING THE SUBMITTAL(S), AND TO COMPENSATE EXCEL ENGINEERING FOR THE EXTRA WORK INVOLVED.
H. SHOP DRAWINGS SHALL CLEARLY INDICATE SPECIFIC MODEL BEING PROVIDED WHERE CUT SHEETS SHOW MULTIPLE MODELS.
I. FAILURE TO SUBMIT SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING THE SPECIFIED EQUIPMENT AND MATERIALS.
J. PHYSICAL SAMPLES FOR FINISHES ARE TO BE SUBMITTED TO EXCEL ENGINEERING, INC. FOR APPROVAL PRIOR TO INSTALLATION.
K. BUILDING COMPONENTS REQUIRING SUBMISSION “FOR RECORD” TO THE AUTHORITY HAVING JURISDICTION REQUIRE SEALED AND SIGN HARD COPIES, PROVIDE THREE (3) HARD COPIES WITH WET SEAL AND ORIGINAL SIGNATURE.
L. TEST RESULTS SHALL BE SUBMITTED FOR REVIEW WITHIN 24 HOURS OF COMPLETION OF TEST.
M. CONTRACTOR SHALL ALLOW 10 WORKING DAYS IN SCHEDULE FOR A/E TO REVIEW SUBMITTALS. IF SUBMITTALS REQUIRE AN EXPEDITED REVIEW PROCESS, CONTACT EXCEL ENGINEERING, INC. PRIOR TO SUBMITTING THE SUBMITTAL(S) TO MAKE THE APPROPRIATE ARRANGEMENT.
N. SUBMITTALS REQUIRING RESUBMISSION SHALL HAVE CHANGES MADE TO A PREVIOUSLY REVIEWED SUBMITTAL DENOTED WITH REVISION CLOUDS AND TAGS IDENTIFYING CHANGES.
O. ARCHITECTURAL CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
1. UNIT MASONRY (404)
2. CAST STONE (404)
3. MANUFACTURED STONE (404)
4. ROUGH CARPENTRY MATERIALS (604)
5. INTERIOR FINISH CARPENTRY MATERIALS (604)
6. WATERPROOFING (704)
7. PENETRATION FIRE STOPPING (704)
8. SEALANTS (704)
9. HOLLOW METAL DOORS AND FRAMES (804)
10. DOOR HARDWARE (804)
11. GLAZING (804)
12. DRYWALL STUDS (904)
13. GYPSUM BOARD (904)
14. TILING (904)
15. ACOUSTICAL PANEL CEILINGS (904)
16. RESINOUS FLOORING (904)
17. WALL COVERING (904)
18. FIXED SOUND ABSORPTIVE PANELS (904)
19. PAINTING SYSTEMS (904)
20. SIGNAGE (1004)
21. FIRE EXTINGUISHERS (1004)
22. TOILET ACCESSORIES (1004)
23. TOILET PARTITIONS (1004)
24. CABINET AND MILLWORK (1204)
P. STRUCTURAL AND ARCHITECTURAL PLANS SHOW DIMENSIONS AND ELEVATIONS TO SIGNIFICANT WORKING POINTS. SHOP DRAWING DETAILERS AND SUPPLIERS ARE RESPONSIBLE FOR THE DETERMINATION OF ALL DIMENSIONS, PITCHES, ELEVATIONS, ETC., BEYOND THOSE NOTED AS NECESSARY TO THOROUGHLY DETAIL / FABRICATE THEIR WORK. CONTACT A/E WITH ANY DISCREPANCIES FOUND.
Q. IN NO CASE SHALL CHANGES BE MADE TO WORK SHOWN OR PROCEDURE SPECIFIED ON STRUCTURAL PLANS UNLESS FIRST APPROVED IN WRITING BY A/E. REVIEW OF SHOP DRAWINGS BY A/E DOES NOT CONSTITUTE ACCEPTANCE OF A DESIGN CHANGE. PROPOSED CHANGES BY CONTRACTOR MUST BE SUBMITTED IN RFI FORMAT AND MUST BE APPROVED IN THE SAME MANNER. CONTRACTOR REQUESTING CHANGE MAY BE BILLED ON A TIME AND EXPENSE BASIS BY A/E FOR ALL REDESIGN WORK, FOR ALL NEW SKETCHES PREPARED, AND FOR ALL ADDITIONAL REVIEW TIME RELATED TO THE CHANGES.

01 40 00 QUALITY REQUIREMENTS

A. IN AS MUCH AS THE SPECIFICATIONS ARE BRIEF, THE CONTRACTOR SHALL PROVIDE WORKMANSHIP THAT IS NEAT, SECURE AND OF THE BEST QUALITY WITH THE BEST POSSIBLE APPEARANCE AND UTILITY MEETING ALL APPLICABLE STANDARDS. FAULTY WORK SHALL BE REPAIRED OR REPLACED AT NO COST TO THE OWNER. INDUSTRY STANDARDS SHALL BE USED AS THE GUIDE FOR QUALITY OF MATERIALS AND WORKMANSHIP.

01 41 00 REGULATORY REQUIREMENTS

A. ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES AND REGULATIONS, INCLUDING THE REQUIREMENTS OF THE AMERICAN WITH DISABILITIES ACT (A.D.A.) ARE MADE PART OF THESE SPECIFICATIONS AND SHALL BE COMPLIED WITH AS FAR AS THEY APPLY TO WORK UNDER THIS CONTRACT.

01 45 00 QUALITY CONTROL

A. THE CONTRACTOR SHALL CONTACT EXCEL ENGINEERING, INC. (2) WORKING DAYS PRIOR TO POURING CONCRETE FOOTINGS AND BEFORE THE STRUCTURAL SYSTEM HAS BEEN ENCLOSED. A FINAL INSPECTION WILL BE MADE BY EXCEL ENGINEERING, INC. UPON COMPLETION OF THE PROJECT.
B. NOTIFY ARCHITECT ONE WEEK IN ADVANCE TO SCHEDULE FINAL COMPLIANCE WALK-THRU. PRIOR TO THIS WALK THRU, PROVIDE THE ARCHITECT WITH THE FIRE PROTECTION SYSTEM TEST REPORT AND A COPY OF THE ELEVATOR INSPECTION REPORT AS APPLICABLE. ALL COMPONENT SUBMITTALS SHOULD BE FILED AND AVAILABLE FOR REVIEW AT THE WALK THRU. THE BUILDING SHALL BE COMPLETE AND ALL SYSTEMS OPERATIONAL AT THE TIME OF THE WALK THRU. IF THE ARCHITECT IS REQUIRED TO MAKE ADDITIONAL VISITS DUE TO NON-COMPLIANCE, THEY WILL BE CHARGED TO THE REQUESTING CONTRACTOR.

01 52 00 CONSTRUCTION FACILITIES

A. THE CONTRACTOR SHALL FURNISH TEMPORARY OFFICE, TOILET FACILITIES, WORKING TELEPHONE, ELECTRICITY, HEAT, WATER AND FIRE EXTINGUISHERS AS REQUIRED FOR COMPLETION OF THE WORK UNLESS THE OWNER HAS AGREED IN WRITING TO FURNISH OR WAIVE ANY OF THE ABOVE ITEMS.

01 53 00 TEMPORARY CONSTRUCTION

A. THE CONTRACTOR SHALL FURNISH TEMPORARY BRACING OF ALL BUILDING ELEMENTS DURING CONSTRUCTION. TEMPORARY BRACING SYSTEMS SHALL BE DESIGNED TO WITHSTAND CODE DESIGN LOADS. CONTRACTOR SHALL RETAIN SERVICES OF A PROFESSIONAL ENGINEER TO DESIGN AND SUPERVISE BRACING INSTALLATION IF THEY DO NOT HAVE THE EXPERTISE REQUIRED.

01 71 00 FIELD ENGINEERING

A. THE CONTRACTOR SHALL PROVIDE ALL LAYOUT AS REQUIRED, COMPETENT ON SITE SUPERVISION, AND BROOM CLEANING OF CONSTRUCTION SITE INCLUDING DUMPSTERS FOR REFUSE DISPOSAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY ON SITE AND PROTECTION OF SITE PER LOCAL, STATE AND FEDERAL REQUIREMENTS.

01 78 00 CLOSEOUT SUBMITTALS

A. THE CONTRACTOR SHALL FURNISH "AS-BUILT" DRAWINGS REFLECTING ALL CHANGES DURING CONSTRUCTION. PROVIDE TWO (2) COPIES OF OPERATING AND MAINTENANCE MANUALS TO OWNER FOR ALL FURNISHED EQUIPMENT.

01 78 36 WARRANTIES

A. THE CONTRACTOR SHALL GUARANTEE ALL WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION OF THE PROJECT. FURNISH MANUFACTURER'S WRITTEN WARRANTIES FOR SPECIFIED EQUIPMENT STATING EFFECTIVE WARRANTY DATE.

DIVISION 02 EXISTING CONDITIONS

02 41 19 SELECTIVE DEMOLITION

A. CONDUCT DEMOLITION AND DEBRIS REMOVAL OPERATIONS TO INSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED AND USED FACILITIES.
B. IT IS UNKNOWN WHETHER HAZARDOUS MATERIALS WILL BE ENCOUNTERED, DO NOT DISTURB, IMMEDIATELY NOTIFY ARCHITECT AND OWNER.
C. DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS SHOWN ON THE DEMOLITION PLANS. USE METHODS REQUIRED TO COMPLETE THE WORK WITHIN LIMITATIONS OF GOVERNING REGULATIONS.
D. EXCEPT FOR ITEMS OR MATERIALS INDICATED TO BE REUSED, SALVAGED, REINSTALLED OR TO REMAIN OWNER'S PROPERTY, REMOVE DEMOLISHED MATERIALS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM IN AN EPA APPROVED LANDFILL.

DIVISION 03 CONCRETE

03 30 00 CAST-IN-PLACE CONCRETE

A. SEE STRUCTURAL SPECIFICATIONS.

03 60 00 GROUT

A. SEE STRUCTURAL PLANS.

DIVISION 04 MASONRY

04 20 00 UNIT MASONRY

A. SEE STRUCTURAL SPECIFICATIONS.

DIVISION 05 METALS

05 12 00 STRUCTURAL STEEL FRAMING

A. SEE STRUCTURAL SPECIFICATIONS.

05 21 00 STEEL JOIST FRAMING

A. SEE STRUCTURAL SPECIFICATIONS.

05 31 00 STEEL DECKING

A. SEE STRUCTURAL SPECIFICATIONS.

05 40 00 LIGHT GAUGE LOAD-BEARING AND EXTERIOR WALL FRAMING

A. SEE STRUCTURAL SPECIFICATIONS.

DIVISION 06 WOOD, PLASTICS AND COMPOSITES

06 10 00 ROUGH CARPENTRY

A. SEE STRUCTURAL SPECIFICATIONS.

06 16 00 SHEATHING

A. WOOD
1. PARAPET VERTICAL: MINIMUM 7/16” PLYWOOD DOC PS-1 OR 2, EXPOSURE 1 MINIMUM CLASSIFICATION.
2. ROOF SHEATHING: PROVIDE H-CLIPS AT JOINTS CENTERED BETWEEN JOISTS/TRUSSES.
3. COORDINATE SHEATHING INSTALLATION SO SHEATHING IS NOT DIRECTLY EXPOSED TO PRECIPITATION OR PROVIDE SHEATHING WARRANTED FOR THE EXPOSURE.
4. EXPOSED INTERIOR WALL SHEATHING SHALL BE MINIMUM CDX GRADE.
5. PROVIDE FIRE TREATED SHEATHING WHERE SPECIFIED ON PLANS.
6. SEE STRUCTURAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
B. GLASS MAT SHEATHING
1. INSTALL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.
2. NONCOMBUSTIBLE AS TESTED IN ACCORDANCE WITH ASTM E136.
3. MANUFACTURED TO MEET ASTM C1177.
4. MOLD RESISTANCE PER ASTM D3273 OF 10.
5. FLAME SPREAD AND SMOKE DEVELOP RATING OF 0/0 WHEN TESTED IN ACCORDANCE WITH ASTM E84.
6. WALL
a. PRODUCT: DENSGLASS GOLD EXTERIOR SHEATHING.
b. TREATED, WATER-RESISTANT GYPSUM CORE SURFACED WITH FIBERGLASS MATS AND A PRIMER COATING.
c. MIN. 1/2” THICK. MINIMUM SPAN RATING EQUAL TO SUPPORT SPACING.
d. 1.9 LBS/SF, >23 PERMS, 0.56 R VALUE.
7. ROOF
a. VERTICAL
i. PRODUCT: DENSDECK PRIME ROOF BOARD.
j. FIBERGLASS MATS MECHANICALLY BONDED TO FRONT AND BACK OF HIGH DENSITY GYPSUM CORE WITH FACE MAT ENHANCEMENTS TO ALLOW UNIFORM ADHESIVE SPREADING.
900 PSI COMPRESSIVE STRENGTH.
iv. 2.0 LBS/SF, >35 PERMS, 0.56 R VALUE FOR 1/2” THICK.
UL 790 CLASSIFIED FOR USE AS A FIRE BARRIER OVER COMBUSTIBLE AND NONCOMBUSTIBLE DECKS.
vi. UL 1256 CLASSIFIED FOR INTERNAL (UNDER DECK) FIRE EXPOSURE.
vii. FM CLASS 1 FIRE RATING.
viii. MINIMUM SPAN RATING EQUAL TO SUPPORT SPACING.
b. HORIZONTAL
i. PRODUCT: DENSDECK ROOF BOARD.
j. FIRE BARRIER, THERMAL BARRIER, COVERBOARD AND RECOVERY BOARD.
FIBERGLASS MATS MECHANICALLY BONDED TO FRONT AND BACK OF HIGH DENSITY GYPSUM CORE.
iv. 900 PSI COMPRESSIVE STRENGTH.
v. 2.0 LBS/SF, >35 PERMS, 0.56 R VALUE FOR 1/2” THICK.
vi. UL 790 CLASSIFIED FOR USE AS A FIRE BARRIER OVER COMBUSTIBLE AND NONCOMBUSTIBLE DECKS.
vii. UL 1256 CLASSIFIED FOR INTERNAL (UNDER DECK) FIRE EXPOSURE.
viii. FM CLASS 1 FIRE RATING.
ix. MINIMUM SPAN RATING EQUAL TO FLUTE SPACING.

06 20 13 EXTERIOR FINISH CARPENTRY

A. INSTALL EXTERIOR FINISH CARPENTRY LEVEL, PLUMB, TRUE, AND ALIGNED WITH ADJACENT MATERIALS.
B. SCRIBE AND CUT EXTERIOR FINISH CARPENTRY TO FIT ADJOINING WORK. REFINISH AND SEAL CUTS AS RECOMMENDED BY MANUFACTURER.
C. INSTALL TRIM WITH MINIMUM NUMBER OF JOINTS PRACTICAL, USING FULL LENGTH PIECES FROM MAXIMUM LENGTHS OF LUMBER AVAILABLE.
D. INSTALL EXTERIOR FINISH CARPENTRY TO COMPLY WITH MANUFACTURERS WRITTEN INSTRUCTIONS.
E. SEE PLANS FOR SIDING, TRIM/FACIA, SOFFIT, ETC MATERIAL TYPE AND LOCATION.

06 20 23 INTERIOR FINISH CARPENTRY

A. PREMIUM GRADE S4S HARDWOOD LUMBER, CLEAR, KILN DRIED SELECTED FOR COMPATIBLE GRAIN AND COLOR.
B. BEFORE INSTALLING INTERIOR FINISH CARPENTRY, CONDITION MATERIALS TO AVERAGE PREVAILING HUMIDITY IN INSTALLATION AREAS FOR A MINIMUM OF 24 HOURS.
C. INSTALL INTERIOR FINISH CARPENTRY LEVEL, PLUMB, TRUE, AND ALIGNED WITH ADJACENT MATERIALS.
D. INSTALL TRIM WITH MINIMUM NUMBER OF JOINTS PRACTICAL, USING FULL LENGTH PIECES FROM MAXIMUM LENGTHS OF LUMBER AVAILABLE. COPE AT RETURNS, MITER AT OUTSIDE CORNERS AND COPE AT INSIDE CORNERS TO PRODUCE TIGHT FITTING JOINTS. USE SCARF JOINTS FOR END TO END JOINTS.
E. IN STEEL STUD CONSTRUCTION, ATTACH WITH FINISH SCREWS - PREDRILL AND COUNTERSINK FASTENERS, FILL SURFACE FLUSH WITH FINISH COMPATIBLE FILLER AND SAND SMOOTH - PROVIDE SAMPLE TO OWNER/ INTERIOR DESIGNER.
F. SEE PLANS FOR INTERIOR TRIM AND CARPENTRY MATERIAL TYPE AND LOCATION.
G. SEE MATERIAL LEGEND FOR WOOD FINISH.

06 40 23 INTERIOR ARCHITECTURAL WOODWORK

A. BEFORE INSTALLATION, CONDITION WOODWORK TO AVERAGE PREVAILING HUMIDITY CONDITIONS IN INSTALLATION AREAS. EXAMINE SHOP-FABRICATED WORK FOR COMPLETION AND COMPLETE WORK AS REQUIRED.
B. INSTALL WOODWORK TO COMPLY WITH REQUIREMENTS FOR THE SAME GRADE SPECIFIED ON THE PLANS FOR FABRICATION OF TYPE OF WOODWORK INVOLVED.
C. INSTALL WOODWORK LEVEL, PLUMB, TRUE, AND STRAIGHT TO A TOLERANCE OF 1/8 INCH IN 96 INCHES. SHIM AS REQUIRED WITH CONCEALED SHIMS.
D. SCRIBE AND CUT WOODWORK TO FIT ADJOINING WORK, REFINISH CUT SURFACES AND REPAIR DAMAGED FINISH AT CUTS.
E. INSTALL CABINETS WITHOUT DISTORTION SO DOORS AND DRAWERS FIT OPENINGS PROPERLY AND ARE ACCURATELY ALIGNED. ADJUST HARDWARE TO CENTER DOORS AND DRAWERS IN OPENINGS AND TO PROVIDE UNENCUMBERED OPERATION.
F. ANCHOR COUNTERTOPS SECURELY THROUGH SUPPORTS INTO UNDERSIDE OF COUNTERTOP. CAULK SPACE BETWEEN BACKSPLASH AND WALL WITH SEALANT.
G. SEE PLAN FOR CABINETS, COUNTERTOPS, WINDOW SILLS, ETC., MATERIAL TYPE AND LOCATION.

DIVISION 07 THERMAL AND MOISTURE PROTECTION

07 14 16 WATERPROOFING

A. ALL WATERPROOFING MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL AND STATE CODES.
B. SUBMIT THE FOLLOWING ITEMS.
1. PRODUCT DATA: MANUFACTURER'S TECHNICAL BULLETINS.
C. FOLLOW MANUFACTURER'S INSTRUCTIONS ON PRODUCT STORAGE AND HANDLING.
D. STORE MOISTURE SENSITIVE MATERIALS IN WEATHER PROTECTED ENCLOSURES.
E. PROVIDE A COMPLETE WATERPROOFING SYSTEM USING A ONE-COMPONENT, MOISTURE-CURING, BITUMEN MODIFIED POLYURETHANE, ELASTOMERIC WATERPROOFING MEMBRANE FOR EXTERIOR BELOW GRADE APPLICATIONS.
1. ACCEPTABLE PRODUCT: HLM 5000 S BY BASF BUILDING SYSTEMS.
F. INSTALL WATERPROOFING MEMBRANE IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND AS SHOWN ON PLANS.
1. ON VERTICAL APPLICATIONS, SPRAY APPLY AT A RATE OF 25 SQUARE FEET PER GALLON.
2. VERIFY APPLIED THICKNESS WITH MIL GAUGE AS WORK PROGRESSES.
G. ALL SURROUNDING AREAS, WHERE THE WATERPROOFING MEMBRANE HAS BEEN INSTALLED, SHALL BE LEFT FREE OF DEBRIS AND FOREIGN SUBSTANCES RESULTING FROM THE WORK.
H. PROTECT WATERPROOFING MEMBRANE DURING BACKFILL WITH FOUNDATION DRAINAGE PANELS. PROVIDE THE INSULATION BOARD IN THE THICKNESS AS SHOWN ON THE PLANS.
I. PROTECT FINISHED WORK FROM DAMAGE DURING REMAINDER OF CONSTRUCTION PERIOD.

07 27 26 AIR AND MOISTURE BARRIER

A. ALL AIR AND MOISTURE BARRIER MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL AND STATE CODES.
B. SUBMIT THE FOLLOWING ITEMS:
1. PRODUCT DATA: MANUFACTURER'S TECHNICAL BULLETINS.
C. FOLLOW MANUFACTURER'S INSTRUCTIONS ON PRODUCT STORAGE AND HANDLING.
D. CONDUCT ON-SITE PREINSTALLATION CONFERENCE WITH MANUFACTURER'S REPRESENTATIVE.
E. STORE MOISTURE SENSITIVE MATERIALS IN WEATHER PROTECTED ENCLOSURES.
F. INSTALL AIR AND MOISTURE BARRIER IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND AS SHOWN ON PLANS.
G. PROVIDE INSTALLATION INSPECTION COMPLETED BY MANUFACTURER CERTIFIED REPRESENTATIVE. PROVIDE INSPECTION REPORT TO ARCHITECT.
H. SHEET APPLIED.
1. MANUFACTURER: DUPONT
2. COMMERCIAL BUILDING WRAP TO BE TYVEK COMMERCIAL WRAP D.
I. FLUID APPLIED
1. PROVIDE A COMPLETE AIR AND MOISTURE BARRIER SYSTEM USING A FLUID APPLIED THREE-PART SYSTEM. THE SYSTEM CONSISTS OF ADHESIVE MESH TAPE AND LIQUID FILL AND SPRAY WRAP.
2. ACCEPTABLE PRODUCT: PROSOCO R-GUARD MVP.
3. APPLY R-GUARD TAPE OVER SHEATHING JOINTS AND SEAMS. FOLD AND APPLY R-GUARD TAPE TO ROUGH OPENINGS, INSIDE AND OUTSIDE CORNERS. USE A SEAM ROLLER OR OTHER BLUNT TOOL TO FIRMLY ADHERE TAPE TO SHEATHING.
4. UNIFORMLY COVER TAPE AND ABOUT 4 INCHES OF SHEATHING ON EITHER SIDE OF THE TAPE WITH R-GUARD FILL USING A TROWEL OR TEXTURE SPRAYER. TROWEL SMOOTH. SPOT FILL FASTENERS AND SURFACE DEFECTS WITH R-GUARD FILL. LET DRY.
5. SPRAY OR ROLLER APPLY R-GUARD SPRAY WRAP TO THE ENTIRE SURFACE-INCLUDING AREAS COVERED BY R-GUARD TAPE AND R-GUARD FILL TO A UNIFORM WET MIL THICKNESS (10 MILS). LET DRY. ON MASONRY CONSTRUCTION, WHEN SPRAY APPLYING, BACKROLL TO CLOSE PINHOLES AND ENSURE EVEN COVERAGE. APPLY NUMBER OF COATS AS REQUIRED BY MANUFACTURER'S SPECIFICATIONS.
J. SHEATHING
1. PROVIDE A COMPLETE AIR AND MOISTURE BARRIER SHEATHING SYSTEM.
a. ACCEPTABLE PRODUCT: ZIP SYSTEM WALL SHEATHING W/INTEGRAL AIR AND MOISTURE BARRIER.
2. ORIENTED STRAND BOARD WOOD STRUCTURAL PANELS WITH BUILT-IN PROTECTIVE OVERLAYS TO MEET GRADE D WRB MOISTURE BARRIER AND 0.037 L/(S-M2) AIR BARRIER.
3. MINIMUM 7/16” THICK.
4. MINIMUM SPAN RATING EQUAL TO SUPPORT SPACING.
5. DOC PS-2, EXPOSURE 1.
6. APPLY BUTYL RUBBER SELF-SEALING, SELF-HEALING, FULLY ADHERED ZIP TAPE OVER SHEATHING JOINTS AND SEAMS, AROUND PENETRATIONS, GAPS, AND INTO OPENINGS.
7. FOLD AND APPLY ZIP TAPE TO ROUGH OPENINGS, INSIDE AND OUTSIDE CORNERS.
8. USE A SEAM ROLLER OR OTHER BLUNT TOOL TO FIRMLY ADHERE TAPE TO SHEATHING, OR SPRAY APPLY ZIP SYSTEM LIQUID FLASH.
K. ALL SURROUNDING AREAS, WHERE THE AIR AND MOISTURE BARRIER HAS BEEN INSTALLED, SHALL BE LEFT FREE OF DEBRIS AND FOREIGN SUBSTANCES RESULTING FROM THE WORK.
L. PROTECT FINISHED WORK FROM DAMAGE DURING REMAINDER OF CONSTRUCTION PERIOD.

07 84 13 PENETRATION FIRESTOPPING

A. PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. HILTI, INC.
2. JOHNS MANVILLE
3. 3M FIRE PROTECTION PRODUCTS
4. TREMCO, INC. - TREMCO FIRE PROTECTION SYSTEMS GROUP
5. USG CORPORATION
6. RECTORSEAL — METACAULK FIRESTOPPING PRODUCTS
B. PROVIDE PENETRATION FIRESTOPPING THAT IS PRODUCED AND INSTALLED TO RESIST SPREAD OF FIRE ACCORDING TO INDICATED REQUIREMENTS, RESIST PASSAGE OF SMOKE AND OTHER GASES AND MAINTAIN ORIGINAL FIRE-RESISTANCE RATING OF CONSTRUCTION PENETRATED. PENETRATION FIRESTOPPING SYSTEMS SHALL BE COMPATIBLE WITH ONE ANOTHER, WITH THE SUBSTRATES FORMING OPENINGS, AND WITH ANY PENETRATING ITEMS.
C. PENETRATIONS IN FIRE-RESISTANCE-RATED WALLS:
1. RATINGS DETERMINED PER ASTM E 814 OR UL 1479.
2. F-RATING NOT LESS THAN THE FIRE-RESISTANCE RATING OF CONSTRUCTIONS PENETRATED.
D. PENETRATIONS IN HORIZONTAL ASSEMBLIES:
1. RATINGS DETERMINED PER ASTM E 814 OR UL 1479.
2. F-RATING AT LEAST 1 HOUR, BUT NOT LESS THAN THE FIRE-RESISTANCE RATING OF CONSTRUCTIONS PENETRATED.
3. T-RATING AT LEAST 1 HOUR, BUT NOT LESS THAN THE FIRE-RESISTANCE RATING OF CONSTRUCTIONS PENETRATED EXCEPT FOR FLOOR PENETRATIONS WITHIN THE CAVITY OF A WALL.
E. PENETRATIONS IN SMOKE BARRIERS:
1. PROVIDE PENETRATION FIRESTOPPING WITH RATINGS DETERMINED PER UL 1479.
2. L-RATING NOT EXCEEDING 5.0 CFM/SF OF PENETRATION OPENING AT BOTH AMBIENT AND ELEVATED TEMPERATURES.
F. EXPOSED PENETRATION FIRESTOPPING: PROVIDE PRODUCTS WITH FLAME-SPREAD AND SMOKE-DEVELOPED INDEXES OF LESS THAN 25 AND 450, RESPECTIVELY, AS DETERMINED PER ASTM E 84.
G. ACCESSORIES: PROVIDE COMPONENTS FOR EACH PENETRATION FIRESTOPPING SYSTEM THAT ARE NEEDED TO INSTALL FILL MATERIALS AND TO MAINTAIN REQUIRED RATINGS. USE ONLY THOSE COMPONENTS SPECIFIED BY PENETRATION FIRE STOPPING MANUFACTURER AND APPROVED BY QUALIFIED TESTING AND INSPECTING AGENCY FOR FIRESTOPPING INDICATED.
H. EXAMINE SUBSTRATES AND CONDITIONS FOR COMPLIANCE WITH REQUIREMENTS FOR OPENING CONFIGURATIONS, PENETRATING ITEMS, SUBSTRATES, AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK.
I. SUBMIT FIRE STOPPING SUBMITTAL PACKAGE WITH DETAILS OF ALL PENETRATIONS AND FIRESTOPPING TO BE USED ON THE PROJECT TO AHJ 30 DAYS PRIOR TO INSTALLATION.
J. INSTALL PENETRATION FIRE STOPPING TO COMPLY WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS AND PUBLISHED DRAWINGS FOR PRODUCTS AND INDICATED APPLICATIONS.
K. INSTALL FORMING MATERIALS AND OTHER ACCESSORIES OF TYPES REQUIRED TO SUPPORT FILL MATERIALS DURING THEIR APPLICATION AND IN THE POSITION NEEDED TO PRODUCE CROSS-SECTIONAL SHAPES AND DEPTHS REQUIRED TO ACHIEVE FIRE RATINGS INDICATED.
1. AFTER INSTALLING FILL MATERIALS AND ALLOWING THEM TO FULLY CURE, REMOVE COMBUSTIBLE FORMING MATERIALS AND OTHER ACCESSORIES NOT INDICATED AS PERMANENT COMPONENTS OF FIRESTOPPING.
L. INSTALL FILL MATERIALS FOR FIRESTOPPING BY PROVEN TECHNIQUES TO PRODUCE THE FOLLOWING RESULTS:
1. FILL VOIDS AND CAVITIES FORMED BY OPENINGS, FORMING MATERIALS, ACCESSORIES, AND PENETRATING ITEMS AS REQUIRED TO ACHIEVE FIRE-RESISTANCE RATINGS INDICATED.
2. APPLY MATERIALS SO THEY CONTACT AND ADHERE TO SUBSTRATES FORMED BY OPENINGS AND PENETRATING ITEMS.
3. FINISH FILL MATERIALS THAT WILL REMAIN EXPOSED AFTER COMPLETING THE WORK TO PRODUCE SMOOTH, UNIFORM SURFACES THAT ARE FLUSH WITH ADJOINING FINISHES.
M. IDENTIFY PENETRATION FIRESTOPPING WITH PREPRINTED METAL OR PLASTIC LABELS. ATTACH LABELS PERMANENTLY TO SURFACES ADJACENT TO AND WITHIN 6 INCHES OF FIRESTOPPING EDGE SO LABELS WILL BE VISIBLE TO ANYONE SEEKING TO REMOVE PENETRATING ITEMS OR FIRESTOPPING. USE MECHANICAL FASTENERS OR SELF-ADHERING TYPE LABELS WITH ADHESIVES CAPABLE OF PERMANENTLY BONDING LABELS TO SURFACES ON WHICH LABELS ARE PLACED. INCLUDE THE FOLLOWING INFORMATION ON LABELS:
1. THE WORDS "WARNING - PENETRATION FIRESTOPPING - DO NOT DISTURB. NOTIFY BUILDING MANAGEMENT OF ANY DAMAGE”
2. CONTRACTOR'S NAME, ADDRESS, AND PHONE NUMBER
3. DESIGNATION OF APPLICABLE TESTING AND INSPECTING AGENCY
4. DATE OF INSTALLATION
5. MANUFACTURER'S NAME
6. INSTALLER'S NAME
N. PROVIDE OWNER WITH DETAILS OF ALL INSTALLATIONS AND PRODUCTS USED. AT PROJECT CLOSEOUT.

07 84 46 - FIRE-RESISTIVE JOINT SYSTEMS

A. WHERE REQUIRED, PROVIDE FIRE-RESISTIVE JOINT SYSTEMS THAT ARE PRODUCED AND INSTALLED TO RESIST SPREAD OF FIRE ACCORDING TO REQUIREMENTS INDICATED, RESIST PASSAGE OF SMOKE AND OTHER GASES, AND MAINTAIN ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLIES IN OR BETWEEN WHICH FIRE-RESISTIVE JOINT SYSTEMS ARE INSTALLED. FIRE-RESISTIVE JOINT SYSTEMS SHALL ACCOMMODATE BUILDING MOVEMENTS WITHOUT IMPAIRING THEIR ABILITY TO RESIST THE PASSAGE OF FIRE AND HOT GASES.
B. PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. HILTI, INC.
2. JOHNS MANVILLE
3. 3M FIRE PROTECTION PRODUCTS
4. THERMAFIBER, INC.
5. TREMCO, INC. - TREMCO FIRE PROTECTION SYSTEM GROUP
6. USG CORPORATION
7. RECTORSEAL — METACAULK FIRESTOPPING PRODUCTS
C. JOINTS IN OR BETWEEN FIRE-RESISTANCE-RATED CONSTRUCTION:
1. RATINGS DETERMINED PER ASTM E 1966 OR UL 2079.
2. FIRE-RESISTANCE RATING EQUAL TO OR EXCEEDING THE FIRE-RESISTANCE RATING OF CONSTRUCTION THEY WILL JOIN.
D. JOINTS AT EXTERIOR CURTAIN-WALL/FLOOR INTERSECTIONS:
1. RATING DETERMINED BY ASTM E 119 OR ASTM E 2307.
2. FIRE-RESISTANCE RATING EQUAL TO OR EXCEEDING THE FIRE-RESISTANCE RATING OF THE FLOOR ASSEMBLY.
E. JOINTS IN SMOKE BARRIERS:
1. RATINGS DETERMINED PER UL 2079.
2. L-RATING NOT EXCEEDING 5.0 CFM/FT OF JOINT AT BOTH AMBIENT AND ELEVATED TEMPERATURES.
F. EXPOSED FIRE-RESISTIVE JOINT SYSTEMS: PROVIDE PRODUCTS WITH FLAME-SPREAD AND SMOKE-DEVELOPED INDEXES OF LESS THAN 25 AND 450, RESPECTIVELY, AS DETERMINED PER ASTM E 84.
G. ACCESSORIES: PROVIDE COMPONENTS OF FIRE-RESISTIVE JOINT SYSTEMS, INCLUDING PRIMERS AND FORMING MATERIALS, THAT ARE NEEDED TO INSTALL FILL MATERIALS AND TO MAINTAIN REQUIRED RATINGS. USE ONLY COMPONENTS SPECIFIED BY FIRE-RESISTIVE JOINT SYSTEM MANUFACTURER AND APPROVED BY THE QUALIFIED TESTING AGENCY FOR SYSTEMS INDICATED.
H. EXAMINE SUBSTRATES AND CONDITIONS FOR COMPLIANCE WITH REQUIREMENTS FOR JOINT CONFIGURATIONS, SUBSTRATES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK.
I. INSTALL FIRE-RESISTIVE JOINT SYSTEMS TO COMPLY WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS AND PUBLISHED DRAWINGS FOR PRODUCTS AND APPLICATIONS.
J. INSTALL FORMING MATERIALS AND OTHER ACCESSORIES OF TYPES REQUIRED TO SUPPORT FILL MATERIALS DURING THEIR APPLICATION AND IN POSITION NEEDED TO PRODUCE CROSS-SECTIONAL SHAPES AND DEPTHS REQUIRED TO ACHIEVE INDICATED FIRE RATINGS.
1. AFTER INSTALLING FILL MATERIALS AND ALLOWING THEM TO FULLY CURE, REMOVE COMBUSTIBLE FORMING MATERIALS AND OTHER ACCESSORIES NOT INDICATED AS PERMANENT COMPONENTS OF FIRE-RESISTIVE JOINT SYSTEM.
K. INSTALL FILL MATERIALS FOR FIRE-RESISTIVE JOINT SYSTEMS BY PROVEN TECHNIQUES TO PRODUCE THE FOLLOWING RESULTS:
1. FILL VOIDS AND CAVITIES FORMED BY JOINTS AND FORMING MATERIALS AS REQUIRED TO ACHIEVE INDICATED FIRE RESISTANCE RATINGS.

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. ● OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE NOV. 23, 2021
REVISIONS

JOB NUMBER
2172060

SHEET NUMBER
A0.1

ARCHITECTURAL SPECIFICATIONS

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ARCHITECTURAL SPECIFICATIONS (CONT)

2. APPLY FILL MATERIALS SO THEY CONTACT AND ADHERE TO SUBSTRATES FORMED BY JOINTS.
3. FINISH FILL MATERIALS THAT WILL REMAIN EXPOSED AFTER COMPLETING THE WORK TO PRODUCE SMOOTH, UNIFORM SURFACES THAT ARE FLUSH WITH ADJOINING FINISHES.

L. IDENTIFY FIRE-RESISTIVE JOINT SYSTEMS WITH PREPRINTED METAL OR PLASTIC LABELS. ATTACH LABELS PERMANENTLY TO SURFACES ADJACENT TO AND WITHIN 6 INCHES OF JOINT EDGE SO LABELS WILL BE VISIBLE TO ANYONE SEEKING TO REMOVE OR PENETRATE JOINT SYSTEM. USE MECHANICAL FASTENERS OR SELF-ADHERING TYPE LABELS WITH ADHESIVES CAPABLE OF PERMANENTLY BONDING LABELS TO SURFACES ON WHICH LABELS ARE PLACED. INCLUDE THE FOLLOWING INFORMATION ON LABELS:
1. THE WORDS "WARNING - FIRE-RESISTIVE JOINT SYSTEM - DO NOT DISTURB. NOTIFY BUILDING MANAGEMENT OF ANY DAMAGE"
2. CONTRACTOR'S NAME, ADDRESS AND PHONE NUMBER
3. DESIGNATION OF APPLICABLE TESTING AGENCY
4. DATE OF INSTALLATION
5. MANUFACTURER'S NAME
6. INSTALLER'S NAME

07 92 00 SEALANTS

A. GENERAL:
1. IT IS THE INTENTION OF THIS SPECIFICATION THAT ALL JOINTS ARE TO RECEIVE SEALANT.
2. APPLY SEALANT IN ALL INDICATED LOCATIONS ACCORDING TO THE MANUFACTURER'S WRITTEN INSTRUCTIONS, INCLUDING BUT NOT LIMITED TO; JOINT WIDTH, SURFACE PREPARATION, PRIMERS, APPLICATION TEMPERATURE AND MATERIAL STORAGE.
3. APPLY SEALANT AFTER FINISH OPERATIONS ARE COMPLETE.
4. PROVIDE APPROPRIATE SIZED BACKER RODS AND BOND BREAK AT ALL JOINTS UNLESS OTHERWISE NOTED IN THE MANUFACTURER'S INSTRUCTIONS.

B. SEE SCHEDULE ON PLANS.

DIVISION 08 OPENINGS

08 11 13 HOLLOW METAL DOORS AND FRAMES

A. HOLLOW METAL FRAMES: COMPLY WITH ANSI/SDI A250.11.
1. SET FRAMES ACCURATELY IN POSITION, PLUMBED, ALIGNED, AND BRACED SECURELY UNTIL PERMANENT ANCHORS ARE SET. AFTER WALL CONSTRUCTION IS COMPLETE, REMOVE TEMPORARY BRACES, LEAVING SURFACES SMOOTH AND UNDAMAGED.
2. AT FIRE-PROTECTION-RATED OPENINGS, INSTALL FRAMES ACCORDING TO NFPA 80.

B. HOLLOW METAL DOORS: FIT HOLLOW METAL DOORS ACCURATELY IN FRAMES, WITHIN CLEARANCES. SHIM AS NECESSARY TO ACHIEVE CLEARANCES INDICATED.
1. FIRE-RATED DOORS: INSTALL DOORS WITH CLEARANCES ACCORDING TO NFPA 80.
2. SMOKE-CONTROL DOORS: INSTALL DOORS ACCORDING TO NFPA 105.

C. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION. FURNISH AND INSTALL ALL DOORS AND FRAMES AS INDICATED ON THE PLANS.

08 39 23 IMPACT TRAFFIC DOORS

A. INSTALL IMPACT TRAFFIC DOORS COMPLETE WITH NECESSARY SUPPORT FRAME, HARDWARE, ANCHORS, BUMPERS, INSERTS, HANGERS, AND EQUIPMENT SUPPORTS; ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND AS DRAWN AND SPECIFIED.

B. ADJUST HARDWARE AND MOVING PARTS TO FUNCTION SMOOTHLY SO THAT DOORS OPERATE EASILY, FREE OF WARP, TWIST, OR DISTORTION. LUBRICATE BEARINGS AND SLIDING PARTS AS RECOMMENDED BY MANUFACTURER.

C. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION. FURNISH AND INSTALL ALL DOORS AS INDICATED ON THE PLANS.

08 71 00 HARDWARE

A. REQUIREMENTS:
1. ALL LOCKSETS SHALL BE LEVER TYPE AS REQUIRED TO MEET REQUIREMENTS OF A.D.A.
2. ALL OTHER HARDWARE SHALL CONFORM TO THE REQUIREMENTS OF A.D.A.
3. ALL EXIT DOORS SHALL BE EQUIPPED WITH LEVER TYPE OR PANIC TYPE EXIT HARDWARE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A LATCH, KEY OR BOLT.
4. CONTRACTOR TO COORDINATE KEYING SCHEDULE WITH OWNER.

B. MOUNTING HEIGHTS: MOUNT DOOR HARDWARE UNITS AT HEIGHTS REQUIRED TO COMPLY WITH GOVERNING REGULATIONS.

C. INSTALL EACH DOOR HARDWARE ITEM TO COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

D. THRESHOLDS: SET THRESHOLDS FOR EXTERIOR AND ACOUSTICAL DOORS IN FULL BED OF SEALANT.

E. ADJUSTMENT: ADJUST AND CHECK EACH OPERATING ITEM OF DOOR HARDWARE AND EACH DOOR TO ENSURE PROPER OPERATION OR FUNCTION OF EVERY UNIT. REPLACE UNITS THAT CANNOT BE ADJUSTED TO OPERATE AS INTENDED. ADJUST DOOR CONTROL DEVICES TO COMPENSATE FOR FINAL OPERATION OF HEATING AND VENTILATING EQUIPMENT AND TO COMPLY WITH REFERENCED ACCESSIBILITY REQUIREMENTS.

F. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION. FURNISH AND INSTALL ALL HARDWARE AS INDICATED ON THE PLAN.

08 80 00 GLAZING

A. COMPLY WITH COMBINED WRITTEN INSTRUCTIONS OF MANUFACTURERS OF GLASS, SEALANTS, GASKETS, AND OTHER GLAZING MATERIALS, UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED, INCLUDING THOSE IN REFERENCED GLAZING PUBLICATIONS.

B. PROTECT GLASS EDGES FROM DAMAGE DURING HANDLING AND INSTALLATION. REMOVE DAMAGED GLASS FROM PROJECT SITE AND LEGALLY DISPOSE OF OFF PROJECT SITE. DAMAGED GLASS IS GLASS WITH EDGE DAMAGE OR OTHER IMPERFECTIONS THAT, WHEN INSTALLED, COULD WEAKEN GLASS AND IMPAIR PERFORMANCE AND APPEARANCE.

C. PROVIDE SAFETY GLASS IN ALL GLAZING AS LISTED BELOW UNLESS NOTED OTHERWISE:
1. WHERE REQUIRED BY FEDERAL, STATE AND LOCAL CODES.

D. SAFETY GLASS REQUIREMENTS:
1. SAFETY GLASS SHALL BE, BUT NOT LIMITED TO
   a. TEMPERED GLASS
   b. LAMINATED GLASS
   c. SAFETY PLASTIC
   d. SAFETY INSULATING UNITS WHICH MEET THE TEST REQUIREMENTS OF ANSI Z97.1, AND WHICH ARE CONSTRUCTED, TREATED, OR COMBINED WITH OTHER MATERIALS SO AS TO MINIMIZE THE LIKELIHOOD OF CUTTING AND PIERCING INJURIES RESULTING FROM HUMAN IMPACT WITH THE GLAZING MATERIAL.
2. ALL SAFETY GLAZING MATERIAL SHALL BE LABELED PER LOCAL, STATE, AND FEDERAL REQUIREMENTS.

E. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION. FURNISH AND INSTALL THE GLAZING AS INDICATED ON THE PLAN.

DIVISION 09 FINISHES

09 01 00 FINISHES

A. REQUIREMENTS:
1. PROVIDE AND INSTALL ALL FINISHES AS INDICATED ON PLANS.
2. INSTALL ALL MATERIALS PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
3. "FINISH" INSTALLER INSPECT SUBSURFACE AND PREPARE AS PER MANUFACTURER'S SPECIFICATIONS PRIOR TO INSTALLATION OF PRODUCT.
4. ALL FINISHES TO MEET ALL CODE REQUIREMENTS AND REGULATIONS INCLUDING FLAME SPREAD AND SMOKE DEVELOPMENT.

B. EXTRA MATERIAL:
1. PROVIDE NEW, EXTRA MATERIAL OF EACH FINISH TYPE AND COLOR TO BE TURNED OVER TO OWNER AT JOB COMPLETION FOR THE FOLLOWING ITEMS:
   a. PAINT: PROVIDE 1 GALLON FOR FIELD COLORS AND 1 QUART FOR ACCENT COLORS APPLIED.
   b. RESILIENT TILE FLOORING: PROVIDE 1 BOX FOR EVERY 50 BOXES OR FRACTION THEREOF INSTALLED. FURNISH MINIMUM 10 LINEAR FEET FOR EACH 500 LINEAR FEET OR FRACTION THEREOF OF EACH TYPE OF RESLIENT ACCESSORY SUPPLIED.
   c. ACOUSTICAL CEILING TILE: PROVIDE FULL-SIZE UNITS EQUAL TO 2% OF QUANTITY INSTALLED, BUT NOT LESS THAN 1 BOX OF EACH TYPE OF CEILING TILE SUPPLIED.
   d. WOOD FLOORING: PROVIDE FULL-SIZE UNITS EQUAL TO 3% OF QUANTITY INSTALLED, BUT NOT LESS THAN 50 S.F.
   e. LAMINATE FLOORING: PROVIDE FULL-SIZE UNITS EQUAL TO 3% OF QUANTITY INSTALLED, BUT NOT LESS THAN 50 S.F.
   f. RESILIENT SHEET FLOORING: PROVIDE NOT LESS THAN 10 LINEAR FEET FOR EACH 500 LINEAR FEET OR FRACTION THEREOF INSTALLED.
   g. WALL COVERING MATERIAL: PROVIDE FULL-SIZE UNITS EQUAL TO 5 PERCENT INSTALLED.
   h. TILE CARPET: PROVIDE FULL-SIZE UNITS EQUAL TO 5 PERCENT OF THE AMOUNT INSTALLED, BUT NOT LESS THAN 10 SQ. YD.
   i. SHEET CARPET: PROVIDE FULL-WIDTH ROLLS EQUAL TO 5 PERCENT OF THE AMOUNT INSTALLED, BUT NOT LESS THAN 10 SQ. YD.
   j. CERAMIC, QUARRY AND PORCELAIN TILE: PROVIDE FULL-SIZE UNITS EQUAL TO 3% OF QUANTITY INSTALLED, BUT NOT LESS THAN 50 S.F.

09 22 16 DRYWALL STUDS (INTERIOR NON-BEARING)

A. REQUIREMENTS:
1. STUDS SHALL BE SECURED TO TOP AND BOTTOM TRACK WITH (1) #8ML SCREW IN EACH FLANGE (UNLESS A SLIP TRACK IS REQUIRED AT THE TOP OF THE WALL).
2. PROVIDE SLIP TRACK AT TOP OF FULL HEIGHT PARTITIONS.
3. STUDS SHALL BE INSTALLED PER "GYPSUM CONSTRUCTION HANDBOOK" AS PUBLISHED BY UNITED STATES GYPSUM COMPANY LATEST EDITION.
4. DRYWALL STUDS SHALL BE ACCORDING TO THE LIST BELOW OR AS INDICATED ON THE PLANS (THESE HEIGHTS ARE BASED ON THE STUDS HAVING (1) LAYER OF DRYWALL EACH FACE).
5. STUD SIZE — GAUGE — LIMITING HEIGHT WITH STUD SPACING
   a. 3 5/8" — 25 GA. — 13'-6" AT 16" O.C. — 11'-9" AT 24" O.C.
   b. 3 5/8" — 22 GA. — 15'-3" AT 16" O.C. — 13'-4" AT 24" O.C.
   c. 3 5/8" — 20 GA. — 15'-11" AT 16" O.C. — 13'-11" AT 24" O.C.
   d. 6" — 25 GA. — 20'-0" AT 16" O.C. — 17'-6" AT 24" O.C.
   e. 6" — 22 GA. — 22'-9" AT 16" O.C. — 19'-11" AT 24" O.C.
   f. 6" — 20 GA. — 23'-9" AT 16" O.C. — 20'-9" AT 24" O.C.

09 29 00 GYPSUM BOARD (GYP)

A. DRYWALL SHALL BE INSTALLED PER THE LATEST EDITIONS OF "RECOMMENDED SPECIFICATIONS FOR THE APPLICATION AND FINISHING OF GYPSUM BOARD" GA-216 AS PUBLISHED BY THE GYPSUM ASSOCIATION AND THE "GYPSUM CONSTRUCTION HANDBOOK" AS PUBLISHED BY UNITED STATES GYPSUM COMPANY.
1. PROVIDE CONTROL JOINTS PER THESE REQUIREMENTS.

B. COMPLY WITH ASTM C36 OR ASTM C 1396 AS APPLICABLE TO THE TYPE OF GYPSUM BOARD INDICATED.

C. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURES OFFERING PRODUCTS THAT MAY BE INCORPORATED INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
1. AMERICAN GYPSUM CO.
2. BPB AMERICAN INC.
3. G-P GYPSUM
4. LAFARGE NORTH AMERICA INC.
5. NATIONAL GYPSUM COMPANY
6. USG CORPORATION

D. AT ALL TOILET ROOMS, LOCKERS ROOMS, COOLER/FREEZER ROOMS, UNDER FRP PANELS OR OTHER DAMP/WET LOCATIONS PROVIDE:
1. GOLD BOND XP GYPSUM BOARD BY NATIONAL GYPSUM OR EQUAL.

E. UNDER CERAMIC AND PORCELAIN TILE IN TOILET ROOMS, LOCKER ROOMS OR OTHER DAMP/WET LOCATIONS PROVIDE:
1. FIBEROCK AQUA-TOUGH TILE BACKER BOARD BY USG CORPORATION OR EQUAL.

F. UNDER CERAMIC AND PORCELAIN TILE IN SHOWERS, TUBS, KITCHEN WASH DOWN AREAS OR OTHER HIGH-MOISTURE AREAS PROVIDE:
1. DUROCK CEMENT BOARD BY USG CORPORATION OR EQUAL

G. DRYWALL FINISHES SHALL BE INSTALLED PER THE LATEST EDITION OF "RECOMMENDED LEVELS OF GYPSUM BOARD FINISH" GA-214 AS PUBLISHED BY THE AWCI, PAINTING AND DECORATING CONTRACTORS OF AMERICA, GYPSUM ASSOCIATION AND CISCA.

H. LEVELS OF FINISH:
1. SEE PLANS FOR FINISH LOCATIONS.
2. LEVEL 0 — NO TAPING, FINISHING OR ACCESSORIES REQUIRED.
3. LEVEL 1 — JOINTS AND INTERIOR ANGLES HAVE TAPE SET IN JOINT COMPOUND; SURFACE IS FREE OF EXCESS JOINT COMPOUND; TOOL MARKS AND RIDGES ARE ACCEPTABLE; TAPE AND FASTENERS ARE NOT COVERED WITH JOINT COMPOUND.
4. LEVEL 2 — JOINTS AND INTERIOR ANGLES HAVE TAPE EMBEDDED IN JOINT COMPOUND AND HAVE A THIN COAT OF JOINT COMPOUND OVER JOINTS AND INTERIOR ANGLES; FASTENER HEADS AND ACCESSORIES ARE COVERED WITH JOINT COMPOUND; SURFACE IS FREE OF EXCESS JOINT COMPOUND; TOOL MARKS AND RIDGES ARE ACCEPTABLE.
5. LEVEL 3 — JOINTS AND INTERIOR ANGLES HAVE TAPE EMBEDDED IN JOINT COMPOUND AND ONE ADDITIONAL COAT OF JOINT COMPOUND OVER ALL JOINTS AND INTERIOR ANGLES; FASTENER HEADS AND ACCESSORIES COVERED WITH TWO (2) COATS OF JOINT COMPOUND; NO TOOL MARKS OR RIDGES.
6. LEVEL 4 — JOINTS AND INTERIOR ANGLES HAVE TAPE EMBEDDED IN JOINT COMPOUND AND TWO SEPARATE COATS OF JOINT COMPOUND APPLIED OVER ALL FLAT JOINTS AND ONE SEPARATE COAT APPLIED OVER INTERIOR ANGLES; FASTENER HEADS AND ACCESSORIES ARE COVERED WITH THREE (3) SEPARATE COATS OF JOINT COMPOUND; NO TOOL MARKS OR RIDGES.
7. LEVEL 5 — IN ADDITION TO REQUIREMENTS OF LEVEL 4, A THIN SKIM COAT OF JOINT COMPOUND OR EQUAL SHALL BE APPLIED TO THE ENTIRE SURFACE: NO TOOL MARKS OR RIDGES ON THIS SURFACE.

09 30 00 PORCELAIN TILE (PT) (PWT) / CERAMIC TILE (CT) (CWT) / QUARRY TILE (QT) / GLASS TILE (GWT)

A. COMPLY WITH TCNA "HANDBOOK FOR CERAMIC TILE INSTALLATION" FOR TCNA INSTALLATION METHODS SPECIFIED IN TILE INSTALLATION SCHEDULES.

B. LOCATE JOINTS IN TILE SURFACE DIRECTLY ABOVE JOINTS IN CONCRETE SUBSTRATES. BRIDGE CRACKS OR JOINTS IN CONCRETE SLABS WITH 'NOBLESEAL CIS' COMPOSITE SHEET MEMBRANE. INSTALL JOINT BRIDGING MATERIAL PER MFR SPECS AND DETAILS.

C. PROVIDE MANUFACTURER'S STANDARD TILE AS SPECIFIED COMPLYING WITH STANDARD GRADE REQUIREMENTS OF ANSI A137.1 STATIC COEFFICIENT OF FRICTION TO BE 0.60 MIN AND A DYNAMIC COEFFICIENT OF FRICTION OF 0.42 MIN.

D. PROVIDE COLORED CEMENTITIOUS GROUT AT ALL INTERIOR TILE SURFACES -COLOR TO BE SELECTED BY ARCHITECT/OWNER.

E. EXTEND TILE WORK INTO RECESSES AND UNDER OR BEHIND EQUIPMENT AND FIXTURES TO FORM COMPLETE COVERING WITHOUT INTERRUPTIONS UNLESS OTHERWISE INDICATED. TERMINATE WORK NEATLY AT OBSTRUCTIONS, EDGES AND CORNERS WITHOUT DISRUPTING PATTERN OR JOINT ALIGNMENTS.

F. ACCURATELY FORM INTERSECTIONS AND RETURNS. PERFORM CUTTING AND DRILLING OF TILE WITHOUT MARRING VISIBLE SURFACES. CAREFULLY GRIND CUT EDGES OF TILE ABUTTING TRIM, FINISH OR BUILT-IN ITEMS FOR STRAIGHT ALIGNED JOINTS. FIT TILE CLOSELY TO ELECTRICAL OUTLETS, PIPING, FIXTURES AND OTHER PENETRATIONS SO PLATES, COLLARS OR COVERS OVERLAP TILE.

G. JOINTING PATTERN: LAY TILE IN GRID PATTERN UNLESS OTHERWISE INDICATED. LAY OUT TILE WORK AND CENTER TILE FIELDS IN BOTH DIRECTIONS IN EACH SPACE OR ON EACH WALL AREA. LAY OUT TILE WORK TO MINIMIZE THE USE OF PIECES THAT ARE LESS THAN HALF OF A TILE. PROVIDE UNIFORM JOINT WIDTHS UNLESS OTHERWISE INDICATED. TILE BASE TO LINE UP WITH FLOOR TILE JOINTS.

H. METAL EDGE STRIPS: INSTALL WHERE EXPOSED EDGE OF TILE FLOORING MEETS CARPET, WOOD OR OTHER FLOORING THAT FINISHES FLUSH WITH OR BELOW TOP OF TILE AND NO THRESHOLD IS INDICATED.SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION.

09 51 13 ACOUSTICAL CEILINGS (ACT/ VCGB)

A. PANELS
1. PROVIDE MANUFACTURER'S STANDARD CEILING TILE AS SCHEDULED COMPLYING WITH ASTM 1264 CLASSIFICATIONS.
2. INSTALL PANELS WITH UNDAMAGED EDGES AND FIT ACCURATELY INTO SUSPENSION SYSTEM RUNNERS AND EDGE MOLDINGS. SCRIBE AND CUT PANELS AT BORDERS AND PENETRATIONS TO PROVIDE A NEAT, PRECISE FIT.
3. PROVIDE HOLD-DOWN CLIPS AT ENTRY VESTIBULE(S) AND FOR FIRST 12' OF CORRIDOR(S) IN FRONT OF EACH EXTERIOR DOOR.
4. PROVIDE APPROVED FIRE RATED GRID SYSTEM FOR FIRE RATED CEILINGS.
5. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION.

B. GRID
1. COMPLY WITH ASTM C636 (STANDARD PRACTICE FOR INSTALLATION OF METAL CEILING SUSPENSION SYSTEMS FOR ACOUSTICAL TILE AND LAY-IN PANELS), ASTM C635 (STANDARD SPECIFICATION FOR THE MANUFACTURE, PERFORMANCE AND TESTING OF METAL SUSPENSION SYSTEMS FOR ACOUSTICAL TILE AND LAY-IN PANEL CEILINGS) AND SEISMIC DESIGN REQUIREMENTS INDICATED, PER MANUFACTURER'S WRITTEN INSTRUCTIONS AND CISCA'S "CEILING SYSTEMS HANDBOOK".
2. SUSPEND CEILING HANGERS FROM BUILDING'S STRUCTURAL MEMBERS, PLUMB AND FREE FROM CONTACT WITH INSULATION OR OTHER OBJECTS WITHIN CEILING PLENUM. SPLAY HANGERS ONLY WHERE REQUIRED AND, IF PERMITTED WITH FIRE-RESISTANCE-RATED CEILINGS, TO MISS OBSTRUCTIONS, OFFSET RESULTING HORIZONTAL FORCES BY BRACING, COUNTER SPLAYING, OR OTHER EQUALLY EFFECTIVE MEANS. WHERE WIDTH OF DUCTS AND OTHER CONSTRUCTION WITHIN CEILING PLENUM PRODUCES HANGER SPACING THAT INTERFERE WITH LOCATION OF HANGERS, USE TRAPEZES OR EQUIVALENT DEVICES. WHEN STEEL FRAMING DOES NOT PERMIT INSTALLATION OF HANGER WIRES AT SPACING REQUIRED, INSTALL CARRYING CHANNELS OR OTHER SUPPLEMENTAL SUPPORT FOR ATTACHMENT OF HANGER WIRES.
3. WIRE HANGERS TO BE ZINC-COATED CARBON STEEL WIRE COMPLYING WITH ASTM A641 STANDARDS, SIZED TO WITHSTAND 5X THE HANGER DESIGN LOAD BUT NOT LESS THAN 0.106" IN DIAMETER.
4. INSTALL EDGE MOLDINGS AND TRIM AT PERIMETER OF ACOUSTICAL CEILING AREA AND WHERE NECESSARY TO CONCEAL EDGES OF ACOUSTICAL PANELS. SCREW ATTACH MOLDINGS TO SUBSTRATE, LEVELING WITH CEILING SUSPENSION SYSTEM. MITER CORNERS ACCURATELY AND CONNECT SECURELY.
5. INSTALL SUSPENSION SYSTEM RUNNERS SO THEY ARE SQUARE AND SECURELY INTERLOCKED WITH ONE ANOTHER. REMOVE AND REPLACE DENTED, BENT, OR KINKED MEMBERS. SUSPENSION SYSTEM AS REQUIRED FOR THE SPECIFIED TILE-INTERMEDIATE DUTY CLASSIFICATION.
6. PROVIDE CORROSION RESISTANT GRID IN SHOWER AND EXTREME ENVIRONMENT AREAS.

09 66 31 RESINOUS FLOORING — EPOXY (EPX)

A. 1/4" EPOXY FLOORING.

B. PREPARE CONCRETE FLOOR BY MECHANICAL MEANS BY USE OF SCABBLER, SCARIFIER OR SHOT BLASTING. KEY CHASE ALL EDGES WHICH DO NOT ABUT A VERTICAL SURFACE (I.E. DOOR THRESHHOLDS AND DRAINS).

C. HEAT WORK AREA TO 65 TO 90 DEG F FOR A MINIMUM 3 DAYS PRIOR TO AND 2 DAYS AFTER INSTALLATION.

D. PERFORM A MOISTURE TEST ON THE CONCRETE SLAB TO CONFIRM CONDITIONS MEET MFR'S REQUIREMENTS PRIOR TO INSTALLING THE FLOOR.

E. INSTALL TWO COMPONENT EPOXY PRIMER, THREE COMPONENT MORTAR CONSISTING OF EPOXY RESIN, CURING AGENTS AND GRADED AGGREGATES AND A TWO COMPOINENT 100% SOLIDS GENERAL SURFACE EPOXY COATING WITH TEXTURE AS SELECTED BY OWNER.

F. CUT IN EXPANSION AND CONTROL JOINTS IN EPOXY AT SAME LOCATION AS CONCRETE FLOOR JOINTS. FILL WITH FLEXIBLE POLYURETHANE SEALANT.

G. SUBMIT COLOR AND TEXTURE SAMPLES AND MANUFACTURER'S TECHNICAL DATA FOR APPROVAL (MATCH EXISTING FINISH AND COLOR). OBTAIN ALL MATERIALS FROM A SINGLE MANUFACTURER WITH NOT LESS THAN 10 YEARS OF EXPERIENCE. THE CONTRACTOR SHALL HAVE COMPLETED AT LEAST 5 PROJECTS OF SIMILAR SIZE IN PRIOR 2 YEARS.

H. FURNISH A NON-PRORATED WARRANTY COVERING MATERIALS AND WORKMANSHIP FOR A 2 YEAR PERIOD FROM DATE OF INSTALLATION.

I. EPOXY BASE (EPX)
1. MATCH PREPARATION, MATERIALS, AND CONSTRUCTION OF FLOOR SYSTEM.

09 91 00 PAINTING

A. FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND SCAFFOLDING REQUIRED FOR COMPLETING SURFACE PREPARATION, PAINTING, FINISHING AND RELATED ITEMS.

B. SEAL TOPS, BOTTOMS AND CUTOUTS OF UNPRIMED WOOD DOORS WITH A HEAVY COAT OF SEALER IMMEDIATELY UPON DELIVERY TO THE PROJECT.

C. PREPARATION
2. REMOVE AND/OR PROTECT ALL HARDWARE, HARDWARE ACCESSORIES, MACHINED SURFACES, PLATES, LIGHTING FIXTURES, SPRINKLER HEADS AND SIMILAR ITEMS THAT ARE NOT TO BE PAINTED, BUT REQUIRE PROTECTION FROM THE PAINTING PROCESS. RE-INSTALL SAME AFTER COMPLETION OF PAINTING. MASK OFF ALL NAMEPLATES, EQUIPMENT IDENTIFICATION AND SIMILAR ITEMS. REMOVAL AND REINSTALL OF ITEMS IS TO BE DONE BY CONTRACTOR SKILLED IN SUCH WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PREPARATION OF ALL SURFACES PRIOR TO THE PAINTING INSTALLATION.
4. REVIEW CLEANING SOLVENTS AND PROTOCOLS WITH COATING MANUFACTURER TO DETERMINE TEMPERATURE AND CHEMICAL RESISTANCE.
5. MILD STEEL
   a. PREPARE TO SSPC SP-10 NEAR WHITE METAL BLAST CLEANING.
   b. APPLY PRIMER WITHIN 8 HOURS OF PREPARATION.
   c. PREPARE ALL FIELD WELDED LOCATIONS PER THE REQUIREMENTS SET FORTH IN THIS SECTION.
   d. VERIFY FINISH COAT COLORS WITH OWNER.
6. GALVANIZED METAL
   a. CLEAN PER SSPC-SP1 USING DETERGENT AND WATER OR A DEGREASING CLEANER TO REMOVE GREASES AND OILS.
   b. APPLY A TEST AREA, PRIMING AS REQUIRED. ALLOW THE COATING TO DRY AT LEAST ONE WEEK BEFORE TESTING.
   c. IF ADHESION IS POOR, BRUSH BLAST PER SSPC-SP16 IS NECESSARY TO REMOVE THESE TREATMENTS.
7. CONCRETE BLOCK (CMU)
   a. PREPARE ALL CMU SURFACES PER COATING MANUFACTURER'S RECOMMENDATIONS RELATED TO CLEANLINESS, DRYNESS AND SURFACE PROFILE.
   b. FILL ALL CMU SURFACES TO REMOVE VOIDS AND PROVIDE A SURFACE PROFILE CONSISTENT WITH REQUIREMENTS FOR INTERMEDIATE AND/OR FINISH COATING APPLICATIONS.
   c. VERIFY FINISH COAT COLORS WITH OWNER.
8. PRECAST CONCRETE
   a. PREPARE PRECAST SURFACES PER SSPC SP-13
   b. IF REQUIRED BY THE COATING MANUFACTURER, ACHIEVE THE APPROPRIATE CONCRETE SURFACE PROFILE (CSP) AS DEFINED BY ICRI GUIDELINES 310.2R-2013.

D. CONTRACTOR TO VERIFY THAT PAINT IS COMPATIBLE WITH PRIMER OF SHOP PRIMED SURFACES. NOTIFY EXCEL ENGINEERING IF THERE ARE ANY COMPATIBILITY ISSUES.

E. ALL PAINT COLORS, STAIN COLORS, AND VARNISH TO BE SELECTED BY ARCHITECT/OWNER FROM A FULL RANGE OF AVAILABLE COLORS UNLESS NOTED OTHERWISE.

F. THE FINISH PRODUCT SHALL HAVE A CONSISTENT, SMOOTH APPEARANCE OF THE SPECIFIED LUSTER.

G. APPLY PAINT PER MANUFACTURER'S TEMPERATURE AND HUMIDITY REQUIREMENTS.

H. COMPLETED WORK SHALL BE FREE FROM DEFECTS AND FLAWS.

I. THE CONTRACTOR SHALL KEEP EMPTY CONTAINERS ON THE PROJECT SITE UNTIL ALL PRODUCTS ARE VERIFIED AS TO COLOR AND/OR SHEEN. THE CONTRACTOR SHALL LEAVE WITH THE OWNER ALL OPENED PAINT CONTAINERS.

J. DISPOSE OF EXCESS MATERIALS, CONTAINERS AND OTHER ITEMS NECESSARY FOR THE COMPLETION OF THE WORK IN A MANNER THAT MEETS OR EXCEEDS THE STRICTEST LAWS GOVERNING THE PROJECT'S MUNICIPALITY AND/OR STATE. THE PAINTING CONTRACTOR IS RESPONSIBLE FOR COMPLETE ADHERENCE TO ALL DISPOSAL REGULATIONS.

K. COATING MAINTENANCE MANUAL
1. UPON CONCLUSION OF THE PROJECT, THE CONTRACTOR OR PAINT MANUFACTURER/SUPPLIER SHALL FURNISH A COATING MAINTENANCE MANUAL, SUCH AS SHERWIN WILLIAMS "CUSTODIAN PROJECT COLOR AND PRODUCT INFORMATION" REPORT OR EQUAL. MANUAL SHALL INCLUDE AN AREA SUMMARY WITH FINISH SCHEDULE, AREA DETAIL DESIGNATING WHERE EACH PRODUCT/COLOR/FINISH WAS USED, PRODUCT DATA PAGES, MATERIAL SAFETY DATA SHEETS, CARE AND CLEANING INSTRUCTIONS, TOUCH-UP PROCEDURES, AND COLOR SAMPLES OF EACH COLOR AND FINISH USED.

L. EXPOSED MECHANICAL PIPING SYSTEM SHALL BE PAINTED PER APPROPRIATE METAL TYPE SPECIFICATION AND AS FOLLOWS:
2. GAS PIPING — YELLOW
3. FIRE PROTECTION — RED

M. PAINT ALL EXPOSED MISCELLANEOUS ITEMS, FINISHED OR UNFINISHED (INCLUDING H.V.A.C. RETURN AIR GRILLES, CONDUIT, ETC.) TO MATCH ADJOINING WALL SURFACES.

N. PAINT CEILING ACCESS PANELS TO MATCH ADJACENT CEILING FINISH.

O. ALL EXPOSED EXTERIOR & INTERIOR METAL SURFACES SHALL BE PAINTED, U.N.O.

P. ALL EXPOSED MISCELLANEOUS ITEM IN FOOD PROCESS ROOMS SHALL REMAIN UNPAINTED UNLESS NOTED OTHERWISE. PROTECT ALL SUCH SYSTEM DURING THE PAINTING PROCESSES WITHIN THE ROOMS.

Q. EXTERIOR ITEMS:
1. FERROUS METAL:
   a. ACRYLIC - MISCELLANEOUS IRON, HANDRAILS, HOLLOW METAL DOORS AND FRAMES, ROOF STRUCTURE, EXPOSED ROOF PIPING, ETC.:
      i. ALKYD SHOP PRIMER ON METAL (REFER TO DIVISION 5) OR 1 COAT S-W KEM BOND HS UNIVERSAL METAL PRIMER B50 SERIES
      j. 2 COATS S-W PRO INDUSTRIAL ACRYLIC SEMI GLOSS, B66-650 @ 2.5-4.0 MILS DFT/COAT.
   b. EPOXY URETHANE
      i. 1 COAT (REFER TO DIVISION 5): S-W MACROPOXY 646 FAST CURE EPOXY, B65-600 SERIES @ 5.0 MILS DFT
      j. 2 COATS S-W WATERBASED ACROLON 100, B65-720 @ 2. 0 MILS DFT/COAT.
2. GALVANIZED, ALUMINUM, ZINC-COATED AND NON FERROUS METALS:
   a. ACRYLIC
      i. 1 COAT S-W PRO INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER (refer to Division 5), B66-1310 SERIES, @ 2.0-4.0 MILS DFT.
      j. 2 COATS S-W PRO INDUSTRIAL ACRYLIC SEMI GLOSS, B66-650 @ 2.5-4.0 MILS DFT/COAT.
   b. EPOXY URETHANE:
      i. 1 COAT (REFER TO DIVISION 5): S-W MACROPOXY 646 FAST CURE EPOXY, B65-600 SERIES @ 5.0 MILS DFT
      j. 2 COATS S-W WATERBASED ACROLON 100, B65-720 @ 2. 0 MILS DFT/COAT.
3. CONCRETE (CEMENTITIOUS SIDING, STUCCO, PRECAST, AND POURED IN PLACE CONCRETE):
   a. ACRYLIC WATER BASED SYSTEM — NON WATER PENETRATION RESISTANT
      i. 1 COAT S-W LOXON CONCRETE MASONRY PRIMER LX02 @ 2.0-3.5 MILS DFT.
      j. 2 COAT S-W A-100 EXTERIOR LATEX SATIN A82 SERIES @ 1.5-2.0 MILS DFT/COAT.
   b. HIGH BUILD WATER BASED SYSTEM — WATER PENETRATION RESISTANT (DESCRIBE TYPICAL LOCATION)
      i. 1 COAT S-W LOXON CONCRETE MASONRY PRIMER LX02 @ 2.0-3.5 MILS DFT.
      j. 2 COAT S-W LOXON XP, LX11 SERIES @ 6.5-8.4 MILS DFT/COAT.
   c. ACRYLIC SELF CLEANING SYSTEM — SHEDS DIRT WHEN CONTACTED BY WATER (DESCRIBE TYPICAL LOCATION)
      i. 1 COAT S-W LOXON CONCRETE MASONRY PRIMER LX02 @ 2.0-3.5 MILS DFT.
      j. 2 COAT S-W LOXON SELF CLEANING ACRYLIC LX13 SERIES @ 2.1-2.9 MILS DFT/COAT.
   d. SOLID WATERBORNE STAIN FINISH
      i. 1 COAT S-W LOXON VERTICAL CONCRETE STAIN, LX31 SERIES.
      j. 2 COAT S-W LOXON VERTICAL CONCRETE STAIN, LX31 SERIES.
4. CONCRETE (CONCRETE MASONRY UNITS, CINDER or CONCRETE BLOCK):
   a. ACRYLIC WATER BASED SYSTEM — NON WATER PENETRATION RESISTANT
      i. 1 COAT S-W LOXON ACRYLIC BLOCK SURFACER, LX01 SERIES (50-100 sf/gal).
      j. 2 COAT S-W A-100 EXTERIOR LATEX SATIN A82 SERIES @ 1.5-2.0 MILS DFT/COAT.
   b. HIGH BUILD WATER BASED SYSTEM — WATER PENETRATION RESISTANT
      i. 1 COAT S-W LOXON ACRYLIC BLOCK SURFACER, L01 SERIES (50-100 sf/gal).
      j. 2 COAT S-W LOXON XP, LX11 SERIES @ 6.5-8.4 MILS DFT/COAT.
   c. ACRYLIC SELF CLEANING SYSTEM — SHEDS DIRT WHEN CONTACTED BY WATER
      i. 1 COAT S-W LOXON ACRYLIC BLOCK SURFACER, L01 SERIES (50-100 sf/gal).
      j. 2 COAT S-W LOXON SELF CLEANING ACRYLIC LX13 SERIES @ 2.1-2.9 MILS DFT/COAT.
   d. SOLID WATERBORNE STAIN FINISH
      i. 1 COAT S-W LOXON VERTICAL CONCRETE STAIN, LX31 SERIES.
      j. 2 COAT S-W LOXON VERTICAL CONCRETE STAIN, LX31 SERIES.

R. INTERIOR ITEMS:
1. GYPSUM DRYWALL (PA):
   a. ACRYLIC EG-SHEL
      i. 1 COAT S-W PROMAR 200 ZERO VOC INTERIOR LATEX PRIMER B28W2600 @ 1.0 MILS DFT.
      j. 2 COATS S-W PROMAR 200 ZERO VOC INTERIOR LATEX EG-SHEL B20-2600 @ 1.7 MILS DFT/COAT.
   b. ACRYLIC FLAT
      i. 1 COAT S-W PROMAR 200 ZERO VOC INTERIOR LATEX PRIMER B28W2600 @ 1.2-1.5 MILS DFT.
      j. 2 COATS S-W PROMAR 200 ZERO VOC INTERIOR LATEX FLAT B30-2600 @ 1.4 MILS DFT/COAT.
   c. ACRYLIC SEMI-GLOSS
      i. 1 COAT S-W PROMAR 200 ZERO VOC INTERIOR LATEX PRIMER B28W2600 @ 1.2-1.5 MILS DFT.
      j. 2 COATS S-W PROMAR 200 ZERO VOC INTERIOR LATEX SEMI-GLOSS B31-2600 @ 1.5 MILS DFT/COAT.
2. WOOD:
   a. STAINED:
      i. 1 COAT S-W MINWAX PERFORMANCE SERIES TINTABLE WOOD STAIN 250.
      j. 2 COAT S-W MINWAX WATERBASED OIL MODIFIED POLYURETHANE: SATIN/SEMI-GLOSS/GLOSS.
   b. PAINTED ACRYLIC SEMI-GLOSS
      i. 1 COAT S-W PREMIUM WALL AND WOOD PRIMER B28W8111 @ 1.8-2.1 MILS DFT.
      j. 2 COATS S-W PRO INDUSTRIAL ACRYLIC SEMI GLOSS B66-660 @ 2.5-4.0 MILS DFT/COAT.
3. FERROUS METAL
   a. DOORS, FRAMES, HANDRAILS, MISC. METALS, ETC., (PRIMER, BRUSH/ROLLER)
      i. ACRYLIC: STANDARD:
         (A). 1 COAT S-W PRO INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER B66-1310 @ 2.0-4.0 MILS DFT.
         (B). 2 COATS S-W PRO INDUSTRIAL ACRYLIC SEMI GLOSS B-66-650 @ 2.5 — 4 MILS DFT/COAT.
      ii. ALKYD (WATERBASED URETHANE MODIFIED ALKYD): HIGH TRAFFIC AREA:
         (A). 1 COAT S-W PRO INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER B66-1310 @ 2.0-4.0 MILS DFT.
         (B). 2 COATS S-W PRO INDUSTRIAL WATER BASED ALKYD URETHANE ENAMEL SEMI GLOSS B53-1150 @ 1.4 — 1.7 MILS DFT/COAT.
   b. EXPOSED STRUCTURAL STEEL AND EXPOSED MECHANICAL/ELECTRICAL ITEMS (PRIMER, SPRAYED):
      i. ACRYLIC (NON CORROSIVE, NON MOISTURE) NORMAL EXPOSURE (PA):
         (A). CONFIRM COMPATIBILITY WITH SHOP APPLIED PRIMERS.
         (B). SPOT PRIME AS NEEDED: S-W PRO INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER b66-1310 @ 2.0-4.0 MILS DFT.
         (C). 2 COATS S-W PRO INDUSTRIAL WATERBORNE ACRYLIC DRY FALL, EG-SHEL, B42-82 @ 2.0-3.0 MILS DFT.
            (1). CONTRACTOR SHALL MAINTAIN A DAILY LOG OF TEMPERATURE AND RELATIVE HUMIDITY.
            (2). AMBIENT TEMPERATURE AND SUBSTRATE TEMPERATURE SHALL BE 50 DEGREES F TO 110 DEGREES F.
            (3). RELATIVE HUMIDITY SHALL NOT EXCEED 75%.
      ii. ALKYD (NON CORROSIVE, NON- MOISTURE) (PA):
         (A). CONFIRM COMPATIBILITY WITH SHOP APPLIED PRIMERS.
         (B). SPOT PRIME AS NEEDED: S-W KEM BOND HS UNIVERSAL METAL PRIMER B50 SERIES @ 2.0-5.0 MILS DFT.
         (C). FINISH COAT S-W SUPER SAVE-LITE HI-TEC DRY FALL, EG-SHEL B48 SERIES @ 3.0-3.5 MILS DFT.
4. GALVANIZED INTERIOR CEILING DECKING (PA):
   a. ACRYLIC (NON CORROSIVE, NON MOISTURE) (SPRAYED):
      i. 2 COATS S-W PRO INDUSTRIAL WATERBORNE DRY FALL, EG-SHEL, B42-82 @ 2.0-3.0 MILS DFT.
5. ALUMINUM, ZINC-COATED AND NON FERROUS METALS:
   a. ACRYLIC
      i. 1 COAT S-W PRO INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER B66-1310 @ 2.0 — 4.0 MILS DFT.
      j. 2 COATS S-W PRO INDUSTRIAL SEMI GLOSS B66-650 @ 2.5-4.0 MILS DFT/COAT.
6. CONCRETE MASONRY UNITS (PA):
   a. ACRYLIC FLAT
      i. 1 COAT S-W PREPRITE BLOCK FILLER B25W25- WHITE.
      j. 2 COATS S-W PROMAR 200 ZERO VOC INTERIOR LATEX FLAT B30-2600 @ 1.4 MILS DFT/COAT.
   b. ACRYLIC SEMI-GLOSS
      i. 1 COAT S-W PREPRITE BLOCK FILLER B25W25- WHITE.
      j. 2 COATS S-W PROMAR 200 ZERO VOC INTERIOR LATEX SEMI-GLOSS B31-2600 @ 1.5 MILS DFT/COAT.

09 96 00 FIBERGLASS REINFORCED EPOXY COATING SYSTEM (FRP)

A. SURFACE PREPARATION
1. CMU
   a. ALLOW MORTAR JOINTS TO CURE FOR 14 DAYS. LEVEL PROTRUSIONS AND MORTAR SPATTER.
2. PRECAST CONCRETE
   a. BEFORE APPLYING COATING, CONCRETE MUST BE AT LEAST 14 DAYS OLD AND SHALL PASS A DRYNESS TEST IN ACCORDANCE WITH ASTM D 4263 TEST METHOD FOR INDICATING MOISTURE BY THE PLASTIC SHEET METHOD.
   b. MECHANICALLY ABRADE SURFACE IN ACCORDANCE WITH SSPC-SP13 SURFACE PREPARATION OF CONCRETE TO REMOVE LAITANCE, CURING COMPOUNDS, HARDENERS, SEALERS AND OTHER CONTAMINANTS AND TO PROVIDE SURFACE PROFILE.
   c. FILL LARGE VOIDS, BUGHOLES AND OTHER CAVITIES WITH RECOMMENDED FILLER OR SURFACER. SURFACE MUST BE CLEAN, DRY AND FREE OF OIL, GREASE AND OTHER CONTAMINANTS. SUBSTRATE AND AMBIENT TEMPERATURE SHALL BE 55 -90 DEG F.

B. COATING
1. EPOXY FILLER: TNEMEC SERIES 130 ENVIROFIL AT 75-90 SFPG FOR CMU, 100-150 SFPG FOR CONCRETE
2. BUGHOLE/VOID FILLER: TNEMEC SERIES 215 SURFACING EPOXY AS NEEDED TO FILL BUGHOLES AND VOIDS.
3. PRIMER: TNEMEC SERIES 201 EPOXOPRIME AT 200-250 SFPG (6-8 MILS DFT)
4. STRANLOK: 2 COATS OF TNEMEC SERIES 270 WHITE STRANLOK AT 80-100 SFPG/COAT (15-20 MILS DFT PER COAT FOR A TOTAL THICKNESS OF 30-40 MILS). APPLY 2 COATS OF STRANLOK WITH THE 2ND COAT APPLIED 2-6 HOURS AFTER 1ST COAT.
5. TOPCOAST: TNEMEC SERIES 290-00WH WHITE CRU AT 350 SFPG (3 MILS DFT) -OR- TNEMEC SERIES 297-00WH WHITE ENVIRO-GLAZE AT 300 SFPG (3 MILS DFT) (WATERBORNE ALIPHATIC POLYURETHANE — LOW-ODOR OPTION).
6. TOTAL THICKNESS: 40-50 MILS NOT INCLUDING FILLER COATS.

DIVISION 10 SPECIALTIES

10 14 00 SIGNAGE

A. REQUIREMENTS:
1. CONTRACTOR TO FURNISH AND INSTALL SIGNAGE PER LOCAL, STATE, AND FEDERAL CODES AND PER ADDITIONAL DETAILS ON PLANS.
2. COORDINATE STYLE AND COLOR WITH OWNER UNLESS SPECIFICALLY INDICATED ON PLANS.
3. ALL SIGNAGE SHALL MEET THE REQUIREMENTS OF THE A.D.A. AND ANSI.
4. WHERE PERMANENT IDENTIFICATION IS PROVIDED FOR ROOMS AND SPACES, SIGNS SHALL BE INSTALLED ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. WHERE THERE IS NO WALL SPACE TO THE LATCH SIDE OF THE DOOR, INCLUDING AT DOUBLE LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL.
5. MOUNTING HEIGHT SHALL BE 60" ABOVE FINISH FLOOR TO THE CENTERLINE OF THE SIGN UNLESS INDICATED OTHERWISE.
6. PROVIDE HANDICAP PARKING SIGNS AS INDICATED ON PLANS AND AS REQUIRED BY LOCAL, STATE, AND FEDERAL CODES.

10 44 00 FIRE EXTINGUISHERS

A. REQUIREMENTS
1. FURNISH AND INSTALL EXTINGUISHERS PER LOCAL, STATE, AND FEDERAL CODES, AND N.F.P.A. NO.10-1978.
2. MOUNT FIRE EXTINGUISHER NOT HIGHER THAN 48" ABOVE FINISH FLOOR UNLESS LOCAL REGULATIONS REQUIRE DIFFERENT HEIGHT.
3. ALL FIRE EXTINGUISHERS AND CABINETS TO MEET THE REQUIREMENTS OF THE A.D.A. AND ANSI A117.1.

DIVISION 22 PLUMBING

22 05 00 PLUMBING WORK

A. SEE PLUMBING PLANS FOR SPECIFICATIONS

DIVISION 23 HEATING AND VENTILATING AND AIR CONDITIONING

23 05 00 HEATING AND VENTILATION WORK

A. SEE HVAC PLANS FOR SPECIFICATIONS.

DIVISION 26 ELECTRICAL

26 05 00 ELECTRICAL WORK

SEE ELECTRICAL PLANS FOR SPECIFICATIONS.

ARCHITECTURAL SPECIFICATIONS

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE NOV. 23, 2021
REVISIONS

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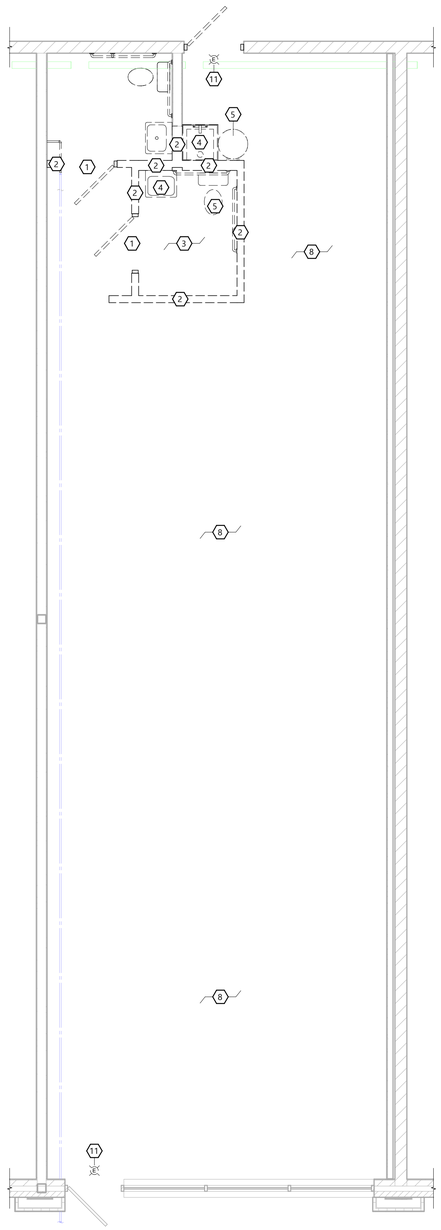
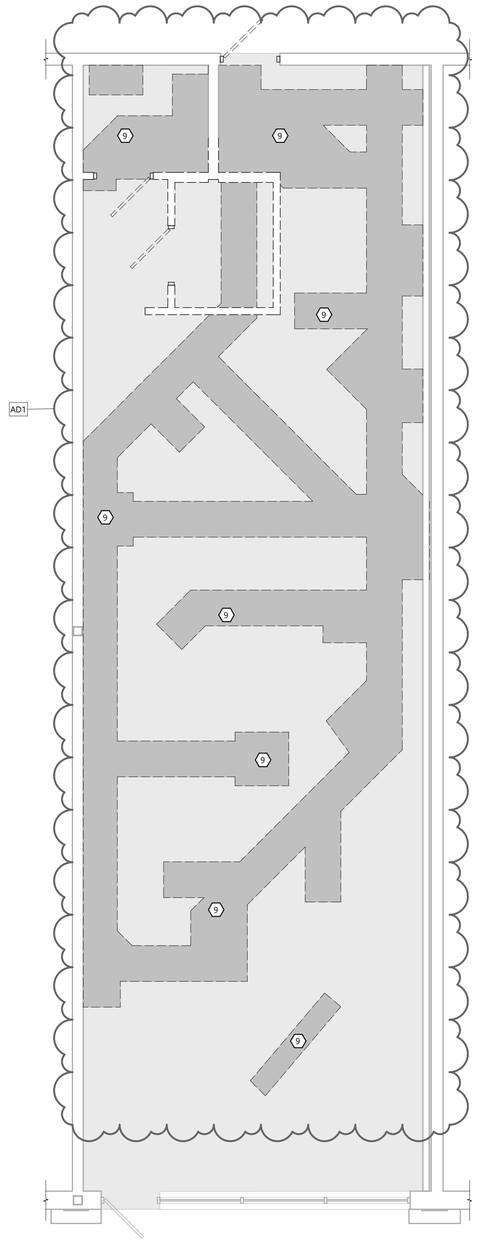


NORTH DEMO FIRST FLOOR

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

4' 0' 4' 8'



NORTH DEMO SLAB PLAN

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

4' 0' 4' 8'

GENERAL NOTES

ALL DEMOLITION BY GENERAL CONTRACTOR UNLESS NOTED OTHERWISE.

GENERAL CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS. LOCATIONS OF WALLS, DOORS AND OTHER ITEMS HAVE BEEN FIELD MEASURED FOR GENERAL LAYOUT ONLY. REPORT ANY DISCREPANCIES TO EXCEL ENGINEERING FOR CLARIFICATION PRIOR TO THE START OF WORK.

WHERE REMOVAL OF PIPES, CONDUIT, DUCTWORK, ETC. HAS LEFT AN OPENING, FILL AND PATCH OPENING TO MATCH THE ADJACENT CONSTRUCTION AND FINISH AS REQUIRED.

PATCH ALL WORK AT REMOVAL AND NEW CONNECTION POINTS AS REQUIRED TO MATCH ADJACENT NEW OR EXISTING FINISHES.

BEFORE COMMENCING WITH DEMOLITION WORK, REVIEW WITH THE OWNER WHICH ITEMS ARE TO BE SALVAGED AND TURNED OVER TO THE OWNER, IN ADDITION TO THOSE LISTED ON THE PLAN. ANY ITEM NOT WANTED BY THE OWNER SHALL BE REMOVED FROM THE JOB SITE BY THE GENERAL CONTRACTOR AND DISPOSED OF IN THE PROPER AND LEGAL MANNER.

SEE MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR DESCRIPTION OF REQUIRED ASSOCIATED DEMOLITION.

NOT ALL DEMOLITION KEYED NOTES WILL BE USED ON ALL SHEETS.

DEMOLITION KEYED NOTES

1. REMOVE EXISTING DOOR AND FRAME, INCLUDING ALL HARDWARE AND ACCESSORIES.
2. REMOVE EXISTING WALL IN ITS ENTIRETY. PRIOR TO REMOVAL, DETERMINE IF WALL IS BEARING. IF BEARING, NOTIFY EXCEL ENGINEERING PRIOR TO REMOVAL.
3. REMOVE EXISTING BATHROOM ACCESSORIES AND FINISHES
4. REMOVE EXISTING SINK AND ALL ASSOCIATED CONTROLS.
5. REMOVE EXISTING PLUMBING FIXTURES IN ITS ENTIRETY. VERIFY WITH OWNER IF ANY IS TO BE SALVAGED.
6. REMOVE EXISTING CEILING TILE AND METAL GRID IN ITS ENTIRETY AND PREPARE AREA FOR NEW CEILING AS SHOWN IN THE ROOM FINISH SCHEDULE.
7. NOT USED.
8. REMOVE EXISTING FLOOR FINISH IN ITS ENTIRETY DOWN TO BARE, CLEAN SUBSTRATE. PATCH AND REPAIR SUBSTRATE AS REQUIRED. SEE ROOM FINISH SCHEDULE FOR NEW FLOOR FINISHES.
9. REMOVE EXISTING CONCRETE FLOOR SLAB AS REQUIRED. VERIFY EXTENTS WITH PLUMBING AND ELECTRICAL CONTRACTORS.
10. REMOVE MECHANICAL ROOF TOP EQUIPMENT. INFILL OPENING TO MATCH ADJACENT CONSTRUCTION. PATCH ROOF PER MEMBRANE MANUFACTURERS SPECS AND INSTRUCTIONS.
11. REMOVE EXISTING EXIT SIGNAGE AND REPLACE WITH NEW AS REQUIRED.

