# **Building Renovation** Big Tom's Barbershop 2178 Centre Avenue, Pittsburgh, PA 15219



# **PROJECT NOTES**

Description:	Interior and exterior renovation of existing 3- story commercial structure
Location:	2178 Centre Avenue Pittsburgh, PA 15219
Occupancy:	Group B (Business) Group M (Retail) Group R-2 (Apartments)
Code Compliance:	International Building Code 2015
Construction:	IIIB
Fire Suppression:	Non-Sprinklered (Group B & Group M) Sprinklered (Group R-2)
Building Area:	5,400 Gross SF

4,140 SF

**Renovation Area:** 

# Owner

PROJECT TEAM

TOMTOM24 DEVELOPMENT P.O. Box 53043

Architect

WINSTON DESIGN+ DEVELOPME

Allen&Shariff

**MEP Enginee** 



Contact: Thomas Taylor, CET, CPD 412.322.9280

# LOCATION MAP



## VICINITY MAP



# PROJECT DESCRIPTION

The Centre Avenue Redevelopment for Big Tom's Barbershop ("Project") is the rehabilitation of a 3-story existing building in the Hill District of the City of Pittsburgh. The intent is to preserve the exterior's urban form with newly installed double-hung windows as well as masonry repointing and repair; and upgrade the interior to provide an accessible and versatile space for commercial tenants as well as provide an open and usable space for residents. Exterior upgrades include a newly installed storefront that elevates the streetscape. Interior upgrades include commercial spaces on the ground level and residential units on the upper levels.

The commercial spaces include a full-service barbershop and adjacent retail shop. Both commercial spaces will be fully accessible from an interior courtyard and integrate accessible restrooms (see project accessibility narrative). The Barbershop is equipped with (5) barber stations, (2) wash stations, a receptionist/ waiting area, as well as a service sink and stacked washer and dryer. The interior layout and design optimize daylighting, space efficiency, as well as 6'-0" COVID-19 clearances at the barber stations. Additionally, the adjacent Retail Shop is a flex space equipped for short-term use.

The residential units include four (4) 1-Bedroom apartments with a living room, dine-in kitchen, full bath, and bedroom; all equipped for ambulatory accessibility and aging-in-place. The interior layout and design optimize daylighting and space efficiency, as well as maintain the existing stair configuration. The intent of the residential units is to provide open and flexible apartments overlooking two prominent corridors: Centre Avenue and Kirkpatrick Avenue.

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Contact: Gerrod Winston, AIA LEED AP 240.461.1093

Allen & Shariff Engineering Two Allegheny Center, Nova Tower 2, Suite 1001 Pittsburgh, PA 15212

DRAWING LIS		WINSTON DESIGN+ DEVELOPMEN
SHEET NUMBER	SHEET NAME	
Index CS	Cover Sheet	
General Information G-000	General Information	
Architectural Existing AE-101 AE-102	Existing Building Plan - Basement & 1F Existing Building Plan - 2F & 3F	907 EASTEND AVENUE PITTSBURGH, PA 15221 TEL:240.461.1093 www.winstonarchitecture.co
AE-103	Existing Roof Plan & Elevations	
Architectural Demolition AD-101 AD-102 AD-103	Demolition Building Plan - Basement & 1F Demolition Building Plan - 2F & 3F Demolition Roof Plan	COMMUNION Architecture is advocacy and activ
Architectural A-101 A-102 A-103 A-104 A-105 A-109 A-110 A-201	Renovation Building Plan - Basement & 1F Renovation Building Plan - 2F & 3F Renovation Roof Plan Reflected Ceiling Plan - Basement & 1F Reflected Ceiling Plan - 2F & 3F FFE Building Plan - Basement & 1F FFE Building Plan - 2F & 3F Renovation Building Elevations	
Mechanical M-001 M-002 M-003 M-201 M-202 M-203	Mechanical Data Sheet Mechanical Specifications Mechanical Specifications Basement & First Floor Mechanical Plans Second & Third Floor Mechanical Plans Roof Mechanical Plan	n ershop h, PA 15219
Electrical E-001 E-002 E-003 E-004 E-201 E-202 E-301 E-302 E-401 E-402 E-501 E-601 E-602 E-701 E-702	Electrical Data Sheet Electrical Specifications Electrical Specifications Electrical Specifications Basement & First Floor Lighting Plans Second & Third Floor Lighting Plans Basement & First Floor Power Plans Second & Third Floor Power Plans Basement & First Floor Fire Alarm Plans Second & Third Floor Fire Alarm Plans Electrical Details Electrical Riser Diagram Fire Alarm Riser Diagram Electrical Schedules Electrical Schedules	Building Renovatio Big Tom's Barbe 2178 Centre Avenue, Pittsburg
Plumbing P-001 P-002 P-003 P-201 P-201 P-202 P-202 P-202 P-203 P-301 P-401 P-501	Plumbing Data Sheet Plumbing Specifications Plumbing Specifications Basement & First Floor Plumbing Drainage Plans Basement & First Floor Plumbing Supply Plans Second & Third Floor Plumbing Drainage Plans Second & Third Floor Plumbing Supply Plans Roof Plumbing Drainage Plans Plumbing Details Plumbing Riser Diagrams Plumbing Schedules	Seal:
Fire Protection FP-001 FP-002 FP-003 FP-201 FP-202	Fire Protection Data Sheet Fire Protection Specifications Fire Protection Specifications Basement & First Floor Fire Protection Plans Second & Third Floor Fire Protection Plans	NOT FOR CONSTRUCTION



# Abbreviations

Pound OR Number

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@	At
AB ABV	Anchor Bolt OR Air Barrier
ADV A/C	Air Conditioning
ACOUS	Acoustical
AD	Area Drain
AFF	Above Finished Floor
AGGR	Aggregate
AHU ALT	Air Handling Unit Alternate
ALUM	Aluminum
ANOD AP	Anodized Access Panel
APPROX	Approximately
ARCH	Architectural(tect)
A/V	Audio Visual
AVG awp	Average Acoustical Wall Panel
BD rit	Board Bituminous
BLDG	Building
BLK	Block(ing)
BM	Beam
BO	Bottom Of Bottom Of Facting
BOP	Bottom Of Duct
BR	Bedroom
BSMT	Basement
BYND	Beyond Basth Tulk
BUR	Built-Up-Roofing
CAR	C 1
CAB	Cable Television
CCTV	Closed Circuit Television
CF CHNL	Cubic Feet Channel
CG	Corner Guard
CIP CJ	Cast-In-Place Construction Joint
CLJ	Control Joint
CL CLG	Center Line Ceilina
CLKG	Caulking
CLO	Closet Clear
CMU	Concrete Masonry Unit
CNTR	Counter
COL	Column
	Compressible
CONF R	M Conference Room
	Construction
CONTR	Contract(or)
	Coordinate
CORR	Corridor Ok Corrugated
CPT	Carpet(ing)
CPT CRS	Carpet(ing) Course
CPT CRS CSK CT	Carpet(ing) Course Countersunk(sink) Ceramic Tile
CPT CRS CSK CT CTB	Carpet(ing) Course Countersunk(sink) Ceramic Tile Ceramic Tile Base
CPT CRS CSK CT CTB CTE CTE CTR	Carpet(ing) Course Countersunk(sink) Ceramic Tile Ceramic Tile Base Connect To Existing Center
CPT CRS CSK CT CTB CTE CTE CTR CU	Carpet(ing) Course Countersunk(sink) Ceramic Tile Ceramic Tile Base Connect To Existing Center Condensing Unit
CPT CRS CSK CT CTB CTE CTR CU CUH CW	Carpet(ing) Course Countersunk(sink) Ceramic Tile Ceramic Tile Base Connect To Existing Center Condensing Unit Cabinet Unit Heater Cold Water OR Curtainwall
CPT CRS CSK CT CTB CTE CTR CU CUH CUH CW DBL	Carpet(ing) Course Countersunk(sink) Ceramic Tile Ceramic Tile Base Connect To Existing Center Condensing Unit Cabinet Unit Heater Cold Water OR Curtainwall Double
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	Fluorescent
	Factory Mutual
FO	Face Of
FOIC Contrac	Furnished By Owner Installed By tor
FP FRP	Fire Protection OR Fire Proof
FT	Foot OR Feet
FURN	Footing Furniture, Furnish(ing)
FURR FWC	Furring Fabric Wallcovering
FWP	Fabric Wall Panel
GA	Gauge
GALV	Grab Bar OR Grade Beam
GC GEN	General Contractor Generator or General
gfci Gfig	Ground Fault Circuit Interrupter Ground Fault Circuit Interrupter
GFRC	Glass Fiber Reinforced Concrete
GND	Ground
GP GR	Gypsom Plaster Grade(ing)
GRL GWB	Guardrail(ing) Gypsum Wall Board
GYP BD	OGypsum Board
HB	Hose Bib (Connection)
H/C	Handicapped
HD HDRL	Head Handrail(ing)
HDW HDWD	Hardware Hardwood
HGT HM	Height Hollow Metal
HOR	Horizontal
HTR	Heater
HVAC HW	Heating, Ventilation, Air Cond. Hot Water
HYD	Hydrant
IBC	International Building Code
ILO	In Lieu Of
INSUL	Insulated OR Insulation
INT INV	Interior Invert
JAN	Janitor
JC TI	Janitor's Closet
JST	Joist
KIT	Kitchen
KO KPL	Knock Out Kick Plate
LAB	Laboratory
LAM LAV	Laminate(tion)
LBL	Label
LF	Linear Feet
lf Lin LKR	Linear Feet Linoleum Locker
lf Lin LKR LR LTG	Linear Feet Linoleum Locker Living Room Lighting
LF LIN LKR LR LTG LVR	Linear Feet Linoleum Locker Living Room Lighting Louver
LF LIN LKR LR LTG LVR MAINT MAS	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry
LF LIN LKR LTG LVR MAINT MAS MATL	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material
LF LIN LKR LTG LVR MAINT MAS MATL MAX MBR	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom
LF LIN LKR LTG LVR MAINT MAS MATL MAX MBR MDF MECH	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical
LF LIN LKR LTG LVR MAINT MAS MATL MAX MDF MECH MEMB MEZZ	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine
LF LIN LKR LTG LVR MAINT MAS MATL MAX MBR MDF MECH MEMB MEZZ MFR MGR	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager
LF LIN LKR LTG LVR MAINT MAS MATL MAX MBR MDF MECH MEMB MEZZ MFR MGR MH	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager Manhole
LF LIN LKR LR LTG LVR MAINT MAS MATL MAX MBR MDF MECH MEMB MEZZ MFR MGR MH MIN MISC	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manufacturer Manager Manhole Minimum Miscellaneous
LF LIN LKR LR LTG LVR MAINT MAS MATL MAX MBR MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manufacturer Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTI	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Mechanical Membrane Mazzanine Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal
LF LIN LKR LR LTG LVR MAINT MAS MATL MAX MBR MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTL MTLRF	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manufacturer Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing)
LF LIN LKR LR LTG LVR MAINT MAS MATL MAX MBR MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTL MTLRF MUA MULL	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manufacturer Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion
LF LIN LKR LR LTG LVR MAINT MAS MATL MAX MBR MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTL RF MUA MULL NC	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTL MTLRF MUA MULL NC NIC NFPA	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTL MTLRF MUA MULL NC NIC NFPA Association	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTL RFPA Associat NO NOM NOMCO	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number Nominal DM Non-Combustible
LF LIN LKR LR LTG LVR MAINT MAS MATL MAX MBR MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTL MTLRF MUA MULL NC NIC NFPA Association NOM NOMCO NTS	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number Nominal OM Non-Combustible Not To Scale
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTL MTLRF MUA MULL NC NIC NFPA Association NOM NOMCO NTS	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number Nominal DM Non-Combustible Not To Scale
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTL MTLRF MUA MULL NC NIC NFPA Associat NO NOM NONCO NTS OA OC	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number Nominal DM Non-Combustible Not To Scale
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTL MTLRF MUA MULL NC NIC NFPA Associat NO NOMCO NTS OA OC OFF OH OD	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number Nominal DM Non-Combustible Not To Scale Outside Air On Center Office Opposite Hand OR Over Head Outside Diameter
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTL MTLRF MUA MULL NC NIC NFPA Associat NOM NONCO NTS OA OC OFF OH OD OPNG ORD	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number Nominal DM Non-Combustible Not To Scale Outside Air On Center Office Opposite Hand OR Over Head Outside Diameter Opening Overflow Roof Drain
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTL MIC NFPA ASSOCION NONCO NTS OA OC OFF OH OVHD	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Motal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number Nominal DM Non-Combustible Not To Scale Outside Air On Center Office Opposite Hand OR Over Head Outside Diameter Opening Overflow Roof Drain Over Head
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MISC MO MP MR MSB MTD MTL MIC NFPA ASSOCION NONCO NTS OA OC OFF OH OPNG OVHD PB	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manufacturer Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Motal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number Nominal DM Non-Combustible Not To Scale Outside Air On Center Office Opposite Hand OR Over Head Outside Diameter Opening Overflow Roof Drain Over Head
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MISC MO MP MR MSB MTD MTL RFR MUA MULL NC NFPA Associat NO NOM NONCO NTS OA OC OFF OH OD OPNG OVHD PB PBD PC	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Motal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number Nominal DM Non-Combustible Not To Scale Outside Air On Center Office Opposite Hand OR Over Head Outside Diameter Opening Overflow Roof Drain Over Head
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MH MIN MISC MO MP MR MSB MTD MTLRF MUA MULL NC NIC NFPA Associat NOM NONCO NTS OA OC OFF OH OD OPNG OVHD PB PBD PC PCP PEMB	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manufacturer Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number Nominal DM Non-Combustible Not To Scale Outside Air On Center Office Opposite Hand OR Over Head Outside Diameter Opening Overflow Roof Drain Over Head Push Button OR Pull Box Particle Board Precast Concrete Pavers Pre-engineered Metal Building
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MGR MIN MISC MO MP MR MSB MTD MIN MISC MO MP MR SB MTD MIN MISC MO NONCO NFPA ASSOCIAT NO NOM NONCO NTS OA OC OFF OH OD OPNG OVHD PB PBD PCP PEMB PERF PL	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number Nominal DM Non-Combustible Not To Scale Outside Air On Center Office Opposite Hand OR Over Head Outside Diameter Opening Overflow Roof Drain Over Head Push Button OR Pull Box Particle Board Precast Concrete Precast Concr
LF LIN LKR LR LTG LVR MAINT MAS MATL MAS MDF MECH MEMB MEZZ MFR MDF MECH MIN MISC MO MP MR MSD MTL MIN MISC MO MP MR MSD MTL MIN MO NONCO NOS OC OFF OD OPNG OVHD PB PD PC PCP PEMB PCP PEMB PLAM	Linear Feet Linoleum Locker Living Room Lighting Louver Maintenance Masonry Material Maximum Master Bedroom Medium Density Fiberboard Mechanical Membrane Mezzanine Manufacturer Manager Manhole Minimum Miscellaneous Masonry Opening Metal Panel Moisture-Resistant Mop Service Basin Mounted Metal Metal Roof(ing) Make-Up Air Mullion Noise Criteria Not In Contract National Fire Protection tion Number Nominal DM Non-Combustible Not To Scale Outside Air On Center Office Opposite Hand OR Over Head Outside Diameter Opening Overflow Roof Drain Over Head Push Button OR Pull Box Particle Board Precast Concrete Precast Concrete Pavers Pre-engineered Metal Building Perforated Plate Plastic Laminate