SYMBOLS LEGEND

- 12B1 — SEE SHEET A1.1 FOR INT. WALL TYPES
- T1a — SEE SHEET A2.0 FOR EXT. WALL TYPES
- E — EXIT SIGNAGE
- FIRE EXTINGUISHER -SEE T1.1 SHEET
- EXISTING WALL TO REMAIN
- EXISTING WALL TO BE DEMOLISHED
- STUD WALL
- SEE PLAN FOR ALL WALL WIDTHS
- EXISTING DOOR TO REMAIN
- EXISTING DOOR TO BE DEMOLISHED
- NEW DOOR

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT

HAWAIIAN BROS

6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE NOV. 23, 2021

REVISIONS

AD1 JAN. 24, 2022

JOB NUMBER

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SHEET NUMBER

AD1.1

ARCHITECTURAL DEMOLITION PLANS

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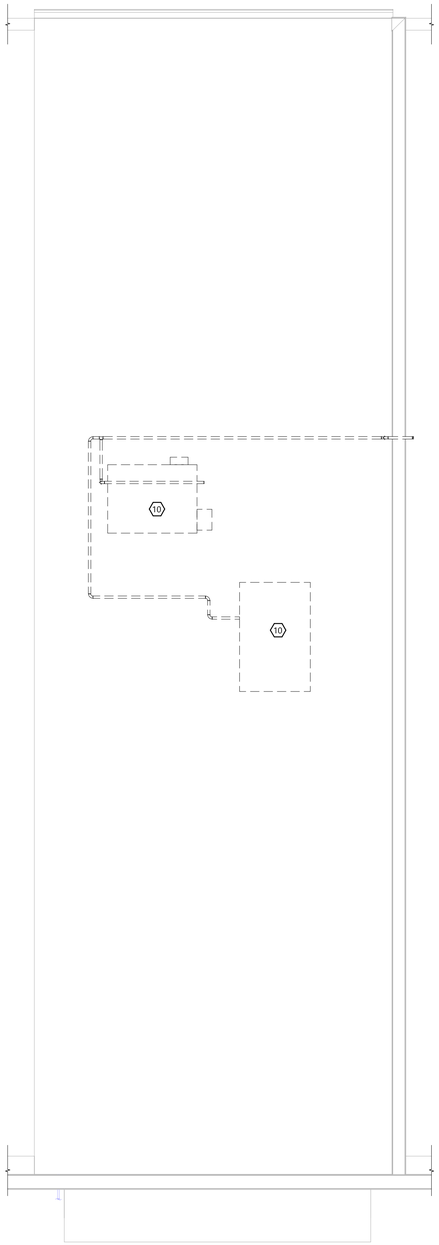
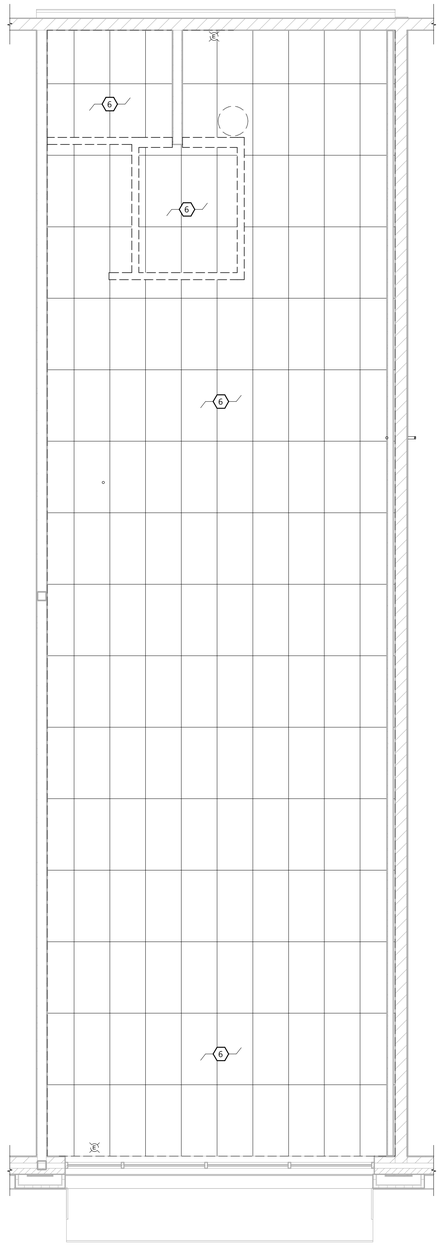


NORTH DEMO ROOF PLAN

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

4' 0' 4' 8'



NORTH DEMO FIRST FLOOR PLAN

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

4' 0' 4' 8'

GENERAL NOTES

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PATCH ALL WORK AT REMOVAL AND NEW CONNECTION POINTS AS REQUIRED TO MATCH ADJACENT NEW OR EXISTING FINISHES.

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NOT ALL DEMOLITION KEYED NOTES WILL BE USED ON ALL SHEETS.

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6. REMOVE EXISTING CEILING TILE AND METAL GRID IN ITS ENTIRETY AND PREPARE AREA FOR NEW CEILING AS SHOWN IN THE ROOM FINISH SCHEDULE.
7. REMOVE EXISTING GYPSUM BOARD CEILING/SOFFIT IN ITS ENTIRETY AND PREPARE FOR NEW CEILING AS SHOWN IN THE ROOM FINISH SCHEDULE.
8. REMOVE EXISTING FLOOR FINISH IN ITS ENTIRETY DOWN TO BARE, CLEAN SUBSTRATE. PATCH AND REPAIR SUBSTRATE AS REQUIRED. SEE ROOM FINISH SCHEDULE FOR NEW FLOOR FINISHES.
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JOB NUMBER

2172060

SHEET NUMBER

AD1.2

ARCHITECTURAL DEMOLITION PLANS

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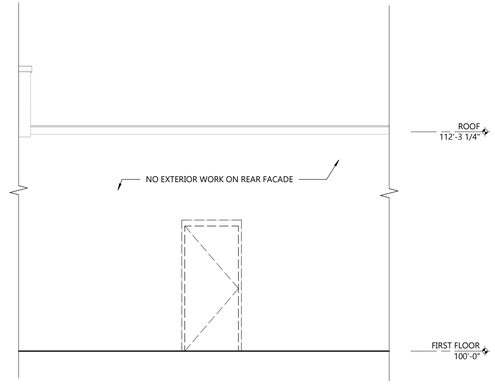

NORTH ELEVATION

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

(W 75TH STREET)
SOUTH ELEVATION

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

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AD2.0

ARCHITECTURAL EXTERIOR DEMOLITION ELEVATIONS

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GENERAL NOTES

- ALLOW FOR DEFLECTION AT TOP OF WALL IN NON-LOAD BEARING APPLICATIONS.
- ERECT ALL PARTITIONS FULL HEIGHT TO STRUCTURAL SLAB ABOVE UNLESS OTHERWISE NOTED.
- CONSTRUCT PARTITIONS WITH APPROPRIATE STUD GAUGE BASED ON LIMITING HEIGHT.
- HOLD GWB OFF FLOOR 5/8" TO PREVENT WICKING. PROVIDE CONTINUOUS NON-HARDENING ACOUSTICAL CAULKING BEADS ON EACH SIDE OF THE BOTTOM STUD RUNNER AT THE THREE-WAY INTERSECTION BETWEEN THE RUNNER, FLOOR AND DRYWALL.
- MULTIPLE LAYER OF GYPSUM BOARD ARE TO BE APPLIED WITH STAGGERED JOINTS.
- LABEL ALL FIRE RATED PARTITIONS ACCORDING TO THEIR RATING WITH STENCILED RED LETTERS. 4" HIGH MIN. AND 1/2" STROKE. LABEL FIRE RATING JUST ABOVE THE FINISHED CEILING, OR AT 10'-0" AFF FOR SPACES WITHOUT FINISHED CEILING AT INTERVALS OF NOT MORE THAN 10'-0" APART AND AT LEAST TWICE ON EACH PARTITION.
- SEAL ALL VOIDS AND PENETRATIONS IN FIRE RATED PARTITIONS AS REQUIRED TO MAINTAIN CONTINUOUS FIRE RATING.
- COORDINATE WALL CLADDING TYPE AND LOCATION WITH FINISH PLANS AND INTERIOR ELEVATIONS. VERIFY CLADDING THICKNESS APPROPRIATE DETAIL.
- PROVIDE BLOCKING AS REQUIRED AT ALL MILLWORK, WALL MOUNTED TELEVISIONS, BATHROOM GRAB BARS, ETC. TYPICAL OF ALL PARTITION TYPES.

INTERIOR PARTITION TAG KEY

DEPTH OF STRUCTURE — FIRE RATING

XXXX.X

WALL CONSTRUCTION — MODIFIER

DEPTH OF WALL STRUCTURE

TAG VALUE	BLOCK/CMU	METAL STUD	WOOD STUD
1	-	7/8"	3/4"
2	-	1 5/8"	1 1/2"
3	-	2 1/2"	-
4	3 5/8"	3 5/8"	3 1/2"
6	5 5/8"	6"	5 1/2"
8	7 5/8"	8"	7 1/4"
10	9 5/8"	-	-
12	11 5/8"	-	-

WALL CONSTRUCTION

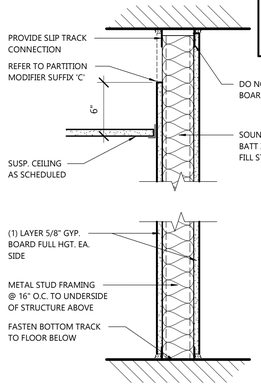
TAG VALUE	DESCRIPTION
B	BLOCK / CMU
D	INSULATED METAL PANEL
M1	METAL STUD (1) LAYER GYPSUM BOARD ON (1) SIDE
M2	METAL STUD (1) LAYER GYPSUM BOARD EACH SIDE
M4	METAL STUD (2) LAYERS GYPSUM BOARD EACH SIDE
W1	WOOD STUD (1) LAYER GYPSUM BOARD ON (1) SIDE
W2	WOOD STUD (1) LAYER GYPSUM BOARD EACH SIDE
W4	WOOD STUD (2) LAYERS GYPSUM BOARD EACH SIDE

TAG MODIFIERS

MODIFIER	DESCRIPTION
A	NO ACOUSTICAL INSULATION REQUIRED
B	WALL DOES NOT EXTEND TO STRUCTURE - BRACE TOP OF WALL
C	GYPSUM BOARD SHALL ONLY EXTENDS 6" ABOVE SCHED. CEILING (1) SIDE ONLY
P	PARTIAL HEIGHT WALL - SEE PLANS FOR WALL HEIGHT
R	ABUSE RESISTANCE GYPSUM BOARD REQ'D ON CORRIDOR SIZE OF WALL
S	SECURITY WALL - GYPSUM BOARD OVER 1/2" PLYWOOD (1) SIDE ONLY

FIRE RATING

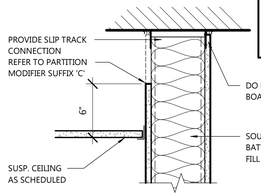
TAG VALUE	DESCRIPTION
.1	1 HR. RATED
.2	2 HR. RATED
.3	3 HR. RATED
.4	4 HR. RATED



4M2	3 5/8" METAL STUD (1) LAYER GYPSUM BOARD ON (2) SIDES
4M2A	SIM. TO '4M2' BUT NO ACOUSTICAL INSULATION
4M2C	SIM. TO '4M2' BUT GYPSUM BOARD SHALL ONLY EXTEND 6" ABOVE SCHED. CEILING (1) SIDE ONLY
4M2R	SIM. TO '4M2' GYPSUM BOARD SHALL BE ABUSE RESISTANT ON CORRIDOR SIDE OF WALL

INTERIOR WALL TYPE - 4M2

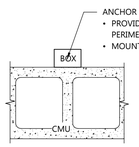
NOT TO SCALE



6M2	6" METAL STUD (1) LAYER GYPSUM BOARD ON (2) SIDES
6M2A	SIM. TO '6M2' BUT NO ACOUSTICAL INSULATION
6M2C	SIM. TO '6M2' BUT GYPSUM BOARD SHALL ONLY EXTEND 6" ABOVE SCHED. CEILING (1) SIDE ONLY
6M2R	SIM. TO '6M2' GYPSUM BOARD SHALL BE ABUSE RESISTANT ON CORRIDOR SIDE OF WALL

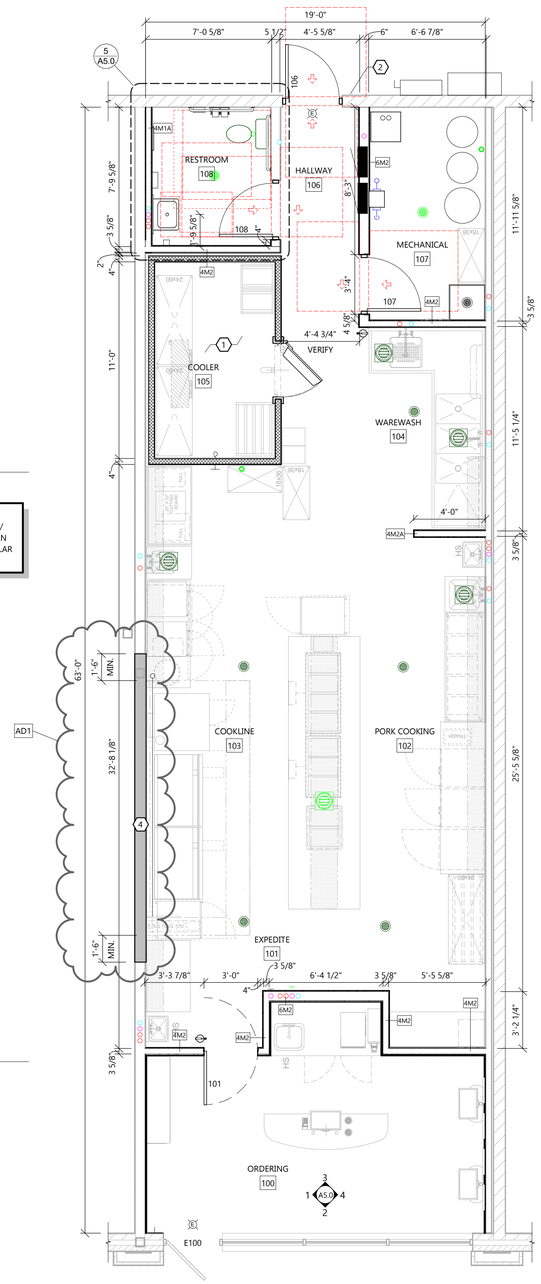
INTERIOR WALL TYPE - 6M2

NOT TO SCALE



1 A1.1 LOCKBOX MOUNTING

SCALE: 1 1/2" = 1'-0"



NORTH

FIRST FLOOR

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

4' 0' 4' 8'

FLOOR PLAN KEYNOTES

AD1

1. COOLER BY KITCHEN SUPPLIER. G.C. TO COORDINATE INSTALLATION AND ENCLOSURE TO ADJACENT WALLS.
2. G.C. TO PROVIDE AND MOUNT NU-SET KEY STORAGE BOX 2085-3 ON EXTERIOR OF BUILDING AT 48" MAX TOP OF BOX. PLACE AT RIGHT OR LEFT OF DOOR. (PREFERRED LOCATION ON LATCH SIDE OF DOOR. SEE DETAIL ON SHEET.
3. NEW FLOOR SLAB. SEE STRUCTURAL DRAWINGS FOR DETAILS
4. REMOVE EXISTING DRYWALL FINISH AND PROVIDE NEW CEMENT BOARD AND STAINLESS STEEL PANEL BEHIND KITCHEN HOOD AND ON BOTH SIDES.

SALES & SERVICE COUNTERS

IN RETAIL STORES WHERE COUNTERS HAVE CASH REGISTERS AND ARE PROVIDED FOR SALES OR DISTRIBUTION OF GOODS OR SERVICES TO THE PUBLIC, AT LEAST ONE OF EACH TYPE SHALL HAVE A PORTION OF THE COUNTER WHICH IS AT LEAST 36" IN LENGTH WITH A MAXIMUM HEIGHT OF 36" ABOVE THE FINISH FLOOR. COUNTER SHALL BE ON AN ACCESSIBLE ROUTE COMPLYING WITH A.D.A. GUIDELINE 4.3.

GENERAL NOTES

- ALL INTERIOR DIMS. ARE FROM FACE-OF-STUD TO FACE OF-STUD.
- PROVIDE SOUND BATT INSULATION AROUND PERIMETER OF TOILET ROOM AND KITCHEN WALLS.
- MISCELLANEOUS HARDWARE INCLUDED: HANDICAP HARDWARE.
- PROVIDE WOOD BLOCKING FOR ANY FURNISHINGS BY OWNER/FURNITURE SUPPLIER/KITCHEN SUPPLIER. (VERIFY LOCATIONS)
- ALL EXTERIOR WINDOWS TO HAVE ALUMINUM FLASHING RETURNS AT HEAD, JAMBS, AND SILL OF ALL WINDOWS.
- FOOD PREP AREA TO BE VERIFIED W/ OWNER. PROVIDE SHOP DRAWINGS ON EQUIPMENT.

SYMBOLS LEGEND

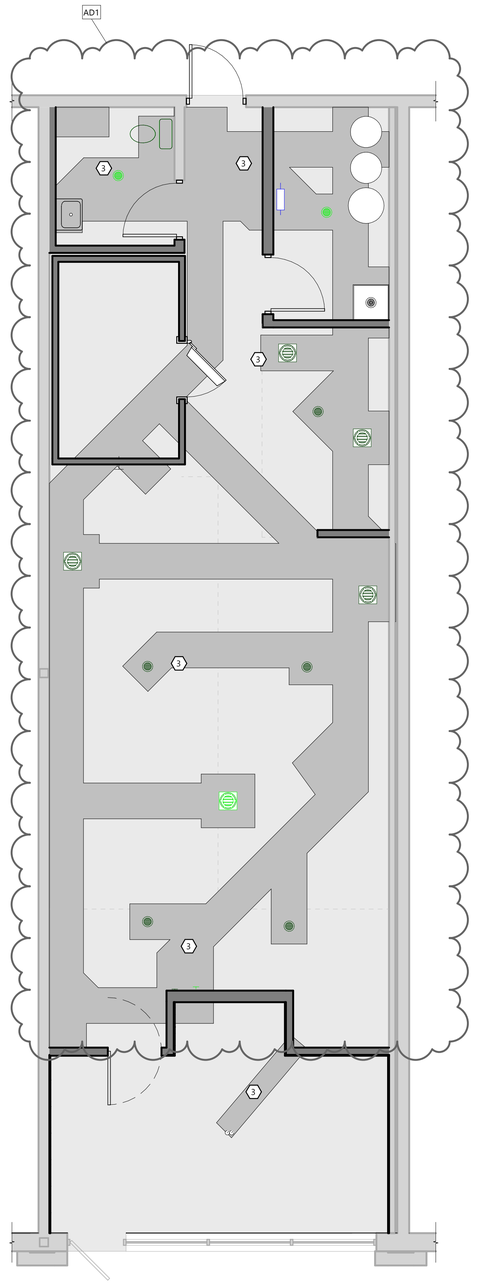
- SEE SHEET A1.1 FOR INT. WALL TYPES
- SEE SHEET A2.0 FOR EXT. WALL TYPES
- EXIT SIGNAGE
- FIRE EXTINGUISHER -SEE T1.1 SHEET
- EXISTING WALL TO REMAIN
- EXISTING WALL TO BE DEMOLISHED
- STUD WALL

SEE PLAN FOR ALL WALL WIDTHS

- EXISTING DOOR TO REMAIN
- EXISTING DOOR TO BE DEMOLISHED
- NEW DOOR

SYMBOLS LEGEND

- XXX'-X" — SLAB ELEVATION
- XXX'-X" — DRAIN LOCATION AND ELEVATION



NORTH

SLAB PLAN

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

4' 0' 4' 8'

ARCHITECTURAL FLOOR PLANS

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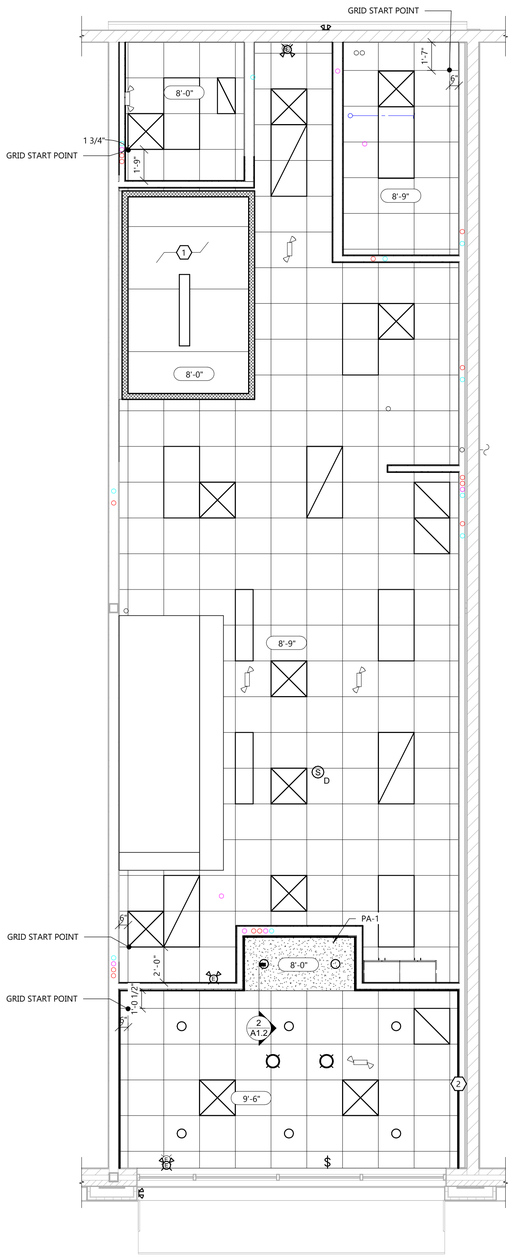


NORTH

FIRST FLOOR REFLECTED CEILING PLAN

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

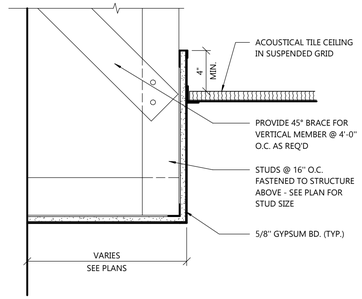
4' 0' 4' 8'

SYMBOLS LEGEND

- ACOUSTICAL TILE CEILING PANELS -SEE ROOM FINISH SCHEDULE FOR TYPE
- GYPSUM BOARD CEILING -SEE ROOM FINISH SCHEDULE
- WOOD CLOUD -SEE ROOM FINISH SCHEDULE
- LIGHT FIXTURE - SEE ELECTRICAL PLANS
- LIGHT FIXTURE - SEE ELECTRICAL PLANS
- LIGHT FIXTURE - SEE ELECTRICAL PLANS
- (C) CEILING MOUNTED SPEAKER
- FIRE ALARM SPEAKER UNIT
- (H) HEAT DETECTOR
- (S) SMOKE DETECTOR
- CEILING SUPPLY GRILLE - SEE HVAC PLANS
- CEILING RETURN, TRANSFER OR EXHAUST GRILLE - SEE HVAC PLANS
- CEILING SLOT DIFFUSER -SEE HVAC PLANS
- X'-X" DESIGNATES CEILING/BULKHEAD HEIGHT A.F.F.
- (E) EXIT LIGHT
- OCCUPANCY SENSOR
- (ES) ELEVATOR SMOKE DETECTOR
- EXTERIOR EMERGENCY LIGHTING
- RECESSED EMERGENCY LIGHT

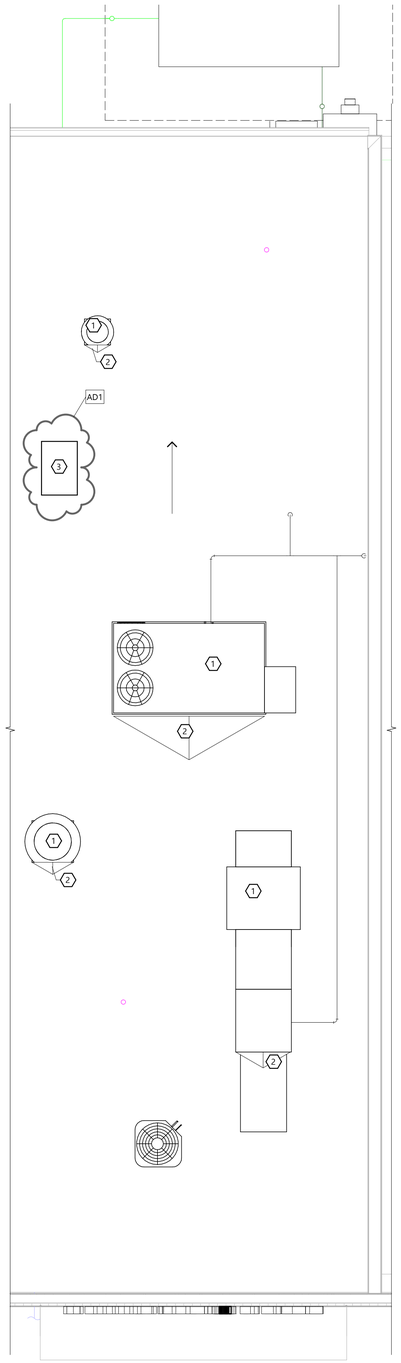
KEYNOTES NOTES

1. IMP CEILING PROVIDED BY FREEZER/COOLER SUPPLIER. G.C. TO COORDINATE INSTALLATION.
2. PROVIDE FURRING TO MIN. 6" ABOVE NEW ACT CEILING.



2 A1.2 SOFFIT DETAIL

SCALE: 1 1/2" = 1'-0"



NORTH

ROOF PLAN

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

4' 0' 4' 8'

ROOF LEGEND

- ROOF SLOPE DIRECTION
- ROOF STRUCTURE IS PITCHED TO ACHIEVE SLOPE
- CRICKET ON HIGH SIDE OF ROOF EQUIPMENT

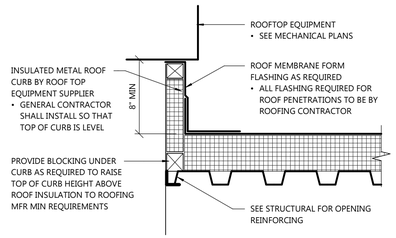
GENERAL ROOF NOTES:

- ROOFING CONTRACTOR SHALL PROVIDE MEMBRANE FORM FLASHING FOR ALL ROOF PENETRATIONS PER ROOF MEMBRANE MANUFACTURER'S REQUIREMENTS.
- SEE MECHANICAL DRAWINGS FOR LOCATION AND SIZE OF ALL ROOF PENETRATIONS AND CURBS REQUIRED FOR MECHANICAL EQUIPMENT.
- PIPE STANDS NOT INSTALLED ON CURBS SHALL BE INSTALLED ON SLEEPERS OR CONCRETE PADS 6" LARGER THAN EQUIPMENT.
- PROVIDE SINGLE PLY ROOFING MEMBRANE NOT ADHERED TO ROOF UNDER ALL FREE STANDING PIPE AND EQUIPMENT STANDS 6" LARGER THAN STANDS.
- PROVIDE ROOF PATCH AT ALL REMOVED EQUIPMENT/STRUCTURES. PATCH PER MANUFACTURERS SPECS/INSTRUCTIONS TO MAINTAIN ROOF WARRANTY.

KEYNOTES:

1. CURB MOUNTED MECHANICAL EQUIPMENT. SEE "ROOF CURB DETAIL"
2. INSTALL NEW CRICKET AT HIGH SIDE OF NEW EQUIPMENT. TIE INTO EXISTING ROOF PER ROOF MANUFACTURERS SPECS AND INSTRUCTIONS TO MAINTAIN ROOF WARRANTY.
3. COOLER CONDENSING UNT. VERIFY LOCATION WITH COOLER SUPPLIER. PROVIDE POWER TO CONDENSING UNIT.

AD1



1 A1.2 ROOF TOP EQUIPMENT CURB DETAIL

SCALE: 1 1/2" = 1'-0"

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE NOV. 23, 2021

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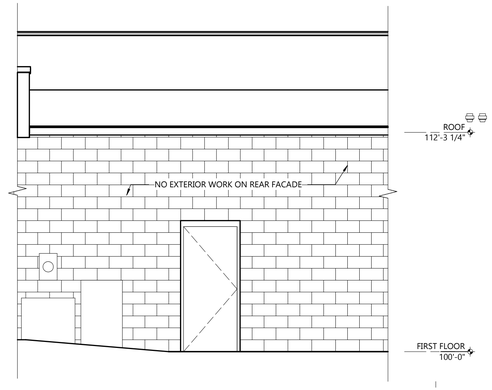

1 A2.0 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

(W 75TH STREET)
2 A2.0 NORTH ELEVATION
SCALE: 1/4" = 1'-0"

GENERAL EXT. NOTES

- SIGNAGE SHOWN FOR REFERENCE ONLY. COORDINATE SIGNAGE LOCATIONS WITH SIGNAGE SUPPLIER AND PROVIDE BLOCKING AS REQUIRED.
- NO EXTERIOR WORK ON FRONT FACADE - EXISTING AWNING TO REMAIN

1 WALL MOUNTED SIGNAGE BY SIGNAGE VENDOR. FINAL SIGNAGE DESIGN/LOCATION BY SIGNAGE VENDOR UNDER SEPERATE SUBMITTAL.

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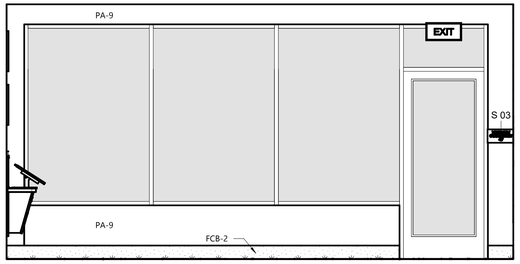
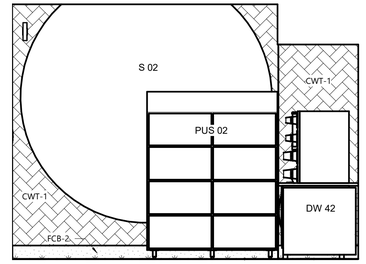
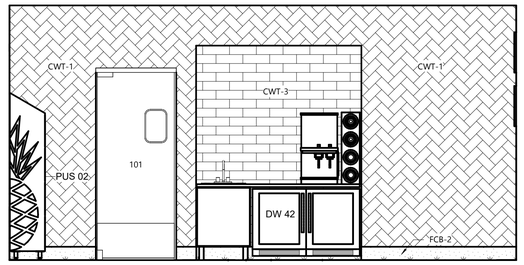


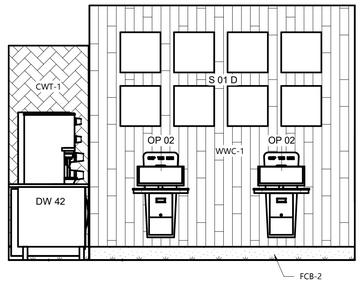
2 A5.0 FOH - NORTH
SCALE: 3/8" = 1'-0"



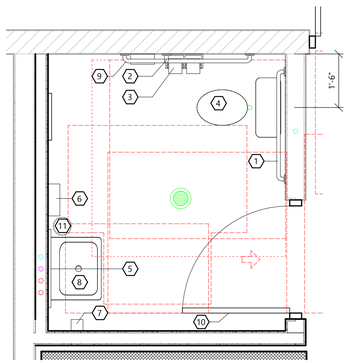
1 A5.0 FOH - EAST
SCALE: 3/8" = 1'-0"



3 A5.0 FOH - SOUTH
SCALE: 3/8" = 1'-0"



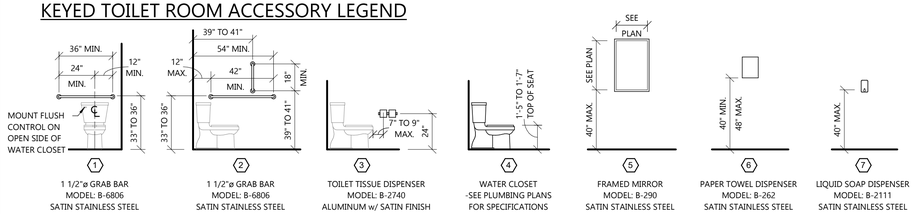
4 A5.0 FOH - WEST
SCALE: 3/8" = 1'-0"



NORTH

5 A5.0 ENLARGED BATHROOM PLAN
SCALE: 1/2" = 1'-0"

KEYED TOILET ROOM ACCESSORY LEGEND



1 1/2"ø GRAB BAR
MODEL: B-6806
SATIN STAINLESS STEEL

1 1/2"ø GRAB BAR
MODEL: B-6806
SATIN STAINLESS STEEL

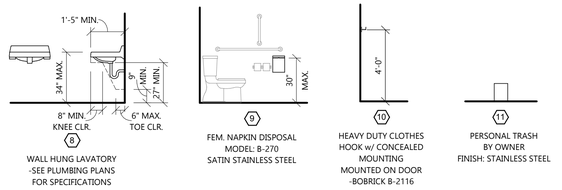
TOILET TISSUE DISPENSER
MODEL: B-2740
ALUMINUM w/ SATIN FINISH

WATER CLOSET
-SEE PLUMBING PLANS
FOR SPECIFICATIONS

FRAMED MIRROR
MODEL: B-290
SATIN STAINLESS STEEL

PAPER TOWEL DISPENSER
MODEL: B-262
SATIN STAINLESS STEEL

LIQUID SOAP DISPENSER
MODEL: B-2111
SATIN STAINLESS STEEL



WALL HUNG LAVATORY
-SEE PLUMBING PLANS
FOR SPECIFICATIONS

FEM. NAPKIN DISPOSAL
MODEL: B-270
SATIN STAINLESS STEEL

HEAVY DUTY CLOTHES HOOK w/ CONCEALED MOUNTING MOUNTED ON DOOR
-BOBRICK B-2116

PERSONAL TRASH
BY OWNER
FINISH: STAINLESS STEEL

TOILET ROOM NOTES:

GENERAL NOTES:

- SEE KEYED TOILET ROOM ACCESSORY LEGEND FOR MODEL NUMBERS, FINISH, AND COLORS
- GENERAL CONTRACTOR SHALL PROVIDE BLOCKING AS REQ'D AT ALL ACCESSORY LOCATIONS
- GENERAL CONTRACTOR SHALL VERIFY ROUGH OPENING REQ'S FOR ALL RECESSED EQUIPMENT/ACCESSORIES
- SEE MATERIAL LEGEND ON A6.0 FOR WALL FINISHES
- 6 1/2" MAXIUM SINK DEPTH
- INSULATE PIPES BELOW COUNTERTOPS (WATER AND WASTE LINES) W/ PVC MOLDED PROTECTION (BY PLUMBING CONTRACTOR)

TOILET ROOM ACCESSORY SPECIFICATIONS:

GENERAL NOTES:

SEE KEYED TOILET ROOM ACCESSORY LEGEND FOR MODEL NUMBERS, FINISH, AND COLORS

GENERAL CONTRACTOR SHALL PROVIDE BLOCKING AS REQ'D AT ALL ACCESSORY LOCATIONS

GENERAL CONTRACTOR SHALL VERIFY ROUGH OPENING REQ'S FOR ALL RECESSED EQUIPMENT/ACCESSORIES

MANUFACTURER: BOBRICK WASHROOM EQUIPMENT, INC.

PRODUCTS: GRAB BARS, TISSUE DISPENSERS, TOWEL DISPENSERS, MIRRORS, SOAP DISPENSERS, ETC.

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MATERIAL LEGEND

CODE	FINISH GROUP	MANUFACTURER	STYLE	COLOR	SIZE	NOTES	CONTACT
FLOOR FINSHES							
EPX-1	EPOXY	DUR-A-FLEX	POLY-CRETE SLB - SOLID COLOR	DARK GRAY	--	--	DAVE HADDON312-339-2191 DAVEH@DUR-A-FLEX.COM
EPX-2	EPOXY	DUR-A-FLEX	HYBRI-FLEX-EC SPECIAL ARMOR TOP SATIN W/ #54 ALUMINUM OXIDE & DUR-A-GRIT	FLINT	--	--	DAVE HADDON312-339-2191 DAVEH@DUR-A-FLEX.COM
FCB-1	FLASH COVE BASE	DUR-A-FLEX	POLY-CRETE SLB - SOLID COLOR	DARK GRAY	6"H	--	DAVE HADDON312-339-2191 DAVEH@DUR-A-FLEX.COM
FCB-2	FLASH COVE BASE	DUR-A-FLEX	HYBRI-FLEX-EC SPECIAL ARMOR TOP SATIN W/ #54 ALUMINUM OXIDE & DUR-A-GRIT	FLINT	6"H		
WALL FINISHES							
CWT-1	CERAMIC WALL TILE	DALTILE	COLOR WHEEL	ARTIC WHITE	4"x12"	USE GR-2, DIAGONAL HERRINGBONE	HILLARY BUSS 317-910-2527 Hillary.buss@daltile.com
CWT-2	CERAMIC WALL TILE	DALTILE	COLOR WHEEL	ARTIC WHITE	4"x12"	USE GR-2, VERTICAL 1/3 OFFSET	HILLARY BUSS 317-910-2527 Hillary.buss@daltile.com
CWT-3	CERAMIC WALL TILE	TILE BAR	CASTLE	BLUE DENIM	3"x12"	USE GR-1, HORIZONTAL 1/2 OFFSET	
FRP-1	FIBERGLASS REINFORCED PLASTIC	PANOLAM FRP	GENERAL PURPOSE EMBOSSED FINISH	WHITE	4' x 8', 9', 10', 12'	USE MFGR RECOMMENDED ADHESIVE & TRIM PIECES, USE APPROPRIATE SIZE FOR CEILING HEIGHT OF ROOM	INSTALL PLYWOOD BEHIND FRP IN LIEU OF GYP BD SO NO BLOCKING IS NEEDED
PA-3	PAINT	SHERWIN WILLIAMS	SEMI-GLOSS FINISH	SW 7069 IRON ORE	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PA-4	PAINT	SHERWIN WILLIAMS	SEMI-GLOSS FINISH	SW 6767 AQUARIUM	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PA-6	PAINT	SHERWIN WILLIAMS	SEMI-GLOSS FINISH	SW 7005 PURE WHITE	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PA-7	PAINT	SHERWIN WILLIAMS	EG-SHEL FINISH	SW 6767 AQUARIUM	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PA-9	PAINT	SHERWIN WILLIAMS	EG-SHEL FINISH	SW 7015 REPOSE GRAY	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
VG-1	VINYL GRAPHIC	KATALYST	PRINTED VINYL GRAPHIC ON INTERIOR BRICK	CUSTOM STAMP	SEE ELEVATIONS	--	TRENT FERGUSON 785-476-5244 trent@katgroupinc.com
WWC-1	WOOD WALL CLADDING	RESAWN TIMBER CO	TODDY EUROPEAN WHITE OAK, ORIGINAL CUT, CHARACTER GRADE, PREFINISHED W/MATTE POLYURETHANE, VOIDS FILLED, TONGUE & GROOVE, ENDMATCHED, MICROBEVELED EDGES & ENDS	--	ENGINEERED 5/8" x 7" x 2'-10'	4MM WEAR LAYER, PROVIDE TRIM TO MATCH AT EXPOSED EDGES	BILL STEVENS 215-534-3077 BSTEVENS@RESAWNTIMBERCO.COM
CEILING FINISHES							
ACT-1	ACOUSTIC CEILING TILE	ARMSTRONG	KITCHEN ZONE SQUARE LAY-IN - 673	WHITE	24" x 24" x 5/8"	USE WITH 15/16" G PRELUDE GRID IN WHITE	EDAN KIRCHIRO 414-299-8702 EFKIRCHIRO@ARMSTRONGCEILINGS.COM
ACT-2	ACOUSTIC CEILING TILE	ARMSTRONG	TECTUM SQUARE LAY-IN - 8183T10	WHITE	24" x 24"-96 x 11/2"	SUSPEND FROM DECK WITH 12GA WIRE & 15/16 PRELIDE TEE IN WHITE. JOIN SECTION LENGTHS TOGETHER	EDAN KIRCHIRO 414-299-8702 EFKIRCHIRO@ARMSTRONGCEILINGS.COM
PA-1	PAINT	SHERWIN WILLIAMS	FLAT FINISH	SW 7005 PURE WHITE	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PA-2	PAINT	SHERWIN WILLIAMS	FLAT FINISH	SW 6767 AQUARIUM	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
CASEWORK, COUNTERTOPS & SILLS							
PLAM-1	PLASTIC LAMINATE	WILSONART	STANDARD LAMINATE, FINE VELVET FINISH	PRESSED LINEN 4997-38	--	SQUARE EDGE	--
PLAM-2	PLASTIC LAMINATE	WILSONART	STANDARD LAMINATE, SOFT GRANE FINISH	BEIGEWOOD 7850-12	--	GRAIN TO RUN VERTICAL	--
QZ-1	QUARTZ	MSI	GLOSS FINISH	FROST WHITE	3CM	ADHESIVE/SEALANT TO MATCH	--
SINK-1	QUARTZ FORMED SINK	BRADLEY	VERGE SINGLE WASH BASIN W/ WASHBAR	GEO SERIES - ANTARCTICA	--	SINGLE SINK UNIT - SEE PLUMBING SPECIFICATION	CJ ERICKSON 262-309-3154 CJ.ERICKSON@BRADLEYCORP.COM
SSC-1	STAINLESS STEEL COUNTER					BY KITCHEN SUPPLIER	
OTHER							
CG-1	CORNER GUARD	INPRO CORP	SURFACE MOUNTED STAINLESS STEEL CONRER GUARD / END WALL PROTECTOR - 16 GUAGE	STAINLESS STEEL	4'H x 3.5" WING x 1/4" RAD.	INSTALL WITH PL PREMIUM HEAVY DUTY ADHESIVE, INSTALL ABOVE BASE	
DR-1	WOOD DOOR	VT INDUSTRIES	WHITE MAPLE WOOD SPECIES	RIVERSTONE RI15	--	--	--
GR-1	GROUT	BOSTIK	TRUCOLOR PREMIXED	FRENCH GRAY H142	--	--	--
GR-2	GROUT	BOSTIK	HYDROMENT VIVID	STORM H198	--	--	--
TR-1	TRIM	SCHLUTER	JOLLY	SATIN ANODIZED ALUMINUM AE	--	USE AT THE EDGE OF EXPOSED WALL TILE	--

AD2

ROOM FINISH SCHEDULE

ROOM #	ROOM NAME	FLOOR	BASE	CEILING FINISH	REMARKS
100	ORDERING	EPX-2, EPX-3, EPX-4	FCB-2	ACT-2	1,2,4
101	EXPEDITE	EPX-1	FCB-1	ACT-1	3,4
102	PORK COOKING	EPX-1	FCB-1	ACT-1	3,4
103	COOKLINE	EPX-1	FCB-1	ACT-1	3,4
104	WAREWASH	EPX-1	FCB-1	ACT-1	3,4
105	COOLER	EPX-1	FCB-1	-	
106	HALLWAY	EPX-1	FCB-1	ACT-1	3,4
107	MECHANICAL	EPX-1	FCB-1	ACT-1	3,4
108	RESTROOM	EPX-1	FCB-1	ACT-1	3,4

GENERAL NOTES:
- ALL BIDDING EPOXY CONTRACTORS SHOULD PROVIDE A SAMPLE SHOWING THEIR CAPABILITIES OF DESIGN AND BLENDING FOR OWNER REVIEW PRIOR TO THE JOB BEING AWARDED OR INSTALLED.
- REFER TO FINISH PLAN FOR COLOR OF HOLLOW METAL FRAMES & DOORS
- ELEC. SWITCHES/OUTLETS/DEVICES TO BE WHITE (SEE ELEC. DWGS)
- WALL RETURN GRILLS TO BE PAINTED TO MATCH ADJACENT WALL COLOR.
- ALL SIGNAGE, CASEWORK, & KIOSKS PROVIDED BY KATALYST, OWNER TO REVIEW & MAKE FINAL SELECTIONS
- ALL PAINT TO CURE FOR A MIN. OF 20 DAYS BEFORE APPLICATION OF ANY GRAPHIC. ANY GRAPHIC TO BE APPLIED TO WALL AND FINISHED A MIN. OF 7 DAY BEFORE CERTIFICATE OF OCCUPANCY IS ISSUED. PROVIDE LOW VOC PAINT ON GYP. BOARD BEFORE INSTALLATION OF GRAPHIC.

REMARKS:
1. SEE A8.1 FOR EPOXY FLOORING LAYOUT
2. SEE INTERIOR ELEVATIONS FOR ADDITIONAL WALL FINISH NOTES
3. SEE KITCHEN PLANS FOR LOCATIONS OF STAINLESS STEEL PANELS
4. PREP EXISTING WALL SUBSTRATE FOR NEW WALL FINISH. ENSURE EXISTING SUBSTRATE IS APPROVED FOR NEW FINISH. REPLACE AS REQUIRED

ROOM FINISH NOTES

* REFERENCES TO PRODUCTS OR SYSTEMS HEREIN BY NAME, MAKE, OR CATALOG NUMBER IS INTENDED TO ESTABLISH A MIN. STANDARD QUALITY, AND IS NOT MEANT TO LIMIT COMPETITION IN ANY FASHION. APPROVED EQUIVALENTS SHALL BE ACCEPTED AFTER ARCHITECT APPROVAL

* CONTRACTORS SHALL PROVIDE PRODUCTS COMPLETE w/ ALL ACCESSORIES, TRIM, FINISH, FASTENERS, AND OTHER REQ'D ITEMS NEEDED FOR A COMPLETE INSTALLATION AS INDICATED

TRIMS

- HOLLOW METAL FRAMES SHOULD RECEIVE 1 COAT PRIMER & 2 COATS FINISH PAINT
- ALL WOOD TRIM TO BE PLAIN SAWN RED MAPLE (STAIN & VARNISH) - PROVIDE SAMPLE FOR ARCHITECTS APPROVAL

FLOORS

- FLOORING CONTRACTOR SHALL PREPARE FLOOR SURFACES RECEIVING NEW FINISHES AS REQ'D FOR A SMOOTH AND LEVEL SURFACE PRIOR TO INSTALLING NEW FINISHES
- USE MFR RECOMMENDED FLOORING PREP AND ADHESIVE
- FLOORING CONTRACTOR TO PROVIDE TRANSITION STRIPS AND EDGING AT ALL MATERIAL TRANSITIONS - SEE MATERIAL LEGEND AND SUBMIT STYLES TO BE APPROVED BY DESIGNER.
- PITCH EPOXY FLOORS TO FLOOR DRAINS

WALLS & CEILINGS

- ALL GYPSUM BOARD SHALL BE INSTALLED IN ACCORDANCE W/ THE GYPSUM CONSTRUCTION HANDBOOK. LEVEL OF FINISH AS PER GA-214 ARE AS FOLLOWS:
  - LEVEL 1: INTERIOR AND EXTERIOR WALL: CONCEALED AND ABOVE CEILINGS
  - LEVEL 3: ALL EXPOSED BELOW CEILING AREAS WITH HEAVY OR MEDIUM TEXTURE.
  - LEVEL 4: ALL EXPOSED BELOW CEILING ARES WITH FLAT PAINT, SMOOTH OR LIGHT TEXTURE OR WALL COVERINGS UNLESS OTHERWISE NOTED.
  - LEVEL 5: WHERE NOTED
- USE APPROPRIATE PRIMER FOR SUBSTRATE
- VACANT CONSTRUCTION WITH CEILING SURFACES RECEIVING DRYWALL PAINT SHOULD RECEIVE 2 SOLVENT BASED FINISH COATS
- ALL GYPSUM BOARD BULKHEADS SHALL BE PAINTED PA-1
- WHERE PORCELAIN TILE IS APPLIED, SURFACE SHOULD BE 5/8" DENS-SHIELD TILE BACKER BOARD AS REQUIRED

SEALANT SCHEDULE

LOCATION	MFR	PRODUCT	DESCRIPTION
EXTERIOR			
WINDOW, DOOR, LOUVER OPENINGS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
DIFFERENT MATERIALS MEET	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
ROOF OPENINGS	TREMCO	GUTTER SEAL	SYNTHETIC RUBBER AND RESIN SEALANT
EAVES AND SOFFITS	TREMCO	GUTTER SEAL	SYNTHETIC RUBBER AND RESIN SEALANT
THRESHOLDS TO SUBSTRATE	TREMCO	BUTYL SEALANT	MULTI-COMPONENT SEALANT
CMU CONTROL JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
PRE-CAST CONCRETE PANEL JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
PRE-CAST TO MASONRY JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
PRE-CAST TO CAST-IN-PLACE CONCRETE JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
INSULATED METAL PANEL BASE CHANNEL TO FOUNDATION	TREMCO	BUTYL SEALANT	MULTI-COMPONENT SEALANT
	TREMCO	440 TAPE	BUTYL SEALANT TAPE
INSULATED METAL PANEL TO BASE CHANNELS	SIKA	SIKALASTOMER - 511	NON-SKINNING BUTYL SEALANT
INSULATED METAL PANEL TO PANEL JOINTS	SIKA	SIKALASTOMER - 511	NON-SKINNING BUTYL SEALANT
INSULATED METAL PANEL FACE JOINTS WHERE INDICATED	TREMCO	SPECTREM 2	ONE PART SILICONE SEALANT
TRAFFIC SURFACE JOINTS (I.E. CONCRETE PAVEMENT, SIDEWALKS & PADS)	TREMCO	VULKEM 45 SSL	ONE PART POURABLE SELF-LEVELING POLYURETHANE SEALANT
JOINTS IN TRAFFIC SURFACES SLOPING IN EXCESS OF 1/2" PER FOOT	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
INTERIOR			
COUNTERTOP AND BACKSLASH	TREMCO	TREMSIL 200	
PLUMBING FIXTURE PERIMETER	TREMCO	TREMSIL 200	
UNDER DRYWALL PARTITION BASE TRACK	DAP	ALEX PLUS	PAINTABLE ACRYLIC LATEX - SILICONIZED SEALANT
INTERIOR DOOR AND WINDOW FRAMES	DAP	ALEX PLUS	PAINTABLE ACRYLIC LATEX - SILICONIZED SEALANT
WALL ANGLE AT SUSPENDED CEILINGS	DAP	ALEX PLUS	PAINTABLE ACRYLIC LATEX - SILICONIZED SEALANT
CMU CONTROL JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
EXPOSED CONCRETE SLAB JOINTS	VERSA-FLEX	SL/85	TWO PART SELF-LEVELING POLYUREA SEALANT
PRE-CAST CONCRETE PANEL JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
PRE-CAST TO MASONRY JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
PRE-CAST TO CAST-IN-PLACE CONCRETE JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
INSULATED METAL PANEL AND TOP OF CONCRETE CURB JOINT	TREMCO	DYMERIC 240FC	MULTI-COMPONENT CHEMICALLY CURING POLYURETHANE SEALANT
INSULATED METAL PANEL AND TRIM ELEMENTS JOINT	TREMCO	SPECTREM 2	ONE PART SILICONE SEALANT
COOLER AND FREEZER FLOOR JOINTS	M&M	SPAL-PRO RSF	TWO COMPONENT POLYUREA JOINT FILLER
JOINTS IN ROOMS WITH "STRANLOK" FINISH	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT

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REVISIONS	
AD1	JAN. 24, 2022
AD2	JAN. 28, 2022

JOB NUMBER
2172060

ARCHITECTURAL SCHEDULES

SHEET NUMBER
A6.0

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GENERAL DOOR AND FRAME NOTES:

- ALL DOORS SHALL MEET A.D.A. REQUIREMENTS
- ALL DOOR THRESHOLDS SHALL NOT EXCEED 1/2" IN HEIGHT
- VERIFY FRAME DEPTHS W/ WALL THICKNESS. PROVIDE WRAP AROUND FRAMES AT STUD WALLS
- PROVIDE SEALANT BOTH SIDES OF DOOR FRAMES, WHERE DIFFERENT MATERIALS MEET AND FOR WEATHER TIGHTNESS
- GENERAL CONTRACTOR TO VERIFY SIZE OF ALL EQUIPMENT (ELECTRICAL, MECHANICAL, KITCHEN, LAUNDRY, ETC.) SELECTED FOR THE PROJECT TO DETERMINE THAT ALL DOORS (INCLUDING PATH OF TRAVEL) ARE OF ADEQUATE SIZE TO ACCOMMODATE INSTALLATION AND REPLACEMENT
- VERIFY ALL ROUGH OPENING REQUIREMENTS WITH MANUFACTURERS DRAWINGS
- SEE SHEET A0.1 FOR GENERAL BUILDING SPECIFICATIONS
- DOOR, FRAME AND HARDWARE SCHEDULE TO BE PROVIDED BY HARDWARE SUPPLIER FOR A/E REVIEW - NUMBERING SYSTEM AND NOMENCLATURE SHALL MATCH THOSE FOUND IN CONSTRUCTION DOCUMENTS
- HARDWARE SUPPLIER IS RESPONSIBLE FOR COORDINATING KEYING REQUIREMENTS WITH OWNER
- ALUMINUM SUPPLIER SHALL FURNISH AND INSTALL ALL HARDWARE FOR ALUMINUM DOORS AS NOTED ON PLANS - THE SAME MANUFACTURERS AND MODELS SHALL BE USED FOR BOTH ALUMINUM AND OTHER DOOR HARDWARE
- CONTRACTOR TO PROVIDE PRODUCTS AND SYSTEMS COMPLETE WITH ALL ACCESSORIES, TRIM, FINISH, FASTENERS AND OTHER ITEMS NEEDED FOR A COMPLETE INSTALLATION AND INTENDED USE AND EFFECT
- DOOR UNDERCUTS, WHERE NOTED, SHALL BE 1" FROM FINISHED FLOOR (TYP.)
- SEE A8.1 FINISH SCHEDULE FOR DOOR AND FRAME PAINT COLORS

HOLLOW METAL DOOR & FRAME SPECIFICATIONS:

MANUFACTURER:
- CURRIES (APPROVED EQUIVALENT: STEELCRAFT)

CONSTRUCTION:
- DOORS
  - 707 N SERIES
  - MIN. 18 ga. w/ POLYSTYRENE CORE @ INTERIOR DOORS, R VALUE = 7.25
  - MIN. 16 ga. w/ POLYURETHANE CORE AND FLUSH TOP CAP @ EXTERIOR DOORS, R VALUE = 10
- FRAMES
  - 'M' PROFILE w/ CONT. WELD FACE SEAMS AT FULL WIDTH OF JAMB
  - MIN. 16 ga. @ INTERIOR FRAMES
  - MIN. 14 ga. @ EXTERIOR FRAMES w/ URETHANE FOAM INSUL.
- GENERAL REQUIREMENTS
  - ALL EXTERIOR DOORS AND FRAMES TO BE GALVANIZED
  - ALL DOORS & FRAMES TO HAVE BAKED ON PRIMER FINISH
  - ALL DOORS & FRAMES TO BE REINFORCED AND PREPARED FOR HARDWARE
  - ALL REINFORCEMENT TO BE MIN. 12 ga.
  - PROVIDE WELDED-IN BASE ANCHORS
  - PROVIDE (3) SILENCERS PER JAMB @ ALL METAL DOOR FRAMES
  - PROVIDE BITUMINOUS COATING ON INT. FACE OF FRAMES IN MASONRY WALLS
  - PROVIDE METAL FRAME FOR LITES & GRILLES
  - PAINT LITE FRAMES TO MATCH DOOR FRAMES

DOOR HARDWARE KEY

HINGES

	DESCRIPTION / FINISH	Ives	Hager	McKinney	Stanley
H1	STANDARD (626)	5BB1	BB1279	TA2714	FBB179
H2	HEAVY (626)	5BB1HW	BB1168	T4A3786	FBB168
H3	STANDARD (630)	5BB1 SS	BB1191	TA2314	FBB191
H4	HEAVY (630)	5BB1HW SS	BB1199	T4A3386	FBB199

CONTINUOUS HINGES

	DESCRIPTION / FINISH	Roton (Hager)	McKinney	Select	Pemko
H5	AL. GEAR TYPE (MATCH)	780-112HD	MCK-12HD	SL-11HD	CFMHD
H6	AL. GEAR TYPE (630)	780-224HD	MCK-25HD	SL-24HD	CFMHD
H7	SS PIN/BARREL (630)	790-900	MCK-FM300	SL-300	SPDFM

LOCKSETS

	DESCRIPTION / FINISH	Schlage ND Series (RHO)	Sargent 10-Line (LL)	Best 93K (15D)	SARGENT 8200 (L)
L1	ENTRANCE (626)	ND53PD	10G05	93K AB	-
L2	CLASSROOM (626)	ND70PD	10G37	93K R	-
L3	PRIVACY (626)	ND40S	10U65	93K L	-
L4	STOREROOM (626)	ND80PD	10G04	93K D	-
L5	RIM CYLINDER (626)	20-022	34 SERIES	1E-72	-
L6	INSTITUTION (626)	ND82PD	10G17	93K W	-
L7	MORTISE CYLINDER (626)	20-001	40 SERIES	1E-74	-
L8	DEADLOCK (626)	B660P	480 SERIES	83T SERIES	-
L9	PASSAGE (626)	ND10S	10U15	93K N	-
L10	EXIT ONLY (626)	ND25	10G13	93K Y	-
L11	DUMMY TRIM (626)	ND170	10U93	93K 1DT	-
L12	PRIVACY (626)	-	-	-	65 W/ 45 OCC IND.

STOPS

	DESCRIPTION / FINISH	Ives	Hager	Rockwood
S1	FLOOR MTD. (626)	FS436	241F	441
S2	WALL MTD. (626)	WS407CCV	236W	409

OVERHEAD STOPS

	DESCRIPTION / FINISH	Glynn-Johnson	Sargent	Rixson
S3	HD SURFACE MTD. (630)	90 Series	590	9 Series
S4	HD CONCEALED (630)	100 Series	690	1 Series
S5	STD. CONCEALED (630)	410 Series	1530	2 Series
S6	STD. SURFACE MTD. (630)	450 Series	1540	10 Series

CLOSERS

	DESCRIPTION / FINISH	LCN	Sargent	Norton
C1	PULL SIDE REG. (689)	4040 XP REG	351 O	7501
C2	PULL SIDE HOLD-OPEN (689)	4040XP H	351 H	7501H
C3	PUSH SIDE REG. (689)	4040XP EDA	351 P10	PR7501
C4	PUSH SIDE w/ STOP (689)	4040XP CUSH	351 PS	CLP7501
C5	PUSH SIDE HOLD-OPEN (689)	4040XP HCUSH	351 PSH	CLP7501H
C6	PUSH SIDE EXT. DOORS (689)	4040XP SCUSH	351 CPS	UNI7501
C7	DROP PLATE (689)	4040XP-18PA	351-D	7788

EXIT DEVICES

		VonDuprin		Sargent	
	DESCRIPTION / FINISH	Med./Wide Stile	Narrow Stile	Med./Wide Stile	Narrow Stile
E1	RIM - EXIT ONLY (626)	98/99EO	33EO	8810	8400 Series
E2	RIM - LEVER (626)	98/99Lx996L	33Lx360L	8813 ETL	
E3	SURF. RODS - LEVER (626)	98/9927Lx996L	3327Lx360L	8713 ETL	
E4	CON. RODS - LEVER (626)	98/9947Lx996L	3347Lx360L	8613 ETL	
E5	RIM - EXIT ONLY (630)	98EO		8810	
E6	RIM - LEVER (630)	98Lx996L		8813 ETL	
E7	SURF. RODS - LEVER (630)	9827Lx996L		8713 ETL	

When a cylinder lockset is scheduled with an exit device, trim w/ cylinder should be provided. If no cylinder lockset is scheduled, trim shall be blank escutcheon (unless specified otherwise)

PUSH-PULL / KICKPLATES

	DESCRIPTION / FINISH	Rockwood	Hager	Ives
PP1	PUSH PLATE (630)	70C	30S	8200 4"x16"
PP2	PULL w/ PLATE (630)	106x70C	33E	8302
PP3	PUSH-PULL BAR (630)	BF15847	160D	9190-12
K1	KICKPLATE 8"x2"LDW (630)	K1050-B4E	190S	8400

WEATHERSTRIP, SWEEPS, & THRESHOLDS

	DESCRIPTION	National Guard	Reese	Pemko
T1	THRESHOLD	8424	S282A	252x2 FG
T2	SS SADDLE THRESHOLD	-	2125	154SS
T3	SS THERMAL THRESHOLD	-	-	252-3SSFG
SW1	SWEEP	200NA	772	315N
WS1	WEATHERSTRIP	160VA	DS106C	294AV
WS2	SMOKE SEAL	5050B	797B	S88

MISC. HARDWARE

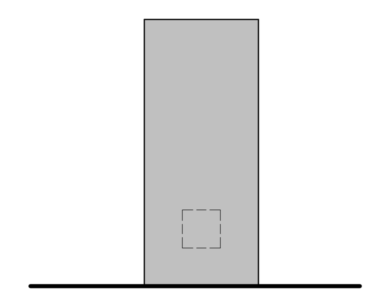
	DESCRIPTION	Ives	Rockwood	KAWNEER
CO1	COORDINATOR (626 Chrome)	COR Series	2600 Series	
CO2	COORDINATOR (Painted Black)	COR Series	2600 Series	
FB1	AUTO - METAL (626)	FB31P	2842	
FB2	AUTO - WOOD (626)	FB41P	2948	
FB3	MANUAL - METAL (626)	FB458	555	
FB4	MANUAL - WOOD (626)	FB358	557	
FB5	AUTO - SS (630)	-	2848	
B1	SURFACE BOLT - SS (630)	-	580 - 12" (24" at doors > 7')	
RL1	ROLLERLATCH (630)	RL32	592	
LP1	LATCH PADDLE DEVICE (630)			AR4590
		VonDuprin	HES	Securitron
ES1	AT RIM EXIT DEVICE (630)	6300	9500/9600 Series	N/A
ES2	AT STD. LOCKSET (630)	6211	1006 Series	UNL
		VonDuprin	Sargent	
RM1	REMOVABLE MULLION (626)	KR4954	L980	
		Pemko	Zero International	
AS1	'T' ASTRAGAL	355CS	-	
AS2	SECURITY ASTRAGAL	-	#43SP	
AS3	SECURITY ASTRAGAL (630)	-	#43STST	

MOTORIZED DOOR OPTIONS

	OPERATION DESCRIPTION		
RC	RADIO CONTROLLED		
3B	3 PUSH BUTTON		
CW	COUNTERWEIGHT OPERATING SYSTEM		
M	MANUAL		
	LIFT DESCRIPTION		
MFV	MAX FULL VERTICAL		
HLV	HIGH LIFT PARTIAL VERTICAL		
STD	STANDARD		
LHR	LOW HEAD-ROOM		

DOOR SCHEDULE

	DOOR SIZE						DOOR HARDWARE								
DOOR NO.	WIDTH	HEIGHT	THICKNESS	DOOR TYPE	FRAME TYPE	DOOR UNDERCUT	HINGE	LOCKSET	STOPS	CLOSER	EXIT DEVICE	PUSH-PULL / KICK	MISC.	W.S., SWEEP, THRESHOLD	REMARKS
101	3'-0"	7'-0"	1 3/4"	ID1	IF1		-	-	-	-	-	-	-	-	-
106	3'-0"	7'-0"	1 3/4"	MD1	EXIST		H2	L5	-	C6, C7	E2	PP2	-	T1, SW1, WS1	
107	3'-0"	7'-0"	1 3/4"	MD1	HM1	1"	H1	L4	-	-	-	-	-	-	
108	3'-0"	7'-0"	1 3/4"	MD1	HM1	1"	H1	L12	S5	C1	-	K1	-	-	
E100	3'-0"	7'-0"	1 3/4"	EXIST	EXIST		H5	L5	-	C6, C7	-	PP3	-	T1, SW1, WS1	

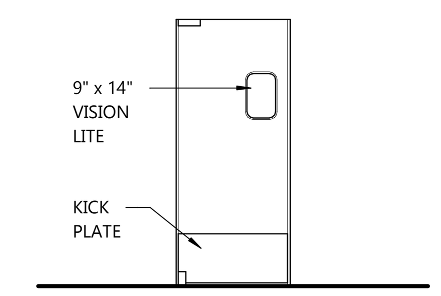


MD1

HOLLOW METAL DOOR
PAINTED - SEE FINISH SCHEDULE

METAL DOOR ELEVATIONS

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

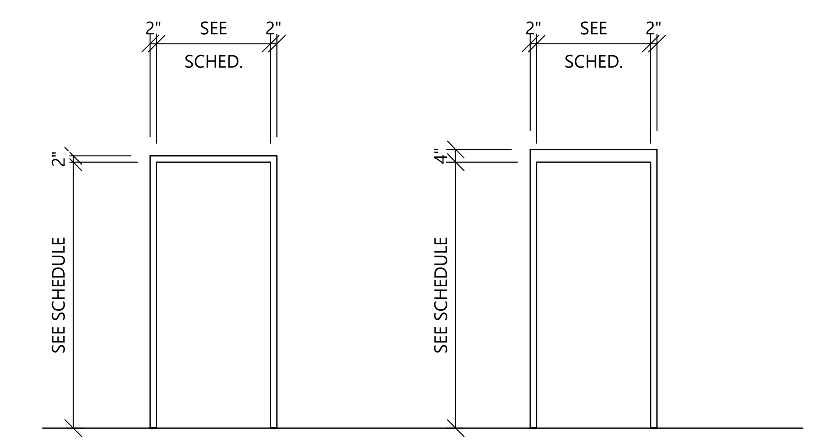


ID1

STAINLESS STEEL IMPACT TRAFFIC DOOR
ELIASON CORP SCG-3
(PEDESTRIAN TRAFFIC)

IMPACT DOOR

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



HM1

HOLLOW METAL FRAME
PAINTED - SEE FINISH SCHEDULE

HM2

HOLLOW METAL FRAME
PAINTED - SEE FINISH SCHEDULE

HOLLOW METAL FRAME ELEVATIONS

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

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. ● OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

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ARCHITECTURAL DOOR SCHEDULE

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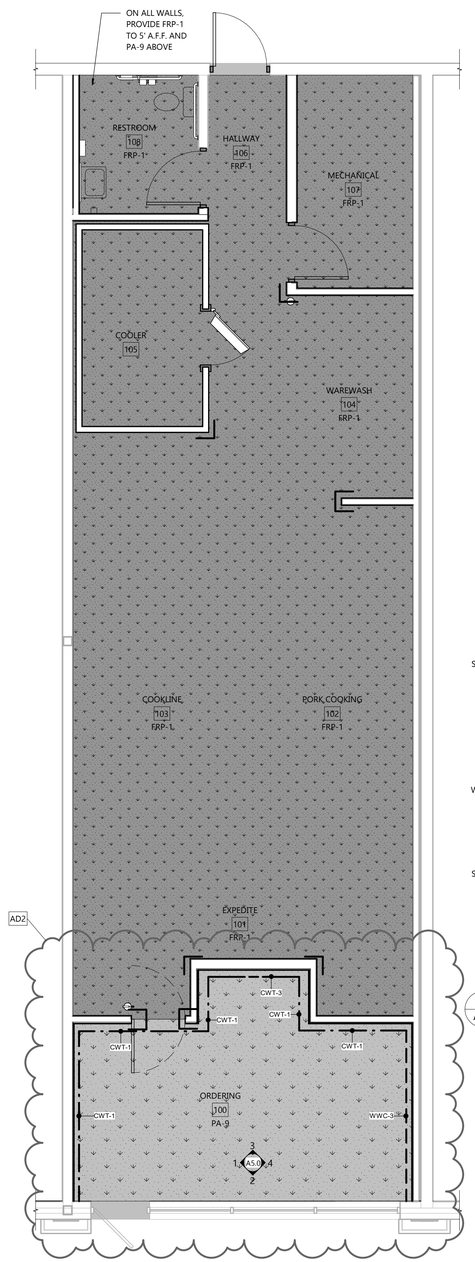


NORTH

FIRST FLOOR FINISH PLAN

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

4' 0' 4' 8'

ROOM FINISH NOTES

- REFERENCES TO PRODUCTS OR SYSTEMS HEREIN BY NAME, MAKE, OR CATALOG NUMBER IS INTENDED TO ESTABLISH A MIN. STANDARD QUALITY, AND IS NOT MEANT TO LIMIT COMPETITION IN ANY FASHION. APPROVED EQUIVALENTS SHALL BE ACCEPTED AFTER ARCHITECT APPROVAL
- CONTRACTORS SHALL PROVIDE PRODUCTS COMPLETE w/ ALL ACCESSORIES, TRIM, FINISH, FASTENERS, AND OTHER REQ'D ITEMS NEEDED FOR A COMPLETE INSTALLATION AS INDICATED

TRIMS

- HOLLOW METAL FRAMES SHOULD RECEIVE 1 COAT PRIMER & 2 COATS FINISH PAINT
- ALL WOOD TRIM TO BE PLAIN SAWN RED MAPLE (STAIN & VARNISH) - PROVIDE SAMPLE FOR ARCHITECTS APPROVAL

FLOORS

- FLOORING CONTRACTOR SHALL PREPARE FLOOR SURFACES RECEIVING NEW FINISHES AS REQ'D FOR A SMOOTH AND LEVEL SURFACE PRIOR TO INSTALLING NEW FINISHES
- USE MFR RECOMMENDED FLOORING PREP AND ADHESIVE
- FLOORING CONTRACTOR TO PROVIDE TRANSITION STRIPS AND EDGING AT ALL MATERIAL TRANSITIONS - SEE MATERIAL LEGEND AND SUBMIT STYLES TO BE APPROVED BY DESIGNER.
- PITCH EPOXY FLOORS TO FLOOR DRAINS

WALLS & CEILINGS

- ALL GYPSUM BOARD SHALL BE INSTALLED IN ACCORDANCE W/ THE GYPSUM CONSTRUCTION HANDBOOK. LEVEL OF FINISH AS PER GA-214 ARE AS FOLLOWS:
  - LEVEL 1: INTERIOR AND EXTERIOR WALL: CONCEALED AND ABOVE CEILINGS
  - LEVEL 3: ALL EXPOSED BELOW CEILING AREAS WITH HEAVY OR MEDIUM TEXTURE.
  - LEVEL 4: ALL EXPOSED BELOW CEILING ARES WITH FLAT PAINT, SMOOTH OR LIGHT TEXTURE OR WALL COVERINGS UNLESS OTHERWISE NOTED.
  - LEVEL 5: WHERE NOTED
- USE APPROPRIATE PRIMER FOR SUBSTRATE
- VACANT CONSTRUCTION WITH CEILING SURFACES RECEIVING DRYWALL PAINT SHOULD RECEIVE 2 SOLVENT BASED FINISH COATS
- ALL GYPSUM BOARD BULKHEADS SHALL BE PAINTED PA-1
- WHERE PORCELAIN TILE IS APPLIED, SURFACE SHOULD BE 5/8" DENS-SHIELD TILE BACKER BOARD AS REQUIRED

GENERAL NOTES

ALL FURNITURE IS TO BE PURCHASED AND INSTALLED BY OWNER. FURNITURE SHOWN ON PLAN IS FOR REFERENCE ONLY.

ARTWORK AND ACCESSORIES PURCHASED AND INSTALLED BY OWNER.

WINDOW TREATMENTS PURCHASED AND INSTALLED BY OWNER.

SIGNAGE PURCHASED AND INSTALLED BY OWNER.

PAINTING CONTRACTOR IS TO PAINT ANY EXPOSED WALL MOUNTED GRILLES THE COLOR OF THE ADJACENT WALL.

SEE INTERIOR ELEVATIONS FOR HEIGHTS OF WALL FINISHES.

FLOORING LEGEND

EPX-1 EPOXY (GRAY)

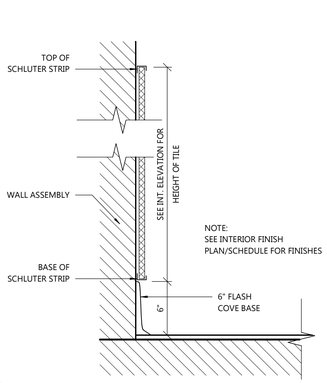
EPX-2 EPOXY (FLINT)

AD2

SYMBOL LEGEND

XX-X — ACCENT WALL MATERIAL - SEE FLOOR & ELEVATIONS PLAN FOR START/STOP LOCATION

CORNER GUARD - SEE FLOOR PLAN FOR LOCATIONS

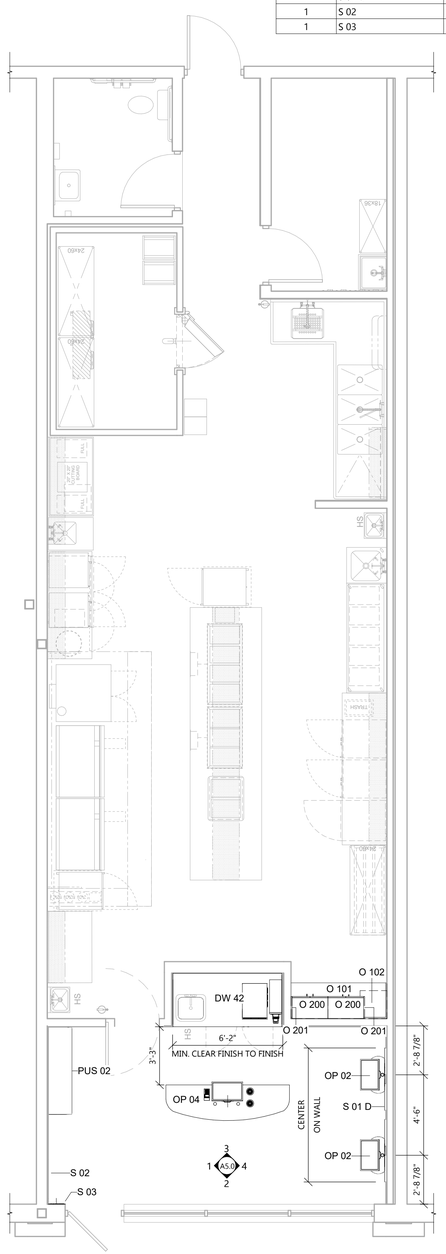


2 A8.1 BASE TRIM DETAIL

SCALE: 1 1/2" = 1'-0"

FURNITURE SCHEDULE

QUANTITY	FIXTURE CODE	MODEL NUMBER	DESCRIPTION	PROVIDED BY	REMARKS
1	DW 42	HBROS-DW-HB2GO-R-0000-00	Dole Soft Serve Back Counter (Small)	KATALYST	1,2
1	O 101	HBROS-O-0101-00	Office Counter	KATALYST	
1	O 102	HBROS-O-102-00	Office Cabinet	KATALYST	
2	O 200	HBROS-O-0200-00	Office Upper Cabinet	KATALYST	
2	O 201	HBROS-O-0201-00	Office Upper Cabinet - End Panel	KATALYST	
2	OP 02	HBROS-OP-0200-00	Wall Mounted Order Pod	KATALYST	2
1	OP 04	HBROS-LGOP-0000-00	Freestanding Order Pod	KATALYST	2
1	PUS 02	HBROS-PUS-0200-00	Online Order Pick-Up Shelf (Double)	KATALYST	
1	S 01 D	HBROS-CANVAS - SET OF 8	(8) Canvas Prints 18" x 18"	KATALYST	
1	S 02	HBROS-BADGE	Vinyl - Badge Logo	KATALYST	
1	S 03	HBROS-INTOCC	Vinyl - Int. Occupancy Sign	KATALYST	



NORTH

FIRST FLOOR FURNITURE

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

4' 0' 4' 8'

GENERAL NOTES

ALL FURNITURE IS TO BE PURCHASED AND INSTALLED BY OWNER. FURNITURE SHOWN ON PLAN IS FOR REFERENCE ONLY. COORDINATE ALL BLOCKING REQUIREMENTS WITH SUPPLIER

ARTWORK AND ACCESSORIES PURCHASED AND INSTALLED BY OWNER.

WINDOW TREATMENTS PURCHASED AND INSTALLED BY OWNER.

SIGNAGE PURCHASED AND INSTALLED BY OWNER.

PAINTING CONTRACTOR IS TO PAINT ANY EXPOSED WALL MOUNTED GRILLES THE COLOR OF THE ADJACENT WALL.

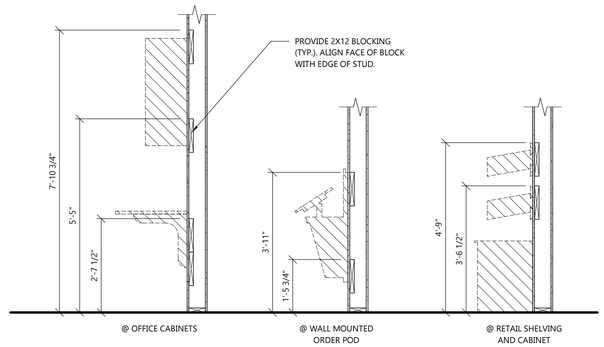
FOR ALL BLOCKING DETAILS

GENERAL COMMENTS

- VERIFY BLOCKING REQUIREMENTS WITH FURNITURE SUPPLIER
- PROVIDE 2% ACCESSIBLE SEATING

REMARKS

1. SEE PLUMBING DRAWINGS FOR PLUMBING REQUIREMENTS
2. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL REQUIREMENTS



NOTE:
VERIFY ALL BLOCKING REQUIREMENT WITH FURNITURE/CABINET SUPPLIER

1 A8.1 FURNITURE BLOCKING

SCALE: 1/2" = 1'-0"

ARCHITECTURAL FLOOR PLANS

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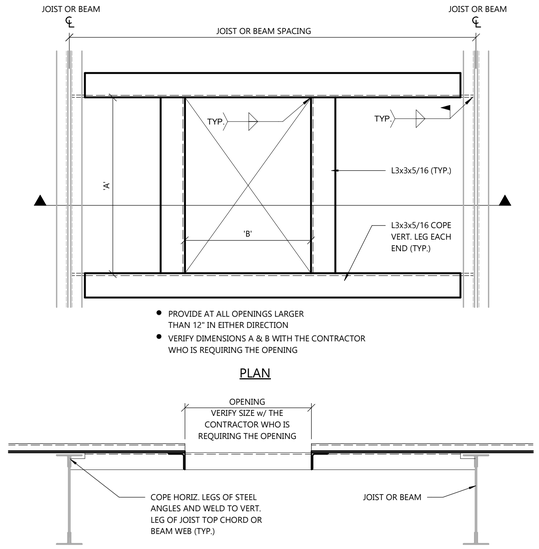
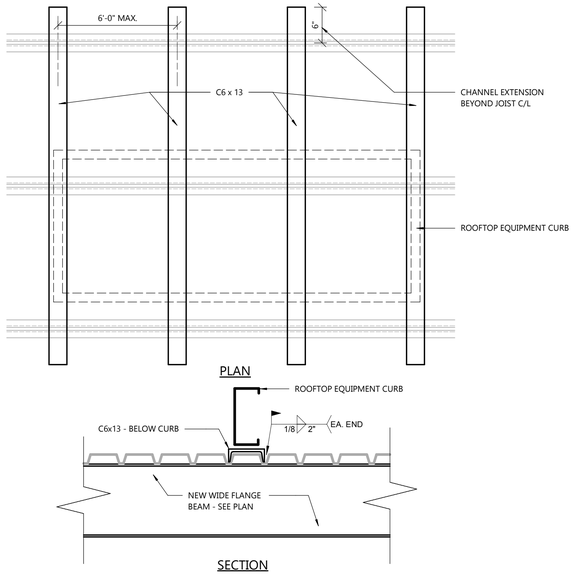


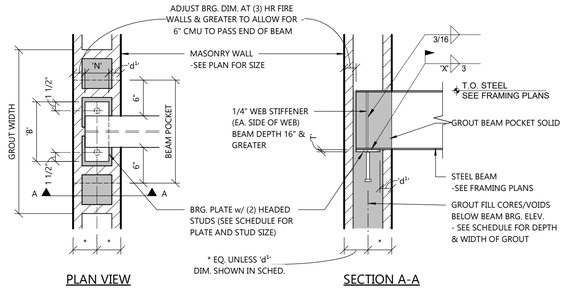
TYP. FRAMED OPENING AT EXISTING METAL DECK DETAIL

2 / S1.0 SCALE: 1" = 1'-0"



ROOF EQUIPMENT BEAM/METAL DECK REINFORCING DETAIL

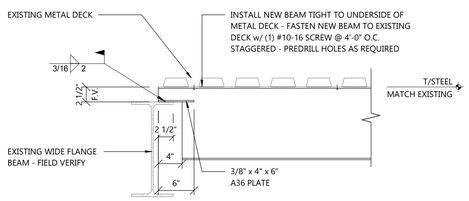
1 / S1.0 SCALE: 1" = 1'-0"



BEAM SIZE	'B'	'N'	'T'	'd1'	STUD DIAMETER	STUD LENGTH	WELD 'X'	GROUT DEPTH	GROUT WIDTH
W12x19	8"	6"	3/8"	1"	1/2"	5"	3/16	3 COURSES	3 CORES

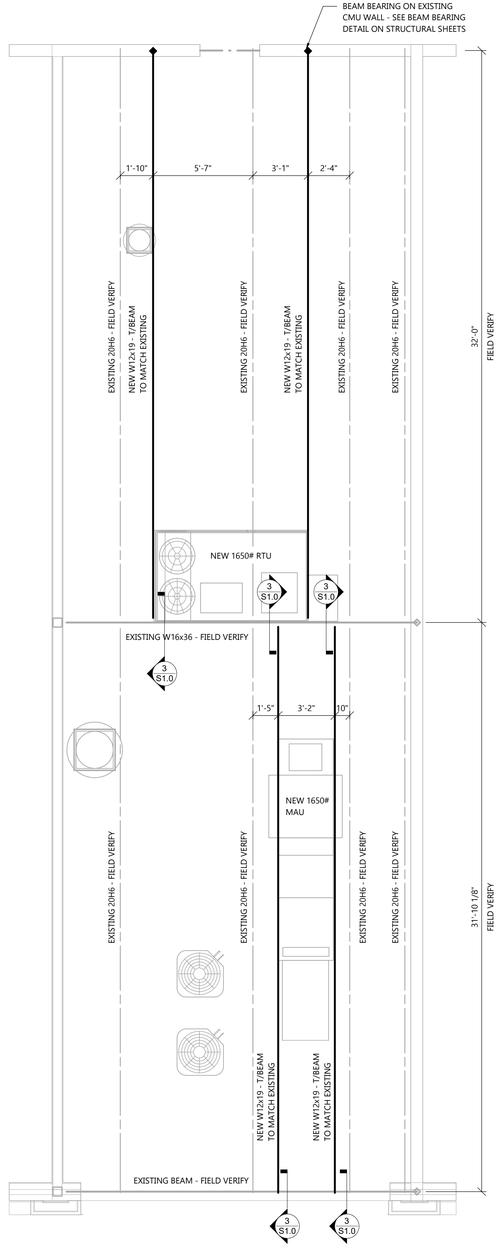
BEAM BEARING PLATE DETAIL

NOT TO SCALE



RTU SUPPORT DETAIL

3 / S1.0 SCALE: 1" = 1'-0"



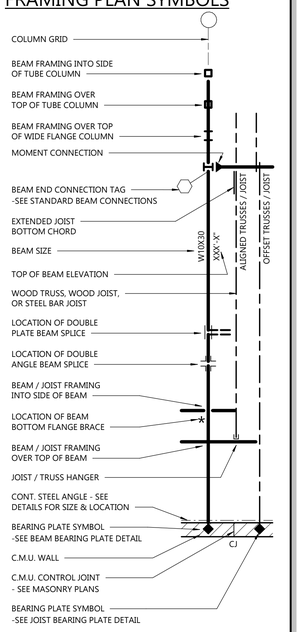
NORTH

EXISTING ROOF FRAMING PLAN

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

4' 0' 4' 8'

FRAMING PLAN SYMBOLS



STRUCTURAL LINTEL - SEE INDIVIDUAL LINTEL SCHEDULES
LINTEL TAG:
ML-X (MASONRY)
SL-X (STEEL)
CL-X (CONCRETE)
PL-X (PRECAST)
LL-X (LOOSE)

LINTEL TAG

STRUCTURAL SHEAR WALL - SEE INDIVIDUAL SHEAR WALL SCHEDULES
SHEAR WALL TAG:
MSW-X (MASONRY)
WSW-X (WOOD)
CFSW-X (COLD-FORMED STEEL)

SHEAR WALL TAG

HOLDDOWN ANCHOR LOCATION

INTERIOR LOAD BEARING WOOD / METAL STUD WALL

HEADER - SEE HEADER SCHEDULE — H-1

STRUCTURAL WOOD TRUSS - SEE INDIVIDUAL TRUSS SCHEDULES — GT-X (GABLE TRUSS) SGT-X (SPANNING GABLE TRUSS) DT-X (DRAG TRUSS)

GIRDER TRUSS SUPPORT - SEE GIRDER TRUSS SUPPORT SCHEDULE — GTS-X

WOOD STUD COLUMN - SEE TAG FOR SIZE AND GRADE — (2) 2x6 SPF #1/#2

WOOD COLUMN - SEE WOOD COLUMN SCHEDULE — WC-X

ROOF FRAMING NOTES

- ROOF FRAMING PLAN SHOWS ASSUMED EXISTING STRUCTURE LOCATIONS AND SIZES. ALL EXISTING STRUCTURE TO BE FIELD VERIFIED. CONTACT EXCEL ENGINEERING, INC. IF EXISTING STRUCTURE IS DIFFERENT THAN SHOWN.
- SEE MECHANICAL DRAWINGS FOR OPENINGS IN EXISTING METAL DECK. VERIFY OPENINGS WITH MECHANICAL CONTRACTOR. SEE STRUCTURAL SHEETS FOR TYPICAL DETAILS IN REGARDS TO EXISTING JOIST POINT LOAD REINFORCEMENT AND TYPICAL FRAMING AT NEW OPENINGS IN EXISTING METAL DECK.

STRUCTURAL EXISTING ROOF FRAMING PLAN

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Fond Du Lac, WI 54935
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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE NOV. 23, 2021
REVISIONS

JOB NUMBER
2172060

SHEET NUMBER
S1.0

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PLUMBING SPECIFICATIONS

DIVISION 22 PLUMBING

22 05 00 BASIC PLUMBING REQUIREMENTS

A. SEE DIVISION 00 PROCUREMENT AND CONTRACTING AND DIVISION 01 GENERAL REQUIREMENT FOR ADDITIONAL REQUIREMENTS.
B. PLUMBING CONTRACTOR SHALL VERIFY REQUIREMENTS FOR TEMPORARY WATER WITH GENERAL CONTRACTOR AND INCLUDE IN HIS SCOPE OF WORK WHEN DIRECTED BY G.C.. INSTALL IN ACCORDANCE WITH ALL CODE AND OSHA REQUIREMENTS FOR CONSTRUCTION PROJECTS.
C. SUBSTITUTIONS
  1. SEE DIVISION 01 25 13 PRODUCT SUBSTITUTION PROCEDURES FOR ADDITIONAL REQUIREMENTS.
  2. CONTRACTOR SHALL PROVIDE ALL SUPPORTING DATA AND ASSUME THE BURDEN OF PROOF THAT ANY SUBSTITUTE IS EQUIVALENT AS TO APPEARANCE, CONSTRUCTION, CAPACITY, AND PERFORMANCE. THE JUDGMENT OF EQUIVALENCY SHALL BE MADE BY THE ENGINEER AT THE TIME OF SHOP DRAWING REVIEW, NOT DURING BIDDING.
  3. WHERE SUBSTITUTE EQUIPMENT REQUIRES REDESIGN OF ANY PART OF THE PROJECT, THE COST OF REDESIGN AND ADDITIONAL COSTS OF THE WORK SHALL BE PAID BY THE CONTRACTOR. REDESIGN SHALL BE SUBJECT TO THE APPROVAL OF ALL AUTHORITIES HAVING JURISDICTION OVER THE WORK INCLUDING THE ARCHITECT/ ENGINEER.
  4. CONTRACTOR SHALL ASSUME ALL COORDINATION RESPONSIBILITIES FOR SUBSTITUTE EQUIPMENT INCLUDING COORDINATION ACROSS TRADES AND COORDINATION OF PREVIOUSLY REVIEWED AND APPROVED SHOP DRAWING SUBMITTALS, SHOULD THESE SHOP DRAWINGS BE AFFECTED BY THE SUBSTITUTED EQUIPMENT.
D. SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS AND SAMPLE SUBMITTALS:
  1. SEE DIVISION 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR ADDITIONAL REQUIREMENTS.
  2. PLUMBING CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
    a. PIPING
    b. PIPE IDENTIFICATION
    c. FIXTURES
    d. INSULATION
    e. HANGERS
    f. DRAINS AND CLEANOUTS
    g. VALVES
    h. BACKFLOW PREVENTERS
    i. WATER HEATERS
    j. WATER HEATER FLUES
    k. PUMPS
    l. WATER TREATMENT EQUIPMENT
    m. INTERCEPTORS
  3. PROJECT CLOSEOUT
    a. PROVIDE PLUMBING EQUIPMENT OPERATING AND MAINTENANCE MANUALS TO THE OWNER PER IECC C303.3 AND C408.2.5.1.
  4. AS-BUILT DRAWINGS SHALL BE MARKED ON A FINAL SET OF DRAWINGS WHICH INCLUDES ALL REVISIONS.
E. SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS AND SAMPLE SUBMITTALS:
  1. SEE DIVISION 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR ADDITIONAL REQUIREMENTS.
    a. PROVIDE PLUMBING EQUIPMENT OPERATING AND MAINTENANCE MANUALS TO THE OWNER PER IECC C303.3 AND C408.2.5.2.
    b. PROVIDE PLUMBING EQUIPMENT OPERATING AND MAINTENANCE MANUALS TO THE OWNER PER IECC C408.1.1 AND C408.3.2.2.
  2. AS-BUILT DRAWINGS SHALL BE MARKED ON A FINAL SET OF DRAWINGS WHICH INCLUDES ALL REVISIONS.
F. FINISHING AND PAINTING
  1. SEE DIVISION 09 91 00 FINISH AND PAINTING FOR ADDITIONAL REQUIREMENTS.
  2. PREPARE EXPOSED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING IN ROOMS THAT WILL HAVE CEILING AND STRUCTURE PAINTED.
  3. COORDINATE WORK WITH THE PAINTERS SO THAT ALL EQUIPMENT IS INSTALLED PRIOR TO PAINTING. P.C. SHALL PAINT ITEMS IF NOT IN PLACE PRIOR TO NORMAL ROUTINE PAINTING.
  4. IF FINISH BECOMES RUSTED, CORRODED, SCRATCHED, OR FLAKED DURING STORAGE OR INSTALLATION, REFINISH THE EQUIPMENT TO THE SATISFACTION OF THE OWNER.
  5. WHERE THE PLUMBING CONTRACTOR IS REQUIRED TO PAINT, THE PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINTING PORTION OF THE ARCHITECTURAL SPECIFICATION.
G. DETAILS AND SCHEDULES ARE SHOWN TO AID THE CONTRACTOR AND ARE NOT MEANT TO BE INCLUSIVE OF ALL DEVICES. PROVIDE REQUIRED EQUIPMENT AND ACCESSORIES FOR A COMPLETE INSTALLATION.
H. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS. PROVIDE ADDITIONAL WORK AND MATERIALS AS REQUIRED.
I. REGULATORY REQUIREMENTS
  1. PERFORM WORK PER ALL LOCAL AND STATE CODES, ORDINANCES AND REGULATIONS HAVING JURISDICTION.
  2. PROVIDE CERTIFICATE OF COMPLIANCE FROM AUTHORITY HAVING JURISDICTION INDICATING APPROVAL BACKFLOW PREVENTION DEVICES TESTING AND INSTALLATION.
J. COORDINATE INSTALLATION OF PLUMBING WORK WITH THE OTHER CONTRACTORS TO AVOID CONFLICTS WITH OTHER WORK.
K. VERIFY CONNECTION REQUIREMENTS FOR EQUIPMENT FURNISHED BY OTHERS WITH FINAL SHOP DRAWINGS.
L. CUTTING AND PATCHING
  1. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR PLUMBING WORK INSTALLATION UNLESS THIS WORK IS IDENTIFIED TO BE THE WORK OF OTHER CONTRACTORS. PATCHING SHALL MATCH ADJACENT SURFACES. CORE DRILL OR SAW-CUT OPENINGS THROUGH EXISTING CONCRETE.
  2. P.C. SHALL PROVIDE SAWCUTTING, EXCAVATION, AND BACKFILL OF EXISTING FLOORS AS REQUIRED FOR INSTALLATION OF NEW UNDERGROUND PIPING. P.C. SHALL PROVIDE CONCRETE AND REINFORCING PER FLOOR SLAB SPECIFICATIONS IN REMOVED AREA OF THICKNESS TO MATCH EXISTING (FIELD VERIFY). PROVIDE DOWELS INTO EXISTING FLOOR SLAB. DOWEL DIAMETER SHALL BE MINIMUM ONE EIGHTH OF FLOOR SLAB THICKNESS. DOWEL LENGTH SHALL BE 12" FOR SLABS LESS THAN 6" THICK, 16" FOR SLABS 6-7" THICK, 18" FOR SLABS 8-9" THICK, AND 20" FOR SLABS GREATER THAN 9" THICK. DOWELS SHALL BE SPACED 12" O.C. AND PENETRATION IN EXISTING SLAB SHALL BE HALF THE LENGTH.
M. FIRE RATED INTERIOR WALL AND FLOOR PIPE PENETRATIONS
  1. SLEEVE REQUIRED FOR PENETRATION OF CONCRETE AND MASONRY WALLS AND FLOORS.
  2. SEAL OPENING AROUND PIPE WITH A UL APPROVED FIRE-STOP SYSTEM HAVING AN F-RATING NOT LESS THAN THE HOURLY RATING OF THE ASSEMBLY BEING PENETRATED.
  3. PROVIDE FIRE-RESISTIVE JOINT SYSTEM PRODUCTS BY THE SAME MANUFACTURER AS BEING USED ON THE REMAINDER OF THE PROJECT (COORDINATE WITH GC/CM).
  4. WHERE A SLEEVE IS REQUIRED, FURNISH AND INSTALL SLEEVES FOR NEW DRYWALL WALLS AND CONCRETE WALLS AND FLOORS. FURNISH SLEEVES TO THE MASON CONTRACTOR FOR INSTALLATION IN NEW MASONRY WALLS. PROVIDE SLEEVE AND GROUT SLEEVE IN EXISTING MASONRY WALLS.
  5. PROVIDE UL ASSEMBLY PENETRATION NUMBER TO AHJ COMPLIANT WITH BUILDING UL ASSEMBLY 30 DAYS PRIOR TO INSTALLATION IF REQUIRED BY AHJ.
N. SEALANTS
  1. PLUMBING CONTRACTOR SHALL PROVIDE ALL SEALANTS WHERE JOINT IS HIDDEN AND WHERE JOINT IS EXPOSED IN MECHANICAL ROOM.
  2. SEALANT CONTRACTOR SHALL PROVIDE SEALANTS AT ALL EXPOSED LOCATIONS IN FINISHED ROOMS.
  3. SEE SECTION 07 92 00 SEALANTS FOR ADDITIONAL INFORMATION.
O. ESCUTCHEONS
  1. INSTALL ONE-PIECE (TWO PIECE FOR EXISTING PIPING) POLISHED CHROME PLATED STEEL ESCUTCHEONS AT PENETRATIONS EXPOSED IN FINISHED ROOMS (ROOMS WHICH DON'T HAVE UNFINISHED CONCRETE FLOORS).
  2. ESCUTCHEONS WITH SPRINGS FOR WALL AND CEILING LOCATIONS.
  3. ID TO CLOSELY FIT AROUND PIPE/INSULATION, OD THAT COMPLETELY COVERS THE OPENING.
  4. ESCUTCHEONS REQUIRED IN CABINETS AND CASEWORK.
P. REMOVE PLUMBING EQUIPMENT, FIXTURES, PIPING, ETC. INDICATED BY THE DRAWINGS TO BE DEMOLISHED FROM THE JOB SITE, UNLESS INDICATED TO BE TURNED OVER TO THE OWNER.
Q. PROJECT COMPLETION
  1. CLEAN FIXTURES AND EQUIPMENT AND LEAVE IN PROPER WORKING CONDITION AT THE TIME OF FINAL CLEAN-UP.
  2. REMOVE, CLEAN AND REPLACE AERATORS AFTER FLUSHING WATER PIPING.
  3. PROVIDE OPERATING INSTRUCTIONS FOR A TOTAL OF TWO (2) HOURS. MAINTAIN A RECORD OF OPERATING INSTRUCTION PERIODS AND OBTAIN OWNER SIGNOFF THAT INSTRUCTIONS HAVE BEEN COMPLETED.

R. ACCESS
  1. FURNISH ACCESS PANELS OF ADEQUATE SIZE TO PERMIT SERVICE OF EQUIPMENT, VALVES, OR OTHER SPECIALTIES WHICH REQUIRE MAINTENANCE OR ADJUSTMENT WHICH ARE INSTALLED BEHIND WALLS OR ABOVE NON-LAYIN CEILING SURFACES.
  2. PANELS SHALL BE SUITABLE FOR INSTALLATION IN THE MATERIAL FORMING THE FINISHED SURFACE, WITH FLANGED FLUSH METAL FRAME, FLUSH HINGED STEEL DOOR, FLUSH SCREWDRIVER OPERATED LATCH.
  3. PANELS UL LISTED TO CONFORM TO THE FIRE RATING OF THE SURFACE INSTALLED IN.
  4. TURN ACCESS PANEL OVER TO CONTRACTOR SKILLED IN THE CONSTRUCTION OF THE SURFACES INVOLVED FOR INSTALLATION.
  5. ARCHITECT TO APPROVE ACCESS PANEL LOCATION PRIOR TO INSTALLATION OF EQUIPMENT REQUIRING ACCESS.
  6. COORDINATE WITH THE OTHER CONTRACTORS AND WHEREVER PRACTICAL, GROUP DEVICES IN SUCH A MANNER SO AS TO MINIMIZE PANELS.

22 05 19 METERS AND GAUGES

A. PRESSURE GAUGES AND THERMOMETERS
  1. MANUFACTURERS: TRERICE, U.S. GAUGE, ASHCROFT, MARSH, WEISS, WEKSLER.
  2. PRESSURE GAUGES
    a. GENERAL PURPOSE: TRERICE 600CB PBF CERTIFIED LEAD FREE CAST ALUMINUM CASE, PHOSPHOR BRONZE BOURDON TUBE; TRERICE 872-1PBF LEAD FREE BRASS PRESSURE SNUBBER.
      1). GAUGE COCK: APOLLO 77FLF-100 LEAD FREE FULL PORT THREADED BRASS VALVE, 150 PSI SWP, 400 DEG F MAXIMUM TEMPERATURE.
  3. STEM THERMOMETERS:
    a. GENERAL PURPOSE: TRERICE BX9, ASTM E1, ORGANIC SPIRIT LIQUID FILL, CAST ALUMINUM CASE WITH EPOXY FINISH, CAST ALUMINUM ADJUSTABLE JOINT WITH POSITIVE LOCKING DEVICE, 9" SCALE, 3/4" NPT BRASS STEM, WITH EXTENSIONS AS REQUIRED FOR INSULATION.
    b. PROVIDE THERMOWELL FOR ALL THERMOMETERS. BRASS IN COPPER TUBING. SIZE AND INSERTION LENGTH FOR APPLICATION. PROVIDE HEAT TRANSFER MEDIUM.
  4. SCALE RANGES AND MINIMUM INCREMENT AS FOLLOWS:
    a. COLD WATER: 0-100 PSIG/ 1 PSIG; 0-100 DEG F/ 1 DEG F
    b. HOT WATER: 0-100 PSIG/ 1 PSIG; 0-160 DEG F/ 2 DEG F.
    c. BOOSTED PRESSURE WATER: 100-400 PSIG/10 PSIG; 20-180 DEG / 2 DEG F
  5. EXTEND NIPPLES TO ALLOW INSULATION CLEARANCE.
  6. INSTALL WHERE READ FROM NORMAL OPERATING LEVEL.
  7. CALIBRATE FOR ACCURACY.

22 05 29 PIPE AND EQUIPMENT HANGERS AND SUPPORTS

A. MANUFACTURERS: B-LINE, EMPIRE INDUSTRIES, GLOBAL PIPE HANGER PRODUCTS, GRINNEL, NATIONAL PIPE HANGER, UNI STRUT.
B. PROVIDE SEISMIC-RESTRAINT HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.
C. ANGLES, CHANNELS, AND BEAMS: ASTM A36 AND A572 AS REQUIRED.
D. HANGERS SHALL NOT BE ATTACHED TO JOIST BRIDGING.
E. ATTACHMENT TO METAL DECK: HANGERS MAY BE ANCHORED TO METAL FLOOR/ROOF DECK IF ALL THE FOLLOWING CONDITIONS ARE MET:
  1. MAXIMUM HANGER LOAD OF 50 LBS.
  2. ANCHORED TO BOTTOM OF DECK FLUTES, NOT UPPER FLUTE.
  3. ANCHOR LENGTH SHALL EXCEED DECK DEPTH.
F. FASTENER SYSTEM
  1. PULL-OUT TENSION AND SHEAR CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS.
  2. POWDER-ACTUATED FASTENERS: THREADED-STEEL STUD, FOR USE IN CONCRETE.
  3. MECHANICAL-EXPANSION ANCHORS: INSERT-WEDGE TYPE, ZINC-COATED STEEL (STAINLESS IN PROCESS ROOMS), FOR USE IN CONCRETE. MINIMUM 1 1/2" EMBEDMENT.
G. PIPE HANGERS/SUPPORTS
  1. SEE DETAILS ON PLANS FOR ADDITIONAL PIPE HANGER SPECIFICATIONS.
  2. SEE SCHEDULE ON PLANS FOR HANGER SPACING.
  3. CONFORM TO ASME B31.9 AND MANUFACTURER'S STANDARDIZATION SOCIETY (MSS) SP-58-2009.
  4. INSTALL HANGERS AND SUPPORTS SO PIPING LIVE AND DEAD LOADS AND STRESSES FROM MOVEMENT WILL NOT BE TRANSMITTED TO CONNECTED EQUIPMENT. ADJUST HANGERS TO DISTRIBUTE LOADS EQUALLY ON ATTACHMENTS AND TO PROVIDE INDICATED PIPE SLOPES.
  5. PROVIDE SWAY BRACING ON HORIZONTAL DRAINAGE PIPES ABOVE GRADE 4" AND LARGER AT ALL CHANGES IN DIRECTION GREATER THAN 45 DEG WITHIN 12" OF CHANGE IN DIRECTION.
H. STRUT SYSTEM
  1. COMPLY WITH THE LATEST REVISION OF MFMA STANDARDS PUBLICATION NUMBER MFMA-3, "METAL FRAMING STANDARDS PUBLICATION".
  2. INSTALL STRUT IN ACCORDANCE WITH MFMA-102 "GUIDELINES FOR THE USE OF METAL FRAMING"; IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S RECOMMENDATONS, AND WITH RECOGNIZED INDUSTRY PRACTICES.
  3. COLD FORMED LOW CARBON STEEL METAL FRAMING CHANNEL STRUT: B-LINE TYPE B CHANNEL.
  4. 1-5/8 INCHES WIDE IN VARYING HEIGHTS AND WELDED COMBINATIONS AS REQUIRED TO MEET LOAD CAPACITIES.
  5. MANUFACTURER'S STANDARD FINISH OR PLAIN FINISH.
I. EQUIPMENT PIPE STANDS: CONTRACTOR FABRICATED STAND CONSISTING OF STRUCTURAL STEEL MEMBERS SUPPORTED BY PIPE SUPPORTS.
J. PROVIDE SUPPORT FOR UTILITY METERS IN ACCORDANCE WITH REQUIREMENTS OF UTILITY COMPANY.
K. CONCRETE PADS
  1. COORDINATE FINAL EQUIPMENT CONCRETE PAD SIZE REQUIREMENTS. PADS SHALL EXTEND MINIMUM 6" BEYOND EQUIPMENT FOOTPRINT.

22 05 53 MECHANICAL IDENTIFICATION

A. PIPE IDENTIFICATION
  1. INDOOR SELF-ADHESIVE PIPE MARKERS
    a. MANUFACTURERS: MARKING SERVICES MS-900, BRADY B-736, SETON OPTI-CODE.
    b. FLEXIBLE PVC FILM WITH PRESSURE SENSITIVE ACRYLIC ADHESIVE BACKING WITH PRINTED MARKINGS.
    c. SECURE WITH 2" WIDE TAPE WITH ARROWS INDICATING FLOW.
  2. COLOR, OVERALL SIZE AND LETTER HEIGHT SHALL CONFORM TO ASME A13.1- 2007 "SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS".
  3. IDENTIFY PIPE SERVICE, FLOW DIRECTION, AND PRESSURE.
  4. LOCATIONS
    a. LOCATE TO FACE GREATEST POINT OF VISIBILITY. ALL ADJACENT LABELS TO BE INSTALLED NEATLY IN A ROW.
    b. LOCATE IDENTIFICATION NOT-TO-EXCEED 50 FEET FOR EXPOSED PIPING.
    c. LOCATE IDENTIFICATION NOT-TO-EXCEED 25 FEET FOR PIPING ABOVE CEILINGS.
    d. MINIMUM ONE LOCATION PER ROOM.
    e. INSTALL IDENTIFICATION AFTER PIPING AND INSULATION IS COMPLETE TO ENSURE MAXIMUM VISIBILITY OF THE IDENTIFICATION SYSTEM.
    f. BEHIND ACCESS PANELS AND ALL OTHER ACCESSIBLE POINTS OF SERVICE.
    g. NEAR LOCATIONS WHERE PIPES PENETRATE WALLS, FLOORS OR CEILINGS.
    h. NEAR EACH VALVE AND CONTROL DEVICE.
    i. AT EACH MAJOR PIECE OF EQUIPMENT.

22 07 00 INSULATION

A. GENERAL
  1. SEE INSULATION SCHEDULES ON PLANS FOR ADDITIONAL INFORMATION.
  2. INSULATION, INSULATION SYSTEMS AND JACKETS SHALL MEET UL-723/ASTM E84 REQUIREMENTS OF MAX. FIRE HAZARD CLASSIFICATION OF 25, AND MAX. FLAME SPREAD, FUEL CONTRIBUTED, AND SMOKE DEVELOPED OF 50 WHEN INSTALLED IN RETURN AIR PLENUMS.
  3. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND MICA PUBLICATION "COMMERCIAL AND INDUSTRIAL STANDARDS", 2011 SEVENTH EDITION.
  4. CONTINUE INSULATION WITHOUT INTERRUPTIONS THROUGH WALLS AND FLOOR PENETRATIONS AND HANGERS.
B. FIBERGLASS (F.G.) INSULATION
  1. INSULATION IN CONTACT WITH STAINLESS STEEL SHALL MEET ASTM C795 THERMAL INSULATION FOR USE IN CONTACT WITH AUSTENITIC STAINLESS STEEL AND MIL-I-24244 INSULATION WITH SPECIAL CORROSION, CHLORIDE AND FLUORIDE REQUIREMENTS.
  2. RIGID PIPING:
    a. O.C. FIBERGLAS PIPE INSULATION, KNAUF EARTHWOOL PIPE INSULATION, JOHNS MANVILLE MICRO-LOK.
    b. SINGLE OR DOUBLE ADHESIVE SELF-SEALING LAP SYSTEM FOR LONGITUDINAL JOINT, PRESSURE SENSITIVE BUTT STRIP SEALS, ALL SERVICE JACKET VAPOR BARRIER COVERING.
    c. 3.5-5.5 LB./CU.FT., R=4.3 / NOMINAL INCH AT 75 DEG F.
    d. MAX 850 DEG F, JACKET MAX 150 DEG F, 0.02 PERM.
    e. COMPRESSIVE STRENGTH AT 10% DEFORMATION 125 LB./S.F.
    f. VALVES, FITTINGS, AND FLANGE COVERS:
      1). ZESTON 2000/300 SERIES, CEELCO 300 SERIES, PROTO LOSMOKE PVC JACKET
      2). HIGH IMPACT 30 MIL WHITE PVC WITH PRECUT FIBERGLASS INSERTS. MAX TEMP 150 DEG
C. ELASTOMERIC FOAM INSULATION
  1. SEAL BUTT JOINTS WITH ADHESIVE.
  2. PIPE
    a. MANUFACTURERS: AEROFLEX AEROCEL SSPT, K-FLEX INSUL-LOCK DS, ARMACELL AP/ARMAFLEX BLACK LAPSEAL.
    b. EPDM/PVC BASE ELASTOMERIC FOAM MATERIAL
    c. DUAL TAPE CLOSURE
    d. MAX. 'K' VALUE 0.245 AT 75 DEG F
    e. MAX. CONTINUOUS TEMPERATURE 220 DEG F
    f. MAX. 0.05 PERM PER ASTM E96
    g. MAX. FIRE/SMOKE DEVELOPED OF 25/50 PER ASTM E84 FOR UP TO 2" THICK.
    h. PROVIDE MANUFACTURER PREFORMED INSULATION OVER VALVES AND FITTINGS
D. PIPE INSULATION REQUIREMENTS
  1. INSULATE ENTIRE PIPING SYSTEM INCLUDING VALVES AND FITTINGS PER MICA INSULATION STANDARDS PLATES 10 THRU 18.
  2. SEAL ALL INSULATION ENDS.

22 10 00 EXCAVATION AND BACKFILL

A. P.C. SHALL EXCAVATE AND BACKFILL TRENCHES FOR PLUMBING WORK.
B. PROTECT TREES, PLANTS, LAWNS, AND OTHER FEATURES REMAINING AS PORTION OF FINAL LANDSCAPING.
C. PROTECT BENCHMARKS, EXISTING STRUCTURES, FENCES, SIDEWALKS, PAVING, AND CURBS FROM EXCAVATING EQUIPMENT AND VEHICULAR TRAFFIC.
D. MAINTAIN, PROTECT, AND TEMPORARILY SUPPORT ABOVE AND BELOW GRADE UTILITIES WHICH ARE TO REMAIN.
E. PROVIDE AND MAINTAIN ALL FENCING, BARRICADES, SIGNS, WARNING LIGHTS, AND/OR OTHER EQUIPMENT NECESSARY TO KEEP ALL EXCAVATION PITS AND TRENCHES AND THE ENTIRE SUBGRADE AREA SAFE UNDER ALL CIRCUMSTANCES AND AT ALL TIMES. NO EXCAVATION SHALL BE LEFT UNATTENDED WITHOUT ADEQUATE PROTECTION.
F. ELEVATIONS SHOWN ON THE PLANS ARE SUBJECT TO SUCH REVISIONS AS MAY BE NECESSARY TO FIT FIELD CONDITIONS.
G. EXCAVATING
  1. CUT TRENCHES SUFFICIENTLY WIDE TO ENABLE INSTALLATION AND ALLOW INSPECTION. REMOVE WATER OR MATERIALS THAT INTERFERE WITH WORK.
  2. DO NOT INTERFERE WITHIN 45 DEGREE BEARING SPLAY OF FOUNDATIONS.
  3. EXCAVATE MINIMUM 4" BELOW BOTTOM OF PIPE IF STONE GREATER THAN 1" OR BEDROCK IS ENCOUNTERED.
  4. REMOVE UNSTABLE AREAS OF SUBGRADE BELOW PIPE TO MINIMUM 24" BELOW PIPE OR TO STABLE MATERIAL. BACKFILL WITH PEA GRAVEL, LIMESTONE SCREENINGS, OR EQUIVALENT AND COMPACT TO DENSITY EQUAL TO REQUIREMENTS FOR SUBSEQUENT BACKFILL MATERIAL.
  5. STOCKPILE EXCAVATED MATERIAL IN AREA DESIGNATED ON SITE AND REMOVE EXCESS MATERIAL NOT BEING USED FROM SITE.
H. BEDDING AND BACKFILL:
  1. LINES PASSING UNDER FOUNDATIONS:
    a. INSTALL WITH MINIMUM OF 1-1/2 INCH CLEARANCE TO CONCRETE AND ENSURE THERE IS NO DISTURBANCE OF BEARING SOIL.
    b. BACKFILL WITH COMPACTED ENGINEER FILL PER GEOTECH REPORT.
  2. MECHANICALLY COMPACT BEDDING AND BACKFILL TO PREVENT SETTLEMENT. THE INITIAL COMPACTED LIFT TO NOT EXCEED 24" COMPACTED TO 95% DENSITY PER MODIFIED PROCTOR TEST (ASTM D-1557). SUBSEQUENT LIFTS UNDER PAVEMENTS, CURBS, WALKS AND STRUCTURES ARE NOT TO EXCEED 12" AND BE COMPACTED TO 95% DENSITY PER MODIFIED PROCTOR TEST. IN ALL OTHER AREAS WHERE CONSTRUCTION ABOVE THE EXCAVATION IS NOT ANTICIPATED WITHIN 2 YEARS, MECHANICALLY COMPACT BACKFILL IN LIFTS NOT EXCEEDING 24" TO 90% DENSITY PER MODIFIED PROCTOR TEST.
  3. MAINTAIN OPTIMUM MOISTURE CONTENT OF FILL MATERIALS TO ATTAIN REQUIRED COMPACTION DENSITY.
  4. DRAIN PIPING
    a. BEDDING: WHERE OVEREXCAVATED, BRING BACK TO BOTTOM OF PIPE ELEVATION WITH DRY SAND, GRAVEL, PEA GRAVEL, WASHED STONE OR CRUSHED STONE PASSING A 3/4" SIEVE.
    b. BACKFILL TO A DEPTH OF 12" OVER THE PIPE WITH SAND, CRUSHED STONE THAT PASSES A 1" SIEVE. PLACE IN WELL TAMPED MAXIMUM 6" LAYERS FOR LENGTH OF SEWER AND WIDTH OF TRENCH.
  5. WATER PIPING
    a. BEDDING: WHERE OVEREXCAVATED, BRING BACK TO BOTTOM OF PIPE ELEVATION WITH DRY SAND, PEA GRAVEL OR WASHED STONE PASSING A 3/4" SIEVE.
    b. BACKFILL TO A DEPTH OF 12" OVER THE PIPE WITH SAND, PEA GRAVEL, OR WASHED STONE THAT PASSES A 3/4" SIEVE. PLACE IN WELL TAMPED MAXIMUM 6" LAYERS FOR LENGTH OF WATER PIPE AND WIDTH OF TRENCH.
  6. BACKFILL ABOVE 12" ABOVE THE PIPE:
    a. LAWN AREAS: COMPACTED EXCAVATED MATERIAL FREE OF LARGE STONES, ORGANIC, AND FROZEN MATERIALS.
    b. UNDER EXISTING AND FUTURE UTILITIES, PAVING, SIDEWALKS, CURBS, ROADS AND BUILDINGS: GRANULAR MATERIALS, PIT RUN SAND, GRAVEL, OR CRUSHED STONE, FREE FROM LARGE STONES, ORGANIC, AND FROZEN MATERIALS.
  7. DIRECT SURFACE WATER AWAY FROM STOCKPILE SITE TO PREVENT EROSION OR DETERIORATION OF MATERIALS. REMOVE STOCKPILE, LEAVE AREA IN A CLEAN AND NEAT CONDITION. GRADE SITE SURFACE TO PREVENT FREESTANDING SURFACE WATER.

22 11 00 WATER PIPING AND VALVES

A. PIPING
  1. SEE PIPE SCHEDULE ON PLANS FOR ADDITIONAL INFORMATION.
B. PIPING INSTALLATION
  1. DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF PIPING. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS TO COORDINATE WITH INSTALLATION REQUIREMENTS OF OTHER SYSTEMS.
  2. ROUTE ABOVE GROUND PIPING IN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE. OFFSET PIPE CONNECTIONS AT EQUIPMENT TO ALLOW FOR SERVICE, SUCH AS REMOVAL OF THE EQUIPMENT.
  3. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
  4. INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE AND OTHER WORK. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
  5. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT WITH RESPECT TO THE BUILDING AND PLUMBING SYSTEM.
  6. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES.
  7. DO NOT ROUTE PIPING ABOVE TRANSFORMERS, PANELBOARDS, MOTOR CONTROL CENTERS, SWITCHBOARDS OR OTHER ELECTRICAL DISTRIBUTION EQUIPMENT.
  8. PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
  9. USE ONLY NEW MATERIAL, FREE OF DEFECTS, RUST AND SCALE, AND MEETING THE LATEST REVISION OF THE ASTM SPECIFICATIONS.
  10. PREPARE EXPOSED UNFINISHED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES, READY FOR FINISH PAINTING.
  11. SLOPE PIPING AND ARRANGE SYSTEMS TO DRAIN AT LOW POINTS. USE TOP CONNECTIONS FOR TAKEOFFS TO EQUIPMENT ABOVE THE MAINS AND BOTTOM CONNECTIONS FOR TAKEOFFS TO EQUIPMENT BELOW THE MAINS.
  12. USE LONG RADIUS ELBOWS FOR ALL 90 DEGREE ELBOWS.
  13. INSTALL VALVE STEM BETWEEN THE VERTICAL (UPRIGHT) OR HORIZONTAL POSITION.
  14. DO NOT SUPPORT WEIGHT OF PIPING ON VALVE.
  15. MAINTAIN SEPARATION OF WATER MAIN FROM SEWER PIPING IN ACCORDANCE WITH REQUIRED CODES AND REGULATIONS.
C. PIPING TESTING
  1. EACH TEST MUST BE WITNESSED BY THE OWNER'S REPRESENTATIVE. IF LEAKS ARE FOUND, REPAIR THE AREA WITH NEW MATERIALS AND REPEAT THE TEST. DO NOT INSULATE PIPE UNTIL IT HAS BEEN SUCCESSFULLY TESTED.
  2. MEASURE AND RECORD TEST PRESSURE AT THE HIGH POINT IN THE SYSTEM.
  3. TEST WATER DISTRIBUTION SYSTEM WITH POTABLE WATER UNDER A WATER PRESSURE OF 100 PSIG OR THE WORKING PRESSURE OF THE SYSTEM (WHICHEVER IS GREATER) FOR A PERIOD OF (4) HOURS. IF LOCAL AUTHORITIES REQUIRE MORE STRINGENT TESTING, CONTRACTOR SHALL COMPLY WITH THOSE REQUIREMENTS.
  4. WHERE NEW PIPING IS AN EXTENSION OF THE EXISTING SYSTEM, TEST THE NEW PIPING PRIOR TO CONNECTION TO THE EXISTING SYSTEM.
D. WATER PIPING BALANCING
  1. VERIFY THAT SUFFICIENT WATER FLOW, PRESSURE AND TEMPERATURE ARE AVAILABLE AT EACH OUTLET AND EQUIPMENT CONNECTION.
  2. BALANCE CIRCULATING HOT WATER SYSTEM TO ENSURE PROPER CIRCULATION OF HOT WATER IN THE SYSTEM WITH HOT WATER AVAILABLE TO ALL FIXTURES AND CONNECTIONS.
  3. BALANCE VALVE MINIMUM FLOW: 0.5 GPM.
E. FLUSH AND DISINFECT DOMESTIC WATER SUPPLY SYSTEM AS FOLLOWS:
  1. FILL PIPING WITH POTABLE WATER AND ALLOW TO STAND FOR 24 HOURS.
  2. FLUSH EACH OUTLET BEGINNING WITH OUTLET CLOSEST TO BUILDING CONTROL VALVE AND THEN EACH SUCCESSIVE OUTLET IN THE SYSTEM.
  3. FLUSH EACH OUTLET MINIMUM 1 MINUTE AND UNTIL WATER APPEARS CLEAR AT THE OUTLET.
  4. FILL SYSTEM WITH WATER/CHLORINE SOLUTION OF 50 PPM OF CHLORINE AND LET STAND FOR 24 HOURS, OR 200 PPM FOR 3 HOURS.
  5. FLUSH WITH POTABLE WATER.
  6. REPEAT DISINFECTION IF BACTERIOLOGICAL CONTAMINATION EXISTS.
  7. PERFORM WATER QUALITY TEST IF REQUIRED BY LOCAL AUTHORITIES.
  8. IF LOCAL AUTHORITIES REQUIRE MORE STRINGENT FLUSHING AND DISINFECTION, CONTRACTOR SHALL COMPLY WITH THOSE REQUIREMENTS.
F. VALVES
  1. MANUFACTURERS: NIBCO, APOLLO, KEYSTONE, CENTERLINE, DEZURIK, CRANE, MUELLER, POWELL, VIEGA, GRINNELL, SIOUX CHIEF. LISTING OF MODEL NUMBER DOES NOT PRECLUDE OTHER ACCEPTABLE MANUFACTURERS FROM PROVIDING EQUIVALENT VALVES.
  2. PROVIDE BRONZE VALVE FOR COPPER PIPE.
  3. SHUTOFF VALVES 1" AND SMALLER
    a. PEX BALL VALVE
      1). APOLLO 77X SERIES
      2). BRONZE THREE PIECE BODY, CHROME PLATED BRASS BALL, FULL PORT, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE WITH VALVE EXTENSIONS FOR INSULATED PIPING, CRIMP JOINT ENDS, 200 PSI WOG, NSF 61 LISTED.
  4. SHUTOFF VALVES 2" AND SMALLER
    a. BRONZE BALL VALVE:
      1). SOLDERED: NIBCO S-685-66-LF.
      2). PRESS FITTING: VIEGA SERIES 2970.*ZL OR SERIES 2971.*ZL
      3). TWO PIECE, CHROME PLATED BRASS OR STAINLESS STEEL BALL, FULL PORT, REINFORCED PTFE SEATS AND STUFFING BOX RING, LEVER HANDLE WITH LOCKABLE HANDLE AND VALVE STEM EXTENSIONS FOR INSULATED PIPING, 250 PSI, NSF 61 ANNEX G LISTED.
    b. CPVC BALL VALVE
      1). SIOUX CHIEF 648 SERIES
      2). TWO PIECE BRASS BODY, CHROME PLATED BRASS OR STAINLESS STEEL BALL, FULL PORT, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE WITH VALVE EXTENSIONS FOR INSULATED PIPING, CPVC SOCKET ENDS, 150 PSI WORKING PRESSURE.
  5. MANUAL BALANCE VALVES 2" AND SMALLER
    a. BELL & GOSSETT A-549LFP(C), CALEFFI, NIBCO, FLOWSET, ARMSTRONG, AND IMI HYDRONIC ENGINEERING): BRONZE BODY WITH CALIBRATED BRASS ORIFICE OR VENTURI, MEMORY STOP, SOLDERED ENDS AND PRESSURE TAPS. 125 PSIG RATING AT 240 DEG F, NSF 61 ANNEX G LISTED LEAD FREE.
    b. INSTALL 5 PIPE DIAMETERS DOWNSTREAM AND 2 PIPE DIAMETERS UPSTREAM OF A FITTING.
  6. DRAIN VALVES: SHUTOFF VALVE WITH THREADED CAP. PROVIDE FOR COMPLETE SYSTEM DRAINAGE, NSF 61 LISTED.
  7. SPRING LOADED CHECK VALVES
    a. 2" AND SMALLER:
      1). THREADED: NIBCO MODEL 480-Y-LF
      2). BRONZE BODY, TFE SEAT AND DISC, STAINLESS STEEL SPRING, CLASS 125, NSF 61 ANNEX G LISTED LEAD FREE.
  8. WATER HAMMER ARRESTORS: SEE SCHEDULE. INSTALL IN ACCESSIBLE LOCATION.

22 13 00 DRAIN PIPING AND VALVES

A. PIPING INSTALLATION
  1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

LEGEND

NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS.

SYM.	ABBR.	IDENTIFICATION	SYM.	ABBR.	IDENTIFICATION
PIPING ACCESSORIES					
	CO	CLEAN OUT			PIPING CAP
	WCO	WALL CLEAN OUT			UNION
	FCO	FLOOR CLEAN OUT (FLUSH)			THERMOMETER
	BFP	BACKFLOW PREVENTER			PRESSURE GAUGE
	PRV	PRESSURE REDUCING VALVE		HB	HOSE BIBB
		SHUTOFF VALVE		RD	ROOF DRAIN
		BALANCE VALVE		OF	OVERFLOW DRAIN
		AUTOMATIC BALANCE VALVE		HD	HUB DRAIN
		THERMOSTATIC BALANCE VALVE		HD-R	HUB DRAIN WITH REDUCER
		CHECK VALVE		FD	FLOOR DRAIN
		GLOBE VALVE	X		FIXTURE UNIT (WATER SUPPLY OR WASTE)
	WHA	WATER HAMMER ARRESTOR			
		TEST CONNECTION			
PIPING					
	CW	COLD HARD WATER PIPING	—P—	P	PROCESS SEWER PIPING
	HW	HOT WATER PIPING	—LS—	LS	LOW STRENGTH PROCESS SEWER PIPING
	HWR	HOT WATER RETURN PIPING	—HS—	HS	HIGH STRENGTH PROCESS SEWER PIPING
—S—	SOFT	COLD SOFT WATER PIPING	—ST—	ST	STORM PIPING
—140S—	140 HWS	140° HOT WATER PIPING	—OF—	OF	OVERFLOW CONDUCTOR PIPING
—140R—	140 HWR	140° HOT WATER RETURN PIPING		V	VENT PIPING
-HP-CW-	HP CW	HIGH PRESSURE COLD WATER SUPPLY	—AW—	AW	ACID WASTE PIPING
-HP-HW-	HP HW	HIGH PRESSURE HOT WATER SUPPLY	—AV—	AV	ACID VENT PIPING
-HP-HWR-	HP HWR	HIGH PRESSURE HOT WATER RETURN	—CLW—	CLW	CLEARWATER DRAIN PIPING
-NP-CW-	NP	NON-POTABLE WATER PIPING	—CLV—	CLV	CLEARWATER VENT PIPING
-NP-HW-	NP HW	NON-POTABLE HOT WATER	—G—	G	GAS PIPING
-NP-HWR-	NP HWR	NON-POTABLE HOT WATER RETURN	—A—	AIR	AIR PIPING
—TW—	TW	TEMPERED WATER PIPING	—HS—	HS	HYDRAULIC SUPPLY PIPING
—SA—	SA	SANITARY SEWER PIPING	—HR—	HR	HYDRAULIC RETURN PIPING
—GW—	GW	GREASE WASTE PIPING	—NIT—	NIT	NITROGEN PIPING
—F—	F	FILTERED WATER PIPING	—CO2—	CO2	CARBON DIOXIDE PIPING
MISCELLANEOUS					
	EL	ELEVATION			DETAIL OR SECTION NUMBER SHEET NUMBER
ABBREVIATIONS					
	AFF	ABOVE FINISHED FLOOR		OC	ON CENTER
	AFG	ABOVE FINISHED GRADE		PC	PLUMBING CONTRACTOR
	BJ	BETWEEN JOISTS		RC	REFRIGERATION CONTRACTOR
	EC	ELECTRICAL CONTRACTOR		RI	ROUGH IN
	FPC	FIRE PROTECTION CONTRACTOR		TJ	THRU JOISTS
	GC	GENERAL CONTRACTOR / CONSTRUCTION MANAGER		TTS	TIGHT TO STRUCTURE
	HC	HVAC CONTRACTOR		TYP	TYPICAL
	IE	INVERT ELEVATION		VTR	VENT THRU ROOF
	NIC	NOT IN CONTRACT		WP	WEATHER PROOF
	NTS	NOT TO SCALE			
FIRE RATED WALLS					
		FIRE - 1 HOUR			FIRE - 3 HOUR
		FIRE - 2 HOUR			FIRE - 4 HOUR

NUMBER	SHEET NAME
PLUMBING	
P0.1	LEGEND AND SPECIFICATIONS
P0.2	SPECIFICATIONS CONT.
PD1.1	FLOOR PLANS - DEMOLITION
P1.1	FIRST FLOOR PLANS
P2.0	ISOMETRICS AND SCHEDULES
P3.0	DETAILS
P3.1	DETAILS
P4.0	SCHEDULES
P4.1	SCHEDULES

PLUMBING LEGEND AND SPECIFICATIONS

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PROJECT INFORMATION

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PROFESSIONAL SEAL

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PLUMBING SPECIFICATIONS CONT.

1. EACH TEST MUST BE WITNESSED BY THE OWNER'S REPRESENTATIVE. IF LEAKS ARE FOUND, REPAIR THE AREA WITH NEW MATERIALS AND REPEAT THE TEST. DO NOT INSULATE PIPE UNTIL IT HAS BEEN SUCCESSFULLY TESTED.
2. MEASURE AND RECORD TEST PRESSURE AT THE HIGH POINT IN THE SYSTEM.
3. TEST WATER DISTRIBUTION SYSTEM WITH POTABLE WATER UNDER A WATER PRESSURE OF 100 PSIG OR THE WORKING PRESSURE OF THE SYSTEM (WHICHEVER IS GREATER) FOR A PERIOD OF (4) HOURS. IF LOCAL AUTHORITIES REQUIRE MORE STRINGENT TESTING, CONTRACTOR SHALL COMPLY WITH THOSE REQUIREMENTS.
4. WHERE NEW PIPING IS AN EXTENSION OF THE EXISTING SYSTEM, TEST THE NEW PIPING PRIOR TO CONNECTION TO THE EXISTING SYSTEM.
5. ADDITIONAL TEST FOR PRESS FIT SYSTEMS
   a. PRESS FIT SYSTEMS SHALL BE DYNAMICALLY TESTED BY THE FOLLOWING PROCEDURE.
   b. BEFORE TESTING, INSPECT THE SYSTEM FOR ANY FRAGILE COMPONENTS OR DEVICES THAT SHOULD NOT EXPERIENCE THE PRESSURE SWINGS. PROTECT SUCH ITEMS.
   c. UTILIZE PNEUMATIC DRIVEN HYDROSTATIC TEST PUMP.
   d. HIGH PRESSURE STATIC TEST
      1). CLOSE MIXING VALVE BALL VALVES.
      2). OPEN MAIN AND RUNOUT VALVES.
      3). CLOSE VALVES AT THE END OF RUNOUTS.
      4). STATIC PRESSURE TEST TO 250 PSI FOR 10 MINUTES.
   e. MEDIUM PRESSURE DYNAMIC TEST
      1). OPEN MIXING VALVES (CLOSE STOPS ON VALVES).
      2). OPEN MAIN AND RUNOUT VALVES.
      3). CLOSE VALVES AT THE END OF RUNOUTS.
      4). DYNAMIC PRESSURE TEST FROM 0 TO 125 PSI FOR 10 CYCLES.
   f. HIGH PRESSURE DYNAMIC TEST
      1). CLOSE MIXING VALVE BALL VALVES.
      2). OPEN MAIN AND RUNOUT VALVES.
      3). CLOSE VALVES AT THE END OF RUNOUTS.
      4). DYNAMIC PRESSURE TEST FROM 0 TO 200 PSI FOR 20 CYCLES.

D. WATER PIPING BALANCING
1. VERIFY THAT SUFFICIENT WATER FLOW, PRESSURE AND TEMPERATURE ARE AVAILABLE AT EACH OUTLET AND EQUIPMENT CONNECTION.
2. BALANCE CIRCULATING HOT WATER SYSTEM TO ENSURE PROPER CIRCULATION OF HOT WATER IN THE SYSTEM WITH HOT WATER AVAILABLE TO ALL FIXTURES AND CONNECTIONS.
3. BALANCE VALVE MINIMUM FLOW: 0.5 GPM.

E. FLUSH AND DISINFECT SITE DOMESTIC WATER LINE IN ACCORDANCE WITH AWWA C651.

F. FLUSH AND DISINFECT DOMESTIC WATER SUPPLY SYSTEM AS FOLLOWS:
1. FILL PIPING WITH POTABLE WATER AND ALLOW TO STAND FOR 24 HOURS.
2. FLUSH EACH OUTLET BEGINNING WITH OUTLET CLOSEST TO BUILDING CONTROL VALVE AND THEN EACH SUCCESSIVE OUTLET IN THE SYSTEM.
3. FLUSH EACH OUTLET MINIMUM 1 MINUTE AND UNTIL WATER APPEARS CLEAR AT THE OUTLET.
4. FILL SYSTEM WITH WATER/CHLORINE SOLUTION OF 50 PPM OF CHLORINE AND LET STAND FOR 24 HOURS, OR 200 PPM FOR 3 HOURS.
5. FLUSH WITH POTABLE WATER.
6. REPEAT DISINFECTION IF BACTERIOLOGICAL CONTAMINATION EXISTS.
7. PERFORM WATER QUALITY TEST IF REQUIRED BY LOCAL AUTHORITIES.
8. IF LOCAL AUTHORITIES REQUIRE MORE STRINGENT FLUSHING AND DISINFECTION, CONTRACTOR SHALL COMPLY WITH THOSE REQUIREMENTS.

G. VALVES
1. MANUFACTURERS: NIBCO, APOLLO, KEYSTONE, CENTERLINE, DEZURIK, CRANE, MUELLER, POWELL, VIEGA, GRINNELL, SIOUX CHIEF. LISTING OF MODEL NUMBER DOES NOT PRECLUDE OTHER ACCEPTABLE MANUFACTURERS FROM PROVIDING EQUIVALENT VALVES.
2. PROVIDE BRONZE VALVE FOR COPPER PIPE.
3. SHUTOFF VALVES 1" AND SMALLER
   a. PEX BALL VALVE
      1). APOLLO 77X SERIES
      2). BRONZE THREE PIECE BODY, CHROME PLATED BRASS BALL, FULL PORT, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE WITH VALVE EXTENSIONS FOR INSULATED PIPING, CRIMP JOINT ENDS, 200 PSI WOG, NSF 61 LISTED.
4. SHUTOFF VALVES 2" AND SMALLER
   a. BRONZE BALL VALVE:
      1). SOLDERED: NIBCO S-685-66-LF.
      2). PRESS FITTING: VIEGA SERIES 2970.*ZL OR SERIES 2971.*ZL
      3). TWO PIECE, CHROME PLATED BRASS OR STAINLESS STEEL BALL, FULL PORT, REINFORCED PTFE SEATS AND STUFFING BOX RING, LEVER HANDLE WITH LOCKABLE HANDLE AND VALVE STEM EXTENSIONS FOR INSULATED PIPING, 250 PSI, NSF 61 ANNEX G LISTED.
   b. CPVC BALL VALVE
      1). SIOUX CHIEF 648 SERIES
      2). TWO PIECE BRASS BODY, CHROME PLATED BRASS OR STAINLESS STEEL BALL, FULL PORT, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE WITH VALVE EXTENSIONS FOR INSULATED PIPING, CPVC SOCKET ENDS, 150 PSI WORKING PRESSURE.
5. SHUTOFF VALVES 2 1/2" AND LARGER
   a. IRON BUTTERFLY VALVES:
      1). WATTS BF-03-NSF
      2). LUG ENDS, CAST OR DUCTILE IRON BODY, MOLDED IN EPDM LINER.
      3). BUBBLETIGHT TO 175 PSIG WITH NO DOWNSTREAM FLANGE/PIPE ATTACHED
      4). STAINLESS STEEL SHAFT WITH TEFLON, NYLATRON OR ACETAL BEARINGS, EXTENDED NECK.
      5). ALUMINUM BRONZE OR STAINLESS STEEL DISC.
      6). OPERATOR
         a). 6" AND UNDER: INFINITE POSITION LEVER HANDLE OPERATOR.
         b). 8" AND LARGER: HANDWHEEL AND GEAR DRIVE WITH MEMORY STOP.
         c). NSF 61 LISTED.
6. GLOBE VALVES
      1). 3" AND SMALLER (APOLLO 120S-LF OR EQUIVALENT): LEAD FREE BRONZE BODY, SOLDERED ENDS, THREADED BONNET, PTFE DISC, 200 CWP, NSF 61 ANNEX G LISTED.
      2). 2" AND SMALLER CLASS 125 (APOLLO 120T-LF OR EQUIVALENT): LEAD FREE BRONZE BODY, THREADED ENDS, THREADED BONNET, PTFE DISC, 200 CWP, NSF 61 ANNEX G LISTED.
      3). 2" AND SMALLER CLASS 125 (APOLLO 120T-PRLF OR EQUIVALENT): LEAD FREE BRONZE BODY, RIDGID PRESS FIT ENDS, THREADED BONNET, PTFE DISC, 200 CWP, NSF 61 ANNEX G LISTED.
      4). 4" AND LARGER (APOLLO 711F OR EQUIVALENT): LEAD FREE IRON BODY, FLANGED ENDS, BOLTED BONNET, BRONZE MOUNTED SEAT RINGS, CLASS 125, NSF 61/372 LISTED.
7. MANUAL BALANCE VALVES 2" AND SMALLER
   a. BELL & GOSSETT A-549LFP(C), CALEFFI, NIBCO, FLOWSET, ARMSTRONG, AND IMI HYDRONIC ENGINEERING): BRONZE BODY WITH CALIBRATED BRASS ORIFICE OR VENTURI, MEMORY STOP, SOLDERED ENDS AND PRESSURE TAPS. 125 PSIG RATING AT 240 DEG F, NSF 61 ANNEX G LISTED LEAD FREE.
   b. INSTALL 5 PIPE DIAMETERS DOWNSTREAM AND 2 PIPE DIAMETERS UPSTREAM OF A FITTING.
8. AUTOMATIC BALANCE VALVES 1" AND SMALLER
   a. CALEFFI SERIES 127+: ANSI 372 DZR LOW LEAD BRASS BODY WITH REPLACEABLE ANTI-SCALE POLYMER FLOW CARTRIDGE, STAINLESS STEEL SPRING AND EPDM SEALS, INTEGRAL CHECK VALVE, INTEGRAL TEMPERATURE GAUGE. NPT THREAD, SWEAT OR PRESS ENDS. FIXED FLOW RATE SETTINGS FROM 0.35 TO 10 GPM WITH +/- 10% ACCURACY. 32-242 DEG. F TEMPERATURE RANGE. 232 PSIG RATING.
   b. INSTALL IN ACCESSIBLE LOCATION.
   c. PROVIDE 0.5 GPM CARTRIDGE UNLESS OTHERWISE NOTED ON PLANS.
   d. PROVIDE THERMOSTATIC BYPASS CARTRIDGE.
   e. DISINFECTION TEMPERATURE: 160 DEG. F.
   f. PROVIDE ACTUATOR BYPASS VALVE.
   g. DISINFECTION TEMPERATURE: 160 DEG. F.
9. DRAIN VALVES: SHUTOFF VALVE WITH THREADED CAP. PROVIDE FOR COMPLETE SYSTEM DRAINAGE, NSF 61 LISTED.
10. BOOSTED PRESSURE
   a. 2" AND SMALLER: BALL VALVES
      1). NIBCO MODEL S-FP-600A
      2). TWO PIECE, FULL PORT, SOLDERED END, BRONZE BODY.
      3). CHROME PLATED BRASS BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE WITH BALANCING STOPS AND VALVE STEM EXTENSIONS FOR INSULATED PIPING, 600 PSI WOG, NSF 61 LISTED.
   b. 2-1/2" AND LARGER: BUTTERFLY VALVES
      1). EBRO ARMATUREN HP 114
      2). LUG ENDS, STAINLESS STEEL BODY WITH R-PTFE SEAT, STAINLESS STEEL SHAFT WITH STAINLESS STEEL BEARING RINGS.
      3). BUBBLETIGHT TO 363 PSIG WITH NO DOWNSTREAM FLANGE/PIPE ATTACHED.
      4). STAINLESS STEEL DISC, WORM GEAR OPERATOR WITH HAND WHEEL.
   c. BALANCE VALVES 2" AND SMALLER:
      1). IMI HYDRONIC ENGINEERING MODEL UA
      2). DZR BRASS BODY WITH CALIBRATED ORIFICE OR VENTURI, MEMORY STOP, THREADED ENDS AND PRESSURE TAPS. 600 PSIG RATING AT 250 DEG F.
11. SPRING LOADED CHECK VALVES
   a. 2" AND SMALLER:
      1). THREADED: NIBCO MODEL 480-Y-LF
      2). BRONZE BODY, TFE SEAT AND DISC, STAINLESS STEEL SPRING, CLASS 125, NSF 61 ANNEX G LISTED LEAD FREE.
   b. 2-1/2" AND LARGER:
      1). NIBCO MODEL 910-LF, FLANGED GLOBE STYLE.
      2). CAST IRON BODY, BRONZE DISC, BRONZE TRIM, BRONZE OR EDPM SEAT, STAINLESS STEEL SPRING, CLASS 125, NSF 61 ANNEX G LISTED LEAD FREE.
12. RELIEF VALVES
   a. MANUFACTURERS: WATTS, B & G, CASH ACME AND KUNKLE.
   b. TEMPERATURE AND PRESSURE: WATTS LF40, LF140, LF240, LF340 OR EQUAL.
   c. PRESSURE ONLY: WATTS LF174A OR EQUAL.
   d. LEAD FREE BRONZE BODY OR 304 STAINLESS STEEL, CAPACITIES ASME SECTION IV CERTIFIED AND LABELED, 125 MAXIMUM WORKING PRESSURE.
13. WATER HAMMER ARRESTORS: SEE SCHEDULE. INSTALL IN ACCESSIBLE LOCATION.

22 13 00 DRAIN PIPING AND VALVES

A. PIPING INSTALLATION
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. FIELD VERIFY EXISTING AND PROPOSED SEWER ELEVATIONS AND SIZES AND NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING OF ANY VARIATION OF THE ELEVATIONS BEFORE BEGINNING ANY SEWER AND BUILDING DRAIN WORK.
3. DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF PIPING. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS TO COORDINATE WITH INSTALLATION REQUIREMENTS OF OTHER SYSTEMS.
4. ROUTE ABOVE GROUND PIPING IN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE. OFFSET PIPE CONNECTIONS AT EQUIPMENT TO ALLOW FOR SERVICE, SUCH AS REMOVAL OF THE EQUIPMENT.
5. INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE AND OTHER WORK. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
6. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT WITH RESPECT TO THE BUILDING AND PLUMBING SYSTEM.
7. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES.
8. DO NOT ROUTE PIPING ABOVE TRANSFORMERS, PANELBOARDS, MOTOR CONTROL CENTERS, SWITCHBOARDS OR OTHER ELECTRICAL DISTRIBUTION EQUIPMENT.
9. PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
10. PROVIDE NO-HUB ADAPTER ON PVC PIPE WHERE USING NO-HUB COUPLINGS.
11. SLOPE PROCESS AND SANITARY PIPE 2" AND SMALLER 1/4" PER FOOT; 3" AND LARGER PIPING 1/8" PER FOOT.
12. SLOPE GREASE WASTE LINES UPSTREAM OF GREASE INTERCEPTOR MINIMUM 1/4" PER FOOT.
13. SLOPE STORM PIPE TO SLOPE INDICATED ON DRAWINGS WITH MAXIMUM VARIATIONS OF 1/8" IN 10 FEET FROM TRUE SLOPE.
14. MAINTAIN SEPARATION OF SEWER PIPING FROM WATER MAINS IN ACCORDANCE WITH REQUIRED CODES AND REGULATIONS.

B. PROCESS, STORM AND SANITARY DRAIN PIPING TESTING: TEST DRAIN AND VENT PIPING PER CODE REQUIREMENTS.

22 40 00 PLUMBING FIXTURES

A. FIXTURES
1. SEE SCHEDULES FOR ADDITIONAL INFORMATION.
2. LIKE FIXTURE TYPE (FAUCETS, FLUSH VALVES, WATER CLOSETS, URINALS, LAVS, ETC.) SHALL BE THE PRODUCT OF THE SAME MANUFACTURER.
3. SAFETY COVERS OVER EXPOSED WASTE AND SUPPLY PIPING AT ADA ACCESSIBLE FIXTURES SHALL BE LAV-GUARD BY TRUEBRO OR EQUIVALENT.
4. SAFING MATERIAL SHALL BE WATERPROOF WHEN SUBJECTED TO 2 FEET OF HYDROSTATIC HEAD WHEN TESTED IN ACCORDANCE WITH ASTM C1306 OR ASTM D4068, AND SHALL BE RECOGNIZED BY THE MANUFACTURER AS A SAFING MATERIAL.
5. SHOWERS
   a. FURNISH AND INSTALL SAFING MATERIAL AT ALL SITE-CONSTRUCTED SHOWER STALLS.
   b. INSTALL SAFING MATERIAL BENEATH THE FINISHED FLOOR OF THE ENTIRE ENCLOSURE OR ROOM AND UPWARD ALONG THE SIDES TO A MINIMUM OF 6" ABOVE THE CURB OR MAXIMUM WATER LEVEL, AND AT THE CORNERS TO A HEIGHT OF 6 FEET AND AT LEAST 3" IN EACH DIRECTION FROM THE CORNERS.
6. FLOOR DRAINS
   a. NOT REQUIRED FOR AREAS OVER UNEXCAVATED PORTIONS OF A BUILDING.
   b. FURNISH AND INSTALL SAFING MATERIAL EXTENDING MINIMUM 12" FROM THE DRAIN.

B. INSTALLATION
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. PROVIDE CHROME PLATED RIGID SUPPLIES TO FIXTURES WITH STOPS, REDUCERS, AND ESCUTCHEONS UNLESS OTHERWISE NOTED IN SCHEDULES AND DETAILS.
3. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH MILDEW-RESISTANT SILICONE SEALANT, COLOR TO MATCH FIXTURE.
4. INSTALL BARRIER-FREE FIXTURES IN COMPLIANCE WITH LOCAL CODES AND FEDERAL ADA ACCESSIBILITY GUIDELINES.
5. EXPOSED TRAPS, PIPING, AND ESCUTCHEONS SHALL BE CHROME PLATED BRASS UNLESS OTHERWISE NOTED IN SCHEDULES AND DETAILS.
6. ADJUST LAVATORY THERMOSTATIC MIXING VALVE TO 105 DEG F MAXIMUM OUTLET TEMPERATURE.

PLUMBING SPECIFICATIONS CONT.

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. ● OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE NOV. 23, 2021
REVISIONS

JOB NUMBER
2172060

SHEET NUMBER
P0.2

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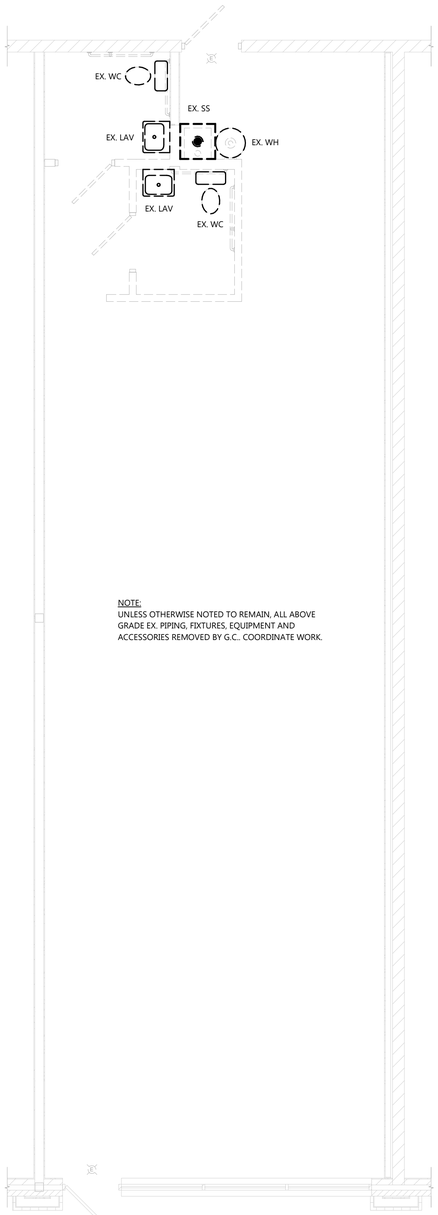
DEMOLITION PLAN NOTES

- ALL PIPING AND FIXTURES SHOWN "HEAVY DASHED" ARE TO BE DEMOLISHED.
- ALL PIPING AND FIXTURES SHOWN "LIGHTER" ARE EXISTING TO REMAIN.
- COORDINATE DEMOLITION OF EXISTING PIPING TO BE REMOVED WITH GC
- NO EXISTING PLANS OF UNDERGROUND PIPING EXIST. PIPING SHOWN IS ENGINEER'S ESTIMATION OF ROUTING. FIELD VERIFY LOCATIONS OF EXISTING PIPE MAINS. REUSE ANY PIPING OF SUFFICIENT SIZE IN GOOD CONDITION. REROUTE AS REQUIRED BY ACTUAL CONDITIONS.
- WHERE EXISTING PIPING IS SHOWN TO BE REMOVED, CAP BRANCH PIPE IF NOT BEING USED FOR NEW CONSTRUCTION.



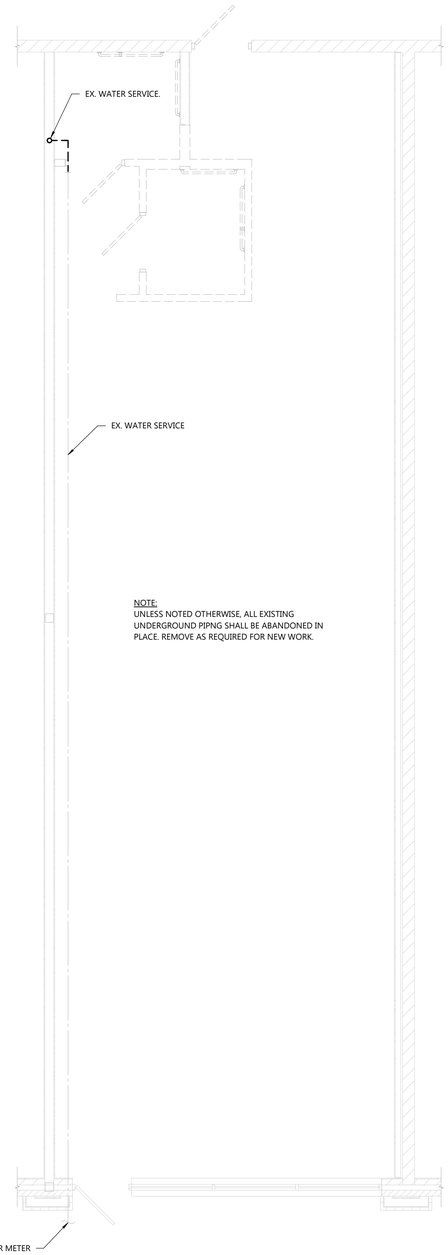
NOTE:
UNLESS OTHERWISE NOTED TO REMAIN, ALL ABOVE GRADE EX. PIPING, FIXTURES, EQUIPMENT AND ACCESSORIES REMOVED BY G.C., COORDINATE WORK.

NORTH

FLOOR PLAN - DEMOLITION

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

4' 0' 4' 8'



NOTE:
UNLESS NOTED OTHERWISE, ALL EXISTING UNDERGROUND PIPNG SHALL BE ABANDONED IN PLACE. REMOVE AS REQUIRED FOR NEW WORK.

NORTH

UNDERGROUND PLAN - DEMOLITION

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

4' 0' 4' 8'

PLUMBING FLOOR PLANS - DEMOLITION

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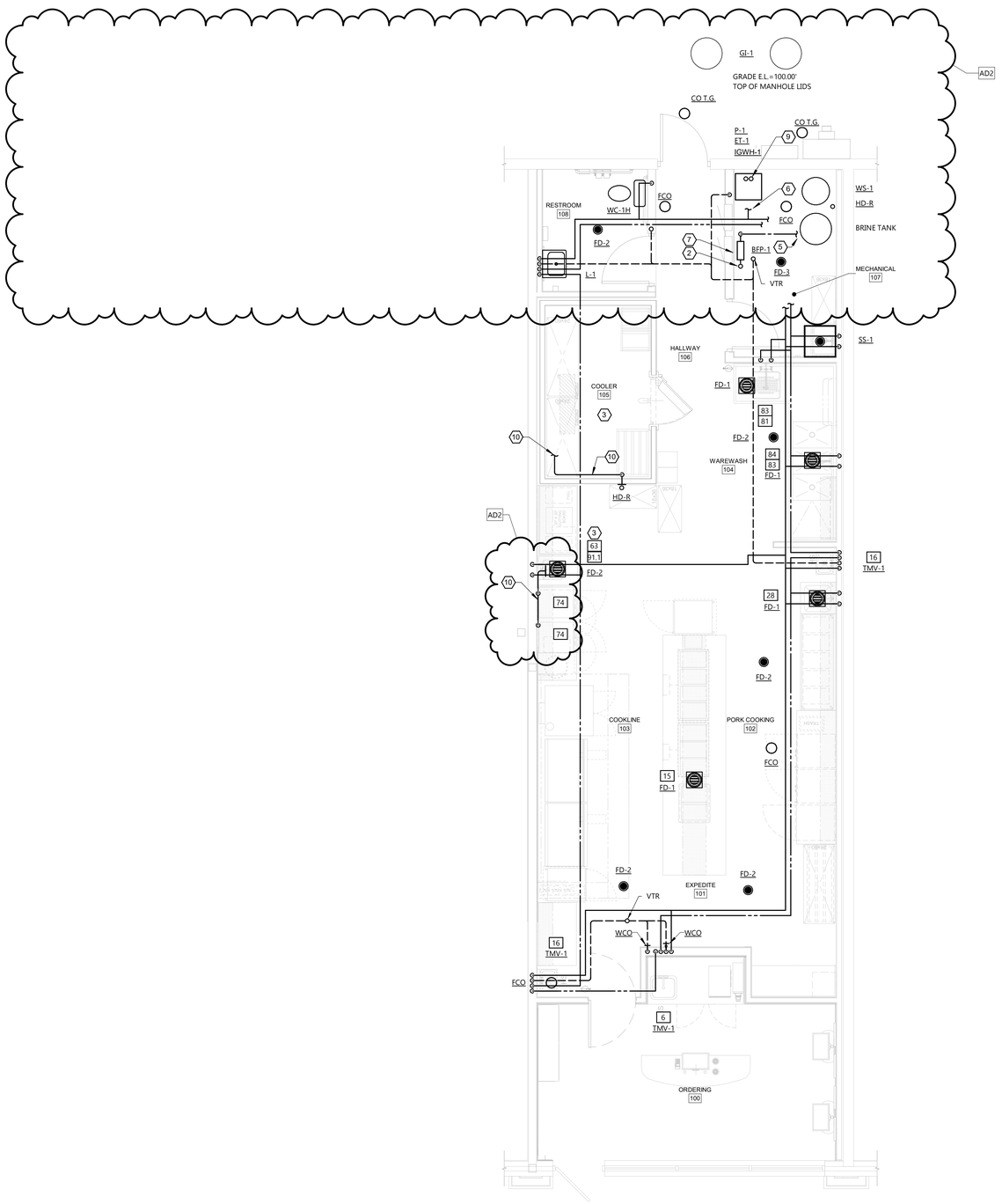
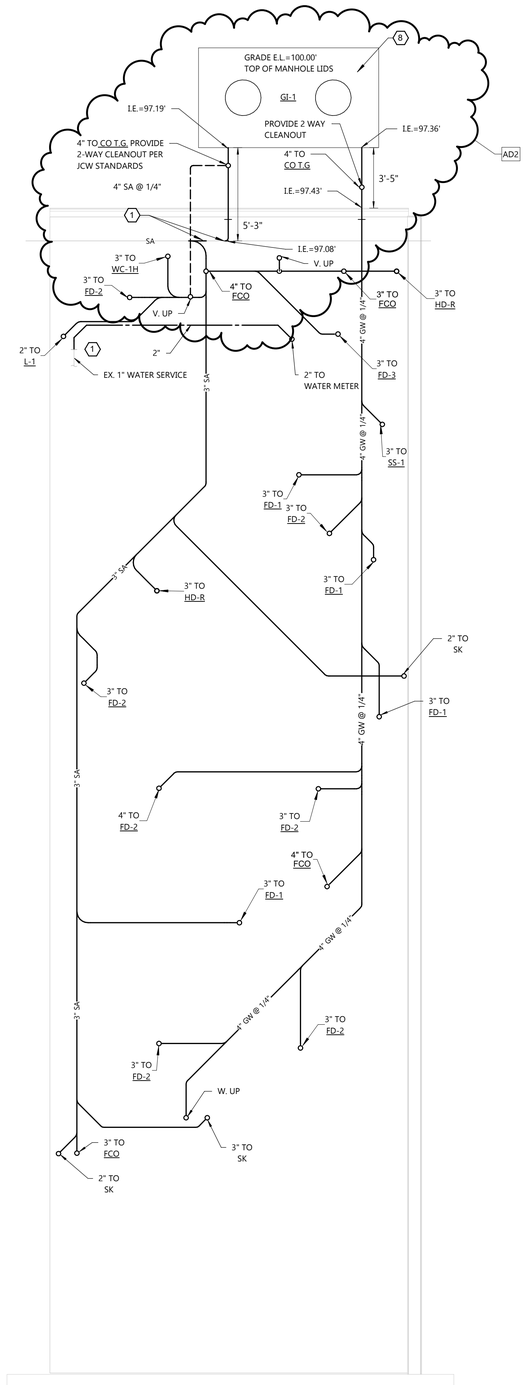


NORTH

FIRST FLOOR PLAN

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

4' 0' 4' 8'



NORTH

UNDERGROUND PLAN

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

4' 0' 4' 8'

GENERAL NOTES:

- NO UNDERGROUND BUILDING DRAIN PIPING SHALL BE INSTALLED UNTIL BUILDING SEWERS ARE BROUGHT TO THE BUILDING AND INVERT ELEVATIONS VERIFIED. COSTS INCURRED FOR FAILURE TO DO SO SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- ALL PIPING IS TO BE CONCEALED. IF BUILDING CONSTRUCTION DOES NOT PERMIT CONCEALING PIPING, LOCATIONS AND ROUTING ARE TO BE APPROVED BY ARCHITECT/OWNER PRIOR TO INSTALLATION.
- INSTALL CLEANOUTS AT STACKS WHICH PENETRATE THE LOWEST FLOOR LEVEL 28" AFF UNLESS NOTED OTHERWISE.
- FLOOR AND WALL CLEANOUT LOCATIONS NOT PERMITTED TO BE MOVED WITHOUT APPROVAL OF ARCHITECT/ENGINEER.
- SEE ARCHITECTURAL AS SHEETS FOR ADA RELATED INSTALLATION DETAILS.
- ALL EXTERIOR WASTE PIPING SHALL BE AT 1/4" PER FOOT PITCH.
- ALL PIPING SHALL BE ROUTED IN STRUCTURE WHERE REQUIRED.

KEYNOTES:

1. CONNECT TO EXISTING. FIELD VERIFY LOCATION, SIZE, AND DEPTH OF EXISTING SANITARY SERVICE.
2. CONNECT TO EXISTING. FIELD VERIFY LOCATION, SIZE AND CONDITION OF EX. WATER SERVICE. NOTIFY ENGINEER/OWNER IF SMALLER THAN 1" SERVICE.
3. EVAPORATOR CONDENSATE. SEE WALK-IN DRAIN LINE DETAIL ON KITCHEN EQUIPMENT SHEET QF300 FOR MORE INFORMATION.
4. PROVIDE CAST IRON P-TRAP AND PIPING 15' DOWNSTREAM OF DISHWASHER DISCHARGE.
5. SEE WATER SOFTENER PIPING DETAIL FOR CONTINUATION.
6. SEE INSTANTANEOUS WATER HEATER PIPING DETAIL FOR CONTINUATION.
7. SEE PRESSURE BOOSTER PIPING DETAIL FOR MORE INFORMATION.
8. CONNECT TO NEW G.I. AND DISCHARGE INTO EX. SANITARY. INSULATE GI-1 WITH RIGID FOAM INSULATIONON TANK LID AND 2' DOWN ALL SIDES.
9. INTAKE AND EXHAUST FLUES UP TO VENTS THRU ROOF. INSTALL PER MANUFACTURER REQUIREMENTS.
10. ROUTE /STEAMER CONDENSATE FROM EVAPORATOR THRU WALL TO DRAIN.
11. ALL EXTERIOR PIPING PAST THIS POINT SHALL BE SCH. 40 SOLID WALL SOLVENT WELD ABS PLASTIC PIPE AND FITTINGS CONFIRMING TO ASTM D2661. NO SUBSTITUTIONS ALLOWED UNLESS ALLOWED BY JCW OFFICIALS.

FOOD SERVICE EQUIPMENT NOTES:

- [XX] = EQUIPMENT NUMBER FROM KITCHEN PLAN. EQUIPMENT FURNISHED BY OWNER, ROUGH-INS AND FINAL CONNECTIONS BY P.C.. SEE KITCHEN EQUIPMENT PLAN SHEETS QF300 AND QF400 FOR MORE INFORMATION.
- MODIFY FLOOR SINK GRATES AS REQUIRED FOR DRAINS.
- CUT INDIRECT KITCHEN WASTE DRAINS AT 45° ANGLE AT DISCHARGE.

FOOD SERVICE EQUIPMENT NOTES:

- 6 HAND SINK - INSTALLED BY P.C..
- 15 DOUBLE COLD WELL - P.C. SHALL EXTEND 1" INDIRECT WASTE FROM COLD WELL TO FLOOR SINK VIA AIR GAP.
- 16 WALL MOUNT HAND SINK - INSTALLED BY P.C..
- 28 PREP TABLE W/ SINK AND FAUCET - PROVIDE 1/2" CW & HW AT 14" A.F.F.. PROVIDE INDIRECT WASTE TO FD-1.
- 63 WRAP TABLE W/ SINK & SINK COVER - P.C. SHALL EXTEND INDIRECT WASTE FROM SINK TO FD-1.
- 74 ELECTRIC STEAMER - P.C. SHALL EXTEND WASTE FROM (2) STEAMER) TO FLOOR SINK.
- 81 83 PRE-RINSE SINK AND FAUCET - PROVIDE 1/2" CW & HW AT 14" A.F.F.. PROVIDE INDIRECT WASTE TO FD-1.
- 83 84 3 COMPARTMENT SINK WITH FAUCET - PROVIDE 1/2" CW & HW AT 14" A.F.F.. PROVIDE INDIRECT WASTE TO FD-1.
- 91.1 WALK-IN PRODUCE COOLER - P.C. TO EXTEND CONDENSATE WASTE LINE FROM EVAPORATOR TO FLOORSINK AND DISCHARGE VIA AIR GAP.

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PLUMBING FIRST FLOOR PLANS

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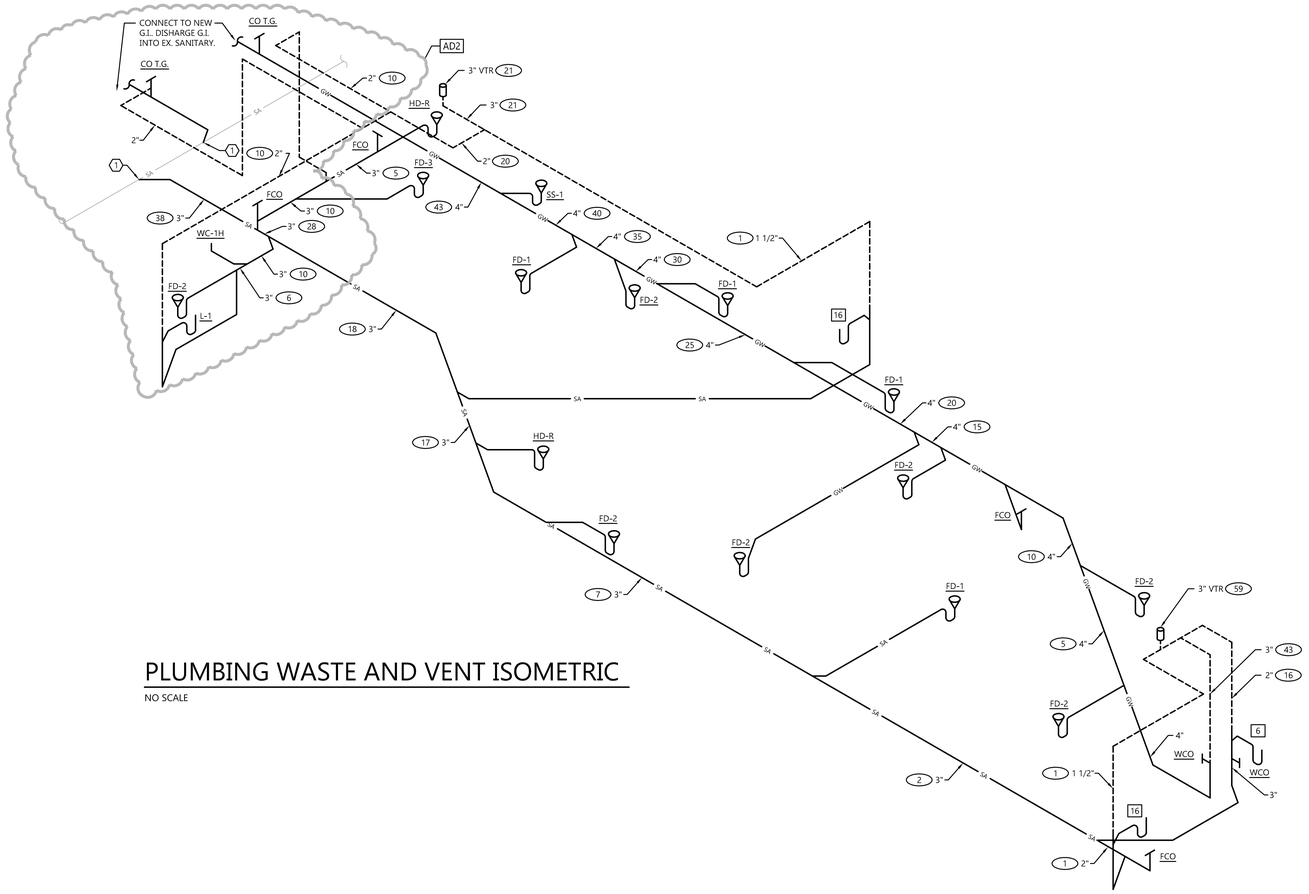


PLUMBING WASTE AND VENT ISOMETRIC

NO SCALE

FIXTURE UNITS

NO.	FIXTURE	WASTE UNITS	WASTE TOTAL	WASTE TRAP SIZE	COLD WATER UNITS	COLD WATER TOTAL	COLD WATER BRANCH SIZE	HOT WATER UNITS	HOT WATER TOTAL	HOT WATER BRANCH SIZE	TOTAL WATER UNITS	TOTAL WATER TOTAL
12	FLOOR DRAIN- 3"	5	60	3"	-	-	-	-	-	-	-	-
1	HUB DRAIN - 3"	5	5	3"	-	-	-	-	-	-	-	-
1	LAV	1	1	1 1/4"	1.5	1.5	1/2"	1.5	1.5	1/2"	2	2
2	SINK- PREP	-	-	-	3	6	1/2"	3	6	1/2"	4	8
1	SINK- 3-COMP	-	-	-	3	3	1/2"	3	3	1/2"	4	4
3	SINK- HAND WASH	1	3	1 1/4"	1.5	4.5	1/2"	1.5	4.5	1/2"	2	6
1	SINK- PREWASH	-	-	-	3	3	1/2"	3	3	1/2"	4	4
1	SINK- SERVICE- 3"	3	3	3"	2	2	1/2"	2	2	1/2"	3	3
1	WATER CLO- TANK	4	4	-	5	5	1/2"	-	-	-	5	5
23	TOTAL		76			25			20			32

WATER CALCULATIONS

WATER PRESSURE DATA

1	STATIC PRESSURE AT MAIN	71	PSIG
2	RESIDUAL PRESSURE AT MAIN	66	PSIG
3	ASSUMED RESIDUAL FLOW AT MAIN	1000	GPM
4	BUILDING FIXTURE UNITS	29	F.U.
5	PREDOMINATE FLUSH TYPE	TANK	
6	CONTINUOUS FLOW GPM	5	GPM
7	BUILDING DEMAND	24.4	GPM
8	RESIDUAL PRESSURE AT BUILDING DEMAND	71.0	PSIG
9	SAFETY FACTOR	0	PSIG
10	PRESSURE AVAILABLE FOR DOMESTIC USE	71.0	PSIG

WATER SERVICE AND DISTRIBUTION SIZING DATA

11	ELEVATION OF RESIDUAL TEST HYDRANT	100.00	FEET
12	ELEVATION OF WATER METER	103.00	FEET
13	ELEVATION DIFFERENCE TEST HYDRANT TO METER	3.00	FEET
14	WATER METER SIZE	3/4	INCHES
15	DEVELOPED LENGTH MAIN TO METER	160	FEET
16	WATER SERVICE SIZE	1	INCHES

PRESSURE AVAILABLE AFTER METER

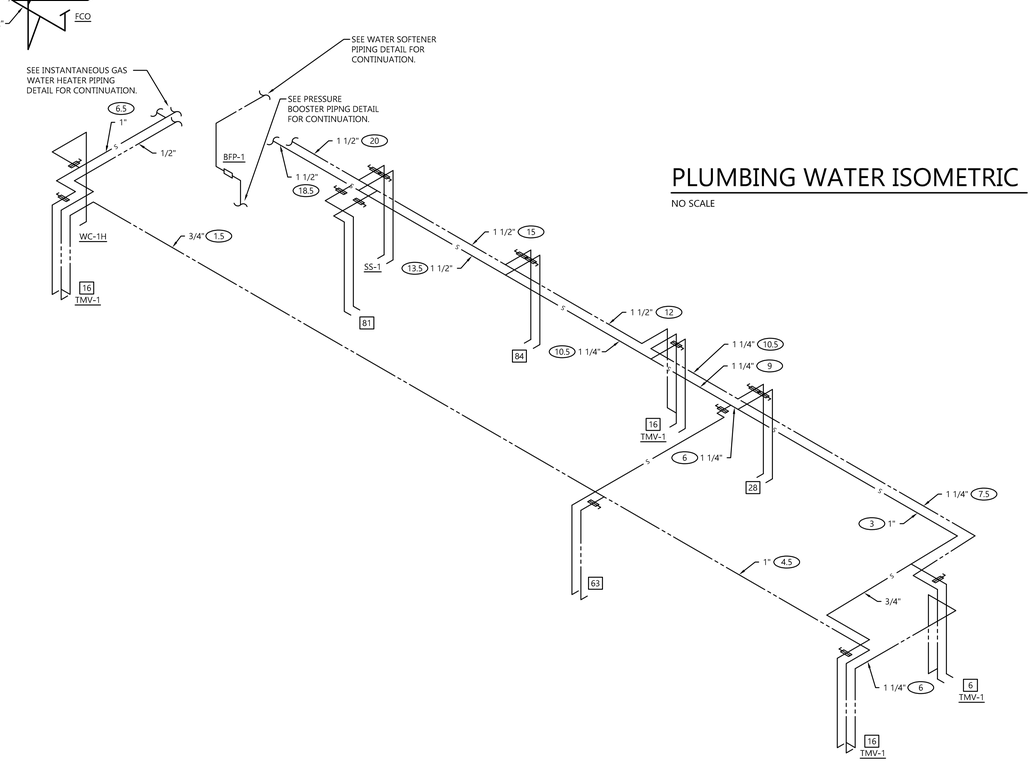
17	PRESSURE DROP BETWEEN MAIN AND METER	16.20	PSIG/100'
18	FRICTION PRESSURE LOSS BETWEEN MAIN AND METER	25.9	PSIG
19	ELEVATION PRESSURE LOSS BETWEEN MAIN AND METER	1.3	PSIG
20	METER PRESSURE LOSS	2	PSIG
21	BACKFLOW PREVENTER PRESSURE LOSS	9	PSIG
22	PRESSURE AVAILABLE AFTER METER	32.8	PSIG
24	PRV PRESSURE LOSS	0	PSIG
25	AVAILABLE BUILDING WATER PRESSURE	32.8	PSIG

WATER DISTRIBUTION SIZING - COLD WATER

A	AVAILABLE BUILDING WATER PRESSURE	45.0 PSIG																					
B	START POINT TAG (SEE ISOMETRIC FOR TAG LOCATION)	METER														A							
C	DIST. PREVIOUS START POINT TO THIS START POINT				WSFU											70 FT				WSFU			
D	UNIFORM LOSS PREV. START POINT TO THIS START POINT				Copper			CPVC			PEX					24.42 PSIG/100'			Copper			CPVC			PEX	
E	PIPE PRESSURE DROP FROM METER TO START POINT			Pipe	Flush	Flush	Flush	Flush	Flush	Flush	Flush	Flush				17.1 PSIG		Flush	Flush	Flush	Flush	Flush	Flush	Flush	Flush
F	CONTROLLING FIXTURE: ID:	HS		size	tank	valve	tank	valve	tank	valve						16		tank	valve	tank	valve	tank	valve	tank	valve
	ROOM NAME & NO.:			1/2	1.0	NP	0.5	NP	0.5	NP						FOOD PREP "108"	1/2	3.5	NP	2.5	NP	2.5	NP	2.5	NP
	PRESSURE REQUIRED	20	PSIG	3/4	2.5	NP	2.0	NP	1.0	NP						8	PSIG	3/4	12.5	NP	9	NP	4	NP		
G	ELEV. DIFF. BETW. METER AND CONTROLLING FIXTURE	4	FEET	1	6.5	NP	4.0	NP	3.5	NP						2	FEET	1	28	6	20.5	4.5	16.5	4		
H	PRESSURE LOSS DUE TO WATER SOFTENER	9	PSIG	1 1/4	13.0	4.0	9.5	NP	7.0	NP						0	PSIG	1 1/4	58	15	40	8	31	6.5		
I	PRESSURE LOSS DUE TO MIXING VALVE	12	PSIG	1 1/2	23.0	5.0	15.5	4.0	12.5	NP						9	PSIG	1 1/2	107	37	68	19	55	13.5		
J	PRESSURE AVAILABLE FOR PIPING PRESSURE DROP	2.3	PSIG	2	63.0	17.5	37.0	7.5	29.0	6.5						10.0	PSIG	2	260	136	171	73	135	53		
K	DEVELOPED LENGTH START PT. TO CONTR. FIXTURE	150	FEET	2 1/2	170.0	72.0	121.0	44.0								80	FEET	2 1/2	469	356	385	255				
L	EQUIVALENT LENGTH START PT. TO CONTR. FIXTURE	225	FEET	3	345.0	211.0	295.0	165.0								120	FEET	3	752	698	655	572				
M	PRESSURE AVAILABLE FOR UNIFORM LOSS	1.01	PSIG/100'	4	923.0	909.0	794.0	754.0								8.37	PSIG/100'	4	1792	1792	1094	1094				

WATER DISTRIBUTION SIZING - HOT WATER

A	AVAILABLE BUILDING WATER PRESSURE	45.0 PSIG																					
B	START POINT TAG (SEE ISOMETRIC FOR TAG LOCATION)	METER														A							
C	DIST. PREVIOUS START POINT TO THIS START POINT				WSFU											235 FT				WSFU			
D	UNIFORM LOSS PREV. START POINT TO THIS START POINT				Copper	CPVC	PEX									3.71 PSIG/100'			Copper	CPVC	PEX		
E	PIPE PRESSURE DROP FROM METER TO START POINT			Pipe	Flush	Flush	Flush									8.7 PSIG			Flush	Flush	Flush		
F	CONTROLLING FIXTURE: ID:	HS		size	tank	tank	tank									16			tank	tank	tank		
	ROOM NAME & NO.:	HS		1/2	1.0	0.5	0.5									WARE WASH "113"	1/2		2.0	1.5	1.0		
	PRESSURE REQUIRED	20	PSIG	3/4	2.5	2.0	1.0									8	PSIG	3/4	6.0	4.0	2.0		
G	ELEV. DIFF. BETW. METER AND CONTROLLING FIXTURE	4	FEET	1	6.5	4.0	3.5									2	FEET	1	14.0	10.0	8.0		
H	PRESSURE LOSS DUE TO WATER SOFTENER	9	PSIG	1 1/4	13.0	9.5	7.0									9	PSIG	1 1/4	27.5	19.0	15.0		
I	PRESSURE LOSS DUE TO MIXING VALVE	12	PSIG	1 1/2	23.0	15.5	12.5									12	PSIG	1 1/2	52.0	32.0	25.5		
J	PRESSURE AVAILABLE FOR PIPING PRESSURE DROP	2.3	PSIG	2	63.0	37.0	29.0									6.4	PSIG	2	175.0	100.0	73.0		
K	DEVELOPED LENGTH START PT. TO CONTR. FIXTURE	150	FEET	2 1/2	170.0	121.0										170	FEET	2 1/2	410.0	312.0			
L	EQUIVALENT LENGTH START PT. TO CONTR. FIXTURE	225	FEET	3	345.0	295.0										255	FEET	3	752.0	617.0			
M	PRESSURE AVAILABLE FOR UNIFORM LOSS	1.01	PSIG/100'	4	923.0	794.0										2.52	PSIG/100'	4	1792.0	1094.0			



PLUMBING WATER ISOMETRIC

NO SCALE

GENERAL NOTES:

- SEE UNDERGROUND PLAN AND FIXTURE UNIT SCHEDULE FOR RUNOUT TRAP SIZE TO FIXTURE.
- SEE FIXTURE UNIT SCHEDULE ON SHEET P2.0 FOR RUNOUT PIPING SIZE TO FIXTURE
- PIPING SIZED BASED ON TYPE L COPPER TUBING. IF CPVC OR PEX IS SUBSTITUTED RESIZE PER TABLE IN WATER CALCULATIONS.

KEYNOTES:

1. CONNECT TO EXISTING.

PLUMBING ISOMETRICS AND SCHEDULES

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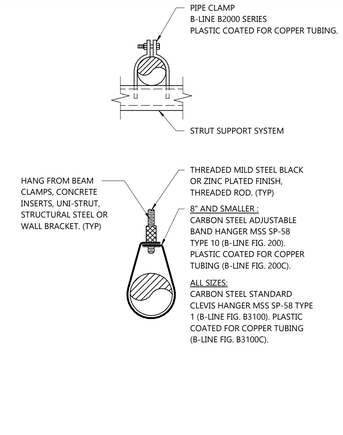
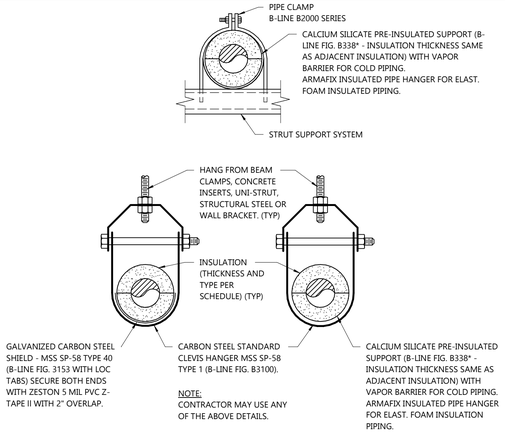


4 P3.0 UNINSULATED PIPE HANGER DETAIL
NOT TO SCALE



3 P3.0 INSULATED PIPE HANGER DETAILS
NOT TO SCALE

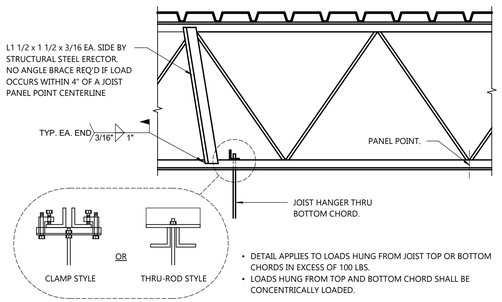
MAX. SPACING BETWEEN PIPE SUPPORTS AND MIN. HANGER ROD SIZES										
PIPE SIZE	STEEL			COPPER			PVC	PEX	MIN. ROD	
	WATER	VAPOR	NAT. GAS	WATER	VAPOR		CPVC		METAL PIPE	PLASTIC PIPE
1/4"-1/2"	7'	8'	6'	5'	6'		4'	32"	3/8"	3/8"
3/4"	7'	9'	8'	5'	7'		4'	32"	3/8"	3/8"
1"	7'	9'	8'	6'	8'		4'	32"	3/8"	3/8"
1 1/4"	7'	9'	10'	7'	9'		4'	32"	3/8"	3/8"
1 1/2"	9'	12'	10'	8'	10'		4'	32"	3/8"	3/8"
2"	10'	12'	10'	8'	11'		4'	32"	3/8"	3/8"
2 1/2"	11'	12'	10'	9'	12'		4'	32"	3/8"	3/8"
3"	12'	12'	10'	10'	12'		4'	32"	3/8"	3/8"
4"	12'	12'	10'	12'	12'		4'	-	3/8"	3/8"
6"	12'	12'	10'	12'	12'		4'	-	3/8"	3/8"
8"	12'	12'	-	-	-		4'	-	1/2"	3/8"
10"	12'	12'	-	-	-		4'	-	1/2"	3/8"
12"	12'	12'	-	-	-		4'	-	5/8"	3/8"
14"	12'	12'	-	-	-		4'	-	5/8"	3/8"
16"	12'	12'	-	-	-		4'	-	3/4"	3/8"
MAX VERT. (1)	15'	15'	-	10'	10'		10'	4'	-	-

(1) SUPPORT AT MINIMUM EVERY FLOOR LEVEL OR SPACING LISTED.
MSS = MANUFACTURER'S STANDARDIZATION SOCIETY
- INSTALL ADDITIONAL HANGERS WITHIN 12" OF ELBOWS AND TEES AND AT CONCENTRATED LOADS, INCLUDING VALVES, FLANGES AND STRAINERS 2 1/2" AND LARGER.