PNL		1.	Contracto
PNI PRFFAB	Paint(ed) Prefabricated	2.	constructi Contracto
PREFIN	Prefinished	2.	authorize
PSF	Pounds Per Square Foot	3.	Contracto
PSI PT	Pounds Per Square Inch Pressure Treated		discrepar Architect
PTD	Paper Towel Dispenser	4.	Contracto
PTD/R	Paper Towel Dispenser &		which are
Recepto			repaired
PTN PTR	Paper Towel Receptacle		Architect.
PVC	Polyvinyl Chloride	5.	Contracto
PWR	Power		shall obto
OT			issues as
QTY	Quantity		process. I
	,		shall instc
R	Radius OR Riser	6.	Contracto
RA RB	Return Air Rubber Base	7	a secure Fach insta
RBR	Rubber	<i>.</i>	quality of
RCP	Reflected Ceiling Plan		effect on
RD	Roof Drain		Installatio
REF	Refrigerator	8.	Shall sign
REINF	Reinforced	9.	Contracto
RET	Return	10.	Contracto
	Retaining Poquirod		to the Arc
REV	Revised, Revision		
RFG	Roofing	_ പ_0	- Admini
RM	Room	12"	$= 1'_0"$
RO	Rough Opening Roof-Top Unit	12	10
SA	Supply Air		
SB	Splash Block Soat Cover Dispanser		
SCR	Screen	Defini	itions:
SD	Smoke Detector		"
SECT	Section	1.	same pla
SE SH\A/P	Square Foot Shower		without a
SHT	Sheet	2.	"Clear" a
SHTHG	Sheathing	2	without th
SIM	Similar	3.	slightly a
SK SLNT	Sink Sealant		shown wit
SND	Sanitary Napkin Dispenser	4.	"Minimum
SNR	Sanitary Napkin Receptacle		slightly a
SOG	Slab on Grade	5.	"Typical"
SPEC	Specified OK Specification		same or r
SPKR	Speaker		document
SQ	Square		accommo
SQFI	Square Feet	$\sim c 0$	Dafiniti
SSK	Service Sink	12"	
STC	Sound Transmission Coefficient	12	- 1 -0
STD	Standard Stand		
	Sieel		
221L	Stainless Steel		
STOR	Stainless Steel Storage		
SSTL STOR STRUCT	Stainless Steel Storage Structure OR Structural		
STOR STOR STRUCT SUSP	Stainless Steel Storage Structure OR Structural Suspended		KEYEI
SSTE STOR STRUCT SUSP T	Stainless Steel Storage Structure OR Structural Suspended Tread		KEYEI
SSTE STOR STRUCT SUSP T T&B	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom		<u>KEYEI</u>
SSIL STOR STRUCT SUSP T T&B T&B T&G	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove		KEYEI
SSIL STOR STRUCT SUSP T T&B T&B T&G TBD T/D	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data		<u>KEYEI</u>
SSTE STOR STRUCT SUSP T T&B T&G TBD T/D TEL	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone		<u>KEYEI</u>
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature		<u>KEYEI</u>
SSIL STOR STRUCT SUSP T T&B T&G T/D TEL TEMP TGL	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thisl(cost)		KEYEI
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded		KEYEI
SSIL STOR STRUCT SUSP T T&B T&G T/D TEL TEMP TGL THK THRD THRES	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold		4" max. tive surface
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD THRES TLT	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet		3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD THRES TLT TO TOC	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Ton Of Concrete		3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G T&B T&G TBD T/D TEL TEMP TGL THK THRD THRES TLT TO TOC TOF	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing		3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD THRES TLT TO TOC TOF TOP	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Parapet		3' - 4" max. to reflective surface
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD THRES TLT TO TOC TOF TOP TOPO	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Parapet Topography		3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G T&B T&G T&G TAB T&G TAB T&G TAB TAB T&G TAB TAB TAB TAB TAB TAB TAB TAB TAB TAB	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Parapet Topography Top Of Steel Top of Wall		3' - 4" max. to reflective surface
SSIL STOR STRUCT SUSP T T&B T&G T&B T&G TBD T/D TEL TEMP TGL THK THRD THRES TLT TO TOC TOF TOPO TOS TOW TPD	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Parapet Topography Top Of Steel Top of Wall Toilet Paper Dispenser		a' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD THRES TLT TO TOC TOF TOPO TOPO TOS TOW TPD TPTN	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition		3' - 4" max. to reflective surface
SSIL STOR STRUCT SUSP T T&B T&G T&B T&G TBD T/D TEL TEMP TGL THK THRD THRT TOC TOF TOP TOPO TOS TOW TPD TPTN TRTD TS	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel		a' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&B T&G TBD T/D TEL TEMP TGL THK THRD THRES TLT TO TOF TOPO TOF TOPO TOS TOW TPD TPTN TRTD TS TSTAT	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Steel Top of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat		3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G T&B T&G T&G TAB T&G TAB T&G TAB TAB TAB TAB TAB TAB TAB TAB TAB TAB	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical		<b>IAKAN</b>
SSIL STOR STRUCT SUSP T T&B T&B T&G TBD T/D TEL TEMP TGL THK THRD THRES TLT TO TOF TOP TOPO TOS TOW TPD TPTN TRTD TS TSTAT TYP	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Steel Top of Steel Top of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical		3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G T&B T&G T&G TAB T&G TAB T&G TAB TAB T&G TAB TAB TAB TAB TAB TAB TAB TAB TAB TAB	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater		3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD THRES TLT TO TOF TOP TOPO TOS TOW TPD TPTN TRTD TS TSTAT TYP UG UH UL	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Steel Top of Steel Top of Steel Top of Steel Top of Steel Top of Wall Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory		3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G T&B T&G TAB T&G TAB T&G TAB T&G TAB T&G TAB TAB T&G TAB TAG TAB TAB TAB TAB TAB TAB TAB TAB TAB TAB	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Parapet Topography Top Of Steel Top of Steel Top of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal		3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD THRES TLT TO TOF TOPO TOF TOPO TOS TOW TPD TPTN TRTD TS TSTAT TYP UG UH UL UNO UR U/S	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Steel Top of Steel Top of Steel Top of Steel Top of Vall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside		a' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD THR TGL THK THRD THR TGL THK THRD TOC TOF TOP TOPO TOS TOW TPD TPTN TRTD TS TSTAT TYP UG UH UL UNO UR U/S UTIL	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Parapet Topography Top Of Steel Top of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility	min	3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD THRES TLT TO TOF TOPO TOS TOV TPD TPTN TRTD TS TSTAT TYP UG UH UL UNO UR U/S UTIL	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Steel Top of Steel Top of Steel Top of Steel Top of Steel Top of Vall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility	.9" min.	3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G T&B T&G TAB T&G TAB T&G TAB T&G TAB T&G TAB T&G TAB T&G TAB T&G TAB TAB T&G TAB TAB TAB TAB TAB TAB TAB TAB TAB TAB	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Parapet Topography Top Of Steel Top of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile	0' - 9" min.	3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THR THRD THRES TLT TO TOF TOP TOPO TOS TOW TPD TPTN TRTD TS TSTAT TYP UG UH UL UNO UR U/S UTIL VB VCT VENT	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Forapet Topography Top Of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Ventilation	0' - 9" min.	3' - 4" max.
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD THR TGL THK THRD THR TO TOF TOP TOP TOP TOP TOP TOP TOP TOP TOP TOP	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Forapet Topography Top Of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Vertical	0' - 9" min.	States 3' - 4" max. 10. reflective surface 0 0 0
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD THR TGL THK THRD THR TO TOF TOP TOP TOP TOP TOP TOP TOP TOP TOP TOP	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Parapet Topography Top Of Steel Top of Steel Top of Steel Top of Vall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Vertical Vertical	0' - 9'' min.	A to reflective surface
SSIL STOR STRUCT SUSP T T&B T&G T&B T&G TAB T&G TAB T&G TAB T&G TAB T&G TAB T&G TAB T&G TAB T&G TAB TAG TAG TAB TAG TAB TAG TAG TAG TAG TAG TAG TAG TAG TAG TAG	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Parapet Topography Top Of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Under Ground Under Ground Underside Urinal Underside Vinyl Composition Tile Ventilation Vertical Vestibule Verify In Field Vision Panel	0' - 9'' min.	A A A A A A A A A A C C C A
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THK THRD THR TGL THK THRD THR TO TOF TOP TOP TOP TOP TOP TOP TOP TOP TOP TOP	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Parapet Topography Top Of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Urinal Underside Urinal Vapor Barrier OR Vinyl Base Vinyl Composition Tile Vertical Vestibule Verify In Field Vision Panel Vent Stack	0' - 9" min.	XEYEI
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THRD THRD THRD THRD THRD THRD TOC TOF TOPO TOS TOW TPD TPTN TRTD TS TSTAT TYP UG UH UL UNO UR VCT VERT VEST VF VP VS VR	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Steel Top of Steel Top of Steel Top of Steel Top of Steel Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Under writer's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Ventilation Vertical Vestibule Verify In Field Vision Panel Vent Stack Vapor Retarder	0' - 9'' min.	XEYEI
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THRD THRD THRD THRD THRD THRD THRD TOP TOP TOP TOP TOP TOP TOP TOP TOP TOP	Stainless Steel Storage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Steel Top of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Vertical Vertical Vertical Vertical Vertical Vertog Roof Vinyl Composition Vinyl Composition Vinyl Composition Vertical Vertical Vertical Vertical Vertical Vertog Roof Vinyl Composition Vinyl Composition V	0' - 9" min.	A A A A A A A A A A A A A A
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SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TO TOF TOPO TOPO TOPO TOPO TOPO TOPO TO	Stainless Steel Strage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Forel Top of Forel Top of Forel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Vertifoln Field Vision Panel Vent Stack Vapor Retarder Vent Through Roof Vinyl Wall Covering With With Out Wood Base Water Closet (Toilet) Wood Ceiling Panel	0' - 9'' min.	A Character Characte
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THRD THRD THRD THRD THRD THRD THRD TOP TOP TOP TOP TOP TOP TOP TOP TOP TOP	Stainless Steel Strage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Parapet Topography Top Of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Vertical Vertical Vertical Vertical Vertical Vision Panel Vertical With With Out Wood Base Water Closet (Toilet) Wood Ceiling Panel Wood	0' - 9" min.	O" max. 3' - 4" max. actie character actie character b = -,0 to reflective surface
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TOC TOPO TOPO TOPO TOPO TOPO TOPO TOPO	Stainless Steel Stroage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Parapet Topography Top Of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Vertify In Field Vision Panel Vertify In Field Vision Panel Vent Stack Vapor Retarder Vent Through Roof Vinyl Wall Covering With With Out Wood Base Water Closet (Toilet) Wood Window	0' - 9" min.	0" max. 
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THRD THRD THRD THRD TO TOF TOP TOF TOP TOP TOF TOP TOP TOP TOP TOP TOP TOP TOP TOP TOP	Stainless Steel Stroage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Footing Top Of Parapet Topography Top Of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Vertify In Field Vision Panel Vertify In Field Vision Panel Vent Stack Vapor Retarder Vent Through Roof Vinyl Wall Covering With With Out Wood Base Water Closet (Toilet) Wood Ceiling Panel Wood Window Water Heater Working Point OR	0' - 9" min.	5' - 0" max. 3' - 4" max. 1 - 0 1 - 1 - 0
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TOC TOP TOPO TOPO TOPO TOPO TOPO TOPO T	Stainless Steel Strage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Parapet Topography Top Of Steel Top of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Verify In Field Vision Panel Verify In Field Vision Panel Vent Stack Vapor Retarder Vent Through Roof Vinyl Wall Covering With With Ott Wood Base Water Closet (Toilet) Wood Ceiling Panel Wood Window Water Heater Working Point OR proof(ing)	0' - 9" min.	5'- 0" max. 3'- 4" max. 2'- 1" 3'- 4" max. 3'- 4" max. 3'- 4" max. 5'- 0" max. 3'- 4" max. 5'- 0" max.
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THRD THRD THRD TRD TOC TOF TOP TOP TOP TOP TOP TOP TOP TOP TOP TOP	Stainless Steel Strage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Parapet Topography Top Of Steel Top of Steel Top of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Verify In Field Vision Panel Verify In Field Vision Panel Vert Stack Vapor Retarder Vent Through Roof Vinyl Wall Covering With With Out Wood Base Water Closet (Toilet) Wood Ceiling Panel Wood Window Water Heater Working Point OR proof(ing) Water Resistant Water Resistant	0' - 9" min.	5'- 0" max. 3'- 4" max. 2'- 0" max. 1 2'- 4" max
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TEL TEMP TGL THRD TO TO TO TO TO TO TO TO TO TO TO TO TO	Stainless Steel Strage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Parapet Topography Top Of Steel Top of Wall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Ventilation Vertical Vestibule Verify In Field Vision Panel Vent Stack Vapor Retarder Vent Through Roof Vinyl Wall Covering With With Out Wood Base Water Closet (Toilet) Wood Ceiling Panel Wood Window Water Heater Working Point OR proof(ing) Water Resistant Water-Resistive Barrier Waste Stack	0' - 9" min.	5'- 0" max. 3'-4" max. 2'-4" max. 3'-4" max. 10 highest tactile character 10 no. 6 - 10 10 no. 7 - 10 10 no. 7 - 10 10 no. 7 - 10 10
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THRD THRD THRD TRD TOC TOF TOP TOP TOP TOP TOP TOP TOP TOP TOP TOP	Stainless Steel Strorage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Foring Top Of Parapet Topography Top Of Steel Top of Vall Toilet Paper Dispenser Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Ventilation Vertical Vestibule Verify In Field Vision Panel Vent Stack Vapor Retarder Vent Through Roof Vinyl Wall Covering With With Out Wood Ceiling Panel Wood Window Water Heater Working Point OR vroof(ing) Water Resistant Water-Resistive Barrier Waste Stack Wainscot	0' - 9" min.	5'- 0" max. 3'- 4" max. 1 2'- 0" max. 1 2'- 0" max. 1 2'- 1 max. 1 2'- 0 max. 1 2'- 0 max. 1 2'- 0 max. 1 2'- 1 2'- 1 max. 1 2'-
SSIL STOR STRUCT SUSP T T&B T&G TBD T/D TEL TEMP TGL THRD THRD THRD THRD TRD TO TOP TOP TOP TOP TOP TOP TOP TOP TOP	Stainless Steel Strage Structure OR Structural Suspended Tread Top and Bottom Tongue And Groove To Be Determined Telephone/Data Telephone/Data Telephone Temporary OR Temperature Tempered Glazing Thick(ness) Threaded Threshold Toilet Top Of Top Of Concrete Top Of Footing Top Of Parapet Topography Top Of Steel Top of Steel Top of Vall Toilet Paper Dispenser Toilet Partition Treated Tube Steel Thermostat Typical Under Ground Unit Heater Underwriter's Laboratory Unless Noted Otherwise Urinal Underside Utility Vapor Barrier OR Vinyl Base Vinyl Composition Tile Ventilation Vertical Vestibule Verify In Field Vision Panel Vent Stack Vapor Retarder Vent Through Roof Vinyl Wall Covering With With Out Wood Base Water Closet (Toilet) Wood Ceiling Panel Wood Window Water Heater Working Point OR vroof(ing) Water Resistant Water-Resistive Barrier Waste Stack Wainscot Welded Wire Fabric	0' - 9'' min.	5'- 0" max. 3'-4" max. 2'- 0" max. 3'-4" max. 10 highest tactile character 10 no6 10 no

#### Administration of the Work:

Contractor shall be solely responsible for the means, methods, and sequences of

construction. Contractor shall be solely responsible for the safety of all construction personnel and

authorized visitors at the site. Contractor shall become fully acquainted with conditions related to the work. Any known discrepancies between the documents and the actual conditions shall be reported to the Architect for resolution prior to proceeding with work related to this discrepancy. Contractor shall take precautions to maintain and protect existing systems and finishes which are to remain. Any damages to such systems and finishes shall be immediately repaired in a manner acceptable to the Architect. If satisfactory repairs cannot be made, Contractor shall replace systems and finishes with new construction acceptable to the Architect. All repairs and replacement costs shall be the responsibility of the Contractor. Contractor shall remove and dispose of all construction and demolition debris. Contractor shall obtain approval of Owner for details relating to the removal of trash, including such issues as path of travel, use of stairs and elevators, removal of windows, location of chutes and repair any damages to existing items soiled or damaged by the debris removal process. If cleaning and/or repair does not return items to original condition, Contractor shall install new items.

Contractor shall become familiar with and comply with Owner's procedures for maintaining a secure site and building.

Each installer shall examine all substrate conditions and/or site conditions which affect the quality of each product to be installed. If any conditions exist with will have a detrimental effect on the quality of the installation, the installer shall immediately notify the Contractor. Installation shall not proceed until the unsatisfactory conditions are corrected. Installation shall signify acceptance of the conditions.

Contractor shall maintain record drawings on the site at all times.

Contractor shall be responsible for ensuring coordination efforts of all subcontractors. Contractor shall lay out all work as soon as possible. Any discrepancies shall be reported to the Architect for resolution prior to proceeding with the work in question.

6-0 - Administration of Work

"Align" as used in these documents shall mean to accurately locate finish faces in the same plane and/or to install new construction adjacent to existing construction

without any visible joints or surface irregularities. "Clear" as used in these documents shall mean that the condition in not adjustable

without the approval of the Architect. Clear dimensions are typically to finish face.

"Maximum" or "Max" as used in these documents shall mean that the condition is slightly adjustable but may not vary to a dimension or quantity greater than that

shown without approval of the Architect. "Minimum" or "Min" as used in these documents shall mean that the condition is slightly adjustable but may not vary to a dimension of quantity less than that shown without approval of the Architect.

"Typical" as used in these documents shall mean that the condition of dimension is the same or representative for similar conditions throughout. " $\pm$ " as used in these documents shall mean that the dimension or quality is slightly adjustable to

#### 6-0 - Definitions

accommodate actual conditions.

2" = 1'-0"

**KEYED TOILET ROOM ACCESSORY LEGEND** 

Standards and Regulations:

- 1. Contractor shall perform all work in conformance with applicable building codes, regulations, ordinances, utility provider requirements, and similar standards.
- 2. Contractor shall obtain all required permits and similar releases required for construction and occupancy. Contractor shall furnish copies of all such items to Owner and Architect within ten days of receipt. If permits are issued subject to certain conditions or revisions in the work,
- or if any permits are delayed for any reason, Contractor shall notify Architect immediately. 3. Contractor shall obtain all required inspections of the work. Contractor shall regularly update Owner and Architect regarding the status of inspections.
- Contractor shall coordinate work with applicable utility providers. 4.
- Contractor shall be familiar with requirements and construction shall be in compliance with 5. referenced fire-rated assembly tests and standards.
- 6. If unanticipated hazardous materials are encountered, Contractor shall cease work in the area and contact Architect and Owner immediately. Contractor shall visit the site prior to submission of bids to review and become familiar with existing conditions.

G-0 - Standard Regulations Note 12" = 1'-0"

#### Use of Construction Documents:

- 1. Contractor shall not scale drawings. Only written dimensions or keyed notes shall be
- used. Contact Architect if clarification or additional information is required. 2. Information regarding existing systems, finishes, and conditions shown on these
- drawings is based on information furnished to the Architect by the Owner and/or the perceived condition in the field. The information is not intended to guarantee exact conditions before the work is started. Notify the Architect if any discrepancies are found.
- 3. The drawings are schematic in nature. Modifications in ducts, piping, conduit, and wiring may be required to accommodate actual field conditions. Drawings shall not be reproduced for submittals. 4.
- These drawings depict the intent of the architect and not intended to depict each 5. and every condition or detail of construction. It is the contractor's responsibility to clarify any conflicting instances, details, materials or methods during the bidding phase. Once the contract is awarded, the contractor must adhere to the architect's direction if such a conflicting case arises during construction
- 6. Dimensions are as follows unless noted otherwise.
  - A. To finished faces of existing work.
  - To face of gypsum wallboard in new work. Β.
  - C. To centerline of columns. To top of floor slab.
  - E. To bottom of finished ceiling.
- $\bigcirc \frac{G-0 \text{Use of Construction Documents}}{12'' = 1'-0''}$



 $\bigcirc \frac{\text{G-0 - ADA Mounting Heights}}{1/4" = 1'-0"}$ 

# SYMBOLS LEGEND



COMMUNION ARCHITECTURE IS ADVOCACY AND ACTIVISM doys. Φ ð σ Ω S Ē 0 σ <u>B</u>:

WINSTON DESIGN+ DEVELOPMENT

907 EAST END AVENUE

PITTSBURGH, PA 15221

TEL:240.461.1093

www.winstonarchitecture.com

Seal:

# **NOT FOR CONSTRUCTION**

**Revisions:** 

Date: April 19, 2021

Project Number 2020-06

Owner / Client: TomTom24 Development, LLC

Drawing Title:

# GENERAL INFORMATION

Scale: As indicated Drawing Number:

G-000





 $1 \frac{00 - Basement - Existing}{1/4" = 1'-0"}$ 



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Building Renovation	Big Tom's Barbershop	2178 Centre Avenue, Pittsburgh, PA 15219
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TomTom24 Drawing Ti EXIST LEVEL	<sup>4</sup> Develor <sup>tle:</sup> ING . 00 8	PLAN - & 01
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 $1 \frac{102 - \text{Second Floor} - \text{Existing}}{1/4" = 1'-0"}$ 



907 EAST EN PITTSBURGH, TEL: 240.44 www.winstonarc	DESIGN+ DEVELOPMENT DAVENUE PA 15221 61.1093 hitecture.com
COMMUNION Architecture is ac	NOVOCACY AND ACTIVISM
Big Tom's Barbershop	2178 Centre Avenue, Pittsburgh, PA 15219
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Revisions:	
Date: <b>April 19, 2021</b>	
Project Number <b>2020-06</b> Owner / Client:	
TomTom24 Develop Drawing Title: EXISTING LEVEL 02 8	PLAN - & 03
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3 EXISTING EAST ELEVATION - KIRKPATRICK STREET 1/8'' = 1'-0''



5 WEST ELEVATION - EXTERIOR LOT 1/8" = 1'-0"



 $1 \frac{\text{EXISTING NORTH ELEVATION - CENTRE AVENUE}}{1/8" = 1'-0"}$ 

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	Building Renovation	Big Tom's Barbershop	2178 Centre Avenue, Pittsburgh, PA 15219
	Seal:		
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	Revisions:		
	Date: <b>April 19,</b> 2	2021	
	Project Nu <b>2020-06</b> Owner / 0	mber Client:	
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	© Winstor	n Design+D	Development 2020

	Exterior Elevation Notes - Existing
No.	Text Note
1	EXIST. ROOF MEMBRANE TO REMAIN
2	EXIST. ALUMINUM COPING TO REMAIN
3	EXIST. BRICK TO REMAIN, TYP.
4	EXIST. GLASS BLOCK WINDOW TO BE REMOVED, TYP.
5	EXIST. WINDOW TO BE REMOVED, TYP.
6	EXIST. PLYWOOD INFILL PANEL TO BE REMOVED, TYP.
7	EXIST. WD. LINTEL TO REMAIN, TYP.
8	EXIST. WD. SILL TO REMAIN, TYP.
9	EXIST. WD. LINTEL TO BE REMOVED, TYP.
10	EXIST. WD. SILL TO BE REMOVED, TYP.
11	EXIST. ALUM. DOWNSPOUT
12	EXIST. MASONRY OPENING
13	EXIST. WD. DOOR TO BE REMOVED
14	EXIST. H.M. DOOR TO BE REMOVED
15	EXIST. SECURITY GRILLE TO BE REMOVED
16	EXIST. STONE BASE TO REMAIN
17	EXIST. STONE STEPS TO REMAIN
18	EXIST. PAINT, TYP.
19	EXIST. TRIM TO REMAIN, TYP.
20	EXIST. SIGN TO BE SALVAGE
21	EXIST. CORNICE LIGHTING TO BE REMOVED, TYP.
22	EXIST. TRANSOM TO BE REMOVED, TYP.
23	EXIST. WINDOW BASE TO REMAIN, TYP.
24	EXIST. PIERS TO REMAIN
25	EXIST. STREET NUMBER TO BE SALVAGE
26	EXIST. CORNICE TO REMAIN, TYP.
27	EXIST. CONDUIT TO BE REMOVED, AS NEEDED.
28	EXIST. BILLBOARD TO REMAIN
29	EXIST. MECHANICAL EQUIPMENT AND BRACKET TO BE REMOVED

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 $\frac{00 - Basement - Demolition}{1/4" = 1'-0"}$ 







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 $1 \frac{\text{Roof - Demolition}}{1/4" = 1'-0"}$ 













 $1 \frac{01 - \text{First Floor} - \text{Proposed}}{1/4" = 1'-0"}$ 





 $2 \frac{03 - \text{Third Floor} - \text{Proposed}}{1/4" = 1'-0"}$ 

STOCK GRADE SHAKER-STYLE BASE AND WALL KITCHEN CABINETS (PAINT FINISH)

KITCHEN ISLAND/ BAR WITH 30" RANGE AND STOCK GRADE SHAKER-STYLE BASE KITCHEN CABINETS (PAINT FINISH)

WINSTON DESIGN+ DEVELOPMENT

907 EAST END AVENUE PITTSBURGH, PA 15221 TEL:240.461.1093 www.winstonarchitecture.com

COMMUNION ARCHITECTURE IS ADVOCACY AND ACTIVISM

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Seal:

# **NOT FOR** CONSTRUCTION

**Revisions:** 



Date: April 19, 2021

Project Number 2020-06

Owner / Client: TomTom24 Development, LLC

Drawing Title:

CONSTRUCTION PLAN - LEVEL 02 & 03

Scale: 1/4" = 1'-0" Drawing Number:

A-102







1 00 - Basement - Proposed FFE 1/4" = 1'-0"



 $2 \frac{01 - \text{First Floor} - \text{Proposed FFE}}{1/4" = 1'-0"}$ 

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Building Renovation	Big Tom's Barbershop	2178 Centre Avenue, Pittsburgh, PA 15219
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 $1 \frac{03 - \text{Third Floor} - \text{Proposed FFE}}{1/4" = 1'-0"}$ 

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3 PROPOSED EAST ELEVATION - KIRKPATRICK STREET 1/8'' = 1'-0''



2 PROPOSED WEST ELEVATION - EXTERIOR LOT 1/8" = 1'-0"



 $1 \frac{\text{PROPOSED NORTH ELEVATION - CENTRE AVENUE}}{1/8" = 1'-0"}$ 

KIRKPATRICK STREET



GREEN SPACE

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# **GENERAL PARTITION NOTES**

- ALL INTERIOR PARTITIONS ARE TYPE "G" W/SOUND ATTENUATION BATTS, UNLESS NOTED OTHERWISE ON FLOOR PLANS FOR PARTITIONS @ EXTERIOR WALL PROVIDE THERMAL BATT NSULATION INSTEAD.
- ALL EXTERIOR WALLS TO RECEIVE THERMAL BATT INSULATION WITH A THICKNESS TO TO MATCH THE RESPECTIVE STUD DEPTH.
- REFER TO FLOOR PLAN FOR LOCATION OF SMOKE AND FIRE RATED PARTITIONS. REFER TO WALL PRIORITY LEGEND FOR CONDITIONS WHERE FIRE RATED PARTITIONS INTERSECT OTHER PARTITIONS.
- REFER TO SCHEDULES AND DETAILS FOR FINISHES PARTITION TYPES REFER TO BASE WALL ONLY. 4.
- ALL PARTITIONS EXTEND TO BOTTOM OF STRUCTURE. UNLESS OTHERWISE NOTED.

'LINE OF STRUCTURE AS SHOWN AT THE HEAD CONDITION OF EACH PARTITION TYPE IS DIAGRAMMATIC ONLY AND DOES NOT INDICATE EXACT CONSTRUCTION CONDITIONS. TERMINATE RATED PARTITIONS AT UNDERSIDE OF STRUCTURAL DECK TO MAINTAIN RATING. PROVIDE APPROPRIATE FRAMING AND DRYWALL TO OFFSET AROUND STRUCTURE OR OTHER OBSTRUCTIONS. SUCH AS PIPING OR DUCT WORK. PARTITIONS MAY TERMINATE AT STRUCTURAL MEMBERS WITH A RATING GREATER THAN OR EQUAL THE PARTITION. PROVIDED THAT RATING IS CONTINUOUS TO STRUCTURAL DECK ABOVE. NON-RATED PARTITIONS THAT EXTEND TO STRUCTURE SHALL TERMINATE AT UNDERSIDE OF STRUCTURAL DECK. TO MAINTAIN A CONTINUOUS PLANE OF GYPSUM BOARD AS A NOISE, SMOKE, OR OTHER TYPE OF BARRIER.