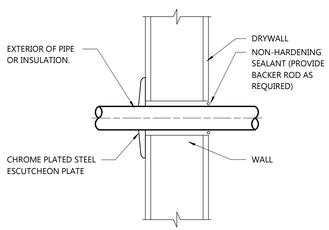
MAX. HANGER ROD CAPACITY	
ROD DIA.	MAX LOAD (1)
3/8"	600#
1/2"	1,100#
5/8"	1,800#
3/4"	2,700#

(1) MAX LOAD IS WEIGHT ALLOWED PER EACH ROD.

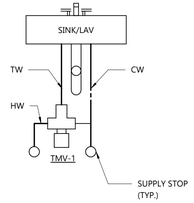
2 P3.0 PIPE SUPPORT AND HANGER ROD SCHEDULE
NOT TO SCALE



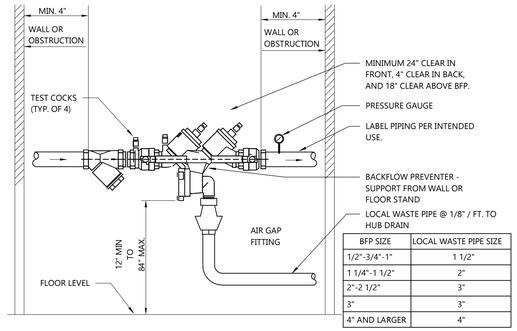
1 P3.0 JOIST HANGER CONNECTION DETAIL
NOT TO SCALE



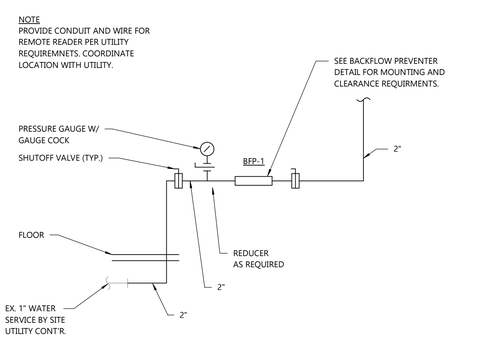
8 P3.0 PIPE PENETRATION THRU STUD WALL
NOT TO SCALE



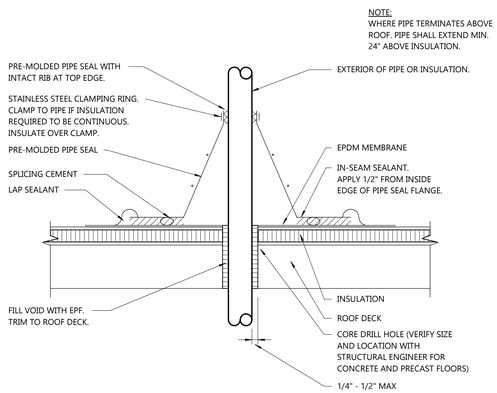
7 P3.0 TMV-1 DETAIL
NOT TO SCALE



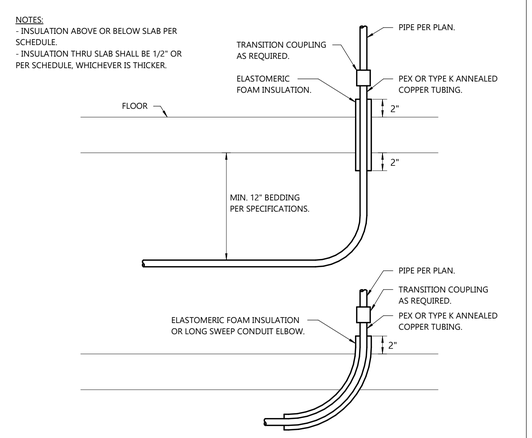
6 P3.0 BACKFLOW PREVENTER DETAIL
NOT TO SCALE



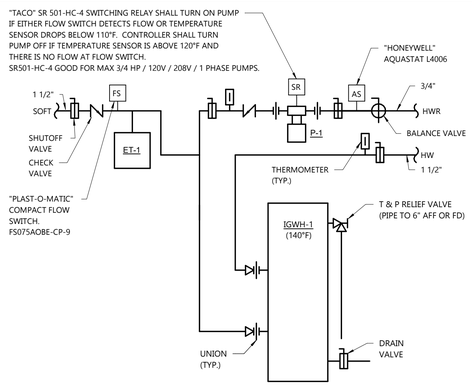
5 P3.0 WATER METER PIPING DETAIL
NOT TO SCALE



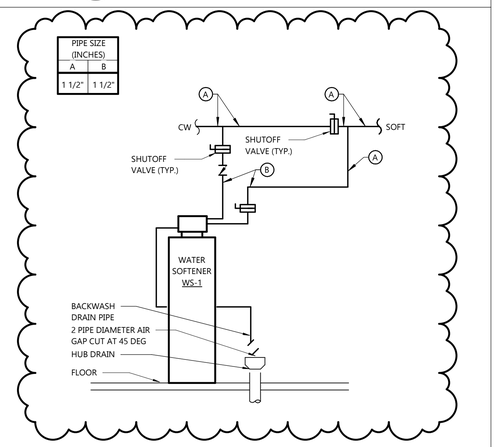
12 P3.0 ROOF PIPE BOOT PENETRATION DETAIL
NOT TO SCALE



11 P3.0 BELOW GRADE WATER PIPE SLAB PENETRATION DETAIL
NOT TO SCALE



10 P3.0 WATER HEATER PIPING DETAIL
NOT TO SCALE



9 P3.0 WATER SOFTENER DETAIL
NOT TO SCALE

PLUMBING DETAILS

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE NOV. 23, 2021
REVISIONS
AD2 JAN. 28, 2022

JOB NUMBER
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SHEET NUMBER
P3.0

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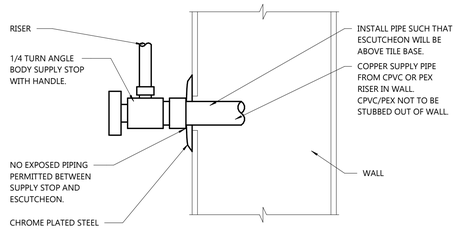
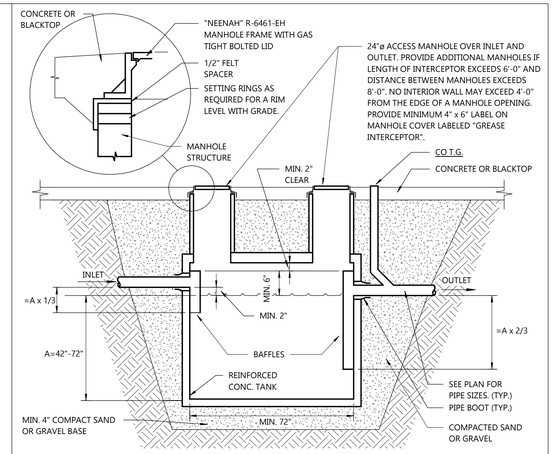
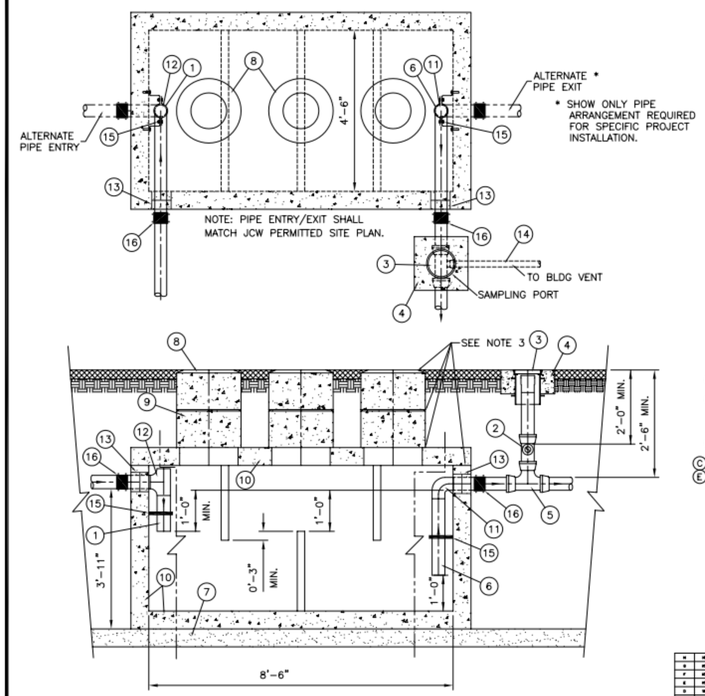


2 ANGLE STOP DETAIL
P3.1 NOT TO SCALE



1 EXTERIOR GREASE INTERCEPTOR DETAIL
P3.1 NOT TO SCALE

AD1



ITEM		DESCRIPTION
1		4" ABS INLET PIPE*
2		4"x4"x2" TEE WITH 2" PIPE TO BUILDING VENT*
3		THREADED C/O CAP JOSAM 58860 OR APP EQUAL**
4		CONCRETE PAD
5		4"x4"x4" TWO-WAY CLEANOUT TEE*
6		4" ABS OUTLET*
7		4" - 6" GRAVEL BEDDING
8		HEAVY-DUTY CAST IRON FRAME AND COVER ***
9		CONCRETE ADJUSTMENT RINGS
10		REINFORCE AS REQUIRED FOR SERVICE CONDITIONS
11		4" ABS 90° ELBOW*
12		4" ABS TEE*
13		A-LOK OR PRESS SEAL PSX PIPE/WALL CONNECTOR
G	14	2" VENT PIPE (IDENTIFY PIPE TYPE, CLASS & JOINT AS REQUIRED FOR THE PROJECT)
F	15	STAINLESS STEEL PIPE SUPPORT CLAMP ****
H	16	TO JOIN DIS-SIMILAR PIPE; FERNCO STRONG BACK RC COUPLER OR MISSION FLEX-SEAL ARC COUPLER

* 6" PIPE MAY BE SUBSTITUTED TO MATCH UPSTREAM PIPE DIAMETER.
** REFER TO CLEAN OUT DETAIL(S) ON STANDARD DETAIL SHEET.
*** CLAY & BAILEY 2008 BV OR EQUAL (FROST PROOF COVERS OPTIONAL)
(F) ****FM STAINLESS FASTENERS #63 OR EQUAL. 1/2"x2-1/2" SS BRACKET W/ 1/2"x1-1/2" FULLY THREADED SS HEX BOLT WITH 1/2" SS WASHER AND 1/2"X1-3/4" SS ANCHORS. CLAMP TO BE FACTORY INSTALLED.

NOTES:
1. THREE COVERS AND RISERS SHOWN. TWO COVERS AND RISERS CENTERED OVER UPPER TWO BAFFLES ARE OPTIONAL.
(B) 2. INTERCEPTOR SIZE - 1000 GAL MINIMUM (REVISE THE SIZE DIMENSIONS, AS NEEDED, FOR LARGER CAPACITY INTERCEPTORS)
(D) 3. ALL JOINTS AT THE FRAME & COVER*, CONCRETE ADJUSTMENT RINGS AND THE LID OF THE INTERCEPTOR SHALL BE SEALED WITH A MINIMUM OF TWO (2) ROWS OF 3/4 TO 1 INCH PREFORMED BUTYL JOINT SEALER AND A 6" BUTYL JOINT WRAP AROUND SLEEVE (EZ WRAP). THE ENDS OF THE 6" EZ WRAP SHALL OVERLAP BY 12".
(B) 4. PIPING ON THE INTERIOR OF THE INTERCEPTOR SHALL BE ABS WITH SOLVENT-CEMENTED JOINTS.
(C) (D) (E) (H) 5. INTERCEPTOR INCLUDING ADJUSTMENT RINGS AND CASTINGS SHALL BE VACUUM TESTED FOR WATER TIGHTNESS AFTER THE BACKFILL OPERATIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH JCW TECHNICAL SPECIFICATIONS. A VACUUM OF 10 INCHES OF MERCURY SHALL BE DRAWN AND WITH THE VACUUM PUMP SHUT OFF THE MERCURY SHALL NOT DROP BELOW 9 INCHES WITHIN 1 MINUTE OR BELOW 5 INCHES WITHIN 5 MINUTES.

H	MB	1/22/07	REVISED NOTE 5, ADDED ITEM #16 AND REVISED DETAIL TITLE
G	RDF	10/16/06	ADDED PIPE REQUIREMENTS TO ITEM #14
F	RDF	09/01/06	ADDED ITEM #15 - SS PIPE SUPPORT CLAMP
E	RDF	08/31/06	REVISED NOTE 4
D	MLH	7/26/06	REVISED NOTES 3 AND 5
C	MLH	7/14/06	ADDED NOTE 5
B	RDF	7/01/06	CHANGED ITEM 14 FROM 4" TO 2" & ADDED NOTE 3
A	JEB	06/08/06	DIMENSION CHANGE BY REQUEST OF JCSD
NO.	BY	DATE	REMARKS

JCW Johnson County Wastewater
11811 S. SUNSET DRIVE, STE 2500
OLATHE, KS 66061
Phone : (913) 715-8500
Fax : (913) 715-8501

Drawn: K. FIGGE	Date: 8/10/06	Scale: N.T.S.
Checked: J. HARDER	Date: 8/10/06	Project #: 0001
Approved: J. METZLER	Date: 8/10/06	Sheet: 1 of 1

Title: GREASE INTERCEPTOR OR SAND/OIL INTERCEPTOR 1250) GAL

Project: JOHNSON COUNTY WASTEWATER STANDARD DETAIL

PLUMBING DETAILS

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PIPE SCHEDULE

SERVICE	LOCATION	PIPE SIZE	COPPER									PEX			PVC								CPVC						CAST IRON			
			C12200 TUBE	FITTINGS					JOINTS			PIPE	FITTINGS	JOINTS	PIPE			FITTINGS				JOINT	PIPE			FITTING		JOINT	PIPE & FITTING		JOINTS	
			ASTM B88 TYPE L HARD DRAWN	ASME B16.15 CAST BRONZE THREADED (1)	ASME B16.18 CAST COPPER SOLDER (1)	ASME B16.51 COPPER PRESS FITTINGS WITH EPDM O-RINGS (4)	ASTM B-88 CDA 89833 CAST OR ASTM B-75 C12200 WROT COPPER ALLOY GROOVED FITTING. (5)	ASME B16.22 WROUGHT COPPER SOLDER (2)	LEAD FREE SOLDER	COLD PRESS MECH. JOINT (4)	COUPLING JOINT (5) (6)	ASTM F876, F877, F2023	ASTM F1960, F2159	PER MFR REQUIREMENTS	SCH. 40 PRESSURE RATED ASTM D1785	DWV NON-PRESS. RATED ASTM F891	SCH. 40 NON-PRESS. RATED ASTM D1784, D2665	SCH. 40 ASTM D 2466	SCH. 80 ASTM D 2467	SCH. 40 DWV ASTM D2665	SDR 35 ASTM D3034	ASTM F656 PRIMER, ASTM D2564 SOLVENT CEMENT	SCHEDULE	ASTM D2846 - SDR 11	ASTM D1784 CLASS 23447, F441	ASTM D1784, F2618	ASTM D1784, F439	SOLVENT CEMENT ASTM F493	SOLVENT CEMENT ASTM F493, NSF 14	HUBLESS ASTM A888, CISPI 301	BELL AND SPIGOT ASTM A74 SERVICE WEIGHT	ASTM C1277, CISPI 310 STD. S.S. CLAMP & SHIELD. ASTM C564 RUBBER GASKET.	ASTM C1540, CISPI 310 HEAVY DUTY S.S. CLAMP & SHIELD. ASTM C564 RUBBER GASKET.
WATER	ABOVE GROUND	ALL	X	X	X	X	X	X	X	X	X	X	X	X									(16)	X	X		X		X				
OVERFLOW DRAIN	ABOVE GROUND	ALL														X				X		X											
SANITARY, STORM AND CLEAR WATER DRAIN AND VENT	ABOVE GROUND	ALL														X				X		X								X		<=4"	>4"
	UNDER BUILDING	ALL													X		X			X		X								X	X	<=4"	>4"
COMM. DISH, PAN, UTENSIL WASHER DRAIN AND WASTE (VENT PIPING PER SAN. DRAIN)	WITHIN 15' OF HUB																													X	X	<=4"	>4"

- ALL MATERIALS SHALL COMPLY WITH LASTEST VERSION OF LISTED STANDARD. ALL IMPORTED MATERIAL SHALL BE CERTIFIED BY A DOMESTIC THIRD PARTY FOR COMPLIANCE WITH STANDARD.
(1) LEAD-FREE DEZINCIFICATION-RESISTANT (DZR) BRASS ALLOY C87850 PER ASTM B584
(2) LEAD-FREE PER ASTM B75 ALLOY C12200
(4) INSTALL PER MANUFACTURER'S INSTRUCTIONS. 50 YEAR WARRANTY AGAINST MANUFACTURING DEFECTS.
(5) INSTALL PER MANUFACTURER'S INSTRUCTIONS. 10 YEAR WARRANTY AGAINST MANUFACTURING DEFECTS.
(6) GRINNELL FIG 6400 OR EQUIVALENT. DUCTILE IRON ASTM A536 GRADE 65-45-12 HOUSING WITH COPPER ACRYLIC ENAMEL COATING,
BOLTS CONFORMING TO SAE J429 GRADE 5 WITH ASTM A563 GRADE A HEX NUTS (BOTH ZINC PLATED), GRADE "EP" EPDM (COPPER COLOR CODE) NSF 61 APPROVED COMPOUND GASKET SUITABLE FOR WATER TEMPERATURE.
(16) PIPING SHALL BE SCH. 80 SPEARS EVERTUFF FOR 2 1/2" THROUGH 4" SIZES. GREATER THAN 4" CPVC NOT PERMITTED.

LAVATORY SCHEDULE (L)

NO.	MOUNTING	OVERALL SIZE	FAUCET CENTERS	CARRIER	LAV MODEL	DRAIN TYPE	DRAIN MODEL	SUPPLY STOP TYPE	SUPPLY STOP MODEL	FAUCET TYPE	FAUCET GPM	FAUCET MODEL
1	WALL HUNG	21" x 18"	4"	YES	TOTO LT307.4	GRID	K-7129-A			SINGLE HANDLE	1.5	K-15199

- ACCEPTABLE MANUFACTURERS:
  - -LAV: TOTO, KOHLER, AMERICAN STANDARD, CRANE, ELJER, MANSFIELD, BRADLEY.
  - -FAUCETS: KOHLER, SYMMONS, CHICAGO, AMERICAN STANDARD, DELTA, ZURN, HYDROTEK, BRADLEY.
  - -DRAINS AND TRAPS: KOHLER, DEARBORN, KEENEY, MCGUIRE, BRASSCRAFT.
  - -STOPS AND SUPPLIES: KOHLER, BRASSCRAFT, DEARBORN, KEENEY, MCGUIRE.
  - -CARRIERS AND SUPPORTS: ANCON, JOSAM, SMITH, WADE, ZURN.
- ALL WETTED PARTS SHALL BE LEAD FREE COMPLIANT.
- WALL HUNG LAVS WITH BACKSPLASH. MOUNT TOP OF RIM AT 34" A.F.F. WITH CONCEALED CARRIER.
- FAUCETS WITH VANDAL RESISTANT AERATOR.

AD2

SERVICE SINK SCHEDULE (SS)

NO.	MOUNTING	BASIN MAT'L	BASIN SIZE	BASIN RIM GUARD	BASIN MODEL	FAUCET PIPING EXPOSURE	FAUCET BACKFLOW PREVENTER	FAUCET GPM	FAUCET MFR/MODEL
1	FLOOR	DURASTONE	24"x24"x10"	(1)	MUSTEE 63M	CONCEALED	WATTS SERIES 8	5-7	CHICAGO 305

- ACCEPTABLE MANUFACTURERS:
  - -BASIN: MUSTEE, FIAT, KOHLER, WILLIAMS.
  - -FAUCET: CHICAGO, DELTA, KOHLER, AMERICAN STANDARD, SYMMONS. T&S BRASS.
  - -DRAINS AND TRAPS: KOHLER, DEARBORN, KEENEY, MCGUIRE, BRASSCRAFT.
- FLOOR SERVICE SINKS WITH 3" BRASS DRAIN, STAINLESS STEEL 3 MOP HOLDER HANGER, HEAVY DUTY 5/8" DIAMETER REINFORCED RUBBER HOSE, AND STAINLESS STEEL HOSE BRACKET.

(1) BUMPER GUARDS ON EXPOSED RIMS.

THERMOSTATIC MIXING VALVE SCHEDULE (TMV)

NO.	SERVICE	INLETS	OUTLET	MAX. FLOW (GPM)	ACTUAL FLOW (GPM)	ACT. P.D. (PSI)	INLET CONDITIONS COLD (DEG F)	INLET CONDITIONS PRESS. (PSIG)	INLET CONDITIONS HOT (DEG F)	INLET CONDITIONS PRESS. (PSIG)	RECIRC RATE (GPM)	TEMP. SETTING (DEG F)	MODEL	REMARKS
1	SINK	3/8"	3/8"	3.0	2.0	4	NA	-	NA	-	NA	105	LFe480-11	POWERS (1)

- ACCEPTABLE MANUFACTURERS: LEONARD, SYMMONS, WATTS, POWERS.
- LEAD FREE BODY, REMOVABLE CARTRIDGE WITH STRAINER, STAINLESS STEEL SPRING, EPDM O-RINGS AND SOLID WAX THERMOSTAT ASSEMBLY.
- P.C. SHALL FIELD ADJUST TMV TO TEMPERATURE SETTING INDICATED IN SCHEDULE.

(1) POINT OF USE TMV SHALL COMPLY WITH ASSE 1070.

WATER CLOSET SCHEDULE (WC)

NO.	MT'G	MIN. MaP (1)	ACTUAL MaP (1)	MIN. PRESS. PSIG	FLUSH TYPE	GPF	BOWL MFR/MODEL	BOWL RIM HT. A.F.F.	BOWL PIPING CONNECTION	FLUSH VALVE TYPE	FLUSH VALVE/ SUPPLY STOP MFR/MODEL	SEAT
1H	FLOOR	800	1000	20	TANK	1.6	KOHLER K-3493	17-1/8"	HANDLE STOP	PRESS. ASSIST	BRASSCRAFT OCR1912AZX C	BEMIS 1655 SSCT

- ACCEPTABLE MANUFACTURERS:
  - -BOWL: TOTO, KOHLER, AMERICAN STANDARD, CRANE, ELJER, MANSFIELD, ZURN.
  - -FLUSH VALVE: TOTO, SLOAN, ZURN, DELANY, HYDROTEK.
  - -SEAT: TOTO, KOHLER, BEMIS, SPERZEL, OLSONITE, AMERICAN STANDARD, CHURCH.
- WATER SAVING, SIPHON JET ELONGATED VITREOUS CHINA WATER CLOSET BOWL WITH WHITE SOLID PLASTIC OPEN FRONT SEAT WITH SELF-SUSTAINING CHECK HINGE.
- FLOOR SET WATER CLOSETS WITH BOLT CAPS.
- CONTROLS FOR ADA ACCESSIBLE FIXTURES SHALL BE ON THE OPEN SIDE.

INSULATION SCHEDULE

SERVICE	LOCATION	INSULATION TYPE (1)	JACKET	PIPE SIZE <1.5"	PIPE SIZE =>1.5"
CW	GENERAL BUILDING	RIGID F.G. OR ELAST. FOAM (10)	NR	1/2"	1/2"
CW	IN WALLS	ELASTOMERIC FOAM	NR	1/2"	1/2"
CW (PEX AND CPVC)	ALL	NR	NR	NR	NR
HW NOT ON RECIRC. LOOP	GENERAL BUILDING	RIGID F.G. OR ELAST. FOAM (10)	NR	1"	1"
HW BRANCH	IN WALLS	ELASTOMERIC FOAM	NR	1/2"	1/2"
STORM AND OVERFLOW DRAINS	GENERAL BUILDING	(11)	NR	1"	1"

NR = NOT REQUIRED
COLD WATER = HARD, SOFT, IRRIGATION, HOSE STATION, ETC. AT ALL PRESSURES.
HOT WATER = WATER SYSTEMS OPERATING AT TEMPERATURES GREATER THAN 105 DEG F AT ALL PRESSURES.
(1) WHERE INSULATION IS PROVIDED ON PIPING INSULATE METERS, VALVES, BACKFLOW PREVENTERS AND ALL INLINE EQUIPMENT.
(10) INSULATION NOT REQUIRED FOR EXPOSED FINAL PIPING CONNECTIONS TO FIXTURES.
(11) INSULATE ROOF AND OVERFLOW DRAIN BODIES WITH ELASTOMERIC FOAM.
INSULATE HORIZONTAL STORM PIPING AND ALL OVERFLOW PIPING WITH FIBERGLASS INSULATION.
INSULATE PIPING IN DRYWALL CHASES ADJACENT TO OFFICES WITH FIBERGLASS INSULATION.

ELECTRICAL/STARTER/DISCONNECT SCHEDULE

NO.	LOCATION	ELECTRICAL DATA HP	KW	AMPS	MCA	MOP	VOLT	PH.	STARTER TYPE	STARTER LOCATION	STARTER FURN. BY	STARTER ACCESS-ORIES	DISCONNECT DIS-CONNECT	DISCONNECT FURN. BY	REMARKS
IGWH-1	MECH	-	-	15.0	-	-	120	1	INTEG	INTEGRAL	EM	-	R	EM	-
P-1	MECH	-	0.052	-	-	-	120	1	(18)	MECH	PC	-	NR	-	-
WS-1	MECH	-	-	-	-	-	120	1	INTEG	INTEGRAL	EM	-	NR	-	REC.

STARTER TYPE:
INTEG.= INTEGRAL: PROVIDED INTEGRAL WITH EQUIPMENT.
RELAY= UL LISTED MOTOR RATED RELAY WITH SEPARATE ENTRANCES FOR INPUT AND OUTPUT CONTACTS (RIBT SERIES), OVERIDE SWITCH AND LED STATUS INDICATOR. CONTACT RATING, CONFIGURATION, AND COIL VOLTAGE SUITABLE FOR APPLICATION.

FURNISHED BY:
EM = EQUIPMENT MANUFACTURER
PC = PLUMBING CONTRACTOR
EC = ELECTRICAL CONTRACTOR
HC = HEATING CONTRACTOR

ACCESSORIES:
HOA = HAND-OFF-AUTO
PL = PILOT LIGHT
PB = PUSH BUTTON
2-SP = TWO SPEED
RV = REDUCED VOLTAGE

DISCONNECT:
NR= NOT REQUIRED
R = REQUIRED
WP= WEATHERPROOF
F= FUSED

REMARKS:
REC.=RECEPTACLE
S.REC.=SWITCHED RECEPTACLE

- ACCEPTABLE MANUFACTURERS: ALLEN BRADLEY, CUTLER HAMMER, SQUARE D, GENERAL ELECTRIC.
- VERIFY VOLTAGE AND PHASE WITH ELECTRICAL CONTRACTOR BEFORE ORDERING EQUIPMENT.
- FURNISH MOTOR STARTERS TO E.C. FOR INSTALLATION AND WIRING WHEN THE STARTER SCHEDULE CALLS FOR P.C. TO FURNISH.

(18) 120V TO SWITCHING RELAY AND FROM SWITCHING RELAY TO PUMP BY E.C.. 24V WIRING FROM SWITCHING RELAY TO OTHER DEVICES BY P.C..

WATER SOFTENER SCHEDULE (WS)

NO.	WATER HARD-NESS	MINERAL TANK FLOW GPM	MINERAL TANK P.D. PSI	MINERAL TANK SIZE DIA x HT	MINERAL TANK BACK-WASH	MINERAL TANK RESIN CU. FT.	METER SIZE	METER P.D.	BRINE TANK CAPACITY GRAINS	BRINE TANK CAPACITY @ LBS	BRINE TANK SIZE DIA x HT	BRINE TANK DRY SALT STORAGE	MODEL	REMARKS
1	10	25	9	21" x 62"	9 GPM	5	1.5"	0.4	140,000	50	24" x 50"	750	H151-150-21	HELLENBRAND

- ACCEPTABLE MANUFACTURERS: ADDIE, HELLENBRAND, CULLIGAN, WATER CONTROL, WATER-RIGHT.
- PROVIDE COMPLETE FILL OF BRINE TANK AT PROJECT COMPLETION.
- PROVIDE "SYSTEMMATE" ELECTRONIC METER CONTROLLER PROGRAMMED FOR DELAYED REGENERATION BASED ON FLOW.

INSTANTANEOUS GAS WATER HEATER SCHEDULE (IGWH)

NO.	LOC.	TYPE	COMM. WARR. (2)	GAS INPUT MBH	THERMAL EFF. %	GPM	TEMP. RISE AT FLOW	PRESSURE DROP AT FLOW	T & P REL. VALVE SETTING	MODEL	REMARKS
1	114	INSTANT	10/2 YR	499	94.0	10.5	90.0	6 PSIG	150 PSIG	iN501	INTELLIHOT (3)

- ACCEPTABLE MANUFACTURERS: TAKAGI, RINNAI, BRADFORD WHITE, RHEEM, LOCHINVAR, STATE, BOCK, INTELLIHOT.

(2) HEAT EXCHANGER COIL WARRANTY / ALL OTHER PARTS WARRANTY.
(3) MULTI 316L STAINLESS STEEL HEAT EXCHANGER CONSTRUCTION WITH 16.7:1 TURNDOWN RATIO AND RECIRCULATION PUMP FOR HEAT EXCHANGERS. MASTERLESS CASCADING CONTROL SYSTEM AND ON-BOARD MULTI UNIT SEQUENCING.

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PLUMBING SCHEDULES

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BACKFLOW PREVENTER / VACUUM BREAKER SCHEDULE (BFP)

NO.	LOC.	GPM	P.D. (PSI)	INDIRECT WASTE REQ'D	SIZE	MAX. OP TEMP. DEG. F.	TYPE	MAX. HAZ.	BFP/VB PRESS.	APPLICATION	ASSE STD.	MODEL	REMARKS
1	MECHANICAL	72.0	9.0	YES (6)	2"	180	REDUCED PRESS. PRINCIPLE BFP	HIGH	CONTIN.	BLDG POTABLE WATER SYSTEM PROTECTION	1013	LF919QT	WATTS (1)

- ACCEPTABLE MANUFACTURERS: WATTS, AMES, ZURN/WILKINS, APOLLO.

(1) LEAD FREE BODY.

(6) PROVIDE AIR GAP FITTING.

CIRCULATING PUMP SCHEDULE (P)

NO.	SERVICE	FLUID TEMP F	GPM	HEAD (FT)	RPM	MOTOR H.P.	VOLT/ PHASE	MIN. EFF.	TYPE	MODEL	REMARKS
1	HOT WATER CIRC	120	5	6	2800	52 WATT	120/1	-	IN-LINE	NBF-10	B&G (1)

- ACCEPTABLE MANUFACTURERS: GRUNDFOS, B & G, ARMSTRONG, TACO, ALLIS-CHALMERS, AMTROL.
- SEE WATER HEATER PIPING DETAIL FOR CONTROLS REQUIRED FOR IECC COMPLIANCE.
- LEAD FREE BRONZE BODY.

(1) PROVIDE "INTERMATIC" MODEL ST01 DIGITAL 7-DAY SWITCH TIMER TO CONTROL PUMP OPERATION.

CLEANOUT SCHEDULE

NO.	LOCATION	SIZES	BODY MAT'L	PLUG MAT'L	ACCESS COVER MAT'L	ACCESS COVER MISC.	MISC.	FIGURE	REMARKS
CO	ABV. CLGS & EXPOSED PIPE	2" - 6"	(1)	PVC	-	-	-	(1)	(1)
FCO	FINISHED ROOMS W/O CARPET (2)	2" - 6"	C.I.	PVC	N.B.	-	-	Z-1400	ZURN
WCO	WALL	2" & =>6"	(6)	POLY	S.S.	-	-	Z-1469	ZURN
CO T.G.	OUTSIDE	2" - 6"	C.I.	PVC	C.I.	-	-	Z-1474-N	ZURN

- ACCEPTABLE MANUFACTURERS: J.R. SMITH, SCHIER, JOSAM, WADE, ZURN.
- RECESSED TAPER THREAD PLUG WITH SLOTTED RECESS.

(1) PROVIDE THREADED FEMALE ADAPTER WITH INTERNAL PLUG. ADAPTER MATERIAL SHALL MATCH PIPE MATERIAL TO WHICH CO IS BEING CONNECTED.

(2) FINISHED ROOMS ARE ROOMS WITH CARPET OR FLOOR TILE OR ROOMS ACCESSIBLE BY A DOOR LESS THAN 42" WIDE.

(6) PROVIDE TEST/CLEANOUT TEE. THREADED PLUG WITH BRASS INSERT. MATERIAL SHALL MATCH PIPE MATERIAL TO WHICH TEE IS BEING CONNECTED.

DRAIN SCHEDULE

NO.	TYPE	APPLICATION	OUTLET SIZE	BODY MAT'L	STRAINER/TOP MAT'L	STRAINER/TOP SIZE	MISC.	MODEL	REMARKS
FD-1	FLOOR	FLOOR SINK	(2)	CAST IRON	ALUM. DOME	12" x 12"	-	861-23X	SIOUX CHIEF (19)
FD-2	FLOOR	PEDESTRIAN TRAFFIC	2"-3" (2)	CAST IRON	N. B. "TYPE B"	5" DIA	-	ZN-415-5B	ZURN (19)
FD-3	FLOOR	EQ. RM. / MED. DUTY	2"-4" (2)	CAST IRON	CAST IRON	7" DIA	(15)	Z-507	ZURN (19)
HD	HUB DRAIN	INDIRECT WASTE	(2)	-	-	-	STUB 2" A.F.F.	-	(19)
HD-R	HUB DRAIN	INDIRECT WASTE	(2)	-	STUB DRAIN PIPE 2" A.F.F. AND PROVIDE 1 PIPE SIZE INCREASE ON END OF PIPE. (19)				

- ACCEPTABLE MANUFACTURERS: ZURN, J.R. SMITH, JOSAM, WADE, WATTS, SCHIER, KUSEL, SIOUX CHIEF.

(2) AS NOTED ON DRAWINGS

(12) PROVIDE WITH POLISHED TOP.

(19) PROVIDE BARRIER TYPE INSERT DRAIN TRAP SEAL COMPLIANT WITH ASSE 1072.

EXPANSION TANK SCHEDULE (ET)

NO.	MOUNTING	TANK TYPE	CONN. SIZE	TANK CAP. (GAL.)	ACCEPT. CAPACITY (GAL.)	PRECHARGE PRESSURE (PSIG)	WORKING PRESS (PSIG)	DIA.	HEIGHT	WEIGHT FILLED (LBS.)	MODEL	REMARKS
1	PIPE	DIAPHRAGM	3/4"	4.8	2.2	75	150	11"	14.5"	29	PH 12	FLEXCON

- ACCEPTABLE MANUFACTURERS: FLEXCON, AMTROL, WESSELS, ZILMET.

EXTERIOR GREASE INTERCEPTOR SCHEDULE (GI)

NO.	MAT'L	LENGTH (INCHES)	WIDTH (INCHES)	HEIGHT (INCHES)	LIQUID LEVEL (INCHES)	CAPACITY (GAL.)	INLET & OUTLET SIZE	MANHOLES	APPROX. COVER DEPTH	MODEL	REMARKS
1	PRECAST	117	58	66	42	1250	4"	3 (1)	12"	SGI-1250	OLD CASTLE

AD2

- ACCEPTABLE MANUFACTURERS: WEISER OR EQUAL. PROVIDE TRAFFIC RATED COVERS

(1) SEE EXTERIOR GREASE INTERCEPTOR DETAIL FOR ADDITIONAL INFORMATION.

GREASE INTERCEPTOR CALCULATIONS	
DFU OF SYSTEM	48
MINIMUM SIZE OF INTERCEPTOR BY DFU	1250
REQUIRED CAPACITY =	1250

WATER HAMMER ARRESTOR SCHEDULE (WHA)

NO.	OVERALL LENGTH	CONNECTION SIZE (NPT)	PRECHARGE PRESSURE PSI	CAPACITY CUBIC INCHES	MAX. SYSTEM PRESSURE PSIG	MODEL	MFR
A	6.25"	1/2"	60.0	5	150	SC-500A	PRECISION PLUMBING PRODUCTS
B	7.25"	3/4"	60.0	7	150	SC-750B	PRECISION PLUMBING PRODUCTS
C	9.5"	1"	60.0	11	150	SC-1000C	PRECISION PLUMBING PRODUCTS
D	9.25"	1"	60.0	20	150	SC-1250D	PRECISION PLUMBING PRODUCTS
E	11"	1"	60.0	29	150	SC-1500E	PRECISION PLUMBING PRODUCTS
F	12"	1"	60.0	36	150	SC-2000F	PRECISION PLUMBING PRODUCTS

- ACCEPTABLE MANUFACTURERS: PRECISION PLUMBING PRODUCTS, SIOUX CHIEF, WATTS, ZURN-WILKINS.
- NOT ALL WHA SCHEDULED ARE USED ON THE PROJECT.

PLUMBING SCHEDULES

EXCEL
ARCHITECTS • ENGINEERS • SURVEYORS
Always a **Better Plan**
100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE	NOV. 23, 2021
REVISIONS	
AD1	JAN. 24, 2022
AD2	JAN. 28, 2022

JOB NUMBER
2172060

SHEET NUMBER
P4.1

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HVAC SPECIFICATIONS

DIVISION 23 HVAC

23 05 00 BASIC HVAC REQUIREMENTS

A. SEE DIVISION 00 PROCUREMENT AND CONTRACTING AND DIVISION 01 GENERAL REQUIREMENT FOR ADDITIONAL REQUIREMENTS.
B. HVAC CONTRACTOR SHALL VERIFY REQUIREMENTS FOR TEMPORARY HEATING WITH GENERAL CONTRACTOR AND INCLUDE IN HIS SCOPE OF WORK WHEN DIRECTED BY G.C. INSTALL IN ACCORDANCE WITH ALL CODE AND OSHA REQUIREMENTS FOR CONSTRUCTION PROJECTS.
C. SUBSTITUTIONS
1. SEE DIVISION 01 23 00 PRODUCT SUBSTITUTION PROCEDURES FOR ADDITIONAL REQUIREMENTS.
2. CONTRACTOR SHALL PROVIDE ALL SUPPORTING DATA AND ASSUME THE BURDEN OF PROOF THAT ANY SUBSTITUTE IS EQUIVALENT AS TO APPEARANCE, CONSTRUCTION, CAPACITY, AND PERFORMANCE. THE JUDGMENT OF EQUIVALENCY SHALL BE MADE BY THE ENGINEER AT THE TIME OF SHOP DRAWING REVIEW, NOT DURING BIDDING.
3. WHERE SUBSTITUTE EQUIPMENT REQUIRES REDESIGN OF ANY PART OF THE PROJECT, THE COST OF REDESIGN AND ADDITIONAL COSTS OF THE WORK SHALL BE PAID BY THE CONTRACTOR. REDESIGN SHALL BE SUBJECT TO THE APPROVAL OF ALL AUTHORITIES HAVING JURISDICTION OVER THE WORK INCLUDING THE ARCHITECT/ENGINEER.
4. CONTRACTOR SHALL ASSUME ALL COORDINATION RESPONSIBILITIES FOR SUBSTITUTE EQUIPMENT INCLUDING COORDINATION ACROSS TRADES AND COORDINATION OF PREVIOUSLY REVIEWED AND APPROVED SHOP DRAWING SUBMITTALS, SHOULD THESE SHOP DRAWINGS BE AFFECTED BY THE SUBSTITUTED EQUIPMENT.
D. SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS, PROJECT CLOSEOUT DOCUMENTS:
1. SEE DIVISION 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR ADDITIONAL REQUIREMENTS
2. CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
a. DUCTWORK
b. DUCTWORK ACCESSORIES
c. INSULATION
d. KITCHEN DUCTWORK
e. PIPING
f. PIPE HANGERS
g. VALVES
h. GRILLES
i. FANS
j. ELECTRIC WALL HEATERS
k. GAS PRESSURE REGULATORS
l. ROOFTOP AIR CONDITIONING UNITS
m. TEST AND BALANCE REPORT
3. PROJECT CLOSEOUT
a. PROVIDE HVAC EQUIPMENT OPERATING AND MAINTENANCE MANUALS TO THE OWNER PER IECC C303.3 AND C408.2.5.1.
b. AS-BUILT DRAWINGS SHALL BE MARKED ON A FINAL SET OF DRAWINGS WHICH INCLUDES ALL REVISIONS.
E. FINISHING AND PAINTING
1. SEE DIVISION 09 91 00 FINISH AND PAINTING FOR ADDITIONAL REQUIREMENTS.
2. PREPARE EXPOSED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING IN ROOMS THAT WILL HAVE CEILING AND STRUCTURE PAINTED.
3. COORDINATE WORK WITH THE PAINTERS SO THAT ALL EQUIPMENT IS INSTALLED PRIOR TO PAINTING. H.C. SHALL PAINT ITEMS IF NOT IN PLACE PRIOR TO NORMAL ROUTINE PAINTING.
4. IF FINISH BECOMES RUSTED, CORRODED, SCRATCHED, OR FLAKED DURING STORAGE OR INSTALLATION, REFINISH THE EQUIPMENT TO THE SATISFACTION OF THE OWNER.
5. WHERE THE HEATING CONTRACTOR IS REQUIRED TO PAINT, THE PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINTING PORTION OF THE ARCHITECTURAL SPECIFICATION.
F. DETAILS AND SCHEDULES ARE SHOWN TO AID THE CONTRACTOR AND ARE NOT MEANT TO BE INCLUSIVE OF ALL DEVICES. PROVIDE REQUIRED EQUIPMENT AND ACCESSORIES FOR A COMPLETE INSTALLATION.
G. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS. PROVIDE ADDITIONAL WORK AND MATERIALS AS REQUIRED.
H. COORDINATE INSTALLATION OF HVAC WORK WITH THE OTHER CONTRACTORS TO AVOID CONFLICTS WITH OTHER WORK.
I. VERIFY CONNECTION REQUIREMENTS FOR EQUIPMENT FURNISHED BY OTHERS WITH FINAL SHOP DRAWINGS.
J. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR HVAC WORK INSTALLATION UNLESS THIS WORK IS IDENTIFIED TO BE THE WORK OF OTHER CONTRACTORS. PATCHING SHALL MATCH ADJACENT SURFACES.
K. REMOVE HVAC DUCTWORK, PIPING, EQUIPMENT, ETC. INDICATED BY THE DRAWINGS TO BE DEMOLISHED FROM THE JOB SITE, UNLESS INDICATED TO BE TURNED OVER TO THE OWNER.
L. PROJECT COMPLETION
1. INSTALL CLEAN SET OF FILTERS IN ALL UNITS AT TIME OF TESTING AND BALANCING.
2. CLEAN GRILLES AND EQUIPMENT AND LEAVE IN PROPER WORKING CONDITION AT THE TIME OF FINAL CLEAN-UP.
3. PROVIDE OPERATING INSTRUCTIONS FOR A TOTAL OF FOUR (4) HOURS. MAINTAIN A RECORD OF OPERATING INSTRUCTION PERIODS AND OBTAIN OWNER SIGNOFF THAT INSTRUCTIONS HAVE BEEN COMPLETED.
M. ACCESS
1. FURNISH ACCESS PANELS OF ADEQUATE SIZE TO PERMIT SERVICE OF EQUIPMENT, VALVES, OR OTHER SPECIALTIES WHICH REQUIRE MAINTENANCE OR ADJUSTMENT WHICH ARE INSTALLED BEHIND WALLS OR ABOVE CEILING SURFACES.
2. PANELS SHALL BE SUITABLE FOR INSTALLATION IN THE MATERIAL FORMING THE FINISHED SURFACE, WITH FLANGED FLUSH METAL FRAME, FLUSH HINGED STEEL DOOR, FLUSH SCREWDRIVER OPERATED LATCH.
3. PANELS UL LISTED TO CONFORM TO THE FIRE RATING OF THE SURFACE INSTALLED IN.
4. TURN ACCESS PANEL OVER TO CONTRACTOR SKILLED IN THE CONSTRUCTION OF THE SURFACES INVOLVED FOR INSTALLATION.
5. ARCHITECT TO APPROVE ACCESS PANEL LOCATION PRIOR TO INSTALLATION OF EQUIPMENT REQUIRING ACCESS.
6. COORDINATE WITH THE OTHER CONTRACTORS AND WHEREVER PRACTICAL, GROUP DEVICES IN SUCH A MANNER SO AS TO MINIMIZE PANELS.
N. GAS SERVICE
1. CONNECTED GAS LOAD TO EXISTING METER IS BEING INCREASED AND A NEW METER WILL NEED TO BE INSTALLED IN THE EXISTING MULTI-METER BANK BY GAS COMPANY. CONTACT GAS UTILITY TO COORDINATE METER REPLACEMENT AND ASSIST OWNER IN APPLYING FOR LARGER SERVICE.
2. GAS SERVICE COST BY OWNER.

23 05 13 MOTORS AND ELECTRICAL WORK

A. MOTORS
1. MANUFACTURERS: GENERAL ELECTRIC, LOUIS ALLIS, MARATHON, AND BALDOR.
2. MOTORS LESS THAN 250 WATTS: EQUIPMENT MANUFACTURER'S STANDARD AND NEED NOT CONFORM TO THESE SPECIFICATIONS.
3. OPEN DRIP-PROOF TYPE EXCEPT TOTALLY ENCLOSED FAN COOLED FOR THE FOLLOWING MOTORS:
a. EXTERIOR LOCATIONS
b. WHERE NOTED ON EQUIPMENT SCHEDULES
4. DESIGN FOR CONTINUOUS OPERATION IN 40 DEGREES C ENVIRONMENT AND FOR TEMPERATURE RISE IN ACCORDANCE WITH NEMA MG 1 LIMITS.
5. SINGLE PHASE POWER (PERMANENT-SPLIT CAPACITOR MOTORS) WITH STARTING TORQUE EXCEEDING ONE FOURTH OF FULL LOAD TORQUE AND STARTING CURRENT UP TO SIX TIMES FULL LOAD CURRENT. CLASS A (50 DEGREES C TEMPERATURE RISE) INSULATION, MINIMUM 1.0 SERVICE FACTOR, PRELUBRICATED SLEEVE OR BALL BEARINGS, AUTOMATIC RESET OVERLOAD PROTECTOR.
6. THREE PHASE POWER (SQUIRREL CAGE MOTORS) WITH STARTING TORQUE BETWEEN 1 AND 1-1/2 TIMES FULL LOAD TORQUE AND STARTING CURRENT SIX TIMES FULL LOAD CURRENT. NEMA DESIGN B MOTOR AND INSULATION SYSTEM. MINIMUM 1.15 SERVICE FACTOR FOR OPEN DRIP-PROOF MOTORS, 1.0 (MINIMUM) FOR OTHER TYPES. MINIMUM 85% NOMINAL POWER FACTOR UNDER RATED LOAD CONDITIONS. GREASE LUBRICATED ANTI-FRICTION BALL BEARINGS, RATED FOR MINIMUM AFBMA 9, L-10 LIFE OF 200,000 HOURS.
B. STARTERS
1. SEE ELECTRICAL STARTER DISCONNECT SCHEDULE ON PLANS.

23 05 29 PIPE AND EQUIPMENT HANGERS AND SUPPORTS

A. MANUFACTURERS: B-LINE, EMPIRE INDUSTRIES, GLOBAL PIPE HANGER PRODUCTS, GRINNELL, NATIONAL PIPE HANGER, UNI STRUT.
B. HOT DIP GALVANIZED HANGERS, RODS, AND ACCESSORIES AFTER FABRICATION WHICH ARE EXPOSED TO WEATHER.
C. ANGLES, CHANNELS, AND BEAMS: ASTM A36 AND A572 AS REQUIRED.
D. HANGERS SHALL NOT BE ATTACHED TO JOIST BRIDGING.
E. PIPE HANGERS AND SUPPORTS
1. SEE DETAILS ON PLANS FOR ADDITIONAL PIPE HANGER SPECIFICATIONS.
2. SEE SCHEDULE ON PLANS FOR HANGER SPACING.
3. CONFORM TO ASME B31.9 AND MANUFACTURER'S STANDARDIZATION SOCIETY (MSS) SP-58-2009.
4. MATERIALS
5. INSTALL HANGERS AND SUPPORTS SO PIPING LIVE AND DEAD LOADS AND STRESSES FROM MOVEMENT WILL NOT BE TRANSMITTED TO CONNECTED EQUIPMENT. ADJUST HANGERS TO DISTRIBUTE LOADS EQUALLY ON ATTACHMENTS AND TO PROVIDE INDICATED PIPE SLOPES.

23 07 00 INSULATION

A. GENERAL
1. SEE INSULATION SCHEDULES ON PLANS FOR ADDITIONAL INFORMATION.
2. INSULATION, INSULATION SYSTEM AND JACKETS SHALL MEET UL-723/ASTM E84 REQUIREMENTS OF MAX. FIRE HAZARD CLASSIFICATIONS OF 25, AND MAX. FLAME SPREAD, FUEL CONTRIBUTED, AND SMOKE DEVELOPED OF 50 WHEN INSTALLED IN A RETURN AIR PLENUM.
3. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND MICA PUBLICATION "NATIONAL COMMERCIAL AND INDUSTRIAL STANDARDS", 2011 SEVENTH EDITION.
4. CONTINUE INSULATION WITHOUT INTERRUPTIONS THROUGH WALLS AND FLOOR PENETRATIONS AND HANGERS.
5. REPAIR INSULATION ON EXISTING DUCTWORK WHICH IS DAMAGED DUE TO CONNECTING OF NEW DUCTWORK. MAINTAIN EXISTING VAPOR BARRIER INTEGRITY.
B. FIBERGLASS (F.G.) INSULATION
1. FLEX. F.G.:
a. O.C. SOFTR DUCT WRAP, KNAUF FRIENDLY FEEL DUCT WRAP, CERTAINTEED SOFTTOUCH, JOHNS MANVILLE MICROLITE EQ FSK DUCT WRAP.
b. GLASS FIBER INSULATION FACTORY LAMINATED TO FRK/FSK VAPOR RETARDER. LISTED THICKNESS IS NOMINAL.
c. 0.75 LB/CU. FT., R=3.3 / NOMINAL INCH AT 75 DEG F.
d. MAX 250 DEG F, JACKET MAX 150 DEG F, 0.02 PERM.
C. FIRE RATED: THERMAL CERAMICS FASTWRAP XL COMMERCIAL KITCHEN GREASE DUCT WRAP OR EQUIVALENT GREASE DUCT ENCLOSURE COMPLYING WITH ASTM E2336. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
D. DUCT INSULATION REQUIREMENTS
1. INSULATE FITTINGS, JOINTS, FLANGES, FLEXIBLE CONNECTIONS, DAMPERS, AND IN-LINE ACCESSORIES WITHOUT INTERNAL LINING/INSULATION WITH SAME MATERIAL AND THICKNESS AS SPECIFIED FOR THE DUCT SYSTEM. STOP AND POINT INSULATION AROUND ACCESS DOORS AND DAMPER OPERATORS TO ALLOW OPERATION WITHOUT DISTURBING WRAPPING.

23 11 23 NATURAL GAS PIPING AND ACCESSORIES

A. PIPING
1. INSTALL, INSPECT, TEST, AND PURGE GAS PIPING IN CONFORMANCE WITH NFPA 54, UTILITY COMPANY AND ALL OTHER GOVERNING CODES.
2. MAKE BRANCH CONNECTIONS TO THE MAIN FROM THE TOP OR SIDE.
3. PAINTING GAS PIPING IS NOT BY HEATING CONTRACTOR. PAINTING PER SPECIFICATION 09 91 00 PAINTING.
B. GAS VALVES
1. UL LISTED FOR USE AS NATURAL GAS SHUTOFF.
2. BALL VALVES (MANUFACTURERS: NIBCO 585/580-70UL, WATTS B6000UL): BRONZE BODY, THREADED ENDS, CHROME PLATED BRONZE BALL, FULL/CONVENTIONAL PORT, TEFLON SEAT, BLOWOUT-PROOF STEM, TWO-PIECE CONSTRUCTION, 150 PSIG WORKING PRESSURE.
3. PLUG VALVES (MANUFACTURERS: DEZURIK PEC, HOMESTEAD SERIES 612): CAST IRON BODY, FLANGED ENDS, BRONZE BEARINGS, ELECTROLESS NICKEL PLATED CAST IRON PLUG WITH HYCAR RESILIENT PLUG SEAL, BUNA-N STEM SEAL PACKING, LEVER ACTUATOR, 175 PSIG WOG.
C. GAS PRESSURE REGULATORS
1. CAST IRON BODY, ALUMINUM SPRING CASE, ALUMINUM ORIFICE, BUNA-N DIAPHRAGM, INTERNAL RELIEF VALVE SET TO RELIEVE AT 7-10" W.C. ABOVE NORMAL OUTLET PRESSURE SETTING OF 7" WC., TOPCOAT ENAMEL.
2. SENSUS MODELS 496, 61R2, 143-80, 243
3. FOR REGULATORS INSTALLED INDOORS, PIPE THE RELIEF VALVE VENT FULL SIZE TO THE OUTSIDE OF THE BUILDING AT A NON-HAZARDOUS LOCATION. INCREASE VENT SIZE ONE PIPE SIZE IF VENT LENGTH EXCEEDS 10 FEET. TERMINATE WITH AN ELBOW DOWN WITH A SCREEN OVER THE OPENING. DO NOT COMBINE VENTS.
4. MAXITROL 325 SERIES WITH VENT LIMITER ARE PERMITTED FOR INDOOR APPLICATIONS WHERE SUPPLYING LESS THAN 300,000 BTUH.
5. FOR REGULATORS INSTALLED OUTDOORS, POSITION THE REGULATOR SO THE RELIEF VALVE VENT IS FACING DOWN OR INSTALL ELBOW FACING DOWN A MINIMUM 10 FEET FROM AN OUTSIDE AIR INTAKE AND 5 FEET FROM A GAS FLUE DISCHARGE.

23 31 13 DUCTWORK

A. PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS OF SMACNA - HVAC DUCT CONSTRUCTION STANDARDS, NFPA 90A.
B. GENERAL
1. SEAL ALL OUTSIDE AIR DUCT JOINTS WATERTIGHT WITH SILICONE SEALANT.
2. PAINT THE INSIDE OF ALL DUCTS VISIBLE THROUGH GRILLES IN ROOMS WITH CEILINGS WITH DULL BLACK PAINT.
3. CERTAIN VERTICAL AND HORIZONTAL OFFSETS ARE INDICATED IN DUCTS TO INDICATE THE GENERAL POSITION RELATIONSHIP OF THE DUCTWORK SYSTEMS; PROVIDE ADDITIONAL OFFSETS AS REQUIRED TO COORDINATE WITH THE INSTALLATION OF OTHER SYSTEMS, CEILINGS AND STRUCTURE. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION OF DUCTWORK.
4. PROVIDE TEMPORARY CLOSURES OF METAL OR TAPED POLYETHYLENE ON OPEN DUCTWORK TO PREVENT CONSTRUCTION DUST FROM ENTERING DUCTWORK SYSTEM.
5. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES.
6. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES WHENEVER POSSIBLE. 30 DEGREE MAXIMUM.
7. ROUND DUCTS MAY BE SUBSTITUTED FOR RECTANGULAR IF SIZED IN ACCORDANCE WITH ASHRAE TABLES OF EQUIVALENT RECTANGULAR AND ROUND DUCTS.
C. ROUND DUCTWORK
1. CONCEALED BRANCH DUCTWORK TO GRILLES AND DIFFUSERS MAY BE LONGITUDINAL LOCKSEAM. ALL OTHER ROUND DUCTWORK SHALL BE SPIRAL LOCKSEAM WITH FITTINGS AND COUPLINGS MINIMUM 2 GAUGES HEAVIER THAN DUCT.
D. FLEXIBLE DUCTWORK
1. MANUFACTURERS: THERMAFLEX, FLEXMASTER, CLEVAFLEX.
2. U.L. 181 LISTED CLASS 1 FACTORY FABRICATED FLEXIBLE AIR DUCT, COMPLY WITH NFPA 90A, FLAME SPREAD OF 25 OR LESS, SMOKE DEVELOPED RATING OF 50 OR LESS.
3. MINIMUM PRESSURE RANGE -1/2" TO 4" W.C., TEMPERATURE RANGE 0-200 DEG F.
4. ACOUSTIC: THERMAFLEX M-KE OR G-KM, FLEXMASTER TYPE 1 OR 6
a. POLYETHYLENE, SPUNBOUND NYLON OR CHLORINATED POLYETHYLENE LINER.
b. DUCTWORK TO HAVE TESTED ACOUSTICAL PERFORMANCE NOT LESS THAN 2 DB LESS THAN THE TYPES SPECIFIED.
5. SEMI-RIGID FLEXIBLE ALUMINUM DUCTWORK NOT PERMITTED.
6. SUPPLY DUCTWORK SHALL BE INSULATED WITH FIBERGLASS INSULATION, MINIMUM R VALUE 4, WITH VAPOR BARRIER JACKET WITH MAXIMUM 0.10 PERM RATING
7. CONNECT TO SUPPLY DUCTWORK BY SLIDING CORE OVER COLLAR, TAPE JOINT WITH MINIMUM 3 WRAPS OF TAPE, AND APPLY METAL BAND CLAMP OR PANDUIT. FOR INSULATED DUCTWORK, PULL INSULATION AND OUTER JACKET BACK INTO POSITION, AND TAPE WITH MINIMUM 3 WRAPS OF TAPE BETWEEN FLEX DUCT AND DUCT INSULATION.
8. CONNECT TO GRILLES AND RETURN AND TRANSFER DUCTWORK WITH METAL BAND CLAMP OR PANDUIT.
9. MAXIMUM LENGTH FROM DUCTWORK TO GRILLES OR SLOTS 8'-0" WITH ONE 90 DEG ELBOW.
10. DO NOT RUN THROUGH WALLS OR PARTITIONS.
E. DUCTWORK SEALANTS
1. MANUFACTURERS: HARDCAST SURE-GRIP 404 SOLVENT BASED DUCT SEALANT OR EQUIVALENT.
a. SYNTHETIC RUBBER RESIN BASE.
b. -20 TO 200 DEG F.
c. PRESSURE CLASSES UP TO 10" W.C., MEETING SEAL CLASS A.
d. MAXIMUM FLAME SPREAD OF 25, SMOKE DEVELOPED OF 50.
e. APPLY MINIMUM 20-MIL THICK WET FILM AT TEMPERATURES BETWEEN 35-100 DEG F.
2. HARDCAST ALUMA-GRIP 701 OR EQUIVALENT PRESSURE SENSITIVE DUCT JOINT ROLLED SEALANT MAY BE USED IN PLACE OF MASTIC. SEALANT SHALL COMPLY WITH THE FOLLOWING:
a. MILL FINISH ALUMINUM SUSTRATE WITH GRAY ADHESIVE.
b. MINIMUM 30 MIL THICK
c. MIN. 17 LB PER LINEAR INCH PEEL STRENGTH
d. MAX FLAME SPREAD OF 25, MAX SMOKE DEVELOPED OF 50 WHEN TESTED IN ACCORDANCE WITH ASTM G-53.
e. VOC: 0 G/L, COMPLIANT WITH LEED SCAQMD RULE 1168.
f. PRESSURE CLASSES UP TO 10" W.C.
F. TYPE I KITCHEN HOOD EXHAUST DUCTWORK
1. LIQUID TIGHT, CONTINUOUS EXTERNAL WELDED SEAMS, JOINTS AND PENETRATIONS.
2. PROVIDE LISTED ACCESS PANELS IN THE DUCTWORK PER NFPA 96 AT MAXIMUM 12'-0" INTERVALS AND AT ALL CHANGES IN DIRECTION. PLACE A SIGN ON ALL ACCESS PANELS STATING THE FOLLOWING: "ACCESS PANEL - DO NOT OBSTRUCT".
3. PITCH HORIZONTAL DUCTS DOWN IN THE DIRECTION OF AIR FLOW MINIMUM 2% FOR HORIZONTAL RUNS UP TO 75 FEET AND 8% IN RUNS GREATER THAN 75 FEET. PROVIDE RESIDUE TRAP AT THE BASE OF EACH VERTICAL RISE WITH PROVISIONS FOR CLEANOUT NEAR THE BOTTOM OF THE TRAP.
G. TYPE II KITCHEN HOOD EXHAUST DUCTWORK
1. LIQUID TIGHT, CONTINUOUS EXTERNAL SEALED SEAMS, JOINTS AND PENETRATIONS.
2. PITCH DUCTWORK DOWN TO CONNECTION AT HOOD.
H. DUCT CLEANING
1. PROTECT DUCTWORK AGAINST ENTRY OF FOREIGN MATTER DURING CONSTRUCTION. PROVIDE TEMPORARY END CAPS AND SEALS. PROVIDE TEMPORARY FILTERS OVER RETURN OR EXHAUST AIR INLETS IF DUCTWORK IS USED DURING CONSTRUCTION.
2. REMOVE ALL DIRT AND FOREIGN MATTER AND CLEAN DIFFUSERS, REGISTERS, AND GRILLES BEFORE OPERATING FANS.
I. SEALING DUCT PENETRATIONS
1. THRU NON-RATED WALLS WHERE DRYWALL, CONCRETE, OR MASONRY EXTENDS TO STRUCTURE, FILL VOID BETWEEN DUCT AND WALL WITH MINERAL WOOL AND CAULK BOTH SIDES WITH NON-HARDENING CAULK.

23 33 00 DUCTWORK ACCESSORIES

A. GENERAL - ALL DUCT ACCESSORIES SHALL BE CONSTRUCTED OF SAME MATERIAL AS DUCTWORK BEING INSTALLED IN.
B. TURNING VANES
1. MANUFACTURERS: AERO/DYNE CO. H.E.P., HART & COOLEY, UNITED MCGILL, SEMCO.
2. RECTANGULAR DUCTWORK: AIRFOIL TURNING VANES IN ACCORDANCE WITH SMACNA FIG. 2-3 AND 2-4. VANE RADIUS AS PROVIDED BY AERO/DYNE H.E.P. OR 4-1/2 INCHES WITH A 3-1/2 INCH SPACING.
3. ROUND DUCTWORK: TWO-PIECE MITERED, MINIMUM 20 GAUGE.

PROJECT DESIGN CRITERIA

MECHANICAL CODE **IMC 2018**
ENERGY CODE **IECC 2018**
SEISMIC DESIGN CATEGORY **B**
NEAREST ASHRAE CITY **JOHNSON CO. EXEC.**
ELEVATION **1073**

	OUTSIDE	
	DB	WB
WINTER:	**4.9**	**N/A**
SUMMER:	**95.2**	**79.1**

LEGEND

NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS.

SYM.	ABBR.	IDENTIFICATION	SYM.	ABBR.	IDENTIFICATION
DUCTWORK					
		DUCT (R)ISE/(D)ROP			SA OR OA DUCT DOWN OR AWAY
		RADIUS ELBOW			EA DUCT DOWN OR AWAY
		SQUARE ELBOW WITH TURNING VANES			RA DUCT DOWN OR AWAY
		SQUARE ELBOW WITHOUT TURNING VANES		VD	VOLUME DAMPER
		SQUARE OR RECTANGULAR BRANCH TAKEOFF		BDD	BACKDRAFT DAMPER
		RECTANGULAR TO ROUND TAKEOFF		MOD	MOTOR OPERATED DAMPER
		TEE WITH TURNING VANES	DS	DSD	DUCT SMOKE DETECTOR
		ROUND TO ROUND CONICAL TAKEOFF	F	FD	FIRE DAMPER
		ECCENTRIC TRANSITION	S	SD	SMOKE DAMPER
		CONCENTRIC TRANSITION	F/S	FSD	FIRE/SMOKE DAMPER
		SQUARE TO ROUND TRANS.		SG	SUPPLY GRILLE
		DUCT CAP		EG,RG, TG	(E)XHAUST / (R)ETURN / (T)RANSFER GRILLE
	ALD	ACOUSTICALLY LINED DUCT	UCD	UCD	UNDERCUT DOOR (BY GC)
	SA	SUPPLY AIR DUCT UP	DTG (0 SF)	DTG	DOOR TRANSFER GRILLE
	OA	OUTSIDE AIR DUCT UP		FC	FLEXIBLE CONNECTION
	RA	RETURN AIR DUCT UP		AD	ACCESS DOOR
	EA	EXHAUST AIR DUCT UP			
MISCELLANEOUS AND CONTROLS					
		DETAIL OR SECTION NUMBER SHEET NUMBER	S		STATIC PRESS. SENSOR
H		HUMIDISTAT / HUMID. SENSOR	SS		SLAB TEMPERATURE SENSOR
T		THERMOSTAT / TEMP. SENSOR			COMBINATION STARTER
VFD	VFD	VARIABLE FREQUENCY DRIVE	MS		MANUAL STARTER
	AFF	ABOVE FINISHED FLOOR		OC	ON CENTER
	AFG	ABOVE FINISHED GRADE		PC	PLUMBING CONTRACTOR
	AP	ACCESS PANEL		RAO	RETURN AIR OPENING
	BJ	BETWEEN JOISTS		TAO	TRANSFER AIR OPENING
	BOD	BOTTOM OF DUCT		EAO	EXHAUST AIR OPENING
	BOG	BOTTOM OF GRILLE		TCC	TEMPERATURE CONTROL CONTRACTOR
	EC	ELECTRICAL CONTRACTOR		TCP	TEMPERATURE CONTROL PANEL
	GC	GENERAL CONTRACTOR / CONSTRUCTION MANAGER		TJ	THRU JOISTS
	HC	HVAC CONTRACTOR		TYP.	TYPICAL
	IMP	INSULATED METAL PANEL		TTS	TIGHT TO STRUCTURE
	NIC	NOT IN CONTRACT		TV	TURNING VANES
	NTS	NOT TO SCALE		WWM	WELDED WIRE MESH
PIPING					
		SHUTOFF VALVE		PRV	PRESS. REDUCING VALVE
		BALANCE VALVE		SRV	SAFETY RELIEF VALVE
		CHECK VALVE			STEAM TRAP
		COMBINATION VALVE			ANCHOR
		STRAINER			GUIDE
		DRAIN VALVE			PIPING BOTTOM TAKE-OFF
		GLOBE VALVE			PIPING TOP TAKE-OFF
		THERMOMETER			PIPE DOWN OR AWAY
	PG	PRESSURE GAUGE			PIPE UP
		GAUGE COCK			PIPING CAP
	TCV	TEMP. CONTROL VALVE			UNION/FLANGE
		TEST CONNECTION			PIPE PITCH DOWN
	MAV	MANUAL AIR VENT			CONCENTRIC REDUCER
	FM	FLOW METER			ECCENTRIC REDUCER
		FLOW CONTROL / SHUTOFF VALVE		FC	FLEXIBLE CONNECTION
		FLOW CONTROL VALVE		BF	BLIND FLANGE
	GEO-S/GEO-R	GEOTHERMAL SUPPLY/RETURN		HWS/HWR	HOT WATER SUPPLY/RETURN
	CTS/CTR	COOLING TOWER WATER SUPPLY/RETURN		GS/GR	GLYCOL SUPPLY/RETURN
	MU	MAKEUP WATER		RWS/RWR	RADIANT WATER SUPPLY/RETURN
	LPS/LPC	LOW PRESSURE STEAM/CONDENSATE		SMS/SMR	SNOW MELT SUPPLY/RETURN
	HPS/HPC	HIGH PRESSURE STEAM/CONDENSATE		FOS/FOR	FUEL OIL SUPPLY/RETURN
	PC	PUMPED CONDENSATE		BF	BOILER FEED
	G/LP	NATURAL GAS/LP GAS		CF	CHEMICAL FEED
	D	DRAIN		A	COMPRESSED AIR
	CHWS/CHWR	CHILLED WATER SUPPLY/RETURN		V	VENT
FIRE RATED WALLS					
		FIRE - 1 HOUR			FIRE - 3 HOUR
		FIRE - 2 HOUR			FIRE - 4 HOUR

SHEET INDEX

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HVAC LEGEND AND SPECIFICATIONS

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PROJECT INFORMATION

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PROFESSIONAL SEAL

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SHEET ISSUE NOV. 23, 2021
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HVAC SPECIFICATIONS (CONT.)

C. MANUAL VOLUME DAMPERS
   1. MANUFACTURERS: RUSKIN, VENT PRODUCTS, UNITED MCGILL.
   2. DAMPERS WITH EXTENDED SHAFTS AND QUADRANTS, OPERATOR WITH LOCKING DEVICE, POSITION INDICATOR, AND ELEVATED PLATFORM FOR EXTERNALLY INSULATED DUCTWORK.
   3. EVERY SUPPLY, RETURN AND EXHAUST GRILLE SHALL HAVE EITHER A VOLUME DAMPER IN THE BRANCH DUCT OR AT THE GRILLE WHERE SHOWN. IF ONE IS NOT SHOWN, CONTRACTOR SHALL PROVIDE VOLUME DAMPER IN DUCT IF DUCT IS ACCESSIBLE, OTHERWISE AT THE GRILLE.
   4. RECTANGULAR DAMPERS WHICH DO NOT EXCEED 12" HIGH OR 36" WIDE: BUTTERFLY DAMPER, MINIMUM 22 GAUGE. SHAFT ALONG ENTIRE LENGTH OF DAMPER FOR DAMPERS EXCEEDING 18" IN WIDTH.
   5. RECTANGULAR DAMPERS GREATER THAN 12" HIGH OR 36" WIDE: MULTI-BLADE DAMPER WITH CONNECTING LINKAGE TO CONTROL FROM A SINGLE POINT. BLADES MINIMUM 16 GAUGE WITH OPPOSED BLADE ACTION.
   6. ROUND DAMPERS: MINIMUM 20 GAUGE BUTTERFLY DAMPER.

D. TAKE-OFF FITTINGS
   1. MANUFACTURERS: FLEXMASTER, UNITED MCGILL.
   2. ROUND BRANCH TAKE-OFFS TO MULTIPLE GRILLES SHALL BE CONICAL.
   3. RECTANGULAR BRANCH TAKE-OFFS TO MULTIPLE GRILLES SHALL BE PER DUCT FITTING DETAIL ON PLANS.
   4. ROUND TAKE-OFFS TO INDIVIDUAL GRILLES AND SLOT DIFFUSERS: ONE PIECE SPIN-IN WITH INTEGRAL FACTORY INSTALLED LOCKING TYPE BALANCING DAMPERS.

E. DUCT ACCESS DOORS
   1. MANUFACTURERS: CESCO, FLEXMASTER, VENT PRODUCTS, KEES, UNITED MCGILL, SEMCO, DUCTMATE.
   2. HINGE, LATCHES, HANDLES, AND RUBBER GASKET IN FRAME. 1" INSULATED DOUBLE WALL CONSTRUCTION FOR DOORS IN LINED OR EXTERNALLY INSULATED DUCTWORK. ATTACHMENT CABLES FOR SPIN-IN UNITS. DOOR SUITABLE FOR DUCT STATIC PRESSURE CLASS.
   3. DOOR SIZE 2" LESS THAN THE WIDTH OF THE DUCT (MAX. DOOR SIZE 24"X 24" (24" DIA.).
   4. ROUND DUCTWORK: 16 GAUGE ROLLED SHEET METAL HINGED ACCESS DOOR WITH BUCKLE LOCKS.
   5. PROVIDE AT:
      a. UPSTREAM SIDE OF TURNING VANES IN RETURN AND EXHAUST DUCTWORK
      b. DRAIN PANS
      c. DUCT MOUNTED SMOKE DETECTORS
      d. AT ANY DEVICE IN THE DUCT WHICH REQUIRES MAINTENANCE, SERVICE OR CLEANING.
   6. USE HINGED ACCESS DOORS WHERE POSSIBLE. USE CAM OPERATED REMOVABLE DOORS WHERE SPACE PREVENTS THE OPENING OF A HINGED MODEL.

F. FLEXIBLE CONNECTIONS
   1. MANUFACTURERS: VENTFABRICS, DURO-DYNE.
   2. MATERIAL BOLTED SECURELY TO THE EQUIPMENT AND CONNECTING DUCTWORK WITH #16 GAUGE GALVANIZED IRON BAND (LOOP) CLAMPS BOLTED TIGHT TO MAKE AN AIRTIGHT CONNECTION, MINIMUM 6" WIDE.
   3. PROVIDE AT INLET AND OUTLET OF ALL AIR HANDLING UNITS AND FANS IN ACCORDANCE WITH SMACNA FIGURE 2-19.
   4. CONVENTIONAL INTERIOR: VENTGLAS, -20 TO 200 DEG F., 30 OZ. PER SQUARE YARD GLASS FABRIC DOUBLE COATED WITH NEOPRENE, UL 214 APPROVED.

23 90 00 TEMPERATURE CONTROLS

A. INSTALLER QUALIFICATIONS: AUTOMATIC CONTROL SYSTEM MANUFACTURER'S AUTHORIZED REPRESENTATIVE WHO IS TRAINED AND APPROVED FOR INSTALLATION OF SYSTEM COMPONENTS REQUIRED FOR THIS PROJECT.

B. ALL PRODUCTS USED IN THIS INSTALLATION SHALL BE NEW, CURRENTLY UNDER MANUFACTURE, AND SHALL BE APPLIED IN STANDARD OFF THE SHELF PRODUCTS. THIS INSTALLATION SHALL NOT BE USED AS A TEST SITE FOR ANY NEW PRODUCTS UNLESS EXPLICITLY APPROVED BY THE ENGINEER IN WRITING. SPARE PARTS SHALL BE AVAILABLE FOR AT LEAST 5 YEARS AFTER COMPLETION OF THIS CONTRACT.

C. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.

D. LABOR AND MATERIALS FOR THE CONTROL SYSTEM SPECIFIED SHALL BE WARRANTED FREE FROM DEFECTS FOR A PERIOD OF 12 MONTHS AFTER FINAL COMPLETION AND ACCEPTANCE. CONTROL SYSTEM FAILURES DURING THE WARRANTY PERIOD SHALL BE ADJUSTED, REPAIRED, OR REPLACED AT NO ADDITIONAL COST OR REDUCTION IN SERVICE TO THE OWNER.

E. CONNECT AND CONFIGURE EQUIPMENT AND SOFTWARE TO ACHIEVE SEQUENCE OF OPERATION SPECIFIED.

F. CONTROLLER HARDWARE USED OUTDOORS AND/OR IN WET AMBIENT CONDITIONS SHALL BE MOUNTED WITHIN NEMA 3R ENCLOSURES, AND RATED FOR OPERATION AT -40 DEG F TO 150 DEG F AND 10 TO 90% RH. HARDWARE USED IN CONDITIONED SPACE SHALL BE MOUNTED IN AN ENCLOSURE AND BE RATED FOR OPERATION AT 32 DEG F TO 120 DEG F.

G. POWER SUPPLIES: UL LISTED TRANSFORMERS WITH CLASS 2 CURRENT-LIMITING TYPE OR OVERCURRENT PROTECTION; LIMIT CONNECTED LOADS TO 80 PERCENT OF RATED CAPACITY. DC POWER SUPPLY SHALL MATCH OUTPUT CURRENT AND VOLTAGE REQUIREMENTS AND BE FULL-WAVE RECTIFIER TYPE.

H. POWER LINE FILTERING: INTERNAL OR EXTERNAL TRANSIENT VOLTAGE AND SURGE SUPPRESSION.

I. ELECTRONIC SENSORS/TRANSMITTERS
   1. INSTALLATION
      a. INSTALL ALL SENSORS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
      b. ROOM TEMPERATURE SENSORS SHALL BE INSTALLED ON CONCEALED JUNCTION BOXES PROPERLY SUPPORTED BY THE WALL FRAMING WITH CONDUIT STUB TO ABOVE THE CEILING.
      c. INSTALL DEVICES WHICH HAVE ADJUSTMENT 48 INCHES ABOVE THE FLOOR OR COMPLY WITH CURRENT ADA REQUIREMENTS. INSTALL NON-ADJUSTABLE CONTROL SENSORS AT 60 INCHES ABOVE THE FLOOR.
      d. COORDINATE LOCATION OF THERMOSTATS, HUMIDISTATS, AND OTHER EXPOSED CONTROL SENSORS WITH PLANS AND ROOM DETAILS BEFORE INSTALLATION.
      e. ALL WIRES ATTACHED TO SENSORS SHALL BE AIR SEALED IN THEIR RACEWAYS OR IN THE WALL TO STOP AIR TRANSMITTED FROM OTHER AREAS AFFECTING SENSOR READINGS.

J. THERMOSTATS
   1. ELECTRIC, SOLID-STATE, MICROCOMPUTER-BASED ROOM THERMOSTAT WITH REMOTE SENSOR (7 DAY PROGRAMMABLE): HONEYWELL VISIONPRO 8000 WITH RED LINK. THERMOSTAT SHALL HAVE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55 DEG. F AND SHALL HAVE OPTIMAL START CAPABILITY AND REMOTE MONITORING AND CONTROL.
      a. SEE “SEQUENCE OF OPERATION” FOR ADDITIONAL INFORMATION.
      b. PROVIDE HONEYWELL REDLINK INTERNET GATEWAY.
   2. RELAYS: SEE ELECTRICAL STARTER DISCONNECT SCHEDULE.
   3. VOLTAGE TRANSFORMERS: UL/CSA RECOGNIZED, 600 VAC RATED, COMPLETE WITH BUILT-IN FUSE PROTECTION. SUITABLE FOR AMBIENT TEMPERATURES OF 40 TO 130 DEG F. PROVIDE PLUS OR MINUS 0.5% ACCURACY AT 24 VAC AND A 5 VA LOAD. WINDINGS COMPLETELY ENCLOSED WITH METAL OR PLASTIC MATERIAL.

K. ELECTRICAL WIRING AND CONNECTION INSTALLATION
   1. PROVIDE 120 VAC POWER TO ANY CONTROL PANELS RELATED TO THIS SECTION NOT SHOWN ON THE DRAWINGS.
   2. ALL CONTROL AND INTERLOCK WIRING SHALL COMPLY WITH NATIONAL AND LOCAL ELECTRICAL CODES AND ELECTRICAL SPECIFICATION. WHERE THE REQUIREMENTS OF THIS SECTION DIFFER WITH THOSE IN THE ELECTRICAL SPECIFICATIONS, THE MORE STRINGENT REQUIREMENTS SHALL TAKE PRECEDENCE.
   3. ALL NEC CLASS 1 (LINE VOLTAGE) WIRING SHALL BE UL LISTED IN APPROVED RACEWAY PER NEC AND ELECTRICAL SPECIFICATIONS.
   4. SEE ELECTRICAL SPECIFICATIONS FOR CONDUIT REQUIREMENTS.
   5. ALL LOW-VOLTAGE WIRING SHALL MEET NEC CLASS 2 REQUIREMENTS. (LOW-VOLTAGE POWER CIRCUITS SHALL BE SUB-FUSED WHEN REQUIRED TO MEET CLASS 2 CURRENT-LIMIT).
   6. ALL WIRING IN MECHANICAL, ELECTRICAL, OR SERVICE ROOMS AND WHERE SUBJECT TO DAMAGE SHALL BE INSTALLED IN RACEWAY.
   7. WHERE NEC CLASS 2 (CURRENT-LIMITED) WIRES ARE IN CONCEALED AND ACCESSIBLE LOCATIONS, APPROVED CABLES NOT IN RACEWAY MAY BE USED PROVIDED THAT CABLES ARE UL LISTED FOR THE INTENDED APPLICATION.
   8. DO NOT INSTALL CLASS 2 WIRING IN RACEWAY, BOXES AND PANELS CONTAINING CLASS 1 WIRING.
   9. SUPPORT CABLES AND RACEWAYS FROM STRUCTURAL MEMBERS. CABLES AND RACEWAYS SHALL NOT BE SUPPORTED BY DUCTWORK, ELECTRICAL RACEWAYS, PIPING, OR CEILING SUSPENSION SYSTEMS. SECURE AND SUPPORT CABLE AT INTERVALS NOT EXCEEDING 30 INCHES AND NOT MORE THAN 6 INCHES FROM CABINETS, BOXES, FITTINGS, OUTLETS, RACKS, FRAMES, AND TERMINALS.
   10. INSTALL WIRING IN SLEEVES WHERE IT PASSES THROUGH WALLS AND FLOORS. MAINTAIN FIRE RATING AT ALL PENETRATIONS.
   11. SIZE OF WIRE AND RACEWAY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND BE PER THE MANUFACTURER'S RECOMMENDATION AND NEC REQUIREMENTS.
   12. INCLUDE ONE PULL STRING IN EACH RACEWAY 1" OR LARGER.
   13. LOCATE CONTROL AND STATUS RELAYS IN DESIGNATED ENCLOSURES ONLY.
   14. FLEXIBLE METAL RACEWAYS ARE NOT PERMITTED OVER 6 FEET.
   15. MAINTAIN UPDATED (AS-BUILT) WIRING DIAGRAMS WITH TERMINATIONS IDENTIFIED AT THE JOB SITE.
   16. IDENTIFICATION OF HARDWARE AND WIRING
      a. LABEL ALL WIRING AND CABLING, INCLUDING THAT WITHIN FACTORY-FABRICATED PANELS, AT EACH END WITHIN 2" OF TERMINATION WITH THE DDC ADDRESS OR TERMINATION NUMBER.
      b. PERMANENTLY LABEL OR CODE EACH POINT/OBJECT OF FIELD TERMINAL STRIPS TO SHOW THE INSTRUMENT OR ITEM SERVED.

L. DUCT SMOKE DETECTORS AND THE INTERLOCK REQUIRED FOR AIR HANDLING EQUIPMENT SHUTDOWN ARE FURNISHED AND INSTALLED UNDER ELECTRICAL SPECIFICATIONS OR BY THE EQUIPMENT MANUFACTURER.

M. INSTALLATION
   1. INSTALL EQUIPMENT, PIPING, AND WIRING/RACEWAY PARALLEL TO BUILDING LINES (I.E., HORIZONTAL, VERTICAL, AND PARALLEL TO WALLS) WHEREVER POSSIBLE.
   2. INSTALL ALL EQUIPMENT IN READILY ACCESSIBLE LOCATIONS AS DEFINED BY CHAPTER 1, ARTICLE 100, PART A OF THE NATIONAL ELECTRICAL CODE (NEC).
   3. THE CONTRACTOR SHALL PROTECT ALL WORK AND MATERIAL FROM DAMAGE BY HIS WORK OR EMPLOYEES, AND SHALL BE LIABLE FOR ALL DAMAGE THUS CAUSED.
   4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK AND EQUIPMENT UNTIL FINALLY INSPECTED, TESTED, AND ACCEPTED. THE CONTRACTOR SHALL PROTECT ANY MATERIAL THAT IS NOT IMMEDIATELY INSTALLED.
   5. TEST AND BALANCE: FURNISH ALL TOOLS NECESSARY TO INTERFACE TO THE CONTROL SYSTEM FOR TEST AND BALANCE PURPOSES. PROVIDE A QUALIFIED TECHNICIAN TO ASSIST IN THE TEST AND BALANCE PROCESS.

N. FIELD QUALITY CONTROL
   1. INSPECT, TEST, AND ADJUST FIELD-ASSEMBLED COMPONENTS AND EQUIPMENT INSTALLATION, AND TO ASSIST IN FIELD TESTING.
   2. PERFORM THE FOLLOWING FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS:
      a. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER UNIT OPERATION. REMOVE AND REPLACE MALFUNCTIONING UNITS AND RETEST.
      b. TEST AND ADJUST CONTROLS AND SAFETIES.
      c. TEST CALIBRATION OF ELECTRONIC CONTROLLERS BY DISCONNECTING INPUT SENSORS AND SIMULATING OPERATION WITH COMPATIBLE SIGNAL GENERATOR.
      d. TEST EACH POINT THROUGH ITS FULL OPERATING RANGE TO VERIFY THAT SAFETY AND OPERATING CONTROL SET POINTS ARE AS REQUIRED.
      e. TEST EACH CONTROL LOOP TO VERIFY STABLE MODE OF OPERATION AND COMPLIANCE WITH SEQUENCE OF OPERATION. ADJUST PID ACTIONS.
      f. TEST EACH SYSTEM FOR COMPLIANCE WITH SEQUENCE OF OPERATION.
      g. TEST SOFTWARE AND HARDWARE INTERLOCKS.

O. CALIBRATING AND ADJUSTING:
   1. CALIBRATE INSTRUMENTS.
   2. MAKE THREE-POINT CALIBRATION TEST FOR BOTH LINEARITY AND ACCURACY FOR EACH ANALOG INSTRUMENT.
   3. CALIBRATE EQUIPMENT AND PROCEDURES USING MANUFACTURER'S WRITTEN RECOMMENDATIONS AND INSTRUCTION MANUALS. USE TEST EQUIPMENT WITH ACCURACY AT LEAST DOUBLE THAT OF INSTRUMENT BEING CALIBRATED.
   4. CONTROL SYSTEM INPUTS AND OUTPUTS:
      a. CHECK ANALOG INPUTS AT 0, 50, AND 100 PERCENT OF SPAN.
      b. CHECK ANALOG OUTPUTS USING MILLIAMPERE METER AT 0, 50, AND 100 PERCENT OUTPUT.
      c. CHECK DIGITAL INPUTS USING JUMPER WIRE.
      d. CHECK DIGITAL OUTPUTS USING OHMMETER TO TEST FOR CONTACT MAKING OR BREAKING.
      e. CHECK RESISTANCE TEMPERATURE INPUTS AT 0, 50, AND 100 PERCENT OF SPAN USING A PRECISION-RESISTANT SOURCE.
   5. TEMPERATURE:
      a. CALIBRATE RESISTANCE TEMPERATURE TRANSMITTERS AT 0, 50, AND 100 PERCENT OF SPAN USING A PRECISION-RESISTANCE SOURCE.
      b. CALIBRATE TEMPERATURE SWITCHES TO MAKE OR BREAK CONTACTS.

P. TRAINING
   1. PROVIDE A MINIMUM OF TWO ONSITE TRAINING CLASSES, 2 HOURS EACH SEPARATED BY TWO WEEKS, AT THE COMPLETION OF CALIBRATING AND ADJUSTING FOR PERSONNEL DESIGNATED BY THE OWNER.
   2. PROVIDE DOCUMENTATION OF ITEMS COVERED IN TRAINING EITHER IN HARD COPY OR ELECTRONIC FORMAT.
   3. TRAIN THE OWNER DESIGNATED DAY-TO-DAY OPERATORS TO ENABLE THEM TO:
      a. PROFICIENTLY OPERATE THE SYSTEM
      b. ADJUST AND CHANGE SYSTEM SETPOINTS, TIME SCHEDULES, AND HOLIDAY SCHEDULES
      c. UNDERSTAND SYSTEM DRAWINGS, AND OPERATION AND MAINTENANCE MANUAL
      d. UNDERSTAND THE JOB LAYOUT AND LOCATION OF CONTROL COMPONENTS
   4. OCCUPANCY ADJUSTMENTS: WHEN REQUESTED WITHIN 12 MONTHS OF DATE OF SUBSTANTIAL COMPLETION, PROVIDE ON-SITE ASSISTANCE IN ADJUSTING SYSTEM TO SUIT ACTUAL OCCUPIED CONDITIONS. PROVIDE UP TO TWO VISITS TO PROJECT DURING OTHER THAN NORMAL OCCUPANCY HOURS FOR THIS PURPOSE.

23 90 10 SEQUENCE OF OPERATION

A. ROOFTOP AIR CONDITIONING UNIT
   1. PROVIDE A HONEYWELL VISION PRO 8000 SEVEN DAY PROGRAMMABLE HEATING/COOLING THERMOSTAT CAPABLE OF 2 STAGES OF HEATING AND 2 STAGES OF COOLING (CONVENTIONAL), WITH ECONOMIZER/TIME OF DAY OUTPUT. (SEE TEMPERATURE CONTROLS SECTION FOR ADDITIONAL INFORMATION ON THERMOSTAT)
      a. SET FAN SETTING TO "ON" FOR FAN TO RUN CONTINUOUSLY IN OCCUPIED PERIODS, AND TO RUN WITH EQUIPMENT OPERATION DURING UNOCCUPIED PERIODS.
      b. SET INSTALLER SETUP NUMBERS TO MATCH INSTALLED SYSTEM IN ADDITION TO THE FOLLOWING (CONTACT ENGINEER WITH ANY QUESTIONS REGARDING ANY SETUP NUMBERS):
         1). 101 APPLICATION: COMMERCIAL
         2). 326 EXTENDED FAN RUN TIME IN HEAT: 60 SECONDS.
   2. PROVIDE HONEYWELL C7770A DUCT MOUNTED REMOTE SENSOR(S) WHERE SHOWN ON THE DRAWINGS. REMOTE SENSORS SHALL DETERMINE THERMOSTAT OUTPUT.
   3. ECONOMIZER PACKAGE PROVIDED WITH ROOFTOP UNITS. MONITOR FAULT DETECTION AND DIAGNOSTICS SYSTEM FOR FAULTS.
   4. POWER RELIEF: CONTROLLED BY ROOFTOP UNIT BASED ON OUTSIDE AIR DAMPER POSITION.
   5. HOT GAS REHEAT: INSTALL HUMIDITY SENSOR FURNISHED BY ROOFTOP UNIT MANUFACTURER IN RETURN DUCTWORK. PROGRAM ROOFTOP UNIT CONTROLS TO MAINTAIN 50% RELATIVE HUMIDITY SETPOINT.
   6. MOUNT AND WIRE ALL CONTROL WIRING ASSOCIATED WITH THE ROOFTOP AND PROVIDE ANY ADDITIONAL DEVICES NECESSARY FOR A COMPLETE OPERATIONAL SYSTEM.

B. EXHAUST FANS (EF'S)
   1. TOILET ROOM EXHAUST FAN TO OPERATE CONTINUOUSLY DURING OCCUPIED CYCLE OF ROOFTOP UNITS.
   2. CONTROL OF KITCHEN HOOD EXHAUST FANS AND ASSOCIATED MAKE UP AIR UNIT BY KITCHEN EQUIPMENT SUPPLIER.