- ALL PARTITIONS EXTENDING TO STRUCTURE ABOVE SHALL TERMINATE WITH DEFLECTION TRACKS SEE TYPICAL DETAILS THIS SHEET.
- ALL GYPSUM BOARD PARTITIONS NOT EXTENDING TO STRUCTURE SHALL BE BRACED. 7.
- UL DESIGN NUMBERS REFER TO FIRE RESISTANCE DIRECTORY. UNDERWRITERS LABORATORY, LATEST EDITION. 8.
- MISCELLANEOUS FURRING AROUND COLUMNS TO BE 5/8" GYPSUM BOARD OVER 1 5/8" METAL STUDS, UNLESS OTHERWISE NOTED.
- MISCELLANEOUS NON-RATED CHASES TO BE 5/8" GYPSUM BOARD OVER 3 1/2" WOOD STUDS, UNLESS OTHERWISE NOTED. 10.
- AT CORRIDORS AND ROOMS WHERE THERE ARE DIFFERING NUMBERS OF GYPSUM BOARD LAYERS IN AN UNINTERRUPTED CONTINUOUS WALL PLANE (EXAMPLE: SAME WALL W/TYPE "G" AND TYPE "M" PARTITION). 11. OFFSET STUDS AS REQUIRED SUCH THAT THE OTHER FACE LAYERS OF GYPSUM BOARD ALIGN ON CORRIDOR SIDE.
- FIRE RATED PARTITIONS TO HAVE FIRESTOPPING SEALANTS AT HEAD, SILL, JUNCTURE WITH DISSIMILAR MATERIALS, ETC. AND AROUND ALL PENETRATIONS AND OPENINGS. 12.
- NON-RATED PARTITIONS TO HAVE ACOUSTICAL SEALANTS AT HEAD, SILL, JUNCTURES WITH DISSIMILAR MATERIALS, ETC. OR NON-RATED WALLS AND AROUND ALL PENETRATIONS AND OPENINGS. 13.
- 14. CONSTRUCT ALL PARTITIONS WITH SOUND ATTENUATION BATTS WITH THE FOLLOWING SOUND BATTS THICKNESS:
  - 3 1/2" OR LARGER WOOD STUDS 3" THICKNESS
- 15. SOUND ATTENUATION BATTS SHALL EXTEND FULL HEIGHT OF PARTITION.



PARTITION TYPE "G" LETTER "S" INDICATES SOUND BATTS @ INTERIOR PARTITIONS OR RIGID INSULATION @ EXTERIOR



PARTITION TYPE "G" UN-FILLED LETTER INDICATES NO SOUND BATTS



PARTITION TYPE "G"

LETTER "C" MODIFIES BASE PARTITION "G" -EXTEND PARTITION TO ABUT BOTTOM OF CEILING



WALLS



"G" - EXTEND PARTITION TO 3" ABOVE

- PARTITION TYPE "G" G LETTER "A" MODIFIES BASE PARTITION CEILING

DESCRIPTION & TEST NO. STC Wd Stud—5/8" Gypsum 32 to 36 Board on each side— 2 x 4 @ 16" or 24" o.c.—**UL U305** Wd Stud—5/8" Gypsum 50 Board on each side— 2 x 4 @ 16" or 24" o.c.—3" SAFB Insulation—RC-1 channel one side—UL U327 Wd Stud—5/8" Gypsum Board one side, interior -2 x4 @ 16" or 24" o.c.—Thermal Batt Insulation, exterior or Acoustical Batt Insulation, interior 56 Wd Stud—2 layers 5/8" Gypsum Board on each side— 2 x 6 @ 16" or 24" o.c.—3 1/2" SAFB Insulation—RC-1 channel one side—UL U301

REF DETAIL 02 EXTERIOR WALL - HIGHEST PRIORITY LOWEST PRIORITY 1 HOUR FIRE & SMOKE WALL PRIORITY 1 (HIGHEST) 2 HOUR FIRE WALL PRIORITY 2 2 HOUR SHAFT WALL PRIORITY 2 1 HOUR FIRE/SHAFT WALL PRIORITY 3 1 HOUR FIRE WALL PRIORITY 4 PRIORITY 4 1 HOUR SHAFT WALL NON - RATED WALL PRIORITY 5 (LOWEST) WALL PRIORITY LEGEND 0 SCALE: NO SCALE



RATED WALL REFER TO PARTITION TYPES 30'-0" MAX BETWEEN FOR COMPLETE DESCRIPTION CONTROL JOINTS. OF COMPONENT PARTS. GYPSUM BOARD CONTROL JOINTS 0 SCALE: 3" = 1'-0"



GAP AROUND PENETRATION 1/8" OR LESS PACK W/JOINT COMPOUND OR APPROVED FIREPROOFING MATERIAL







CEILING: (2) LAYERS 5/8 GYP. WALLBOARD (PAINT, TYP.)

# $1 \frac{\text{First Floor Ceiling Plan}}{1/4" = 1'-0"}$

April 19, 2021

CEILIN	NG LEGEND
•	DECORATIVE PENDANT FIXTURE
•	CEILING MOUNTED DOWNLIGHT FIXTURE
0	CEILING MOUNTED DECORATIVE FIXTURE
0	RECESSED 2X4 FLUORESCENT FIXTURE
	RECESSED 2X4 FLUORESCENT FIXTURE/ EMERGENCY BACKUP
0	RECESSED 2x2 FLUORESCENT FIXTURE
	RECESSED 2x2 FLUORESCENT FIXTURE W/ EMERGENCY BACKUP
0 0	RECESSED DOWNLIGHT: STANDARD / WET LISTED
0	HIGH-BAY FIXTURE
<u>• •</u>	LINEAR DOWNLIGHT/UPLIGHT SUSPENDED FIXTURE
└ <u></u>	8' STRIP FLUORESCENT FIXTURE
, — — — — — — — — — — — — — — — — — — —	FLUORESCENT, WALL-MOUNTED FIXTURE
Ū	DECORATIVE WALL MOUNTED FIXTURE
<b>F</b>	ELECTRICAL PANEL (FOR REFERENCE ONLY)
Ş	SWITCH
Ψ Ψ 220	DUPLEX / WIRED 220
₩ ₩	TRIPLE / QUAD RECEPTACLE
	GFI / WEATHER RESISTANT / SPECIAL
$\blacksquare \blacksquare \blacksquare \blacksquare \blacksquare \blacksquare$	TELEPHONE / DATA / COMBO
	TELEVISION OUTLET
S	SPEAKER
	THERMOSTAT
UH	UNIT HEATER
	CEILING SUPPLY DIFFUSER
	CEILING RETURN DIFFUSER
EF	EXHAUST FAN
OS	OCCUPANCY SENSOR

 $\bigcirc \frac{\text{A-7 - Ceiling Legend}}{1/8" = 1'-0"}$ 

WINSTON DESIGN+ DEVELOPMENT 907 EAST END AVENUE PITTSBURGH, PA 15221 TEL:240.461.1093 www.winstonarchitecture.com COMMUNION ARCHITECTURE IS ADVOCACY AND ACTIVISM 0 shop 21 S arber Ă .om's 2 Big  $\infty$ 217 Seal: **NOT FOR** CONSTRUCTION **Revisions:** Date: **April 19, 2021** Project Number **2020-06** Owner / Client: TomTom24 Development, LLC Drawing Title: REFLECTED CEILING PLAN - LEVEL OO & 01 Scale: As indicated Drawing Number: A-7



 $1 \frac{02 - \text{Second Floor} - \text{Reflected Ceiling Plan}}{1/4" = 1'-0"}$ 



 4" LED RECESSED SHOWER LIGHT - WET (TYP.)

# CEILING LEGEND

•	DECORATIVE PENDANT FIXTURE
•	CEILING MOUNTED DOWNLIGHT FIXTURE
<b>\$</b>	CEILING MOUNTED DECORATIVE FIXTURE
$\bigcirc$	RECESSED 2X4 FLUORESCENT FIXTURE
	RECESSED 2X4 FLUORESCENT FIXTURE/ EMERGENCY BACKUP
0	RECESSED 2x2 FLUORESCENT FIXTURE
	RECESSED 2x2 FLUORESCENT FIXTURE W/ EMERGENCY BACKUP
0 0	RECESSED DOWNLIGHT: STANDARD / WET LISTED
0	HIGH-BAY FIXTURE
<u> </u>	LINEAR DOWNLIGHT/UPLIGHT SUSPENDED FIXTURE
	8' STRIP FLUORESCENT FIXTURE
, ————————————————————————————————————	FLUORESCENT, WALL-MOUNTED FIXTURE
Ū	DECORATIVE WALL MOUNTED FIXTURE
<u> </u>	ELECTRICAL PANEL (FOR REFERENCE ONLY)
Ş	SWITCH
₽ ₽ 220	DUPLEX / WIRED 220
	TRIPLE / QUAD RECEPTACLE
	GFI / WEATHER RESISTANT / SPECIAL
$\checkmark \forall \forall \lor$	TELEPHONE / DATA / COMBO
	TELEVISION OUTLET
S	SPEAKER
T	THERMOSTAT
	UNIT HEATER
	CEILING SUPPLY DIFFUSER
	CEILING RETURN DIFFUSER
EF	EXHAUST FAN
OS	OCCUPANCY SENSOR

 $\bigcirc \frac{\text{A-7 - Ceiling Legend}}{1/8" = 1'-0"}$ 



REFLECTED CEILING PLAN - LEVEL 02 & 03

Scale: <u>As indicated</u> Drawing Number:



APART	MENT F	AN CC	DILS								
	SUPPLY FAN DATA			HEATING CAPACITY			ELECTRI	ICAL DATA			
UNIT DES.	CFM	E.S.P. IN. WG	HP	HEATING TYPE	ĸw	AMPS	VOLTS/PH	MCA/MOCP	WEIGHT (LB)	BASIS OF DESIGN	MODEL NUMBER
FCU-A	750	.3	1/3	ELECTRIC	5	18.1	230/1	27.8/30	112	BRYANT	FB4C024

1. PROVIDE DISCONNECT 2. PROVIDE CONDENSATE DRAIN. REMARKS 1. PROVIDE DISCONNECT SWITCH.

BARE	BARBER SHOP FAN COILS												
		SUPPLY FAN DATA			HEATING CAPACITY			ELECTRICAL DATA					
UNI <sup>-</sup> DES	Г 5.	CFM	MIN. OA CFM	E.S.P. IN. WG	HP	HEATING TYPE	INPUT MBH	OUTPUT MBH	VOLTS/PH	MCA/MOCP	WEIGHT (LB)	BASIS OF DESIGN	MODEL NUMBER
FCU-	·B	1200	475	.4	.75	GAS	7.5	42	230/1	21/30	428	AAON	H3-ARB-1-0-161C-3BS

1. PROVIDE DISCONNECT.

2. PROVIDE CONDENSATE DRAIN.

3. PROVIDE HOT GAS REHEAT.

BARBER SHOP CONDENSING UNITS										
UNIT DES.	DX COOLIN	NG COIL	ELECTRI	CAL DATA						
	SEER	TOTAL MBH	VOLTS/PH	MCA/MOCP	WEIGHT	BASIS OF DESIGN	MODEL NUMBER			
CU-B	16	42.1	230/1	26/40	237	AAON	CB-B-036-1-D-1			

I. PROVIDE DISCONNECT SWITCH. 2. PROVIDE CONDENSER ROOF MOUNTING PAD.

SPLIT S	SYSTEM AIR	-COOLED A/C	C UNIT SCHEI	DULE								
	EVAPORATOR											CONDE
TAG	NOMINAL TONS	TOTAL CAPACITY MBH	SENS. CAPACITY MBH	CFM (DRY COIL)	E.S.P. IN. W.G.	MCA/MFS	ELECTRICAL VOLTS/PH.	MANUF./ EVAPORATOR MODEL	TAG	CFM	EER	MCA/MOCP
AC-A	1	12	9.7	370	N/A	1	230/1	PKA-A12HA7	CU A	1590	12.0	11/28

. CAPACITY BASED ON 80 DEG. F. DB/67 DEG. F. WB EAT ON EVAPORATOR 2. UNIT SHALL BE EQUIPPED WITH A WIND BAFFLE FOR OPERATION DOWN TO 0 DEG.S F.

3. PROVIDE CONDENSER ROOF MOUNTING PAD.

4. PROVIDE DISCONNECT AT EACH OUTDOOR AND INDOOR UNITS.

5. PROVIDE INTEGRAL UNIT CONTROLS AND A "HARD WIRED" WALL MOUNTED THERMOSTAT/CONTROLLER MODEL PAR-31MAA.

6. PROVIDE CONDENSATE PUMP (BASIS OF DESIGN: LITTLE GIANT VCMA-20). POWERED THROUGH EVAPORATOR.

EXHAUS	EXHAUST FAN SCHEDULE											
					MAX	\A/T	MOTOR		BASIS OF DESIGN			
TAG	TYPE	CFM	W.C.	RPM	SONES (INLET)	LB.S	HP (WATT)	VOLTS/ PH	MFG.	MODEL		
EF-A	CEILING	70	.11	675	.5	9	(16)	115/1	GREENHECK	SP-B70		
EF-B	CABINET	89	.7	950	3.2	11	(89)	115/1	GREENHECK	CSP-B110		

REMARKS . PROVIDE DISCONNECT SWITCH

2. PROVIDE SOLID STATE SPEED CONTROLLER, MOUNTED IN THE MOTOR COMPARTMENT, FOR BALANCING.

3. PROVIDE GRAVITY BACKDRAFT DAMPER.

4. EF-A TO BE CONTROLLED BY LIGHT. 5. EF-B TO RUN AT ALL TIMES.

HVAC LOUVERS											
TAG	MAKE/MODEL	AIR FLOW CFM	INTAKE OR EXH.		SIZE		FREE AREA VEL. FPM	BLADE TYPE			
				W	Н	D	ГРМ -				
L-1	GREENHECK/ESD-635	475	INTAKE	27	14	6	593	35° BLADE			
L-2	GREENHECK/ESD-635	555	EXH.	24	14	6	790	35° BLADE			

NOTES: 1. PROVIDE BIRD SCREEN ON INSIDE FACE OF LOUVER.

2. PROVIDE PLENUM BOX EQUAL TO LOUVER SIZE ON BACK OF LOUVER. SEE LOUVER DETAIL ON M301.

3. LOUVER COLOR TO BE CHOSEN BY ARCHITECT.

UNIT VE												
TAG	LOCATION	DESIGN CFM (HIGH SP.)	EXT. SP IN W.C.	ELEC	TRIC	BASIS OF DESIGN	MODEL	WEIGHT LB.S				
				MCA/MOCP	VOLTS/PH							
ERV-A	BARBERSHOP	475	.5	3.1/15	230/1	LOSSNAY	LGH-F470RVX-E	110				
NOTES: 1. ERV TO	NOTES: 1. ERV TO RUN AT ALL TIMES DURING OPERATING HOURS.											

GRILLE, REGISTER & DIFFUSER SCHEDULE			
TAG	FACE SIZE (SLOT WIDTH)	BASIS OF DESIGN	MOE
А	20/4	TITUS	S301
В	6/6	TITUS	350

REMARKS 1. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING TYPES AND MOUNTING

36/14

REQUIREMENTS. 2. COLOR SELECTED BY ARCHITECT. 3. PROVIDE PLENUM BOX FOR ML-TYPE DIFFUSERS.

APARTMENT CONDENSING UNITS									
	DX COOLING COIL ELECTRICAL DATA					CAL DATA			
UNIT DES.	EAT	LAT	SENS. MBH	TOTAL MBH	VOLTS/PH	MCA/MOCP	WEIGHT	BASIS OF DESIGN	MODEL NUMBER
CU-A	85	99	23.5	17.8	230/1	17.7/30	147	BRYANT	116BNA024

CONDENSER				
VMOCP	ELECTRICAL VOLTS/PH.	MANUF./ CONDENSER MODEL		
1/28	230/1	PUY-A12NKA7		

# MODEL S301FS 350RL TITUS 350RL

MECHANI	CAL DU	CTWORK & GENERAL SYMBOLS LEGEND
SYMBOL	ABRV.	DESCRIPTION
	XTR	EXISTING EQUIPMENT OR DUCTWORK TO REMAIN
₹}	RX	EXISTING EQUIPMENT OR DUCTWORK TO BE REMOVED
		NEW EQUIPMENT OR DUCTWORK
$\boxtimes$		SUPPLY DUCT UP
$\left[\times\right]$		SUPPLY DUCT DOWN
		RETURN / EXHAUST DUCT UP
		RETURN / EXHAUST DUCT DOWN
S }		ROUND DUCT ELBOW UP
		ROUND DUCT ELBOW DOWN
		ELBOW WITH TURNING VANES
		DUCT OFFSET UP
		DUCT OFFSET DOWN
		SQUARE / RECTANGULAR DUCT TRANSITION
		SQUARE/RECTANGULAR TO ROUND DUCT TRANSITION
	CD	CEILING DIFFUSER ROUND NECK - # THROW DIRECTIONS
┨╌ ┨-∽	SG/EG	SIDEWALL SUPPLY or RETURN GRILLE - (R = REGISTER)
<u> <del>4</del> </u>		SPIN TAP WITH VOLUME CONTROL DAMPER
(		THERMOSTAT
H		HUMIDISTAT
TAG #		EQUIPMENT UNIT DESIGNATION
TAG CFM		DIFFUSER, REGISTER & GRILLE UNIT DESIGNATION W/ CFM
$\bullet$		CONNECTION POINT, NEW TO EXISTING
		DISCONNECTION POINT
$\langle 1 \rangle$		DRAWING KEYNOTE
	RA or EA	RETURN OR EXHAUST AIR
	SA or OA	SUPPLY OR OUTSDIE AIR

DUCTWORK GENERAL NOTES (ALL DRAWINGS):

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

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

NOTES:

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

MECHANICAL PIPING SYMBOLS LEGEND				
SYMBOL	ABRV.	DESCRIPTION		
—— R — —	R	REFRIGERANT PIPING		
CD	CD	CONDENSATE PIPING		
O		ELBOW TURNED UP		
		ELBOW TURNED DOWN		

#### GENERAL MECHANICAL NOTES (ALL DRAWINGS):

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

MECHANICAL PIPING GENERAL NOTES (ALL DRAWINGS):

- 1. ALL PIPING SHOWN HAS BEEN DRAWN SCHEMATICALLY FOR CLARITY AND SHOW ONLY RELATIVE POSITIONS. PROVIDE OFFSETS AND ELBOWS AS NEEDED TO INSTALL PROPERLY AND TO AVOID INTERFERENCES.
- 2. ALL NEW OR REPLACED HYDRONIC PIPING SHALL BE INSTALLED SO THAT IT CAN BE COMPLETELY VENTED AT HIGH POINTS AND DRAINED AT LOW POINTS. PROVIDE AIR VENTS AT HIGH POINTS, TYPE PER SPECIFICATIONS. PROVIDE 1/2" BALL VALVES WITH HOSE END CONNECTIONS AND CAPS AT LOW POINT. ALL WATER MAINS SHALL BE INSTALLED LEVEL, UNLESS OTHERWISE NOTES.
- PROVIDE SERVICE VALVES AT EACH BRANCH CONNECTION FROM MAINS AND 3. AT EACH TERMINAL DEVICE OR EQUIPMENT CONNECTION.
- 4. CONTRACTOR SHALL PROVIDE NEW VALVES ON EXISTING PIPING WHERE THE PIPES ARE TO BE REMOVED SO THAT THE SYSTEM DOES NOT HAVE TO BE DRAINED WHILE REMOVING EXISTING UNITS, INSTALLING NEW UNITS AND MAKING CONNECTIONS TO NEW EQUIPMENT.



#### MECHANICAL SPECIFICATIONS

MECHANICAL GENERAL CONDITIONS (230010)

#### A. GENERAL

- 1. CONFORM TO ALL GENERAL AND SPECIAL CONDITIONS OF CONTRACT AS SPECIFIED BY ARCHITECT AND/OR OWNER.
- 2. PRODUCTS AND INSTALLATION SHALL COMPLY WITH ALL APPLICABLE LAWS, CODES, GOVERNMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, ETC. OF ALL AUTHORITIES HAVING JURISDICTION. WORK SHALL COMPLY WITH THE FOLLOWING CODES, STANDARDS AND ORGANIZATIONS: INTERNATIONAL MECHANICAL CODE (IMC), INTERNATIONAL PLUMBING CODE (IPC), INTERNATIONAL ENERGY CODE, NATIONAL ELECTRIC CODE, NFPA, UNDERWRITERS LABORATORY (UL), IRI, FM, SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" GUIDELINES, DETAILS, & MODEL SPECIFICATION, ASHRAE. WHERE CONFLICTS EXIST BETWEEN CODES, STANDARDS OR THIS SPECIFICATION THE HIGHER REQUIREMENT SHALL APPLY. DEVIATIONS FROM THE CONTRACT DOCUMENTS REQUIRED BY THE ABOVE AUTHORITIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. OBTAIN PERMITS AND PAY ALL FEES. ARRANGE FOR ALL REQUIRED INSPECTIONS AND APPROVALS. CONFIRM ALL UTILITY COMPANY REQUIREMENTS AND CONNECTION POINTS IN FIELD, PRIOR TO STARTING WORK.
- 3. ALL SPECIFICATIONS AND DRAWINGS, I.E., ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL ARE COMPLIMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION. ANY INFORMATION CONFLICTS WITHIN THE SPECIFICATIONS AND DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION. DRAWINGS ARE DIAGRAMMATIC. CONFIRM ALL DIMENSIONS BY FIELD MEASUREMENT. THE EXACT LOCATIONS FOR APPARATUS, FIXTURES, EQUIPMENT AND PIPING WHICH IS NOT COVERED BY DRAWINGS, SHALL BE OBTAINED FROM THE ARCHITECT OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY.
- 4. VISIT SITE, CHECK FACILITIES AND CONDITIONS MAKE ALL NECESSARY OBSERVATIONS, MEASUREMENTS, NOTE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED, AND TAKE ALL ITEMS INTO CONSIDERATION IN BID.
- 5. EACH CONTRACTOR SHALL PROVIDE FOR HIS OWN CLEAN-UP, REMOVAL AND LEGAL DISPOSAL OF ALL RUBBISH DAILY. CONTRACTOR SHALL PROTECT THEIR WORK AND EXISTING OR ADJACENT PROPERTY AGAINST WEATHER, TO MAINTAIN THEIR WORK, MATERIALS, APPARATUS AND FIXTURES FREE FROM INJURY OR DAMAGE. ANY WORK DAMAGED BY FAILURE TO PROVIDE PROTECTION REQUIRED, SHALL BE REMOVED AND REPLACED WITH NEW WORK AT THE CONTRACTOR'S EXPENSE.
- 6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, SEQUENCES OF CONSTRUCTION AND THE SAFETY OF WORKMEN.
- 7. NO PIPING, DUCTWORK, CONTROLS, ETC., SHALL BE INSTALLED OR ROUTED ABOVE ELECTRICAL PANELS AND EQUIPMENT OR THROUGH ELEVATOR ROOMS.
- 8. THE CONTRACTOR SHALL COORDINATE AND OBTAIN A WRITTEN LISTING OF ELECTRICAL CHARACTERISTICS OF ALL MECHANICAL EQUIPMENT FROM ELECTRICAL CONTRACTOR PRIOR TO ORDERING OF EQUIPMENT. NO ADDITIONAL PAYMENT WILL BE MADE FOR LACK OF CONTRACTOR COORDINATION OF ELECTRICAL CHARACTERISTICS.
- 9. DURING THE BUILDING CONSTRUCTION SOME EXISTING INSTALLATION MAY BE EXPOSED THAT WILL HAVE TO BE CHANGED, ALTERED, REROUTED AND/OR ABANDONED. ANY SUCH WORK WHICH COMES UNDER THE JURISDICTION OF THIS CONTRACTOR SHALL BE DONE BY THIS CONTRACTOR WITHOUT EXTRA COST TO THE OWNER, AS THOUGH FULLY DETAILED ON PLANS AND/OR DESCRIBED IN THE SPECIFICATIONS.
- 10. WORK RELATED TO THE EXISTING BUILDING SHALL BE COORDINATED TO MINIMIZE INTERFERENCE OR INTERRUPTION OF NORMAL BUILDING USE BY OWNER. REFER TO ARCHITECTURAL PLANS FOR PHASING REQUIREMENTS.
- 11.IN CASES OF DOUBT AS TO THE WORK INTENDED, OR IN THE EVENT OF NEED FOR EXPLANATION THEREOF, THE CONTRACTOR SHALL REQUEST SUPPLEMENTARY INSTRUCTIONS FROM THE ENGINEER. NO CHANGES ARE TO BE MADE TO THE WORK OF THIS CONTRACT WITHOUT PRIOR KNOWLEDGE AND APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL HOLD THE OWNER AND ITS CONSULTANTS HARMLESS AGAINST ALL CLAIMS AND JUDGMENTS ARISING OUT OF THE CONTRACTORS PERFORMANCE OF THE WORK OF THIS CONTRACT. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK, WHICH HE EXPECTS ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT, WITHOUT WRITTEN AUTHORIZATION FROM THE APPROPRIATE AUTHORITY. FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION.
- 12.IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO INSTALL THE HEATING, VENTILATION AND AIR CONDITIONING SYSTEM SO AS TO INSURE QUIET OPERATION. NO VIBRATION OR SOUND SHALL BE TRANSMITTED TO THE BUILDING, STRUCTURE OR OCCUPIED AREAS. THE DECISION OF THE ENGINEER AS TO THE QUIETNESS OF THE SYSTEM AND EQUIPMENT SHALL BE FINAL. IT SHALL BE THIS CONTRACTORS RESPONSIBILITY TO CORRECT OR REPLACE ANY NOISY SYSTEM OR EQUIPMENT AS REQUIRED.

13. OBTAIN PERMITS AND PAY ALL FEES. ARRANGE FOR ALL REQUIRED INSPECTIONS AND APPROVALS.

#### B. DEMOLITION

- 1. DISCONNECT, DISASSEMBLE, CAP, PLUG AND REMOVE ALL MEP ELEMENTS (PIPING, DUCTS, ELECTRICAL DEVICES, WIRING, CONDUIT, EQUIPMENT, HANGERS, SUPPORTS, ETC) INDICATED ON THE DRAWINGS OR NOT OTHERWISE REQUIRED FOR COMPLETED PRODUCT. NO MEP ELEMENTS ARE TO BE ABANDONED IN PLACE UNLESS SPECIFICALLY NOTED. NOT ALL ITEMS TO BE REMOVED ARE INDICATED ON DRAWING.
- 2. ALL OPENINGS ON PIPING AND DUCTS THAT REMAIN SHALL BE CAPPED AND PROPERLY SECURED. WIRING SHALL BE DISCONNECTED AT CIRCUIT BREAKERS AND REMOVED AND BREAKERS MARKED "SPARE." REMOVE AND RECLAIM ANY REFRIGERANT IN EXISTING SYSTEMS PRIOR TO DEMOLITION OF ANY EQUIPMENT ACCORDING TO FEDERAL REQUIREMENT.
- 3. ANY EQUIPMENT DESIGNATED BY OWNER TO BE SALVAGED SHALL BE PROTECTED AND DELIVERED TO AN OWNER DESIGNATED AREA ON SITE.
- 4. ALL ASBESTOS REMOVAL (IF REQUIRED) WILL BE HANDLED BY THE OWNER AND IS NOT A PART OF THIS WORK. IF MATERIALS SUSPECTED OF CONTAINING HAZARDOUS MATERIALS ARE ENCOUNTERED. DO NOT DISTURB: NOTIFY ARCHITECT AND OWNER IMMEDIATELY.

#### C. BASIS OF DESIGN AND SUBSTITUTIONS

- 1. WHEREVER THE WORDS "APPROVED BY", "APPROVED EQUAL", "AS DIRECTED" OR SIMILAR PHRASES ARE USED IN THE FOLLOWING SPECIFICATIONS. THEY SHALL BE UNDERSTOOD TO REFER TO THE OWNER AS THE APPROVING AGENCY. THE NAME OR MAKE OF ANY EQUIPMENT OR MATERIALS NAMED IN THE SPECIFICATION (WHETHER OR NOT THE WORDS "OR APPROVED EQUAL" ARE USED) SHALL BE KNOWN AS THE "STANDARD".
- 2. THESE SPECIFICATIONS ESTABLISH QUALITY STANDARDS OF MATERIALS AND EQUIPMENT TO BE PROVIDED. SPECIFIC ITEMS ARE IDENTIFIED BY MANUFACTURER, TRADE NAME OR CATALOG DESIGNATION. THE CONTRACTOR SHALL SUBMIT THE BASE BID PRICE BASED UPON STANDARD SPECIFIED EQUIPMENT DESCRIBED HEREIN AND AS DETAILED ON DRAWINGS AND ASSOCIATED CONTRACT DOCUMENTS. THE CONTRACTOR MAY SUBMIT INFORMATION ON MATERIALS AND MANUFACTURERS (OTHER THAN THOSE LISTED) FOR REVIEW BY THE OWNER, ARCHITECT, AND ENGINEER NO LATER THAN TEN (10) DAYS BEFORE BIDS ARE SUBMITTED. IN ADDITION, SAMPLES OF THE PROPOSED EQUIPMENT MAY BE REQUIRED TO BE SUBMITTED TO THE ENGINEER FOR REVIEW NO LATER THAN TEN (10) DAYS BEFORE BIDS ARE SUBMITTED. MANUFACTURERS OF PRODUCTS ACCEPTED BY THE OWNER, ARCHITECT, AND ENGINEER WILL BE LISTED IN AN ADDENDUM TO THE SPECIFICATIONS AS AN ACCEPTABLE SUBSTITUTION. EQUIPMENT ACCEPTED AS DETAILED BELOW SHALL BE SHOWN AS A SEPARATE ADD OR DEDUCT PRICE TO BE FACTORED INTO THE BASE PRICE BY THE ARCHITECT AND OWNER IF ACCEPTED.
- 3. SHOULD THE CONTRACTOR PROPOSE TO FURNISH MATERIALS AND EQUIPMENT OTHER THAN THOSE SPECIFIED OR APPROVED BY ADDENDUM, SUBMIT A WRITTEN REQUEST FOR SUBSTITUTION TO THE OWNER, ARCHITECT AND ENGINEER AT BID OPENING. THE REQUEST SHALL BE AN ALTERNATE TO THE ORIGINAL BID; BE ACCOMPANIED WITH COMPLETE DESCRIPTIVE (MANUFACTURER, BRAND NAME, CATALOG NUMBER, ETC.) AND TECHNICAL DATA FOR ALL ITEMS. FAILURE BY THIS CONTRACTOR TO SUBMIT THE REQUISITE DOCUMENTATION DETAILED ABOVE SHALL BE UNDERSTOOD BY THE OWNER, ARCHITECT, AND ENGINEER TO INDICATE THAT SUBSTITUTE EQUIPMENT WILL NOT BE PRESENTED BY THE CONTRACTOR FOR CONSIDERATION. SUCH SUBSTITUTIONS WILL NOT BE CONSIDERED AFTER THE BID OPENING DATE AND DELAY OF THE PROJECT WILL NOT BE PERMITTED FOR FURTHER INSPECTION AND EVALUATION AFTER THIS DATE.
- 4. WHERE SUCH SUBSTITUTIONS ALTER THE DESIGN OR SPACE REQUIREMENTS INDICATED ON THE DRAWINGS, INCLUDE ALL ITEMS OF COST FOR THE REVISED DESIGN AND CONSTRUCTION INCLUDING COST OF ALL ALLIED TRADES INVOLVED.
- 5. ACCEPTANCE OR REJECTION OF THE PROPOSED SUBSTITUTIONS SHALL BE SUBJECT TO APPROVAL OF THE OWNER, ARCHITECT, AND ENGINEER. IF REQUESTED, THE CONTRACTOR SHALL SUBMIT (AT THEIR COST) INSPECTION SAMPLES OF BOTH THE SPECIFIED AND PROPOSED SUBSTITUTE ITEMS.
- 6. IN ALL CASES WHERE SUBSTITUTIONS ARE PERMITTED, THE CONTRACTOR SHALL BEAR ANY EXTRA COST OF EVALUATING THE QUALITY OF THE MATERIAL AND EQUIPMENT TO BE PROVIDED.

7. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, FREE OF DEFECTS AND U.L. LABELED.

#### D. CUTTING, PATCHING AND DRILLING

- 1. ALL CUTTING AND PATCHING OF THE BUILDING CONSTRUCTION REQUIRED FOR THIS WORK SHALL BE BY THIS CONTRACTOR UNLESS SHOWN ON ARCHITECTURAL DRAWINGS AND CONFIRMED AS TO SIZE AND LOCATION PRIOR TO NEW CONSTRUCTION. CUTTING SHALL BE IN A NEAT AND WORKMANLIKE MANNER. NEATLY SAW CUT ALL RECTANGULAR OPENINGS, SET SLEEVE THROUGH OPENING, AND FINISH PATCH OR PROVIDE TRIM FLANGE AROUND OPENING. CORE DRILL AND SLEEVE ALL ROUND OPENINGS. DO NOT CUT ANY STRUCTURAL COMPONENTS WITHOUT ARCHITECT'S APPROVAL.
- 2. PATCH AND FINISH TO MATCH ADJACENT AREAS THAT HAVE BEEN CUT, DAMAGED OR MODIFIED AS A RESULT OF THE INSTALLATION OF THE MECHANICAL OR ELECTRICAL EQUIPMENT. FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER.
- 3. ALL CONTRACTORS SHALL CONFIRM WITH OWNER, PRIOR TO BID, TIMES AVAILABLE FOR NOISE PRODUCING WORK SUCH AS CUTTING AND CORE DRILLING OF FLOORS, WALLS, ETC., AS WELL AS TIMES FOR WORK WHICH REQUIRE ACCESS INTO ADJOINING TENANT SPACES. INCLUDE ANY PREMIUM TIME IN BID.

- E. WARRANTY

- G. RECORD DRAWINGS
- LINES.
- H. FIRESTOPPING

## **REFRIGERANT PIPING (232300)**

## PIPE WALL SEALS (230517)

4. EXACT LOCATION OF ROOFTOP EQUIPMENT SHALL BE APPROVED BY OWNER'S STRUCTURAL ENGINEER.

5. INFORMATION REGARDING REQUIRED PIPE OPENINGS IN WALLS, FLOORS, CHASES, ETC., AND CONCRETE EQUIPMENT PADS OR FOUNDATIONS SHALL BE GIVEN TO THE GENERAL CONTRACTOR BY THIS CONTRACTOR PRIOR TO THE CONSTRUCTION PERIOD. IF THIS CONTRACTOR FAILS TO COMPLY WITH THIS REQUEST, OR IF INCORRECT INFORMATION IS GIVEN, THE NECESSARY CUTTING AND PATCHING WILL BE PERFORMED BY THE GENERAL CONTRACTOR. AT THIS CONTRACTOR'S EXPENSE.

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

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

F. SHOP DRAWING SUBMITTALS

1. SUBMIT SHOP DRAWINGS FOR MECHANICAL EQUIPMENT, FIRE PROTECTION SYSTEMS, DUCTWORK, AND PLUMBING FIXTURES AND EQUIPMENT WITH ADEQUATE DETAILS AND SCALES TO CLEARLY SHOW CONSTRUCTION. INDICATE THE OPERATING CHARACTERISTICS FOR EACH REQUIRED ITEM. CLEARLY IDENTIFY EACH ITEM ON THE SUBMITTAL AS TO MARK, LOCATION AND USE, USING SAME IDENTIFICATION AS PROVIDED ON DESIGN DRAWINGS.

2. DUCTWORK AND FIRE PROTECTION DRAWINGS SHALL BE FULLY DIMENSIONED BASED ON FIELD VERIFIED BUILDING CLEARANCES AND ARCHITECTURAL CEILING LAYOUTS, AND INDICATE STRUCTURAL, LIGHTING, DUCTWORK AND PIPING AT ALL CRITICAL LOCATIONS.

3. CONTRACTOR SHALL REVIEW AND INDICATE HIS APPROVAL OF EACH SHOP DRAWING PRIOR TO SUBMITTAL FOR REVIEW. DO NOT START WORK OR FABRICATION UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED BY THE ENGINEER AND RETURNED TO THE CONTRACTOR.

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

5. WHERE SUBMITTALS VARY FROM THE CONTRACT REQUIREMENTS, THE CONTRACTOR SHALL CLEARLY INDICATE ON SUBMITTAL OR ACCOMPANYING DOCUMENTS THE NATURE AND REASON FOR VARIATIONS.

6. REFER TO VARIOUS SECTIONS FOR LISTING OF SHOP DRAWINGS REQUIRED ON THIS PROJECT.

7. EACH MANUFACTURER OR HIS REPRESENTATIVE MUST CHECK THE APPLICATION OF HIS EQUIPMENT AND CERTIFY AT TIME OF SHOP DRAWING SUBMITTAL THAT EQUIPMENT HAS BEEN PROPERLY APPLIED AND CAN BE INSTALLED, SERVICED AND MAINTAINED WHERE INDICATED ON DRAWINGS. ADVISE ENGINEER IN WRITING WITH SUBMITTAL DRAWINGS OF ANY POTENTIAL PROBLEMS. THE MANUFACTURER SHALL BE RESPONSIBLE FOR ANY CHANGES THAT MIGHT BE NECESSARY BECAUSE OF PHYSICAL CHARACTERISTICS OF EQUIPMENT THAT HAVE NOT BEEN CALLED TO THE ENGINEER'S ATTENTION AT THE TIME OF SUBMITTAL.

1. EACH CONTRACTOR OR SUBCONTRACTOR SHALL KEEP ONE (1) COMPLETE SET OF THE CONTRACT WORKING DRAWINGS ON THE JOB SITE ON WHICH HE SHALL REGULARLY RECORD ANY DEVIATIONS OR CHANGES FROM SUCH CONTRACT DRAWINGS MADE DURING CONSTRUCTION.

2. THESE DRAWINGS SHALL RECORD THE LOCATION OF ALL CONCEALED EQUIPMENT, PIPING, ELECTRIC SERVICE, SEWERS, WASTES, VENTS, DUCTS, CONDUIT AND OTHER PIPING, BY MEASURED DIMENSIONS TO EACH SUCH ITEM FROM READILY IDENTIFIABLE AND ACCESSIBLE WALLS OR CORNERS OF THE BUILDING. PLANS ALSO SHALL SHOW INVERT ELEVATION OF SEWERS AND TOP ELEVATION OF ALL OTHER BELOW-GRADE

3. RECORD DRAWINGS SHALL BE KEPT CLEAN AND UNDAMAGED AND SHALL NOT BE USED FOR ANY PURPOSE OTHER THAN RECORDING DEVIATIONS FROM WORKING DRAWINGS AND EXACT LOCATIONS OF CONCEALED WORK.

4. AFTER THE PROJECT IS COMPLETED, THESE SETS OF DRAWINGS SHALL BE DELIVERED TO THE ARCHITECT IN GOOD CONDITION, AS A PERMANENT RECORD OF THE INSTALLATION AS ACTUALLY CONSTRUCTED.

1. ALL SERVICES THAT PASS THRU FIRE OR SMOKE RATED PARTITIONS, WALLS, FLOORS, SHALL BE FIRESTOPPED. FIRE STOPPING RATING SHALL MATCH PARTITION RATING. ALL FIRE STOPPING SYSTEM SHALL MEET THE REQUIREMENTS OF ASTM E 814, UL 1479, AND BE FACTORY MUTUAL APPROVED.

2. ALL FIRESTOPPING AND/OR SMOKE STOPPING MATERIAL AND INSTALLATION SHALL BE AS MANUFACTURED BY HILTI OR APPROVED EQUAL.

ACCESS DOORS & PANELS

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

2. THIS CONTRACTOR SHALL FURNISH ACCESS PANELS TO THE GENERAL CONTRACTOR FOR INSTALLATION.

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

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

1. INSTALL REFRIGERANT PIPING BETWEEN CONDENSING UNIT AND DX COIL. PIPING SHALL BE REFRIGERANT GRADE TYPE "L" OR ACR COPPER WITH BRAZED JOINTS. PIPE PER MANUFACTURER'S PIPING DIAGRAMS AND RECOMMENDATIONS.

2. ISOLATE PIPING FROM STRUCTURE WITH ONE (1) INCH INSULATION BETWEEN ALL PIPING AND SUPPORT POINTS.

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

4. INSTALL PIPING IN AS SHORT AND DIRECT ARRANGEMENT AS POSSIBLE TO MINIMIZE PRESSURE DROP. PROVIDE OIL TRAP AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.

5. INSTALL UNIONS TO ALLOW REMOVAL OF SOLENOID VALVES, PRESSURE REDUCING VALVES, EXPANSION VALVES, AND AT CONNECTIONS TO COMPRESSORS AND EVAPORATORS.

6. FILL THE PIPE AND FITTINGS DURING BRAZING, WITH NITROGEN TO PREVENT FORMATION OF SCALE.

1. WALL PIPE SEALS WITH RUBBER LINKS SHALL BE THUNDERLINE LINK SEAL, OR APPROVED EQUAL. WALL PIPE SEALS WITH INORGANIC MATERIAL LINKS THE PENETRATIONS OF FIRE RATED WALLS SHALL BE THUNDERLINE PYRO-PAC, OR APPROVED EQUAL.

2. SEALS SHALL BE MODULAR MECHANICAL TYPE CONSISTING OF INTERLOCKING SYNTHETIC RUBBER OR INORGANIC MATERIAL LINKS SHAPED TO CONTINUOUSLY FILL THE ANNULAR SPACE BETWEEN THE PIPE AND WALL OPENING. LINKS SHALL BE LOOSELY ASSEMBLED WITH BOLTS TO FORM A CONTINUOUS BELT AROUND THE PIPE. A PRESSURE PLATE SHALL BE PROVIDED UNDER THE BOLT HEAD AND NUT OF EACH LINK. SEALS SHALL BE CONSTRUCTED TO PROVIDE ELECTRICAL INSULATION BETWEEN THE PIPE AND SLEEVE, THUS REDUCING CHANCES OF CATHODIC REACTION BETWEEN THESE TWO MEMBERS.

3. AFTER THE SEAL ASSEMBLY IS POSITIONED IN THE SLEEVE, THE TIGHTENING OF THE BOLTS SHALL CAUSE THE SEALING ELEMENTS TO EXPAND AND PROVIDE AN ABSOLUTELY WATER-TIGHT SEAL BETWEEN THE PIPE AND SLEEVE.

4. SLEEVES SHALL BE MANUFACTURED FROM HEAVY-WALL, WELDED OR SEAMLESS STEEL PIPE. A FULL CIRCLE CONTINUOUSLY WELDED WATER STOP PLATE SHALL BE PROVIDED TO ASSURE POSITIVE WATER SEALING OF THE SLEEVE. SLEEVE SHALL BE PROTECTED BY A COATING OF ENRICHED RED PRIMER.

#### DUCTWORK (233113)

- 90A REQUIREMENTS.
- RATING WITH SEAL CLASS A SEAMS AND JOINTS.

- FITTINGS. BUTT FITTINGS ARE NOT ACCEPTABLE.
- THE DRYER CONNECTION IN ACCORDANCE WITH IMC 504.6.5 2009.
- MEET ALL NFPA AND IBC REQUIREMENTS.
- MOUNTING TO ENSURE VISIBILITY AFTER SYSTEM INSTALLATION.

DUCTWORK EXTERNAL INSULATION & PIPE INSULATION (230713, 230719)

- 2. DO NOT INSULATE:

- 2.5. PHENOLIC DUCTWORK
- ALL VISIBLE RAW FIBERGLASS WITH BENJAMIN FOSTER #3036 WHITE MASTIC.
- DEVICES SEALED VAPOR TIGHT.

- MOISTURE SATURATED UNITS.