23 95 00 TESTING, ADJUSTING AND BALANCING

A. QUALITY ASSURANCE
   1. PERFORM TOTAL SYSTEM BALANCE IN ACCORDANCE WITH AABC NATIONAL STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION, TOTAL SYSTEM BALANCE OR NEBB PROCEDURAL STANDARDS FOR TESTING, BALANCING AND ADJUSTING OF ENVIRONMENTAL SYSTEMS, AND ASHRAE STANDARD 111.
   2. THE TESTING, ADJUSTING AND BALANCING (TAB) CONTRACTOR SHALL BE AN INDEPENDENT COMPANY SPECIALIZING IN THE TESTING, ADJUSTING, AND BALANCING OF SYSTEMS WITH MINIMUM THREE YEARS EXPERIENCE AND NOT ASSOCIATED WITH THE SUPPLIERS OF EQUIPMENT OR THE INSTALLING CONTRACTOR.
   3. PERFORM WORK UNDER SUPERVISION OF AABC CERTIFIED TEST AND BALANCE ENGINEER OR NEBB CERTIFIED TESTING, BALANCING AND ADJUSTING SUPERVISOR.

B. SUBMITTALS
   1. CONTRACTOR SHALL SUBMIT THE FINAL TESTING AND BALANCING REPORT TO LOCAL AHJ PRIOR TO PROJECT COMPLETION AND IN ADVANCE OF DATE OF OCCUPANCY. SUBMIT REPORTS ON AABC NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE OR NEBB FORMS.
   2. SUBMIT THE DESIGN AND ACTUAL DATA FOR EACH SCHEDULED PIECE OF EQUIPMENT: MODEL; SUPPLY, RETURN, AND OUTSIDE AIR FLOWS; STATIC PRESSURE PROFILES OF AIR HANDLING UNIT COMPONENTS AND ALL FANS; FAN RPM, BHP, AMPERAGE; FAN AND MOTOR SHEAVE, DIAMETER, BORE AND MAKE; BELT SIZE AND QUANTITY; MOTOR SHEAVE CENTER LINE AND OPERATOR DISTANCE; ROOM AIR FLOW; EQUIPMENT FLOW RATES AND PRESSURE DROPS.

C. INSTALLATION TOLERANCES
   1. AIR HANDLING SYSTEMS: ADJUST SUPPLY SYSTEMS TO WITHIN PLUS OR MINUS 5 PERCENT OF DESIGN AND RETURN AND EXHAUST SYSTEMS TO PLUS OR MINUS 10 PERCENT OF DESIGN.
   2. AIR OUTLETS AND INLETS: ADJUST TOTAL AIR FLOW TO SPACE TO WITHIN PLUS 10 PERCENT AND MINUS 5 PERCENT OF DESIGN.
   3. ADJUST OUTLETS AND INLETS IN SPACE TO WITHIN PLUS OR MINUS 10 PERCENT OF DESIGN.

D. AIR SYSTEM BALANCE
   1. VARY TOTAL SYSTEM AIR QUANTITIES BY ADJUSTING FAN SPEEDS. VARY BRANCH AIR QUANTITIES BY DAMPER REGULATION.
   2. ADJUST SETTINGS ON DIRECT DRIVE FANS WITH ECM MOTORS AS REQUIRED TO ACHIEVE DESIGN AIRFLOW.
   3. ADJUST OUTSIDE AIR, RETURN AIR, AND EXHAUST AIR AUTOMATIC DAMPERS FOR DESIGN CONDITIONS.
   4. TEST AIR HANDLING UNITS AT MINIMUM AND 100% OUTSIDE AIR.
   5. FOR BELT DRIVE FANS WITH A VFD, ADJUST BELT AND SHEAVES TO ACHIEVE DESIGN AIRFLOW WITH VFD AT 60 HERTZ. VFD IS NOT TO BE USED FOR INITIAL BALANCING

E. FANS WITH FIXED MOTOR SHEAVES - TEST THE FAN EQUIPMENT. IF THE DESIGN CONDITIONS ARE NOT OBTAINED, CALCULATE THE FINAL FIXED MOTOR SHEAVE AND/OR BELTS REQUIRED TO OBTAIN DESIGN CONDITIONS. HEATING CONTRACTOR SHALL OBTAIN THE FINAL FIXED MOTOR SHEAVE AND BELT(S) FROM THE FAN MANUFACTURER AND TURN THEM OVER TO THE TAB CONTRACTOR FOR INSTALLATION.

HVAC SPECIFICATIONS

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PROJECT INFORMATION

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PROFESSIONAL SEAL

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SHEET ISSUE NOV. 23, 2021
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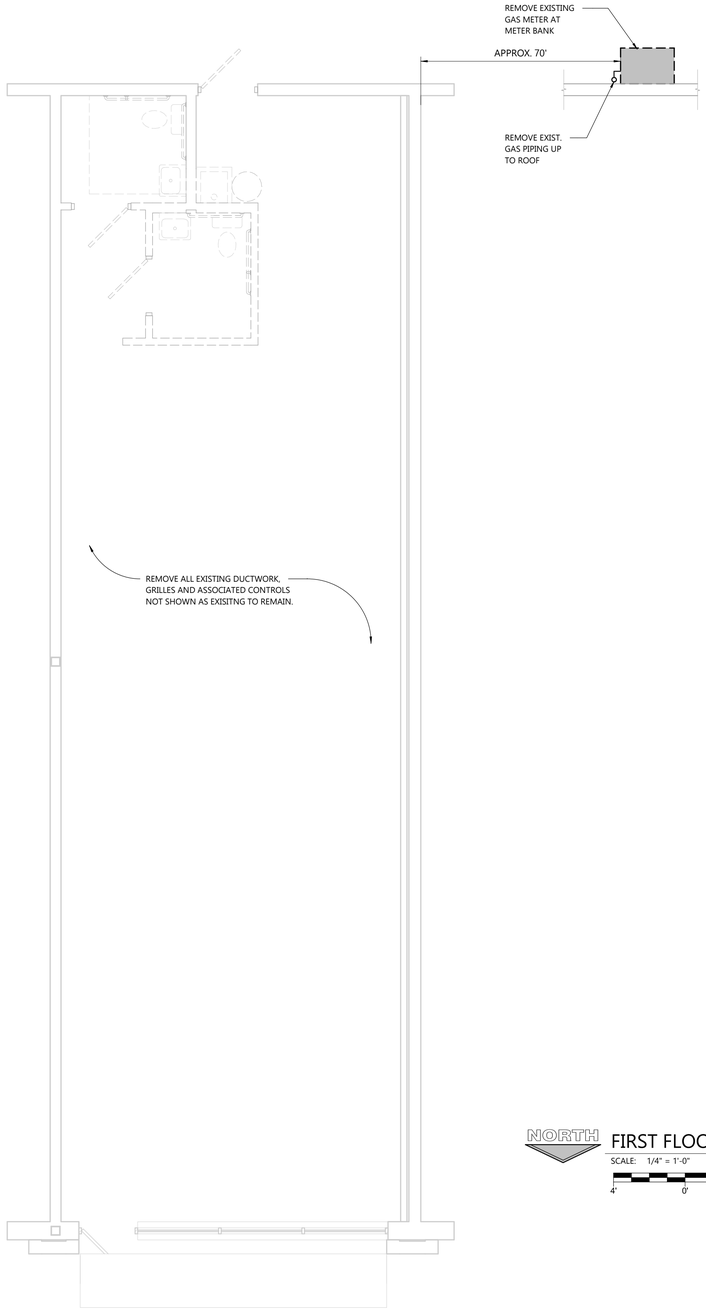
DEMOLITION PLAN NOTES

- ALL EQUIPMENT, DUCTWORK AND PIPING SHOWN "HEAVY DASHED" ARE TO BE DEMOLISHED.
- ALL EQUIPMENT, DUCTWORK AND PIPING SHOWN "LIGHTER" ARE EXISTING TO REMAIN.
- WHERE GRILLES ARE SHOWN TO BE REMOVED, REMOVE BRANCH DUCT. CAP AT MAIN IF MAIN REMAINS AND TAKEOFF IS NOT BEING USED FOR NEW GRILLE.



NORTH

FIRST FLOOR DEMOLITION PLAN

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

4' 0' 4' 8'

HVAC FIRST FLOOR DEMOLITION PLAN

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE NOV. 23, 2021

REVISIONS

JOB NUMBER

2172060

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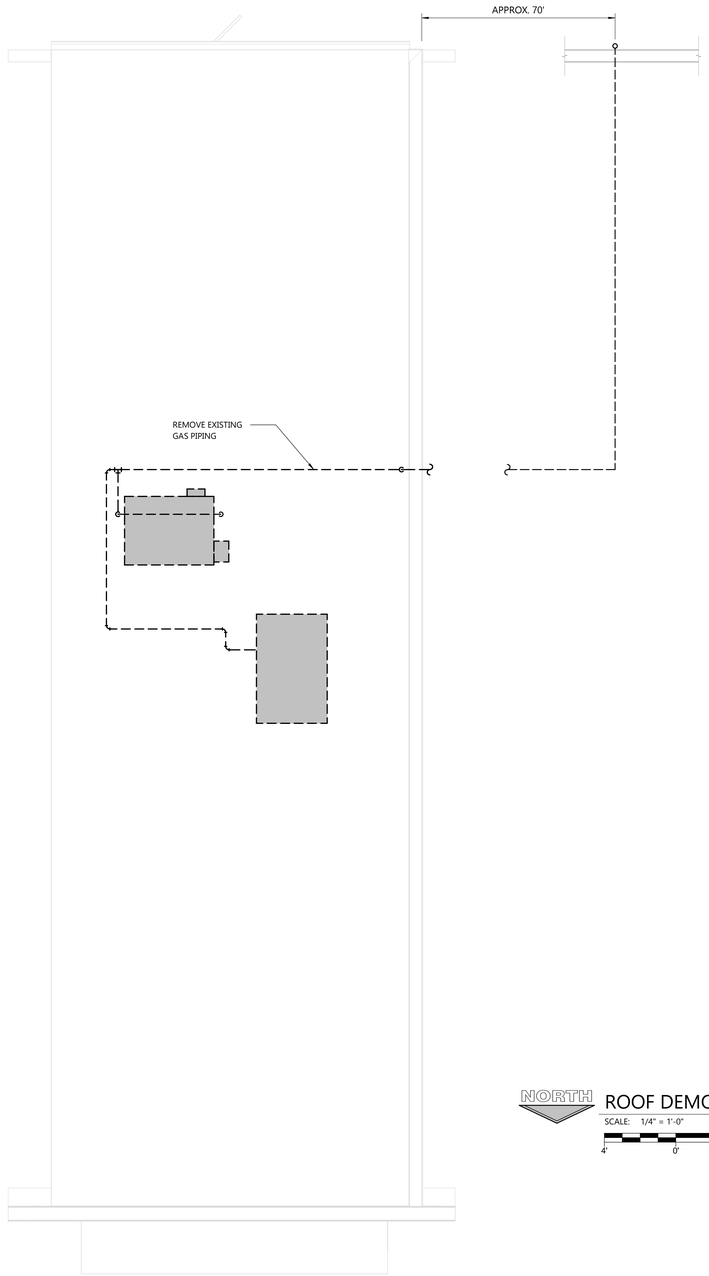
DEMOLITION PLAN NOTES

- ALL EQUIPMENT, DUCTWORK AND PIPING SHOWN "HEAVY DASHED" ARE TO BE DEMOLISHED.
- ALL EQUIPMENT, DUCTWORK AND PIPING SHOWN "LIGHTER" ARE EXISTING TO REMAIN.



NORTH

ROOF DEMOLITION PLAN

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

4' 0' 4' 8'

HVAC ROOF DEMOLITION PLAN

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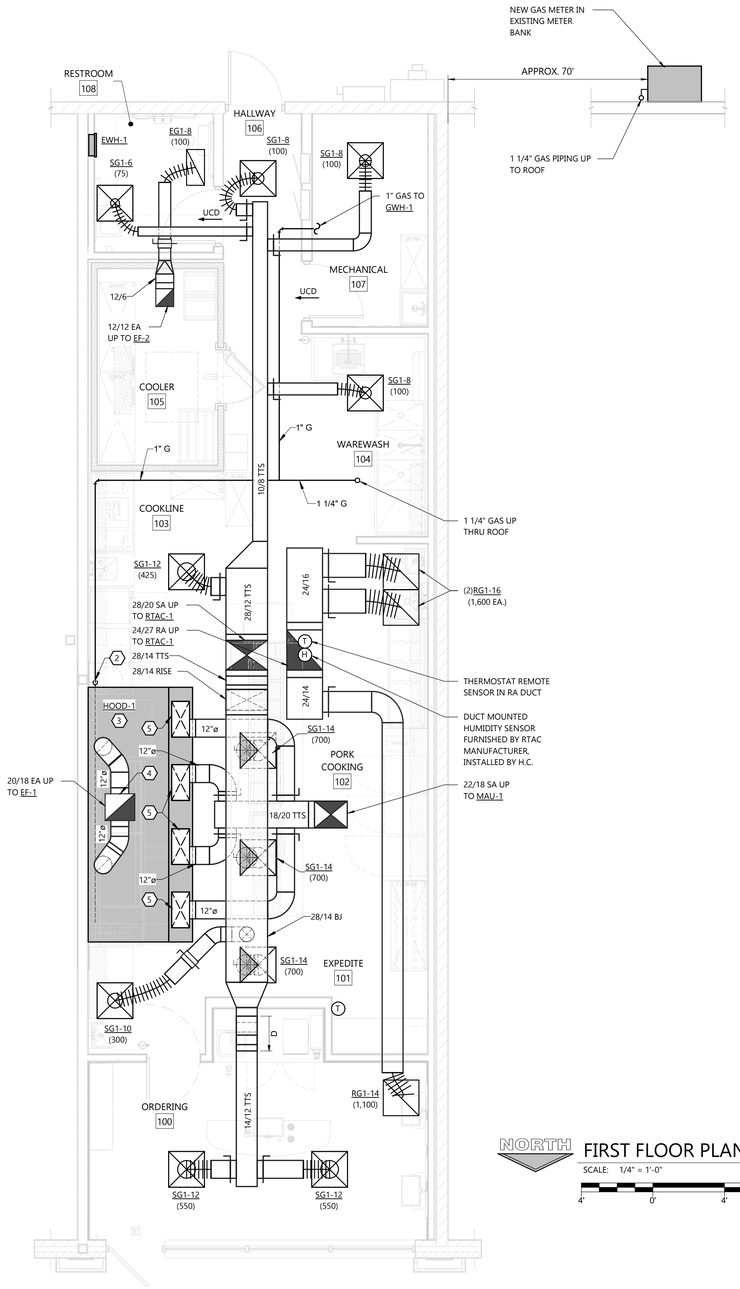
OUTSIDE AIR REQUIREMENTS

ROOM NAME	2015 IMC 403.3 OCCUPANCY CLASSIFICATION	GROSS FLOOR AREA (SF)	PEOPLE	2015 IMC 403.3 O.A. REQ. CFM/ SF	AREA CFM	CFM/ PERSON	PEOPLE CFM	TOTAL CFM
ORDERING	Lobbies	204	4	0.12	25	5	20	45
EXPEDITE	Kitchens (cooking)	127	2	0.00	0	0	0	0
PORK COOKING	Kitchens (cooking)	207	2	0.00	0	0	0	0
COOK LINE	Kitchens (cooking)	228	2	0.00	0	0	0	0
WARE WASH	Kitchens (cooking)	82	0	0.00	0	0	0	0
COOLER	Storage Rooms	77	0	0.12	9	0	0	9
HALLWAY	Corridors	108	0	0.06	6	0	0	6
MECHANICAL	Storage Rooms	79	0	0.12	10	0	0	10
RESTROOM	Toilet Rooms	42	0	0.00	0	0	0	0
							SUB-TOTAL	70
							VENTILATION EFFECTIVENESS	0.8
							TOTAL	**71**

	UNIT DESIGN O.A.
RTAC-1	800
TOTAL	**800**



NORTH

FIRST FLOOR PLAN

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

4' 0' 4' 8'

GENERAL NOTES

- VERIFY BUILDING OPENING AND CURB SIZES LISTED ON PLANS WITH ACTUAL EQUIPMENT SCHEDULED AND SUPPLIED. COORDINATE REQUIRED OPENING SIZES AND LOCATIONS WITH CONTRACTORS PROVIDING OPENING. SCHEDULES AND ACTUAL EQUIPMENT SIZES SHALL TAKE PRECEDENCE OVER SIZES SHOWN ON PLANS.
- DETAIL REFERENCES ON PLANS ARE TO AID THE CONTRACTOR IN IDENTIFYING THE APPLICABLE DETAIL. NOT ALL DETAILS, OR INSTANCES OF DETAILS, ARE REFERENCED ON PLANS. CONTRACTOR IS RESPONSIBLE TO REVIEW AND COMPLY WITH ALL APPLICABLE DETAILS WHETHER OR NOT REFERENCED ON PLANS.
- COORDINATE LOCATION OF ALL EXPOSED PIPING AND DUCTWORK WITH OWNER PRIOR TO INSTALLATION.
- IF DUCT SYSTEMS ARE USED FOR TEMPORARY HEAT, PROVIDE TEMPORARY FILTERS AT RETURN AIR OPENINGS AND INSTALL FILTERS IN THE UNITS EQUIVALENT TO THE EFFICIENCY OF THE SPECIFIED FILTERS FOR THE UNIT. IF PROPER EFFICIENCY FILTERS ARE NOT INSTALLED IN UNIT, UNIT AND ALL DUCTWORK DOWNSTREAM OF UNIT SHALL BE CLEANED BEFORE TEST AND BALANCE.

KEYNOTES

1. CONNECT TO EXISTING.
2. 1 1/4" GAS DOWN ALONG WALL. SEE DETAIL 3 ON SHEET H3.0.
3. KITCHEN HOOD WITH SA PLENUM - FURNISHED BY KITCHEN EQUIPMENT SUPPLIER, INSTALLED BY H.C.
4. 20/16 EA UP - TRANSITION IN CURB TO EXHAUST FAN CONNECTION SIZE.
5. 24/12 CONNECTION ON SA PLENUM - BALANCE TO 636 CFM.

GAS LOAD SUMMARY

ITEM	MBH INPUT	REQUIRED PRESSURE (1)
RTAC-1	130	7" W.C.
GWH-1	499	7" W.C.
CONVECTION OVEN	45	7" W.C.
GRIDDLE	120	7" W.C.
GRIDDLE	120	7" W.C.
MAU-1	185	7" W.C.
TOTAL	1,099	

- GAS PRESSURE AT METER = 2 PSIG
- PROVIDE GAS PRESSURE REGULATOR AT EACH PIECE OF EQUIPMENT LISTED ABOVE.

(1) VERIFY PRESSURE REQUIRED WITH ACTUAL EQUIPMENT INSTALLED ON PROJECT BEFORE SIZING REGULATOR.

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HVAC FIRST FLOOR PLAN

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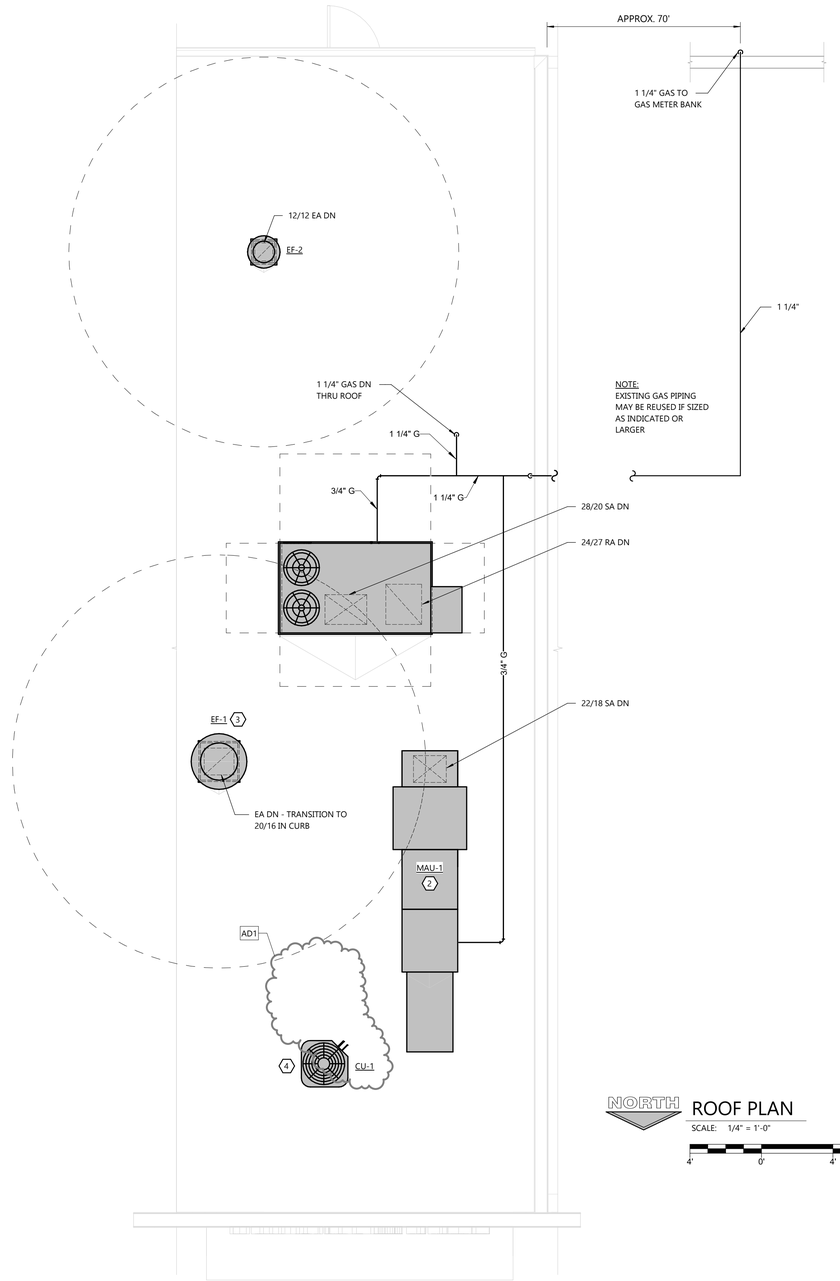
GENERAL NOTES

- VERIFY BUILDING OPENING AND CURB SIZES LISTED ON PLANS WITH ACTUAL EQUIPMENT SCHEDULED AND SUPPLIED. COORDINATE REQUIRED OPENING SIZES AND LOCATIONS WITH CONTRACTORS PROVIDING OPENING. SCHEDULES AND ACTUAL EQUIPMENT SIZES SHALL TAKE PRECEDENCE OVER SIZES SHOWN ON PLANS.
- DETAIL REFERENCES ON PLANS ARE TO AID THE CONTRACTOR IN IDENTIFYING THE APPLICABLE DETAIL. NOT ALL DETAILS, OR INSTANCES OF DETAILS, ARE REFERENCED ON PLANS. CONTRACTOR IS RESPONSIBLE TO REVIEW AND COMPLY WITH ALL APPLICABLE DETAILS WHETHER OR NOT REFERENCED ON PLANS.
- TERMINATE ALL UNIT HEATER INTAKES/FLUES MINIMUM 10'-0" FROM EDGE OF ROOF.
- TERMINATE ALL GAS REGULATOR VENTS MINIMUM 10'-0" FROM EDGE OF ROOF. VENTS SHALL NOT BE TERMINATED OUT EXTERIOR WALLS
- DASHED LINES AROUND EXHAUST TERMINATIONS INDICATE 10'-0" REQUIRED CLEARANCE TO OUTSIDE AIR INTAKES.

KEYNOTES

1. CONNECT TO EXISTING
2. MAKE UP AIR UNIT FURNISHED BY KITCHEN EQUIPMENT SUPPLIER, INSTALLED BY H.C.
3. KITCHEN HOOD EXHAUST FAN - FURNISHED BY KITHEN EQUIPMENT SUPPLIER, INSTALLED BY H.C.
4. CONDENSING UNITS AND REFRIGERANT PIPING LINESETS FURNISHED BY KITCHEN EQUIPMENT SUPPLIER, INSTALLED BY H.C.



NORTH

ROOF PLAN

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

4' 0' 4' 8'

HVAC ROOF PLAN

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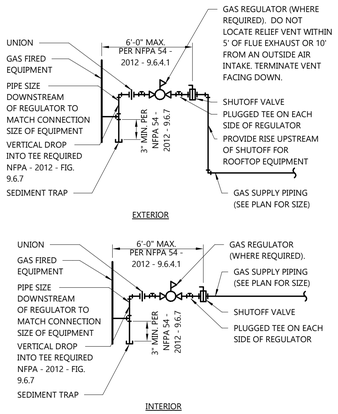
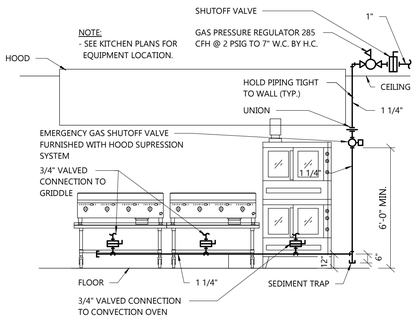
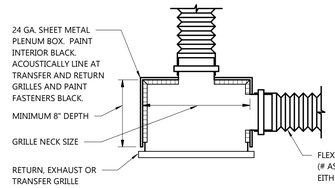


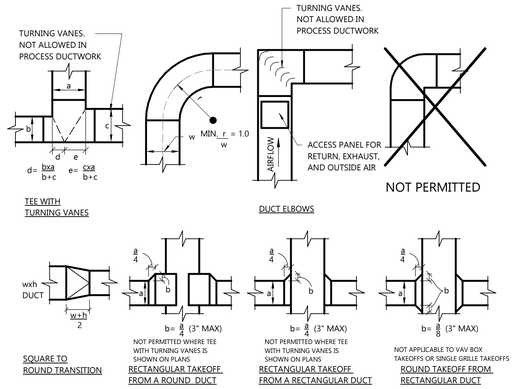
5 H3.0 GAS PIPE CONNECTION DETAIL
NOT TO SCALE



3 H3.0 KITCHEN EQUIPMENT GAS PIPING DETAIL
NOT TO SCALE

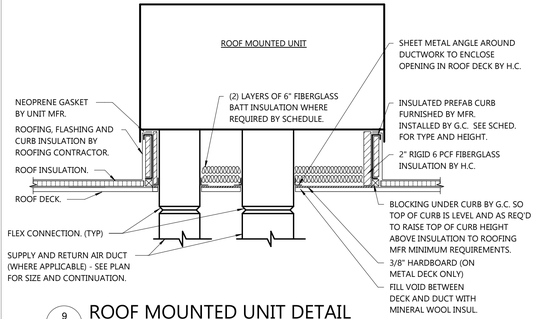


2 H3.0 GRILLE PLENUM BOX DETAIL
NOT TO SCALE

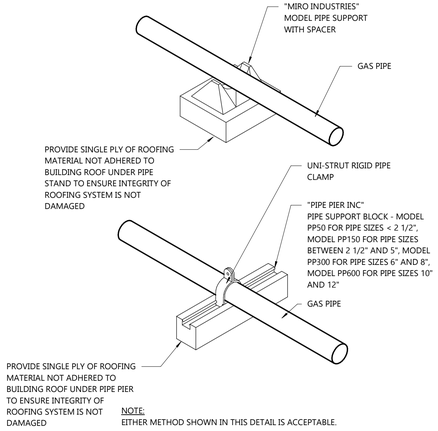


1 H3.0 DUCT FITTING DETAILS
NOT TO SCALE

UNIT	INSULATION	BALLAST
RTAC-1	YES	NO
MAU-1	YES	NO



9 H3.0 ROOF MOUNTED UNIT DETAIL
NOT TO SCALE

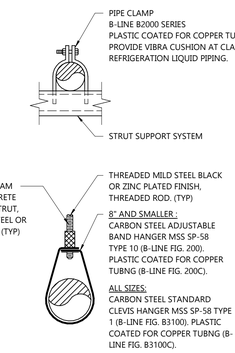


8 H3.0 GAS PIPE SUPPORT ON ROOF DETAIL
NOT TO SCALE

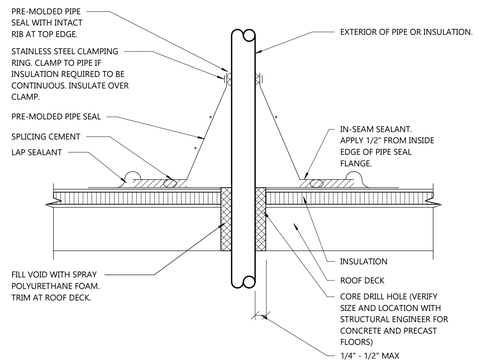
MAX. SPACING BETWEEN PIPE SUPPORTS AND MIN. HANGER ROD SIZES									
PIPE SIZE	STEEL			COPPER			PVC	PEX	MIN. ROD
	WATER	VAPOR	NAT. GAS	WATER	VAPOR		CPVC		METAL PIPE / PLASTIC PIPE
1/4"-1/2"	7'	8'	6'	5'	6'		4'	32"	3/8" / 3/8"
3/4"	7'	9'	8'	5'	7'		4'	32"	3/8" / 3/8"
1"	7'	9'	8'	6'	8'		4'	32"	3/8" / 3/8"
1 1/4"	7'	9'	10'	7'	9'		4'	32"	3/8" / 3/8"
1 1/2"	9'	12'	10'	8'	10'		4'	32"	3/8" / 3/8"
2"	10'	12'	10'	8'	11'		4'	-	3/8" / 3/8"
2 1/2"	11'	12'	10'	9'	12'		4'	-	3/8" / 3/8"
3"	12'	12'	10'	10'	12'		4'	-	3/8" / 3/8"
4"	12'	12'	10'	12'	12'		4'	-	3/8" / 3/8"
6"	12'	12'	10'	12'	12'		4'	-	3/8" / 3/8"
8"	12'	12'	-	-	-		4'	-	1/2" / 3/8"
10"	12'	12'	-	-	-		4'	-	1/2" / 3/8"
12"	12'	12'	-	-	-		4'	-	5/8" / 3/8"
14"	12'	12'	-	-	-		4'	-	5/8" / 3/8"
16"	12'	12'	-	-	-		4'	-	3/4" / 3/8"
MAX VERT. (1)	15'	15'	-	10'	10'		10'	10'	- / -

(1) SUPPORT AT MINIMUM EVERY FLOOR LEVEL OR SPACING LISTED.
MSS = MANUFACTURER'S STANDARDIZATION SOCIETY
- INSTALL ADDITIONAL HANGERS WITHIN 12" OF ELBOWS AND TEES AND AT CONCENTRATED LOADS, INCLUDING VALVES, FLANGES AND STRAINERS 2 1/2" AND LARGER.

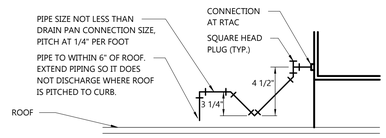
7 H3.0 PIPE SUPPORT SCHEDULE
NOT TO SCALE



6 H3.0 UNINSULATED PIPE HANGER DETAIL
NOT TO SCALE



11 H3.0 ROOF PIPE BOOT PENETRATION DETAIL
NOT TO SCALE



NOTES:
- MANUALLY FILL TRAP ON INITIAL START-UP.

10 H3.0 RTAC/MAU CONDENSATE DRAIN TRAP PIPING DETAIL
NOT TO SCALE

HVAC DETAILS

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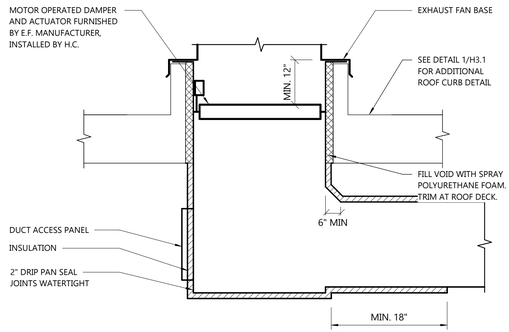
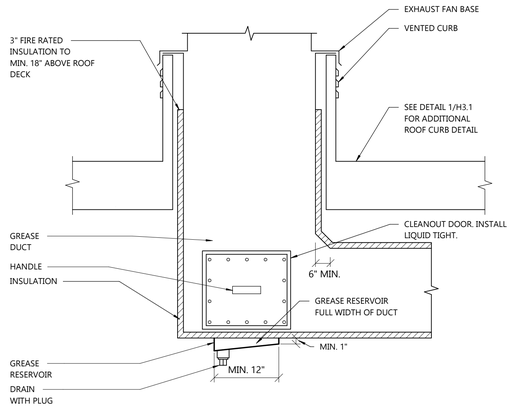
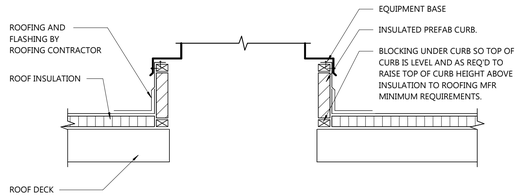


3 H3.1 EXHAUST FAN DETAIL (EF-2)
NOT TO SCALE



2 H3.1 EXHAUST FAN DETAIL (EF-1)
NOT TO SCALE



1 H3.1 TYPICAL ROOF CURB DETAIL
NOT TO SCALE

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AD1

EXHAUST FAN SCHEDULE (EF)

NO.	SERVICE	CFM	SP " WC	MAX. BHP	MOTOR HP	FAN RPM	MOTOR RPM	DRIVE	VFD	DISC.	DAMPER: DAMPER	DAMPER: LOC.	DAMPER: ACTUATOR	MAX. SONES	CURB	WEIGHT LBS.	MODEL	REMARKS
1	KITCHEN HOOD	3,180	1.80	2.00	3	1,427	1,725	DIRECT (1A)	NO	(4)	NONE	NA	-	21.0	20" (16)	250	DU180DFA	CAPTIVEAIRE (17)
2	~~TOILET EXHAUST~~	~~100~~	~~0.50~~	~~0.08~~	~~1/4~~	~~1,154~~	~~1,750~~	~~DIRECT (1A)~~	~~NO~~	~~(3)~~	~~M.O.D. (5)~~	~~(9)~~	~~(10)~~	~~5.6~~	~~18"~~	~~100~~	~~DR12HFA~~	~~CAPTIVEAIRE~~

- ACCEPTABLE MANUFACTURERS: CAPTIVEAIRE, GREENHECK, COOK, CARNES, PENN-BARRY, ACME, TWIN CITY.
- PERMANENTLY LUBRICATED SEALED BALL BEARING MOTORS MOUNTED ON VIBRATION ISOLATORS OUT OF THE AIRSTREAM. SEE MOTOR SPEC FOR ADDITIONAL REQUIREMENTS.
- PROVIDE GREASABLE BEARINGS WITH MINIMUM L10 LIFE IN EXCESS OF 100,000 HOURS (EQUIVALENT TO L50 AVERAGE LIFE OF 500,000 HOURS).
- PROVIDE WITH 1/2" MESH BIRD SCREEN AND CURB SEAL.
- PROVIDE WITH TOOL-LESS TOP CAP REMOVAL.

MOTOR

(1A) PROVIDE DIRECT DRIVE FANS WITH ECM MOTOR. AIRFLOW SET MANUALLY AT MOTOR.

DISCONNECT

~~(3) PROVIDE PRE-WIRED NEMA 1 DISCONNECT SWITCH OR TWIST LOCK PLUG, NEMA 3R IF NOT PROECTED FROM THE WEATHER.~~

(4) PROVIDE PRE-WIRED NEMA 3R DISCONNECT SWITCH OR TWIST LOCK PLUG, NEMA 3R IF NOT PROECTED FROM THE WEATHER.

DAMPER

(5) PROVIDE WITH MOTORIZED DAMPER. 16 GA. GALV. FRAME AND BLADES, PLATED STEEL LINKAGE AND AXLES, SYNTHETIC BEARINGS.

DAMPER LOCATION

(9) DAMPER MOUNTED IN ROOF CURB, INTERNAL MOUNT ACTUATOR, HINGED FAN BASE. DAMPER SHELF NOT PERMITTED. DUCTWORK CONTINUOUS THRU CURB.

ACTUATOR

(10) 120 VOLT.

MISC

(16) PROVIDE UL 762 RATED FAN WITH 20" VENTED CURB, AND GREASE DRAIN WITH GREASE BOX.

(17) FAN FURNISHED BY KITCHEN EQUIPMENT SUPPLIER.

AD1

MAKE-UP AIR UNIT SCHEDULE (MAU)

NO.	TYPE	SUPPLY FAN: CFM MAX	CFM MIN.	OA CFM MAX	OA CFM MIN.	EXT. SP	DRIVE TYPE	MAX BHP	MOTOR HP	MOD. TYPE	HEATING: CFM	EAT F	LAT F	MBH IN	MBH OUT	BURNER MOD.	FILTERS	FINAL FILTER BANK SIZE	ACCESS SIDE (2)	ELECTR. CONN. (20)	MCA	MOP	CONTROLS: UNIT	GAS	DAMPER	WEIGHT (LBS)	MODEL	ACCESSORIES	REMARKS
1	DIRECT	2,544	2,544	2,544	2,544	0.50	DIRECT	0.9	1 1/2	-	2,544	5	75	185	171	ELECT. MOD.	(10)	-	LH	208/3	5.5	15	(30)	(40)	(50)	1,700	A2-D.250-20D-MPU	(65)(66)(69)(70)	CAPTIVEAIRE (3)

- ACCEPTABLE MANUFACTURERS: CAPTIVEAIRE, ABSOLUTAIRE, STERLING, REZNOR, HASTINGS, RUPP, GREENHECK, TITAN, CDI.
- SEE MOTOR SPECIFICATIONS FOR MOTOR REQUIREMENTS.
- DIRECT FIRED UNITS: CAST IRON BURNER WITH STAINLESS STEEL MIXING PLATES.
- 1" DOUBLE WALL INSULATED CABINET ON BURNER SECTION AND SECTIONS DOWNSTREAM OF BURNER.
- PROVIDE MANUFACTURER REPRESENTATIVE AT UNIT STARTUP AND A MINIMUM OF (2) HOURS OF TRAINING FOR PERSONNEL DESIGNATED BY THE OWNER.

(2) ACCESS DOOR SIDE IS IN DIRECTION OF AIRFLOW. PROVIDE ACCESS DOORS AT FILTERS, BURNERS AND SUPPLY FAN.

(3) MAKE UP AIR UNIT AND ASSOCIATED CONDENSING UNITS FURNISHED BY KITCHEN EQUIPMENT SUPPLIER.

FILTERS

(10) INTAKE HOOD WITH EZ FILTERS.

(11) MERV 14 CARTRIDGE FINAL FILTER DOWNSTREAM OF ALL OTHER UNIT COMPONENTS. INDIVIDUAL HOLDING CLIPS, MAGNEHELIC FILTER GAUGE. INCLUDE 1 SET OF FILTERS AT COMPLETION OF PROJECT.

ELECTRICAL

(20) PROVIDE SINGLE POINT POWER CONNECTION, SEPARATE NON-FUSED NEMA 3R DISCONNECTS FOR NON-CONTROL ELECTRICAL COMPONENTS AND FOR CONTROL POWER. PROVIDE CONTROL POWER TRANSFORMER(S). FAN DISCONNECT WITH PRE-WIRED AUX. CONTACT TO DISCONNECT POWER TO BURNER WHEN DISCONNECT IS ENGAGED.

UNIT CONTROLS

(30) REMOTE CONTROL PANEL LOCATED IN KITCHEN HOOD UTILITY CABINET.

GAS CONTROL

(40) PROVIDE WITH ELECTRONIC MODULATING GAS CONTROL WHICH SHALL CONTROL GAS VALVE IN RESPONSE TO DUCT THERMOSTAT (SET AT 55 DEG F) WITH REMOTE TEMPERATURE ADJUSTMENT AND AN OVERRIDE ROOM THERMOSTAT. OVERRIDE ROOM THERMOSTAT SHALL RESET DISCHARGE AIR TEMPERATURE.

DAMPER CONTROL

(50) TWO POSITION SPRING RETURN OUTSIDE AIR DAMPER.

ACCESSORIES

(65) LOW LEAKAGE INLET DAMPER.

(66) 15" HIGH PRE-INSULATED ROOF CURB AND RAIL.

(69) DOWNTURN PLENUM.

(70) 5 TON SINGLE CIRCUIT MODULAR PACKAGED COOLING OPTION COMPLETE WITH DX COOLING COIL MODULE AND 5 TON CONDENSING UNIT AND ASSOCIATED DISCONNECT, SHIPPED LOOSE.

ELECTRIC WALL HEATER SCHEDULE - (E.W.H.)

NO.	CFM	EAT F	LAT F	MBH	HTG KW	THERMOSTAT	CABINET: RECESS DEPTH	CABINET: HGT. AFF	MODEL	COLOR	REMARKS
1	100	60	122	6.8	2	INTEG., PREWIRED, TAMPER-RESISTANT	-	12"	FRC-4020	WHITE	"BERKO"

- ACCEPTABLE MANUFACTURERS: BERKO, RAYWALL, Q-MARK, MARKEL.
- PROVIDE ALL EWH'S WITH PREWIRED DISCONNECT SWITCH, PREWIRED AUTOMATIC RESET THERMAL OVERLOAD PROTECTION, BUILT-IN FAN DELAY CONTROLS, 16 GAUGE FRONT BAR GRILLE.

SUPPLY GRILLE SCHEDULE (S.G.)

NO.	TYPE	CFM RANGE	NECK/ FACE SIZE	INLET DUCT DIA.	MAT'L	VOL. DMPR	FINISH	FRAME	THROW	MODEL	REMARKS
1-6	PLAQUE	0-75	24 X 24	6"	STEEL	(1)	WHITE	LAY-IN	(3)	OMNI	"TITUS" (5)
1-8	PLAQUE	76-275	24 X 24	8"	STEEL	(1)	WHITE	LAY-IN	(3)	OMNI	"TITUS" (5)
1-10	PLAQUE	276-375	24 X 24	10"	STEEL	(1)	WHITE	LAY-IN	(3)	OMNI	"TITUS" (5)
1-12	PLAQUE	376-550	24 X 24	12"	STEEL	(1)	WHITE	LAY-IN	(3)	OMNI	"TITUS" (5)
1-14	PLAQUE	551-750	24 X 24	14"	STEEL	(1)	WHITE	LAY-IN	(3)	OMNI	"TITUS" (5)
1S-6	PLAQUE	0-75	12 X 12	8"	STEEL	(1)	WHITE	(6)	(3)	OMNI	"TITUS" (5)
1S-8	PLAQUE	76-275	12 X 12	8"	STEEL	(1)	WHITE	(6)	(3)	OMNI	"TITUS" (5)
1S-10	PLAQUE	276-375	12 X 12	10"	STEEL	(1)	WHITE	(6)	(3)	OMNI	"TITUS" (5)
1S-12	PLAQUE	375-550	15 X 15	12"	STEEL	(1)	WHITE	(6)	(3)	OMNI	"TITUS" (5)

- ACCEPTABLE MANUFACTURERS: TITUS, PRICE, CARNES, METALAIRE, ANEMOSTAT, KRUEGER, NAILOR.
- NOT ALL SUPPLY GRILLES SCHEDULED ARE USED ON THE PROJECT.

(1) VOLUME DAMPER AT THE GRILLE INDICATED BY A "D" AFTER THE GRILLE DESIGNATION. EXAMPLE: SG1S-8D IS SG1S-8 WITH A DAMPER.

(3) NUMBER OF THROW DIRECTION INDICATED ON PLAN BY GRILLE SHADING. SHADED QUADRANT DOES NOT HAVE AIRFLOW.

(5) PROVIDE MOLDED FIBERGLASS INSULATION BLANKET ON BACK SIDE OF GRILLE.

(6) PROVIDE GRILLE WITH LAY-IN FRAME AND MODEL TRM-S MOUNTING FRAME TO INSTALL GRILLE.

RETURN GRILLE SCHEDULE (RG)

NO.	TYPE	MAX. CFM	NECK/ FACE SIZE	FLEX. DUCT. DIA.	MAT'L	VOL. DMPR	FINISH	FRAME	MODEL	REMARKS
1-6	LOUVERED	75	22 x 10	6"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
1-8	LOUVERED	250	22 x 10	8"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
1-10	LOUVERED	450	22 x 10	10"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
1-12	LOUVERED	750	22 x 22	12"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
1-14	LOUVERED	1,100	22 x 22	14"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
1-16	LOUVERED	1,600	22 x 22	16"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
1-18	LOUVERED	2,000	22 x 22	18"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"

- ACCEPTABLE MANUFACTURERS: TITUS, PRICE, CARNES, METALAIRE, ANEMOSTAT, KRUEGER, NAILOR.
- NOT ALL RETURN GRILLES SCHEDULED ARE USED ON THE PROJECT.

(1) VOLUME DAMPER AT THE GRILLE INDICATED BY A "D" AFTER THE GRILLE DESIGNATION. EXAMPLE: RG1S-8D IS RG1S-8 WITH A DAMPER.

(3) SURFACE MOUNT BORDER WITH NO SCREW HOLES FOR LAY-IN APPLICATION.

EXHAUST GRILLE SCHEDULE (EG)

NO.	TYPE	CFM RANGE	NECK/ FACE SIZE	FLEX. DUCT. DIA.	MAT'L	VOL. DMPR	FINISH	FRAME	MODEL	REMARKS
1-8	LOUVERED	76-250	22 x 10	8"	STEEL	(1)	WHITE	LAY-IN (3)	530	"PRICE"
2S	LOUVERED	SEE DWG.	(2)	-	STEEL	(1)	WHITE	SURFACE MOUNT	350R (4)	"TITUS"

- ACCEPTABLE MANUFACTURERS: TITUS, PRICE, CARNES, METALAIRE, ANEMOSTAT, KRUEGER, NAILOR.

(1) VOLUME DAMPER AT THE GRILLE INDICATED BY A "D" AFTER THE GRILLE DESIGNATION. EXAMPLE: EG1S-8D IS EG1S-8 WITH A DAMPER.

(2) NECK SIZE INDICATED ON PLAN AT GRILLE IDENTIFICATION.

(3) SURFACE MOUNT BORDER WITH NO SCREW HOLES FOR LAY-IN APPLICATION.

(4) BLADES IN HORIZONTAL DIRECTION.

DUCTWORK AND DUCTWORK INSULATION SCHEDULE

SERVICE		LOCATION	DUCT MAT'L	SMACNA PRESS. CLASS	INSULATION: RECTANGULAR DUCT	INSULATION: ROUND DUCT	INSUL. JACKET
SUPPLY	SINGLE ZONE SYSTEMS (RTAC AND MAU)	CONCEALED	GALV. ST.	+1"	1.5" FLEX. F.G.	1.5" FLEX. F.G.	N.R.
RETURN	UPSTREAM OF FAN	CONCEALED AND EXPOSED	GALV. ST.	-1"	1" ALD (1)	N.R.	N.R.
EXHAUST	UPSTREAM OF FAN, RE	CONCEALED	GALV. ST.	-1"	1.5" FLEX. F.G. (2)	1.5" FLEX. F.G. (2)	N.R.
EXHAUST	TYPE I KITCHEN HOOD	CONCEALED	(5)	-3"	(4)	(4)	N.R.
EXHAUST	TYPE II KITCHEN HOOD	CONCEALED	GALV. ST.	-3"	1.5" FLEX. F.G.	1.5" FLEX. F.G.	N.R.

N.R. = NOT REQUIRED

CONCEALED = HIDDEN FROM VIEW BY WALLS AND CEILINGS.

EXPOSED = VISIBLE FROM OCCUPIED SPACE.

MATERIALS:

GALV. STEEL: ASTM A653, LOCK FORMING QUALITY, 1.25 OUNCES/ S.F. ZINC COATING (G90 IN ACCORDANCE WITH ASTM A90 BOTH SIDES).

- ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK SHALL BE SEALED PER 2018 IECC 403.11.1.

(1) PROVIDE 1" ACOUSTICAL DUCT LINING IN DUCTS NOTED AS "ALD" DUCT DIMENSIONS ARE SHEET METAL DIMENSIONS AND INCLUDE LINING.

(2) INSULATE FROM 18" UPSTREAM OF THE BACKDRAFT OR MOTOR OPERATED DAMPER TO THE POINT WHERE THE DUCT EXITS THE BUILDING.

(4) INSULATE CONCEALED DUCTWORK AND SURFACES OF TYPE 1 KITCHEN HOODS WITH (2) LAYERS OF 1 1/2" FIRE RATED INSULATION.

(5) DUCTWORK AND SUPPORT MINIMUM 18 GA NO. 2B MILL ROLLED FINISH S.S. OR 16 GA. STEEL. WELD FINISH SHALL BE AS WELDED.

PIPE SCHEDULE

SERVICE	PIPE SIZE	STEEL PIPE: BLACK STEEL	GALVANIZED	ASTM A53 GRADE B: F	E	S	SCHEDULE	STEEL FITTINGS: CAST IRON THREADED ASTM A126/ANSI B16.4	MALLEABLE IRON THREADED ASME/ANSI B16.3	FORGED STEEL THREADED OR WELDED ASTM A105 GRADE II/ ANSI B16.11	SEAMLESS CARBON STEEL WELDED ASTM A234, GR. WPB/ ANSI 16.9	COLD PRESS MECHANICAL JOINT	CLASS	COPPER PIPE: ASTM B280 TYPE ACR	PRECHARGED LINE SET	COPPER FITTINGS: ASME B16.22 WROUGHT COPPER	SOLDER / BRAZING	PLASTIC: PRESSURE RATED	NON-PRESSURE RATED	SCHEDULE	PLASTIC PIPE: PVC ASTM D1784, D1785, D2672	PLASTIC FITTINGS: PVC ASTM D2464, D2467, D1784	PEX
GAS (INDOOR ≤ 5 PSIG)	1/2" - 3"	X			X	X	40	X	X	X	X	(3)	125/150										
GAS (OUTDOOR)	1/2"- 4"	X			X	X	40	X	X	X	X	(3)	125/150										
GAS REGULATOR VENTS	ALL SIZES	X			X	X	40	X	X	X	X	(3)	125/150										
COND. DRAIN	ALL																		X	40	X	(2)	

(2) ASTM F656 SOLVENT WELD WITH ASTM D2564 CLEAR SOLVENT CEMENT.

(3) VIEGA MEGAPRESS FITTING COMPLYING WITH ASTM A420 OR ASME B16.3. HNBR SEAL FOR GAS. 10 YEAR WARRANTY IN MATERIAL AND WORKMANSHIP. INSTALL PER MFR INSTALLATION INSTRUCTIONS.

AD1

ELECTRICAL/STARTER/DISCONNECT SCHEDULE

SYM.	ELECTRICAL DATA: HP	KW	FLA	MCA	MOP	VOLT	PH.	STARTER: TYPE	LOCATION	FURN. BY	AUX. CONTACT	ACCESS-ORIES	SMOKE DETECTOR	DISCONNECT: DIS-CONNECT	FURN. BY	REMARKS
~~RTAC-1~~	-	-	-	67.0	80	208	3	INTEG.	INTEGRAL	EM	-	-	(6)	R	EM (2)	-
MAU-1	1 1/2	-	-	5.5	15	208	3	MAG	HOOD CONTROLS	EM	-	HOA	-	R	EM (2)	-
MAU CU	-	-	-	21.4	30	208	3	INTEG.	INTEGRAL	EM	-	-	-	R	EM (4)	-
EF-1	3	-	-	-	-	208	3	MAG	HOOD CONTROLS	EM	-	HOA	-	R	EM (2)	-
~~EF-2~~	1/4	-	-	-	-	120	1	RELAY	(28)	HC	-	-	-	R	EM (2)	(3)
~~EWH-1~~	-	2	-	-	-	208	1	INTEG.	INTEGRAL	EM	-	-	-	R	EM	-
HOOD CONTROLS	-	-	-	-	-	120	1	-	UTILITY CABINET	-	-	-		NR	-	-

STARTER TYPE:

INTEG.= INTEGRAL: PROVIDED INTEGRAL WITH EQUIPMENT.

RELAY= UL LISTED MOTOR RATED RELAY WITH SEPARATE ENTRANCES FOR INPUT AND OUTPUT CONTACTS (RIBT SERIES), OVERRIDE SWITCH AND LED STATUS INDICATOR. CONTACT RATING, CONFIGURATION, AND COIL VOLTAGE SUITABLE FOR APPLICATION.

MAN= MANUAL: NEMA ICS 2, AC GENERAL PURPOSE CLASS A MANUALLY OPERATED, FULL-VOLTAGE CONTROLLER WITH QUICK MAKE AND BREAK TOGGLE ACTION AND DOUBLE BREAK SILVER ALLOY CONTACTS. BIMETALLIC OR MELTING ALLOY TYPE THERMAL OVERLOAD UNITS. NEMA ICS 6 GENERAL PURPOSE FLUSH MOUNTED ENCLOSURE WITH STAINLESS STEEL COVER PLATE IN FINISHED AREAS AND TYPE 1 SURFACE MOUNTED IN UNFINISHED AREAS.

MAG= MAGNETIC: NEMA ICS 2, AC GENERAL PURPOSE CLASS A MAGNETIC ACROSS-THE-LINE CONTROLLER. DOUBLE BREAK SILVER ALLOY CONTACTS. NEMA SOLID STATE OVERLOAD RELAY WITH USER SELECTABLE SETTINGS, CLASS 10, 20, AND 30; BUILT-IN MEMORY TO PREVENT HOT MOTOR RESTART. OPERATING TEMPERATURE: -20 DEGREE C TO +70 DEGREE C. PHASE CURRENT LOSS PROTECTION. PHASE CURRENT UNBALANCE PROTECTION (ADJUSTABLE 20-50%). PROVIDE NEMA ICS 6, TYPE 1 ENCLOSURE AUXILIARY CONTACT(S) AS REQUIRED FOR CONTROL. PROVIDE 120V, 60 HZ, SECONDARY, 100VA FUSED MINIMUM, TRANSFORMER IN EACH STARTER. FUSED PRIMARY AND SECONDARY, BOND UNFUSED LEG OF SECONDARY TO ENCLOSURE.

COMB= COMBINATION: COMBINE MAGNETIC STARTER AND NON-FUSED DISCONNECT SWITCH IN COMMON ENCLOSURE. LOCKABLE IN OPEN POSITION, MOLDED CAST TYPE MOTOR CIRCUIT PROTECTOR (MAGNETIC PROTECTION ONLY).

VFD= VARIABLE FREQUENCY DRIVE- SEE SPECS.

FURNISHED BY:	ACCESSORIES:	DISCONNECT:	REMARKS:
EM = EQUIPMENT MANUFACTURER	HOA = HAND-OFF-AUTO	NR= NOT REQUIRED	REC.=RECEPTACLE
HC = HEATING CONTRACTOR	PL =LED PILOT LIGHT	R = REQUIRED	
EC = ELECTRICAL CONTRACTOR	PB = PUSH BUTTON	3R = NEMA 3R	

- ACCEPTABLE MANUFACTURERS: ALLEN BRADLEY, CUTLER HAMMER, SQUARE D, GENERAL ELECTRIC.
- VERIFY VOLTAGE AND PHASE WITH ELECTRICAL CONTRACTOR BEFORE ORDERING EQUIPMENT.
- FURNISH MOTOR STARTERS TO E.C. FOR INSTALLATION AND WIRING WHEN THE STARTER SCHEDULE CALLS FOR H.C. TO FURNISH.

(2) DISCONNECT FACTORY MOUNTED AND PREWIRED BY EQUIPMENT MANUFACTURER.

~~(3) EC SHALL WIRE TO 120 VOLT MOTOR OPERATED DAMPER ACTUATOR LOCATED INSIDE BUILDING BELOW ROOF EXHAUSTER FROM SAME FEED AS ROOF EXHAUSTER.~~

(4) DISCONNECT FURNISHED BY EQUIPMENT MANUFACTURER, SHIPPED LOOSE.

~~(6) SMOKE DETECTOR PROVIDED WITH RTAC TO SHUT DOWN UNIT ON SMOKE DETECTION.~~

(28) MOUNT RELAY ON WALL NEAR ELECTRICAL PANEL THAT SERVES FAN. COORDINATE LOCATION WITH ELECTRICAL CONTRACTOR.

ROOFTOP AIR CONDITIONING UNIT SCHEDULE (R.T.A.C.)

NO.	NOM. TONS	SUPPLY FAN: CFM	OA CFM	EXT. SP	DRIVE TYPE	MOTOR HP	MOD. TYPE	RELIEF	COOLING: EAT DB / WB	MBH CAP.	AMB. TEMP F	NO. COMPR.	NO. STAGES	HEATING: KW	MBH IN	MBH OUT	NO. STAGES	OUTSIDE AIR	SMOKE DETECTOR	CURB: HEIGHT BY MFR.	CURB: TYPE	MCA	MOP	VOLT/ PHASE	EFFICIENCY: MIN. CODE	UNIT RATING	TEST PROC.	WEIGHT (LBS.)	MODEL	REMARKS
1	12.5	4,300	800	1.0	BELT	3	2 SPD VFD (5)	FAN	79.6/66.6	138.0	105	2	2	-	130	104	2	(3)	YES (2)	14"	STANDARD	67.0	80	208/3	12.2 IEER, 10.8 EER	13.5 IEER, 10.8 EER	ARI 340/360	1,650	KGB150S4M	LENNOX (1)(6)

- ACCEPTABLE MANUFACTURERS: LENNOX, TRANE, CARRIER, DAIKIN, AAON. USE OF MANUFACTURER OR MODEL OTHER THAN LISTED IN SCHEDULE ABOVE SHALL BE CONSIDERED A SUBSTITUTION AND SHALL BE APPROVED BY OWNER. DRAWINGS SHOWING REVISED DUCT ROUTING, ROOF OPENINGS, STRUCTURAL STEEL, ETC. WILL BE REQUIRED AT TIME OF RTAC SHOP DRAWINGS SUBMITTAL.
- SEE MOTOR SPECIFICATIONS FOR MOTOR REQUIREMENTS.
- PROVIDE PRE-INSULATED ROOF CURB.
- PROVIDE WITH 2" ASHRAE STD 52.2 MERV 8 T.A. FILTERS .
- RTAC DESIGNED TO PREVENT RAIN INTRUSION INTO THE AIRSTREAM WHEN TESTED AT DESIGN AND NO AIRFLOW PER SECTION 58 OF UL 1995.
- PROVIDE UNIT WITH INTEGRAL MANUFACTURER INSTALLED WATER-LEVEL MONITORING DEVICE IN THE PRIMARY DRAIN PAN TO SHUT OFF THE EQUIPMENT PER IMC 307.2.3.1.
- PROVIDE WITH HAIL GUARD FOR CONDENSING COILS.
- PROVIDE FACTORY RECOMMENDED FLUE EXTENSION. EXTENSION SHALL TAKE FLUE GASES TO 6" ABOVE TOP OF CABINET.
- PROVIDE WITH FACTORY INSTALLED HINGED ACCESS DOORS.

(1) PROVIDE UNIT MOUNTED NEMA 3R DISCONNECT.

(2) PROVIDE FACTORY INSTALLED DUCT SMOKE DETECTOR IN RETURN AIR SECTION WIRED TO SHUT DOWN SUPPLY FAN ON DETECTION OF SMOKE. PROVIDE SMOKE DETECTOR SIGNALING AND TESTING DEVICE WITH ADD ON "SMOKE" STROBE AT AHJ APPROVED LOCATION.

(3) PROVIDE MODULATING ECONOMIZER DAMPERS AND ACTUATOR WITH DIFFERENTIAL ENTHALPY CONTROL. CONTROL SHALL INCLUDE FAULT DETECTION AND DIAGNOSTICS SYSTEM COMPLYING WITH 2015 IECC C403.2.4.7.

(5) PROVIDE NEMA MG1 PART 31 PREMIUM EFFICIENCY MOTOR SUITABLE FOR VFD APPLICATION WITH FACTORY INSTALLED AEGIS SHAFT GROUNDING RING.

(6) PROVIDE WITH "HUMIDITROL" MODULATING HOT GAS RE-HEAT DEHUMIDIFICATION COIL AND FIELD INSTALLED DUCT MOUNTED HUMIDITY SENSOR.

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HVAC SCHEDULES

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE NOV. 23, 2021

REVISIONS

AD1 JAN. 24, 2022

JOB NUMBER

2172060

SHEET NUMBER

H4.0

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ELECTRICAL SPECIFICATIONS

DIVISION 26 ELECTRICAL

26 05 00 BASIC ELECTRICAL REQUIREMENTS

A. SEE DIVISION 00 PROCUREMENT AND CONTRACTING AND DIVISION 01 GENERAL REQUIREMENT FOR ADDITIONAL REQUIREMENTS.
B. ELECTRICAL CONTRACTOR SHALL VERIFY REQUIREMENTS FOR TEMPORARY LIGHTING AND POWER WITH GENERAL CONTRACTOR AND INCLUDE IN HIS SCOPE OF WORK WHEN DIRECTED BY G.C. INSTALL IN ACCORDANCE WITH ALL CODE AND OSHA REQUIREMENTS FOR CONSTRUCTION PROJECTS.
C. SUBSTITUTIONS
 1. SEE DIVISION 01 23 00 PRODUCT SUBSTITUTION PROCEDURES FOR ADDITIONAL REQUIREMENTS.
 2. CONTRACTOR SHALL PROVIDE ALL SUPPORTING DATA AND ASSUME THE BURDEN OF PROOF THAT ANY SUBSTITUTE IS EQUIVALENT AS TO APPEARANCE, CONSTRUCTION, CAPACITY, AND PERFORMANCE. THE JUDGMENT OF EQUIVALENCY SHALL BE MADE BY THE ENGINEER AT THE TIME OF SHOP DRAWING REVIEW, NOT DURING BIDDING.
 3. WHERE SUBSTITUTE EQUIPMENT REQUIRES REDESIGN OF ANY PART OF THE PROJECT, THE COST OF REDESIGN AND ADDITIONAL COSTS OF THE WORK SHALL BE PAID BY THE CONTRACTOR. REDESIGN SHALL BE SUBJECT TO THE APPROVAL OF ALL AUTHORITIES HAVING JURISDICTION OVER THE WORK INCLUDING THE ARCHITECT/ENGINEER.
D. SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS AND SAMPLE SUBMITTALS:
 1. SEE DIVISION 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR ADDITIONAL REQUIREMENTS.
 2. ELECTRICAL CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
  a. PANELBOARDS
  b. LIGHT FIXTURES
  c. OCCUPANCY SENSORS
 3. INCLUDE OUTLINE AND GENERAL ARRANGEMENT DRAWINGS, DATA SHEETS AND WIRING DIAGRAMS.
 4. SHOP DRAWINGS SHALL CLEARLY INDICATE SPECIFIC MODEL BEING PROVIDED WHERE CUT SHEETS SHOW MULTIPLE MODELS.
 5. LIGHT FIXTURE SHOP DRAWINGS SHALL CLEARLY INDICATE INDENTIFICATION TAG AS INDICATED IN LIGHT FIXTURE SCHEDULE. ALL OPTIONS, ACCESSORIES AND FINISHES BEING PROVIDED SHALL BE CLEARLY INDICATED.
 6. SYSTEM WIRING RISER DIAGRAMS SHALL INDICATE ALL COMPONENTS SHOWN ON THE FLOOR PLANS, TYPE AND TERMINATION POINT OF CABLE TO EACH COMPONENT.
 7. PROJECT CLOSEOUT
  a. MARK RECORD DRAWINGS ON A FINAL SET OF DRAWINGS WHICH INCLUDES ALL REVISIONS.
E. FINISHING AND PAINTING
 1. SEE DIVISION 09 91 00 FINISH AND PAINTING FOR ADDITIONAL REQUIREMENTS.
 2. PREPARE EXPOSED CONDUIT, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING IN ROOMS THAT WILL HAVE CEILING AND STRUCTURE PAINTED.
 3. E.C. SHALL PROVIDE A FACTORY OR FIELD APPLIED PRIME AND FINISH COAT OF COLOR SELECTED BY THE OWNER'S REPRESENTATIVE TO ALL ROOF MOUNTED EQUIPMENT AND OTHER EXTERIOR MATERIALS, INCLUDING SUPPORT HARDWARE.
 4. COORDINATE WORK WITH THE PAINTERS SO THAT ALL EQUIPMENT IS INSTALLED PRIOR TO PAINTING. E.C. SHALL PAINT ITEMS IF NOT IN PLACE PRIOR TO NORMAL ROUTINE PAINTING.
 5. IF FINISH BECOMES RUSTED, CORRODED, SCRATCHED, OR FLAKED DURING STORAGE OR INSTALLATION, REFINISH THE EQUIPMENT TO THE SATISFACTION OF THE OWNER.
 6. WHERE THE ELECTRICAL CONTRACTOR IS REQUIRED TO PAINT, THE PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINTING PORTION OF THE ARCHITECTURAL SPECIFICATION.
F. DETAILS AND SCHEDULES ARE SHOWN TO AID THE CONTRACTOR AND ARE NOT MEANT TO BE INCLUSIVE OF ALL DEVICES. PROVIDE REQUIRED EQUIPMENT AND ACCESSORIES FOR A COMPLETE INSTALLATION.
G. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS. PROVIDE ADDITIONAL WORK AND MATERIALS AS REQUIRED.
H. COORDINATE INSTALLATION OF ELECTRICAL WORK WITH THE OTHER CONTRACTORS TO AVOID CONFLICTS WITH OTHER WORK.
I. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITION AT ALL POINTS IN THE BUILDING. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE INSTALLATION.
J. COMPLY WITH THE REQUIREMENTS OF NFPA; NATIONAL, STATE AND LOCAL ELECTRICAL CODES AND LOCAL UTILITY REGULATIONS.
K. MATERIAL SHALL BEAR U.L. AND/OR OTHER APPROVED AGENCY LISTING.
L. INSTALL MOTOR STARTERS/VFDS FURNISHED BY HVAC AND PLUMBING CONTRACTORS, AND WIRE FROM THE POWER SOURCE TO THE STARTER/VFD AND FROM THE STARTER/VFD TO THE MOTOR.
M. VERIFY ELECTRICAL SIZE AND CONNECTION REQUIREMENTS FOR EQUIPMENT FURNISHED BY OTHERS WITH FINAL SHOP DRAWINGS.
N. CONTRACTOR SHALL CALL LOCAL UTILITY LOCATING SERVICE AND CONDUCT A PRIVATE UTILITY LOCATE TO ENSURE THAT ALL ELECTRICAL FEEDERS, BRANCH CIRCUITS, LOW VOLTAGE CABLES AND FIBER OPTIC HAVE BEEN LOCATED BEFORE STARTING SITE DEMOLITION. DESIGN ENGINEER AND GENERAL CONTRACTOR SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN PLAN AND FIELD CONDITIONS PRIOR TO CONSTRUCTION.
O. SCHEDULE REQUIRED POWER, TELEPHONE OR DATA OUTAGES IN OCCUPIED AREAS OF THE BUILDING WITH THE OWNER. CONTRACTOR SHALL WORK UNTIL SERVICE IS RESTORED. OUTAGE WORK SHALL BE PERFORMED DURING NON-WORKING HOURS, WEEKENDS, OR HOLIDAYS.
P. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR ELECTRICAL WORK INSTALLATION UNLESS THIS WORK IS IDENTIFIED TO BE THE WORK OF OTHER CONTRACTORS. PATCHING SHALL MATCH ADJACENT SURFACES. CORE DRILL OR SAW-CUT OPENINGS THROUGH EXISTING CONCRETE.
Q. REMOVE FROM THE JOB SITE ELECTRICAL CONDUIT, PANELS, CABLE, WIRE, EQUIPMENT, ETC. INDICATED BY THE DRAWINGS TO BE DEMOLISHED, UNLESS INDICATED TO BE TURNED OVER TO THE OWNER.
R. PROJECT COMPLETION
 1. CLEAN FIXTURES AND EQUIPMENT AND LEAVE IN PROPER WORKING CONDITION AT THE TIME OF FINAL CLEAN-UP.
S. PROVIDE OPERATING INSTRUCTIONS AS FOLLOWS:
 1. TWO (2) HOURS FOR BUILDING ELECTRICAL SYSTEM.
 2. FOUR (2) HOURS FOR LIGHTING CONTROL BY A MFR'S AUTHORIZED TECHNICIAN.
 3. FOUR (2) HOURS FOR FIRE ALARM SYSTEM. THE SUPPLIER SHALL REVIEW THE FIRE ALARM PANEL SEQUENCES OF OPERATION.
 4. MAINTAIN A RECORD OF OPERATING INSTRUCTION PERIODS.
 5. RECORD A VIDEO OF ALL OPERATING INSTRUCTIONS AND TURN OVER A COPY OF DVD TO OWNER.
T. LOCATION
 1. THE ARCHITECT SHALL RESERVE THE RIGHT TO MAKE OUTLET POSITION CHANGES UP TO 10' BEFORE INSTALLATION WITHOUT ANY ADDITIONAL COST TO PROJECT.
 2. DO NOT LOCATE OUTLETS OR EQUIPMENT WHERE THE USEFULNESS AND/OR OPERATION WILL BE AFFECTED BY THE WORK OF OTHER TRADES, DOOR SWING, COUNTER, EQUIPMENT, ETC.
U. ACCESS
 1. INSTALL EQUIPMENT, JUNCTION BOXES, PULL BOXES AND ACCESSORIES TO PERMIT ACCESS WITHOUT RELOCATING INSTALLED OR YET TO BE INSTALLED EQUIPMENT.
 2. ACCESS PANELS
  a. FURNISH ACCESS PANELS OF ADEQUATE SIZE TO PERMIT SERVICE OF CONCEALED DEVICES. PANELS SHALL BE SUITABLE FOR INSTALLATION IN THE MATERIAL FORMING THE FINISHED SURFACE, WITH FLUSH METAL FRAME, FLUSH HINGED STEEL DOOR, FLUSH SCREWDRIVER OPERATED LATCH.
  b. PANELS UL LISTED TO CONFORM TO THE FIRE RATING OF THE SURFACE INSTALLED IN.
  c. TURN ACCESS PANEL OVER TO CONTRACTOR SKILLED IN THE CONSTRUCTION OF THE SURFACES INVOLVED FOR INSTALLATION.
  d. ARCHITECT TO APPROVE ACCESS PANEL LOCATION PRIOR TO INSTALLATION OF EQUIPMENT REQUIRING ACCESS.
  e. COORDINATE WITH THE OTHER CONTRACTORS AND WHEREVER PRACTICAL, GROUP DEVICES IN SUCH A MANNER SO AS TO MINIMIZE PANELS.
V. EXCAVATION AND BACKFILL.
 1. VERIFY ALL EXISTING UNDERGROUND ELECTRICAL FEEDERS, BRANCH CIRCUITS, LOW VOLTAGE CABLES AND FIBER OPTIC AND PLUMBING PIPING HAVE BEEN LOCATED PRIOR TO EXCAVATION. CONTRACTOR SHALL NOT USE MACHINE EXCAVATORS AROUND EXISTING BURIED ELECTRICAL AND PLUMBING LINES.
 2. EXCAVATE AND BACKFILL TRENCHES FOR ELECTRICAL WORK. BACKFILL AND COMPACTION SHALL MEET REQUIREMENTS SPECIFIED ELSEWHERE.
 3. CONDUIT PASSING UNDER FOOTINGS AND FOUNDATION WALLS ARE ALLOWED WHERE PERMITTED BY NEC. MAINTAIN MINIMUM 1-1/2" CLEARANCE UNDER FOOTINGS AND FOUNDATION WALLS.
 4. BURY CONDUIT AND CABLE A MINIMUM 24" DEEP WITH 6" SAND BED ABOVE AND BELOW, AND WARNING MARKER TAPE MINIMUM 12" ABOVE.
 5. RESTORE EXISTING GROUND, LAWNS, PAVING, WALKS, ETC. TO ORIGINAL CONDITION.
 6. BRANCH CIRCUITS SIZED LESS THAN 100 AMPS MAY BE TRENCHED IN USING A "DITCH WITCH" STYLE TRENCHER OR VIBRATORY PLOW WHERE SOILS ARE SUITABLE FOR SUCH INSTALLATION METHODS AND WHERE ALLOWED BY STATE AND LOCAL CODES AND LOCAL AUTHORITY HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVE INSTALLATION DEPTHS TO THE AUTHORITY HAVING JURISDICTION.
W. DEMOLITION
 1. CONTRACTOR SHALL INCLUDE REMOVAL OF ALL ELECTRICAL MATERIALS BEING DEMOLISHED FROM THE JOBSITE.
 2. ALL FLUORESCENT AND HID LAMPS AND BALLASTS SHALL BE DISPOSED OF IN A MANNER APPROVED BY STATE, FEDERAL, AND E.P.A. STANDARDS.
X. REMODELING IN EXISTING CONSTRUCTION
 1. CONCEAL CONDUIT IN WALLS, ABOVE CEILING, OR BELOW FLOORS.
 2. WHERE IT IS IMPOSSIBLE TO CONCEAL CONDUIT AND WHEN APPROVED BY ARCHITECT, METAL SURFACE RACEWAY MAY BE USED FOR 110 VOLT OR GREATER POWER. PLASTIC SURFACE RACEWAY MAY BE USED UNDER THE FOLLOWING CIRCUMSTANCES:
  a. EACH LINE VOLTAGE CIRCUIT IN THE RACEWAY IS PROVIDED WITH A SEPARATE GREEN GROUND WIRE.
  b. RACEWAY HAS DIVIDERS BETWEEN THE LOW VOLTAGE AND LINE VOLTAGE COMPARTMENTS.
  c. WIRE HOLDDOWN CLIPS ARE PROVIDED IN THE RACEWAY.

26 05 02 UTILITIES

A. MODIFY EXISTING ELECTRIC SERVICE AS SHOWN ON THE DRAWINGS.
B. ASSIST THE OWNER IN APPLYING FOR ELECTRICAL SERVICE AND COORDINATE ANY MODIFICATIONS WITH THE UTILITY COMPANY. PROVIDE METERING EQUIPMENT, TRANSFORMER PAD, AND CONDUIT ROUGH-IN AS REQUIRED BY THE UTILITY.
C. ELECTRIC UTILITY
 1. EXISTING
 2. UTILITY COST BY OWNER.
D. TELEPHONE UTILITIES
 1. EXISTING TELEPHONE SERVICE
 2. TELEPHONE UTILITY COSTS BY OWNER
E. CABLE TELEVISION UTILITY
 1. EXISTING CABLE TELEVISION SERVICE
 2. CABLE UTILITY COSTS BY OWNER

26 05 19 LOW VOLTAGE POWER CONDUCTORS AND CABLES (600V AND LESS)

A. TYPE AND SIZE
 1. NO. 10 & 12: SOLID OR STRANDED COPPER, 600V, THHN/THWN.
 2. NO. 8 TO 3: STRANDED COPPER, 600V, THHN/THWN.
 3. NO. 2 TO 4/0: STRANDED COPPER OR ALUMINUM, 600V, THHN/THWN.
 4. 250 KCMIL AND LARGER: STRANDED COPPER OR ALUMINUM, 600V, XHHW.
 5. MINIMUM BRANCH CIRCUIT WIRE SIZE NO. 12.
 6. CONTROL WIRING: STRANDED COPPER, MINIMUM NO. 14.
 7. GREEN INSULATION, COPPER STRANDED EQUIPMENT GROUND.
 8. NM CABLE SHALL NOT BE PERMITTED.
 9. UF CABLE SHALL NOT BE PERMITTED.
 10. TYPE AC OR MC CABLE SHALL NOT BE PERMITTED.
B. NEUTRALS AND GROUNDS SHALL BE COLOR CODED PER NEC.
C. WIRE COLORS
 1. 120/208-VOLT SYSTEM: PHASE-A (BLACK), PHASE-B (RED), PHASE-C (BLUE).
D. VOLTAGE DROP
 1. AT NO POINT IN THE ELECTRICAL SYSTEM SHALL THERE BE MORE THAN 5 PERCENT TOTAL VOLTAGE DROP.
 2. THE CONTRACTOR SHALL APPROPRIATELY INCREASE THE SIZE OF ALL CIRCUIT CONDUCTORS TO LIMIT VOLTAGE DROP TO 2 PERCENT OR LESS FOR FEEDERS, AND 3 PERCENT OR LESS FOR BRANCH CIRCUITS.
 3. VOLTAGE DROP ON BRANCH CIRCUITS FOR LIGHTING OR RECEPTACLES SHALL BE CALCULATED USING 80 PERCENT AMPACITY OF THE BRANCH CIRCUITS OVERCURRENT PROTECTION DEVICE.
E. PROVIDE GROUND CONDUCTOR(S) WITH EVERY BRANCH CIRCUIT AND EVERY FEEDER.
F. WHEN USING ALUMINUM CONDUCTORS: THE CONTRACTOR SHALL SEAL ALL EXPOSED ALUMINUM WHEN CONDUCTOR IS EXPOSED IN A LUG WITH AN ANTI-OXIDANT COMPOUND. THE CONDUCTORS SHALL BE COMPACT CONCENTRIC STRANDED PURE ALUMINUM CONDUCTORS.
G. PROVIDE A SEPARATE GROUND CONDUCTOR AND A SEPARATE NEUTRAL CONDUCTOR WHEN AN INDIVIDUAL RECEPTACLE OR PIECE OF EQUIPMENT IS SHOWN WITH AN INDIVIDUAL HOMERUN.
H. PROVIDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH LIGHTING BRANCH CIRCUIT THAT SERVES HID, ELECTRONIC FLUORESCENT BALLASTS AND SOLID-STATE LED DRIVERS OR PROVIDE A NEUTRAL CONDUCTOR ONE SIZE LARGER THAN THE LARGEST SOURCE CONDUCTOR WHEN THE NEUTRAL IS SHARED.
I. TESTING: ALL CIRCUITS SHALL BE TESTED FOR PROPER OPERATION AND FUNCTION. REPAIR ALL NON-WORKING, NEWLY INSTALLED, CIRCUITS.
J. VERIFY LUG SIZES AND TERMINATION LOCATION PRIOR TO INSTALLING FEEDERS.

26 05 29 HANGERS AND SUPPORTS

A. CONDUIT HANGERS, ATTACHMENTS, AND SUPPORTS
 1. PROVIDE PROPER FITTINGS AND SUPPORT SUITABLE FOR AMBIENT/ENVIRONMENTAL CONDITIONS AND SERVICE DUTY.
 2. ATTACH TO STRUCTURAL COMPONENTS TO NOT JEOPARDIZE STRUCTURAL INTEGRITY.
 3. PROVIDE ANGLES, CHANNELS, AND BEAMS AS REQUIRED.
B. BACKBOARDS
 1. 3/4" PLYWOOD PAINTED ON BOTH SIDES AND EDGES WITH TWO COATS OF WHITE ENAMEL PAINT TO MOUNT EQUIPMENT WHERE SHOWN.
 2. SUPPORT WITH PAINTED OR GALVANIZED STEEL CHANNEL.
C. CONCRETE PADS
 1. COORDINATE FINAL EQUIPMENT CONCRETE PAD SIZE REQUIREMENTS. PADS SHALL EXTEND MINIMUM 2" BEYOND EQUIPMENT FOOTPRINT.

26 05 30 CONDUIT

A. RMC
 1. ALLOWED FOR ALL SIZES BELOW GRADE AND INSIDE ABOVE GRADE.
 2. REQUIRED WHERE CALLED OUT ON PLANS.
 3. REQUIRED FOR ALL SIZES OF OUTDOOR ABOVE GRADE CONDUIT.
 4. GALVANIZED RIGID STEEL REQUIRED FOR ALL UNDERGROUND 90 DEGREE BENDS.
 5. GALVANIZED RIGID STEEL WITH GALVANIZED RIGID STEEL FITTINGS, THREADED WATERTIGHT.
B. EMT
 1. ALLOWED FOR INSIDE ABOVE GRADE CONDUIT 2" AND SMALLER.
 2. STEEL SET SCREW OR COMPRESSION TYPE FITTINGS WITH INSULATED THROAT.
 3. CAST METAL SET SCREW FITTINGS NOT ALLOWED.
C. ENT
 1. SIZES: MINIMUM 1/2", MAXIMUM 1".
 2. ALLOWED FOR ABOVE GRADE CONDUIT WHICH IS CONCEALED INSIDE NON-RATED WALLS AND WHERE PERMITTED BY CODE AND LOCAL AUTHORITY HAVING JURISDICTION.
 3. SUPPORT MINIMUM EVERY TWO FEET.
D. FLEXIBLE
 1. MINIMUM SIZE 1/2".
 2. MAXIMUM LENGTH 36" FOR CONNECTION TO HVAC EQUIPMENT
 3. MAXIMUM LENGTH 72" FOR CONNECTION TO FIXTURES IN TILE CEILINGS.
 4. STEEL FITTINGS WITH INSULATED THROAT, UL LISTED.
E. PVC
 1. USE FOR CONDUIT IN CONCRETE, UNDER FLOOR SLABS, OR IN EARTH WHEN PERMITTED BY CODE AND LOCAL ORDINANCES.
 2. MINIMUM SIZE 3/4".
 3. SCHEDULE 40 PVC.
F. FITTINGS
 1. FITTING MATERIAL SHALL MATCH CONDUIT MATERIAL UNLESS OTHERWISE NOTED IN PLANS AND SPECIFICATIONS OR WITH WRITTEN APPROVAL BY ENGINEER.
G. INSTALLATION
 1. DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF CONDUIT. THE DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS AS REQUIRED FOR FIELD CONDITIONS. ROUTE CONDUIT IN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE. CONCEAL CONDUIT IN FINISHED AREAS.
 2. INSTALL UL APPROVED EXPANSION FITTINGS COMPLETE WITH GROUNDING JUMPERS WHERE CONDUITS CROSS BUILDINGS EXPANSION JOINTS AND IN LONG CONDUIT RUNS WHERE DIFFERENTIAL EXPANSION OR CONTRACTION WOULD CAUSE BENDING OR SEPARATION.
 3. WHERE CONDUIT IS INSTALLED IN EXISTING WALLS, FLOORS OR HARD CEILINGS THE CONTRACTOR SHALL CUT AND PATCH SURFACES TO MATCH EXISTING FOR INSTALLING CONDUIT AND RACEWAYS. THE CUTTING AND PATCHING SHALL BE DONE BY THIS CONTRACTOR TO THE SATIFACTION OF THE GENERAL CONTRACTOR.
 4. INSTALL CONDUIT WITH ADEQUATE DRAINAGE.
 5. PROVIDE PULL STRING IN ALL EMPTY CONDUITS.
 6. WHEN REQUIRED BY STATE AND LOCAL CODES AND ORDINANCES, PROVIDE SEPARATE CONDUIT/RACEWAY FOR FIRE ALARM AND TELECOMMUNICATION SYSTEMS.
 7. ROUTE CONDUIT ABOVE LAY-IN SUSPENDED CEILINGS SO AS NOT TO INTERFERE WITH TILE REMOVAL.
 8. INSTALL FLEXIBLE STEEL CONDUIT DROPS FROM INDEPENDENT JUNCTION BOX MOUNTED ABOVE CEILING TO RECESSED LIGHT FIXTURES.
 9. SECURE CONDUITS WITH AT LEAST ONE CORROSION PROOF MALLEABLE ALLOY STRAP OR HANGER EVERY 8 FT. DO NOT USE PERFORATED STRAPPING.
 10. PROVIDE UL LISTED FIRE-WALL PENETRATIONS WHEN CONDUIT PASS THROUGH A FIRE RATED WALL.

26 05 33 BOXES

A. FLUSH INTERIOR 4" SQUARE STEEL BOXES WITH RAISED COVERS AND SQUARE CUT CORNERS. PROVIDE BOXES RATED FOR THROUGH FEED.
B. PROVIDE CAST BOXES FOR EXTERIOR USE DEVICES. PROVIDE COVERS WITH GASKETS.
C. JUNCTION AND SPLICE BOXES SHALL HAVE GALVANIZED SCREW COVERS AND BE NOT LESS THAN CODE DIMENSIONS. THROUGH-WALL AND BACK-TO-BACK BOXES NOT ALLOWED.
D. OUTLET AND JUNCTION BOXES USED AS SURFACE METAL RACEWAY SHALL BE MANUFACTURED BY THE SURFACE METAL RACEWAY MANUFACTURER TO BE COMPATIBLE WITH THE RACEWAY USED.
E. VERIFY LOCATION PRIOR TO ROUGH-IN. MATCH THE HEIGHT OF EXISTING DEVICES FOR INSTALLATIONS IN ADDITIONS TO EXISTING FACILITIES.
F. SURFACE MOUNT RECEPTACLES AND OTHER ELECTRICAL DEVICES IN COOLERS/FREEZERS.

26 05 35 PENETRATIONS

A. SLEEVES
 1. FURNISH RIGID CONDUIT SLEEVES FOR CABLES PASSING THROUGH MASONRY, CONCRETE, OR OTHER SIMILAR CONSTRUCTION.
 2. FURNISH SLEEVE TO MASON FOR NEW MASONRY WALLS.
 3. FURNISH, INSTALL, AND GROUT SLEEVE IN EXISTING MASONRY AND NEW CONCRETE WALLS.
 4. SLEEVE NOT REQUIRED FOR DRYWALL WALLS OR CORE DRILLED HOLE IN CONCRETE WALL.
B. NON-FIRE RATED INTERIOR WALL AND FLOOR PENETRATIONS: FILL VOID BETWEEN CONDUIT AND SLEEVE, CONCRETE, OR DRYWALL WITH EXPANDING POLYURETHANE FOAM. CAULK BETWEEN CONDUIT AND SLEEVE OR WALL WITH NON-HARDENING CAULK.
C. FIRE RATED INTERIOR WALL AND FLOOR PENETRATIONS: SEAL OPENING AROUND PIPE WITH A UL APPROVED FIRE-STOP SYSTEM HAVING AN F-RATING NOT LESS THAN THE HOURLY RATING OF THE ASSEMBLY BEING PENETRATED.
D. SMOKE WALL PENETRATIONS: CONDUITS OR CABLES PENETRATING PENETRATION SHALL NOT DESTROY THE BARRIER'S INTEGRITY.
E. CONTRACTOR SHALL USE CAUTION PRIOR TO MAKING PENETRATIONS AS TO NOT DISTURB ANY EXISTING UTILITIES THAT MIGHT BE PRESENT IN EXISTING WALLS, CEILINGS OR FLOORS. THIS CONTRACTOR IS RESPONSIBLE FOR LOCATING EXISTING UTILITIES IN EXISTING WALLS, CEILINGS OR FLOORS.
F. SEAL ALL RACEWAY, CABLE AND CONDUIT PENETRATIONS THROUGH ALL WALLS IN THE ELECTRICAL ROOM(S).
G. SEAL COOLER/FREEZER CONDUIT PENETRATIONS PER DETAILS.

26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. ENGRAVED LABELS: ENGRAVED 3-LAYER PHENOLIC LABEL WITH BLACK LETTERS ON WHITE MATERIAL, UNLESS OTHER COLORS ARE CALLED OUT ON THE DRAWINGS OR DETAILS. LABELS MINIMUM 3/4" HIGH AND 3" LONG. LABELS MAY BE ATTACHED WITH DOUBLE BACKED ADHESIVE TAPE UNLESS INDICATED OTHERWISE. LABELS REQUIRED AT:
 1. DISTRIBUTION PANELBOARDS
  a. LABEL MOUNTED AT THE TOP OF THE MAIN SECTION TO INCLUDE:
   1). BOARD DESIGNATION
   2). VOLTAGE
   3). BUS AMPERE RATING.
   4). INTERRUPTING RATING
   5). FAULT CURRENT AMPERE RATING
   6). "FED FROM" LABEL.
  b. PROVIDE LABEL ADJACENT TO EACH OVERCURRENT DEVICE. LABEL SHALL INCLUDE:
   1). LOAD IDENTITY OR "SPARE"
   2). WHERE THE LOAD IS A SINGLE MOTOR, IDENTIFY MOTOR HP
 2. PANELBOARDS:
  a. MOUNT IDENTIFICATION LABEL AT THE TOP OF THE FRONT COVER. MOUNT ON THE INSIDE OF DOOR FOR RECESSED PANELBOARDS.
  b. FAULT CURRENT AMPERE RATING
  c. "FED FROM" LABEL.
 3. DISCONNECTS:
  a. LABEL EQUIPMENT THAT IT SERVES.
  b. "FED FROM" LABEL.
 4. LIGHTING CONTROL PANELS:
  a. MOUNT IDENTIFICATION LABEL AT THE TOP OF THE FRONT COVER.
  b. PROVIDE "CIRCUITS CONTROLLED ARE FED FROM" LABEL.
B. PROVIDE TYPEWRITTEN DIRECTORY ACCURATELY INDICATING ROOMS AND/OR EQUIPMENT BEING SERVED AT THE FOLLOWING LOCATIONS:
 1. PANELBOARDS
 2. LIGHTING CONTROL PANELS.
C. PROVIDE ARC-FAULT LABELS ON ALL SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS, MOTOR CONTROL CENTERS, DISCONNECTS AND STARTERS.
 1. LABEL SHALL MEET THE MOST CURRENT NFPA 70E REQUIREMENTS
 2. PROVIDE COLORED LABELS. VERIFY LABEL TYPE IS ACCEPTABLE TO THE OWNER'S REPRESENTATIVE PRIOR TO FURNISHING.