1. FABRICATE AND ERECT ALL DUCTWORK TO ASHRAE AND SMACNA STANDARDS FROM G90 GALVANIZED STEEL. COMPLY WITH NFPA BULLETIN

2. SUPPLY DUCTWORK UPSTREAM OF TERMINAL UNITS AND WITHIN 15' OF ANY AHU FAN OUTLET SHALL HAVE A SMACNA 3" STATIC PRESSURE

3. GENERAL SUPPLY AND RETURN DUCTWORK HAVE A SMACNA 2" STATIC PRESSURE RATING WITH SEAL CLASS B SEAMS AND JOINTS.

4. OUTDOOR AIR INTAKE DUCTWORK SHALL HAVE A SMACNA 2" STATIC PRESSURE RATING WITH SEAL CLASS A SEAMS AND JOINTS.

5. ALL EXPOSED ROUND AND OVAL DUCTWORK IN SHALL HAVE SPIRAL LOCKSEAM CONSTRUCTION.

6. ALL RECTANGULAR TRANSFER DUCTWORK SHALL HAVE 1" THICK ACOUSTICAL LINER. LINER SHALL BE FLEXIBLE AND CONSTRUCTED OF GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. THE SURFACE OF THE LINER SHALL HAVE AN ANTIMICROBIAL EROSION RESISTANCE COATING TESTED BY NRTL AND REGISTERED BY THE EPA FOR USE IN HVAC SYSTEMS. MINIMUM R-VALUE SHALL BE 4.2.

7. GENERAL EXHAUST DUCTWORK UNDER 45' IN LENGTH SHALL HAVE A SMACNA 1" STATIC PRESSURE RATING WITH SEAL CLASS B SEAM AND JOINTS. EXHAUST DUCTWORK OVER 45' IN LENGTH SHALL HAVE A SMACNA 2" STATIC PRESSURE RATING WITH SEAL CLASS A SEAM AND JOINTS.

8. EXTERIOR DUCTWORK(ALL DUCTWORK EXPOSED TO AMBIENT CONDITIONS) SHALL BE 2" THICK RIGID PHENOLIC, MINIMUM R-10 INSULATION VALUE, NOT EXCEEDING 25 FLAME SPREAD AND 50 SMOKE DEVELOPED RATINGS, WITH FACTORY-APPLIED WEATHERPROOF JACKETING DESIGNED FOR EXTERIOR INSTALLATION. SUPPORT AND INSTALLATION SHALL BE PER MANUFACTURER'S RECOMMENDATIONS, UTILIZING SUPPORT SYSTEM THAT FULLY ENCLOSES THE DUCT. REINFORCE DUCT AS NECESSARY PER SMACNA HVAC PHENOLIC DUCT CONSTRUCTION STANDARDS. ACCEPTABLE MANUFACTURERS ARE AQC INDUSTRIES' Q-DUCT AND THERMADUCT.

9. ALL FLEXIBLE DUCTWORK SHALL BEAR THE UL 181 LABEL (CLASS 1 AIR DUCT) AND SHALL BE FACTORY INSULATED (1-1/2 ", 0.6 LB., FIBERGLASS) ATCO UPC #076 I OR EQUAL. FLEXIBLE DUCTWORK SHALL COMPLY W/ NFPA 90A, AND NFPA 90B. ALL FLEXIBLE DUCTWORK CONNECTED TO DIFFUSERS SHALL NOT BE LESS THAN THE NECK SIZE OF THE DIFFUSER. MINIMUM FLEXIBLE DUCT BEND RADIUS OF CURVATURE SHALL BE 3 DUCT DIAMETERS, MAXIMUM LENGTH SHALL BE 8-0", NO MORE THAN THE EQUIVALENT OF TWO (2) 90 DEGREE BENDS WILL BE ACCEPTABLE. FLEXIBLE DUCTS SHALL BE INDEPENDENTLY SUPPORTED FROM THE STRUCTURE AND CONNECTED WITH PLASTIC DRAW BANDS TIGHTENED WITH MANUFACTURER'S TOOL. FLEXIBLE DUCTS ARE NOT PERMITTED IN ROOMS WITHOUT CEILINGS.

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

11. ALL BRANCH CONNECTION FITTINGS IN RECTANGULAR DUCTWORK SHALL BE 45 DEGREE TRANSITION TYPE, CONICAL FITTINGS OR SPIN-IN

12. DRYER VENT ROUND DUCTWORK SHALL BE 22 GAUGE (MINIMUM) ALUMINUM CONSTRUCTION WITH DIESTAMPED OR FABRICATED FITTINGS. DUCTS SHALL BE CONSTRUCTED FOR LOW PRESSURE OPERATION WITH LONGITUDINAL SEAM UP. FABRICATED ELBOWS SHALL BE THE MULTI-PIECE TYPE WITH EACH SEGMENT NOT EXCEEDING 22-1/2 DEGREES. THROAT RADIUM OF ALL ELBOWS SHALL BE EQUAL TO THE DUCT DIAMETER. TEES SHALL BE THE CONCEALED TYPE. JOINTS SHALL BE THE SLIP OF FLANGED TYPE. DO NOT USE DRIVE SLIP COUPLING BANDS MAKE-UP SLIP JOINTS WITH DUCT SEALER. DUCTS FOR EXHAUSTING CLOTHES DRYERS SHALL NOT BE ASSEMBLED WITH SCREWS OR OTHER FASTENING MEANS THAT EXTEND INTO THE DUCT AND THAT WOULD CATCH LINT. PROVIDE NFPA 90 A APPROVED FLEXIBLE DUCT SECTION AT CONNECTION OF DRYER TO DUCTWORK. PROVIDE AND INSTALL EXTRUDED ALUMINUM DRYER FLAPPER VENT AT TERMINATION OF EACH DRYER VENT. WHERE CLOTHES DRYER VENT DUCTS PASS THROUGH WALLS, FLOORS, OR PARTITIONS, THAT SPACE AROUND THE DUCT SHALL BE SEALED WITH NON-COMBUSTIBLE MATERIAL AND FIRESTOPPED. SIGNAGE INDICATING EQUIVALENT LENGTH SHALL BE POSTED WITHIN 6' OF

13. PROVIDE FIRE DAMPERS WITH ACCESS DOORS AT ALL FIRE RATED WALLS, PARTITIONS AND CEILINGS. DAMPERS SHALL HAVE RATING EQUIVALENT TO BARRIER. DAMPER SHALL BE THE DYNAMIC TYPE AND SHALL BE ABLE TO CLOSE AGAINST AN AIRSTREAM. DAMPERS SHALL

14. PROVIDE SMOKE DAMPERS WITH ACCESS DOORS AT ALL SMOKE BARRIERS/PARTITIONS. UNIT SHALL INCORPORATE BLADE END SWITCHES (OPEN AND CLOSED), AND OUTSIDE THE DUCT MOUNTED UL LISTED MOTOR. PROVIDE MANUFACTURER'S STANDARD U.L. LISTED OPEN- CLOSE -RESET SWITCH AND POSITION PILOT LIGHTS IN UNIT MOUNTED ENCLOSURE. ENCLOSURE TO BE CAPABLE OF BEING REMOVED FOR REMOTE

15. PROVIDE COMBINATION FIRE/SMOKE DAMPERS AT ALL FIRE/SMOKE RATED SHAFT AND WALL LOCATIONS. EACH COMBINATION FIRE SMOKE DAMPER SHALL HAVE 16 GA. GALVANIZED BLADES STRENGTHENED WITH GROOVES MEETING REQUIREMENTS OF UL STANDARD 555 & 555S AND HAVE AN 1-1/2 HOUR RATING. BASIS OF DESIGN SHALL BE GREENHECK MODEL FSD 200 SERIES. DAMPERS SHALL BE EQUIPPED STANDARD WITH AN ELECTRIC HEAT-RESPONSIVE DEVICE THAT PERFORMS THE SAME FUNCTION AS A FUSIBLE LINK TO CLOSE DAMPER AT 350 °F. PROVIDE POSITION INDICATING SWITCHES TO MEET REQUIREMENTS OF SMOKE PURGE CONTROL AND/OR BUILDING MANAGEMENT SYSTEM CONTROLS. THE DAMPER OPERATION AND CONSTRUCTION SHALL MEET UL REQUIREMENTS.

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

1. INSULATE DUCTWORK AS DESCRIBED IN DUCTWORK INSULATION SCHEDULE. FIBERGLASS DUCT WRAP SHALL BE FULLY SECURED TO DUCT. LAP AND TAPE SEAMS AND SECURE TIGHTLY TO THE DUCTS WITH WIRE OR STICK PINS.

2.1. MAKE-UP AIR DUCTWORK OPERATING AT SURROUNDING AMBIENT CONDITIONS. 2.2. RETURN AND EXHAUST AIR DUCTWORK LOCATED WITHIN THE BUILDING ENVELOPE. (DOES NOT INCLUDE BUILDING SHAFTS.) 2.3. TRANSFER AIR DUCTWORK (ACOUSTICALLY LINE DUCT, CLEAR INSIDE DIMENSIONS SHOWN ON PLANS) 2.4. EXPOSED SUPPLY DUCTWORK LOCATED IN CONDITIONED SPACE. (DOES NOT INCLUDE RETURN AIR PLENUM)

3. INTERNAL DUCT INSULATION -- DUCTWORK INDICATED TO HAVE INTERNAL INSULATION SHALL BE INTERNALLY COVERED WITH 1" THICK FIBERGLASS INSULATION MANUFACTURED FROM A ROTARY PROCESS WITH A NON-WOVEN HYDROPHOBIC FACING. FOR DUCTWORK LOCATED OUTDOORS USE INSULATION AS ABOVE THAT IS 2" THICK. INSULATION SHALL HAVE AN "R" RATING OF 4.2 FOR 1" THICK INSULATION AND R-8 FOR 2" THICK INSULATION. INSULATION SHALL HAVE FLAME/SMOKE RATING OF 25/50. INSULATION SHALL WITHSTAND DUCT VELOCITIES OF 4000 FPM MINIMUM. DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INTERNAL DIMENSIONS. WHERE LINER IS USED, INCREASE OUTSIDE DIMENSIONS OF DUCT TO MAINTAIN INTERNAL DIMENSIONS. INSTALL LINER PER SMACNA OR NAIMA STANDARDS.

4. HYDRONIC PIPING TO BE INSULATED AS DESCRIBED IN PIPING INSULATION SCHEDULE. PROVIDE SECTIONAL GLASS FIBER PIPE INSULATION HAVING FACTORY APPLIED WHITE "ALL SERVICE" JACKET. LONGITUDINAL FLAPS SHALL BE SELF-SEALING TYPE ADDITIONALLY SECURED WITH NONFERROUS FLARE DOOR STAPLES SPACED 6" ON CENTERS. END JOINTS SHALL BE CLOSED WITH 4" WIDE SELF-SEALING TAPE STAPLED IN PLACE. ALL FITTINGS TO BE FINISHED WITH PRE MOLDED ONE-PIECE ZESTON TYPE PVC COVERS WITH FIBERGLASS INSULATION INSIDE. SEAL

5. INSULATE REFRIGERANT PIPING LINES AS DESCRIBED IN PIPING INSULATION SCHEDULE WITH ELASTOMERIC FOAM INSULATION WITH SELF-SEALING SEAM. ARMACELL - AP ARMAFLEX SS INSULATION. PAINT CLOSED CELL INSULATION OUTDOORS WITH TWO COATS OF UV RESISTANT PAINT PER MANUFACTURER'S RECOMMENDATIONS. USE PRE-MOLDED COVERS OVER FITTINGS, VALVES, ELBOWS AND CONTROL

6. STEAM SYSTEMS PIPING SHALL BE INSULATED AS DESCRIBED IN PIPING INSULATION SCHEDULE.

7. INSULATION SHALL BE OMITTED FROM HOT SYSTEM VALVE BODIES STRAINERS AND UNIONS. SYSTEMS OPERATING BELOW AMBIENT TEMPERATURE SHALL HAVE ALL VALVE BODIES AND PIPING SPECIALTIES FULLY INSULATED. ALL VALVE BODIES, STRAINERS, UNIONS, PUMP CASING, WATER SEPARATORS, ETC. IN COLD PIPING SHALL BE COVERED SAME AS PIPING SYSTEM. PIPE HANGERS ON INSULATED PIPE SHALL BE OUTSIDE OF THE INSULATION, SIZED ACCORDINGLY AND WITH SADDLE INSERT SUFFICIENT TO PROTECT INSULATION FROM CRUSHING.

8. ALL INSULATION TO BE APPLIED IN FULL ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL INSULATION SHALL COMPLY WITH 25/50 FLAME AND SMOKE HAZARD RATINGS PER ASTM E-84, NFPA 255 AND UL 723.

9. PROVIDE REMOVABLE INSULATION SECTIONS TO COVER PARTS OF EQUIPMENT WHICH MUST BE OPENED PERIODICALLY FOR MAINTENANCE; INCLUDE METAL VESSEL COVERS, FASTENERS, FLANGES, CHILLED WATER PUMPS, FRAMES AND ACCESSORIES.

10. REPLACE DAMAGED INSULATION WHICH CANNOT BE REPAIRED SATISFACTORILY, INCLUDING UNITS WITH VAPOR BARRIER DAMAGE AND

15. CONDENSATE DRAIN PIPING IN RETURN AIR RATED PLENUMS SHALL BE TYPE L COPPER WITH 1/2" FIBERGLASS INSULATION (MIN. R-VALUE = 3). SCHEDULE 40 PVC WITHOUT INSULATION MAY BE USED IN ALL OTHER LOCATIONS.



- 1. SUPPORT ALL PIPING FROM STRUCTURE WITH UL LISTED HANGERS AND SUPPORTS SUITABLE FOR THE INTENDED INSTALLATION. DESIGN, SELECTION, SPACING, AND APPLICATION OF HANGERS AND SUPPORTS SHALL COMPLY WITH ANSI B31.1 AND MSS SP-69. HANGERS SHALL BE MANUFACTURED BY PENTAIR., OR APPROVED EQUAL. BLACK OR GALVANIZED STEEL PIPE = MODEL NO. 100, CAST IRON PIPE = MODEL NO. 400, COPPER TUBING = MODEL NO. 102-A.
- 2. CONTRACTOR SHALL PROVIDE INSULATION HANGER WITH PROTECTIVE SHIELDS, SUCH AS PENTAIR, MODEL NO. 125, OR APPROVED EQUAL FOR ALL INSULATED PIPING.
- 3. CONTRACTOR SHALL PROVIDE RISER CLAMPS FOR VERTICAL PIPING AT EACH LEVEL. RISER CLAPS SHALL BE PENTAIR MODEL NO. 510 FOR STEEL PIPING AND MODEL NO. 511 FOR COPPER TUBING OR APPROVED EQUAL. USE "SHORT-END" RISER CLAMPS WHERE SPACE IS LIMITED.
- 4. CONTRACTOR SHALL PROVIDE SIDE BEAM CLAMPS FOR SUPPORTING PIPING FROM STRUCTURAL STEEL MEMBERS. BEAM CLAMPS SHALL BE MANUFACTURED BY PENTAIR, MODEL 300 OR APPROVED EQUAL.
- 5. WHERE OTHER MEANS OF SUPPORT PIPING ARE REQUIRED OR DESIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE ENGINEER'S APPROVAL PRIOR TO INSTALLING THOSE SUPPORTS.
- 6. HANGERS AND SUPPORTS SHALL BE SPACED AT INTERVALS WHICH WILL PREVENT SAGGING AND REDUCE STRAIN ON VALVES AND SPECIALTIES. HANGER SPACING SHALL BE NO GREATER AND ROD SIZE SHALL BE NO SMALLER THAN THAT SHOWN IN THE FOLLOWING TABLE. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION. HANGER SHALL BE PROVIDED AT EACH CHANGE OF DIRECTION.
- 7. RISER CLAMPS SHALL BE INSTALLED ABOVE THE FLOOR AT EACH LEVEL. RISER CLAMPS MAY BE SUSPENDED BELOW FLOOR LEVEL, WITH HANGER RODS AND INSERTS, WHERE THE INSTALLATION OF ESCUTCHEON PLATES IS REQUIRED.

#### EQUIPMENT (235000)

- 1. MAKE ALL FINAL EQUIPMENT CONNECTIONS AND PROVIDE THE NECESSARY ADAPTORS, FITTINGS, VALVES, DEVICES, ETC. FOR A COMPLETE AND OPERABLE SYSTEM. PROVIDE COMPLETE WITH BASES, ISOLATORS, SUPPORTS AND OTHER REQUIRED ACCESSORIES.
- 2. EQUIPMENT SHALL BE INSTALLED IN FULL ACCORDANCE WITH THE MANUFACTURER'S DATA AND INSTALLATION INSTRUCTIONS, INCLUDING CLEARANCES; LUBRICATE AND ADJUST AS REQUIRED. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO CHECK AND CONFORM TO THESE REQUIREMENTS PRIOR TO STARTING WORK. FURNISH AND INSTALL CLEAN SET OF FILTERS PRIOR TO BALANCING.
- 3. THE CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS OF ALL MECHANICAL EQUIPMENT PRIOR TO ORDERING OF EQUIPMENT. COORDINATE REQUIREMENT FOR PROVISION OF MOTOR STARTERS, DISCONNECTS, CONTACTORS, CONTROL WIRING, ETC. AS REQUIRED FOR PROPER FUNCTIONING SYSTEM WITH ELECTRICAL CONTRACTOR. NO ADDITIONAL PAYMENT WILL BE MADE FOR LACK OF CONTRACTOR COORDINATION OF ELECTRICAL CHARACTERISTICS.
- 4. ALL FLOOR MOUNTED EQUIPMENT SHALL BE INSTALLED ON CONCRETE HOUSEKEEPING PADS. MINIMUM PAD THICKNESS SHALL BE NOMINAL 4". PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 4" ON EACH SIDE. CONCRETE PADS SHALL BE PROVIDED BY THIS CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE THIS CONTRACTOR TO COORDINATE THE SIZE AND LOCATION OF THE CONCRETE HOUSEKEEPING PADS WITH THE GENERAL CONTRACTOR.
- 5. ALL EQUIPMENT SHALL BE MOUNTED ON VIBRATION ISOLATORS TO PREVENT THE TRANSMISSION OF VIBRATION AND MECHANICALLY TRANSMITTED SOUND TO THE BUILDING STRUCTURE.
- 6. ISOLATION EQUIPMENT SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER, AND SHALL BE DESIGNED SPECIFICALLY FOR THE APPLICATION REQUIRED. THIS INCLUDES, BUT IS NOT LIMITED TO, PIPING DUCTWORK, PUMPS, COMPRESSORS. VIBRATION ISOLATORS SHALL BE RATED FOR THE WEIGHT AND SPACING REQUIRED FOR THE EQUIPMENT REQUIRING ISOLATION.
- 7. PROVIDE CURBS FOR ALL ROOF OPENINGS FOR DUCTS, FLUES, PIPING AND EQUIPMENT. CURBS SHALL BE FURNISHED AS ACCESSORIES TO THE EQUIPMENT OR 8" HIGH PATE OR EQUAL EQUIPMENT SUPPORTS SPANNING STRUCTURE AND FLASHED INTO ROOFING. ALL CUTTING, FLASHING, AND PATCHING OF ROOF SHALL BE BY OWNER'S ROOFING CONTRACTOR AND PAID FOR BY MECHANICAL CONTRACTOR.

#### **CONTROLS (230910)**

- 1. PROVIDE COMPLETE TEMPERATURE CONTROLS FOR ALL HVAC SYSTEMS. PROVIDE NEW CONTROL DEVICES INCLUDING DAMPER OPERATORS, TEMPERATURE SENSORS, STAGING RELAYS AND OTHER REQUIRED DEVICES TO PROVIDE A COMPLETE OPERATIONAL SYSTEM PER THE FOLLOWING OPERATING SEQUENCE. MOUNT ALL CONTROLS FURNISHED AS ACCESSORIES TO EQUIPMENT AND PROVIDE ALL CONTROL WIRING REQUIRED FOR PROPER OPERATION WHERE NOT SPECIFICALLY SHOWN ON ELECTRICAL PLANS. ALL WIRING SHALL BE IN CONDUIT OR PER N.E.C. AND LOCAL CODE REQUIREMENTS. STANDARD MOUNTING HEIGHT TO TOP OF THERMOSTAT IS 48" ABOVE FINISHED FLOOR OR AS INDICATED ON THE ARCHITECTURAL DRAWINGS. DO NOT INSTALL THERMOSTATS NEAR DIMMER SWITCHES. WIRING OF ALL MOTORIZED OPERATORS AND THERMOSTATS (REGARDLESS OF VOLTAGE) ARE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.
- 2. THE CONTROL SYSTEM SHALL BE PROGRAMMED WITH THE FOLLOWING SEQUENCES AND FEATURES:
- 2.1. UNOCCUPIED HEAT: THE SYSTEM SHALL USE THE BASEBOARD HEAT AS THE PRIMARY SOURCE OF HEAT DURING UNOCCUPIED PERIODS. IF THE BASEBOARD IS NOT ABLE TO MAINTAIN TEMPERATURE, THEN THE VAV FAN WITH THE HEAT VALVE 100% OPEN SHALL CYCLE TO PROVIDE ADDITIONAL HEAT IN THE SPACES.
- 2.2. MORNING WARM UP: BEFORE THE OCCUPIED PERIOD BEGINS, THE SYSTEM SHALL USE THE BASEBOARD HEAT TO BRING THE CONNECTED SPACES UP TO OCCUPIED TEMPERATURE. IF THE BASEBOARD CANNOT BRING THE SPACE UP TO SETPOINT WITHIN AN HOUR, THEN UTILIZE THE VAV BOXES TO ASSIST. THE VAV BOXES SHALL USE THEIR FANS AND HW COILS WITH THE PRIMARY AIR DAMPER CLOSED TO ADD HEAT NEEDED IN THE SPACES.
- 2.3. SUPPLY FAN PRESSURE RESET: THE CONTROL SYSTEM SHALL MONITOR ALL DAMPER POSITIONS THAT ARE CONNECTED TO THE AHU SUPPLY FAN. THE SUPPLY AIR PRESSURE SETPOINT SHALL BE REDUCED IF NONE OF THE DAMPERS ARE OPEN 95% OR GREATER. 2.4. SUPPLY TEMPERATURE RESET: THE CONTROL SYSTEM SHALL MONITOR ALL DAMPER POSITIONS THAT ARE CONNECTED TO A
- PARTICULAR UNIT'S SUPPLY FAN. THE SUPPLY AIR TEMPERATURE SHALL BE RESET HIGHER IF THE RETURN AIR RELATIVE HUMIDITY IS BELOW 40% AND NONE OF THE VAV DAMPER POSITIONS ARE OPEN 95% OR GREATER.
- 2.5. ECONOMIZER: THE CONTROL SYSTEM SHALL MONITOR THE ECONOMIZER OPERATION AND THE RELEVANT SENSORS FORTHE AHU. THE AHU SHALL CONTROL THE DAMPER POSITION AS DESIGNED FROM THE FACTORY. THE CONTROL SYSTEM SHALL MONITOR THE DAMPER POSITION AND THE OTHER SENSORS THAT ARE INTEGRATED INTO ECONOMIZER OPERATION.

#### **IDENTIFICATION (230593)**

7. CONTRACTOR SHALL PROVIDE IDENTIFICATION LABELS, TAGS, ETC. AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.THE IDENTIFICATION SHALL BE IN ACCORDANCE WITH ANSI STANDARD A13.1. PRESSURE SENSITIVE MARKERS SHALL BE MANUFACTURED BY THE BRADY CO., OR APPROVED EQUAL. MARKERS SHALL BE MANUFACTURER'S STANDARD PRODUCT. PRESSURE SENSITIVE PIPE MARKERS SHALL BE MANUFACTURED BY THE BRADY CO., OR APPROVED EQUAL. PIPE MARKERS SHALL BE MANUFACTURER'S STANDARD PRODUCT.

#### **DISCONNECT SWITCHES (230514)**

- 1. THIS CONTRACTOR SHALL FURNISH ALL SAFETY DISCONNECT SWITCHES (FUSED AND NON-FUSED) REQUIRED FOR EQUIPMENT FURNISHED UNDER THIS CONTRACT. IN ADDITION, THIS CONTRACTOR SHALL FURNISH A SAFETY DISCONNECT SWITCH FOR ALL MOTORS AND EQUIPMENT WHICH DO NOT HAVE COMBINATION STARTERS OR INTEGRAL DISCONNECTING MEANS. FUSIBLE DISCONNECT SWITCHES SHALL BE PROVIDED FOR ALL EQUIPMENT RATED FOR USE ONLY WITH FUSES (SUCH AS CONDENSING UNITS, COMPRESSORS, ETC.). SUCH SWITCHES SHALL BE ONE. TWO OR THREE POLE TYPE, WITH SOLID NEUTRAL FOR 4 WIRE SERVICE, AND SHALL HAVE THE PROPER CURRENT AND VOLTAGE RATING AS REQUIRED. INSTALLATION OF ALL DISCONNECT SWITCHES SHALL BE BY THE ELECTRICAL CONTRACTOR.
- 2. ALL SAFETY SWITCHES SHALL BE NEMA HEAVY DUTY TYPE AND SHALL CARRY THE UNDERWRITERS' LABORATORIES LABEL. FUSIBLE SWITCHES SHALL INCORPORATE CLASS "R" FUSE REJECTION FEATURE AND SHALL BE BRACED TO WITHSTAND 200,000 AMPERE RMS SYMMETRICAL FAULT CURRENT. SAFETY SWITCHES SHALL CONFORM TO FEDERAL SPECIFICATION W-S-865.
- 3. PROVIDE HEAVY-DUTY TYPE, SHEET ENCLOSED, SAFETY SWITCHES. THE TYPE, SIZE, AND RATING SHALL BE AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE MOTOR OR EQUIPMENT SERVED. THE ENCLOSURE FOR DISCONNECT SWITCHES SHALL BE NEMA TYPE 1 FOR INDOOR USE, NEMA TYPE 4X FOR OUTDOOR USE AND NEMA TYPE 7 FOR EXPLOSION PROOF USE. DISCONNECTS SHALL BE MANUFACTURED BY ALLEN-BRADLEY, GENERAL ELECTRIC, CUTLER-HAMMER APPROVED EQUAL.
- 4. SWITCHES SHALL INCORPORATE QUICK-MAKE, QUICK-BREAK OPERATING HANDLES. THE MECHANISM SHALL BE AN INTEGRAL PART OF THE BOX, NOT THE COVER, AND SWITCHES SHALL HAVE A COVER INTERLOCK TO PREVENT UNAUTHORIZED OPENING OF THE SWITCH DOOR IN THE ON POSITION OR CLOSING OF THE SWITCH MECHANISM WITH THE DOOR OPEN. CURRENT CARRYING PARTS SHALL BE CONSTRUCTED OF HIGH-CONDUCTIVITY COPPER WITH SILVER-TUNGSTEN TYPE SWITCH CONTACT.
- 5. FUSE CLIPS SHALL BE POSITIVE PRESSURE TYPE REINFORCED FUSE CLIPS.
- 6. THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND CONNECT ALL POWER WIRING TO ALL MECHANICAL CONTRACTOR FURNISHED EQUIPMENT. THE MECHANICAL CONTRACTOR SHALL FURNISH, INSTALL AND CONNECT ALL CONTROL WIRING TO ALL FURNISHED EQUIPMENT, INCLUDING CONTROL DEVICES, STARTERS AND INTEGRAL DISCONNECT SWITCHES OF CONTRACTOR FURNISHED EQUIPMENT.

#### CHECK, TEST, START, ADJUST, BALANCE AND INSTRUCTIONS (230593)

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

2. ALL PIPING SHALL BE TESTED AND FREE OF LEAKS.

3. CONCEALED OR INSULATED WORK SHALL REMAIN UNCOVERED UNTIL REQUIRED TESTS HAVE BEEN COMPLETED, BUT IF CONSTRUCTION SCHEDULE REQUIRES IT, ARRANGE FOR PRIOR TESTS ON PARTS OF SYSTEM AS APPROVED BY THE TENANT.

4. BALANCE ALL SYSTEMS, CALIBRATE CONTROLS, CHECK FOR PROPER OPERATION AND SEQUENCE UNDER ALL CONDITIONS AND MAKE ALL NECESSARY ADJUSTMENTS.

5. AFTER INSTALLATION AND EQUIPMENT IS PLACED IN OPERATION, HVAC CONTRACTOR IS RESPONSIBLE FOR BALANCING SYSTEMS. BALANCING SHALL BE PERFORMED BY AN INDEPENDENT AABC CERTIFIED CONTRACTOR.

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

7. START UP AND PLACE ALL SYSTEMS IN OPERATION AND TAG ALL SWITCHES AND CONTROLS WITH PERMANENT LABELS.

5. INSTRUCT OWNER IN OPERATION OF SYSTEMS AND SUBMIT OPERATING AND MAINTENANCE MANUAL ON ALL EQUIPMENT AND SYSTEMS.

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Building Renovation	Big Tom's Barbershop	2178 Centre Avenue, Pittsburgh, PA 15219
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1 BASEMENT MECHANICAL PLAN M-201 1/4" = 1'-0"





MECHANICAL GENERAL NOTES:

- 1. RUN CONDENSATE DRAIN FROM FCU TO NEAREST FLOOR
- DRAIN. 2. FCU TO BE MOUNTED HORIZONTALLY DUE TO HEIGHT
- RESTRICTIONS. 3. SIZE REFRIGERANT LINES BASED ON MANUFACTURER
- RECOMMENDATIONS.
- 4. EACH REFRIGERANT LINE SHOWN ON THE PLAN REPRESENTS 2 LINES.

#### MECHANIACL GENERAL NOTES:

- SIZE REFRIGERANT LINES BASED ON MANUFACTURER RECOMMENDATIONS.
   EACH REFRIGERANT LINE SHOWN ON THE PLAN REPRESENTS 2 LINES.

## MECHANIACL KEY NOTES: (#)

- 1. 18/10 SUPPLY DUCT FROM BELOW. 10/22 RETURN AIR DUCT FROM BELOW.
   2. 6" DUCT TO EXTERIOR. FINISH WITH HOODED WALL CAP.
   3. TRANSITION FROM RETURN AIR GRILLE TO RETURN AIR DUCT FROM BELOW AS NECESSARY.











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MECHANICAL GENERAL NOTES:

- 1. SIZE REFRIGERANT LINES BASED ON MANUFACTURER
- RECOMMENDATIONS.
  2. EACH REFRIGERANT LINE SHOWN ON THE PLAN REPRESENTS 2 LINES.

MECHANICAL KEY NOTES: (#)

1. 6" DUCT TO EXTERIOR. FINISH WITH HOODED WALL CAP.



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MECHANICAL GENERAL NOTES:

- SIZE REFRIGERANT LINES BASED ON MANUFACTURER RECOMMENDATIONS.
   EACH REFRIGERANT LINE SHOWN ON THE PLAN REPRESENTS 2 LINES.

 $\frac{\text{MECHANICAL KEY NOTES}}{4}$ 

- 1. 6"Ø DUCT UP TO ROOF. TERMINATE WITH GOOSENECK. PROVIDE BIRDSCREEN AT TERMINATION POINT.
- 2. 4"Ø DUCT UP TO ROOF. TERMINATE WITH GOOSENECK. PROVIDE BIRDSCREEN AT TERMINATION POINT.

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Seal:

FOR PRICING ONLY 50% CD

**Revisions:** 



Date: **April 16, 2021** 

Project Number: 2020-06

Owner / Client: TomTom24 Development, LLC

Drawing Title:

Second & Third Floor Mechanical Plans Scale: As indicated Drawing Number:





MECHANICAL GENERAL NOTES:

- SIZE REFRIGERANT LINES BASED ON MANUFACTURER RECOMMENDATIONS.
   EACH REFRIGERANT LINE SHOWN ON THE PLAN REPRESENTS 2 LINES.

MECHANICAL KEY NOTES: (#)

1. XXXXXXXXXXXXXXXXXXXXXX



#### GENERAL ELECTRICAL NOTES:

GENERAL: UNLESS SPECIFICALLY INDICATED OTHERWISE, ALL WORK SHOWN ON THE ELECTRICAL DRAWINGS IS NEW WORK TO BE PROVIDED UNDER THIS CONTRACT.

DEMOLITION: SEE "ELECTRICAL GENERAL DEMOLITION NOTES FOR ADDITIONAL DEMOLITION REQUIREMENTS.

COORDINATION: COORDINATE AND COOPERATE WITH ALL TRADES ON THE

RECORD DRAWINGS: SECURE AN EXTRA SET OF ELECTRICAL DRAWINGS TO BE KEPT ON SITE AND MARK DAILY, THE DRAWINGS IN RED AS THE PROJECT PROGRESSES IN ORDER TO KEEP AN ACCURATE RECORD OF ALL DEVIATIONS BETWEEN THE WORK SHOWN ON THE DRAWINGS AND THE WORK WHICH IS ACTUALLY INSTALLED. THESE MARKED DRAWINGS SHALL REFLECT ANY AND ALL CHANGES AND REVISIONS TO THE ORIGINAL DESIGN WHICH EXISTS IN THE COMPLETED WORK. DELIVER THE MARKED DRAWINGS TO THE ARCHITECT OR ENGINEER AT PROJECT CLOSE-OUT.

TESTS: TEST ALL WIRING FOR CONTINUITY AND GROUNDS BEFORE CONNECTING ANY FIXTURES OR DEVICES. PERFORM INSULATION RESISTANCE TESTS ON ALL WIRING #8 OR LARGER TO ENSURE THAT ALL PORTIONS ARE FREE FROM SHORT-CIRCUITS AND GROUNDS.

INSPECTIONS: ARRANGE ALL NECESSARY INSPECTIONS. DELIVER ALL REQUIRED INSPECTION CERTIFICATES TO THE OWNER.

GROUNDING: PROVIDE GROUNDING IN ACCORDANCE WITH THE NEC FOR THE ELECTRICAL SYSTEM, INCLUDING EQUIPMENT FRAMES CONDUITS, SWITCHES, CONTROLLERS, WIRE-WAYS, NEUTRAL CONDUCTORS AND OTHER EQUIPMENT. PROVIDE A GROUNDING CONDUCTOR IN ALL CIRCUITS.

LABELS: PROVIDE LABELS FOR ALL PANELBOARDS, CABINETS, SAFETY SWITCHES, MOTOR-DISCONNECT SWITCHES, AND MOTOR CONTROLLERS. LABELS SHALL BE MACHINE ENGRAVED, LAMINATED PLASTIC.

J-BOX LABELING: LABEL ALL JUNCTION BOXES WITH PERMANENT MARKER IDENTIFYING CIRCUIT NUMBER AND PANELBOARD OF CIRCUITS WITHIN.

PANEL DIRECTORY: PROVIDE TYPEWRITTEN PANELBOARD DIRECTORY CARD IN EACH PANELBOARD, INCLUDING EXISTING PANELBOARDS MODIFIED FOR THIS PROJECT, WITH CIRCUIT LOAD INFORMATION AND ROOM NUMBER CLEARLY IDENTIFIED. USE ACTUAL ROOM NUMBERS IN THE BUILDING, NOT THE ROOM NUMBERS SHOWN ON THE CONTRACT DRAWINGS, AS THEY ARE OFTEN DIFFERENT.

DTOR COORDINATION: MOTORS, MOTOR STARTERS, CONTROLLERS, INTEGRAL DISCONNECT SWITCHES, AND CONTACTORS SHALL BE PROVIDED WITH THEIR RESPECTIVE PIECES OF EQUIPMENT BY THE EQUIPMENT SUPPLIER. COMMUNICATE WITH THE TRADES PROVIDING THE EQUIPMENT, VERIFYING ALL REQUIREMENTS. PROVIDE ALL ELECTRICAL CONNECTIONS REQUIRED THEREIN AND INSTALL MOTOR STARTERS.

MOTOR DISCONNECTS: ALL MOTORS SHALL HAVE DISCONNECTING MEANS.

MOTOR FUSE PROTECTION: WHERE FUSE PROTECTION IS SPECIFICALLY REQUIRED BY THE EQUIPMENT MANUFACTURER, PROVIDE FUSIBLE SWITCHES IN LIEU OF NON-FUSIBLE SWITCHES OR FUSIBLE ENCLOSED CIRCUIT BREAKERS OR OTHER DEVICES INDICATED.

CONNECTION DETAILS: SECURE APPROVED SHOP DRAWINGS SHOWING WIRING DIAGRAMS, ROUGH-IN AND HOOK UP DETAILS FOR EQUIPMENT WHICH MUST BE CONNECTED ELECTRICALLY.

EQUIPMENT DETAILS: MECHANICAL EQUIPMENT WILL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR. THE LOCATIONS SHOWN ON THE ELECTRICAL DRAWINGS ARE APPROXIMATE. COORDINATE WITH THE MECHANICAL CONTRACTOR TO DETERMINE THE EXACT LOCATION OF EACH PIECE OF EQUIPMENT AND DETERMINE THE EXACT ROUGH-IN AND CONNECTION REQUIREMENTS.

STARTER MOUNTING: WHERE AN INDIVIDUALLY MOUNTED SAFETY SWITCH, STARTER OR CIRCUIT BREAKER IS SHOWN ADJACENT TO ITS RESPECTIVE LOAD AND NOT MOUNTED ON A WALL, PROVIDE ALL SUPPORTS, BRACKETS, ANCHORING, ETC. NECESSARY TO PROPERLY SUPPORT THE DEVICE.

LIGHTING ARRANGEMENT: ARRANGE LIGHTING FIXTURES IN ACCORDANCE WITH THE ARCHITECTURAL REFLECTED CEILING PLANS.

LIGHTING COORDINATION: COORDINATE LIGHTING FIXTURES WITH GRILLES, DIFFUSERS, SPRINKLER HEADS, ACCESS PANELS, ETC.

MATERIAL COORDINATION: VERIFY CEILING AND WALL CONSTRUCTION AND MATERIAL PRIOR TO ORDERING LIGHT FIXTURES OR OTHER DEVICES TO ENSURE PROPER FIXTURES OR DEVICES ARE FURNISHED TO MATCH CONSTRUCTION.

MOUNTING HEIGHTS: MOUNTING HEIGHTS INDICATED ARE FROM THE FINISHED FLOOR TO THE CENTERLINE OF THE WIRING DEVICE UNLESS OTHERWISE NOTED. MOUNTING HEIGHTS OF LIGHTING FIXTURES AND FIRE ALARM DEVICES ARE TO THE BOTTOM OF THE FIXTURE OR DEVICE UNLESS OTHERWISE NOTED.

DEVICE LOCATIONS: COORDINATE LOCATIONS OF SWITCHES, RECEPTACLES, AND TELE/DATA OUTLETS WITH OTHER WALL MOUNTED DEVICES SUCH AS THERMOSTATS AND CONTROL STATIONS. DO NOT MOUNT WIRING DEVICES BACK TO BACK.

EWC RECEPTACLES: RECEPTACLES FOR ELECTRIC WATER COOLERS (EWC) SHALL BE INSTALLED OUT OF VIEW AND BEHIND THE EWC ENCLOSURE. VERIFY THE MOUNTING HEIGHT WITH THE EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.

DEVICE COORDINATION: THOROUGHLY REVIEW AND COORDINATE ALL CASEWORK, DOOR SWINGS, AND CABINET DRAWINGS AND ARCHITECTURAL ELEVATIONS WITH DEVICE LOCATIONS PRIOR TO ROUGH-IN OF OUTLET BOXES.

BARRIERS: WHERE A MULTIPLE GANG BOX HAS CIRCUITS OF DIFFERENT VOLTAGES OR SYSTEMS WHICH ARE REQUIRED TO BE SEPARATED, PROVIDE THE CODE-REQUIRED SEPARATION, USING A FULL HEIGHT AND DEPTH BARRIER PLATE.

FIRE PROOFING: FOR ANY WALL OR FLOOR PENETRATIONS THROUGH FIRE RATED STRUCTURES, PROVIDE FIRE-PROOFING TO SEAL ALL THE PENETRATIONS AFTER THE CONDUIT HAS BEEN INSTALLED. FIRE PROOFING FOR PENETRATIONS SHALL BE UL APPROVED PER THE THE PENETRATION MADE IN ORDER TO MAINTAIN FIRE RATED INTEGRITY OF THE STRUCTURE.

CLEAN UP: ON PROJECT CLOSE-OUT, CLEAN ALL ELECTRICAL DEVICES, LIGHTING FIXTURES, LAMPS AND LENSES, AND REMOVE ALL PAINT SPATTERS FROM DEVICES, FIXTURES, AND PLATES. REPLACE ALL INOPERATIVE LAMPS.

OWNER FURNISHED EQUIPMENT: CONTRACTOR SHALL OBTAIN CUT SHEETS, INSTALLATION DATA, AND ROUGH-IN REQUIREMENTS FOR OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT AND COORDINATE ROUGH-IN AND POWER REQUIREMENTS WITH THE OWNER'S REPRESENTATIVE PRIOR TO STARTING ANY ASSOCIATED WORK.

CONDUIT ROUTING: ALL CONDUIT RUN OVERHEAD SHALL BE RUN AT THE BOTTOM OF THE FLOOR, ROOF STRUCTURE, OR LOWEST CHORD OF JOIST SPACE (AS APPLICABLE) ABOVE IN ORDER TO AVOID CONFLICTS WITH OTHER TRADES.

WIRING DEVICES: ALL RECEPTACLES AND SWITCHES SHALL BE LABELED WITH CLEAR PLASTIC LAMINATED LABEL WITH BLACK TEXT, NOTING PANELBOARD DESIGNATION AND CIRCUIT NUMBER FROM WHICH IT IS FED.

EQUIPMENT DEMONSTRATION: PROVIDE A DEMONSTRATION OF THE OPERATION OF ALL ELECTRICAL COMPONENTS.

CEILING AND MECHANICAL ROOM PLENUM: ALL WIRING THAT WILL NOT BE RUN IN METAL CONDUIT SHALL BE PLENUM RATED.

#### ELECTRICAL GENERAL DEMOLITION NOTES

GENERAL: DEMOLITION DRAWINGS ARE BASED ON EXISTING PLANS AND FIELD INVESTIGATION PRIOR TO DEMOLITION. VISIT THE EXISTING BUILDING PRIOR TO BID IN ORDER TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND IN ORDER TO AVOID CONFLICTS.

DASHED ITEMS: ALL ITEMS SHOWN DASHED ON DEMOLITION PLANS ARE EXISTING AND SHALL BE REMOVED COMPLETE INCLUDING BOXES, CONDUIT, WIRE, FASTENERS, AND ASSOCIATED APPURTENANCES UON.

SOLID ITEMS: ALL ITEMS SHOWN SOLID ON DEMOLITION PLANS ARE EXISTING TO REMAIN.

CIRCUITING TO REMAIN: WHERE AFFECTED BY NEW WORK, EXISTING CIRCUITING TO REMAIN SHALL BE REROUTED OR RECONNECTED AS REQUIRED, IN ORDER TO MAINTAIN CONTINUITY OF CIRCUIT.

REUSE OF EXISTING CIRCUITRY: EXISTING CIRCUITS SHALL BE REUSED WHERE CONVENIENT TO SERVE THE NEW LAYOUT. PROVIDE CIRCUIT MODIFICATIONS INDICATED OR REQUIRED TO MAINTAIN CONTINUITY OF EXISTING CIRCUITS THAT REMAIN.

EXISTING CONDUIT: ALL EXISTING CONDUITS AND WIRING THAT WILL NOT BE REUSED SHALL BE REMOVED. EXISTING CONDUIT TO REMAIN CONCEALED IN WALLS SHALL BE ABANDONED. EXISTING CONDUIT TO REMAIN BELOW FLOOR SLAB SHALL BE CUT OFF ONE INCH BELOW ROUGH FLOOR AND GROUTED FLUSH. ALL EXISTING WIRING IN CONDUITS TO BE ABANDONED SHALL BE DISCONNECTED FROM POWER SOURCE AND REMOVED.

REPAIR DAMAGE: EXERCISE CARE IN REMOVAL OF DEMOLITION ITEMS. REPAIR, AT NO ADDITIONAL COST TO OWNER, ANY DAMAGE CAUSED TO EXISTING CONSTRUCTION AND/OR EQUIPMENT TO REMAIN.

ASSOCIATED APPURTENANCES: REMOVE ALL ELECTRICAL APPURTENANCES (DISCONNECTS, STARTERS, WIRING, CONDUIT, ETC.) ASSOCIATED WITH EQUIPMENT TO BE REMOVED BY OTHERS.