26 24 16 PANELBOARDS

A. MANUFACTURER:
 1. EATON CUTLER HAMMER
 2. GENERAL ELECTRIC
 3. ITE — SIEMENS
 4. SQUARE D
B. CABINET
 1. NEMA 1 CABINET, OR AS LISTED IN PANEL SCHEDULES, CODE GAUGE STEEL CONSISTING OF A BOX WITH A REMOVABLE FRONT WITH HINGED DOOR AND LATCH.
 2. FABRICATE WITH STRAIGHT EDGES AND SQUARE CORNERS.
 3. BOXES SHALL BE MINIMUM 20" WIDE.
 4. MANUFACTURER'S STANDARD FINISH, PRIME COAT AND BAKED ENAMEL FINISH.
 5. RECESSED DOUBLE TUB PANELBOARDS SHALL HAVE TUBS OF THE SAME HEIGHT.
C. PROVIDE A NAMEPLATE LISTING OF THE PANEL TYPE AND NUMBER OF PROTECTIVE AND SWITCHING DEVICES AND RATINGS.
D. BUS BARS FOR THE MAINS SHALL BE COPPER OR ALUMINUM SIZED IN ACCORDANCE WITH UL STANDARDS. INCLUDE FULL SIZE NEUTRAL BARS UNLESS OTHERWISE NOTED. PROVIDE GROUND BUS.
E. NEUTRAL BUSSING SHALL HAVE ONE LUG FOR EVERY BRANCH CIRCUIT THAT THE PANELBOARD IS CAPABLE OF SUPPORTING.
F. BUS SPACES FOR FUTURE SWITCHING AND PROTECTIVE DEVICES FOR THE MAXIMUM DEVICES AND SWITCHES THAT THE PANELBOARD CAN ACCOMMODATE.
G. CIRCUIT BREAKERS:
 1. UNLESS INDICATED OTHERWISE, CIRCUIT BREAKERS SHALL BE PLUG-ON, INDIVIDUALLY REPLACEABLE, THERMAL-MAGNETIC, AUTOMATIC FREE TRIPPING, SEPARATELY INDICATING "ON", "TRIPPED", AND "OFF", AMBIENT COMPENSATED AT 40 DEGREES C., SINGLE, DOUBLE, OR TRIPLE POLE, AS REQUIRED BY THE PANEL SCHEDULES.
 2. CIRCUIT BREAKERS INDICATED AS MULTIPLE POLE SHALL BE COMMON TRIP.
 3. SHUNT TRIP BREAKERS SHALL HAVE INTEGRAL RELAYS.
H. PROVIDE FOUR (4) ONE-INCH CONDUIT STUBS FROM PANELBOARD TO AN ACCESSIBLE SPACE FOR EACH RECESSED PANELBOARD.

26 27 26 WIRING DEVICES

A. MANUFACTURERS: COOPER, HUBBELL, LEVITON AND PASS & SEYMOUR.
B. COLOR
 1. SWITCH AND RECEPTACLE COLORS SHALL BE WHITE, VERIFY COLOR WITH OWNER.
C. COVER PLATE COLORS IN DINING/OFFICE AREAS SHALL BE WHITE, VERIFY COLOR WITH OWNER.
D. COVER PLATE COLORS IN KITCHEN/BACK OF HOUSE AREAS SHALL BE BRUSHED STAINLESS, VERIFY COLOR WITH OWNER.
E. WALL SWITCHES:
 1. 20-AMPERE HUBBELL 1221 SINGLE POLE, 1223 THREE-WAY AND 1224 FOUR-WAY.
 2. SEE LEGEND FOR MOUNTING HEIGHTS.
 3. PROVIDE PILOT LIGHT SWITCHES WHERE INDICATED.
F. DIMMERS:
 1. 20 AMPERE SLIDE DIMMER WITH INTEGRAL ON/OFF SWITCH. DIMMER SHALL BE RATED FOR AN LED LOAD OF 1200 WATTS MINIMUM, UNLESS NOTED OTHERWISE.
 2. FOR LED DIMMING LOADS GREATER THAT 1200W PROVIDE LEVITON AWSMT-7DW OR APPROVED EQUIVALENT. PROVIDE COLOR CHANGE KIT AS NECESSARY TO MEET DEVICE COLOR SPECIFICATIONS.
 3. DIMMERS RATED OVER 1200W SHALL NOT BE MULTI-GANGED. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
 4. CONTRACTOR SHALL VERIFY WITH THEIR SUPPLIER(S) ALL DIMMERS AND DIMMABLE FIXTURES ARE 100% COMPATIBLE.
G. RECEPTACLES:
 1. DUPLEX GROUNDED RECEPTACLES, 20 AMPERE SPECIFICATION GRADE, HUBBELL 5362.
 2. GFCI RECEPTACLES: 20-AMPERE HUBBELL SPECIFICATION GRADE WITH LOCK OUT CAPABILITY UPON GFCI FAILURE.
 3. USB CHARGER DUPLEX RECEPTACLE, 20 AMPERE WITH 2 USB 3 AMP CHARGING PORTS, LEVITON T5832.
 4. EXTERIOR RECEPTACLES SHALL BE MARKED "WEATHER-RESISTANT" PER NEC.
 5. SEE LEGEND FOR MOUNTING HEIGHTS.
 6. MATCH EXISTING MOUNTING HEIGHTS IN EXISTING BUILDINGS WHERE HEIGHTS COMPLY WITH ADA.
 7. REVIEW RECEPTACLE LAYOUT WITH OWNER PRIOR TO ROUGH-IN.
 8. VERIFY ACTUAL LOCATION OF EQUIPMENT WITH OWNER PRIOR TO ROUGH-IN.
 9. MAKE CONNECTIONS THROUGH THE USE OF PIG-TAILS.
H. COVER PLATES
 1. INTERIOR: SMOOTH NYLON MATERIAL.
 2. KITCHENS: BRUSHED STAINLESS STEEL.
 3. MECHANICAL EQUIPMENT ROOM: STEEL.
 4. EXTERIOR: WEATHER-PROOF, GASKETED, LIFT COVER. RECEPTACLE COVER SHALL ALLOW CONTINUED USE WHEN COVER IS CLOSED.
I. BLANK, TELEVISION AND TELEPHONE OUTLETS: 4" SQUARE EXTRA DEEP BOX, SINGLE GANG RING AND BLANK COVER PLATE. PROVIDE CONDUIT FROM EACH BOX INTO AN ACCESSIBLE SPACE. TERMINATE CONDUIT WITH INSULATED CONNECTORS ON BOTH ENDS.

SHEET INDEX

NUMBER	SHEET NAME
ELECTRICAL	
E0.1	LEGEND AND SPECIFICATIONS
E0.2	SPECIFICATIONS
E0.3	SPECIFICATIONS
E1.1L	FIRST FLOOR PLAN - LIGHTING
E1.1P	FIRST FLOOR PLAN - POWER
E1.1S	FIRST FLOOR PLAN - SYSTEMS
E1.2	ROOF PLAN
E3.0	DETAILS
E4.0	ONELINE DIAGRAMS & SCHEDULES
E4.1	PANEL SCHEDULES

LEGEND

NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS. ALL MOUNTING HEIGHTS ARE TYPICAL UNLESS NOTED OTHERWISE.

SYM.	IDENTIFICATION	SYM.	IDENTIFICATION
LIGHTING			
	RECESSED, SURFACE, OR PENDANT MOUNTED LIGHT FIXTURE		EMERGENCY LIGHT MOUNT 11'-0" AFF. TO TOP OR 8" BELOW CEILING, WHICHEVER IS LOWER
	WALL MOUNTED LIGHT FIXTURE. MOUNT 7'-0" AFF. OR 8" ABOVE MIRROR		RECESSED EMERGENCY LIGHT
	RECESSED, SURFACE MOUNTED, OR CHAIN HUNG LIGHT FIXTURE	E	EXIT LIGHT
	PENDANT FIXTURE		OCCUPANCY SENSOR
	EXTERIOR WALL MOUNTED OR INTEROR WALL WASH FIXTURE		WALL MOUNTED OCCUPANCY SENSOR WITH SWITCH D = DIMMER
	SINGLE HEAD POLE		DUAL LEVEL/CIRCUIT OCCUPANCY SENSOR WITH SWITCH
	TWIN HEAD POLE MOUNTED FIXTURE	PC	PHOTO CONTROL
WIRING DEVICES			
$	SINGLE POLE SWITCH. MOUNT 46" AFF. TO CENTER, 3 = 3 WAY, 4 = 4 WAY, P = PILOT, D = DIMMER, K = KEYED	MW	DUPLEX RECEPTACLE. MOUNT IN CABINET BEHIND MICROWAVE, FIELD VERIFY HEIGHT
$$	DUAL LEVEL SWITCH. MOUNT 46" AFF. TO CENTER SEE DETAIL		POWER RECEPTACLE. MOUNT 18" AFF. TO CENTER
$	LOW VOLTAGE SWITCH. MOUNT 46" AFF. TO CENTER		SWITCH BOTTOM HALF OF RECEPTACLE, TOP HALF UNSWITCHED
	SIMPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER		SPECIAL OUTLET
	DUPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER	J	JUNCTION BOX
	DOUBLE DUPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER		SWITCH BOTTOM HALF OF GFI RECEPTACLE, TOP HALF UNSWITCHED
	GFI DUPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER		DUPLEX RECEPTACLE SURFACE MOUNTED CLG = CEILING/SOFFIT MOUNTED
	GFI DOUBLE DUPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER		BLANK BOX 4" EXTRA DEEP BOX, SINGLE GANG RING, BLANKPLATE, 1" C STUB INTO ACCESSIBLE SPACE, MOUNT 18" AFF. TO CENTER
	DUPLEX RECEPTACLE MOUNT VERTICALLY 6" ABOVE BACKSPLASH TO CENTER. IF NO BACKSPLASH MOUNT 6" ABOVE COUNTER		ABOVE COUNTER BLANK BOX, 4" EXTRA DEEP BOX, SINGLE GANG RING, BLANKPLATE, 1"C STUBBED INTO ACCESSIBLE SPACE, MOUNT 6" ABOVE BACKSPLASH TO CENTER
	GFI DUPLEX RECEPTACLE MOUNT VERTICALLY 6" ABOVE BACKSPLASH TO CENTER. IF NO BACKSPLASH MOUNT 6" ABOVE COUNTER		COMBINATION FLOOR OUTLET/BLANK JUNCTION BOX - WIREMOLD - RESOURCE RFB/SERIES OR EQUIVALENT, 1" C STUB INTO ACCESSIBLE SPACE
MOTORS / MOTOR CONTROL / EQUIPMENT			
	DISCONNECT FURNISHED BY EC F = FUSIBLE	MS	MANUAL STARTER
	NON-COMBINATION STARTER		MOTOR CONNECTION
	COMBINATION STARTER		MOTOR CONNECTION REQUIRING REMOTE STARTER/VFD
	SURFACE MOUNTED PANELBOARD		EQUIPMENT CONNECTION
	RECESSED PANELBOARD		SURFACE MOUNTED RACEWAY
FIRE ALARM / LIFE SAFETY			
S	STROBE. MOUNT 84" AFF. TO TOP OR 6" BELOW CEILING WHICHEVER IS LOWER	M	MAGNETIC DOOR HOLDER
	HORN/STROBE. MOUNT 84" AFF. TO TOP OR 6" BELOW CEILING WHICHEVER IS LOWER	TS	SPRINKLER TAMPER SWITCH
	HORN (SOUNDER). MOUNT 84" AFF. TO TOP OR 6" BELOW CEILING WHICHEVER IS LOWER	FACP	FIRE ALARM CONTROL PANEL
F	PULL STATION. MOUNT 46" AFF. TO CENTER	FAA	FIRE ALARM ANNUNCIATOR PANEL
H	HEAT DETECTOR	Co	CARBON MONOXIDE DETECTOR
S	SMOKE DETECTOR	S_D	DUCT SMOKE DETECTOR
MISCELLANEOUS			
	CONDUIT STUB THROUGH WALL BUSHED EACH END		PUSHBUTTON, PROVIDE JUNCTION BOX AND CONDUIT, MOUNT AT SWITCH HEIGHT
	CONDUIT WITH BUSHING ON END.		
	ELECTRICAL HOMERUN, CIRCUIT AS SHOWN		ITEMS AND/OR DEVICES CIRCUITED TOGETHER
*PNL-X	SHARED ELECTRICAL HOMERUN WHEN WIRE TAG HAS (*) ASTERISK PRECEDING PANEL-CIRCUIT INFO		ITEMS AND/OR DEVICES CIRCUITED TOGETHER, BUT SWITCHED SEPARATELY
	RELAY CIRCUIT		DETAIL OR SECTION NUMBER SHEET NUMBER
ABBREVIATIONS			
AC	ABOVE COUNTER	HC	HVAC CONTRACTOR
AFF.	ABOVE FINISHED FLOOR	IG	ISOLATED GROUND
AFG	ABOVE FINISHED GRADE	IMP	INSULATED METAL PANEL
DISC	DISCONNECT	LCP	LIGHTING CONTROL PANEL
DW	DISHWASHER	NL	NIGHT LIGHT
EC	ELECTRICAL CONTRACTOR	NTS	NOT TO SCALE
ELEV	ELEVATION	OC	ON CENTER
EM	EMERGENCY	PC	PLUMBING CONTRACTOR
ETR	EXISTING TO REMAIN	PNL	PANELBOARD
FPC	FIRE PROTECTION CONTRACTOR	REF	REFRIGERATOR
GC	GENERAL CONTRACTOR/CONSTRUCTION MANAGER	UC	UNDER COUNTER
REL	RELOCATED	UNO	UNLESS NOTED OTHERWISE
4X	NEMA 4X	3R	NEMA 3R
		XFMR	TRANSFORMER
FIRE RATED WALLS			
	FIRE - 1 HOUR		FIRE - 3 HOUR
	FIRE - 2 HOUR		FIRE - 4 HOUR
SECURITY			
DC	DOOR CONTACT	K	KEY PAD
ES	ELECTRIC STRIKE	I	INTERCOM
CR	CARD READER		SECURITY CAMERA. SINGLE GANG BOX WITH (1) DATA CABLE TO DATA RACK COIL 5' 0" OF CABLE AT EACH END PER SPECIFICATIONS.
COMMUNICATION			
▼	TELEPHONE OUTLET, 1" C. STUB INTO ACCESSIBLE SPACE, W = WALL MOUNT 52" AFF. TO CENTER		CEILING MOUNTED SPEAKER
x ▽	DATA OUTLET, 1" C STUB INTO ACCESSIBLE SPACE, CAT6E TO DATA RACK X = NUMBER OF DATA DROPS PER BOX		WALL MOUNTED SPEAKER
	COMBINATION TELEPHONE/DATA, 1" C STUB INTO ACCESSIBLE SPACE	TV	TELEVISION OUTLET MOUNT 18" AFF. TO CENTER
V	LOCAL VOLUME CONTROL		

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES
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ELECTRICAL LEGEND AND SPECIFICATIONS

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ELECTRICAL SPECIFICATIONS (CONT.)

26 27 27 OCCUPANCY SENSORS / VACANCY SENSORS

A. MANUFACTURERS: COOPER, HUBBELL, LEVITON, SENSOR SWITCH, & THE WATT STOPPER.
  1. COLOR:
    a. WALL MOUNTED SENSORS SHALL BE THE SAME COLOR AS WIRING DEVICES. REFERENCE SPECIFICATION SECTION 26 27 26.
    b. CEILING MOUNTED SENSORS SHALL MATCH COLOR OF CEILING THEY'RE INSTALLED ON.
  2. SHALL BE FROM THE SAME MANUFACTURER AS THE WIRING DEVICES.
B. SENSOR TECHNOLOGY
  1. ULTRASONIC (US).
    a. RESTROOMS
    b. HALLWAYS
  2. PASSIVE INFRARED (PIR).
    a. STORAGE ROOMS
  3. DUAL TECHNOLOGY (PASSIVE INFRARED & ULTRASONIC)
    a. OFFICES
    b. OTHER SPACES
C. SENSOR PERFORMANCE
  1. INFRARED:
    a. UTILIZE MULTIPLE SEGMENTED LENS, WITH INTERNAL GROOVES TO ELIMINATE DUST AND RESIDUE BUILD-UP.
  2. ULTRASONIC:
    a. UTILIZE AN OPERATING FREQUENCY OF 32 KHZ OR 40 KHZ THAT SHALL BE CRYSTAL CONTROLLED TO OPERATE WITHIN PLUS OR MINUS 0.005% TOLERANCE. UTILIZE DOPPLER SHIFT ULTRASONIC DETECTION TECHNOLOGY.
  3. DUAL TECHNOLOGY:
    a. UTILIZE MULTIPLE SEGMENTED LENS, WITH INTERNAL GROOVES TO ELIMINATE DUST AND RESIDUE BUILD-UP.
    b. UTILIZE AN OPERATING FREQUENCY OF 32 KHZ OR 40 KHZ THAT SHALL BE CRYSTAL CONTROLLED TO OPERATE WITHIN PLUS OR MINUS 0.005% TOLERANCE.
    c. INCORPORATE DOPPLER SHIFT ULTRASONIC AND PASSIVE INFRARED MOTION DETECTION TECHNOLOGIES. PRODUCTS THAT REACT TO NOISE OR AMBIENT SOUND SHALL NOT BE CONSIDERED.
  4. SENSOR DEVICES SHALL HAVE EITHER INTEGRAL DUAL RELAYS OR CONTROL SEPARATE DUAL RELAY POWER PACKS TO ACHIEVE DUAL LEVEL LIGHTING WHEN DUAL LEVEL CONTROL IS INDICATED.
  5. INTEGRAL ADJUSTABLE LIGHT LEVEL SENSOR WITH CAPACITY TO CONTROL ONE OR MORE RELAY WHEN THE SELECTED ADEQUATE DAYLIGHT IS PRESENT.
  6. UTILIZE ZERO CROSSING CIRCUITRY WHICH INCREASES RELAY LIFE AND SENSORS LONGEVITY.
  7. SHOULD POWER BE INTERRUPTED AND SUBSEQUENTLY RESTORED, SETTINGS AND PARAMETERS SAVED IN PROTECTED MEMORY SHALL NOT BE LOST.
  8. SENSORS SHALL BE SIZED FOR THE ROOM THEY SERVE BY MANUFACTURER'S VENDOR OR COVER 1,500 SQUARE FEET WITH STANDARD LENS AND UP TO 90 LINEAR FEET WITH LONG RANGE LENS FOR WALKING MOTION WHEN MOUNTED AT A CEILING HEIGHT OF 12 FEET.
  9. INDEPENDENT SENSITIVITY ADJUSTMENTS AND LED DISPLAY FOR EACH SENSING TECHNOLOGY.
  10. SENSOR SHALL HAVE STANDARD 5 YEAR WARRANTY AND BE UL LISTED.
D. CONTROL STRATEGIES
  1. AUTOMATIC CONTROLS SHALL BE MANUAL ON, OR SHALL TURN ON NOT MORE THAN 50% OF THE OF THE CONTROLLED LAMPS WITH THE REMAINING LAMPS BEING CONTROLLED MANUALLY.
    a. EXCEPTION: PUBLIC CORRIDORS, STAIRWAYS, RESTROOMS, PRIMARY ENTRANCES AND LOBBIES SHALL HAVE FULL ON AUTOMATIC CONTROLS.
  2. AUTOMATIC CONTROLS SHALL TURN LIGHTS OFF WITHIN 30 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.
  3. RETRIGGER TIME DELAY: ONLY ONE MOTION IS NECESSARY TO TURN ON THE LIGHTS WITHIN 5 SECONDS AFTER TURNING OFF.
  4. E.C. SHALL INCLUDE TIME IN HIS BID TO WORK WITH THE OWNER AND MANUFACTURER TO DETERMINE THE PROPER TIME AND SENSOR SETTINGS FOR EACH SENSOR IN THE SPACES IN WHICH THEY OPERATE. INCLUDE TIME IN BID TO HAVE THE MANUFACTURER'S REPRESENTATIVE ON SITE AND REVIEW THE JOB TO DETERMINE WHAT THE EXPECTED EQUIPMENT SETTINGS SHOULD BE.

26 28 16 ENCLOSED DISCONNECT SWITCHES

A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
B. NONFUSIBLE SWITCH: TYPE GD WITH LOCKABLE HANDLE.
C. FUSIBLE SWITCH: TYPE HD WITH CLIPS TO ACCOMMODATE FUSES. HANDLE LOCKABLE IN OPEN AND CLOSED POSITION. HANDLE INTERLOCKED WITH COVER IN CLOSED POSITION WITH INTERLOCK BYPASS.
D. ENCLOSURES: NEMA AB 1 AND NEMA KS 1 TO MEET ENVIRONMENTAL CONDITIONS OF INSTALLED LOCATION.
  1. OUTDOOR LOCATIONS: NEMA 250 TYPE 3R.
  2. KITCHEN AREAS: NEMA 250 TYPE 4X, STAINLESS STEEL.
  3. OTHER WET OR DAMP INDOOR LOCATIONS: NEMA 250 TYPE 4.
  4. HAZARDOUS AREAS INDICATED ON DRAWINGS: NEMA 250 TYPE 7C
E. MANUFACTURER'S STANDARD PRIME-COAT FINISH READY FOR FIELD PAINTING.
F. LABEL EACH ENCLOSURE WITH ENGRAVED METAL OR LAMINATED-PLASTIC NAMEPLATE MOUNTED WITH CORROSION-RESISTANT SCREWS.
G. INSTALL EQUIPMENT GROUNDING CONNECTIONS FOR SWITCHES AND CIRCUIT BREAKERS WITH GROUND CONTINUITY TO MAIN ELECTRICAL GROUND BUS.
H. DEMONSTRATE PRODUCT CAPABILITY AND COMPLIANCE WITH REQUIREMENTS AFTER INSTALLATION AND AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED.
  1. PERFORM VISUAL AND MECHANICAL INSPECTION AND ELECTRICAL TEST. CERTIFY COMPLIANCE WITH TEST PARAMETERS.
  2. CORRECT MALFUNCTIONING UNITS, ON-SITE WHERE POSSIBLE, AND RETEST TO DEMONSTRATE COMPLIANCE.

26 43 13 SURGE PROTECTION DEVICE

A. ACCEPTABLE MANUFACTURERS: APT, CUTLER HAMMER, CURRENT TECHNOLOGIES, LIEBERT, SQUARE D.
B. PROVIDE SURGE PROTECTION DEVICE, EXTERNALLY MOUNTED, FOR MAINBOARD(S) AND PANELBOARD(S) DESIGNATED ON THE ONELINE DIAGRAM. PROVIDE 60-AMP FEEDS FOR THE MAINBOARDS AND 30-AMP FEEDS FOR THE PANELBOARDS.
C. LENGTH OF CONDUCTORS FEEDING FREE STANDING UNITS EXCEEDING 3-FEET IN LENGTH SHALL BE INCREASED TWO CONDUCTOR SIZES AND SHALL NOT EXCEED 6-FEET.
D. SHOP DRAWING SUBMITTAL: PROVIDE A UL COMPLIANCE LETTER, OR A COPY OF LISTING CLASSIFICATION PAGE FROM THE UL ENGINEERING FILE.
E. UL 1449 THIRD EDITION, 1283 LISTED, AND IEEE C62.45 LISTED, MINIMUM 5 YEAR WARRANTY, REPLACEABLE MODULES. THE UNIT SHALL BE UL LISTED AND CARRY THE UL LABEL.
F. UNITS SHALL BE FREE STANDING.
G. EACH METAL OXIDE VARISTORS (MOV) SHALL BE INDIVIDUALLY FUSED OR SURGE RATED FUSES AND THERMAL CUTOUTS COORDINATED TO THE MOV FAILURE MODE CHARACTERISTICS SHALL BE PROVIDED.
H. THE UNIT SHALL BE UL 1283 LISTED AS AN ELECTROMAGNETIC INTERFERENCE FILTER.
I. FRONT PANEL ALARM WITH TEST SILENCE SWITCH.
J. OPERATIONAL INDICATORS TO INDICATE "CIRCUIT OPERATIONAL", "REDUCED PROTECTION", "LOSS OF PROTECTION".
K. THE SURGE PROTECTION DEVICE SHALL MAINTAIN MECHANICAL INTEGRITY DURING FAILURE MODE CONDITIONS.
L. MAINBOARD SURGE PROTECTION
  1. CAPABLE OF SURVIVING MORE THAN 12,000 CATEGORY C3 TRANSIENTS WITHOUT FAILURE OR DEGRADATION OF UL 1449 SUPPRESSION VOLTAGE RATING.
  2. SUITABLE FOR IEEE C62.41 CATEGORY C3 ENVIRONMENTS.
  3. PARALLEL CONNECTED FOR C3 APPLICATIONS.
  4. MINIMUM SURGE CAPACITY: 240KA/PHASE. L-N: 120KA. L-G: 120KA. N-G: 120KA.
M. PANELBOARD SURGE PROTECTION
  1. CAPABLE OF SURVIVING MORE THAN 3,000 CATEGORY C1 TRANSIENTS WITHOUT FAILURE OR DEGRADATION OF UL 1449 SUPPRESSION VOLTAGE RATING.
  2. SUITABLE FOR IEEE C62.41 CATEGORY C1 ENVIRONMENTS.
  3. PARALLEL CONNECTED FOR C1 APPLICATIONS.
  4. MINIMUM SURGE CAPACITY: 120KA/PHASE. L-N: 60KA. L-G: 60KA. N-G: 60KA.

DIVISION 27 COMMUNICATIONS

27 05 01 GENERAL COMMUNICATIONS REQUIREMENTS

A. SCOPE OF WORK:
  1. THE FOLLOWING SECTION SHALL PROVIDE THE INFORMATION REQUIRED FOR UNIFORM DESIGN, CONSTRUCTION AND INSTALLATION OF THE EQUIPMENT AT THIS FACILITY. IT IS NOT THE INTENT OF THIS SECTION TO COMPLETELY SPECIFY ALL DETAILS OF DESIGN, CONSTRUCTION AND INSTALLATION; NEVERTHELESS, EQUIPMENT SHALL IN ALL RESPECTS CONFORM TO THE HIGHEST STANDARDS OF ENGINEERING, DESIGN AND WORKMANSHIP.
B. QUALITY ASSURANCE:
  1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO KNOW ALL APPLICABLE CODES AND ENSURE THAT ALL WORK AND EQUIPMENT MEETS OR EXCEEDS APPLICABLE NATIONAL STANDARDS, INCLUDING:
    a. THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
    b. THE INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
    c. THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
    d. THE NATIONAL ELECTRICAL CODE (NEC)THE NATIONAL ELECTRICAL SAFETY CODE (NESC)
    e. THE UNDERWRITERS' LABORATORIES, INC. (UL).
    f. COMPLY WITH NFPA 70.
  2. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES:
    a. LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AHJ'S, AND MARKED FOR INTENDED USE.
    b. COMPLY WITH TIA-568-C SERIES OF TELECOMMUNICATION STANDARDS:
      1). SECTIONS REQUIRING TESTING OF COPPER CABLE:
        a). CONTRACTOR SHALL FIELD-VERIFY EACH CABLE AND ITS TERMINATIONS IAW TIA-568-C.2 — BALANCED TWISTED-PAIR TELECOMMUNICATION CABLING AND COMPONENTS STANDARD. THREE COPIES OF THIS REPORT SHALL BE PROVIDED TO THE OWNER AS PART OF RECORD DRAWINGS.
      2). SECTIONS THAT REQUIRE OPTICAL FIBER CABLING AND COMPONENTS:
        a). CONTRACTOR SHALL FIELD-VERIFY ALL COMPONENTS AND COMPLY WITH TIA-568-C.3 — OPTICAL FIBER CABLING COMPONENTS STANDARD. THREE COPIES OF THIS REPORT SHALL BE PROVIDED TO THE OWNER AS PART OF RECORD DRAWINGS
    c. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ALL ELECTRICAL CONSTRUCTION AND MATERIALS PROVIDED MEETS SEISMIC ZONE STANDARDS FOR THE building LOCATION WHERE PROJECT IS BEING IMPLEMENTED.
    d. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO KNOW ALL APPLICABLE CODES AND ENSURE THAT ALL WORK AND EQUIPMENT MEETS OR EXCEEDS ALL APPLICABLE STATE AND CITY ELECTRICAL CODES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE PROPER LICENSED PERSONNEL TO PERFORM ANY WORK AT OWNER FACILITIES BASED UPON STATE AND LOCAL CODES.
    e. ALL ELECTRICAL WORK WILL REQUIRE INSPECTIONS BY THE LOCAL GOVERNING AGENCIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ACQUIRE ALL NECESSARY PERMITS, AND PROVIDE SCHEDULING AND REPRESENTATION DURING INSPECTION.
    f. COORDINATE THE FEATURES OF MATERIALS AND EQUIPMENT SO THEY FORM AN INTEGRATED SYSTEM. MATCH COMPONENTS AND INTERCONNECTIONS FOR OPTIMUM FUTURE PERFORMANCE.
C. GENERAL REQUIREMENTS:
  2. OWNER FURNISHED EQUIPMENT (OFE):
    a. WHEN REQUIRED TO INSTALL OFE, CONTRACTOR SHALL ENSURE COMPLIANCE WITH THE SECTION SPECIFICATION AND NOTIFY OWNER IF EQUIPMENT FURNISHED BY OWNER IS INSUFFICIENT OR WILL NOT ALLOW COMPLIANCE.
    b. ANY SUBSTITUTED EQUIPMENT SPECIFIED HEREIN TO BE OFE INSTALLED BY CONTRACTOR THAT IS NOT A PRE-APPROVED SUBSTITUTION, SHALL BE REMOVED AND REPLACED BY CONTRACTOR WITH THE APPROVED OFE COMPONENT WITHOUT COST TO OWNER.
D. INSTALLATION MEANS AND METHODS:
  1. EXECUTION OF WORK:
    a. ALL METHODS OF CONSTRUCTION AND DETAILS OF WORKMANSHIP, WHERE NOT SPECIFICALLY DESCRIBED IN THIS SPECIFICATION OR SHOWN IN THE PLANS ARE SUBJECT TO THE FINAL APPROVAL OF THE OWNER. ALL CONTRACTORS SHALL CONSULT THE (GC) IF IN QUESTION AS TO THE METHOD OR MATERIAL TO BE EMPLOYED DURING INSTALLATION. ALL WORK DEEMED NOT ACCEPTABLE BY THE (GC) SHALL BE REWORKED, AT COST TO THE CONTRACTOR, UNTIL SUCH CONDITIONS AS CORRECTED ARE DEEMED ACCEPTABLE TO THE APPROPRIATE (GC) PROJECT REPRESENTATIVE.
    b. PROVIDE QUALITY WORKMANSHIP EQUAL TO THE HIGHEST PREVAILING IN THE CONSTRUCTION INDUSTRY.
  2. BONDING AND GROUNDING:
    a. THE CONDUIT SYSTEM SHALL NOT BE CONSIDERED SUITABLE FOR EQUIPMENT GROUNDING.
    b. BONDING THE NEUTRAL TO EARTH GROUND SHALL NOT BE DONE ANYWHERE EXCEPT AT THE SECONDARY SIDE OF THE CONTROL TRANSFORMER WHERE IT MUST BE DONE (INCLUDING CONTROL VOLTAGE TRANSFORMERS).
  3. GENERAL WIRING REQUIREMENTS:
    a. USE TECHNIQUES, PRACTICES, AND METHODS THAT ARE CONSISTENT WITH EIA/TIA-568 RATING OF COMPONENTS AND THAT ENSURE CATEGORY PERFORMANCE LEVEL FOR THE COMPLETED AND LINKED SIGNAL PATHS, END TO END.
    b. USE UL-LISTED PLENUM CABLE IN ENVIRONMENTAL AIR SPACES, INCLUDING PLENUM CEILINGS AS REQUIRED. UNLESS SPECIFIED OTHERWISE, INSTALL WIRING IN RACEWAY AND CABLE TRAY EXCEPT WITHIN CONSOLES, CABINETS, DESKS, AND COUNTERS.
    c. THE MAXIMUM ALLOWABLE CABLE LENGTH IS 295 FEET (90 M).
    d. MAKE SPLICES, TAPS, AND TERMINATIONS ONLY AT INDICATED OUTLETS, TERMINALS, AND CROSS-CONNECT AND PATCH PANELS.
    e. USE SPLICE AND TAP CONNECTORS COMPATIBLE WITH MEDIA TYPES IAW MANUFACTURERS INSTRUCTIONS.:
    f. ALL WIRES LEAVING ENCLOSURES SHALL BE INSTALLED IN CONDUITS OR SUITABLE RACEWAYS.
    g. PROVIDE AND INSTALL ADDITIONAL, APPROPRIATE NEMA RATED JUNCTION AND PULL BOXES WHEREVER NECESSARY TO FACILITATE THE INSTALLATION OF WIRES AND CABLES.
    h. ALL BACKBONE CABLING SHALL HAVE A MINIMUM 25FT SLACK LOOP INSTALLED AT EACH INTERIOR IDF AND MDF. PROVIDE A 25FT SLACK LOOP IN EACH EXTERIOR HANDHOLE JUNCTION AND AT FIRST EXTERIOR CABLE BUILDING TERMINATION POINT.
    i. ALL HORIZONTAL STATION CABLING SHALL HAVE A 10FT SLACK LOOP MANAGED IN THE IDF ROOM. HORIZONTAL STATION CABLING SHALL BE ROUTED TO THE BOTTOM OF THE VERTICAL CABLE MANAGEMENT SYSTEM BEFORE BEING TERMINATED AT THE ASSOCIATED PATCH PANEL LOCATION.
E. PROJECT COMPLETION:
  1. WARRANTY:
    a. THE WARRANTY SHALL BE COMPREHENSIVE. NO DEDUCTIBLES SHALL BE ALLOWED FOR TRAVEL TIME, SERVICE HOURS, AND REPAIR PARTS COST.
    b. SUBMIT A WRITTEN WARRANTY EXECUTED BY THE INSTALLER AGREEING TO REPAIR OR REPLACE ANY CABLING THAT FAILS WITHIN THE WARRANTY PERIOD.
    c. DURING THE WARRANTY PERIOD THERE SHALL BE NO CHARGES TO THE OWNER FOR SERVICE CALLS FOR WARRANTY WORK. HOWEVER, WHEN SERVICE WORK IS REQUIRED TO REPAIR ITEMS DAMAGED BY NEGLECT, MISUSE, OR VANDALISM, COSTS SHALL BE REIMBURSED TO THIS CONTRACTOR.
    d. THE WARRANTY SHALL NOT DEPRIVE THE OWNER OF OTHER RIGHTS THE OWNER MAY HAVE UNDER OTHER PROVISIONS OF THE CONTRACT DOCUMENTS AND WILL BE IN ADDITION TO AND RUN CONCURRENT WITH OTHER WARRANTIES MADE BY THE CONTRACTOR UNDER THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

27 05 26 BONDING AND GROUNDING

A. ABBREVIATIONS AND DEFINITIONS:
  1. ABBREVIATIONS:
    a. BCT- BONDING CONDUCTOR FOR TELECOMMUNICATIONS
    b. GE — GROUNDING EQUALIZER
    c. TBB — TELECOMMUNICATIONS BONDING BACKBONE
    d. TGB — TELECOMMUNICATIONS GROUNDING BUSBAR
    e. TMGB — TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
  2. DEFINITIONS:
    a. BONDING — THE PERMANENT JOINING OF METALLIC PARTS TO FORM AN ELECTRICALLY CONDUCTIVE PATH THAT WILL ASSURE ELECTRICAL CONTINUITY AND THE CAPACITY TO CONDUCT SAFELY ANY CURRENT LIKELY TO BE IMPOSED.
    b. BONDING CONDUCTOR FOR TELECOMMUNICATIONS (BCT) — A CONDUCTOR THAT INTERCONNECTS THE TELECOMMUNICATIONS BONDING INFRASTRUCTURE TO THE BUILDING'S SERVICE EQUIPMENT (POWER) GROUND.
    c. GROUNDING EQUALIZER (GE) — A conductor that BONDS TBB'S USED IN MULTISTORY BUILDINGS. WHEN TWO OR MORE TBB'S ARE USED IN A MULTISTORY BUILDING, THE TBB'S SHALL BE BONDED TOGETHER WITH A GROUNDING EQUALIZER (GE) AT THE TOP FLOOR AND AT A MINIMUM OF EVERY THIRD FLOOR IN BETWEEN TO THE LOWEST FLOOR LEVEL.
    d. TELECOMMUNICATIONS BONDING BACKBONE (TBB) — A CONDUCTOR THAT INTERCONNECTS THE TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB) TO THE TELECOMMUNICATIONS GROUNDING BUSBAR (TGB).
    e. TELECOMMUNICATIONS GROUNDING BUSBAR (TGB) — THE INTERFACE TO THE BUILDING TELECOMMUNICATIONS GROUNDING SYSTEM GENERALLY LOCATED IN TELECOMMUNICATIONS ROOM.
    f. TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB) — A BUSBAR PLACED IN A CONVENIENT AND ACCESSIBLE LOCATION AND BONDED BY MEANS OF THE BONDING CONDUCTOR FOR TELECOMMUNICATIONS TO THE BUILDING SERVICE EQUIPMENT (POWER) GROUND.
    g. TELECOMMUNICATIONS ROOM — THE LOCATION OF THE COMMON ACCESS POINT FOR BACKBONE AND HORIZONTAL PATHWAYS
B. BONDING AND GROUNDING:
  1. GENERAL REQUIREMENTS:
    a. GROUNDING MUST CONFORM TO APPLICABLE BUILDING CODES AS WELL AS ANSI-J-STD-607-A AND THE NEC.
    b. GROUND CABLE SHIELDS, DRAIN CONDUCTORS, AND EQUIPMENT TO ELIMINATE SHOCK HAZARD AND TO MINIMIZE GROUND LOOPS, COMMON-MODE RETURNS, NOISE PICKUP, CROSS TALK, AND OTHER IMPAIRMENTS.
    c. BOND SHIELDS AND DRAIN CONDUCTORS TO GROUND AT ONLY ONE POINT IN EACH CIRCUIT.
    d. SHORT METALLIC PATHWAYS (WALL AND FLOOR SLEEVES) ARE NOT REQUIRED TO BE BONDED.
  2. TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB) REQUIREMENTS:
    a. THE (TMGB) SHALL BE UL LISTED, A MINIMUM 1/4" THICK, 4" WIDE, 12" IN LENGTH AND BE INSULATED FROM ITS SUPPORT BY A MINIMUM OF 2".
    b. THE (TMGB) SHALL SERVE TELECOMMUNICATIONS EQUIPMENT THAT IS LOCATED IN THE SAME ROOM.
    c. LOCATE (TMGB) NEAR THE TELECOMMUNICATIONS SERVICE ENTRANCE AND THE ELECTRICAL SERVICE ENTRANCE. IT SHOULD ALSO BE LOCATED SO THAT IT IS ACCESSIBLE TO TELECOMMUNICATIONS PERSONNEL
    d. BUSBAR SHALL BE CLEANED PRIOR TO FASTENING OF CONDUCTORS AND AN ANTI-OXIDANT SHOULD BE APPLIED TO THE CONTACT AREA TO CONTROL CORROSION AND REDUCE CONTACT RESISTANCE.
  3. TELECOMMUNICATIONS GROUNDING BUSBAR (TGB) REQUIREMENTS:
    a. THE (TGB) SHALL BE UL LISTED, A MINIMUM 1/4" THICK, 2" WIDE, 12" IN LENGTH AND BE INSULATED FROM ITS SUPPORT BY A MINIMUM OF 2"
    b. ALL TGB'S SHALL BE BONDED together back to the tmgb.
    c. ALL METALLIC RACEWAYS FOR TELECOMMUNICATIONS CABLING located in the same room as the idf or mdf shall be connected to the associated tgb.
    d. CONNECTIONS TO THE (TGB) SHALL UTILIZE LISTED COMPRESSION LUGS, SUITABLE AND EQUIVALENT ONE HOLE NON-TWISTING LUGS OR OTHER IRREVERSIBLE COMPRESSION TYPE CONNECTIONS. TWO-HOLE LUGS ARE PREFERRED.
    e. MULTIPLE (TGB)'S MAY BE INSTALLED WITHIN THE SAME TELECOMMUNICATIONS ROOM TO AID IN MINIMIZING BONDING CONDUCTOR LENGTHS AND TERMINATING SPACE.
  4. BONDING CONDUCTOR FOR TELECOMMUNICATIONS (BCT) REQUIREMENTS:
    a. (BCT) BONDING CONDUCTOR SHALL BOND THE (TMGB) TO THE SERVICE EQUIPMENT GROUND AND SHALL BE 4/0 bare copper conductor.
    b. CONNECTIONS SHALL UTILIZE EXOTHERMIC WELDING (BELOW GRADE), LISTED COMPRESSION LUGS, SUITABLE AND EQUIVALENT ONE HOLE NON-TWISTING LUGS OR OTHER IRREVERSIBLE COMPRESSION TYPE CONNECTIONS. TWO-HOLE LUGS ARE PREFERRED.
  5. TELECOMMUNICATIONS BONDING BACKBONE (TBB) REQUIREMENTS:
    a. THE (TBB) SHALL BE NO LESS THAN #6 AWG AND NO MORE THAN 13' IN LENGTH. IT SHALL ORIGINATE AT THE (TMGB) AND INTERCONNECT ALL (TGB)'S WITH THE (TMGB) THROUGHOUT THE BUILDING USING THE TELECOMMUNICATIONS BACKBONE PATHWAYS.
    b. (TBB) CONDUCTORS SHALL BE INSTALLED WITHOUT SPLICES UNLESS LOCATED IN TELECOMMUNICATIONS SPACES. JOINED SEGMENTS OF A (TBB) SHALL BE CONNECTED USING EXOTHERMIC WELDING, IRREVERSIBLE COMPRESSION-TYPE CONNECTORS, OR EQUIVALENT. IF (TBB) IS INSULATED, IT SHALL MEET THE FIRE RATINGS OF ITS PATHWAY.
    c. THE METALLIC CABLE SHIELD OR INTERIOR PIPING SYSTEM OF THE BUILDING SHALL NOT BE USED AS A (TBB).
    d. IF LONGER LENGTHS ARE REQUIRED, A LARGER AWG CONDUCTOR IS REQUIRED AS SHOWN BELOW:
      1). 14' TO 20' - #4 AWG
      2). 21' TO 26' - #3 AWG
      3). 27' TO 33' - #2 AWG
      4). 34' TO 41' - #1 AWG
      5). 42' TO 52' - 1/0 AWG
      6). 53' TO 66' - 2/0 AWG
      7). OVER 66' - 3/0 AWG
  6. GROUNDING EQUALIZER (GE) REQUIREMENTS:
    a. THE (GE) CONNECTS ELEMENTS OF THE TELECOMMUNICATIONS GROUNDING INFRASTRUCTURE IN BUILDINGS WITH MULTIPLE STORIES AND SHALL BE SIZED AS THE LARGEST GAUGE (TBB).
    b. WHEN TWO OR MORE TGB's ARE USED IN A MULTISTORY BUILDING, THE TGB's SHALL BE BONDED TOGETHER WITH A (GE) AT THE TOP FLOOR AND AT A MINIMUM OF EVERY THIRD FLOOR IN BETWEEN TO THE LOWEST FLOOR.

27 10 00 STRUCTURED CABLING SYSTEM

A. SCOPE OF WORK:
  1. PROVIDE WIRES, CABLES AND SUPPORTING EQUIPMENT AS SPECIFIED BELOW AND SHOWN ON PLANS:
B. ABBREVIATIONS AND DEFINITIONS:
  1. ABBREVIATIONS:
    a. CABLE TYPES:
      1). UTP — UNSHIELDED TWISTED PAIR
      2). F/UTP (FTP) — AN OVERALL FOIL SHIELD WITH UNSHIELDED TWISTED PAIRS (UTP).
      3). S/UTP (STP) — AN OVERALL BRAID SCREEN WITH UNSHIELDED TWISTED PAIRS (UTP).
      4). S/FTP — AN OVERALL FOIL SHIELD WITH INDIVIDUALLY SHIELDED TWISTED PAIRS
    b. CP — CONSOLIDATION POINT
    c. MDF — MAIN DISTRIBUTION FACILITY
    d. HC — HORIZONTAL CROSS-CONNECT
    e. IDC — INSULATION DISPLACEMENT CONNECTOR
    f. IDF — INTERMEDIATE DISTRIBUTION FACILITY
    g. MDF — MAIN DISTRIBUTION FRAME
    h. PVC — POLYVINYL CHLORIDE
    i. TIA — TELECOMMUNICATION INDUSTRY ASSOCIATION
    j. TIA-FOCIS: FIBER OPTIC CONNECTOR INTERMATEABILITY STANDARD
    k. TR — TELECOMMUNICATIONS ROOM
    l. UTP — UNSHIELDED TWISTED PAIR (CABLE)
  2. DEFINITIONS:
    a. BACKBONE CABLE (TRUNK CABLE) — CABLES THAT PERMIT CONNECTION BETWEEN SYSTEM DISTRIBUTION POINTS OR FRAMES.
    b. CONSOLIDATION POINT — AND INTERCONNECTION SCHEME THAT CONNECTS HORIZONTAL CABLES THAT EXTEND FROM BUILDING PATHWAYS TO HORIZONTAL CABLES THAT EXTEND INTO WORK AREA PATHWAYS
    c. CROSS-CONNECT — A FACILITY ENABLING TERMINATION OF CABLES AND THEIR CONNECTION VIA PATCH CORDS OR JUMPERS.
    d. ENTRANCE FACILITY — THIS AREA PROVIDES THE ENTRANCE POINT FOR THE COMMUNICATION SERVICES THAT ENTER THE FACILITY FROM THE AP OR THE CABLE SERVICE PROVIDER. LIGHTNING PROTECTION SHALL BE INSTALLED, UNLESS OTHERWISE NOTED. THIS IS WHERE THE OUTSIDE CABLE TYPE SHALL CONVERT TO INSIDE CABLING, UNLESS OTHERWISE NOTED. THE OUTSIDE CABLING CAN BE EXTENDED TO THE EQUIPMENT ROOM IN METAL CONDUIT. IT IS RECOMMENDED, HOWEVER NOT REQUIRED, THAT THE LIGHTNING PROTECTION BE INSTALLED AS SOON AS THE CABLE ENTERS THE BUILDING. THE ENTRANCE FACILITY MAY BE SHARED WITH OTHER SERVICES. THE LIGHTNING PROTECTION SHALL BE GROUNDED TO THE BUILDING MAIN GROUND (THIS CAN BE DONE BY ATTACHING TO THE TMGB).
    e. HORIZONTAL CABLING — THE CABLE USED TO CARRY THE INFORMATION FROM THE WORKSTATION OR END DEVICE TO THE LEAST SIGNIFICANT DISTRIBUTION POINT. FOR THE VOICE AND DATA THIS WILL BE THE TELECOMMUNICATIONS ROOM. THE PAGING, SECURITY, AND CATV WILL BE WHERE DISTRIBUTION POINTS ARE; NORMALLY THIS IS IN THE EQUIPMENT ROOM OR TELECOMMUNICATION ROOM OR EQUIPMENT ROOM.
    f. TELECOMMUNICATIONS ROOM (TR) — GENERALLY A 'FLOOR SERVING' FACILITY FOR HORIZONTAL CABLE DISTRIBUTION THAT MAY ALSO BE USED FOR INTERMEDIATE AND MAIN CROSS-CONNECTS. THIS LOCATION PROVIDES A COMMON ACCESS POINT FOR BACKBONE AND HORIZONTAL PATHWAYS
C. IDENTIFICATION AND LABELING
  1. USE A UNIQUE, THREE-SYLLABLE ALPHANUMERIC DESIGNATION FOR EACH CABLE, AND LABEL CABLE AND JACKS, CONNECTORS, AND TERMINALS TO WHICH IT CONNECTS WITH THE SAME DESIGNATION. USE LOGICAL AND SYSTEMATIC DESIGNATIONS FOR FACILITY'S ARCHITECTURAL ARRANGEMENT.
    a. FIRST SYLLABLE IDENTIFIES AND LOCATES WIRING CLOSET OR EQUIPMENT ROOM WHERE CABLE ORIGINATES.
    b. SECOND SYLLABLE IDENTIFIES AND LOCATES CROSS-CONNECT OR PATCH-PANEL FIELD IN WHICH CABLE TERMINATES.
    c. THIRD SYLLABLE DESIGNATES TYPE OF MEDIA (COPPER OR FIBER) AND POSITION OCCUPIED BY CABLE PAIRS OR FIBERS IN THE FIELD.
  2. WORKSTATIONS:
    a. LABEL CABLES WITHIN J-BOXES.
    b. FACEPLATES SHALL HAVE LABEL TABS ABOVE AND BELOW JACK INSERTS WITH CLEAR WINDOWS TO FACILITATE THE PRINTING OF LABELS
  3. DISTRIBUTION RACKS AND FRAMES:
    a. LABEL EACH UNIT AND FIELD WITHIN THAT UNIT.
    b. LABEL EACH PATCH PANEL JACK WITH CORRESPONDING STATION CABLING LOCATION.
  4. CABLES, GENERAL:
    a. WHERE INSTALLED IN CABINETS AND J-BOXES, LABEL EACH CABLE WITHIN 4 INCHES OF EACH TERMINATION AND TAP, WHERE IT IS ACCESSIBLE.
  5. CABLE SCHEDULE:
    a. SCHEDULES SHALL BE POSTED IN A PROMINENT LOCATION AT MDF AS FOLLOWS:
      1). LIST INCOMING AND OUTGOING CABLES AND THEIR DESIGNATIONS, ORIGINS, AND DESTINATIONS.
      2). PROTECT CABLE SCHEDULE WITH CLEAR PLASTIC COVER.
      3). PROVIDE ELECTRONIC COPY OF FINAL COMPREHENSIVE SCHEDULES FOR PROJECT, IN SOFTWARE AND FORMAT SELECTED BY OWNER OR OWNER'S IT STAFF AS DIRECTED.
D. INSTALLATION MEANS AND METHODS:
  1. RACEWAYS - CONDUIT
    a. ALL EXPOSED RACEWAY IN FINISHED AREAS SHALL BE PAINTED TO MATCH ADJACENT SURFACE COLOR.
    b. ALL LOW VOLTAGE WIRING IN DRIV-THRU TUNNEL SHALL BE IN SEALED CONDUIT.
    c. RACEWAY IN PERMANENTLY CONCEALLED LOCATIONS SUCH AS, HOLLOW STUD WALLS, MASONRY, AND CHASES, ETC SHALL BE IN CONDUIT.
    d. STANDARD CONDUIT DROPS FOR VOICE, DATA AND OTHER LV SYSTEMS SHALL BE 1" IN DIAMETER UNLESS OTHERWISE NOTED ON PLANS.
    e. CONDUITS FEEDING TELEVISIONS, DISPLAYS OR FLOORBOXES CONTAINING AUDIO-VIDEO CABLES SHALL BE A MINIMUM SIZE OF 1.25" ID UNLESS OTHERWISE NOTED ON PLANS. AT NO TIME SHALL CONDUIT FILL EXCEED 40%.
    f. THERE SHALL BE NO MORE THAN TWO (2) 90-DEGREE BENDS IN CONDUIT BETWEEN PULL POINTS. IF A CONDUIT RUN REQUIRES MORE THAN TWO BENDS OR IF THE CONDUIT RUN IS IN EXCESS OF 100' IN TOTAL LENGTH, INSERT A PULL BOX. IF IT IS NOT PRACTICAL TO INSTALL A PULL BOX IN THE RUN DUE TO FIELD CONDITIONS, THE CONDUIT SIZE SHALL BE INCREASED TO THE NEXT TRADE SIZE FOR EACH ADDITIONAL 90-DEGREE BEND. OFFSETS SHALL BE CONSIDERED AS EQUIVALENT TO A 90-DEGREE BEND.
    g. ALL CONDUITS TO BE LABELED AT THE SOURCE BOX WITH THE DESTINATION BOX IN A CLEAR AND LOGICAL MANNER.
    h. ENDS OF ALL CONDUITS ARE TO BE DE-BURRED AND BUSHED. ALL CONDUITS NOT TERMINATING INSIDE A JBOX OR PULL BOX BUT TERMINATING INSIDE OF A RACK OR ENCLOSURE SHALL BE PROVIDED WITH PLASTIC INSULATED BUSHINGS.
    i. A POLY PULL-LINE SHALL BE PROVIDED IN EACH CONDUIT.
    j. FOR LINE VOLTAGE CONDUIT RUNS LONGER THAN 10 FEET, EC SHALL MAINTAIN A MINIMUM OF 24" SEPARATION FROM AUDIO OR VIDEO SIGNAL CONDUITS EXCEPT TO CROSS AT 90-DEGREE ANGLES WHEN NECESSARY.
  2. RACEWAY — FREE AIR:
    a. TELECOMMUNCIATION CABLES SHALL BE INSTALLED FREE AIR ABOVE ACCESSIBLE SUSPENDED CEILING AREAS, IN IMP SPACES, IN WAREHOUSES, AND EXPOSED OFFICE AREAS.
    b. VERTICAL CABLING DROPS SHALL BE PROVIDED IN CONDUIT CONCEALED IN WALLS IN OFFICE SPACES. VERTICAL CABLE DROPS ON EXISTING WALLS SHALL BE IN CONDUIT BELOW 10'-0" ABOVE FINISHED FLOOR.
    c. PROVIDE AND INSTALL DEDICATED J-HOOK SYSTEM FOR DATA AND SEPARATE J-HOOK SYSTEM FOR OTHER SYSTEMS THROUGHOUT THE CEILING SPACE AND OTHER EXPOSED AREAS WHERE CABLES ARE RUN. THE "J" SHALL HAVE FLAT BOTTOM TO ELIMINATE SINGLE POINT STRESS ON CABLES SUPPORTED. MIN SIZE IS 1 5/16" (CADDY CAT21HP). MAINTAIN AT LEAST A 12" SEPARATION FROM FLUORESCENT OR NEON FIXTURES, A 40 — INCH SEPARATION FROM TRANSFORMERS, MOTORS OR OTHER SOURCES OF ELECTROMAGNETIC FIELDS AND A 36" SEPARATION FROM UNSHEILDED POWER CABLES.
    d. J-HOOK SPACING TO BE A MAXIMUM OF 60 - INCHES ON CENTER AND SHALL ALLOW FOR 50% SPARE CAPACITY IN ALL RUNS OF J HOOKS. PROVIDE ADDITIONAL RUNS AS REQUIRED TO MEET THIS REQUIREMENT.
    e. NON-DATA J-HOOK SYSTEMS SHALL BE RUN PARALLEL TO THE DATA AND FIRE ALARM J HOOK SYSTEMS.
    f. CONDUITS THAT ARE STUBBED INTO THE ACCESSIBLE CEILING SPACE THAT ARE ACTING AS CABLE RACEWAYS SHALL BE EXTENDED INTO THE NEAREST CORRIDOR SPACE, OR, AS AN OPTION, THE CONTRACTOR SHALL INSTALL A SLEEVE THROUGH ANY WALL SEPARATING THE ROOM FROM THE CORRIDOR AREA.
    g. CABLES SHALL BE ROUTED AT 90 DEGREES FROM THE ROOM TO THE J-HOOK SUPPORT SYSTEM IN THE CORRIDOR. THE CORRIDOR AREA SHALL GENERALLY BE DEFINED AS THE AREA WHERE THE J-HOOK SUPPORT SYSTEM SHALL BE INSTALLED. HOWEVER, IN THE EVENT THAT THERE IS NOT ADEQUATE CORRIDOR SPACE, THE J-HOOK SYSTEM MAY BE MOVED INTO THE ADJACENT ROOMS.
    h. J-HOOK SYSTEM SHALL BE INSTALLED IN STRAIGHT LINES PERPENDICULAR, RIGHT ANGLE TO THE BUILDING WALLS. GROUPS OF J-HOOKS SHALL BE USED WHERE THE SINGLE J-HOOK SYSTEM IS NOT ADEQUATE TO SUPPORT THE CABLING TO ALLOW FOR 50% SPARE CAPACITY.
    i. SUSPENDED CEILING SYSTEM SHALL NOT BE USED TO SUPPORT CABLES.
    j. CEILING JOISTS AND PERLINS MAY BE USED FOR CABLE SUPPORT PROVIDED THEY ARE NOT MORE THAN 60 - INCHES APART. PROVIDE A FLATE SURFACE FOR CABLE. CABLE SHALL NOT BE INSTALLED IN DECK FLUTES SPACE ABOVE JOISTS. CABLE SHALL RUN ABOVE BOTTOM CORD OF JOIST.
    k. BRIDAL RING SUPPORTS SHALL NOT BE PERMITTED
    l. FREE AIR CABLES SHALL NOT BE ROUTED THROUGH NON-ACCESSIBLE CEILING AREAS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
    m. LV DEVICE TERMINATION SHALL BE MADE IN JUNCTION BOXES. FREE AIR SPLICING AND TERMINATING OF LOW VOLTAGE CABLING IS NOT ALLOWED
  3. WALL SLEEVES AND PENETRATIONS:
    a. ALL LV SYSTEM SLEEVES ARE TO BE STEEL or pvc EXTEND A MINIMUM OF 6" OUT FROM THE WALL AND ARE TO HAVE INSULATED CONNECTORS ON THE END, OR OTHER TYPE OF CABLE PROTECTION. SLEEVES SHALL BE SECURED ON BOTH SIDES OF THE PENETRATION TO PREVENT SHIFTING DURING CABLE INSTALLATION.
    b. SLEEVES SHALL BE PLACED ABOVE THE CEILING, THROUGH THE WALL, BETWEEN ALL OFFICES AND CORRIDORS, AND CLASSROOMS AND CORRIDORS, OR OTHER AREAS WHERE CABLES ARE TO BE ROUTED.
  4. EQUIPMENT AND FITTINGS:
    a. DISTRIBUTION EQUIPMENT SHALL BE SIZED TO HANDLE THE QUANTITY OF JACKS NOTED ON THE DRAWINGS PLUS BE ADEQUATE TO SATISFY 50 PERCENT EXPANSION, UNLESS NOTED OTHERWISE.
    b. MOUNT PATCH PANELS, TERMINAL STRIPS, AND OTHER CONNECTING HARDWARE IN RACKS, UNLESS NOTED OTHERWISE.
    c. WHERE REQUIRED, BACKBOARDS SHALL BE 3/4-INCH INTERIOR-GRADE FIRE-RATED PLYWOOD, PAINTED WITH TWO COATS OF FIRE-RESISTIVE-PAINT. INSTALL PASS THROUGH RINGS FOR BOTH HORIZONTAL AND VERTICAL TRAINING OF CABLES.
  5. TESTING:
    a. PERFORM ALL TESTS IAW TIA/EIA-568-C.0 AND TIA/EIA-568-C.2 AND TELECOMMUNICATIONS STANDARDS FOR TWISTED PAIR AND OPTICAL FIBER CABLING REQUIREMENTS OF THIS SECTION.
    b. PROVIDE DOCUMENTATION OF TESTING IAW TELECOMMUNICATIONS STANDARDS FOR TWISTED PAIR AND OPTICAL FIBER CABLING REQUIREMENTS OF THIS SECTION.

27 11 00 COMMUNICATIONS EQUIPMENT

A. SCOPE OF WORK:
  1. DESIGN REQUIREMENTS:
B. MAIN DISTRIBUTION FRAMES (MDF):
  1. CONTRACTOR TO PROVIDE AND INSTALL 15U WALL MOUNTED, SWING OUT DATA RACK WITH VENTED DOOR WHERE LOCATED ON PLANS.
    a. MANUFACTURER:
      1). KENDALL HOWARD , MODEL # 3132-3-001-15
  2. CONTRACTOR SHALL PROVIDE ALL NECESSARY ACCESSORIES.
  3. CONTRACTOR SHALL ENSURE THAT THE INSTALLATION OF RACK AND COORDINATED ACCESSORIES MEET THE FOLLOWING REQUIREMENTS:
    a. RACK SHALL BE BONDED TO GROUNDING SYSTEM AS SPECIFIED IN SECTION 27 05 26 — BONDING AND GROUNDING
    b. INSTALL ONE FRONT MOUNTED WIRE MANAGER PANEL FOR ROUTING OF HUB CABLES AND ONE REAR MOUNTED WIRE MANAGER PANEL FOR CONTROLLING CABLES ENTERING BACK OF PATCH PANEL.
    c. INSTALL APPROPRIATE VERTICAL WIRE MANAGER LOOPS TO PROVIDE A TRAINING AND ATTACHMENT POINT FOR VERTICALLY RUN CABLES. INSTALL FRONT AND BACK AT EACH POST.
    d. INSTALL SHELVES FOR OWNER FURNISHED EQUIPMENT (OFE) THAT IS NOT RACK MOUNTABLE. VERIFY WITH OWNER NUMBER OF SHELVES REQUIRED.
    e. PROVIDE HORIZONTAL RACK MOUNTED POWER STRIP INCLUDING 8 OUTLETS (4 IN BACK AND 4 IN FRONT). PROVIDE AN INTERNAL SURGE PROTECTION UNIT. PLUG STRIPS SHALL BE CONNECTED TO A CORD. HUBBELL MCCPSS19TS OR EQUAL.
C. PATCH PANELS CATEGORY 6
  1. PATCH PANELS SHALL BE POWER SUM RATED AND TESTED IN A LINK CONFIGURATION. DEVICES SHALL HAVE SAME RATING AS STATION OUTLETS.
  2. PANELS SHALL HAVE AT A MINIMUM 48 PORTS UNLESS OTHERWISE NOTED ON PLANS.
    a. MOUNT PANELS IN RACK OR AS INDICATED ON PLANS.
    b. ALL CABLE MANAGEMENT ACCESSORIES SUCH AS HORIZONTAL AND VERTICAL WIRE MANAGERS SHALL BE INSTALLED AS RECOMMENDED BY MANUFACTURER.
    c. CABLES FOR DATA, VOICE, CAMERAS AND ACCESS CONTROL SHALL BE TERMINATED ON SEPARATE PATCH PANELS UNLESS OTHERWISE NOTED.

27 15 00 COMMUNICATIONS HORIZONTAL CABLING

A. HORIZONTAL STATION CABLING
  1. COPPER HORIZONTAL STATION CABLING:
    a. ALL HORIZONTAL station CABLING FOR DATA, VOIP PHONE, WAP'S, SURVIELLANCE CAMERAS, ACCESS CONTROL SHALL BE 4-PAIR, 250OHM UTP OR F/UTP (FOIL SHIELD AND/OR PLENUM RATED AS REQUIRED) AND LISTED AS COMPLYING WITH CATEGORY 6 OF EIA/TIA-568-B.
    b. PROVIDE WATER BLOCKED CABLE FOR ANY SLAB-ON-GRADE FLOOR BOX APPLICATION OR DATA CABLE INSTALLED IN CONDUIT IN OR UNDER SLAB. NOTE: CABLE IS NOT PLENUM RATED AND MUST BE INSTALLED IN CONDUIT IF INSTALLED ABOVE THE CEILING IN A PLENUM SPACE. PVC CONDUIT MAY BE ROUTED UNDERGROUND DIRECTLY TO DATA ROOM IN LIEU OF USING EMT ABOVE CEILINGS. CABLE SHALL BE APPROVED FOR WET LOCATIONS AND FLOODED FOR MOISTURE PROTECTION.
    c. TERMINATE AND LABEL ALL CABLES AT BOTH ENDS, UNLESS NOTED OTHERWISE.
    d. WORKSTATION / DATA OUTLETS SHALL HAVE A MINIMUM OF 2 CABLE RUNS UNLESS OTHERWISE NOTED ON PLANS.
    e. WAP LOCATIONS SHALL HAVE 2 CABLE RUNS PER LOCATION. PROVIDE A 25' SERVICE LOOP TERMINATED IN DATA MODULAR IN LINE ADAPTER TO ALLOW FOR TESTING FOR CEILING MOUNTED WAP LOCATIONS. WALL MOUNTED LOCATIONS SHALL UTILIZE A STANDARD WALL-MOUNTED CAT6 DATA OUTLET.
    f. CONTRACTOR WILL BE RESPONSIBLE TO MOUNT (OFE) WAP DEVICES IN LOCATIONS DESIGNATED ON PLANS PRIOR TO FINAL COMPLETION OF PROJECT.
    g. DATA CABLES
      1). 4-PAIR, 250OHM UTP OR F/UTP (FOIL SHIELD AND/OR PLENUM RATED AS REQUIRED) AND LISTED AS COMPLYING WITH CATEGORY 6 OF EIA/TIA-568-B.
      2). TERMINATE AND LABEL ALL CABLES AT BOTH ENDS, UNLESS NOTED OTHERWISE.
  2. SURVIELLANCE CAMERA CABLING:
    a. DATA CABLES (CATEGORY 6)
      1). 4-PAIR, 250OHM UTP OR F/UTP (FOIL SHIELD AND/OR PLENUM RATED AS REQUIRED) AND LISTED AS COMPLYING WITH CATEGORY 6 OF EIA/TIA-568-B.
      2). CONTRACTOR SHALL PROVIDE (1) ONE CABLE FROM EACH CAMERA LOCATION SHOWN ON DRAWINGS TO DATA RACK LOCATION IN OFFICE. COIL 5' 0" OF CABLE AT EACH END. TERMINATIONS OF CABLE AT CAMERA AND DATA RACK WILL BE PROVIDED BY EQUIPMENT INSTALLER.
  3. AUDIO-VIDEO SYSTEM CABLING:
    a. DATA CABLES (CATEGORY 6)
      1). 4-PAIR, 250OHM UTP OR F/UTP (FOIL SHIELD AND/OR PLENUM RATED AS REQUIRED) AND LISTED AS COMPLYING WITH CATEGORY 6 OF EIA/TIA-568-B.
      2). TERMINATE AND LABEL ALL CABLES AT BOTH ENDS, UNLESS NOTED OTHERWISE.
    b. CABLE (COAXIAL RG6Q)
      1). RG6 CCS QUAD SHIELDED RF VIDEO 3.0GHZ CABLE (PLENUM AS REQUIRED) WITH FOAM POLYETHYLENE DIELECTRIC, FLAME RATED POLYVINYL CHLORIDE (FR-PVC) JACKET AND BE NEC CM, CEC CMG FT4, ROHS COMPLIANT.DEPENDING ON CABLE RUN LENGTH CONSIDER RG9 OR RG11 CABLING. REVIEW CONDUIT SIZE THIS CABLE HAS A MUCH LARGER DIAMETER
      2). TERMINATE AND LABEL ALL CABLES AT BOTH ENDS, UNLESS NOTED OTHERWISE.
    c. SPEAKER AUDIO
      1). 2 OR 4 CONDUCTOR 16 — 12 AWG, 26 STRAND COPPER (MINIMUM), UNSHIELDED, SIZED PER APPLICATION. NEC TYPE CL3R AND CEC TYPE CMG FT4 FOR AUDIO
      2). LABEL ALL CABLES AT BOTH ENDS, UNLESS NOTED OTHERWISE.

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE NOV. 23, 2021
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JOB NUMBER
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ELECTRICAL SPECIFICATIONS

SHEET NUMBER
E0.2

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ELECTRICAL SPECIFICATIONS (CONT.)

A. FACEPLATES, JACKS, PLUGS AND CONNECTORS FOR LV SYSTEMS:
   1. FACEPLATES:
      a. MANUFACTURER: LEVITON 42080 OR EQUAL
      b. PROVIDE ABS PLASTIC OR STAINLESS STEEL VERTICAL FACEPLATES AS REQUIRED PER AREA INSTALLED.
      c. PLATES SHALL ACCEPT IDC-TYPE JACK MODULES AND ALLOW A LABEL TO BE INSERTED INTO AN INTEGRAL LABEL POCKET WITH CLEAR COVER.
      d. faceplate color shall be as specified in division 26.
      e. ALL FACEPLATE, JACK, PLUG AND CONNECTOR MANUFACTURERS SHALL BE CONSISTENT THROUGHOUT PROJECT.
   2. JACKS:
      a. PROVIDE MODULAR COLOR-CODED PATCH PANEL AND FACEPLATE INSERT / RJ-45 RECEPTACLE UNITS FOR EACH CABLE WITHIN THE OUTLET AS SHOWN ON PLANS.
      b. INSTALL DUST CAPS AND SECURE ALL JACKS PER MANUFACTURER'S RECOMMENDATIONS.
   3. PLUGS:
      a. UTP AND F/UTP CABLE PLUG CATEGORY LISTING SHALL MATCH THAT OF THE CABLE MINIMUM.
   4. CONNECTORS:
      a. COAXIAL CABLE:
         1). COMPRESSION STYLE JAW CABLE MANUFACTURERS RECOMMENDATIONS.
B. WORKSTATION COMMUNICATION BOXES AND OUTLETS:
   1. USE 4" SQUARE, 2 1/8" DEEP (MINIMUM) OUTLET BOX WITH SINGLE GANG RING UNLESS OTHERWISE SHOWN ON PLAN. PROVIDE CONDUIT STUB INTO CEILING ABOVE TOWARDS CABLE TRAY OR CABLE SUPPORT PATHWAY.
   2. PROVIDE COMBINATION TYPE FACEPLATE WITH 4-POSITION OPENINGS FOR IDC-TYPE OUTLETS. FACEPLATES SHALL HAVE LABEL HOLDERS WITH A TYPED OVERLAY LABEL AFFIXED ABOVE / BELOW EACH OUTLET POSITION INDICATING THE OUTLET NUMBER.
   3. PROVIDE THE APPROPRIATE COMMUNICATIONS DEVICE IN THE OPENING AS SHOWN ON THE PLANS. ALL EMPTY OPENINGS SHALL BE CLOSED WITH BLANK INSERTS.

27 16 00 COMMUNICATIONS CONNECTING CORDS, DEVICES AND ADAPTERS

A. PATCH CORDS, STATION CORDS, AND CROSS CONNECT WIRE
   1. MDF UTP AND F/UTP PATCH CABLES:
      a. PATCH CABLES SHALL BE PROVIDED BY OWNER IN LENGTHS TO ALLOW FOR PROPER BEND RADIUS AND SHALL BE INSTALLED BY CONTRACTOR IN A NEAT, ORGANIZED MANNER USING INDUSTRY STANDARD MEANS AND METHODS.
      b. COLOR CODE CORDS TO KEEP DATA PATCH CABLES SEPARATE FROM VOICE PATCH CABLES PER GENERAL INSTALLATION REQUIREMENTS IN THIS SECTION OR AS NOTED OTHERWISE. COLORS SHALL BE CONSISTENT THROUGHOUT THE PROJECT.

27 21 00 DATA COMMUNICATIONS NETWORK EQUIPMENT

A. NETWORK SWITCHES
   1. NETWORK SWITCHES (OFE) TO BE PROVIDED AND INSTALLED BY OWNER.
B. UNINTERRUPTIBLE POWER SUPPLY (UPS)
   1. MDF RACKS AND CABINETS (OFE) TO BE PROVIDED AND INSTALLED BY OWNER.
C. POWER DISTRIBUTION UNIT (PDU)
   1. MANUFACTURER: CYBERPOWER BASIC PDU SERIES (PDU20BT10R) OR EQUAL

27 41 16 AUDIO-VIDEO SYSTEMS AND EQUIPMENT

A. AN AUDIO-VIDEO SYSTEM IS NOT PART OF THIS BID PACKAGE. PROVIDE JUNCTION BOXES, CONDUIT STUBS, AND WIRE FOR ALL AUDIO-VIDEO LOCATIONS SHOWN ON THE DRAWINGS.
B. SEE SPECIFICATION SECTION 27 15 00 FOR CABLING REQUIREMENTS.

DIVISION 28 ELECTRONIC SAFETY, SECURITY, FIRE ALARM

28 10 00 ACCESS CONTROLS

A. SECURITY & ACCESS CONTROL WIRING IS NOT PART OF THIS BID PACKAGE. PROVIDE JUNCTION BOXES AND CONDUIT STUBS FOR ALL CARD READERS, ELECTRIC STRIKES, DOOR CONTACTS, DOOR ALARMS, AND REQUEST TO EXIT SENSORS SHOWN ON THE DRAWINGS.
B. CONTRACTOR SHALL WORK WITH THE OWNERS ACCESS CONTROLS SYSTEM PROVIDER AND SHALL PROVIDE 120V POWER AS REQUIRED TO EACH UNIT CONTROLLER UTILIZING SPARE BREAKERS PROVIDED.

28 20 00 VIDEO SURVEILLANCE

A. VIDEO SURVEILLANCE IS NOT PART OF THIS BID PACKAGE. PROVIDE JUNCTION BOXES, CONDUIT STUBS AND WIRE FOR ALL CAMERA & SECURITY MONITOR LOCATIONS SHOWN ON THE DRAWINGS.
B. SEE SPECIFICATION SECTION 27 15 00 FOR CABLING REQUIREMENTS. EC SHALL PROVIDE (1) ONE CAT 6 CABLE FROM EACH CAMERA LOCATION SHOWN ON DRAWINGS TO DATA RACK LOCATION IN OFFICE. COIL 5' 0" OF CABLE AT EACH END. TERMINATIONS OF CABLE AT CAMERA AND DATA RACK WILL BE PROVIDED BY EQUIPMENT INSTALLER.

ALTERNATE BIDS

SEE SHEET T2.0

SPECIFICATIONS

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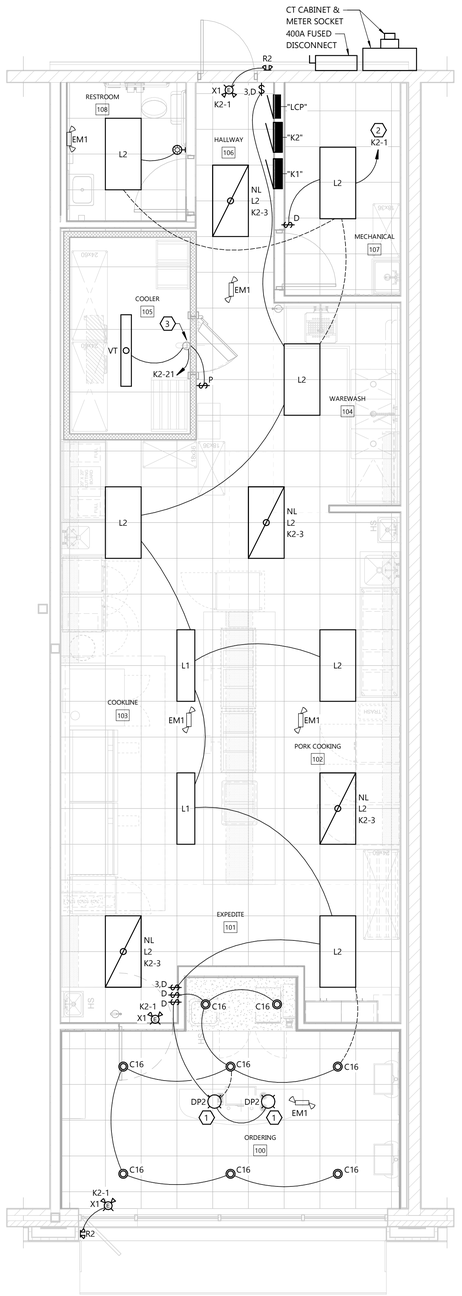

NORTH

FIRST FLOOR PLAN - LIGHTING

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

4' 0' 4' 8'

GENERAL NOTES

- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- COORDINATE LIGHT FIXTURE LOCATIONS IN MECHANICAL EQUIPMENT ROOMS WITH OTHER CONTRACTORS PRIOR TO ROUGH IN.
- SEE ARCHITECTURAL REFLECTED CEILING AND ELEVATION PLANS FOR LOCATION OF ALL LIGHTING FIXTURES. LOCATE FIXTURES IN ACCORDANCE WITH CEILING AND ELEVATION PLANS.
- DEVICE LOCATIONS MAY BE DISTORTED FOR CLARITY. LOCATE DEVICES SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS.
- SEE LIGHTING FIXTURE LEGEND FOR FIXTURE WIRING INFORMATION.
- WIRE EMERGENCY LIGHTS UNSWITCHED TO LIGHTING CIRCUIT SERVING SAME ROOM, OR TO "NIGHT LIGHT" CIRCUIT WHEN AVAILABLE.
- EXISTING CONDUITS AND WIRING MAY BE RE-USED IF IN GOOD WORKING CONDITION AND MEETS REQUIREMENTS OF SPECIFICATIONS.

KEYNOTES

1. PENDANT MOUNT FIXTURE 7'-0" AFF TO BOTTOM OF FIXTURE, COORDINATE MOUNTING HEIGHT WITH OWNER PRIOR TO ROUGH-IN.
2. ROUTE CIRCUIT THRU TIME CLOCK CONTROLLED RELAY. SEE SCHEDULE ON SHEET E4.0.
3. COORDINATE WITH WALK-IN COOLER SUPPLIER. PROVIDE ALL CONDUIT AND WIRING INSIDE COOLER. CONDUIT AND BOXES SHALL BE RATED NEMA3R AND SWITCHES TO BE LOCATED ON COOLER EXTERIOR. COORDINATE ANY PENETRATIONS REQUIRED THRU COOLER WITH SUPPLIER AND SEAL PER MANUFACTURER REQUIREMENTS. SEE DETAIL 1/E1.1P FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

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ELECTRICAL FIRST FLOOR PLAN - LIGHTING

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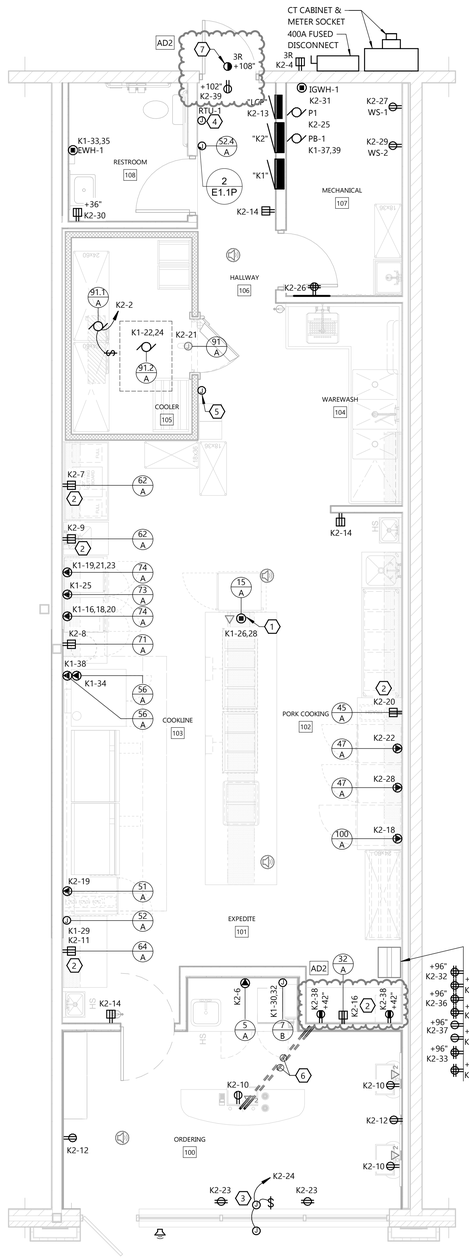
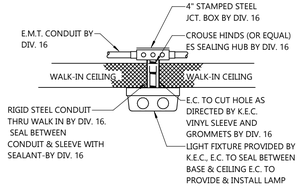


NORTH

FIRST FLOOR PLAN - POWER

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

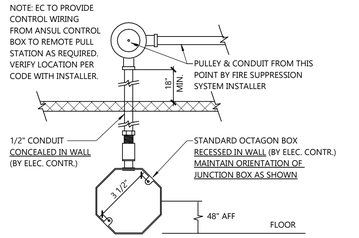
4' 0' 4' 8'



1. ALL CONDUIT TO BE RUN ON EXTERIOR OF WALK-IN BY DIV. 16 UNLESS BOX IS LOCATED OUTDOORS. THEN CONDUIT IS TO RUN BELOW CEILING.
2. ALL PENETRATIONS THRU WALK-IN TO BE THOROUGHLY SEALED
3. ALL LIGHT FIXTURES TO BE FURNISHED BE K.E.C.
4. MOUNTING FIXTURES, ALL CONDUIT AND ALL INTER-WIRING BY DIV. 16.
5. ALL LAMPS (BULBS) TO BE FURNISHED BY OTHERS.

1 E1.1P WALK-IN LIGHT DETAIL

NOT TO SCALE



2 E1.1P FIRE PULL DETAIL

NOT TO SCALE

ROOFTOP EXHAUST FANS & MAKE-UP AIR UNITS

THESE ROOF TOP ITEMS ARE TO BE LOCATED BY THE ARCHITECT & ENGINEERS IN CONJUNCTION WITH THE EXHAUST HOOD MANUFACTURER'S SHOP DRAWING. REFER TO ARCHITECTURAL/ENGINEERING DRAWINGS FOR EXACT LOCATIONS.

REFER TO THE LATEST APPROVED MANUFACTURER'S SHOP DRAWINGS FOR COMPLETE INFORMATION AND DETAILS REGARDING ALL ASPECTS OF FANS &/OR MAKE UP AIR UNITS, INCLUDING ACTUAL SIZES, REQUIRED CLEARANCE, ETC.

ALL PENETRATIONS THRU ROOF OR BUILDING STRUCTURE, INCLUDING WALLS, FLOORS, JOISTS OR OTHER STRUCTURAL MEMBERS, IS TO BE BY OTHERS.

ALL ELECTRICAL DISCONNECTS TO BE PROVIDED BY OTHERS.

IMPORTANT ELECTRICAL NOTE: ELECTRICAL CONTRACTOR SHALL PROVIDE WIRE, CONDUIT AND DISCONNECTS TO EXHAUST & SUPPLY FANS LOCATED ON ROOF (LOCATION TO BE DETERMINED BY OTHERS) W/ INTERCONNECTIONS TO SWITCHES BELOW. SEE MANUFACTURERS SHOP DRAWING FOR COMPLETE ELECTRICAL DETAILS.

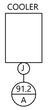
3 E1.1P ROOFTOP EXHAUSE FANS/MAKE-UP AIR UNITS

NOT TO SCALE

REMOTE
COMPRESSORS &
CONDENSING UNITS

THESE NOTES APPLY TO MULTI-SYSTEM COMPRESSOR RACKS AS WELL AS INDIVIDUAL COMPRESSORS AND CONDENSORS.

REMOTE
COMPRESSOR
WALK-IN
COOLER



IMPORTANT ELECTRICAL NOTE: FOR EACH FREEZER COMPRESSOR, ELECTRICIAN TO PROVIDE (1) 3/4" DIAMETER CONDUIT W/(5) #10 WIRES & INTERCONNECT BETWEEN COMPRESSOR, EVAPORATOR COIL & TIME CLOCK. VERIFY ALL DETAILS WITH MANUFACTURERS SHOP DRAWINGS.

NOTES:

- EXACT LOCATION OF COMPRESSORS ARE TO BE DETERMINED BY ARCHITECT. FREE & EASY ACCESS INTO AREA FOR COMPRESSORS MUST BE PROVIDED BY OTHERS, TO ALLOW PLACEMENT OF RACK AS WELL AS MAINTAIN MINIMUM CLEARANCE REQUIREMENTS.
- SUFFICIENT AIR CHANGES MUST BE PROVIDED IN THIS AREA TO ALLOW ADEQUATE AIR CIRCULATION FOR WATER COOLED OR AIR COOLED COMPRESSORS.
- STRUCTURAL SUPPORT AS WELL AS CURBS, PADS OR REDWOOD RAILS FOR COMPRESSORS, ON ROOF OR INSIDE STRUCTURE, TO BE PROVIDED BY OTHERS.
- SEE MANUFACTURER'S SHOP DRAWINGS FOR DETAILED REQUIREMENTS FOR CLEARANCE ACTUAL SIZES, MECHANICAL, PLUMBING & ELECTRICAL REQUIREMENTS. FOR WATER COOLED UNITS, STRICT ADHERENCE TO MANUFACTURERS REQUIREMENTS FOR MIN./MAX. WATER TEMP AND PRESSURE MUST BE MAINTAINED.
- ASHRAE CALCULATIONS AND ANY RESULTING REQUIREMENTS FOR COMPRESSOR AREA, PIPING CHASES AND FREON DETECTION SYSTEMS SHALL BE THE RESPONSIBILITY OF OTHERS.
- ALL REFRIGERANT PIPING CHASES AND BUILDING PENETRATIONS SHALL BE THE RESPONSIBILITY OF THE BUILDING TRADES AND TO COMPLY WITH ALL LOCAL CODES. EXACT LINE RUNS OF REFRIGERATION PIPING SHALL BE DETERMINED IN COORDINATION WITH THE REFRIGERATION INSTALLER.
- ALL ELECTRICAL DISCONNECTS TO BE PROVIDED BY OTHERS.

4 E1.1P REMOTE COMPRESSORS/CONDENSING UNITS

NOT TO SCALE

GENERAL NOTES

- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- EXTERIOR RECEPTACLES SHALL BE GFI TYPE. PROVIDE PASS & SEYMOUR SERIES "WI UC" OR EQUIVALENT COVER, (PER NEC 406.8(B) AND AHJ). COLOR SHALL BE SELECTED BY ARCHITECT.
- ROUGH-IN RECEPTACLES FOR ELECTRIC WATER COOLERS (EWC) BEHIND UNIT. VERIFY LOCATION PRIOR TO ROUGH-IN.
- PROVIDE GFI PROTECTION FOR ALL SINGLE PHASE RECEPTACLES IN THE FOLLOWING LOCATIONS: BATHROOMS, KITCHENS, ROOFS, LOCKER ROOMS & SHOWERING FACILITIES, SERVING WATER COOLERS & VENDING MACHINES, GARAGES & SERVICE BAYS, WITHIN 6'-0" OF A SINK, AND ALL OTHER WET LOCATIONS.
- SEE SHEET E4.0 FOR BRANCH CIRCUIT FEEDER SIZES.
- ALL CONDUITS TO ISLAND CABINETRY AND TABLES SHALL BE UNDERGROUND.
- DEVICE LOCATIONS MAY BE DISTORTED FOR CLARITY. LOCATE DEVICES SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS.
- SEE HVAC AND PLUMBING PLANS FOR LOCATIONS OF HEATING, VENTILATING, AIR CONDITIONING AND PLUMBING EQUIPMENT. DO NOT REFERENCE ELECTRICAL DRAWINGS FOR EXACT LOCATION.
- SEE HVAC SHEET PLANS FOR AREAS THAT ARE USED AS A RETURN AIR PLENUM. PROVIDE PLENUM RATED CONSTRUCTION.
- EXISTING CONDUITS AND WIRING MAY BE RE-USED IF FOUND TO BE IN GOOD WORKING WORKING CONDITION AND MEETS THE MINIIMM INTENT OF SPECIFICATIONS.

KEYNOTES

1. CONNECT PRODUCTION COUNTER CIRCUIT BREAKER PANEL VIA UTILITY CHASE IN CEILING TO A 2-POLE, 60 AMP CIRCUIT BREAKER IN PANEL SHOWN. VERIFY ALL REQUIREMENTS WITH ACTUAL EQUIPMENT SPECIFIED IN KITCHE PLANS. THE MANUFACTURER WILL FULLY PRE-WIRE THE COMPLETE PRODUCTION COUNTER LINE. THE UNITS WILL THEN BE PULLED APART FOR SHIPPING PURPOSES. ALL CONNECTION POINTS WILL BE MARKED. THE CONDUIT RUNS WILL BE COILED UP FOR FIELD INSTALLATION. SOME ELECTRICAL COMPONENTS MAY BE REMOVED FOR EASE OF DISASSEMBLING THE LINE-UP. THE ELECTRICAL CONTRACTOR WILL BE FULLY RESPONSIBLE FOR MAKING THE PROPER FIELD CONNECTIONS FROM THE ROUGH-IN LOCATION TO THE MANUFACTURER PROVIDED BREAKER PANEL BOX. IN ADDITION, THE ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR ANY SPLICE POINTS AND/OR JUNCTION BOXES THAT NEED TO BE RECONNECTED. SOME ELECTRICAL COMPONENT ASSEMBLY MAY ALSO BE REQUIRED.
2. RECEPTACLE TO BE MOUNTED HORIZONTALLY, SEE KITCHEN EQUIPMENT PLANS.
3. PROVIDE JUNCTION BOX(ES) WITH LOCAL TOGGLE SWITCH DISCONNECT LOCATED ABOVE ACCESSIBLE CEILING AND ASSOCIATED 120V, 1Ø, 20 AMP CIRCUIT(S) FOR SIGNAGE. FIELD VERIFY EXACT ROUGH-IN LOCATION. ROUTE CIRCUIT THROUGH LIGHTING CONTROL PANEL.
4. INSTALL DUCT SMOKE DETECTOR REMOTE INDICATOR LIGHT FOR EACH RTU HIGH ON WALL BELOW CEILING LINE.
5. EC SHALL PROVIDE 18/2 WIRE FROM TEMPERATURE SENSOR CONTROLLER (PROVIDED BY OTHERS) LOCATED ABOVE DOOR IN OFFICE TO EXTERNAL SENSOR (PROVIDED BY OTHERS) LOCATED ON COOLER.
6. PROVIDE (2) 1" C. ROUTED UNDERGROUND FOR DATA AND POWER ORDER PODS FROM ABOVE ACCESSIBLE CEILING. COORDINATE SAW CUTTING OF FLOOR WITH GC. VERIFY EXACT STUB-UP LOCATION WITH FURNITURE SUPPLIER PRIOR TO ROUGH-IN. AD2
7. PROVIDE (1) 3/4" CONDUIT STUBBED OUT WALL TO WAETHERPROOF DOUBLE GANG BOX WITH BLANK WEATHERPROOF COVER AT 9'-0" AFG.

KITCHEN NOTES:

X/X = KITCHEN EQUIPMENT TAG. SEE DRAWING QF200 FOR DESCRIPTION AND ADDITIONAL REQUIREMENTS.

- ALL 15A AND 20A AMP RECEPTACLES LOCATED IN KITCHEN, DRIVE-THRU, AND FOOD PREP AREAS SHALL BE GFCI PROTECTION PER NEC 210.8B

ELECTRICAL FIRST FLOOR PLAN - POWER

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HAWAIIAN BROS
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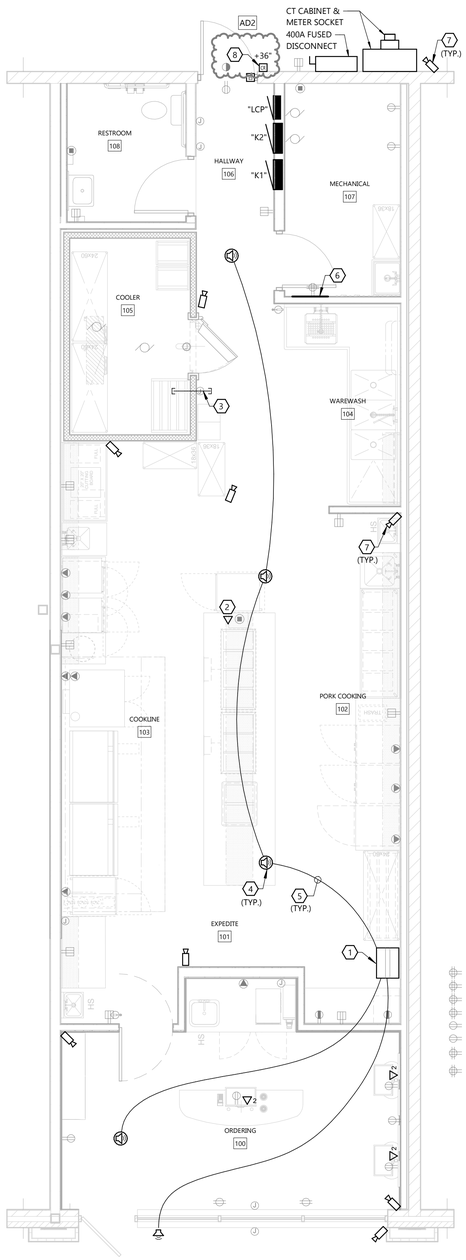


NORTH

FIRST FLOOR PLAN - SYSTEMS

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

4' 0' 4' 8'

GENERAL NOTES

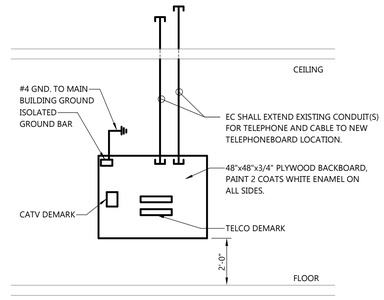
- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- ALL CONDUITS TO UNDERGROUND CABINETRY AND TABLES SHALL BE UNDERGROUND.