KNOCKOUT PLUGS AND COVERS: ALL CONDUIT REMOVED SHALL BE REMOVED IN ITS ENTIRETY, INCLUDING FITTINGS, MOUNTING DEVICES, MOUNTING HARDWARE, ETC. PROVIDE CONDUIT PLUGS AND BLANKS FOR ALL OPENINGS CREATED BY THE REMOVAL OF CONDUIT. PROVIDE BLANK COVER PLATES FOR ALL OPENED OUTLET BOXES CREATED BY THE REMOVAL OF THE EQUIPMENT AND/OR DEVICES.

DEMOLISHED MATERIALS: ALL MATERIALS REMOVED UNDER DEMOLITION, NOT TO BE RELOCATED OR DESIGNATED TO BE TURNED OVER TO THE OWNER, SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED COMPLETELY FROM THE SITE.

SCHEDULE OUTAGES: ALL WORK AND ALL POWER OUTAGES SHALL BE SCHEDULED AT TIMES CONVENIENT TO THE OWNER.

NOTIFICATION: NOTIFY THE OWNER PRIOR TO TURNING OFF ANY CIRCUITS

EXISTING CIRCUITS: IF DURING THE COURSE OF CONSTRUCTION, IT IS DETERMINED BY THE CONTRACTOR THAT AN EXISTING CIRCUIT BECOMES SPARE, THE CONTRACTOR SHALL UPDATE THE PANELBOARD DIRECTORY TO INDICATE SUCH, EVEN IF IT IS NOT EXPLICITLY MARKED ON THE ELECTRICAL PLANS.

#### GENERAL SPECIAL SYSTEM NOTES:

TELEPHONE AND DATA SYSTEMS

THE TELEPHONE AND DATA SYSTEMS WILL BE FURNISHED AND INSTALLED THROUGH THE OWNER'S VENDOR (THE VENDOR) UNDER A SEPARATE CONTRACT. ALL CABLING AND WIRING (EXCEPT FOR POWER WIRING), J-HOOKS, JACKS, COVER PLATE COMPATIBLE WITH THE EQUIPMENT, DEVICES, RACKS, AND COMPONENT EQUIPMENT WILL BE PROVIDED BY THE VENDOR, UNLESS INDICATED OTHERWISE. THE VENDOR WILL PROVIDE INSTALLATION DURING CONSTRUCTION. THE ELECTRICAL CONTRACTOR (THE CONTRACTOR) SHALL COORDINATE ALL ROUGH-IN, BOX SIZES AND CONFIGURATIONS, CONDUIT SIZES AND ROUTING WITH THE VENDOR PRIOR TO INSTALLATION OF THE RACEWAY SYSTEM.

THE CONTRACTOR SHALL PROVIDE ALL CONDUIT WITH PULL WIRE, AND 4"X4"X2 1/4"BOX WITH SINGLE GANG PLASTER RING UNLESS OTHERWISE NOTED. ELECTRICAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELECTRICAL REQUIREMENTS WITH THE VENDOR PRIOR TO ROUGH-IN.

STUB ALL CONDUITS WITH PULL WIRE FOR COMMUNICATIONS DEVICES TO ABOVE AN ACCESSIBLE CORRIDOR CEILING AND TERMINATE WITH INSULATED NYLON BUSHING. THE VENDOR WILL PROVIDE J-HOOKS ABOVE THE CEILING FROM THE STUB OUT TO EQUIPMENT LOCATION AS REQUIRED FOR HIS CABLING AND TERMINATE WITH INSULATED NYLON BUSHING. WHERE A WALL SEPARATES THE CONDUIT STUB OUT FROM THE EQUIPMENT LOCATION, PROVIDE A 1" MINIMUM SLEEVE THROUGH THE WALL, ABOVE AN ACCESSIBLE CEILING, TO ACCOMMODATE THE CABLING. ALL CONDUITS AND SLEEVES PENETRATING RATED FIRE OR SMOKE WALLS SHALL BE PROVIDED WITH APPROVED FIRE RETARDANT TO PROVIDE A UL RATED WALL PENETRATION ASSEMBLY. MAINTAIN VENDOR RECOMMENDED SEPARATION BETWEEN WIRING OF DIFFERENT SYSTEMS AND FROM INTERFERENCE PRODUCING ELECTRICAL DEVICES SUCH AS FLUORESCENT LIGHTS, BALLAST, TRANSFORMERS, RELAYS, MOTOR CONTROLS, ETC.

PROVIDE POWER CIRCUITS FOR TELECOMMUNICATIONS EQUIPMENT AS INDICATED.

THE CONTRACTOR SHALL PROVIDE ALL BACKBOXES, CONDUIT, GROUNDING AND SHALL INSTALL ALL SPECIAL BOXES WITH PLASTER RING FURNISHED BY THE VENDOR FOR THE TELECOMMUNICATIONS SYSTEMS IN ACCORDANCE WITH THE APPLICABLE CODES.

THE CONTRACTOR SHALL INSTALL ALL COMMUNICATIONS SLEEVES AND CONDUIT IN ACCORDANCE WITH DRAWINGS, ELECTRICAL SPECIFICATIONS, VENDOR WIRING DIAGRAMS, AND ALL APPLICABLE CODES.

THE GENERAL CONTRACTOR SHALL PROVIDE IN-WALL REINFORCEMENT AS NECESSARY FOR ALL COMMUNICATIONS CABINETS, SHELVES, BRACKETS, FURNITURE MOUNTS, ETC. AND SHALL MOUNT CABINETS, SHELVES, BRACKETS, AND FURNITURE MOUNTS IN ACCORDANCE WITH DRAWINGS, VENDOR SUBMITTALS, AND ALL APPLICABLE CODES.

COORDINATE FINAL LOCATIONS AND ELEVATIONS OF ALL TELECOMMUNICATIONS DEVICES AND OUTLETS WITH ARCHITECTURAL PLANS, CASEWORK AND ELEVATIONS, AND VENDOR REQUIREMENTS.

THE CONTRACTOR SHALL PROVIDE A COMPLETION SCHEDULE BROKEN DOWN BY PROJECT PHASES, FOR TURNOVER OF COMPLETED COMMUNICATIONS ROUGH-IN FOR VENDOR FINISH WORK. THE CONTRACTOR SHALL COORDINATE TURNOVER WITH VENDORS, AND SHALL TURNOVER AREAS FOR VENDOR FINISH WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA VENDOR COST RESULTING FROM INCORRECT COMMUNICATIONS ROUGH-IN.

	LIGHTING
	LIGHTING BATTERY LIGHT COI
0	DOWNLIG
۲	PENDANT
0>	WALL WAS
٢	DOWNLIG "NL" WHEF AHEAD OF
오 오	WALL MO
•	WALL MOU SUBSCRIF AHEAD OF
	TRACK LIC
<u>م</u>	AREA SITE
Y	EMERGEN
	EMERGEN SWITCH.
$\overline{\otimes}$	EXIT LIGH DRAWING
\$ <sub>a</sub>	SINGLE PO
\$ <sub>3a</sub>	THREE-W/
\$ <sub>Da</sub>	DIMMER S ASSOCIAT
\$ <sub>OS</sub>	WALL SWI
\$ <sub>VS</sub>	WALL SWI
\$ <sub>LVa</sub>	LOW VOLT VOLTAGE
O#	OCCUPAN SUBSCRIF CONTROL
V#	VACANCY "a", WHER CONTROL
LC	BUILDING
ТС	ELECTROI INTERMAT
PC	PHOTOCE BUILDING
PP	nLIGHT PC
DP	nLIGHT DI
EP	nLIGHT EN nPP16D-EI
BR	nLIGHT NE
G	nLIGHT NE
G <sub>M</sub>	nLIGHT NE MASTER C
DS	DAYLIGHT
	1. LETTER

О Р-В-За	FIXTURE IN PANEL WHERE L DESIGNA
-------------	-------------------------------------------

RTE	REQUEST
ES	ELECTRIC DOOR SCI
DC	DOOR CO AND FRAM 3/4"C (CON TO JUNCT
CR	ACCESS ( 44"AFF UC ACCESSIE
	REQUEST SINGLE G STUBBED
MAG	MAGNETIC SCHEDUL
DO	SINGLE D
PP	ELECTRIC

LIGHTING
G FIXTURE.
G FIXTURE ON EMERGENCY CIRCUIT OR WITH EMERGENCY / BACKUP. SUBSCRIPT "NL" WHERE USED, INDICATES NIGHT DNNECTED AHEAD OF LIGHTING CONTROLS.
GHT FIXTURE.
T LIGHTING FIXTURE.
ASH LIGHTING FIXTURE. SHADED AREA INDICATES LIGHT THRO' DN.
GHT FIXTURE ON EMERGENCY CIRCUIT. SUBSCRIPT ERE USED, INDICATES NIGHT LIGHT CONNECTED OF LIGHTING CONTROLS.
DUNTED LIGHTING FIXTURE ON EMERGENCY CIRCUIT. IPT "NL" WHERE USED, INDICATES NIGHT LIGHT CONNECTED DF LIGHTING CONTROLS.
IGHTING FIXTURE. INDIVIDUAL FIXTURE HEADS ON THE TRACK VN ON LIGHTING PLAN.
E LIGHTING FIXTURE.
NCY LIGHTING REMOTE UNIT.
NCY BATTERY LIGHTING UNIT, CONNECT AHEAD OF LOCAL
TING FIXTURE WITH DIRECTIONAL ARROWS AS INDICATED ON SS. SHADED AREA DENOTES LIGHTED FACE.
POLE SWITCH, 20A, 120/277V, 44"AFF UON. SUBSCRIPT "a" ES ASSOCIATED FIXTURES TO BE CONTROLLED.
VAY SWITCH, 20A, 120/277V, 44"AFF UON. SUBSCRIPT "a" ES ASSOCIATED FIXTURES TO BE CONTROLLED.
SWITCH, 44" AFF UON. SUBSCRIPT "a", WHERE USED, INDICATE TED FIXTURES TO BE CONTROLLED.
/ITCH OCCUPANCY SENSOR, 44" AFF UON.
/ITCH VACANCY SENSOR, 44" AFF UON.
TAGE SWITCH, 44" AFF UON. SUBSCRIPT "a" INDICATES LOW E BUTTON DESIGNATION.
NCY SENSOR. "#" DENOTES OCCUPANCY SENSOR TYPE. IPT "a", WHERE USED, INDICATES ASSOCIATED FIXTURES TO BE LLED.
Y SENSOR. "#" DENOTES VACANCY SENSOR TYPE. SUBSCRIPT RE USED, INDICATES ASSOCIATED FIXTURES TO BE LLED.
SYSTEM LIGHTING CONTACTOR.
DNIC TIME CLOCK FOR LIGHTING CONTROL. PROVIDE TIC ET70000C SERIES OR APPROVED EQUAL.
ELL FOR EXTERIOR LIGHTING CONTROL. MOUNT ON ROOF OF G AND AIM NORTH.
OWER PACK MODEL nPP16.
MMING POWER PACK MODEL nPP16D.
MERGENCY DIMMING POWER PACK MODEL ER.
IETWORK BRIDGE MODEL nBRG8.
CONTROL.
T SENSOR.
LIGHTING FIXTURE KEY
LE. RIPT "LP-B" INDICATES NAME OF PANELBOARD FROM WHICH IS FED. ASSOCIATED NUMBER "3" INDICATES CIRCUIT NUMBER BOARD FROM WHICH FIXTURE IS FED. ASSOCIATED LETTER "a" JSED, INDICATES LIGHTING FIXTURE CONTROL DEVICE TION.
ACCESS CONTROL
T-TO-EXIT MOTION SENSOR. MOUNT CENTERED ABOVE DOOR.
C STRIKE DOOR LOCK. COORDINATE WITH ARCHITECTURAL CHEDULE.
ONTACT (FLUSH IN DOOR). COORDINATE WITH DOOR SCHEDULE ME PROVIDER FOR PROPER DOOR PREPARATION. PROVIDE INCEALED) WITH PULL STRING FROM TOP OF FRAME OF DOOR TION BOX ABOVE ACCESSIBLE CEILING.
CONTROL CARD READER. PROVIDE SINGLE GANG BACK BOX ON WITH 3/4"C WITH PULL STRING STUBBED ABOVE BLE CEILING.
GANG BACK BOX 44" AFF UON WITH 3/4"C WITH PULL STRING ABOVE ACCESSIBLE CEILING.
C DOOR LOCK. COORDINATE WITH ARCHITECTURAL DOOR .E.
DOOR OPERATOR.
CAL DOOR PUSH PAD, MOUNT 48" AFF.

POWER				
Φ	DUPLEX RECEPTACLE, 20A, 120V, 18"AFF, UON.			
Ø	DUPLEX RECEPTACLE, GROUND FAULT INTERRUPTING TYPE, 20A, 120V, 18"AFF, UON.			
♦	DUPLEX RECEPTACLE, 20A, 120V, 40"AFF OR 4" ABOVE COUNTER TOP OR IN CASEWORK (AS APPLICABLE), UON.			
\$	DUPLEX RECEPTACLE, GROUND FAULT INTERRUPTING TYPE, 20A, 120V, 40" AFF TO 4" ABOVE COUNTER TOP OR IN CASEWORK (AS APPLICABLE), UON.			
<b>\</b>	QUADRUPLEX RECEPTACLES IN COMMON BOX, 20A, 120V, 18"AFF, UON.			
${\displaystyle \bigoplus}^{WP}$	DUPLEX RECEPTACLE, GROUND FAULT INTERRUPTING TYPE, 20A, 120V, WITH COOPER MODEL WIU-1D (OR EQUAL) "WHILE-IN-USE" WEATHERPROOF COVER, 18"AFG UON.			
<b>O</b> EWC	ELECTRIC WATER COOLER CONNECTION, PROVIDE 20A, 120V GROUND FAULT INTERRUPTING TYPE DUPLEX RECEPTACLE. COORDINATE WITH EWC MANUFACTURER'S ROUGH-IN REQUIREMENTS. RECEPTACLE SHALL BE ACCESSIBLE THROUGH REMOVAL OF EWC COVER.			
	SURFACE MOUNTED METAL RACEWAY.			
$\bigcirc$	SPECIAL RECEPTACLE. NEMA CONFIGURATION AS NOTED. MOUNT 18"AFF UON.			
J	JUNCTION BOX - ABOVE CEILINGS OR FLUSH IN WALLS.			
MGB	MAIN GROUND BAR			
TMGB	TELECOM MAIN GROUND BAR			
GB	GROUND BAR			
	DISCONNECT SWITCH - SIZE AS INDICATED ON PLANS 30/2/20/3R NEMA RATING (IF OTHER THAN 1) FUSE SIZE (AMPS), N.F. INDICATES NON-FUSED No. OF POLES SIZE (AMPS)			
SPD	SURGE PROTECTIVE DEVICE			
≙	ELECTRICAL METER. MOUNT 54" AFF (MINIMUM).			
	ELECTRICAL PANELBOARD			
	EMERGENCY POWER ELECTRICAL PANELBOARD			
	DRY-TYPE TRANSFORMER			
Ţ	GROUND CONNECTION.			
	ELECTRICAL CIRCUIT RUN IN CONDUIT AND CIRCUIT HOMERUN TO PANELBOARD (PANEL AND CIRCUIT DESIGNATION AS INDICATED). AS A MINIMUM CONDITION, EACH SINGLE PHASE CIRCUIT SHALL HAVE 1 #12 PHASE CONDUCTOR, 1 #12 NEUTRAL CONDUCTOR, AND 1 #12 GROUNDING CONDUCTOR IN 3/4" CONDUIT. PROVIDE ADDITIONAL PHASE CONDUCTORS AS REQUIRED FOR "MULTIPLE PHASED" ELECTRICAL LOADS. PROVIDE ADDITIONAL "SWITCH LEG" CONDUCTORS TO PROVIDE THE LIGHT FIXTURE CONTROL INDICATED. MULTIPLE SINGLE PHASE CONDUCTORS SHALL BE GROUPED TOGETHER IN A COMMON CONDUIT IN ACCORDANCE WITH THE NEC AND AT THE CONTRACTOR'S DISCRETION. NEUTRAL AND GROUNDING CONDUCTORS SHALL BE SHARED AS ALLOWED BY THE NEC. CONDUIT LARGER THAN 3/4" AND CONDUCTORS LARGER THAN #12 SHALL BE AS INDICATED.			
	COMMUNICA HONS TELE/DATA BOX, 4"X4"X2 1/4"D BOX WITH SINGLE GANG PLASTER RING			
V	18"AFF, UON, WITH 3/4"C WITH PULL STRING STUBBED ABOVE ACCESSIBLE CEILING AND TERMINATED WITH PLASTIC BUSHING.			
	I ELEPHONE PLYWOOD BACKBOARD 3/4"x8'x4', FIRE RETARDANT. BOTTOM AT 0'-4" AFF.			
TV	CABLE TELEVISION OUTLET WITH DUPLEX RECEPTACLE, PROVIDE DUPLEX RECEPTACLE AND ADDITIONAL 4"X4"X2 1/4"D BOX WITH SINGLE GANG PLASTER RING, WITH 3/4"C WITH PULL STRING STUBBED ABOVE ACCESSIBLE CEILING AND TERMINATED WITH BUSHING. MOUNT 18"AFF UON.			
SP	PAGING SYSTEM SPEAKER, RECESSED, CEILING.			
WAP	WIRELESS ACCESS POINT.			
ECM	TWO WAY COMMUNICATION SYSTEM MASTER STATION. REFER TO EMERGENCY CALL RISER FOR ADDITIONAL INFORMATION.			
ECS	TWO WAY COMMUNICATION SYSTEM CALL STATION. REFER TO EMERGENCY CALL RISER FOR ADDITIONAL INFORMATION.			
ECPS	EMERGENCY CALL SYSTEM POWER SUPPLY. PROVIDE BOX PER MANUFACTURER'SRECOMMENDATION. REFER TO EMERGENCY CALL SYSTEM RISER DIAGRAM FOR ADDITIONAL INFORMATION.			
	GENERAL			
$\langle 1 \rangle$	KEYNOTE.			

FIRE ALARM		
FACP	FIRE ALARM CONTROL PANEL, SURFACE MOUNTED, TOP 5'-9" AFF.	
F	FIRE ALARM MANUAL PULL STATION, 44"AFF TO ACTUATING ARM, UON.	
SD	ADDRESSABLE FIRE ALARM SYSTEM PHOTO-ELECTRIC SMOKE DETECTOR, CEILING MOUNTED.	
DD	DUCT MOUNTED ADDRESSABLE FIRE ALARM SYSTEM PHOTO-ELECTRIC SMOKE DETECTOR.	
IM	FIRE ALARM SYSTEM ADDRESSABLE INPUT MONITOR MODULE.	
MM	FIRE ALARM SYSTEM MONITOR MODULE.	
СМ	FIRE ALARM SYSTEM CONTROL MODULE.	
RT	FIRE ALARM SYSTEM ADDRESSABLE REMOTE TEST SWITCH.	
AV 30	FIRE ALARM SYSTEM HORN/STROBE, WALL MOUNTED AT 80" AFF TO BOTTOM OF LENS, OR 6" BELOW FINISHED CEILING, WHICHEVER IS LOWER, UON. SUBSCRIPT INDICATES MINIMUM CANDELA RATING. SUBSCRIPT "WP" INDICATES WEATHERPROOF DEVICE.	
TS	SPRINKLER SYSTEM SUPERVISORY VALVE TAMPER SWITCH CONNECTION.	
FS	SPRINKLER SYSTEM SUPERVISORY FLOW SWITCH CONNECTION.	
MFSD	SMOKE DAMPER CONNECTION, 120V.	

COMMUNICATIONS		
V	TELE/DATA BOX, 4"X4"X2 1/4"D BOX WITH SINGLE GANG PLASTER RING 18"AFF, UON, WITH 3/4"C WITH PULL STRING STUBBED ABOVE ACCESSIBLE CEILING AND TERMINATED WITH PLASTIC BUSHING.	
	TELEPHONE PLYWOOD BACKBOARD 3/4"x8'x4', FIRE RETARDANT. BOTTOM AT 0'-4" AFF.	
TV	CABLE TELEVISION OUTLET WITH DUPLEX RECEPTACLE, PROVIDE DUPLEX RECEPTACLE AND ADDITIONAL 4"X4"X2 1/4"D BOX WITH SINGLE GANG PLASTER RING, WITH 3/4"C WITH PULL STRING STUBBED ABOVE ACCESSIBLE CEILING AND TERMINATED WITH BUSHING. MOUNT 18"AFF UON.	
SP	PAGING SYSTEM SPEAKER, RECESSED, CEILING.	
WAP	WIRELESS ACCESS POINT.	
ECM	TWO WAY COMMUNICATION SYSTEM MASTER STATION. REFER TO EMERGENCY CALL RISER FOR ADDITIONAL INFORMATION.	
ECS	TWO WAY COMMUNICATION SYSTEM CALL STATION. REFER TO EMERGENCY CALL RISER FOR ADDITIONAL INFORMATION.	
ECPS	EMERGENCY CALL SYSTEM POWER SUPPLY. PROVIDE BOX PER MANUFACTURER'SRECOMMENDATION. REFER TO EMERGENCY CALL SYSTEM RISER DIAGRAM FOR ADDITIONAL INFORMATION.	

LINEWEIGHTS NEW EXISTING \_\_\_\_\_ REMOVE EXISTING \_\_\_\_\_

(TYPE R2 INSTALLATION

RESIDENTIAL UNIT TYPICALS
PER NEC ARTICLE 406.12, PROVIDE
RECEPTACLES AS REQUIRED IN DW

ΝП	550 13 THE LOCATIO	SINC	
שאו	550.15. THE LOCATIO	5113	INCLUDE BUT /
-	BEDROOMS	-	BALCONIES, I
-	BATHROOMS	-	COUNTERTO
-	DENS/LIBRARIES	-	DINING ROOI
-	FAMILY ROOMS	-	HALLWAYS
-	KITCHENS	-	LAUNDRY AR
-	LIVING ROOMS	-	OUTDOORS

BE PROVIDED WITH THE CAPABILITY TO SUPPORT VISUAL NOTIFICATION APPLIANCES IN ACCORDANCE WITH ICC A117.1. PROVIDE ALL CONDUIT BE MODIFIED TO INCORPORATE VISUAL NOTIFICATION WITHOUT REQUIRING ADDITIONAL CIRCUITS OR WIRING.