KEYNOTES

1. PROVIDE KENDALL HOWARD 18U WALL MOUNTED SWING OUT DATA RACK WITH VENTED DOOR, AND 4 ACCESSORY SHELVES, MODEL 3131-3-001-18. MOUNT ON WALL NEAR CEILING. VERIFY MOUTING HEIGHT WITH OWNER.
2. PROVIDE (9) INDIVIDUAL DATA RUNS FROM DATA RACK IN OFFICE TO PRODUCTION COUNTER VIA CHASE UTILITY CHASE TO CEILING FURNISHED WITH PRODUCTION LINE. LAND (6) DATA RUNS ON SCREENS MOUNTED TO PRODUCTION LINE, (2) PRINTERS LOCATED ON PRODUCTION LINE, COIL (1) DATA LINE FOR SPARE WITH-IN PRODUCTION LINE. RUN DATA LINES FROM CEILING THROUGH UTILITY CHASE AND THEN THROUGH CONDUIT/CHASES FURNISHED WITH-IN PRODUCTION LINE TO EACH DEVICE.
3. EC SHALL PROVIDE 1/2" C. THRU COOLER WALL APPROXIMATELY 7'-0" AFF FROM INTERNAL TEMPERATURE PROBE TO EXTERNAL SENSOR. COORDINATE ROUTING WITH COOLER SUPPLIER AND OWNER.
4. SPEAKER AND ALL MOUTING HARDWARE IS FURNISHED AND INSTALLED BY SOUND PRODUCTS, INC. TYPICAL ALL SPEAKER LOCATIONS.
5. EC TO PROVIDE UNSHIELDED, TWISTED PAIR, PLENUM RATED WIRE, WEST PENN #25224B 18/2 SPEAKER WIRE ABOVE CEILING TO EACH SPEAKER. WHERE WIRING IS RAN THRU OPEN CEILING AREAS WIRE IS TO BE IN CONDUIT PER SPECIFICATIONS. WIRING TO SPEAKERS ARE TO BE "DAISY CHAINED" FROM DATA RACK. COIL 5'-0" OF WIRE AT EACH SPEAKER LOCATION. VERIFY 18/2 WIRE TYPE WITH SOUND PRODUCTS, INC. SPEAKER WIRE AND ROUGH-IN PANS FOR HARD CEILING AREAS TO BE SENT TOT HE SITE BY SOUND PRODUCTS PRIOR TO PRE-WIRE. SPEAKERS WILL BE FURNISHED AND INSTALLED BY SOUND PRODUCTS INC.
6. TELEPHONE BOARD, SEE DETAIL FOR MORE INFORMATION.
7. EC TO PROVIDE CAT5E WIRE(S) FROM DATA RACK TO THIS LOCATION FOR CONNECTION TO SECURITY CAMERA SUPPLIED BY OTHERS.
8. PROVIDE 18/2 WIRE FROM EXTERIOR KEYPAD TO MEDIA RACK FOR REAR DOORBELL.

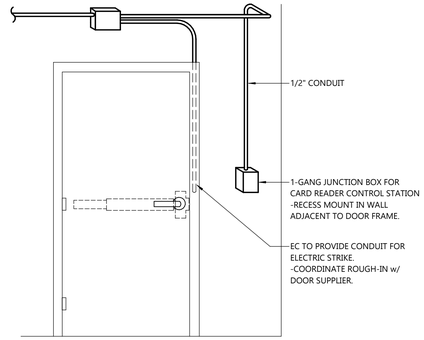
AD2

CAT5 CONDUIT FILL TABLE	
CONDUIT TRADE SIZE	QUANTITY
1/2"	0
3/4"	3
1"	6
1-1/4"	10
1-1/2"	15
2"	20
2-1/2"	30



1 E1.1S TELEPHONE BOARD DETAIL

NOT TO SCALE



2 E1.1S CARD READER / STRIKE DETAIL

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FIRST FLOOR PLAN - SYSTEMS

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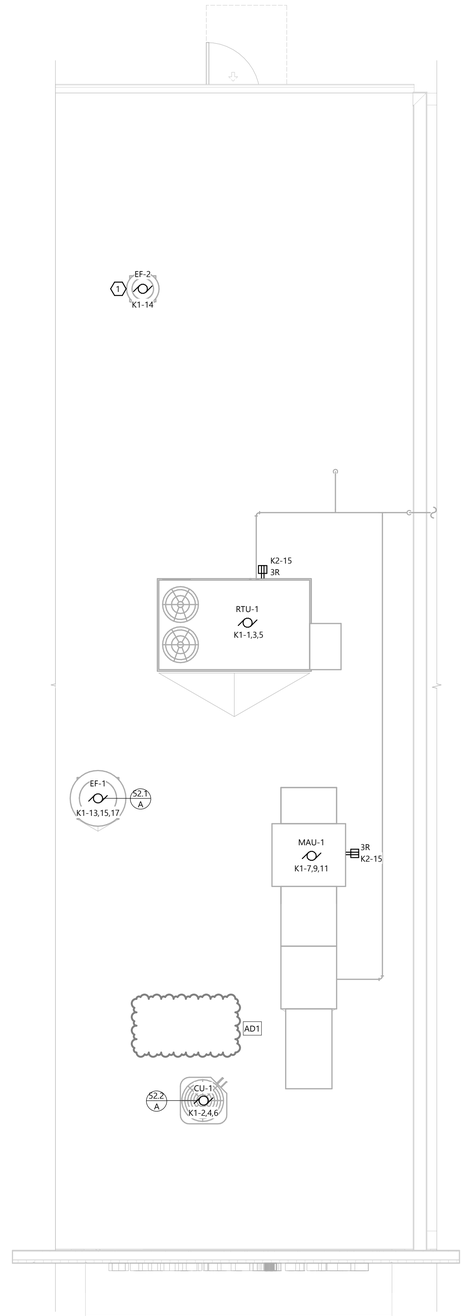

NORTH

ROOF PLAN

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

4' 0' 4' 8'

GENERAL NOTES

- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- EXTERIOR RECEPTACLES SHALL BE GFI TYPE. PROVIDE PASS & SEYMOUR SERIES "WI UC" OR EQUIVALENT COVER. (PER NEC 406.8(B) AND AHJ). COLOR SHALL BE SELECTED BY ARCHITECT.
- SEE SHEET E4.0 FOR BRANCH CIRCUIT FEEDER SIZES.
- DEVICE LOCATIONS MAY BE DISTORTED FOR CLARITY. LOCATE DEVICES SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS.
- SEE HVAC AND PLUMBING PLANS FOR LOCATIONS OF HEATING, VENTILATING, AIR CONDITIONING AND PLUMBING EQUIPMENT. DO NOT REFERENCE ELECTRICAL DRAWINGS FOR EXACT LOCATION.

KEYNOTES

1. EC SHALL WIRE TO 120V MOTOR OPERATED DAMPER ACTUATOR LOCATED INSIDE BUILDING BELOW ROOF EXHAUSTER FROM SAME FEED AS ROOF EXHAUSTER.

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ELECTRICAL ROOF PLAN

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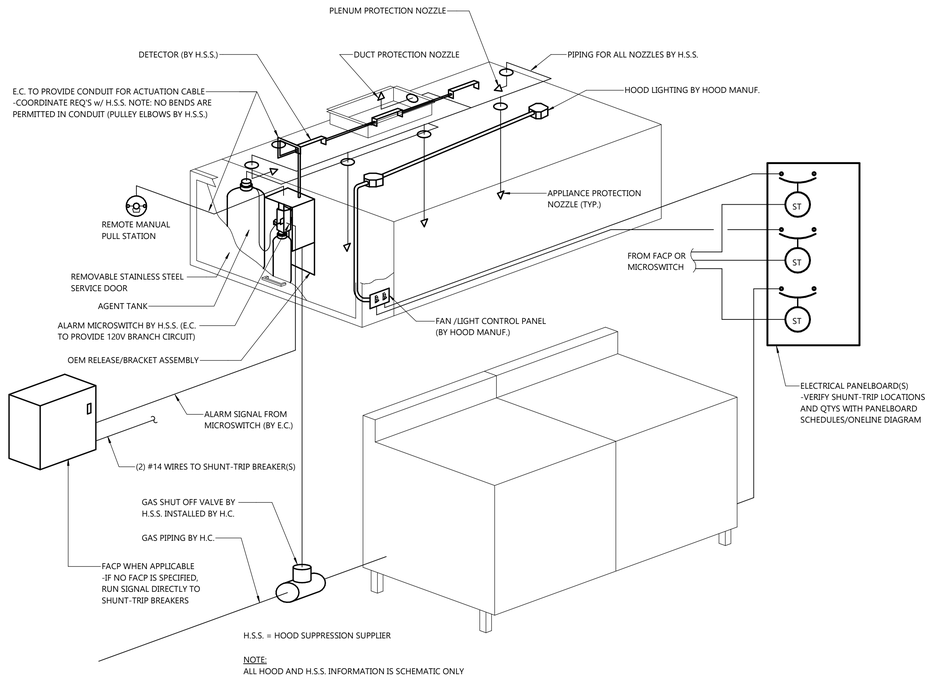
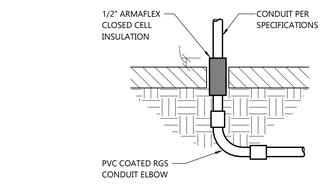
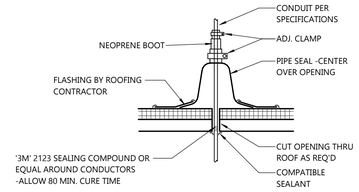


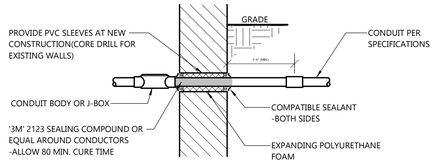
2 KITCHEN HOOD DETAIL
E3.0 NOT TO SCALE



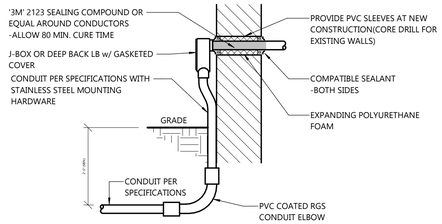
SLAB ON GRADE FLOORS



MEMBRANE ROOF



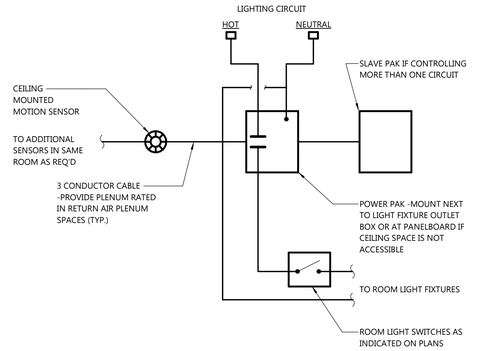
BELOW GRADE WALLS



ABOVE GRADE WALLS

NOTES:
- SEE SPECIFICATIONS FOR CONDUIT MATERIAL BEYOND COUPLINGS.
- SEE SPECIFICATIONS FOR INTERIOR WALL AND FLOOR PENETRATION REQ'S.

1 CONDUIT PENETRATION DETAILS
E3.0 NOT TO SCALE



3 MOTION SENSOR DETAIL
E3.0 NOT TO SCALE

ELECTRICAL DETAILS

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LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	VOLTAGE	LIGHT SOURCE	CCT	FIXTURE WATTS	MIN. LUMENS	MANUFACTURER/MODEL NUMBER	REMARKS
C16	6" RECESSED DOWNLIGHT - SPECULAR CLEAR REFLECTOR - WHITE PAINTED FLANGE - 0-10V DIMMING	120 V	LED	3,500K	15 VA	1,500	PRESCOLITE / LTR-6RD-H-ML20L-DM1/LTR-6RD-T-ML35K8WDS	
DP2	DECORATIVE MINI PENDANT - LED	120 V	LED	3,000K	9 VA	800	BESA LIGHTING / 1JT-DANOSMMD-LED-SN-L	(1)
EM1	WALL BATTERY EMERGENCY LIGHT - WHITE HOUSING - SELF-DIAGNOSTICS	120 V	LED	-	5 VA	-	SURE-LITES / SEL50-SD	
L1	1X4 LED FLAT PANEL - DIMMABLE	120 V	LED	4,000K	37 VA	4,000	LITHONIA / EPANEL 1X4 4000LM 80CRI 40K MIN10 ZT MVOLT	
L2	2X4 LED FLAT PANEL - DIMMABLE	120 V	LED	4,000K	50 VA	6,000	LITHONIA / EPANEL 2X4 6000LM 80CRI 40K MIN10 ZT MVOLT	
R2	EXTERIOR REMOTE EMERGENCY HEAD - ALUMINUM - 25FT - DOUBLE - WHITE	120 V	LED	-	3 VA	-	SURELITE / SRP25DWH	
VT	LED VAPOR TIGHT	120 V	LED	3,500K	32 VA	3,500	DAY-BRITE / DWAE35L840-4-UNV	
X1	SINGLE FACE POLYCARBONATE EXIT - W/ BATTERY - GREEN LETTERS - SELF-DIAGNOSTICS	120 V	LED	-	5 VA	-	SURE-LITES / LPXC-25-SD	

GENERAL NOTES

- FIXTURE MODEL NUMBER MAY NOT REFLECT ALL MOUNTING HARDWARE. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY MOUNTING EQUIPMENT, LENSES, STEMS, SAFETY CHAINS, END PLATES, AND ALL OTHER HARDWARE NECESSARY FOR A COMPLETE FIXTURE INSTALLATION. SEE MOUNTING DETAILS WHEN APPLICABLE.
- LINE VOLTAGE DRIVERS MAY BE SUBSTITUTED FOR "UNIVERSAL" OR "MULTI-VOLTAGE" DRIVERS.
- ALL LIGHT FIXTURE POLES SHALL BE RATED FOR WIND ZONE SITE IS LOCATED IN OR 100 MPH WINDS WHICHEVER IS GREATER.
- ALL FIXTURES SHALL BE UL OR ETL LISTED.
- ALL FIXTURES IN DIRECT CONTACT WITH INSULATION SHALL BE IC RATED OR INSULATION SHALL BE KEPT A MINIMUM OF 3" FROM ALL SIDES OF FIXTURES.
- ALL LINEAR LAMP AND BALLAST COMBINATIONS SHALL BE FOCUS ON ENERGY COMPLIANT.

LED REQUIREMENTS

- ALL LED FIXTURES SHALL BE 3500K WITH A MINIMUM 80 PERCENT COLOR RENDERING INDEX UNLESS NOTED OTHERWISE.
- PROVIDE DIMMABLE DRIVERS FOR ALL FIXTURE TYPES SHOWN TO BE "DIMMABLE".
- CONTRACTOR SHALL VERIFY WITH HIS SUPPLIER(S) ALL DIMMERS AND DIMMABLE FIXTURES ARE 100% COMPATIBLE.
- PROVIDE DUAL CIRCUIT TYPE DRIVERS OR TWO DRIVERS PER FIXTURES WHEN FIXTURES ARE SHOWN ON PLANS TO BE "DUAL LEVEL" SWITCHED.
- ALL LED FIXTURES SHALL HAVE MINIMUM 50,000 L70.

REMARKS:

(1) PROVIDE FIXTURE WITH 9W DIMMABLE LED BULB SUITABLE FOR MANUAL DIMMING

LIGHTING CONTROL PANEL SCHEDULE

LCP NAME: LCP
LOCATION: HALLWAY 106
SURFACE/FLUSH: RECESSED
POWER CIRCUIT: K2-13

RELAY #	CIRCUIT	DESCRIPTION	LV SWITCH/SENSOR	CHANNEL
1	K2-1	INTERIOR ORDERING LIGHTING	MASTER OVERRIDE	B
2	K2-1	INTERIOR KITCHEN LIGHTING	MASTER OVERRIDE	A
3	K2-24	BUILDING SIGNAGE		E
4		SPARE		
5		SPARE		
6		SPARE		
7		SPARE		
8		SPARE		

LCP CHANNEL AUTOMATION SCHEDULE

CHANNEL	SCENARIO	SCENARIO TIMES	BLINK	TIME DELAY
A	1	OFF 11:00PM		
B	2	11:00AM-9:30PM		2 HOURS
C	3	"		2 HOURS
D	4	DUSK-12:00AM		
E	5	DUSK-DAWN		
F	6	6:00AM-6:00PM		
G	7	TBD-ON 24/7/365 INITIALLY		
H	8			

NOTE TO ELECTRICAL CONTRACTOR ON PROGRAM SCHEDULING:

FINAL TIME SCHEDULES SHALL BE VERIFIED WITH OWNER'S REPRESENTATIVE NOT TO EXCEED 30-MIN BEFORE OPENING OR 30-MIN AFTER CLOSING SCHEDULE TO MEET IECC MANDATORY CONTROL MEASURES.

SCENARIO LISTING:
(1) MANUAL ON/SCHEDULE OFF
(2) SCHEDULE
(3) MANUAL
(4) PHOTOCELL
(5) PHOTO & SCHEDULE ON/OFF
(6) ASTRONOMIC ON/OFF
(7) ASTRONOMIC AND SCHEDULE ON/OFF

LIGHTING CONTROL PANEL SPECIFICATIONS:

PROVIDE A SINGLE RELAY PANEL WITH UP TO 16 RELAYS, EACH RELAY TO BE INDIVIDUALLY SCHEDULED THROUGH AN EASY TO USE INTEGRAL CLOCK WITH A BACKLIT 8-LINE LCD DISPLAY. RELAYS ARE TO BE SPST 20 AMP RATED, MECHANICALLY HELD CONTACTORS CAPABLE OF SWITCHING EITHER 120 OR 277VAC LOADS. MOUNTED NEXT TO EACH RELAY SHOULD BE A LED TO ANNUNCIATE STATUS AND A PUSHBUTTON TO TOGGLE THE RELAY'S STATE. PANEL SHALL HAVE A MULTITAP TRANSFORMER AND ACCEPT EITHER 120V OR 277V FOR POWER.

PANEL ENCLOSURE TO BE NEMA 1, RATED FOR ENVIRONMENTS FROM 32 - 139 DEGREES FAHRENHEIT, 5 - 95% RELATIVE HUMIDITY NON-CONDENSING PANEL TO COME WITH A SPLIT COVER HINGED IN THE CENTER SUCH THAT THE HIGH VOLTAGE SIDE MUST BE UNSCREWED TO ACCESS THE RELAYS, BUT THE LOW VOLTAGE SIDE CAN BE OPENED VIA A LOCKING LATCH. SURFACE OR FLUSH COVERS SHALL BE AVAILABLE.

EACH RELAY CAN BE CONTROLLED REMOTELY BY EXTERNAL SWITCHES OR MOTION DETECTORS. SWITCHES CAN BE 2- OR 3-WIRE, MOMENTARY OR MAINTAINED LOW VOLTAGE DEVICES. MOTION DETECTORS MUST PROVIDE A 24VDC PILOT SIGNALTO CONTROL THE RELAYS. PANEL MUST BE ABLE TO INTERLOCK TIME BASED SCHEDULES WITH THE OCCUPANCY SENSOR INPUT, SO THAT LIGHTS SCHEDULED ON DURING THE DAY ARE NOT AFFECTED BY THE MOTION DETECTOR, BUT AFTER HOURS THE OCCUPANCY SENSOR HAS CONTROL OF THE RELAY. PANEL SHALL BE CAPABLE OF BLINK WARNING BEFORE "OFF" AND TRUE AFTER HOURS TIME DELAY.

ALL PROGRAMMING TO BE ENTERED VIA A SIMPLE KEYPAD. EACH RELAY CAN BE PROGRAMMED INDEPENDENTLY, OR RELAYS CAN BE GROUPED TOGETHER IN FIRMWARE TO FOLLOW THE SAME CHANNEL SCHEDULE. ON A DAILY 7-DAY REPEATING BASIS, RELAYS CAN BE
(1) MANUAL ON/SCHEDULE OFF
(2) SCHEDULE ON/OFF
(3) MANUAL ON/AS
(4) PHOTOCELL ON/OFF
(5) PHOTO & SCHEDULE
(6) ASTRONOMIC ON/OFF
(7) ASTRONOMIC AND SCHEDULE ON/OFF

THE LCD SCREEN SHOULD NORMALLY SHOW THE CURRENT TIME AND DATE, AS WELL AS SUNRISE AND SUNSET TIMES FOR THAT DAY. RELAY CHANNELS CAN ALSO BE MONITORED FROM THE DISPLAY TO SEE THEIR STATUS. EITHER ON, OFF, OR MIXED. ADDITIONALLY, THE RELAY GROUPS CAN BE OVERRIDDEN FROM THE SCREEN. CONTEXT SENSITIVE HELP SHALL BE AVAILABLE FOR EACH SCREEN.

PANEL TO BE WATT STOPPER'S PANEL (OR APPROVED EQUAL) AND MUST BE UL LISTED 916, MEET LOCAL ENERGY CODES (IECC 2015) AND HAVE A 1 YEAR WARRANTY.

AD1

OVERALL SERVICE CALCULATIONS

LOAD	CONNECTED (VA)	DEMAND (VA)	CONNECTED (AMPS)	DEMAND (AMPS)
RECEPTACLE	19,160	14,580	53.18	40.47
LIGHTING	718	898	1.99	2.49
MOTOR	42,698	42,698	118.52	118.52
EL HEAT	2,000	2,000	5.55	5.55
KITCHEN	39,648	25,771	110.05	71.53
OTHER (MISC)	14,772	14,772	41.00	41.00
		TOTALS	330	280

DEMAND LOAD KEY

LOAD DESCRIPTION	DEMAND FACTOR
RECEPTACLES	FIRST 10,000 @ 100% REMAINDER @ 50%
LIGHTING	125%
KITCHEN EQUIPMENT	65%
MOTORS	100%
MISCELLANOUS	100%

KITCHEN EQUIPMENT DEMAND FACTOR

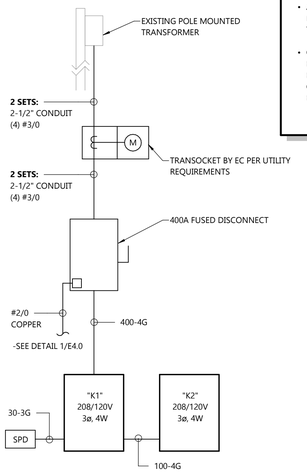
UNITS	FACTOR
1	100%
2	100%
3	90%
4	80%
5	70%
6 AND MORE	65%

CHART IS BASED ON CURRENT NEC SECTION 220.56

BRANCH CIRCUIT FEEDER SCHEDULE

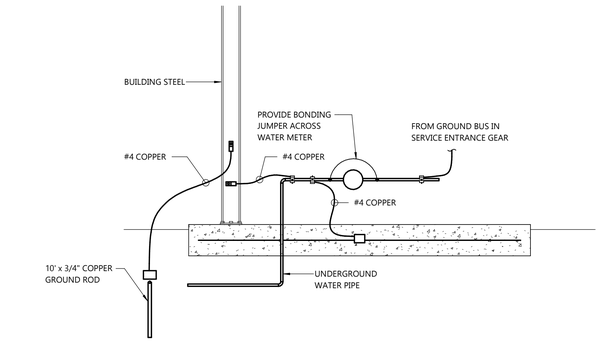
AMP / POLE	CONDUIT SIZE	CONDUCTORS & GROUNDING CONDUCTOR SIZES
15A/1P OR 15A/2P	1/2"	(2) #12 & #12 GND
20A/1P OR 20A/2P	1/2"	(2) #12 & #12 GND
15A/3P OR 20A/3P	1/2"	(3) #12 & #12 GND
25A/1P OR 25A/2P	3/4"	(2) #10 & #10 GND
30A/1P OR 30A/2P	3/4"	(2) #10 & #10 GND
25A/3P OR 30A/3P	3/4"	(3) #10 & #10 GND
35A/1P OR 35A/2P	3/4"	(2) # 8 & #10 GND
40A/1P OR 40A/2P	3/4"	(2) # 8 & #10 GND
35A/3P OR 40A/3P	3/4"	(3) #8 & #10 GND
45A/1P OR 45A/2P	1"	(2) #6 & #10 GND
45A/3P OR 50A/3P	1"	(3) #6 & #10 GND
50A/1P OR 50A/2P	1"	(2) #6 & #10 GND
60A/1P OR 60A/2P	1"	(2) #4 & #8 GND
60A/3P	1-1/4"	(3) #4 & #8 GND
70A/3P OR 80A/3P	1-1/4"	(3) #4 & #8 GND
90A/3P	1-1/4"	(3) #3 & #8 GND
100A/3P OR 110A/3P	1-1/2"	(3) #2 & #6 GND
125A/3P	1-1/2"	(3) #1 & #6 GND

- PROVIDE BRANCH CIRCUIT FEEDERS AS NOTED ABOVE, UNLESS NOTED OTHERWISE.



ONELINE DIAGRAM

NOT TO SCALE



1 / E4.0 GROUNDING SYSTEM RISER DETAIL

NOT TO SCALE

GENERAL NOTES

- ALL ITEMS OR DEVICES SHOWN "HEAVY DASHED" ARE TO BE DEMOLISHED. ALL ITEMS OR DEVICES SHOWN "LIGHTER" ARE EXISTING TO REMAIN.
- ONELINE DIAGRAMS AND RISER DIAGRAMS ARE A DIAGRAMMATIC REPRESENTATION TO AID THE CONTRACTOR IN UNDERSTANDING THE FUNCTION AND OPERATION OF THE SYSTEMS. EC SHALL REVIEW THE ONELINES, RISERS AND FLOOR PLANS FOR THE LOCATION OF ALL EQUIPMENT.

3 ø FEEDER SCHEDULES - COPPER

3 WIRE FEEDERS			4 WIRE FEEDERS		
FEEDER DESIGNATION	CONDUIT SIZE(S)	CONDUCTORS & GROUNDING CONDUCTOR(S) SIZES	FEEDER DESIGNATION	CONDUIT SIZE(S)	CONDUCTORS & GROUNDING CONDUCTOR(S) SIZES
20 - 3G	3/4"	(3) #12 & #12 GND	20 - 4G	3/4"	(4) #12 & #12 GND
25 - 3G	3/4"	(3) #10 & #10 GND	25 - 4G	3/4"	(4) #10 & #10 GND
30 - 3G	3/4"	(3) #10 & #10 GND	30 - 4G	3/4"	(4) #10 & #10 GND
35 - 3G	3/4"	(3) #10 & #10 GND	35 - 4G	3/4"	(4) #10 & #10 GND
40 - 3G	1"	(3) #8 & #10 GND	40 - 4G	1"	(4) #8 & #10 GND
45 - 3G	1"	(3) #8 & #10 GND	45 - 4G	1"	(4) #8 & #10 GND
50 - 3G	1"	(3) #8 & #10 GND	50 - 4G	1"	(4) #8 & #10 GND
60 - 3G	1"	(3) #6 & #8 GND	60 - 4G	1"	(4) #6 & #8 GND
65 - 3G	1"	(3) #6 & #8 GND	65 - 4G	1"	(4) #6 & #8 GND
70 - 3G	1"	(3) #4 & #8 GND	70 - 4G	1-1/4"	(4) #4 & #8 GND
80 - 3G	1"	(3) #4 & #8 GND	80 - 4G	1-1/4"	(4) #4 & #8 GND
90 - 3G	1-1/4"	(3) #3 & #8 GND	90 - 4G	1-1/4"	(4) #3 & #8 GND
100 - 3G	1-1/4"	(3) #3 & #8 GND	100 - 4G	1-1/4"	(4) #3 & #8 GND
110 - 3G	1-1/4"	(3) #2 & #6 GND	110 - 4G	1-1/2"	(4) #2 & #6 GND
125 - 3G	1-1/4"	(3) #1 & #6 GND	125 - 4G	1-1/2"	(4) #1 & #6 GND
150 - 3G	1-1/2"	(3) #1/0 & #6 GND	150 - 4G	2"	(4) #1/0 & #6 GND
175 - 3G	2"	(3) #2/0 & #6 GND	175 - 4G	2"	(4) #2/0 & #6 GND
200 - 3G	2"	(3) #3/0 & #4 GND	200 - 4G	2"	(4) #3/0 & #4 GND
225 - 3G	2"	(3) #4/0 & #4 GND	225 - 4G	2-1/2"	(4) #4/0 & #4 GND
250 - 3G	2-1/2"	(3) 250 KCMIL & #4 GND	250 - 4G	3"	(4) 250 KCMIL & #4 GND
300 - 3G	2-1/2"	(3) 350 KCMIL & #3 GND	300 - 4G	3"	(4) 350 KCMIL & #3 GND
350 - 3G	3"	(3) 500 KCMIL & #3 GND	350 - 4G	3-1/2"	(4) 500 KCMIL & #3 GND
400 - 3G	(2) 2"	2 SETS OF (3) #3/0 & #2 GND	400 - 4G	(2) 2-1/2"	2 SETS OF (4) #3/0 & #2 GND
450 - 3G	(2) 2-1/2"	2 SETS OF (3) #4/0 & #2 GND	450 - 4G	(2) 2-1/2"	2 SETS OF (4) #4/0 & #2 GND
500 - 3G	(2) 2-1/2"	2 SETS OF (3) 250 KCMIL & #2 GND	500 - 4G	(2) 3"	2 SETS OF (4) 250 KCMIL & #2 GND
550 - 3G	(2) 2-1/2"	2 SETS OF (3) 300 KCMIL & #1 GND	550 - 4G	(2) 3"	2 SETS OF (4) 300 KCMIL & #2 GND
600 - 3G	(2) 3"	2 SETS OF (3) 350 KCMIL & #1 GND	600 - 4G	(2) 3"	2 SETS OF (4) 350 KCMIL & #1 GND
700 - 3G	(2) 3"	2 SETS OF (3) 500 KCMIL & #1/0 GND	700 - 4G	(2) 3-1/2"	2 SETS OF (4) 500 KCMIL & #1/0 GND
800 - 3G	(3) 3"	3 SETS OF (3) 300 KCMIL& #1/0 GND	800 - 4G	(3) 3"	3 SETS OF (4) 300 KCMIL & #1/0 GND
900 - 3G	(3) 3"	3 SETS OF (3) 350 KCMIL & #2/0 GND	900 - 4G	(3) 3"	3 SETS OF (4) 350 KCMIL & #2/0 GND
1000 - 3G	(3) 3"	3 SETS OF (3) 400 KCMIL & #2/0 GND	1000 - 4G	(3) 3-1/2"	3 SETS OF (4) 400 KCMIL & #2/0 GND
1200 - 3G	(4) 3"	4 SETS OF (3) 350 KCMIL & #3/0 GND	1200 - 4G	(4) 3"	4 SETS OF (4) 350 KCMIL & #3/0 GND
1600 - 3G	(4) 4"	4 SETS OF (3) 600 KCMIL& #4/0 GND	1600 - 4G	(4) 4"	4 SETS OF (4) 600 KCMIL & #4/0 GND
2000 - 3G	(6) 3"	6 SETS OF (3) 400 KCMIL & 250 KCMIL GND	2000 - 4G	(6) 3-1/2"	6 SETS OF (4) 400 KCMIL & 250 KCMIL GND

- CONDUCTOR SIZES LISTED ABOVE ARE FOR COPPER THHN/XHHW. CONTRACTOR SHALL ADJUST ACCORDINGLY FOR DIFFERENT WIRING TYPES.
- CONTRACTOR SHALL MAKE ADJUSTMENTS TO FEEDERS SIZES FOR AMBIENT TEMPERATURES AND VOLTAGE DROP ACCORDINGLY.
- WHERE PARALLEL CONDUCTORS ARE INDICATED, THE CONTRACTOR SHALL VERIFY LUG CONFIGURATIONS OF EQUIPMENT BEING CONNECTED..
- EQUIPMENT GROUNDING CONDUCTOR SIZE MAY BE REDUCED BASE ON OVERCURRENT AND/OR GROUND FAULT PROTECTION EQUIPMENT (NEC 250).

ELECTRICAL ONELINE DIAGRAMS & SCHEDULES

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE NOV. 23, 2021

REVISIONS
AD1 JAN. 24, 2022

JOB NUMBER

2172060

SHEET NUMBER

E4.0

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PANELBOARD: K1

LOCATION:
SUPPLY FROM:
MOUNTING: RECESSED
ENCLOSURE: NEMA 1

VOLTS: 120/208 WYE
PHASES: 3
WIRES: 4

A.I.C. RATING: 42,000
MAINS TYPE: MLO
BUS RATING: 400A
MCB RATING: -

NOTES:
-SEE BRANCH CIRCUIT FEEDER SCHEDULE FOR FEEDER DESIGNATIONS.
(L) LOCKABLE STYLE BREAKERS
(S) SHUNT TRIP STYLE BREAKER

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	MOTOR - RTAC-1	80 A	3	8040	2568					3	30 A	MOTOR - CU-1(52.2) ROOFTOP	2
3	--	-- --	--			8040	2568			--	-- --	--	4
5	--	-- --	--					8040	2568	--	-- --	--	6
7	MOTOR - MAU-1 ROOFTOP	15 A	3	660	0					1	20 A --	SPARE	8
9	--	-- --	--			660	0			1	20 A --	SPARE	10
11	--	-- --	--					660	0	1	20 A --	SPARE	12
13	MOTOR - EF-1(52.1) ROOFTOP	20 A	3	1140	696					1	15 A	MOTOR - EF-3 ROOFTOP	14
15	--	-- --	--			1140	4992			3	45 A	RECEPTACLE - COUNTERTOP STEAMER(74)	16
17	--	-- --	--					1140	4992	--	-- --	--	18
19	RECEPTACLE - COUNTERTOP STEAMER(74)	20 A	3	4992	4992					--	-- --	--	20
21	--	-- --	--			4992	832			2	20 A	MOTOR - WALK-IN COOLER COMPRESSOR(91.2)	22
23	--	-- --	--					4992	832	--	-- --	--	24
25	RECEPTACLE - U.C. REF. (73)	(S) 20 A	1	240	4056					2	50 A	OTHER - LOAD CENTER(15)	26
27	SPACE FOR SHUNT TRIP	-- --	1			--	4056			--	-- --	--	28
29	OTHER - EXHAUST HOODLIGHTS TYPE I(75)	(S) 20 A	1					1140	1560	2	25 A	OTHER - DOLE WHIP MACHINE(7B)	30
31	SPACE FOR SHUNT TRIP	-- --	1	--	1560					--	-- --	--	32
33	ELECTRIC HEAT - EWH-1	20 A	2			1000	960			1	20 A (S)	RECEPTACLE - CONVECTION OVEN(56)	34
35	--	-- --	--					1000	--	1	-- --	SPACE FOR SHUNT TRIP	36
37	MOTOR - PB-1	25 A	2	1435	960					1	20 A (S)	RECEPTACLE - CONVECTION OVEN(56)	38
39	--	-- --	--			1435	--			1	-- --	SPACE FOR SHUNT TRIP	40
41	SPARE	-- 20 A	1					0	0	1	20 A --	SPARE	42
43	SPARE	-- 20 A	1	0	0					1	20 A --	SPARE	44
45	SPARE	-- 20 A	1			0	0			1	20 A --	SPARE	46
47	SPARE	-- 20 A	1					0	0	1	20 A --	SPARE	48
49	SPD	-- 30 A	3	0	11922					3	125 A	PANEL "K2"	50
51	--	-- --	--			0	10428			--	-- --	--	52
53	--	-- --	--					0	8248	--	-- --	--	54
		TOTAL LOAD:		43261 VA		41103 VA		35172 VA					
		TOTAL AMPS:		368 A		350 A		293 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Lighting	718 VA	125.00%	898 VA		
Motor	42698 VA	100.00%	42698 VA	**TOTAL CONN. LOAD**	119536 VA
Other	14772 VA	100.00%	14772 VA	**TOTAL EST. DEMAND**	98944 VA
Receptacle	19700 VA	65.00%	12805 VA	**TOTAL CONN.**	332 A
Kitchen	39648 VA	65.00%	25771 VA	**TOTAL EST. DEMAND**	275 A

PANELBOARD: K2

LOCATION:
SUPPLY FROM: K1
MOUNTING: RECESSED
ENCLOSURE: NEMA1

VOLTS: 120/208 WYE
PHASES: 3
WIRES: 4

A.I.C. RATING: 42,000
MAINS TYPE: MLO
BUS RATING: 125A
MCB RATING: -

NOTES:
-SEE BRANCH CIRCUIT FEEDER SCHEDULE FOR FEEDER DESIGNATIONS.
(L) LOCKABLE STYLE BREAKERS
(S) SHUNT TRIP STYLE BREAKER
(G) SUFFIX DENOTES GFI TYPE BREAKER

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	LIGHTING - KITCHEN/BOH/FOH	20 A	1	518	192					1	20 A	MOTOR - WALK-IN COOLER EVAPORATOR(91.1)	2
3	LIGHTING - NIGHT LIGHTS	20 A	1			200	180			1	20 A	RECEPTACLE - EXTERIOR GFI	4
5	RECEPTACLE - DATA RACK	20 A	1					360	648	1	20 A	RECEPTACLE - DRINK DISPLAY COOLER(5)	6
7	RECEPTACLE - UTILITY OUTLET(62)	20 A	1	1920	1920					1	20 A	RECEPTACLE - UTILITY OUTLET(71)	8
9	RECEPTACLE - UTILITY OUTLET(62)	20 A	1			1920	540			1	20 A	RECEPTACLE - ORDER PODS	10
11	RECEPTACLE - UTILITY OUTLET(62)	20 A	1					1920	360	1	20 A	RECEPTACLE - DINING	12
13	LCP (L)	20 A	1	0	540					1	20 A	RECEPTACLE - KITCHEN	14
15	RECEPTACLE - ROOFTOP	20 A	1			360	1920			1	20 A	RECEPTACLE - UTILITY OUTLET(32)	16
17	RECEPTACLE - OFFICE	20 A	1					360	1920	1	20 A	RECEPTACLE - UTILITY OUTLET(100)	18
19	RECEPTACLE - HOLDING CABINET(51)	20 A	1	1800	1920					1	20 A	RECEPTACLE - UTILITY OUTLET(45)	20
21	OTHER - WALK-IN COOLER(91)	20 A	1			0	1704			1	20 A	RECEPTACLE - COOK AND HOLD OVEN(47)	22
23	RECEPTACLE - WINDOW RECEPS.	20 A	1					360	600	1	20 A	OTHER - SIGNAGE	24
25	OTHER - CIRC. PUMP	20 A	1	52	360					1	20 A	RECEPTACLE - TELEPHONE	26
27	OTHER - WS-1 G	20 A	1			1000	1704			1	20 A	RECEPTACLE - COOK AND HOLD OVEN(47)	28
29	RECEPTACLE - WS-2 G	20 A	1					1000	180	1	20 A	RECEPTACLE - ORDERING / HALLWAY	30
31	OTHER - IGWH-1 G	20 A	1	1800	360					1	20 A	RECEPTACLE - DATA RACK	32
33	RECEPTACLE - DATA RACK	20 A	1			360	360			1	20 A	RECEPTACLE - DATA RACK	34
35	RECEPTACLE - DATA RACK	20 A	1					180	360	1	20 A	RECEPTACLE - DATA RACK	36
37	RECEPTACLE - DATA RACK	20 A	1	180	360					1	20 A	RECEPTACLE - ABOVE COUNTER	38
39	RECEPTACLE - ABOVE REAR DOOR	20 A	1			180	0			1	20 A --	SPARE	40
41	SPARE	-- 20 A	1					0	0	1	20 A --	SPARE	42
		TOTAL LOAD:		11922 VA		10428 VA		8248 VA					
		TOTAL AMPS:		102 A		90 A		69 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Lighting	718 VA	125.00%	898 VA		
Motor	244 VA	100.00%	244 VA	**TOTAL CONN. LOAD**	30598 VA
Other	2400 VA	100.00%	2400 VA	**TOTAL EST. DEMAND**	21634 VA
Receptacle	19460 VA	65.00%	12649 VA	**TOTAL CONN.**	85 A
Kitchen	7776 VA	70.00%	5443 VA	**TOTAL EST. DEMAND**	60 A

SHORT CIRCUIT CALCULATIONS

THE FOLLOWING CALCULATIONS ARE BASED UPON THE "POINT BY POINT" METHOD AS FOLLOWS:

$$I(SCA) = \frac{I(SCA) \times M}{}$$

$$M = \frac{1}{(1+F)}$$

$$F = \frac{1.732 \times L \times I}{N \times C \times E\ (L\text{-}L)}$$

FAULT POINT	PANEL / S.E.S. TRANSFORMER	"I" AMPS	CONDUIT TYPE	COND. MATERIAL	COND. / PHASE	WIRE SIZE	"C" VALUE	"E" L-L	Ø	"L" LENGTH	"F"	"M"	ISC
1	UTIL. TRANSFORMER	26,000											
2	SERVICE EQUIPMENT	26,000	METALIC	COPPER	2	3 OTT	12844	208	3	50	0.421	0.704	18291.8
3	"K1"	18,292	METALIC	COPPER	2	3 OTT	12844	208	3	15	0.089	0.918	16797.8
4	"K2"	16,798	METALIC	COPPER	1	1	7293	208	3	10	0.192	0.839	14094.6

NOTES:
- VALUES ABOVE ARE BASED ON THE ASSUMPTION THE UTILTY WILL PROVIDE A 150KVA TRANSFORMER WITH 1.6%Z.
CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES.
- SERIES RATING OF BREAKERS MAY BE UTILIZED AT CONTRACTORS DISCRETION.
- "C" VALUES ARE EQUAL TO ONE OVER THE IMPEDANCE PER FOOT, AND ARE BASED UPON IEEE STANDARD TABLES.
- CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES.
- VALUES ABOVE DO NOT REFLECT MOTOR CONTRIBUTIONS FROM THE BUILDING.
- ELECTRICAL CONTRACTOR TO PROVIDE ARC-FLASH HASZARD WARNING FIELD MARKING PER NEC 110.16
- ELECTRICAL CONTRACTOR TO PROVIDE SERIES RATED LABELING PER NEC 110-22(B) WHERE THERE IS AN APPLIED SERIES RATING AS SHOWN ON THE DRAWINGS.
- ANY ADDITIONAL COSTS FOR FAILURE TO COMPLY WITH THE ABOVE REQUIREMENTS WILL BE STRICTLY AT CONTRACTORS EXPENSE.

ELECTRICAL PANEL SCHEDULES

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PROJECT INFORMATION

PROPOSED INTERIOR BUILDOUT
HAWAIIAN BROS
6957 W 75TH ST. • OVERLAND PARK, KS 66204

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE	NOV. 23, 2021
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AD1	JAN. 24, 2022
AD2	JAN. 28, 2022

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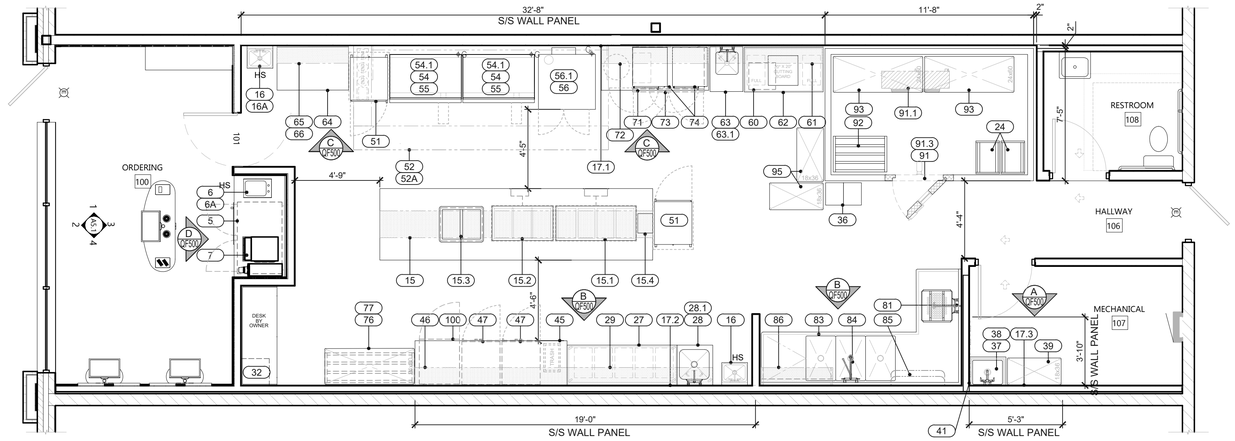


KITCHEN EQUIPMENT LAYOUT PLAN

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

GENERAL NOTES

1. THESE DRAWINGS ARE TO BE USED AS AN INSTRUMENT OF REFERENCE BY ALL OTHER TRADES AND CONTRACTORS. ALL TRADES SHALL VERIFY THE INFORMATION AS INDICATED ON THESE PLANS.
2. DIMENSIONS AND REQUIREMENTS FOR ALL EQUIPMENT THAT IS LISTED AS EXISTING, PROVIDED BY OTHERS OR PROVIDED BY OWNER, MUST BE VERIFIED WITH THE APPROPRIATE PARTIES.
3. ALL LOCAL, STATE AND NATIONAL CODES SHALL APPLY.
4. ALL DIMENSIONS ON THESE PLANS ARE BASED ON FINISHED WALL AND FLOOR DIMENSIONS. ANY DISCREPANCIES BETWEEN THESE DRAWINGS AND ACTUAL OR INTENDED CONDITIONS IN THE FIELD SHOULD BE REPORTED TO EDWARD DON & COMPANY IMMEDIATELY.
5. UNLESS OTHERWISE NOTED, ARCHITECT TO LOCATE, GENERAL CONTRACTOR TO PROVIDE ALL ROOF/BUILDING PENETRATIONS AND CURBS FOR EXHAUST/SUPPLY AIR SYSTEMS AND REMOTE COMPRESSORS.
6. ARCHITECT TO LOCATE ALL REMOTE COMPRESSORS AND CONDENSERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
7. UNLESS OTHERWISE NOTED ALL DIMENSIONS SHOWN ON THIS PLAN ARE FROM THE FINISHED FLOOR, CEILING OR WALLS TO THE CENTERLINE OF THE ROUGH-INS.
8. EDWARD DON & COMPANY DOES NOT EMPLOY A LICENSED ARCHITECT OR ENGINEER. THESE DOCUMENTS PROVIDED BY EDWARD DON & COMPANY ARE GUIDELINE DOCUMENTS ONLY AND ARE INTENDED TO BE INCORPORATED INTO THE FINAL CONSTRUCTION DOCUMENTS BY A LICENSED ARCHITECT OR ENGINEER THAT IS EMPLOYED BY THE OWNER. FINAL CODE COMPLIANCE, PLAN SUBMITTAL AND ASSOCIATED FEES ARE THE RESPONSIBILITY OF THE ARCHITECT AND/OR GENERAL CONTRACTOR.

REMOTE COMPRESSORS & CONDENSING UNITS

THESE NOTES APPLY TO MULTI-SYSTEM COMPRESSOR RACKS AS WELL AS INDIVIDUAL COMPRESSORS AND CONDENSORS.

EXACT LOCATION OF COMPRESSORS ARE TO BE DETERMINED BY ARCHITECT. FREE & EASY ACCESS INTO AREA FOR COMPRESSORS MUST BE PROVIDED BY OTHERS, TO ALLOW PLACEMENT OF RACK AS WELL AS MAINTAIN MINIMUM CLEARANCE REQUIREMENTS.

SUFFICIENT AIR CHANGES MUST BE PROVIDED IN THIS AREA TO ALLOW ADEQUATE AIR CIRCULATION FOR WATER COOLED OR AIR COOLED COMPRESSORS.

STRUCTURAL SUPPORT AS WELL AS CURBS, PADS OR REDWOOD RAILS FOR COMPRESSORS, ON ROOF OR INSIDE STRUCTURE, TO BE PROVIDED BY OTHERS.

SEE MANUFACTURER'S SHOP DRAWINGS FOR DETAILED REQUIREMENTS FOR CLEARANCE ACTUAL SIZES, MECHANICAL, PLUMBING & ELECTRICAL REQUIREMENTS. FOR WATER COOLED UNITS, STRICT ADHERENCE TO MANUFACTURERS REQUIREMENTS FOR MIN./MAX. WATER TEMP AND PRESSURE MUST BE MAINTAINED.

ASHRAE CALCULATIONS AND ANY RESULTING REQUIREMENTS FOR COMPRESSOR AREA, PIPING CHASES AND FREON DETECTION SYSTEMS SHALL BE THE RESPONSIBILITY OF OTHERS.

ALL REFRIGERANT PIPING CHASES AND BUILDING PENETRATIONS SHALL BE THE RESPONSIBILITY OF THE BUILDING TRADES AND TO COMPLY WITH ALL LOCAL CODES. EXACT LINE RUNS OF REFRIGERATION PIPING SHALL BE DETERMINED IN COORDINATION WITH THE REFRIGERATION INSTALLER.

ALL ELECTRICAL DISCONNECTS TO BE PROVIDED BY OTHERS.

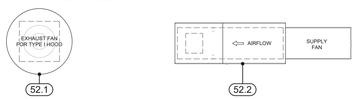
ROOFTOP EXHAUST FANS & MAKE-UP AIR UNITS

THESE ROOF TOP ITEMS ARE TO BE LOCATED BY THE ARCHITECT & ENGINEERS IN CONJUNCTION WITH THE EXHAUST HOOD MANUFACTURER'S SHOP DRAWING. REFER TO ARCHITECTURAL/ENGINEERING DRAWINGS FOR EXACT LOCATIONS.

REFER TO THE LATEST APPROVED MANUFACTURER'S SHOP DRAWINGS FOR COMPLETE INFORMATION AND DETAILS REGARDING ALL ASPECTS OF FANS &/OR MAKE UP AIR UNITS, INCLUDING ACTUAL SIZES, REQUIRED CLEARANCE, ETC.

ALL PENETRATIONS THRU ROOF OR BUILDING STRUCTURE, INCLUDING WALLS, FLOORS, JOISTS OR OTHER STRUCTURAL MEMBERS, IS TO BE BY OTHERS.

ALL ELECTRICAL DISCONNECTS TO BE PROVIDED BY OTHERS.



EQUIPMENT SCHEDULE

ITEM NO	QTY	EQUIPMENT CATEGORY
5	1	DRINK DISPLAY COOLER
6	1	HAND SINK W/ FAUCET & SPLASHGUARD
6A	1	SOAP & TOWEL DISPENSER
7	1	DOLE WHIP DISPENSER, FLOOR MODEL
15	1	DOUBLE SIDED SERVING LINE
15.1	1	DROP-IN HOT WELL - INSTALLED AS PART OF SERVING LINE #15
15.2	1	DROP-IN HOT WELL - INSTALLED AS PART OF SERVING LINE #15
15.3	1	DOUBLE COLD WELL - INSTALLED AS PART OF SERVING LINE #15
15.4	1	FOOD HOLDING BIN - INSTALLED AS PART OF SERVING LINE #15
16	2	WALL MOUNT HAND SINK WITH FAUCET & SPLASH GUARD
16A	2	SOAP & TOWEL DISPENSER
17.1	LOT	SS WALL PANELS
17.2	LOT	SS WALL PANELS
17.3	LOT	SS WALL PANELS
24	LOT	HOTEL PAN ROLLING STORAGE RACK
27	1	WORK TABLE W/ ROLLED EDGES, MOBILE
28	1	SINK FREE STANDING
28.1	1	FAUCET T&S B-0221
29	1	WALL MOUNTED SHELF
32	1	OFFICE SAFE - BY OTHERS
34	1	CO2 - BY OTHERS
36	2	SET OF LOCKERS
37	1	MOP SINK
38	1	WALL MOUNT SERVICE SINK FAUCET
39	2	WALL MOUNTED WIRE SHELF
41	2	MOP HANGER
45	1	WORK TABLE W/ NO UNDERSHELF
46	2	WALL MOUNTED WALL SHELVES, STACKED
47	2	COOK & HOLD OVEN
51	2	HOLDING CABINET, FULL SIZE
52	1	EXHAUST HOOD (TYPE I)
52.1	1	EXHAUST FAN
52.2	1	MAKE-UP AIR UNIT, GAS W/CONDITIONED AIR
52A	1	FIRE SUPRESSION SYSTEM
54	2	GRIDDLE, GAS, 48"
54.1	3	GAS CONNECTOR HOSE KIT / ASSEMBLY
55	2	EQUIPMENT STAND
56	1	DOUBLE STACK CONVECTION OVEN, GAS
56.1	2	GAS CONNECTOR HOSE KIT / ASSEMBLY
60	1	CHICKEN JUICE DOLLY
61	1	WALL-MOUNTED SHELF, STACKED
62	1	CUSTOM CHICKEN PREP TABLE, FULL PAN ON RIGHT, MOBILE
63	1	WRAP TABLE W/ SINK & SINK COVER
63.1	1	FAUCET T&S B-0221
64	1	SAUCE WORKTABLE W/ UNDERSHELF
65	1	WALL MOUNTED POT RACK
66	1	WALL MOUNTED SHELF, 4'-0"
71	1	WORK TABLE W/ NO UNDERSHELF
72	1	WALL-MOUNTED SHELF, 72"
73	1	UNDERCOUNTER REFRIGERATOR, TWO-DOORS
74	2	STEAMER, ELECTRIC
76	2	DUNNAGE RACK FOR BULK STORAGE
77	1	DRY STORAGE SHELVING - 86" HIGH, 3 TIER, EPOXY
83	1	3-COMPARTMENT SINK TABLE
84	1	WALL MOUNT PRE-RINSE FAUCET
85	1	WALL MOUNTED POT RACK
86	1	WALL MOUNTED SHELF
91	1	WALK-IN COOLER, LED LIGHTS
91.1	1	WALK-IN COOLER EVAPORATOR COIL
91.2	1	WALK-IN COOLER REMOTE COMPRESSOR
91.3	1	ENCLOSURE PANEL
92	1	DUNNAGE RACK
93	2	WALK-IN SHELVING - 86" HIGH, 4 TIER, EPOXY
95	2	GENERAL DRY STORAGE SHELVING - 86" HIGH, 5 TIER, EPOXY
100	1	BLAST CHILLER FREEZER, UNDERCOUNTER

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Edward Don & Company
FOODSERVICE EQUIPMENT DIVISION
4804 WATERS EDGE DRIVE, SUITE 170
RALEIGH, NC 27606
PH: 800.947.5566

PROJECT:
HAWAIIAN BROS
MIETCALFE "TO GO"
XXXXXXX

DESCRIPTION	DATE:

DESCRIPTION	DATE:

DRAWN BY: J. WILSON
CHECKED BY: J. WILSON
SUBMITTED BY: J. WILSON
SCALE: 1/4" = 1'-0"
ISSUE NAME:
DATE: 11.05.2021

SHEET:
QF100
FOODSERVICE EQUIPMENT PLAN
DRAWING NO:

ELECTRICAL NOTES

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5. ALL EQUIPMENT SHALL BE WIRED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND/OR SHOP DRAWINGS.
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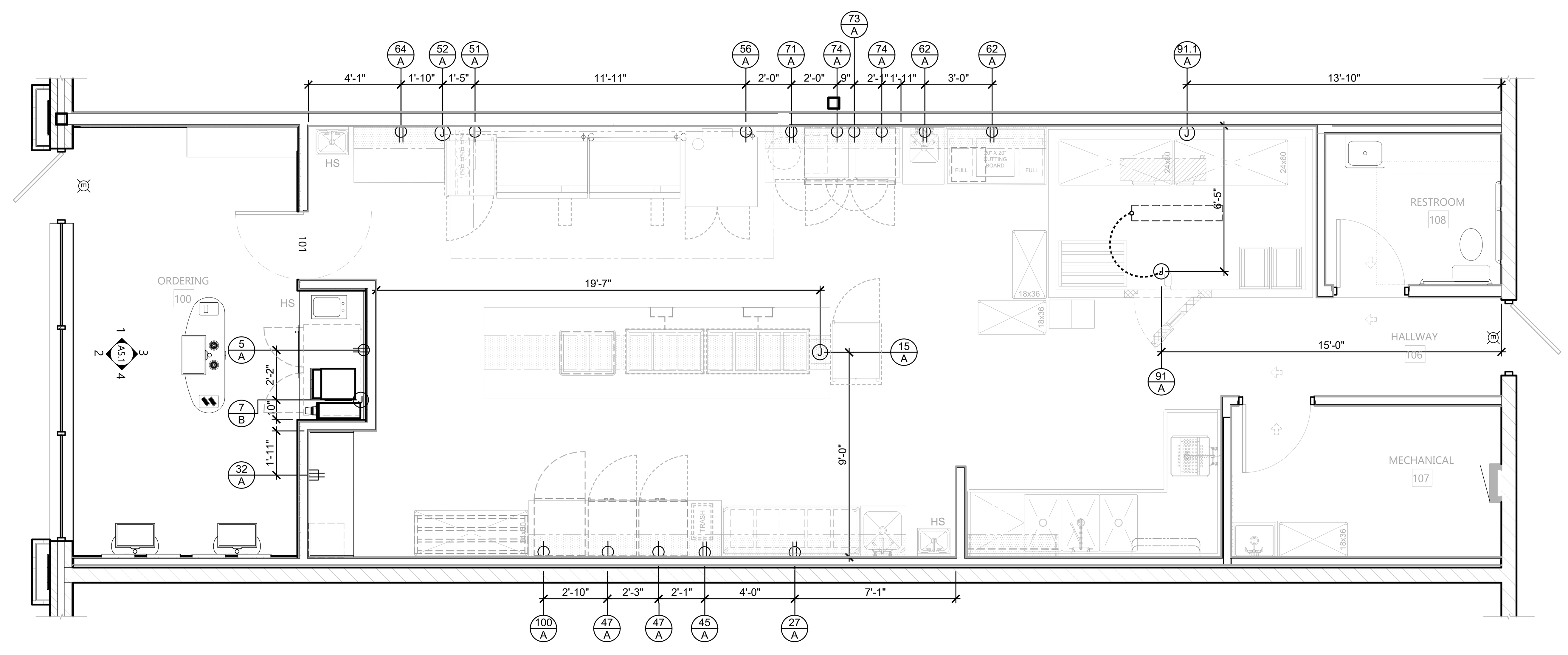
7. ALL ELECTRICAL CONNECTIONS ARE TO BE EXTENDED AND INTERCONNECTED TO CONNECTION POINTS ON THE EQUIPMENT BY OTHERS. UNLESS SPECIFIED, ALL HARDWARE REQUIRED FOR THESE CONNECTIONS SHALL BE SUPPLIED BY THE ELECTRICAL CONTRACTOR.
8. SURFACE MOUNTED WIRE AND CONDUIT WILL NOT BE ALLOWED. ALL ELECTRICAL LINES AND CONDUIT SHALL BE EXTENDED THROUGH AND OUT OF BUILDING WALLS WHERE POSSIBLE. WHERE SURFACE MOUNTED CONDUIT IS UNAVOIDABLE, IT MUST BE COORDINATED WITH EDWARD DON & COMPANY.
9. ROUGH-INS OUT OF FLOOR SHOULD BE STUBBED UP 4" ABOVE FINISHED FLOOR AND BROUGHT TO THE REQUIRED HEIGHT AFTER EQUIPMENT IS SET IN PLACE.
10. ALL 120 VOLT UTILITY OUTLETS TO BE G.F.C.I. OUTLETS.
11. ALL NECESSARY ELECTRICAL DISCONNECTS, SHUNT TRIP BREAKERS AND STARTERS ARE TO BE FURNISHED AND INSTALLED BY OTHERS, UNLESS PROVIDED AS A STANDARD OR SPECIFIED EQUIPMENT COMPONENT OF THE EQUIPMENT MANUFACTURER. THIS SHALL INCLUDE ELECTRICAL DISCONNECTS FOR ALL REMOTE COMPRESSORS, BOOSTER HEATERS AND OTHER ITEMS REQUIRED BY CODE.
12. ALL ELECTRICAL ITEMS SUPPLIED UNDER COOKING LINE EXHAUST HOOD ARE TO SHUT DOWN WITH SHUNT TRIP BREAKERS (BY OTHERS) CONNECTED TO FIRE SYSTEM. ELECTRICAL ENGINEER TO CONFIRM COMPLIANCE TO ALL CODES.
13. ALL OUTLETS, JUNCTION BOXES, DISCONNECTS, ETC. SHALL BE INSTALLED SO AS NOT TO INTERFERE WITH THE PERFORMANCE, FUNCTION, OR PLACEMENT OF THE EQUIPMENT.
14. STARTERS. RELAYS, HEATERS AND SWITCHES REQUIRED FOR EXHAUST AND SUPPLY FANS ARE TO BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
15. DISHMACHINES:
    - A. ELECTRICAL CONTRACTOR SHALL INTERCONNECT DISHMACHINE WITH DISHMACHINE EXHAUST FAN. INTERCONNECTION SHALL LINK OPERATION OF EXHAUST FAN AND DISHMACHINE SO THAT BOTH UNITS RUN SIMULTANEOUSLY AT ALL TIMES.
    - B. ELECTRICAL CONTRACTOR SHALL INTERCONNECT TABLE LIMIT SWITCH AT END OF CLEAN DISHTABLE WITH CONVEYOR TYPE DISHMACHINES. LIMIT SWITCH SHALL TERMINATE DISHMACHINE OPERATION WHEN DEPRESSED.
16. WALK-IN COOLER/FREEZER BOXES & REMOTE COMPRESSORS:
    - A. INTERCONNECT TO BLOWER COIL IN FREEZER.
    - B. INTERCONNECT BETWEEN TIMER & CONTACTOR.
    - C. INTERCONNECT BETWEEN TIMER & PRESSURE CONTROL SOLENOID.
    - D. INTERCONNECT BETWEEN CONTACTOR AND COMPRESSOR FAN.
    - E. INTERCONNECT BETWEEN TERMINAL AND CONTACTOR TO BLOWER COIL IN FREEZERS.
    - F. CONNECT DRAIN LINE HEATER TO RECEPTACLE IN FREEZER.
    - G. CONNECT PAN HEATER TO TERMINAL STRIP IN FREEZERS.
    - H. CONNECT DOOR HEATER TO TERMINAL STRIP IN FREEZERS.
17. ALL ELECTRICAL CONDUIT TO BE RUN ON TOP (EXTERIOR) OF WALK-IN COOLER/FREEZER BOX WHERE POSSIBLE.
18. UNLESS PROVIDED BY THE MANUFACTURER, ALL LIGHT BULBS FOR FOODSERVICE EQUIPMENT TO BE PROVIDED BY OTHERS.

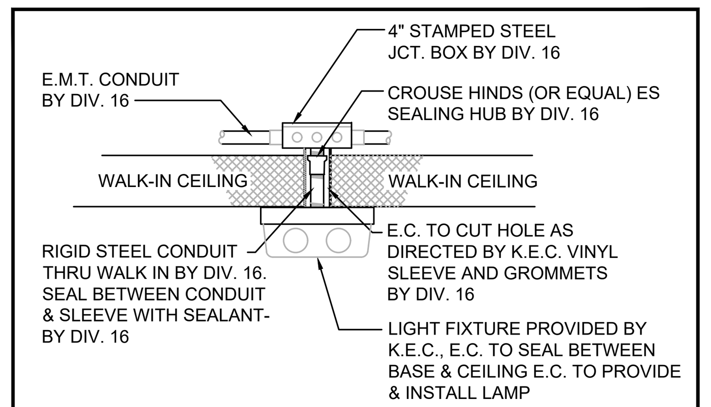
ELECTRICAL SYMBOLS

Symbol	Description
ITEM NUMBER / CONNECTION NUMBER	ELECTRICAL ROUGH-IN NOTE (SEE SCHEDULE)
	SINGLE RECEPTACLE
	DUPLEX RECEPTACLE
	QUAD RECEPTACLE
	ISOLATED GROUND DUPLEX RECEPTACLE
	HIGH VOLTAGE RECEPTACLE
	JUNCTION BOX
	SPECIAL OUTLET
	WALL SWITCH
	TELEPHONE
	DATA
	USB RECEPTACLE
	ELECTRICAL INTERCONNECTION



KITCHEN EQUIPMENT - ELECTRICAL ROUGH-INS PLAN

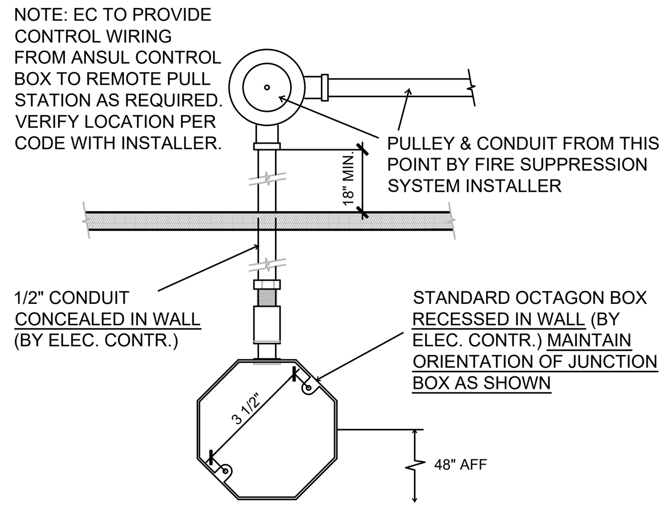
SCALE: 1/4" = 1'-0"



1. ALL CONDUIT TO BE RUN ON EXTERIOR OF WALK-IN BY DIV. 16 UNLESS BOX IS LOCATED OUTDOORS. THEN CONDUIT IS TO RUN BELOW CEILING.
2. ALL PENETRATIONS THRU WALK-IN TO BE THOROUGHLY SEALED
3. ALL LIGHT FIXTURES TO BE FURNISHED BE K.E.C.
4. MOUNTING FIXTURES, ALL CONDUIT AND ALL INTER-WIRING BY DIV. 16.
5. ALL LAMPS (BULBS) TO BE FURNISHED BY OTHERS.

WALK-IN LIGHT DETAIL

NOT TO SCALE



REMOTE FIRE PULL DETAIL

NOT TO SCALE

REMOTE COMPRESSORS & CONDENSING UNITS

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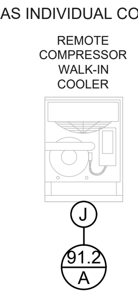

IMPORTANT ELECTRICAL NOTE: FOR EACH FREEZER COMPRESSOR, ELECTRICIAN TO PROVIDE (1) 3/4" DIAMETER CONDUIT W/(5) #10 WIRES & INTERCONNECT BETWEEN COMPRESSOR, EVAPORATOR COIL & TIME CLOCK. VERIFY ALL DETAILS WITH MANUFACTURERS SHOP DRAWINGS.

EXACT LOCATION OF COMPRESSORS ARE TO BE DETERMINED BY ARCHITECT. FREE & EASY ACCESS INTO AREA FOR COMPRESSORS MUST BE PROVIDED BY OTHERS, TO ALLOW PLACEMENT OF RACK AS WELL AS MAINTAIN MINIMUM CLEARANCE REQUIREMENTS.

SUFFICIENT AIR CHANGES MUST BE PROVIDED IN THIS AREA TO ALLOW ADEQUATE AIR CIRCULATION FOR WATER COOLED OR AIR COOLED COMPRESSORS.

STRUCTURAL SUPPORT AS WELL AS CURBS, PADS OR REDWOOD RAILS FOR COMPRESSORS, ON ROOF OR INSIDE STRUCTURE, TO BE PROVIDED BY OTHERS.

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ROOFTOP EXHAUST FANS & MAKE-UP AIR UNITS

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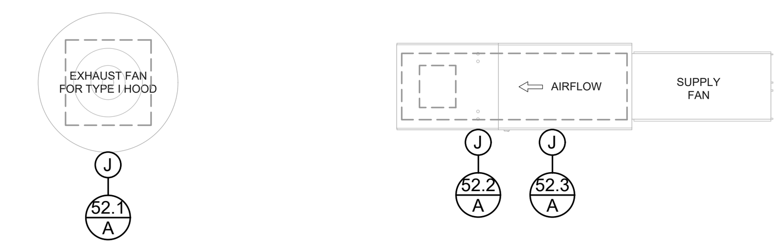

ELECTRICAL REQUIREMENTS

- **5 / A** DRINK DISPLAY COOLER — 120/60/1, 2.0 AMPS, SR 24" AFF, VERIFY ALL ROUGH-IN REQUIREMENTS W/ PURVEYOR
- **7 / B** DOLE WHIP MACHINE, FLOOR MODEL — 208-230/60/1, 25.0 AMPS [EACH], JB 48" AFF, CORD & PLUG BY G.C
- **15 / A** LOAD CENTER FOR EXPEDITE COUNTER — SEE SCHEDULE THIS SHEET, TWO LOCATIONS
- **27 / A** UTILITY OUTLET — 120/60/1, 16.0 AMPS, DR 48" AFF, MOUNT HORIZONTAL
- **32 / A** UTILITY OUTLET — 120/60/1, 16.0 AMPS, QR 24" AFF, MOUNT HORIZONTAL
- **45 / A** UTILITY OUTLET — 120/60/1, 16.0 AMPS, DR 48" AFF, MOUNT HORIZONTAL
- **47 / A** COOK AND HOLD OVEN — 120/60/1, 14.2 AMPS [EACH], SR 24" AFF, TWO LOCATIONS
- **51 / A** HOLDING CABINET, FULL SIZE — 120/60/1, 15.0 AMPS [EACH], SR 24" AFF, ONE LOCATIONS
- **52 / A** EXHAUST HOOD LIGHTS/FAN SWITCHES — 120/60/1, 9.5 AMPS, JB DOWN FROM ABOVE, EC TO INTERCONNECT BETWEEN CONTROL PANEL, HOODS, LIGHTS & FANS AS REQUIRED, VERIFY ALL ROUGH-INS W/ MANUFACTURERS SHOP DRAWINGS & EXISTING CONDITIONS
- **52.1 / A** EXHAUST FAN — 208/60/3, 5.5 AMPS, JB, EXACT LOCATION TBD BY ARCHITECT, VERIFY ALL ROUGH-INS W/ MANUFACTURERS SHOP DRAWINGS
- **52.2 / A** EXHAUST HOOD MAKEUP AIR UNIT — 208/60/3, 26.4 AMPS, JB, EXACT LOCATION TBD BY ARCHITECT. VERIFY ALL ROUGH-INS W/ MANUFACTURERS SHOP DRAWINGS
- **52.3 / A** EXHAUST HOOD MAKEUP AIR UNIT CONDENSER — 208-230/60/3, 21.4 AMPS [EACH], JB, LOCATION TBD BY ARCHITECT, VERIFY ALL ROUGH-INS W/ MANUFACTURERS SHOP DRAWINGS
- **56 / A** DOUBLE STACKED CONVECTION OVEN — 120/60/1, 8.0 AMPS [EACH], SR 18" & 50" AFF
- **62 / A** UTILITY OUTLET — 120/60/1, 16.0 AMPS [EACH], DR 48" AFF, MOUNT HORIZONTAL,ONE LOCATIONS
- **64 / A** UTILITY OUTLET — 120/60/1, 16.0 AMPS [EACH], DR 48" AFF, MOUNT HORIZONTAL,ONE LOCATIONS
- **71 / A** UTILITY OUTLET — 120/60/1, 16.0 AMPS, DR 48" AFF, MOUNT HORIZONTAL
- **73 / A** UNDERCOUNTER REFRIGERATOR — 120/60/1, 2.6 AMPS, SR 24" AFF
- **74 / A** COUNTERTOP STEAMER — 208/60/3, 41.6 AMPS, SR 48" AFF
- **91 / A** WALK-IN PRODUCE COOLER LIGHTS & DOOR — 120/60/1, 15.0 AMPS, JB DFA, REFER TO DETAIL THIS SHEET, VERIFY ALL ROUGH-IN REQUIREMENTS WITH MFR'S SHOP DRAWINGS
- **91.1 / A** WALK-IN COOLER EVAPORATOR — 120/60/1, 1.8 AMPS, JB DFA, VERIFY ALL ROUGH-IN REQUIREMENTS W/ MFR'S SHOP DRAWINGS
- **91.2 / A** WALK-IN COOLER REMOTE COMPRESSOR — 208/60/1, 8.0 AMPS, JB, LOCATION TBD BY ARCHITECT, VERIFY ALL ROUGH-IN REQUIREMENTS W/ MFR'S SHOP DRAWINGS
- **100 / A** UNDERCOUNTER BLASH CHILLER FREEZER — 115/60/1, 16.0 AMPS, SR 24" AFF

15 / A BREAKER PANEL SCHEDULE

120-208/60/1, 39.0 AMPS, EC TO STUB DOWN THRU SS CHASE FROM ABOVE & CONNECT TO BREAKER PANEL. EC TO PROVIDE INTERCONNECTIONS IN COUNTER AS REQUIRED. VERIFY ALL DETAILS WITH MANUFACTURER'S SHOP DRAWINGS.
BREAKER PANEL TO BE PRE-WIRED TO THE FOLLOWING ITEMS:

15.1 / A	HOT WELL 208/60/1,8.7 AMPS
15.2 / A	HOT WELL 208/60/1, 6.5 AMPS
15.3 / A	DOUBLE COLD WELL 120/60/1, 3.9 AMPS
15.4 / A	FOOD HOLDING BIN 120/60/1, 1.5 AMPS
51 / B	HOT HOLDING CABINET, FULL SIZE 120/60/1, 15.0 AMPS
- / -	MONITORS - BY OWNER 120/60/1, 15.0 AMPS

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Edward Don & Company
FOODSERVICE EQUIPMENT DIVISION
4904 WATERS EDGE DRIVE, SUITE 170
RALEIGH, NC 27606
PH: 800.947.0566

PROJECT: HAWAIIAN BROS
METCALFE "TO GO"
XXXXXX

DATE:	DESCRIPTION

DATE:	DESCRIPTION

DRAWN BY: J. WILSON
CHECKED BY: J. WILSON
SUBMITTED BY: J. WILSON
SCALE: 1/4" = 1'-0"
ISSUE NAME:
DATE: 11.05.2021
SHEET: QF200
FOODSERVICE ELECTRICAL PLAN
DRAWING NO:

PLUMBING NOTES

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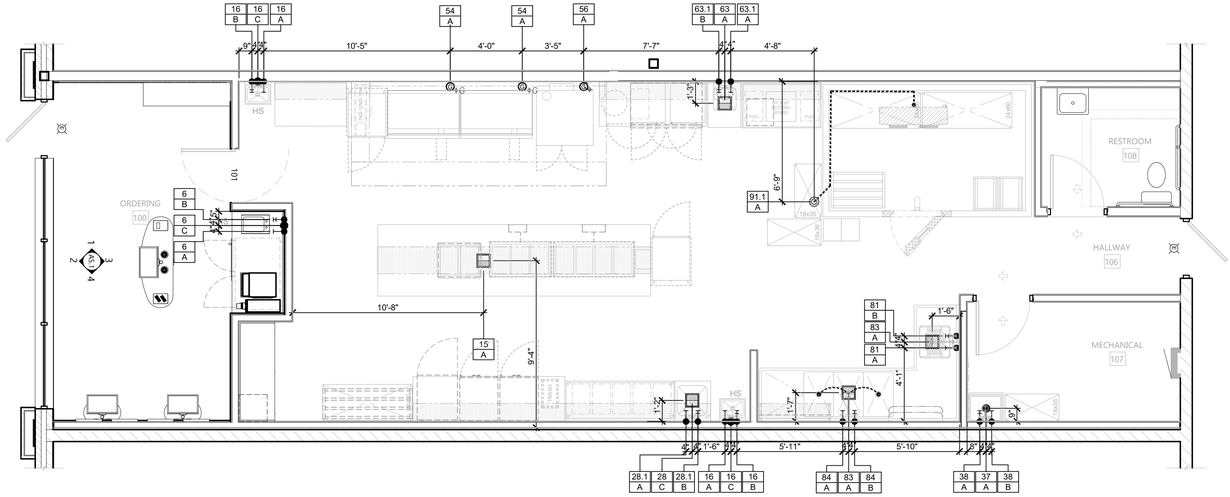
8. SURFACE MOUNTED PIPING WILL NOT BE ALLOWED. ALL PIPING SHALL BE EXTENDED THROUGH AND OUT OF BUILDING WALLS WHERE POSSIBLE. WHERE SURFACE MOUNTED PLUMBING IS UNAVOIDABLE, IT MUST BE COORDINATED WITH EDWARD DON & COMPANY.
9. ROUGH-INS OUT OF FLOOR SHOULD BE STUBBED UP 4" ABOVE FINISHED FLOOR AND BROUGHT TO THE REQUIRED HEIGHT AFTER EQUIPMENT IS SET IN PLACE.
10. ONLY COMPONENTS SUPPLIED STANDARD BY THE MANUFACTURER ARE INCLUDED. ALL HARDWARE REQUIRED FOR CONNECTIONS SHALL BE SUPPLIED BY THE PLUMBING CONTRACTOR. SUCH COMPONENTS INCLUDE BUT ARE NOT LIMITED TO, SHUT-OFFS, PRESSURE REGULATORS, VACUUM BREAKERS, P-TRAPS, BACKFLOW PREVENTERS, ETC.
11. PLUMBING CONTRACTOR TO VERIFY THAT ALL APPLIANCES ARE SUPPLIED WITH APPROPRIATE GAS PRESSURE AND THAT ANY VARIANCES IN GAS PRESSURE BE CLEARLY IDENTIFIED AND BROUGHT TO THE IMMEDIATE ATTENTION OF EDWARD DON & COMPANY.
12. ALL INDIRECT WASTE AND CONDENSATE DRAIN LINES SHALL BE EXTENDED FROM EQUIPMENT FITTINGS TO APPROPRIATE DRAINS AS CODES REQUIRE, BY OTHERS.
13. UNLESS OTHERWISE SPECIFIED, HOT WATER SUPPLIED TO BOOSTER HEATER SHALL BE A MINIMUM TEMPERATURE OF 140° F.
14. PLUMBING CONTRACTOR TO VERIFY WATER TEMPERATURE REQUIREMENTS FOR EACH PIECE OF EQUIPMENT. ANY DISCREPANCY BETWEEN MANUFACTURER'S REQUIREMENTS AND TEMPERATURES PROVIDED SHALL BE CLEARLY IDENTIFIED AND BROUGHT TO THE IMMEDIATE ATTENTION OF EDWARD DON & COMPANY.
15. PLUMBING CONTRACTOR TO PROVIDE INSULATED HOT WATER CONNECTIONS BETWEEN BOOSTER HEATER AND DISHMACHINE.
16. UNLESS OTHERWISE SPECIFIED BY CODE, ALL DRAIN LINES FOR DISPOSERS SHALL BY-PASS GREASE INTERCEPTORS.
17. NO GENERAL PURPOSE FLOOR DRAINS ARE SHOWN ON THESE PLANS. THE SPECIFICATION OF THOSE DRAINS, AS WELL AS THE DESIGN FOR REQUIRED SLOPES IN THE FLOOR TO THOSE DRAINS, SHALL BE THE RESPONSIBILITY OF THE ARCHITECT AND/OR ENGINEERS.

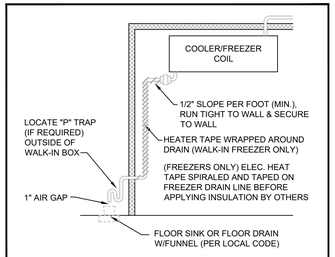
PLUMBING SYMBOLS

1 / A — ITEM NUMBER / CONNECTION NUMBER	PLUMBING ROUGH-IN NOTE (SEE SCHEDULE)
C	COLD WATER CONNECTION
H	HOT WATER CONNECTION
HW	HOT WATER CONNECTION - 140° MINIMUM
FS	FLOOR SINK
FSHC	FLOOR SINK-HALF COVER
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FCW	FILTERED COLD WATER
ID	INDIRECT DRAIN
DD	DIRECT DRAIN
G	GAS



KITCHEN EQUIPMENT - PLUMBING ROUGH-INS PLAN

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



WALK-IN DRAIN LINE DETAIL

NOT TO SCALE

REMOTE COMPRESSORS & CONDENSING UNITS

THESE NOTES APPLY TO MULTI-SYSTEM COMPRESSOR RACKS AS WELL AS INDIVIDUAL COMPRESSORS AND CONDENSORS.

EXACT LOCATION OF COMPRESSORS ARE TO BE DETERMINED BY ARCHITECT. FREE & EASY ACCESS INTO AREA FOR COMPRESSORS MUST BE PROVIDED BY OTHERS, TO ALLOW PLACEMENT OF RACK AS WELL AS MAINTAIN MINIMUM CLEARANCE REQUIREMENTS.

SUFFICIENT AIR CHANGES MUST BE PROVIDED IN THIS AREA TO ALLOW ADEQUATE AIR CIRCULATION FOR WATER COOLED OR AIR COOLED COMPRESSORS.

STRUCTURAL SUPPORT AS WELL AS CURBS, PADS OR REDWOOD RAILS FOR COMPRESSORS, ON ROOF OR INSIDE STRUCTURE, TO BE PROVIDED BY OTHERS.

SEE MANUFACTURER'S SHOP DRAWINGS FOR DETAILED REQUIREMENTS FOR CLEARANCE ACTUAL SIZES, MECHANICAL, PLUMBING & ELECTRICAL REQUIREMENTS. FOR WATER COOLED UNITS, STRICT ADHERENCE TO MANUFACTURERS REQUIREMENTS FOR MIN./MAX. WATER TEMP AND PRESSURE MUST BE MAINTAINED.

ASHRAE CALCULATIONS AND ANY RESULTING REQUIREMENTS FOR COMPRESSOR AREA, PIPING CHASES AND FREON DETECTION SYSTEMS SHALL BE THE RESPONSIBILITY OF OTHERS.

ALL REFRIGERANT PIPING CHASES AND BUILDING PENETRATIONS SHALL BE THE RESPONSIBILITY OF THE BUILDING TRADES AND TO COMPLY WITH ALL LOCAL CODES. EXACT LINE RUNS OF REFRIGERATION PIPING SHALL BE DETERMINED IN COORDINATION WITH THE REFRIGERATION INSTALLER

ALL ELECTRICAL DISCONNECTS TO BE PROVIDED BY OTHERS.

PLUMBING NOTE:
VERIFY ALL DETAILS WITH MANUFACTURERS LATEST SHOP DRAWINGS.

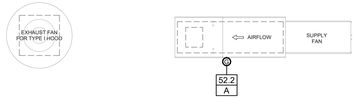
ROOFTOP EXHAUST FANS & MAKE-UP AIR UNITS

THESE ROOF TOP ITEMS ARE TO BE LOCATED BY THE ARCHITECT & ENGINEERS IN CONJUNCTION WITH THE EXHAUST HOOD MANUFACTURER'S SHOP DRAWING. REFER TO ARCHITECTURAL/ENGINEERING DRAWINGS FOR EXACT LOCATIONS.

REFER TO THE LATEST APPROVED MANUFACTURER'S SHOP DRAWINGS FOR COMPLETE INFORMATION AND DETAILS REGARDING ALL ASPECTS OF FANS &/OR MAKE UP AIR UNITS, INCLUDING ACTUAL SIZES, REQUIRED CLEARANCE, ETC.

ALL PENETRATIONS THRU ROOF OR BUILDING STRUCTURE, INCLUDING WALLS, FLOORS, JOISTS OR OTHER STRUCTURAL MEMBERS, IS TO BE BY OTHERS.

ALL ELECTRICAL DISCONNECTS TO BE PROVIDED BY OTHERS.



PLUMBING REQUIREMENTS

6 A	HAND SINK 1/2" CW, 14" AFF
6 B	HAND SINK 1/2" HW, 14" AFF
6 C	HAND SINK 1-1/2" DIRECT WASTE, 16" AFF
15 A	DOUBLE SIDED SERVING TABLE FLOOR SINK, PC TO EXTEND INDIRECT WASTE FROM SERVING TABLE TO FLOOR SINK
16 A	WALL-MOUNTED HAND SINK 1/2" CW, 14" AFF, SIX LOCATIONS
16 B	WALL-MOUNTED HAND SINK 1/2" HW, 14" AFF, SIX LOCATIONS
16 C	WALL-MOUNTED HAND SINK 1-1/2" DIRECT WASTE, 16" AFF, SIX LOCATIONS
28.1 A	FAUCET T&S B-0221 1/2" CW, 14" AFF
28.1 B	FAUCET T&S B-0221 1/2" HW, 14" AFF
28 A	SINK FREE STANDING FLOOR SINK, PC TO EXTEND INDIRECT WASTE FROM SINK TO FLOOR SINK
37 A	MOP SINK 1-1/2" DIRECT WASTE, STUB UP; PC TO EXTEND CONDENSATE WASTE LINE FROM TWO EVAPORATOR COILS TO FLOOR DRAIN, SEE DETAIL
38 A	MOP SINK FAUCET 1/2" CW, 36" AFF
38 B	MOP SINK FAUCET 1/2" HW, 36" AFF
52.2 A	MAKE-UP AIR UNIT 1" GAS (185,326 BTU)
54 A	GRIDDLE 3/4" GAS (120,000 BTU) [EACH], 18" AFF, QUICK DISCONNECT HOSES PROVIDED BY KEC, THREE LOCATIONS
56 A	DOUBLE STACKED CONVECTION OVEN 3/4" GAS (45,000 BTU) [EACH], 12" & 45" AFF, QUICK DISCONNECT HOSES PROVIDED BY KEC, TWO LOCATIONS, TOTAL OF FOUR CONNECTIONS
63.1 A	FAUCET T&S B-0221 1/2" CW, 14" AFF
63.1 B	FAUCET T&S B-0221 1/2" HW, 14" AFF
63 A	WRAP TABLE W/ SINK & SINK COVER FLOOR SINK, PC TO EXTEND INDIRECT WASTE FROM SINK TO FLOOR SINK
74 A	STEAMER, ELECTRIC FLOOR SINK, PC TO EXTEND INDIRECT WASTE FROM (2) STEAMER) TO FLOOR SINK
81 A	PRE-RINSE FAUCET 1/2" CW, 14" AFF
81 B	PRE-RINSE FAUCET 1/2" HW, 14" AFF
83 A	THREE COMPARTMENT SINK FLOOR SINK, PC TO EXTEND INDIRECT WASTE FROM (3) SINKS AND DISH MACHINE TO FLOOR SINK
84 A	PRE-RINSE FAUCET 1/2" CW, 14" AFF
84 B	PRE-RINSE FAUCET 1/2" HW, 14" AFF
91.1 A	WALK-IN PRODUCE COOLER FLOOR SINK, PC TO EXTEND CONDENSATE WASTE LINE FROM EVAPORATOR TO FLOORSINK, SEE DETAIL

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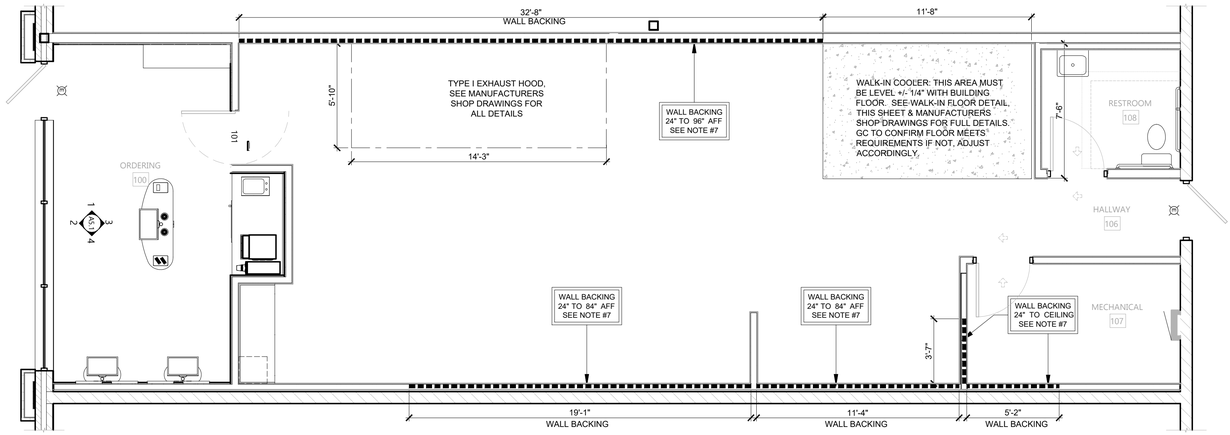
HAWAIIAN BROS
MIETCALFE "TO GO"
XXXXXX

PROJECT:

DESCRIPTION	DATE:
DESCRIPTION	DATE:

DRAWN BY: J. WILSON
CHECKED BY: J. WILSON
SUBMITTED BY: J. WILSON
SCALE: 1/4" = 1'-0"
ISSUE NAME:
DATE: 11.05.2021

SHEET: QF300
FOODSERVICE PLUMBING PLAN
DRAWING NO:



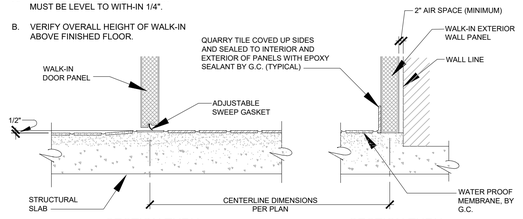
KITCHEN EQUIPMENT - BUILDING WORKS PLAN

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

NOTE:

A. CONCRETE SLAB UNDER WALK-IN MUST BE LEVEL TO WITH-IN 1/4".

B. VERIFY OVERALL HEIGHT OF WALK-IN ABOVE FINISHED FLOOR.



SECTION THRU DOOR

SECTION THRU EXTERIOR WALL

WALK-IN COOLER FLOOR DETAILS

(NO SCALE)

GENERAL CONSTRUCTION NOTES

1. THESE DRAWINGS ARE TO BE USED AS AN INSTRUMENT OF REFERENCE BY ALL OTHER TRADES AND CONTRACTORS. ALL TRADES SHALL VERIFY THE INFORMATION AS INDICATED ON THESE PLANS.
2. DIMENSIONS AND REQUIREMENTS FOR ALL EQUIPMENT THAT IS LISTED AS EXISTING, PROVIDED BY OTHERS OR PROVIDED BY OWNER, MUST BE VERIFIED WITH THE APPROPRIATE PARTIES.
3. ALL LOCAL, STATE AND NATIONAL CODES SHALL APPLY.
4. ARCHITECT TO LOCATE, GENERAL CONTRACTOR TO PROVIDE ALL OPENINGS IN WALLS, FLOORS, CEILINGS, AND ROOFS FOR THE EXTENSION OF REFRIGERATION LINES, BEVERAGE LINES, ELECTRICAL LINES, PLUMBING LINES, EXHAUST AND SUPPLY VENTILATION DUCTS. CURBS, PITCH POCKETS OR SPECIAL FINISHING FOR THESE OPENINGS SHALL BE SUPPLIED BY OTHERS.
5. SUPPLY FANS TO BE LOCATED A MINIMUM OF 10'-0" FROM ANY AIR INLET OR OUTLET ON THE ROOF SUCH AS EXHAUST FANS, VENT STACKS, AIR CONDITIONERS, REFRIGERATION COMPRESSORS, ETC.
6. ALL INFORMATION PROVIDED FOR FOOD SERVICE HOOD SYSTEMS PERTAINING TO QUANTITY, SIZE AND LOCATION OF EXHAUST AND SUPPLY DUCT COLLARS, CFM RATINGS AND STATIC PRESSURE MUST BE CONFIRMED WITH THE MANUFACTURER'S APPROVED SHOP DRAWINGS.
7. GENERAL CONTRACTOR TO PROVIDE 3/4" FIRE RETARDANT PLYWOOD WALL BACKING ON WALLS FOR WALL MOUNTED EQUIPMENT. ALTERNATIVE FOR PLYWOOD MUST BE USED UNDER HOODS AND AT FIRE RATED WALLS PER LOCAL CODES. ALL WALL BACKING MUST BE BEHIND WALL FINISH. NO EXPOSED WALL BACKING SHALL BE ALLOWED. LOCATION AND HEIGHT TO BE COORDINATED WITH MANUFACTURER'S SHOP DRAWINGS AND SPECIFICATION SHEETS.
8. PROVIDE COVED BASES AT ALL VERTICAL INTERSECTIONS OF FLOORS IN KITCHEN AND STORAGE AREAS.
9. ALL HVAC REGISTERS ARE TO BE LOCATED SO AS TO PREVENT ANY INTERFERENCE IN PERFORMANCE OF EXHAUST HOODS, HEATERS OR WARMERS.
10. BOTTOM OF HOODS ARE TO BE MOUNTED AT 6'-6" ABOVE FINISHED FLOOR, UNLESS OTHERWISE SPECIFIED BY LOCAL CODES.
11. RECOMMENDED CEILING HEIGHTS ARE LISTED BELOW. CONTACT EDWARD DON & COMPANY IMMEDIATELY IF MINIMUM HEIGHTS ARE LESS THAN THOSE INDICATED:
    A. KITCHEN AREAS WITH EXHAUST HOODS: 8'6"
    B. KITCHEN AREAS WITH WALK-IN COOLER/FREEZERS: 9'-6"
    C. KITCHEN AREAS WITH ICE MACHINES &/or COMPRESSORS: 9'-0"
    D. GENERAL KITCHEN AREAS: 8'-0"
12. REMOTE CONDENSING UNITS & COMPRESSOR UNITS ARE TO BE LOCATED OUTSIDE WHERE POSSIBLE. FOR INSIDE LOCATIONS, VERIFY PROVISION OF SUFFICIENT VENTILATION WITH MANUFACTURER. ARCHITECT TO LOCATE ALL REMOTE COMPRESSORS AND CONDENSERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

GENERAL CONSTRUCTION & BUILDING WORKS LEGEND

- BEVERAGE LINE
- IN WALL BACKING
- SODA LINE CONDUIT
- BEER/WINE LINE CONDUIT

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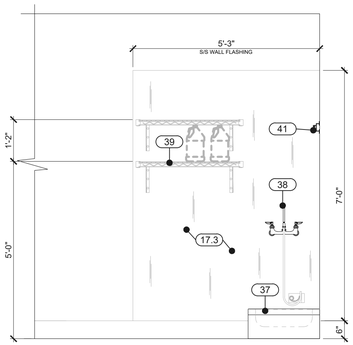
HAWAIIAN BROS
METCALFE "TO GO"
XXXXXX

PROJECT:

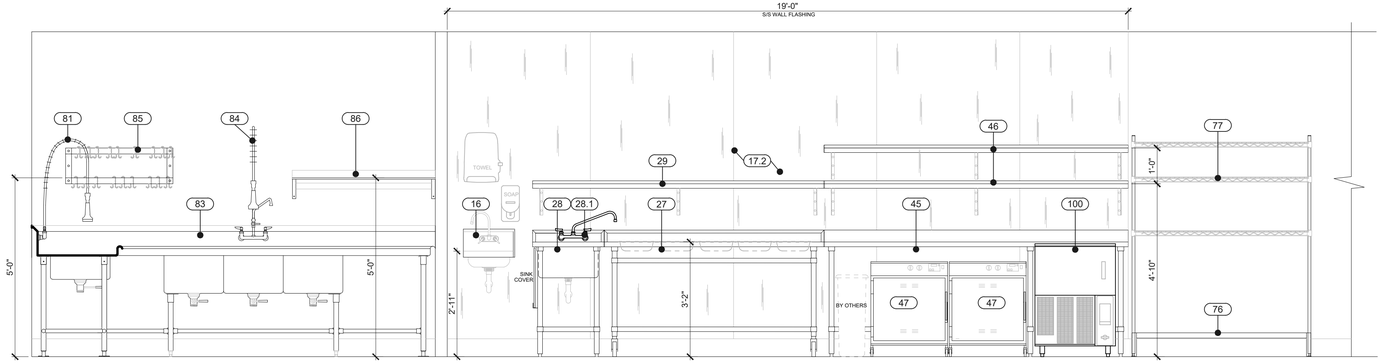
DESCRIPTION	DATE:
DESCRIPTION	DATE:

DRAWN BY: J. WILSON
CHECKED BY: J. WILSON
SUBMITTED BY: J. WILSON
SCALE: 1/4" = 1'-0"
ISSUE NAME:
DATE: 11.05.2021

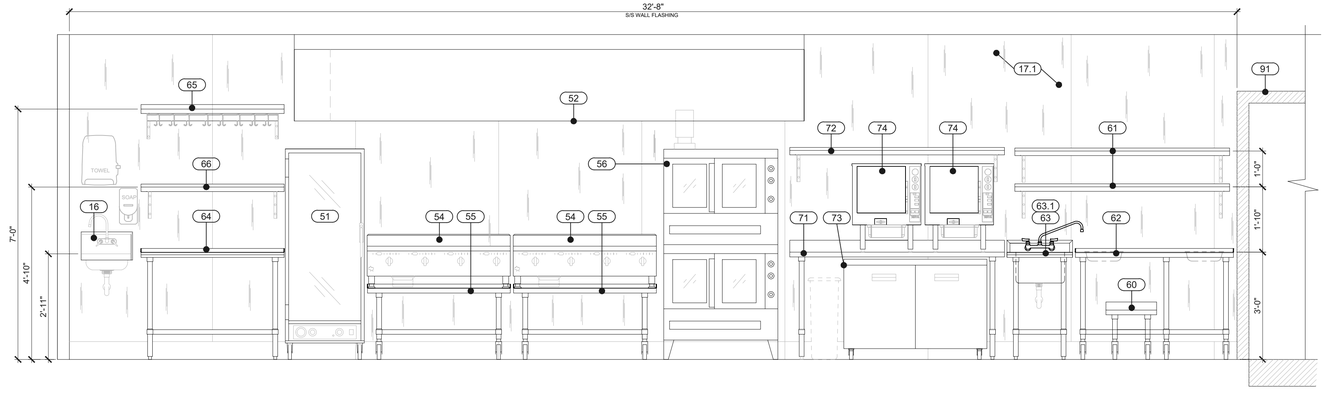
SHEET: QF400
FOODSERVICE BUILDING WORKS PLAN
DRAWING NO:



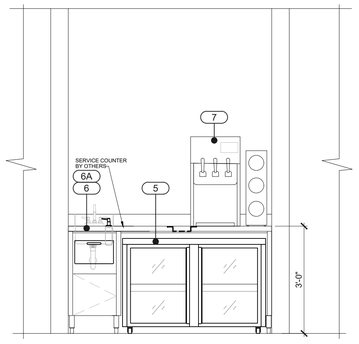
A QF500 ELEVATION - MOP SINK AREA
SCALE: 1/2" = 1'-0"



B QF500 ELEVATION - THREE COMPARTMENT SINK / MARINATING & PREP. AREA
SCALE: 1/2" = 1'-0"



C QF500 ELEVATION - COOKING & PREP. AREA
SCALE: 1/2" = 1'-0"



D QF500 ELEVATION - FOH SERVICE CPUNTER
SCALE: 1/2" = 1'-0"

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PH: 800.947.0566

PROJECT:
HAWAIIAN BROS
METCALFE "TO GO"
XXXXXX

DATE:	DESCRIPTION

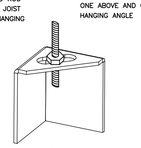
DATE:	DESCRIPTION

DRAWN BY: J. WILSON
CHECKED BY: J. WILSON
SUBMITTED BY: J. WILSON
SCALE: 1/4" = 1'-0"
ISSUE NAME:
DATE: 11.05.2021
SHEET: QF500
FOODSERVICE EQUIPMENT ELEVATIONS
DRAWING NO:

ND-2 HANGING ANGLE DETAIL

1/2" DIA. ALL THREAD ROD CONNECTED TO ROOF JOIST THROUGH ANOTHER HANGING ANGLE

1/2" DIA. HEAVY DUTY NUT ONE ABOVE AND ONE BELOW HANGING ANGLE



* ROD AND NUTS TO BE SUPPLIED BY INSTALLING CONTRACTOR
HANGING ANGLE IS PRE-PUNCHED AT FACTORY

HANGING ANGLE LOCATIONS

HOOD STYLE	DIM FROM REAR	DIM FROM FRONT (24"H)	DIM FROM FRONT (30"H)
CANOPY ND2	4.166"	2.246"	2.246"
ND2-PSP-F	4.166"	2.246"	2.246"
BACKSHELF BD-2	4.166"	2.246	–
VHB/VHB-G	36"X36"	42"X42"	48"X48"
FRONT/BACK DIMS BY SIZE	2.246"	2.246"	2.246"

CALCULATIONS UTILIZED

EXHAUST CFM=LENGTH OF HOOD X CFM/LIN.FT. (LOAD)

SUPPLY CFM=EXHAUST CFM X PERCENTAGE REQUIRED

TOTAL DUCT AREA=144 X $\frac{\text{CFM}}{\text{FPM(*)}}$

DUCT LENGTH= $\frac{\text{TOTAL DUCT AREA}}{\text{DUCT DEPTH}}$

*CAPTIVE-AIRE DUCT CONNECTION SIZES ARE CALCULATED USING AN EXHAUST VELOCITY OF 1500-1800 FPM AND A SUPPLY VELOCITY OF 300-400 FPM.

BUILDING CODES

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH:

ETL LISTED #3054804-001 & #3054804-002

STANDARD 710

Intertek

BUILT IN ACCORDANCE WITH NFPA No. 96

Listed under ETL File number 3054804-001/002

CLEARANCE TO COMBUSTIBLES

CAPTIVE-AIRE HOODS HAVE OPTIONAL CLEARANCE REDUCTION SYSTEMS AVAILABLE AS FOLLOWS:

MATERIAL	CLEARANCE REDUCTION SYSTEM
NON-COMBUSTIBLE	NONE REQUIRED
LIMITED-COMBUSTIBLE	3" UNINSULATED STANDOFF
COMBUSTIBLE	1" INSULATED STANDOFF

GENERAL NOTES

INSTALLATION

1. ALL ELECTRICAL "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY ELECTRICAL CONTRACTORS.
2. ALL PLUMBING "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY PLUMBING CONTRACTORS.
3. HANGING BRACKETS LOCATED AND WELDED AS SHOWN ON PLANS. ALL OTHER HANGER MATERIALS PROVIDED BY INSTALLING CONTRACTORS.
4. ALL CONNECTIONS FROM CAPTIVE-AIRE DUCT PER MECHANICAL CONTRACTOR'S PLANS.
5. COOKING EQUIPMENT TO SHUTOFF IN EVENT OF FIRE.
6. EXHAUST FANS TO TURN ON IN EVENT OF FIRE.
7. ALL LIGHTS FIXTURE SHOWN INSTALLED BY CAPTIVE-AIRE ARE FACTORY PREWIRED. INTERCONNECTIONS BETWEEN HOODS AND TO SWITCHES BY ELECTRICAL CONTRACTORS.
8. LAMPS FOR LIGHT FIXTURES BY INSTALLING CONTRACTORS.
9. SEISMIC RESTAINTS ARE RESPONSIBILITY OF INSTALLING CONTRACTOR.
10. INSTALLING CONTRACTORS ASSUME ALL RELATED REPONSIBILITY FOR VERIFICATION OF DIMENSIONAL DATA CONTAINED ON THESE DOCUMENTS FOR ACCURACY, INTEGRATION, AND ADMINISTRATION OF CODE REQUIREMENTS IN EFFECT PRIOR TO ANY RELEASE FOR PRODUCTION OF EQUIPMENT SHOWN.

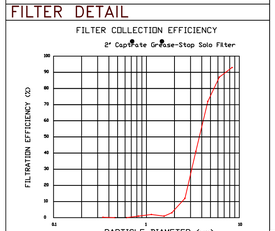
BALANCE

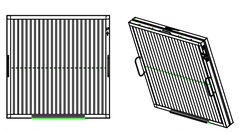
11. KITCHEN HOODS MUST BE BALANCED WITH KITCHEN.
12. KITCHEN SHALL BE NEGATIVE WITH RESPECT TO DINING AREA.
13. RESTAURANT SHALL BE POSITIVE WITH RESPECT TO AMBIENT PRESSURE.

ADDITIONAL

14. WRITTEN HOOD DIMENSIONS HAVE PRECEDENCE OVER SCALE.
15. SIGNED AND "APPROVED" COPIES OF THIS DOCUMENT MUST BE RECEIVED BY THE FACTORY PRIOR TO COMMENCEMENT OF FABRICATION.

FILTER DETAIL





CaptiveAire Captrate Solo Filter
ETL Listed Grease Extracting Filters
Made From 430 Stainless Steel

HOOD INFORMATION – JOB#5182917

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG END TO END	RDV
1	ITEM 52	5424 ND-2-PSP-F	CAPTIVEAIRE	13' 3"	450 DEG	I	MEDIUM	240	3180			4"	12"	1590	2024	-1.180"	2544	430 SS WHERE EXPOSED	ALONE	ALONE
												4"	12"	1590	2024	-1.180"				

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	LOCATION	SIZE	UTILITY CABINET(S) FIRE SYSTEM TYPE	SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1	ITEM 52	CAPTRATE SOLO FILTER	10	16"	16"	85% SEE FILTER SPEC	4	RECESSED ROUND	NO	LEFT	12"x54"x24"	TANK FS	4.0/4.0	DCV-1111	1 LIGHT 1 FAN	YES	1062 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	ITEM 52	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT.
		RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		BALANCE DAMPERS.
		RISER SENSOR INSTALL 6IN PLEN.

PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	RISER(S) TYPE	WIDTH	LENG	DIA	CFM	SP
1	ITEM 52	Front	171"	16"	6"	MUA	12"	24"		636	0.181"
						MUA	12"	24"		636	0.181"
						MUA	12"	24"		636	0.181"
						MUA	12"	24"		636	0.181"

SPECIFICATION: CAPTRATE® GREASE-STOP® SOLO FILTER

THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

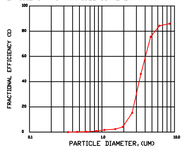
FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

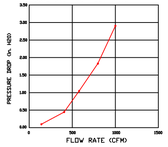
GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 10 INCHES OF WATER GAUGE.

THE CAPTRATE GREASE-STOP SOLO WAS TESTED TO ASTM STANDARD ASTM F2519-05. MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.

EFFICIENCY VS. PARTICLE DIAMETER



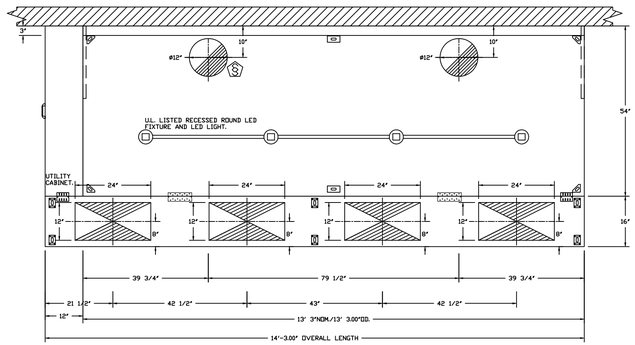
PRESSURE DROP VS. FLOW RATE



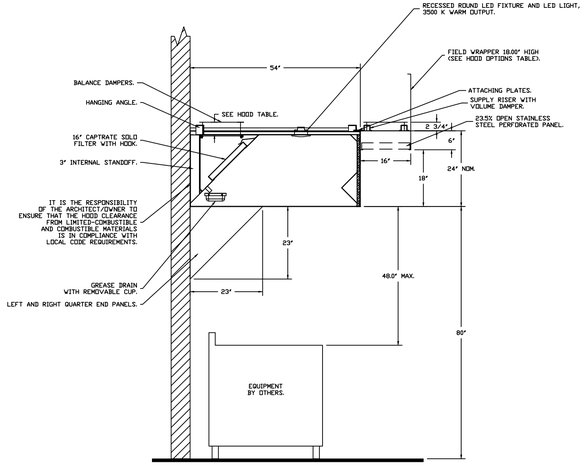
CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH.
NFPA #96.
NSF STANDARD #2.
UL STANDARD #1046.
INT. MECH. CODE (IMC).
ULC-S649.

PATENT NUMBERS

AC-PSP (UNITED STATES) - US PATENT 7963830 B2.
AC-PSP WALL (CANADA) - CA PATENT 2820509.
AC-PSP ISLAND (CANADA) - CA PATENT 2520330.

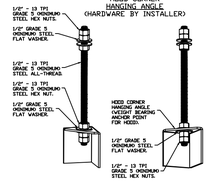


PLAN VIEW – HOOD #1 (ITEM 52)
13' 3.00" LONG 5424ND-2-PSP-F
NOTE: ADDITIONAL HANGING ANGLES PROVIDED FOR HOODS 12' AND LONGER.



SECTION VIEW – MODEL 5424ND-2-PSP-F
HOOD – #1 (ITEM 52)

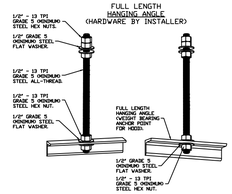
HOOD CORNER HANGING ANGLE (HARDWARE BY INSTALLER)



ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD, SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

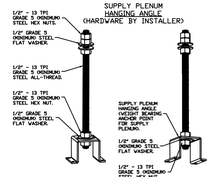
FULL LENGTH HANGING ANGLE (HARDWARE BY INSTALLER)



ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD, SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION ABOVE CEILING ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLE IS ACCEPTABLE FOR FULL LENGTH HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

SUPPLY PLENUM HANGING ANGLE (HARDWARE BY INSTALLER)



ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD, SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION ABOVE CEILING ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLE IS ACCEPTABLE FOR PSP HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

FOR QUESTIONS, CALL THE:
KANSAS CITY REGIONAL OFFICE
1126 SWIFT STREET, KANSAS CITY, MO 64116
PHONE: (816) 221-8575
FAX: (816) 221-8311

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted ☐
Approved with NO Exception Taken ☐
Revise and Resubmit ☐

SIGNATURE _____
Your Title _____ Date _____

***** NOTE *****

ALL WALLS AND STRUCTURES THAT COME WITHIN 18" OF HOOD MUST BE METAL STUDS AND SHEETROCK. WOOD STUDS OR ANY OTHER COMBUSTIBLE MATERIAL WITHIN 18" OF HOOD NO ALLOWED.

***** NOTE *****

HOOD MANUFACTURER RECOMMENDS NO RETURNS OR 4-WAY DIFFUSERS WITHIN 10 FEET OF HOOD IN ALL DIRECTION.

***** NOTE *****

MAKEUP AIR SHALL BE DELIVERED INTO SPACE IN MANNER THAT WILL NOT DISRUPT HOODS ABILITY TO CAPTURE AND CONTAIN.

REVISIONS

	DESCRIPTION	DATE:
△		
△		
△		
△		

CAPTIVE-AIRE
www.captiveaire.com
HBT Foodservice
104 W 9th St Suite 204, Kansas City, MO, 64105 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: reg98@captiveaire.com

Hawaiian Bros (To Go) - Metcalf
OVERLAND PARK, KS, 66223

DATE: 11/11/2021

DWG.#: 5182917

DRAWN BY: michael.co

SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 1

FIRE SYSTEM INFORMATION – JOB#5182917

FIRE SYSTEM NO	TAG	TYPE	SIZE	FLOW POINTS	INSTALLATION	
					SYSTEM	LOCATION ON HOOD
1	ITEM 52A	TANK FS	4.0/4.0	32	FIRE CABINET LEFT	LEFT, HOOD 1

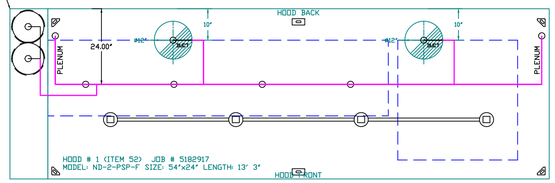
GAS VALVE(S)

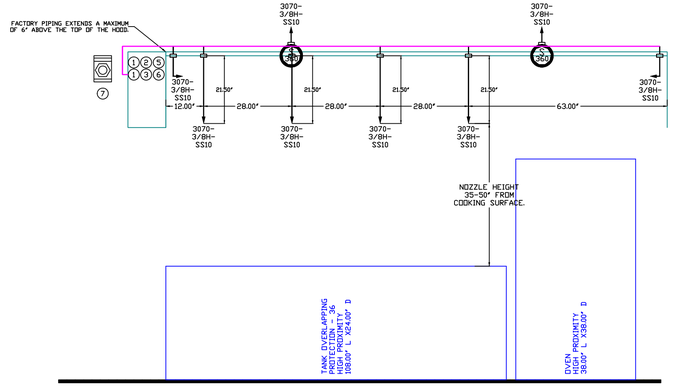
FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1	ITEM 52A	SC ELECTRICAL	2.000	DISTRIBUTOR

FIRE SYSTEM PARTS LIST KEY

FIRE SYSTEM NO	TAG	KEY NUMBER – PART DESCRIPTION	QTY BY FACTORY	QTY BY DIST
1	ITEM 52A	0 – 0 – 12-F28021-32144-DT-360 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. NO, CLOSE ON TEMP RISE AT 360°F.	2	0
		0 – 0 – 87-120042-001 SECONDARY ACTUATOR VALVE (SVA) – SINGLE ACTUATOR, REQUIRES PRIMARY RELEASE ACTUATOR, TANK FIRE SUPPRESSION.	1	0
		0 – 0 – 87-120045-001 HOSE, SECONDARY ACTUATOR HOSE, 7.5" BRAIDED STAINLESS STEEL, TANK FIRE SUPPRESSION.	1	0
		0 – 0 – 87-300001-001 TANK – PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	2	0
		0 – 0 – 87-300030-001 PRIMARY ACTUATOR KIT (PAK) – ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE NEEDED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION.	1	0
		0 – 0 – 87-300033-001 DIN CONNECTOR, CANFIELD PART #5J560-201-EU0A, TANK FIRE SUPPRESSION, SUBMINATURE SOLENOID CONNECTION (CED VENDOR 30377).	1	0
		0 – 0 – 87-300152-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	8	0
		0 – 0 – 98694A115 HARDWARE, DATANKLOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	4	0
		0 – 0 – A0034332 JUNCTION BOX FOR MANUAL PULL STATION. 1.5" DEEP BACK BOX, RED COLOR.	1	0
		0 – 0 – DATANKLOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	2	0
		0 – 0 – SLPCDN-20FT SUPERVISED LOOP CONNECTION KIT. CONTAINS THE PARTS NEEDED TO CONNECT THE SUPERVISED LOOP BETWEEN HOODS WITH UPTO 19' GAP. KIT CONTAINS 22 FEET OF BLACK MG WIRE, 22 FEET OF TAN MG WIRE, 20 FEET OF FLEXIBLE CONDUIT, AND TWO 7/8" CONNECTORS.	1	0
		0 – 0 – TANK STRAP TANK STRAP – USED FOR TANK FIRE SUPPRESSION.	6	0
		0 – 0 – TFS-UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	2	0
		0 – 0 – WK-283952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	2	0
		34 – 34 – A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT. RED COLOR.	1	0

– SYSTEM REQUIRES A MINIMUM OF 7 FT OF EQUIVALENT PIPE LENGTH BETWEEN TANK AND NEAREST APPLIANCE NOZZLE FOR MOST APPLIANCES EACH 90 DEGREE ELBOW ADDS 13 FT OF EQUIVALENT LENGTH. SEE MANUAL FOR DETAILS





NOTES
- FIELD PIPE DROPS AS SHOWN
- PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
- RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
- OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH AN OBSTRUCTION.
- IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE.
- FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.

- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.

- THIS FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.

JOB #: 5182917.
JOB NAME: HAWAIIAN BROS (TO GO) - METCALF.

SYSTEM SIZE: TANK-SP-2 TOTAL FP REQUIRED: 32.
HOOD # 1 13' 3.00" LONG x 54" WIDE x 24" HIGH.
RISER # 1 SIZE: 12" DIA.
RISER # 2 SIZE: 12" DIA.
HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.

- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

LEGEND – FIRE CABINET TANK SYSTEM

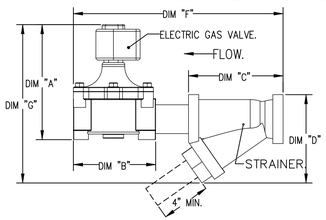
1 4 GALLON TANK.
2 PRIMARY ACTUATOR RELEASE.
3 SECONDARY ACTUATOR RELEASE.
4 PRESSURE SUPERVISION SWITCH.
5 PRIMARY HOSE ASSEMBLY.
6 SECONDARY HOSE ASSEMBLY.
7 REMOTE MANUAL ACTUATION DEVICE.

GAS VALVES AND STRAINERS

	GAS VALVE SIZING						GAS VALVE DIMENSIONS						INSTALLATION	PART NUMBERS		
	TYPE	SIZE	VOLTAGE	MIN. INLET PRESSURE	MAX. INLET PRESSURE	FLOW AT 1 IN.W.C. DROP NATURAL GAS	FLOW AT 1 IN.W.C. DROP PROPANE	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "F"	DIM "G"	MOUNTING ORIENTATION	GAS VALVE PART NUMBER	STRAINER PART NUMBER	GAS VALVE/STRAINER KIT
GAS VALVE FOR FS#1 →	ELECTRICAL	2"	120 VAC	0 PSI (0 IN.W.C.)	5 PSI (138 IN.W.C.)	2,940,500 BTU/HR	1,908,048 BTU/HR	7-5/8"	6-3/8"	7-1/4"	7-13-16"	15-5/8"	13-15/16"	HORIZONTAL/ VERTICAL	8214280	4417X68	(SC)EGVA2

ALL GAS VALVES/STRAINERS
PROPER CLEARANCE MUST BE PROVIDED IN ORDER TO SERVICE THE STRAINERS A MINIMUM OF 4" CLEARANCE DISTANCE MUST BE PROVIDED AT THE BASE OF THE STRAINER CUSTOMER MUST VERIFY BTU CONSUMPTION AS WELL AS PRESSURE RATING SPECIFIC GRAVITY OF NATURAL GAS = 0.64, SPECIFIC GRAVITY OF LP = 1.52.

CALCULATIONS
TO CALCULATE GAS FLOW FOR OTHER THAN 1 IN.W.C. PRESSURE DROP
NEW BTU/HR = (BTU/HR AT 1 IN.W.C. PRESSURE DROP) X NEW PRESSURE DROP$^{0.5}$
TO CALCULATE GAS FLOW FOR OTHER THAN 0.64 SPECIFIC GRAVITY
NEW BTU/HR = (BTU/HR AT 0.64) X (0.64 / NEW SPECIFIC GRAVITY)$^{0.5}$.



TANK FIRE SUPPRESSION SYSTEM SPECIFICATIONS
TAG: TANK Fire Suppression

PART 1 – GENERAL

1.1 SUMMARY

A. TANK Fire Suppression is a pre-engineered, stored-pressure wet chemical solution extinguishing system.

1.2 SUBMITTALS

A. The manufacturer assumes no liability for the use or results of use from this document. Specifications are to be reviewed by the engineer to confirm the requirements of the project and meet Federal, State, and Local codes.

B. As the manufacturer continues product development, it reserves the right to change design and specifications without notice.

1.3 QUALITY ASSURANCE

A. TANK Fire Suppression System shall be UL & ULC listed in accordance with UL300, UL1254, ULCORD-C1254.6.

B. Microprocessor-based control board shall be ETL Listed to UL Standard 864 and CAN/ ULC-S527-11.

C. TANK Fire Suppression System intended for installation and for use in accordance with the National Fire Protection Association Standards:

1. Wet Chemical Extinguishing Systems, NFPA 17A
2. National Electrical Code, NFPA 70
3. National Fire Alarm & Signaling Code, NFPA 72

D. New York City and FDNY approved under COA# 5870.

E. California State Fire Marshal (CFSM), Listing No. 7085-2199:0501.

1.4 Warranty

A. All units shall be provided with the following standard warranties:

1. TANK Fire Suppression System is warranted to be free from defects in materials and workmanship, under normal use and service, for a period of 60-months from date of shipment.

B. Warranty does not cover consumable products such as batteries, nitrogen, and nozzle caps.

C. The manufacturer shall not be liable for incidental and consequential losses and damages potentially attributable to malfunctioning equipment. Should any part of the equipment prove to be defective in material or workmanship within the 60-month warranty period, upon examination by the manufacturer, such part will be repaired or replaced by manufacturer at no charge. The buyer shall pay all labor costs incurred in connection with such repair or replacement. Equipment shall not be returned without manufacturer's prior authorization, and all returned equipment shall be shipped by the buyer, freight prepaid to a destination determined by the manufacturer.

D. Refer to Manufacturer's Operation, Installation, and Maintenance (OIM) Manual for detailed descriptions of what is/is not covered and contact information for warranty claims.

PART 2 – PRODUCTS

2.1 GENERAL

A. A pre-engineered, fixed pipe, automatic wet chemical agent fire suppression system for protection of all hazard areas associated with cooking operations, including exhaust hoods, plenums, ductwork, and cooking appliances.

2.2 COMPONENTS

A. Exhaust hood fire system components to be factory installed.

B. Cylinder and Valve Assembly

1. The cylinders shall have a tin-nickel alloy plated brass valve with pressure gauge.
2. Wet chemical agent shall be contained in one or more stored pressure DOT/TC rated steel cylinder and valve assemblies.
3. Each cylinder is factory-filled with liquid fire suppressant and pressurized to 200 PSIG at 70°F.

C. Distribution Nozzles

1. Nozzles shall be located to protect the exhaust ducts, plenums, and all cooking appliances requiring protection.
2. All nozzles shall be equipped with strainers to prevent foreign matter in the agent distribution piping or tubing from clogging the nozzle orifice. All nozzles shall be equipped with foil seals to prevent entry of grease and foreign matter into the nozzles and piping. The foil seals are to be ruptured by pressure at system discharge.
3. All nozzles shall incorporate a ring identification system to easily identify nozzle types. Rings are to be machined into the nozzle body by the manufacturer.

D. Distribution Systen

1. The distribution system shall consist of Schedule 40 black iron, chrome-plated or stainless-steel pipe and fittings. All exposed piping and fittings must be chrome-plated or stainless steel.
2. Fittings shall be minimum class 150. Galvanized fittings shall not be used.

E. Suppression Systen

1. The systen control equipment shall be capable of all functions associated with automatically and manually discharging the wet chemical agent from all cylinder and valve assemblies, including automatic shutdown of the heat source or fuel and electrical power to all protected areas upon system discharge.
2. Liquid Fire Suppressant shall be Aqueous Potassium Carbonate (APC).
3. All mechanical components of the actuator kit shall be enclosed.
4. The actuator kit shall be capable of automatic or manual activation means.
5. Supervisory Pressure Switch added to monitor operating system pressure.
6. For manual activation, an electrically operated manual release shall be used to actuate the system manually.
7. For automatic activation, the system will be activated by a Firestat (heat) detector.

F. Electrical

1. Electrical Division to provide shunt trip breakers at main power panel, or disconnects, as designated by the Electrical Engineer; interconnection provided at hood control panel for the signal to shut down all electricity in and under the exhaust hood. Shunt trips/disconnects to accomplish shut off of electricity in the event of fire system activation by others.
2. Printed circuit board with microprocessor-based controller that provides all the necessary monitoring, timing, and supervision functions required for the reliable operation of the fire system.
3. Independent supervised loops incorporate redundancy and fault detection.
4. Real-tine cloud-based monitoring connection provided with system by ownership.
5. Primary power supply, with battery backup for power loss.
6. All wiring must be in accordance to NFPA 70 and the Authority Having Jurisdiction (AHJ).
7. Electric gas valve provided for equipment below exhaust hood. Coordinate size and installation with Plumbing Division.
8. All wiring is to be in accordance with the applicable manufacturer's instructions for the fire alarm control panel, gas shut-off valve, manual reset relay, and contractor supplied shut-off devices.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions under which the system is installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 APPLICATION

A. Wet chemical-based fire suppression system for use in commercial kitchens. It can be mounted in the integral cabinet located at the end of the hood or offered as a wall mount package.

3.3 INSTALLATION

A. As part of this iten, provide wall mounted type K handheld portable fire extinguisher, placard, and mounting bracket as required in the immediate vicinity of each cooking area, per NFPA-96 and NFPA-10. Additional fire extinguishers as required in the kitchen area are to be specified by the Architect and provided by the General Contractor.

B. Install in accordance with manufacturer's instructions, drawings, written specifications, manufacturer's installation manual, and all applicable building codes.

C. Six-month and twelve-month inspections, servicing, and replacement of components as per NFPA 96 to be provided by the General Contractor or Owner.

REVISIONS

	DESCRIPTION	DATE:
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△		
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CAPTIVE-AIRE
www.captiveaire.com
HBT Foodservice
104 W 9th St Suite 204, Kansas City, MO, 64105 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: reg98@captiveaire.com

Hawaiian Bros (To Go) – Metcalf
OVERLAND PARK, KS, 66223

DATE: 11/11/2021

DWG.#: 5182917

DRAWN BY: michael.co

SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 2

EXHAUST FAN INFORMATION – JOB#5182917

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	ITEM 52.1	1	DU180HFA	CAPTIVEAIRE	3180	1.800	1427	ODP,PREMIUM	3.000	2.0020	3	208	9.5	734 FPM	183	21

CONDENSER DETAILS

FAN UNIT NO	TAG	FAN UNIT MODEL #	CONDENSER NO	TONNAGE	VOLTAGE	PHASE	FREQUENCY	MCA	RLA	MAX FUSE SIZE	MIN WIRE SIZE	SEER
2	ITEM 52.2	A2-D.250-20D-MPU	1	5	208-230	3 PHASE	60 HZ	21.4 AMPS	17.4 AMPS	30 AMPS	10 AWG	14

MUA FAN INFORMATION – JOB#5182917

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCP	WEIGHT (LBS)	SONES
2	ITEM 52.2	1	A2-D.250-20D-MPU	20MF-2-MOD	A2-D.250	2000	2544	0.500	1184	ODP,PREMIUM	1.500	0.8850	3	208	4.4	5.5A	15A	1365	10

COILS – JOB#5182917

FAN UNIT NO	TAG	COIL TYPE	DESIGN CFM	COOLING											HEATING									
				ENTERING DB TEMP	ENTERING WB TEMP	LEAVING DB TEMP	LEAVING WB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY	ENTERING DB TEMP	LEAVING DB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	STEAM PRESSURE	TOTAL CAPACITY	SENSIBLE CAPACITY
2	ITEM 52.2	DX	2544	93.0°F	76.0°F	79.0°F	70.0°F	---	---	---	---	57.7 MBH	36.3 MBH	21.4 MBH	---	---	---	---	---	---	---	---	---	---

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
2	ITEM 52.2	185326	170500	65°F	7 IN. W.C. – 14 IN. W.C.	NATURAL	92

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	ITEM 52.1	1	GREASE BOX.
		1	2 YEAR PARTS WARRANTY.
2	ITEM 52.2	1	INLET PRESSURE GAUGE, 0-35".
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC.
		1	LOW FIRE START.
		1	AC INTERLOCK RELAY – 24VAC COIL.
		1	MOTORIZED BACKDRAFT DAMPER FOR A2-D HOUSING – MEETS AMCA CLASS 1A RATING.
		1	5 TON SINGLE CIRCUIT MODULAR PACKAGED COOLING OPTION FOR SIZE 2 DF/EH MUA (2,000 TO 3,000 CFM), 208V/230V, 3 PHASE. COOLING THERMOSTAT OR PROGRAMMABLE STAT REQUIRED FOR PROPER OPERATION.
		1	DOWNTURN PLENUM FOR SIZE 2 DX COIL MODULE.
		1	FREEZESTAT (10).
		1	COOLING THERMOSTAT AND RELAY (NOT REQUIRED FOR EVAP).
		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) – THREE PHASE ONLY.
		1	SIZE 2 DIRECT FIRED HEATER LOW CFM PROFILE PACKAGE – USED ON HEATERS UNDER 2500 CFM.
		1	SHIP CONDENSER LOOSE – SINGLE CONDENSER, THREE PHASE – CONDENSER DISCONNECT SHIPPED LOOSE.
		1	2 YEAR PARTS WARRANTY.

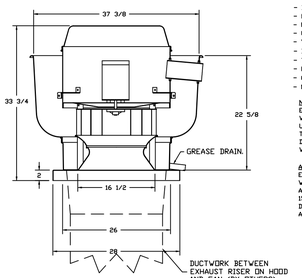
FAN ACCESSORIES

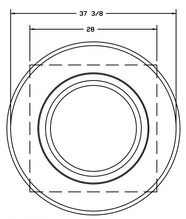
FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	ITEM 52.1	YES						
2	ITEM 52.2						YES	

CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	ITEM 52.1	41 LBS	CURB	26.500"W X 26.500"L X 20.000"H ALONG LENGTH, RIGHT VENTED HINGED.
2	# 2	ITEM 52.2	96 LBS	CURB	31.000"W X 79.000"L X 15.000"H ALONG WIDTH, RIGHT INSULATED.
	# 2			RAIL	6.000"W X 31.000"L X 15.000"H RIGHT.

FAN #1 DU180HFA – EXHAUST FAN (ITEM 52.1)





TOP VIEW

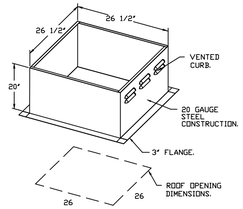
FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

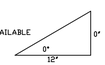
NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

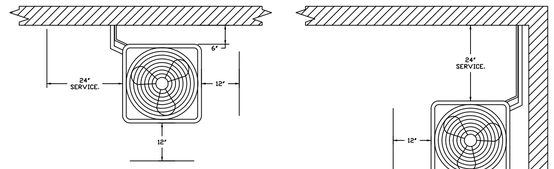
OPTIONS
GREASE BOX.
2 YEAR PARTS WARRANTY.

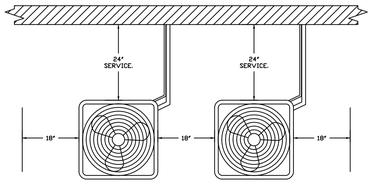


PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.



SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE.





CONDENSER CLEARANCES

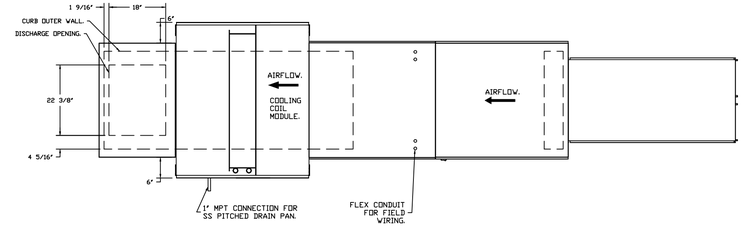
48" CLEARANCE REQUIRED ABOVE CONDENSERS.
(NOTE: **CONDENSERS SHOWN HERE ARE NOT DRAWN AT SCALE).

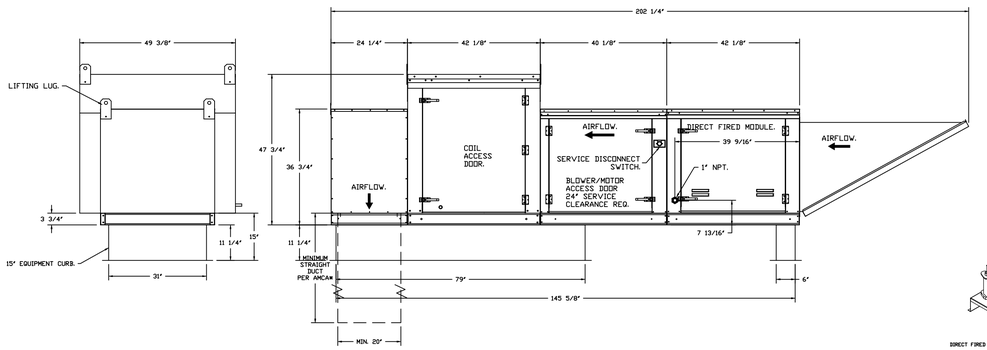
FAN #2 A2-D.250-20D-MPU – HEATER (ITEM 52.2)
1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 20" MIXED FLOW DIRECT DRIVE FAN.
2. INTAKE HOOD WITH EZ FILTERS.
3. DOWN DISCHARGE – AIR FLOW RIGHT -> LEFT.
4. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE.
5. GAS PRESSURE GAUGE, -5 TO +15 INCHES W.C., 2.5" DIAMETER, 1/4" THREAD SIZE.
6. LOW FIRE START. ALLOWS THE BURNER CIRCUIT TO ENERGIZE WHEN THE MODULATION CONTROL IS IN A LOW FIRE POSITION.
7. COOLING INTERLOCK RELAY. 24VAC COIL. 10VA CONTACTS. LOCKS OUT BURNER CIRCUIT WHEN AC IS ENERGIZED.
8. MOTORIZED BACK DRAFT DAMPER 20.75" X 24" FOR SIZE 2 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, LF120S ACTUATOR INCLUDED.
9. 5 TON, SINGLE CIRCUIT MODULAR PACKAGED COOLING OPTION FOR SIZE 2 DF/EH MODULAR PACKAGED UNIT. INCLUDES CONDENSER, DX COIL, FILTER/DRYER KIT, THERMAL EXPANSION VALVE, R410A REFRIGERANT, AND REFRIGERANT PIPING. (2,000 TO 3,000 CFM) WHEN ORDERED WITH OPPOSITE AIRFLOW CONDENSERS ACCESS AND COIL PIPING WILL REMAIN IN STANDARD POSITION. DRAIN AND ELECTRICAL WILL MOVE TO THE OPPOSITE SIDE. ANY OTHER CHANGE WILL REQUIRE C.I. CONDENSERS REQUIRE SEPARATE 208/230V, 1PH POWER SUPPLY. INCLUDES INSULATED DOWNTURN CONSTRUCTION. COIL: DX2200K.
10. DOWNTURN PLENUM FOR SIZE 2 DX COIL MODULE – REQUIRED FOR DOWN DISCHARGE COOLING COIL APPLICATIONS.
11. FREEZESTAT WITH 10' SENSOR. FACTORY SET AT 35°F AND 10 MINUTES.
12. DX COOLING INTAKE AIR THERMOSTAT AND RELAYS MOUNTED IN UNIT – SET POINT FOR THERMOSTAT SHOULD BE 85°F.
13. SEPARATE 120VAC WIRING PACKAGE FOR MAKE-UP AIR UNITS. OPTION MUST BE SELECTED WHEN MOUNTING VFD IN PREWIRE PANEL OR WITH DCV PACKAGE. PROVIDES SEPARATE 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO MUA SWITCH.
14. PROFILE PLATE CONFIGURATION FOR SIZE 2 DIRECT FIRED UNIT FOR LOW CFM APPLICATIONS.
15. SHIP CONDENSER LOOSE. THE REFRIGERATION LINES WILL NEED TO BE STUBBED OUT 12 INCHES. THE SUCTION LINE NEEDS TO BE INSULATED INSIDE THE COIL MODULE. ROTARY DISCONNECT SHOULD NOT BE INSTALLED ON THE POST, BLANK POST SHOULD BE USED IN PLACE.
16. HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER/MPU SECTION).
17. 2 YEAR PARTS WARRANTY.

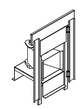
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL ALSO DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT.
SUGGESTED STRAIGHT DUCT SIZE IS 20" x 20".

SUPPLY SIDE HEATER INFORMATION

WINTER TEMPERATURE = 10°F. TEMP. RISE = 65°F.
*This calculated off actual air density.
Output BTUs at altitude of 0.0 FT. = 176641
Input BTUs at altitude of 0.0 FT. = 192523.
Output BTUs at altitude of 979 FT. = 170500.
Input BTUs at altitude of 979 FT. = 185326.







DIRECT FIRED (DF) PROFILE PLATE ASSEMBLY

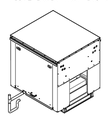
DIRECT FIRED PROFILE PLATE SPECIFICATIONS
DESCRIPTION:
DIRECT FIRED BURNERS SHALL HAVE PATENTED (US PATENT NO: US6629930B2), SELF-ADJUSTING PROFILE PLATES DESIGNED TO ENSURE PROPER AIR VELOCITY AND PRESSURE THROUGH THE BURNER, REGARDLESS OF INLET AIR CONDITIONS. DOWNTURN PLENUMS SHALL BE REQUIRED FOR DOWN DISCHARGE COOLING COIL APPLICATIONS. UNITS SHALL BE LIMITED TO A MAXIMUM OF 5PPM OF CARBON MONOXIDE (CO), AND 150PPM OF NITROGEN OXIDE (NOX) EMISSIONS AT FULL FIRE. UNITS SHALL BE CONFIGURED WITH THE BLOWER MOUNTED DOWNSTREAM OF THE BURNER. THIS ARRANGEMENT WILL ENSURE A CONSISTENT AIRFLOW, REGARDLESS OF INLET AIR TEMPERATURE.

APPLICATION:
ALL DIRECT FIRED BURNER PROFILE PLATES ARE ENGINEERED TO AUTOMATICALLY REACT TO THE MOMENTUM OF A FRESH AIR STREAM, WITHOUT THE NEED FOR ANY MOTORS OR ACTUATORS TO MECHANICALLY REACT THEM. WITH THIS FEATURE, ALL DF UNITS ARE DESIGNED FOR DEMAND CONTROL VENTILATION (DCV) REQUIREMENTS.

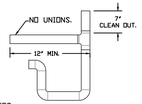
CERTIFICATIONS:
ALL PROFILE PLATE ASSEMBLIES SHALL BE INCLUDED IN THE DF UNIT'S ETL LISTING AND COMPLY WITH COMBINED GAS APPLIANCE STANDARD ANSI Z83.4 AND CSA 3.7 (NON-RECIRCULATING DF HEATERS) AND ANSI Z83.18 (RECIRCULATING DF HEATERS).

GENERAL CONSTRUCTION:
-PROFILE PLATES SHALL BE FORMED FROM 0.105 GALVANIZED STEEL.
-PROFILE PLATES SHALL VARY IN SIZE PER UNIT.
-PROFILE PLATES SHALL BE MOUNTED ALONG THE SAME PLANE AS THE DISCHARGE OF THE BURNER.
-DESIGN SHALL INCORPORATE PROPERLY TORQUED, PERMANENTLY MOUNTED SPRING HINGES.
-SPRING HINGES SHALL BE MADE FROM PLATED STEEL.

TYPICAL DRAIN TRAP INSTALL



RECOMMENDED COOLING COIL DRAIN TRAP CONFIGURATION.



NOTES:
1) 1" DIAMETER PVC PIPE ONLY.
2) USE ONLY LOW PROFILE COUPLINGS.
3) ADD CLEAN OUT AS SHOWN.

REVISIONS

	DESCRIPTION	DATE:
△		
△		
△		
△		

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Hawaiian Bros (To Go) – Metcalf
OVERLAND PARK, KS, 66223

DATE: 11/11/2021

DWG.#: 5182917

DRAWN BY: michael.co

SCALE: 1/2" = 1'-0"

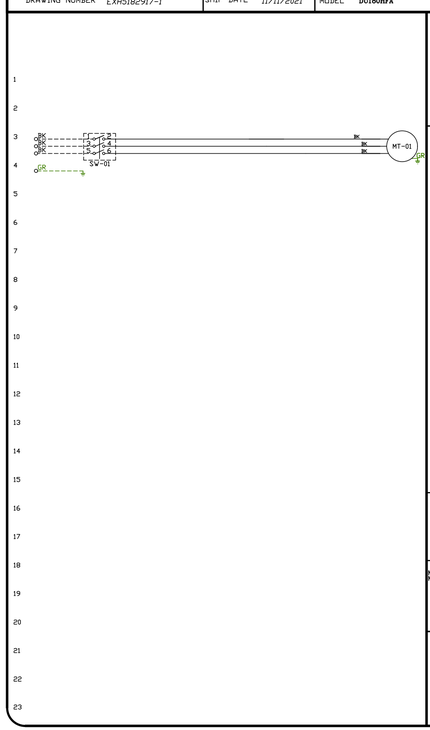
MASTER DRAWING

SHEET NO. 3

Exhaust Fan Wiring

JOB 5182917 - Hawai...

DRAWING NUMBER EXH5182917-1 | SHIP DATE 11/11/2021 | MODEL DU180HFA



Installed Options

Component Identification

Label	Description	Location
MT-01	Fan Motor	[3]
SV-01	Main disconnect switch	[3]

MOTOR INFO

EXHAUST 3HP-208V-3P-9.5FLA

ELECTRICAL INFORMATION

MOTOR/CTRL MCA: 12A
MOTOR/CTRL MOP: 20A

NOTES

----- DENOTES FIELD WIRING
——— DENOTES INTERNAL WIRING

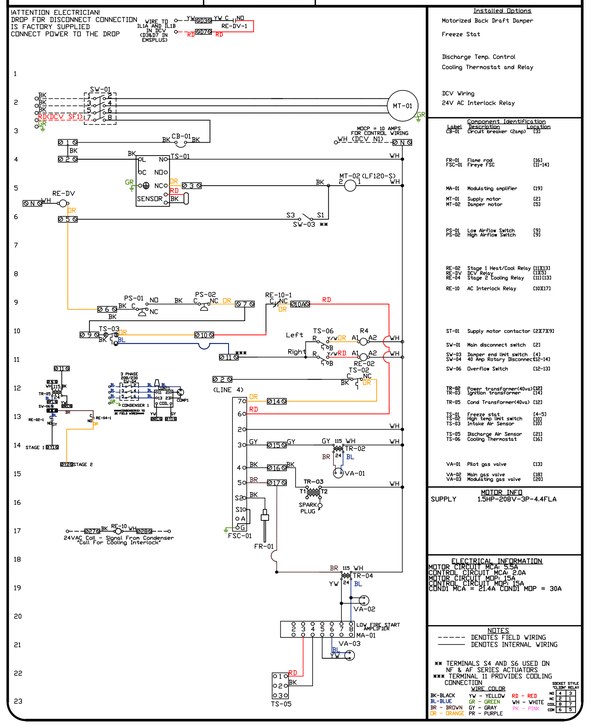
WIRE COLOR

BK	BLACK	YW	YELLOW
BL	BLUE	GR	GREEN
BR	BROWN	GY	GRAY
OR	ORANGE	PR	PURPLE
RD	RED	PK	PINK
WH	WHITE		

Direct Fired Heater Wiring

JOB 5182917 - Hawai...

DRAWING NUMBER DF5182917-2 | SHIP DATE 11/11/2021 | MODEL A2-D.250-20D-MPU



Installed Options

Motorized Back Draft Damper

Freeze Stat

Discharge Temp. Control
Cooling Thermostat and Relay

DCV Wiring
24V AC Interlock Relay

Component Identification

Label	Description	Location
CB-01	Circuit Breaker (Dump)	[2]
FR-01	Flame rod	[24]
FSC-01	Fireye FSC	[12-14]
MA-01	Modulating amplifier	[19]
MT-01	Supply motor	[22]
MT-02	Damper motor	[23]
PS-01	Low Airflow Switch	[9]
PS-02	High Airflow Switch	[9]
RE-02	Stage 1 Heat/Cool Relay	[11][17]
RE-DV	DCV Relay	[11][17]
RE-04	Stage 2 Cooling Relay	[11][13]
RE-10	AC Interlock Relay	[10][17]
ST-01	Supply motor contactor	[22][23]
SV-01	Main disconnect switch	[2]
SV-02	Damper end limit switch	[4]
SV-04	40 Amp Rotary Disconnect	[12-14]
SV-06	Overflow Switch	[12-13]
TR-02	Power transformer(40va)	[20]
TR-04	Ignition transformer	[24]
TR-05	Cond Transformer(40va)	[12]
TS-01	Freeze stat	[4-5]
TS-03	High temp limit switch	[10]
TS-02	Intake Air Sensor	[20]
TS-05	Discharge Air Sensor	[21]
TS-06	Cooling Thermostat	[26]
VA-01	Pilot gas valve	[13]
VA-02	Main gas valve	[28]
VA-03	Modulating gas valve	[28]

MOTOR INFO

SUPPLY 1.5HP-208V-3P-4.4FLA

ELECTRICAL INFORMATION

MOTOR CIRCUIT MCA: 5.5A
CONTROL CIRCUIT MCA: 2.0A
MOTOR CIRCUIT MOP: 15A
CONTROL CIRCUIT MOP: 15A
COND1 MCA = 21.4A COND1 MOP = 30A

NOTES

----- DENOTES FIELD WIRING
——— DENOTES INTERNAL WIRING

** TERMINALS S4 AND S6 USED ON NF & AF SERIES ACTUATORS
*** TERMINAL 11 PROVIDES COOLING CONNECTION

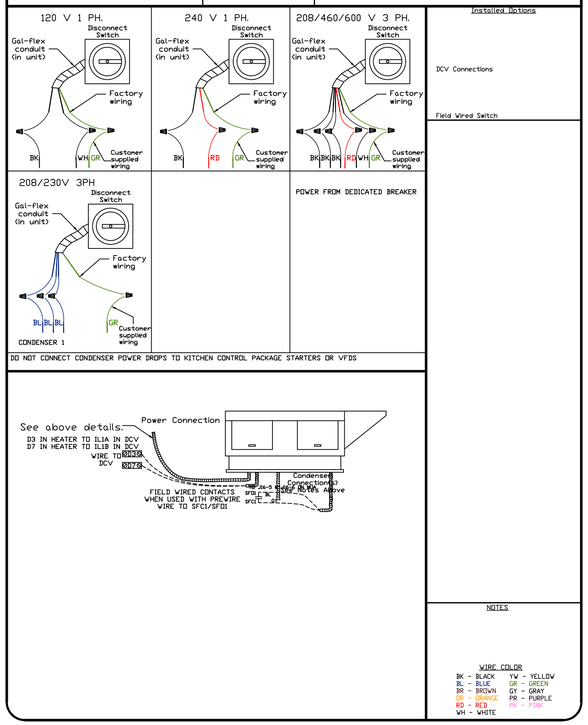
WIRE COLOR

BK-BLACK	YW - YELLOW	RD - RED	
BL - BLUE	GR - GREEN	WH - WHITE	
BR - BROWN	GY - GRAY	PK - PINK	
OR - ORANGE	PR - PURPLE		

Installation Wiring

JOB 5182917 - Hawai...

DRAWING NUMBER RP5182917-2 | SHIP DATE 11/11/2021 | MODEL A2-D.250-20D-MPU



Installed Options

DCV Connections

Field Wired Switch

POWER FROM DEDICATED BREAKER

NOTES

WIRE COLOR

BK	BLACK	YW	YELLOW
BL	BLUE	GR	GREEN
BR	BROWN	GY	GRAY
OR	ORANGE	PR	PURPLE
RD	RED	PK	PINK
WH	WHITE		

REVISIONS

	DESCRIPTION	DATE:
△		
△		
△		
△		

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Hawaiian Bros (To Go) - Metcalf
OVERLAND PARK, KS, 66223

DATE: 11/11/2021

DWG.#: 5182917

DRAWN BY: michael.co

SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 4

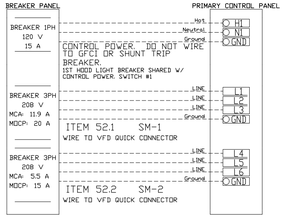
ELECTRICAL PACKAGE – JOB#5182917

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	#	HP	VOLT	FLA
1	ECP-1	DCV-1111	UTILITY CABINET LEFT	03 - UTILITY CABINET LEFT	1 LIGHT	SMART CONTROLS DCV	ITEM 52.1	EXHAUST	3	3.000	208	9.5
				HOOD # 1	1 FAN		ITEM 52.2	SUPPLY	3	1.500	208	4.4

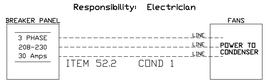
JOB NO 5182917 | MODEL NUMBER DCV-1111 | JOB NAME Hawaiian Bros (To Go) - Metca... | DRAWN BY | DATE 11/11/2021 | SCHEMATIC TYPE INSTALL | DWG NO ECP #1-1

DESCRIPTION OF OPERATION:
Demand Control Ventilation, w/ control for 1 Exhaust Fan, 1 Supply Fan, Exhaust on in Fire, Lights out in Fire, Fans modulate based on duct temperature. INVERTER DUTY 3 PHASE MOTOR REQUIRES FOR USE WITH VFD. Room temperature sensor shipped loose for field installation/verify distance between VFD and Motor, additional cost could apply if distance exceeds 50 feet.

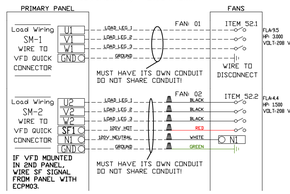
BREAKER PANEL TO PRIMARY CONTROL PANEL
Responsibility: Electrician
BREAKER SIZE SHOWN IS THE MAXIMUM ALLOWED



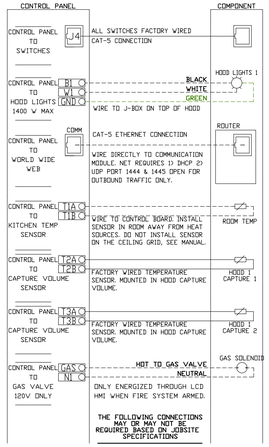
BREAKER PANEL TO FANS
Responsibility: Electrician

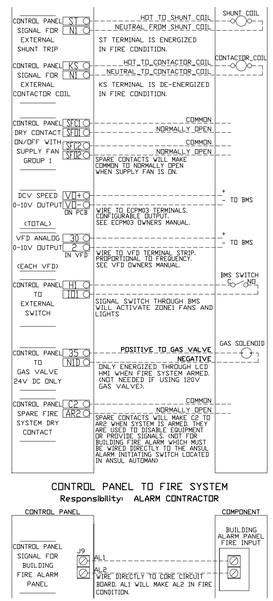


CONTROL PANEL TO FANS
Responsibility: Electrician



CONTROL PANEL TO ACCESSORY ITEMS
Responsibility: Electrician

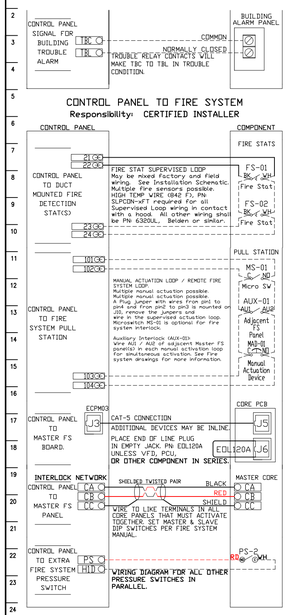




CONTROL PANEL TO FIRE SYSTEM
Responsibility: ALARM CONTRACTOR

JOB NO 5182917 | MODEL NUMBER DCV-1111 | JOB NAME Hawaiian Bros (To Go) - Metca... | DRAWN BY | DATE 11/11/2021 | SCHEMATIC TYPE INSTALL | DWG NO ECP #1-2

DESCRIPTION OF OPERATION:
Demand Control Ventilation, w/ control for 1 Exhaust Fan, 1 Supply Fan, Exhaust on in Fire, Lights out in Fire, Fans modulate based on duct temperature. INVERTER DUTY 3 PHASE MOTOR REQUIRES FOR USE WITH VFD. Room temperature sensor shipped loose for field installation/verify distance between VFD and Motor, additional cost could apply if distance exceeds 50 feet.



JOB NO 5182917 | MODEL NUMBER DCV-1111 | JOB NAME Hawaiian Bros (To Go) - Metca... | DRAWN BY | DATE 11/11/2021 | SCHEMATIC TYPE INSTALL | DWG NO ECP #1-3

DESCRIPTION OF OPERATION:
Fire System #1 TANK FS - 40/40 (ITEM 50A). Tank-based Fire Protection System equipped with Electronic Detection utilizing CORE board as a Listed Release Mechanism. Installed in Hood Utility Cabinet with integral hood prewire panel.

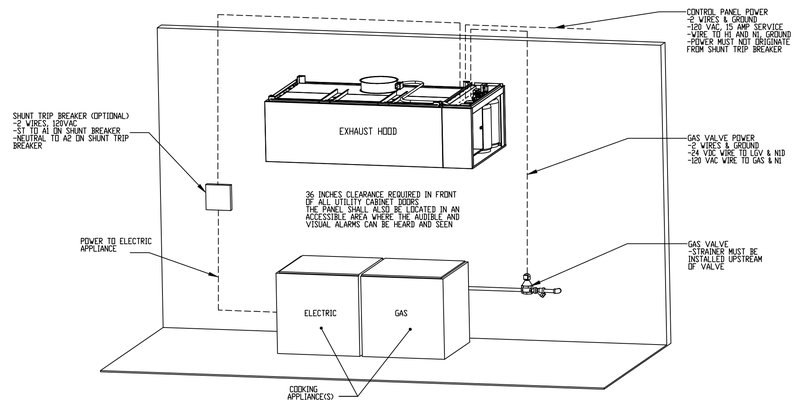
TANK PROTECTION ELECTRICAL DETAIL

02/10/2021 Rev. 2

FS-1: MASTER

ELECTRICIAN:
1. WIRE MAIN CONTROL PANEL PER INCLUDED SCHEMATIC
2. WIRE ALL FANS PER INCLUDED SCHEMATIC
3. WIRE SHUNT TRIP BREAKER (OPTIONAL)
4. WIRE UDS APPLIANCE KILL SWITCH, IF EQUIPPED (OPTIONAL)
5. WIRE GAS VALVE

ELECTRICAL CONTRACTOR REQUIREMENT					
ITEM	CONNECTION IN PANEL	CONNECTION IN DEVICE	VOLTAGE	AMPERAGE	COMMENTS
SHUNT TRIP BREAKER (OPTIONAL)	ST & N1	BREAKER COIL (A1 & A2)	120 VAC	< 4 AMPS	ST TO A1 ON SHUNT BREAKER COIL, AND NEUTRAL TO A2 ON SHUNT TRIP BREAKER COIL
CONTROL PANEL POWER	H1 & N1 + GROUND	CIRCUIT BREAKER	120 VAC	15 AMPS	CONTROL PANEL POWER MUST NOT BE RUN THROUGH SHUNT TRIP BREAKER
UDS APPLIANCE KILL SWITCH (OPTIONAL)	KTS & N1	KTS & N1	120 VAC	< 4 AMPS	KILL SWITCH TERMINALS MUST BE IN SERIES WITH OTHER KILL SWITCHES
REMOTE 120VAC ANSUL AUTOMAN (OPTIONAL)	AU1, AU2	SOLENOID	120 VAC	< 6 AMPS	120V TO AU1, AU2 TO ANSUL ELECTRIC AUTOMAN, ANSUL SOLENOID TO NEUTRAL
GAS VALVE	LGV & N1B (IF 24 VDC) GAS & N1 (IF 120 VAC)	RED/RED/GREEN	24 VDC OR 120 VAC	< 1.0 AMPS	IF 24 VDC - 2 WIRES & GROUND, N1B TO RED, LGV TO RED, AND GREEN TO GROUND IF 120 VAC - 2 WIRES & GROUND GAS TO RED, N1 TO RED, AND GREEN TO GROUND



NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

JOB NO 5182917 | MODEL NUMBER DCV-1111 | JOB NAME Hawaiian Bros (To Go) - Metca... | DRAWN BY | DATE 11/11/2021 | SCHEMATIC TYPE INSTALL | DWG NO ECP #1-4

DESCRIPTION OF OPERATION:
Fire System #1 TANK FS - 40/40 (ITEM 50A). Tank-based Fire Protection System equipped with Electronic Detection utilizing CORE board as a Listed Release Mechanism. Installed in Hood Utility Cabinet with integral hood prewire panel.

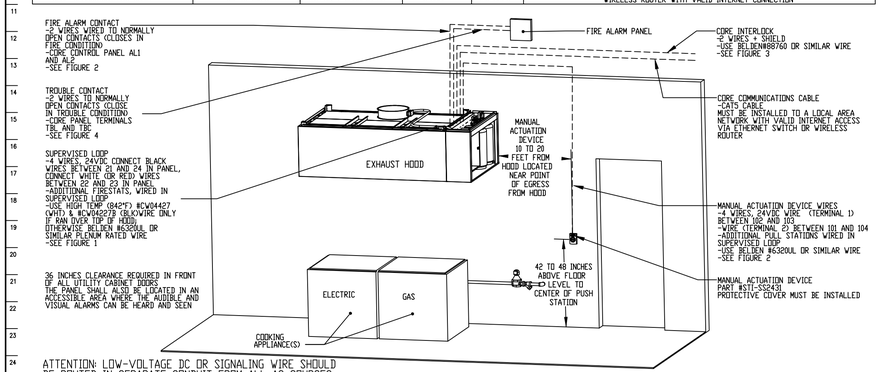
TANK PROTECTION LOW-VOLTAGE DETAIL

02/10/2021 Rev. 2

FS-1: MASTER

ALARM CONTRACTOR:
1. WIRE MANUAL ACTUATION DEVICE(S), REMOTE FIRESTAT(S), CORE INTERLOCK(S), FIRE SENSOR(S) AND FIRE ALARM CONTACTS
2. COMPLETE FINAL HOOKUP OF SYSTEM
3. VERIFY FINAL FIRE SYSTEM TEST

ALARM CONTRACTOR REQUIREMENT					
ITEM	CONNECTION IN PANEL	CONNECTION ON DEVICE	VOLTAGE	AMPERAGE	COMMENTS
MANUAL ACTUATION DEVICE(S)	101 AND 104 102 AND 103	1 & 2	24 VDC	< 1.0 AMPS	WIRE MANUAL ACTUATION DEVICE TERMINAL 1 BETWEEN CORE PANEL TERMINALS 102 AND 103 WIRE MANUAL ACTUATION DEVICE TERMINAL 2 BETWEEN CORE PANEL TERMINALS 101 AND 104 JUMPER 101 TO 104 AND 102 TO 103 IF NO MANUAL ACTUATION DEVICE IS INSTALLED
MANUAL ACTUATION DEVICE COVER	N/A	N/A	N/A	N/A	MANUAL ACTUATION DEVICE COVER MUST BE INSTALLED IF SURFACE MOUNTED, USE COVER EXTENSION STI-SS518
REMOTE FIRESTAT SENSOR(S)	21 AND 24 AND 23	BLACK AND WHITE	24 VDC	< 1.0 AMPS	WIRE FIRE SENSOR WHITE WIRES BETWEEN HOOD CORE PANEL TERMINALS 22 AND 23 WIRE FIRE SENSOR BLACK WIRE BETWEEN HOOD CORE PANEL TERMINALS 21 AND 24 HIGH TEMP (842°F) #CW04427 (WHT) & #CW04427B (BLK)WIRE OR SIMILAR ONLY IF RAN OVER TOP OF HOOD, OTHERWISE BELDEN #6320UL OR SIMILAR PLENUM RATED WIRE, SEE FIGURE 1
FIRE ALARM CONTACT	AL1, AL2	VARIES	50V MAX (AC/DC)	UP TO 1 AMP	FIRE ALARM RELAY CONTACTS FOR BUILDING FIRE ALARM LOCATED IN THE CORE ELECTRICAL CONTROL PANEL
CORE INTERLOCK(S)	ILA, ILB, ILC	ILA, ILB, ILC	RS-485 COMMUNICATIONS SIGNAL		CORE SYSTEM (1) ILA, TO CORE SYSTEM (2) ILA. CORE SYSTEM (1) ILB, TO CORE SYSTEM (2) ILB. CORE SYSTEM (1) ILC, TO CORE SYSTEM (2) ILC. USE BELDEN# 88760 OR SIMILAR WIRE
TROUBLE CONTACT	TBC, TBL, TDK	VARIES	MAX 120 VAC	UP TO 6 AMPS	WIRE TO TBL & TBC NORMALLY OPEN CONTACT, CLOSES IN TROUBLE CONDITION
CORE COMMUNICATIONS CABLE	RJ-45 Jack	INTERNET CONNECTION	SIGNAL	<1.0 AMPS	TYPICAL CONNECTION CAT5 CABLE TO LOCAL AREA NETWORK VIA ETHERNET SWITCH OR WIRELESS ROUTER WITH VALID INTERNET CONNECTION



ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

REVISIONS

	DESCRIPTION	DATE:
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△		
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CAPTIVE-AIRE
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Hawaiian Bros (To Go) - Metcalf
OVERLAND PARK, KS, 66223

DATE: 11/11/2021

DWG.#: 5182917

DRAWN BY: michael.co

SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 5

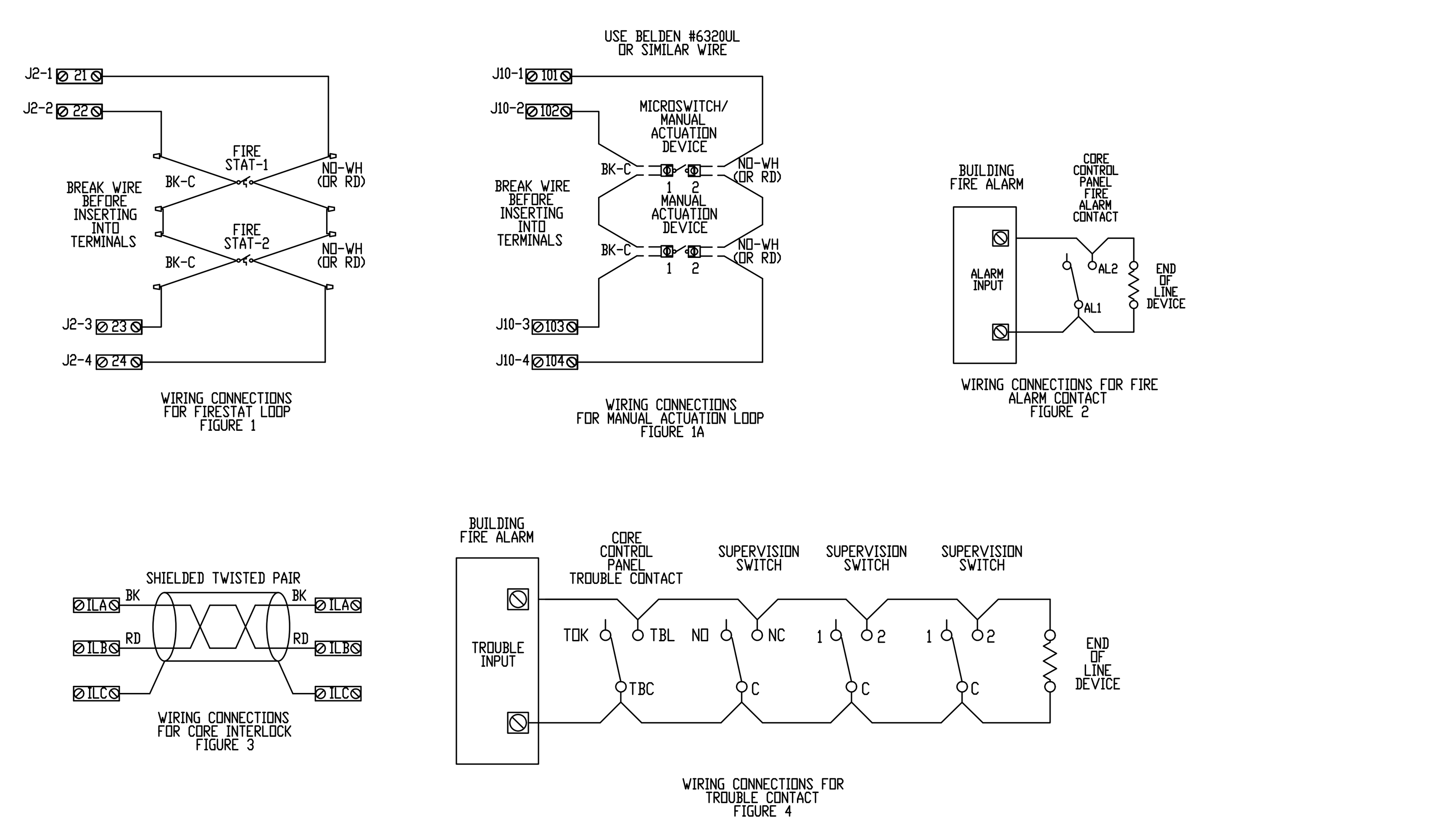
JOB NO 5182917 | MODEL NUMBER DCV-1111 | JOB NAME Hawaiian Bros (To Go) - Metca... | DRAWN BY | DATE 11/11/2021 | SCHEMATIC TYPE INSTALL | DWG NO ECP #1-5

DESCRIPTION OF OPERATION: Fire System #1 TANK FS - 4.0/4.0 (ITEM 52A). Tank-based Fire Protection System equipped with Electronic Detection utilizing CORE board as a Listed Release Mechanism. Installed in Hood Utility Cabinet with integral hood prewire panel.

TANK PROTECTION LOW-VOLTAGE FIGURES

02/10/2021 Rev. 17

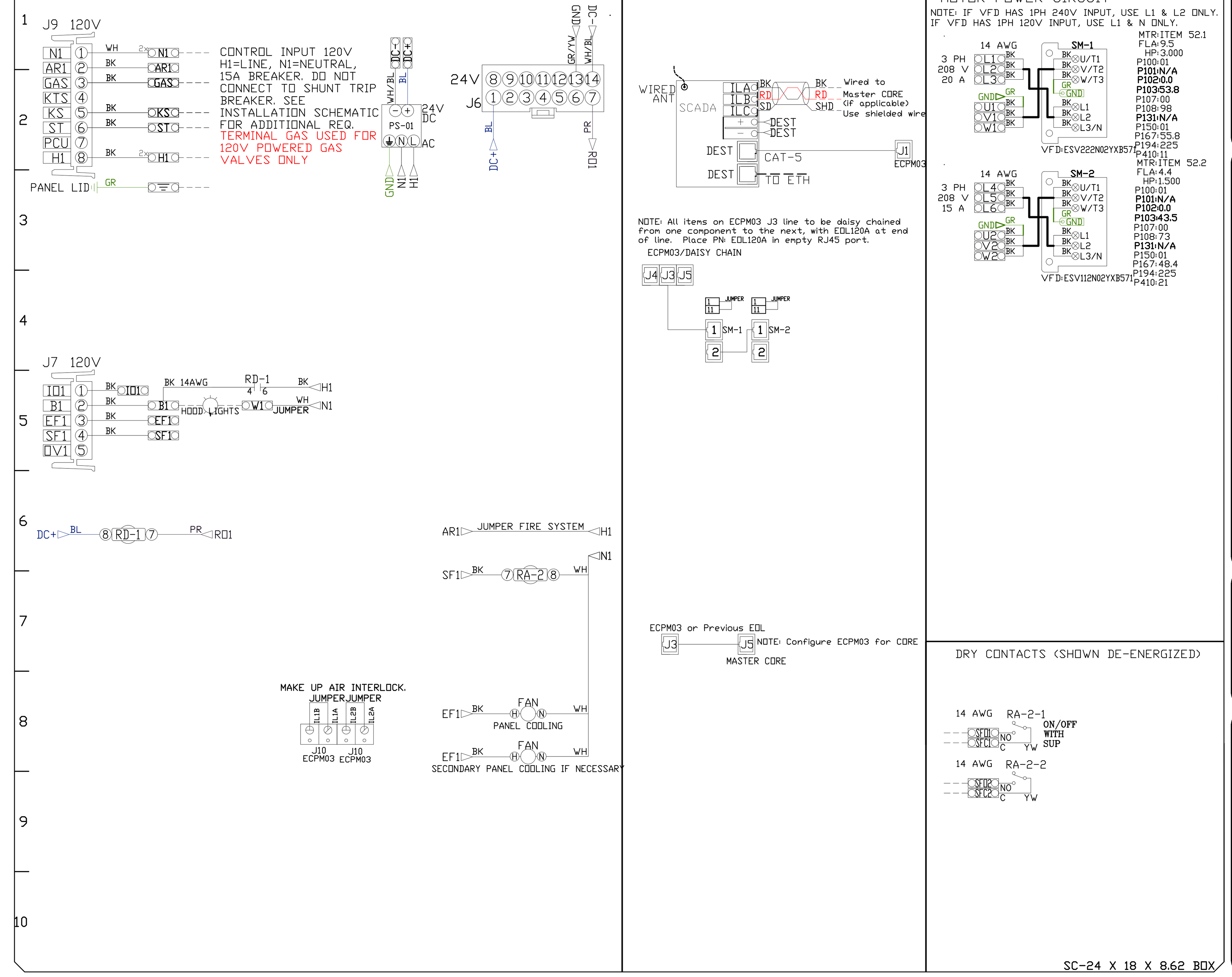
FS-1: MASTER



ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

UNLESS SPECIFIED OTHERWISE, ALL FACTORY AC WIRING 16 AWG. ALL FACTORY DC WIRING 18 AWG.



FACTORY WIRING SCHEMATIC CIRCUIT BOARDS ECPM03

DCV Rev. 2.12.00
HMI Rev. 2.12.00

RA-x 120 VAC RELAY			RD-x 24 VDC RELAY		
NO	4	3	NO	4	3
NC	2	1	NC	2	1
COIL	8	7	COIL	8	7
COM	6	5	COM	6	5

COMPONENT LIST

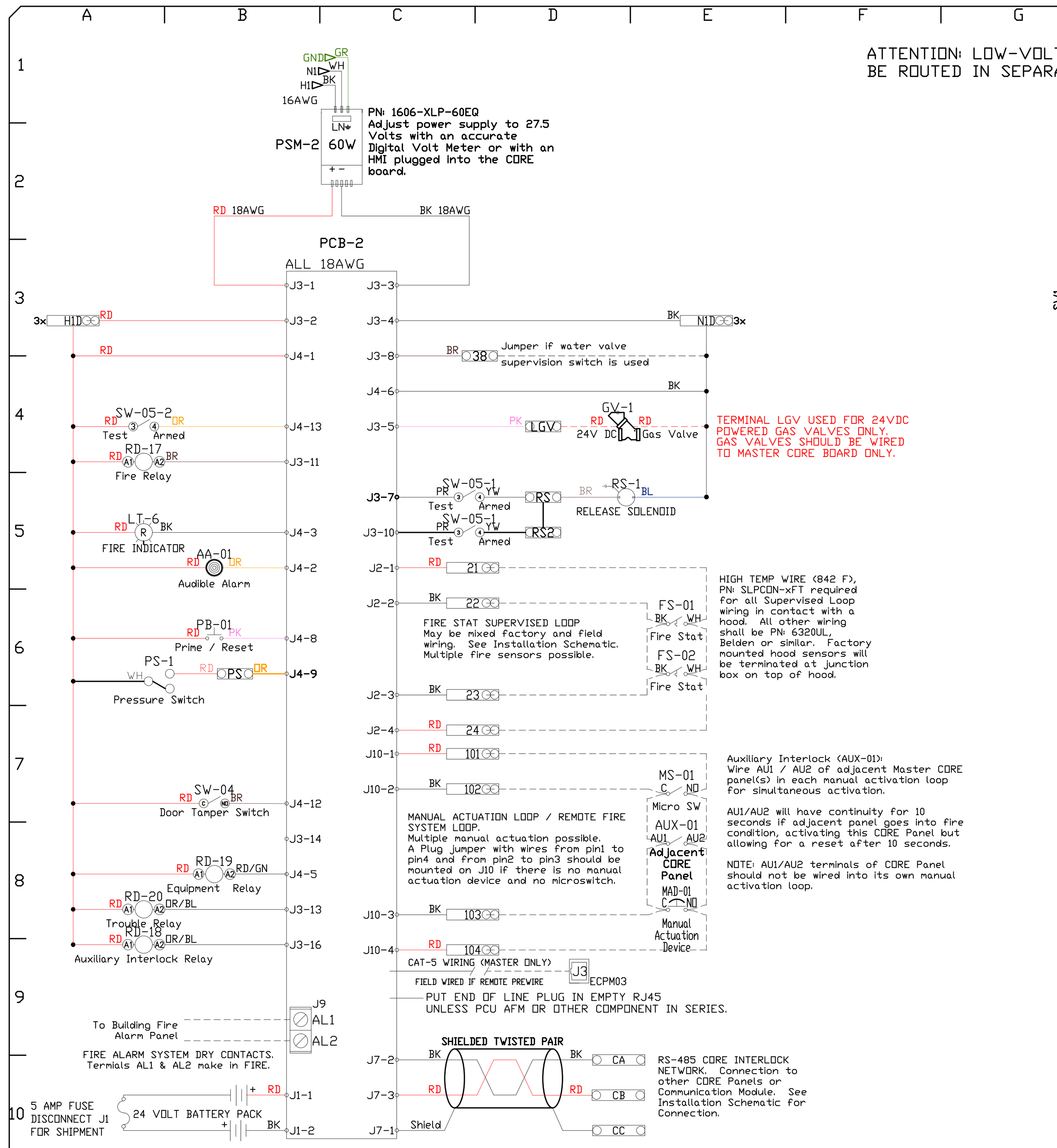
LABEL	DESCRIPTION
ST-X	Starter varies
OL-X	Overload varies
C-X	Contactor varies
PS-1	Power Sup. 24VDC MDP18-24A-1C
RA-x	120V Relay DPDT 34.110.0184.0
RD-x	24VDC Light Relay 34.110.0188.0
TS-x	Duct Thermostat A/CP-PD-T4'-EXPL
SCADA	SCADA Module

LEGEND
- - - - FIELD WIRING
——— FACTORY WIRING
BK- BLACK, YW- YELLOW, BL- BLUE, GY- GREY, BR- BROWN, PR- PURPLE, OR- ORANGE, RD- RED, WH- WHITE, GR- GREEN, OR/BL- OR/BL STRIPE, BL/RD- BL/RD STRIPE, RD/GN- RD/GN STRIPE, WH/BL- WH/BL STRIPE

JOB NAME Hawaiian Bros (T...
DRAWING TITLE DCV-1111
DESCRIPTION OF OPERATION: Demand Control Ventilation, w/ control for 1 Exhaust Fan, 1 Supply Fan, Exhaust on in Fire, Lights out in Fire, Fans modulate based on duct temperature. INVERTER DUTY 3 PHASE MOTOR REQUIRED FOR USE WITH VFD. Room temperature sensor shipped loose for field installation.Verify distance between VFD and Motor; additional cost could apply if distance exceeds 50 feet.
JOB NO 5182917 | DRAWN BY
TYPE FACTORY | DATE 11/11/2021
DWG NO ECP #1-6

ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES.

FS-1: MASTER



DIP Switch

SW1 1 2 3 4 5 6 7 8 OPEN

Master CORE set DIP SW 8 to CLOSED position. Slave CORE with address 1 set DIP SW 8 to CLOSED position. All other CORES set DIP SW 8 OPEN.

FIRE INDICATOR FAULT CONDITION FLASH CODES
2 Release Solenoid
3 Pressure Switch
4 Auxiliary Fault
5 Microcontroller Fault
6 N/A
7 Supervised Loop
8 Ground Fault
9 Surfactant Low
10 Battery Voltage Low
11 AC Power Failure
12 Door Tamper Switch
13 Test Mode
14 CORE Interlock Network
15 Fault on Hood in Interlock Network
16 Fault on PCU in Interlock Network

DRY CONTACTS (SHOWN DE-ENERGIZED)

RD-20-1 TRBL TOK TBC: TROUBLE RELAY. Contact terminals TBC & TBL make if there is trouble. Contact terminals TBC & TOK make if the system is ok.

RD-19-1 EST EKS EKC: COOKING EQUIPMENT DISABLE RELAY. For UDS Kill Switch, wire EKC and EKS terminals to like terminals in UDS panel.

RD-17-1 (14 AWG) AR2 TR2 C2: FIRE SYSTEM DRY CONTACTS. Dry contacts will make C2 to AR2 when system is armed.

RD-18-1 AU2 AU1: INTERLOCK FOR AUTOMAN ACTIVATION. Used for activating 120V automan or adjacent Master CORE panels during active Fire Condition.

FACTORY WIRING SCHEMATIC CORE FIRE PROTECTION

RA-x 120 VAC RELAY			RD-x 24 VDC RELAY		
NO	4	3	NO	4	3
NC	2	1	NC	2	1
COIL	8	7	COIL	8	7
COM	6	5	COM	6	5

COMPONENT LIST

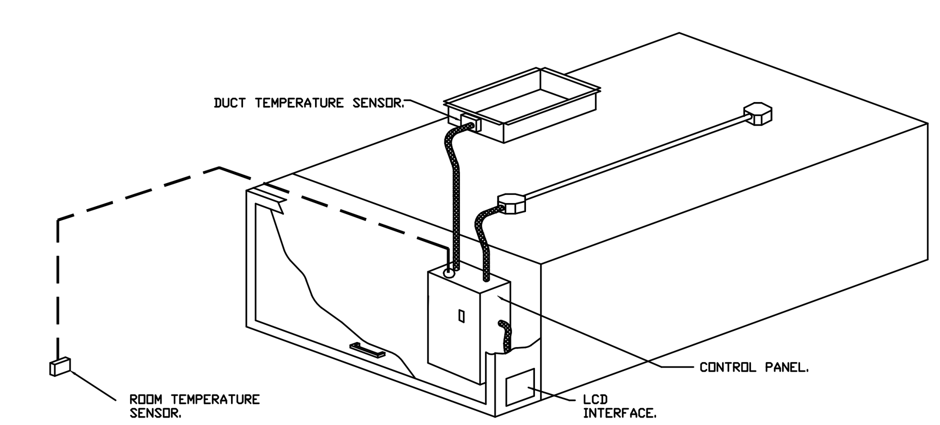
LABEL	DESCRIPTION
MAD-01	MANUAL ACTIVATION DEVICE
PCB-2	CORE PCB PCBCORE-APP
PSM-2	CORE POWER SUPPLY 1606-XLP-50E
WS-x	Water Solenoid varies
LT-06	24V Red Ind. Light PNL-1163-OUR
LL-01	Surf. Level Sensor AQ5510
AA-01	Audible Alarm SCE120LA3FP1B
PB-01	Prime/Reset Switch D7-F2X11
SW-05	TEST/ARM Switch ZB5AD2
SW-04	Tamper Switch BZ-2RQ1-A2
SP-1	Surfactant Pump 50000-805
GV-1	24v DC Gas Valve varies
FS-XX	Duct Fire Sensor 12-F28021-000360
LT-05	24V YLW Ind. Light PNL-1163-OUY
PS-01	Remote Pull/Push Station STI-SS2431
PWS-01	24VDC Power Suppl 24VDC 18W POWER
RD-XX	24VDC Phoenix Relay PLC-RPT-24DC/21
PS	Pressure Switch EWC-PRESSURE

LEGEND
- - - - FIELD WIRING
——— FACTORY WIRING
BK- BLACK, YW- YELLOW, BL- BLUE, GY- GREY, BR- BROWN, PR- PURPLE, OR- ORANGE, RD- RED, WH- WHITE, GR- GREEN, OR/BL- OR/BL STRIPE, BL/RD- BL/RD STRIPE, RD/GN- RD/GN STRIPE, WH/BL- WH/BL STRIPE

JOB NAME Hawaiian Bros (T...
DRAWING TITLE DCV-1111
DESCRIPTION OF OPERATION: Fire System #1 TANK FS - 4.0/4.0 (ITEM 52A). Tank-based Fire Protection System equipped with Electronic Detection utilizing CORE board as a Listed Release Mechanism. Installed in Hood Utility Cabinet with integral hood prewire panel.
JOB NO 5182917 | DRAWN BY
TYPE FACTORY | DATE 11/11/2021
DWG NO ECP #1-7

DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:

- CONTROLS SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.2.8 (2015).
- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
- TEMPERATURE PROBE(S) LOCATED IN THE EXHAUST DUCT RISER(S) SHALL BE CONSTRUCTED OF STAINLESS STEEL.
- A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND DUCT TEMPERATURES SENSORS. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IMC 507.1.1.
- A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.
- A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.
- VARIABLE FREQUENCY DRIVES (VFDS) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFDS BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT(S) TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.
- AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.
- THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.
- A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.
- A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA DRY CONTACT (EXTERNAL CONTROL SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE).
- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
  A. ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
  B. INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (NO RESET RELAY REQUIRED).
  C. VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  D. DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  E. MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  F. A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
  G. AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFDS.



TYPICAL HOOD CONTROL PANEL INSTALLATION

SEQUENCE OF OPERATIONS:

THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:

- AUTOMATIC: THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL THRESHOLD. DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED AS STATIC OR DYNAMIC. THESE TERMS REFER TO WHETHER A VARIABLE MOTOR (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS EQUIPPED WITH VARIABLE SPEED FANS AND THE ZONE IS DEFINED AS 'DYNAMIC', THESE WILL MODULATE WITHIN A USER-DEFINED RANGE BASED ON THE TEMPERATURE DIFFERENTIAL. PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS 'STATIC', FANS WILL RUN AT A SET SPEED CALCULATED FOR THE DRIVE. DEMAND CONTROL VENTILATION SYSTEMS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN IECC 403.2.8.
- MANUAL: THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
- SCHEDULE: A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE DURING THIS TIME. DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
- OTHER: THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).
- FIRE: UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.

REVISIONS

DESCRIPTION	DATE:
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www.captiveaire.com

Hawaiian Bros (To Go) - Metcalf
OVERLAND PARK, KS, 66223

DATE: 11/11/2021

DWG.#: 5182917

DRAWN BY: michael.co

SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 6