PER IBC 1109.13, ALL CONTROLS, OPERATING MECHANISMS, AND HARDWARE INTENDED FOR OPERATION BY THE OCCUPANT, INCLUDING SWITCHES, DISCONNECTS, ETC. SHALL BE ACCESSIBLE. ALL TYPE A AND TYPE B UNITS SHALL HAVE ALL OPERABLE PARTS MOUNTED SO THAT THE DEVICES ARE FULLY ACCESSIBLE PER ICC A117.1 REQUIREMENTS. INCLUDED WITH THIS REQUIREMENT FOR TYPE A AND TYPE B UNITS IS THE MOUNTING HEIGHT OF THE CIRCUIT BREAKERS WITHIN THE UNIT LOADCENTERS. THE HIGHEST OPERABLE BREAKER IN THE LOADCENTER SHALL NOT BE HIGHER THAN 46" AFF IN ALL TYPE A AND TYPE B UNITS.

PER NEC 210.52 (DWELLING UNIT RECEPTACLE OUTLETS), RECEPTACLES SHALL BE INSTALLED SUCH THAT NO POINT MEASURED HORIZONTALLY ALONG THE FLOOR LINE OF ANY WALL SPACE IS MORE THAN 6 FT FROM A RECEPTACLE OUTLET. THIS SPACING APPLIES TO ALL ROOMS NOTED IN THIS NEC SECTION. WITHIN KITCHENS, PER NEC 210.52C, THE SPACING OF RECEPTACLES ALONG KITCHEN COUNTERTOPS SHALL HAVE NO POINT MEASURED HORIZONTALLY MORE THAN 2 FT FROM A RECEPTACLE. WITHIN BATHROOMS, RECEPTACLES SHALL BE LOCATED NO FURTHER THAN 3 FT FROM THE EDGE OF EACH SINK. THE ENGINEER HAS LAID OUT THE RECEPTACLES TO MEET THESE REQUIREMENTS. HOWEVER, DUE TO STUD SPACING AND FIELD CONDITIONS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE SPACING REQUIREMENTS OF THE NEC ARE FULFILLED IN THE FIELD. ANY RECEPTACI E REQUIRING MOVEMENT IN THE FIELD DUE TO LACK OF MEASUREMENT BY THE EC SHALL BE THE RESPONSIBILITY OF THE EC TO CORRECT

NEC 210.12 REQUIRES ARC-FAULT CIRCUIT-INTERRUPTER PROTECTION TO BE PROVIDED AS REQUIRED BY ITS SUBSECTIONS. THE ENGINEER HAS DESIGNED THE PROJECT FOR COMPLIANCE WITH THIS SECTION. THE EC SHALL INSTALL ALL AFCI DEVICES AS INDICATED ON THE DRAWINGS/SCHEDULES AND IN COMPLIANCE WITH THIS SECTION. ALL INSTALLATION METHODS AND MATERIALS SHALL MEET THE REQUIREMENTS OF NEC 210.12.

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SPECIALTY INSTALLATION NOTES - APPLICABLE TO ALL

UL LISTED TAMPER-RESISTANT ELLINGS FOR ALL 120 VOLT. 15 AND 20 AMPERE RECEPTACLES IN AREAS SPECIFIED IN NEC ARTICLES 210.52 LUDE BUT ARE NOT LIMITED TO: CONIES, DECKS, PORCHES, GARAGES UNTERTOPS NING ROOMS ALL WAYS UNDRY AREAS

GROUP R-2 OCCUPANCIES OF THIS TYPE ARE REQUIRED BY SECTION 907 OF THE IBC TO HAVE A FIRE ALARM SYSTEM. ALL DWELLING UNITS SHALL PATHWAYS AND FIRE ALARM CABLING. TYPE B UNITS SHALL BE ABLE TO

	ELECTRICAL ABBREVIATIONS
А	AMPERE
AFF	
AFG	
AIC	
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO/VISUAL
BFG	BELOW FINISHED GRADE
С	CONDUIT
CATV	CABLE ANTENNA TELEVISION
ССТУ	
CFL	COMPACT FLUORESCENT
СКТ	CIRCUIT
EBU	EMERGENCT BATTERY UNIT
EC	EMPTY CONDUIT
EC	
ECB FF	ENGLOSED CIRCUIT BREAKER
ERU	ENERGY RECOVERY UNIT
EQUIP	EQUIPMENT
ETR	EXISTING TO REMAIN
EWC	
EWH	
EA FLA	
FPC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HVAC	HEATING. VENTILATING, AND AIR CONDITIONING
IG	ISOLATED GROUND
JB	JUNCTION BOX
KVA	KILO-VOLT AMPERE
KW	
MAU	MAKE UP AIR UNIT
MCA	MINIMUM CIRUIT AMPS
MC	
MCB	METAL CLAD MAIN CIRCUIT BREAKER
MFR	MANUFACTURER
MLO	MAIN LUGS ONLY
MTD	MOUNTED
NEC	
NIC	NON-FUSED
NL	NIGHT LIGHT
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
P PC	POLE PLUMBING CONTRACTOR
PCP	PUMP CONTROL PANEL
PF	POWER FACTOR
PNL	PANEL
PNLBD	PANELBOARD
REC	RECEPTACLE
RTU	ROOF TOP UNIT
SE	SERVICE ENTRANCE
SEC	SECONDARY
TBB TB	TELEPHONE BACKBOARD
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VAC	
VFD	VARIABLE REQUENCY DRIVE
W	WATTS/WIRE
WG	WIRE GUARD
WP	WEATHERPROOF



Scale: As indicated **Drawing Number:** 

CODES AND STANDARDS - THE LATEST EFFECTIVE PUBLICATIONS OF ALL APPLICABLE STANDARDS, CODES, ETC., AS THEY APPLY, FORM PART OF THESE SPECIFICATIONS AS IF WERE WRITTEN FULLY HEREIN AND CONSTITUTE MINIMUM REQUIREMENTS. THE FOLLOWING WILL BE REFERRED TO THROUGHOUT IN ABBREVIATED FORMS.

NATIONAL ELECTRICAL CODE, (NFPA 70) (NEC). INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE) NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA). AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI). APPLICABLE STATE AND LOCAL CODES. APPLICABLE STANDARDS OF UNDERWRITER'S LABORATORIES, INC.

APPLICABLE STANDARDS OF NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).

THE INTERNATIONAL BUILDING CODE (IBC). THE INTERNATIONAL FIRE CODE (IFC)

THE AMERICANS WITH DISABILITIES ACT (ADA

INTERNATIONAL ELECTRICAL TESTING ASSOCIATION (NETA). THE INTERNATIONAL ENERGY CONSERVATION CODE (IECC). ASHRAE 90.1

- 1. SCOPE OF WORK PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, APPURTENANCES AND SERVICES TO PROVIDE A COMPLETE ELECTRICAL INSTALLATION AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN THESE SPECIFICATIONS
- 2. SITE VISIT THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING HIS BID TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND DETERMINE THE EXTENT OF WORK. LACK OF KNOWLEDGE OF EXISTING CONDITIONS WILL NOT BE CONSIDERED A BASIS FOR CHANGE ORDERS. PRIOR TO ORDERING EQUIPMENT. CONTRACTOR SHALL VERIFY THAT EQUIPMENT TO BE PROVIDED UNDER THIS CONTRACT IS ACCEPTABLE AND CAN FIT INTO BUILDING AND ROOM. EXPENSE INCURRED BY THE CONTRACTOR, WHICH IN THE ENGINEER'S OPINION COULD HAVE BEEN AVOIDED BY THIS
- STEP, SHALL NOT BE A BASIS FOR CHANGE ORDERS. 3. DRAWINGS AND SPECIFICATIONS - THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT, CHARACTER AND ARRANGEMENT OF EQUIPMENT, FIXTURES AND CONDUIT AND WIRING SYSTEMS. IT IS THE INTENTION OF THESE SPECIFICATIONS AND DRAWINGS TO FULLY COVER ALL WORK AND MATERIALS FOR A COMPLETE, FIRST-CLASS ELECTRICAL INSTALLATION, AND ANY DEVICES SUCH AS PULL BOXES AND DISCONNECT SWITCHES, USUALLY EMPLOYED IN THIS CLASS OF WORK THOUGH NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS OR IN THIS SPECIFICATION, BUT WHICH MAY BE NECESSARY FOR THE SATISFACTORY COMPLETION OF THE WORK, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AS A PART OF HIS TOTAL WORK UNDER THIS DIVISION. CONSULT THE SPECIFICATIONS AND DRAWINGS OF ALL OTHER TRADES AND PERFORM ALL ELECTRICAL WORK REQUIRED THEREIN. COOPERATE WITH ALL OTHER CONTRACTORS OR SUBCONTRACTORS TO FURNISH COMPLETE WORKABLE SYSTEMS.
- 4. DURING CONSTRUCTION KEEP AN ACCURATE RECORD OF ALL DEVIATIONS BETWEEN THE WORK AS SHOWN ON THE CONTRACT DRAWINGS AND THAT WHICH IS ACTUALLY INSTALLED ON A SET OF PRINTS OF THE ELECTRICAL DRAWINGS, AND NOTE CHANGES THEREON WITH RED MARKS, IN A NEAT AND ACCURATE MANNER. WHEN ALL REVISIONS HAVE BEEN SHOWN ON THESE PRINTS TO INDICATE THE WORK AS FINALLY INSTALLED, THE PRINTS SHALL BE DELIVERED TO THE ENGINEER, BEFORE FINAL PAYMENT
- 5. PERMITS, INSPECTION AND TESTS THE RIGHT IS RESERVED TO INSPECT AND TEST ANY PORTION OF THE INSTALLATION/EQUIPMENT DURING THE PROGRESS OF ITS ERECTION. THIS CONTRACTOR SHALL TEST ALL WIRING FOR CONTINUITY AND GROUNDS BEFORE CONNECTING ANY FIXTURES OR DEVICES. THIS CONTRACTOR SHALL TEST THE ENTIRE SYSTEM WHEN THE WORK IS FINALLY COMPLETED TO INSURE THAT ALL PORTIONS ARE FREE FROM SHORT CIRCUITS AND GROUNDS
- 6. SECURE AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS. INSPECTION CERTIFICATES FROM LOCAL AUTHORITIES HAVING JURISDICTION SHALL BE DELIVERED TO THE OWNER BEFORE FINAL PAYMENT.
- 7. SUBMITTALS SUBMIT SHOP DRAWINGS, PRODUCT DATA AND SAMPLES WITHIN THIRTY (30) DAYS OF AWARD OF CONTRACT AND IN ACCORDANCE WITH THE GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS. SUBMITTALS ARE REQUIRED FOR ALL SAFETY SWITCHES, ENCLOSED CIRCUIT BREAKERS, PANELBOARDS. TRANSIENT VOLTAGE SURGE SUPPRESSORS. TRANSFORMERS, LIGHTING FIXTURES, FIRE ALARM SYSTEM, AND SPECIALTY DEVICES PROVIDED UNDER THIS SPECIFICATION. REVIEW OF SUBMITTALS BY THE ENGINEER AND ANY ASSOCIATED ACTION TAKEN BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF ANY REQUIREMENTS SET FORTH BY THE CONTRACT DOCUMENTS.
- 8. PROVIDE ALL CUTTING, PATCHING, PAINTING AND **REFINISHING REQUIRED FOR INSTALLATION OF THE** ELECTRICAL WORK.
- 9. DAILY AND WHEN DIRECTED BY THE OWNER OR ENGINEER REMOVE ALL DEBRIS FROM THE PREMISES. 10. DEFINITIONS:
- "FURNISH" SHALL MEAN TO PURCHASE, DELIVER TO JOB SITE, AND UNLOAD FROM TRUCK AT JOB SITE. "INSTALL" SHALL MEAN TO MOUNT IN PLACE, MAKE ALL NECESSARY CONNECTIONS AS SPECIFIED ON PLANS, AND ON SHOP DRAWINGS.
- "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. 11. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL EQUIPMENT VOLTAGES WITH MECHANICAL CONTRACTORS PRIOR TO EQUIPMENT ORDER.
- PART 2 PRODUCTS
- 1. MANUFACTURING STANDARDS MATERIAL SHALL BE NEW AND APPROVED AND LABELED BY UL WHEREVER STANDARDS HAVE BEEN ESTABLISHED BY THAT AGENCY. DEFECTIVE EQUIPMENT OR EQUIPMENT DAMAGED IN THE COURSE OF INSTALLATION OR TEST SHALL BE REPLACED OR REPAIRED IN A MANNER MEETING THE APPROVAL OF THE OWNER. ALL ITEMS OF THE SAME TYPE AND RATING SHALL BE IDENTICAL.
- 2. TRADE NAMES UNLESS SPECIFICALLY IDENTIFIED OTHERWISE, MANUFACTURERS' NAMES AND CATALOG NUMBERS INDICATED HEREIN AND ON THE DRAWINGS ARE NOT INTENDED TO BE PROPRIETARY DESIGNATIONS. THEY ARE TO INDICATE GENERAL TYPE AND QUALITY OF MATERIALS AND EQUIPMENT REQUIRED. EQUIPMENT AND MATERIAL BY OTHER MANUFACTURERS WHICH IN THE OPINION OF THE ENGINEER ARE OF EQUAL QUALITY AND WHICH WILL PRODUCE THE SAME RESULTS WILL BE CONSIDERED ACCEPTABLE
- 3. MOTORS MOTORS SHALL BE PROVIDED WITH DISCONNECTING MEANS.
- 4. POWER WIRING UP TO AND INCLUDING MOTOR CONNECTIONS FOR ALL EQUIPMENT PROVIDED UNDER OTHER DIVISIONS OF THIS SPECIFICATION SHALL BE INCLUDED IN THIS DIVISION. WHERE MANUAL MOTOR CONTROL SWITCHES FOR SINGLE PHASE MOTORS ARE INDICATED, THEY SHALL BE PROVIDED AND WIRED COMPLETE UNDER THIS DIVISION. MOTOR CONTROLLERS AND MOTOR STARTERS FURNISHED UNDER OTHER DIVISIONS SHALL BE SET IN PLACE AND CONNECTED TO SOURCE AND LOAD UNDER THIS DIVISION. IN GENERAL, MOTORS WILL BE PROVIDED WITH THE EQUIPMENT THEY DRIVE AND ARE NOT

PART OF THIS WORK UNDER THIS DIVISION, EXCEPT THAT THEY SHALL BE CONNECTED HEREUNDER.

- 5. OBTAIN APPROVED SHOP DRAWINGS SHOWING WIRING DIAGRAMS, CONNECTION DIAGRAMS, ROUGH-IN AND HOOKUP DETAILS, FROM ALL CONTRACTORS FOR ALL EQUIPMENT AND COMPLY THEREWITH.
- 6. CONTROL, INTERLOCK AND INTERNAL EQUIPMENT WIRING REGARDLESS OF VOLTAGE SHALL BE PROVIDED BY OTHERS UNLESS SPECIFICALLY SHOWN HERE.
- 7. TEMPORARY ELECTRICAL SERVICE TEMPORARY ELECTRICAL SERVICE AT 120/240V, I PHASE WITH GROUND FAULT INTERRUPTER WITH SOLIDLY GROUNDED NEUTRAL SHALL BE PROVIDED. PROVIDE ALL NECESSARY TEMPORARY LIGHTING AND RECEPTACLES. GENERAL CONTRACTOR WILL PAY ALL CHARGES, WHICH MAY BE MADE BY THE POWER COMPANY FOR TEMPORARY SERVICE.
- 8. GROUNDING THE ENTIRE ELECTRICAL SYSTEM, INCLUDING EQUIPMENT FRAMES, CONDUIT, SWITCHES, CONTROLLERS, WIREWAYS, NEUTRAL CONDUCTORS, AND ALL OTHER SUCH EQUIPMENT SHALL BE PERMANENTLY AND EFFECTIVELY GROUNDED IN ACCORDANCE WITH THE NEC. GROUNDING OF EACH TRANSFORMER SECONDARY SHALL BE PROVIDED AND EACH SHALL BE CONSIDERED AS A SEPARATE SERVICE GROUND. PROVIDE A SEPARATE GROUND CONDUCTOR IN ALL BRANCH CIRCUIT CONDUITS SIZED IN ACCORDANCE WITH THE NEC.
- 9. SCHEDULE OF WORK THE SCHEDULE OF THE ELECTRICAL WORK SHALL BE ARRANGED TO SUIT THE PROGRESS OF WORK BY THE OTHER TRADES AND SHALL IN NO WAY RETARD PROGRESS OF CONSTRUCTION OF THE PROJECT.
- 10. WORK UNDER THIS DIVISION SHALL PROCEED IN ADVANCE OF THE WORK OF OTHERS WHENEVER POSSIBLE, ELIMINATING ALL CUTTING AND PATCHING. WHEN SUCH PROCEDURE IS IMPOSSIBLE, CUTTING AND PATCHING SHALL BE DONE IN AN APPROVED MANNER. CUTTING SHALL NOT ENDANGER STRUCTURAL INTEGRITY IN ANY WAY. PATCHING SHALL EXACTLY MATCH CONTIGUOUS WORK. ACTUAL WORK OF CUTTING AND PATCHING OF EXISTING SURFACES SHALL BE PERFORMED BY THE SUBCONTRACTOR WHO ORIGINALLY PREPARED THESE SURFACES, E.G., CUTTING AND PATCHING OF MASONRY WALL WILL BE PERFORMED BY THE MASONRY SUBCONTRACTOR. COSTS OF SUCH CUTTING AND PATCHING SHALL BE BORNE BY THE ELECTRICAL SUBCONTRACTOR. CUTTING SHALL BE CAREFULLY DONE AND DAMAGE TO BUILDING, PIPING, WIRING OR EQUIPMENT AS A RESULT OF CUTTING SHALL BE REPAIRED BY SKILLED MECHANICS OF TRADE INVOLVED.
- 11. STORAGE AND MATERIALS SPACE WILL BE ASSIGNED TO THE CONTRACTOR BY THE OWNER FOR THE STORAGE OF MATERIAL. THIS CONTRACTOR WILL BE RESPONSIBLE FOR THE PROTECTION AND SAFEKEEPING OF MATERIALS, TOOLS, AND EQUIPMENT. ALL MATERIALS AND EQUIPMENT SHALL BE KEPT IN ITS ASSIGNED PLACE UNTIL THE TIME OF ITS INSTALLATION. EXCESS MATERIALS, DIRT AND REFUSE SHALL BE PROMPTLY REMOVED FROM THE WORK SITE.
- 12. LABELING OF EQUIPMENT ALL PANELBOARDS, CABINETS SAFETY SWITCHES, MOTOR DISCONNECT SWITCHES, AND MOTOR CONTROLLERS SHALL BE IDENTIFIED BY MACHINE ENGRAVED LAMINATED PLASTIC DESIGNATION PLATES PERMANENTLY ATTACHED THERETO WITH SELF-TAPPING SCREWS OR RIVETS. ALL COMPONENT PARTS OF EACH ITEM OF EQUIPMENT OR DEVICE SHALL BEAR THE MANUFACTURER'S NAMEPLATE, GIVING NAME OF MANUFACTURER, DESCRIPTION, SIZE TYPE, SERIAL AND MODEL NUMBER AND ELECTRICAL CHARACTERISTICS IN
- ORDER TO FACILITATE MAINTENANCE OR REPLACEMENT. 13. COORDINATION - COOPERATE AND COORDINATE EFFORTS WITH ALL CONTRACTORS ON THE PROJECT. THIS IS ESPECIALLY IMPORTANT IN DETERMINING EXACT LOCATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHTING FIXTURES. ARRANGE LIGHTING FIXTURES IN ACCORDANCE WITH THE ARCHITECTURAL REFLECTED CEILING PLANS UNLESS OTHERWISE INDICATED. COORDINATE LIGHTING FIXTURE LOCATIONS WITH GRILLES, DIFFUSERS, ACCESS PANELS, ETC. VERIFY CEILING AND WALL CONSTRUCTION AND MATERIAL PRIOR TO ORDERING LIGHTING FIXTURES OR OTHER DEVICES TO ENSURE PROPER FIXTURE OR DEVICE IS FURNISHED TO MATCH CONSTRUCTION. THIS VERIFICATION MUST BE EXECUTED REGARDLESS OF INFORMATION PLACED ON THE DRAWINGS. ANY COST INCURRED WHICH IN THE OPINION OF THE OWNER, COULD HAVE BEEN AVOIDED BY THIS STEP SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
- 14. GUARANTEE OF WORK CONTRACTOR GUARANTEES BY HIS ACCEPTANCE OF THE CONTRACT THAT ALL WORK INSTALLED IS FREE FROM ANY AND ALL DEFECTS IN WORKMANSHIP AND/OR MATERIALS, AND THAT THE APPARATUS WILL DEVELOP CAPACITIES AND CHARACTERISTICS SPECIFIED. AND THAT IF, DURING THE PERIOD OF ONE YEAR OR AS OTHERWISE SPECIFIED, FROM DATE OF CERTIFICATE OF COMPLETION AND ACCEPTANCE OF THE WORK ANY SUCH DEFECTS IN WORKMANSHIP, MATERIAL OR PERFORMANCE APPEAR, HE WILL, WITHOUT COST TO THE OWNER, REMEDY SUCH DEFECTS WITHIN A REASONABLE TIME TO BE SPECIFIED IN NOTICE. IN DEFAULT THEREOF, THE OWNER MAY HAVE SUCH WORK DONE AND CHARGE COST TO CONTRACTOR. EQUIPMENT GUARANTEES FROM DATE OF "START-UP" WILL NOT BE RECOGNIZED.

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

- PART 1 GENERAL
- 1.1 SUBMITTALS A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.
- PART 2 PRODUCTS
- 2.1 COPPER BUILDING WIRE
- A. DESCRIPTION: FLEXIBLE, INSULATED AND UNINSULATED, DRAWN COPPER CURRENT-CARRYING CONDUCTOR WITH AN OVERALL INSULATION LAYER OR JACKET, OR BOTH, RATED 600 V OR LESS. B. CONDUCTOR INSULATION:
- 1. TYPE THHN AND TYPE THWN-2: COMPLY WITH UL 83. 2. TYPE XHHW-2: COMPLY WITH UL 44. 2.2 METAL-CLAD CABLE, TYPE MC
- A. DESCRIPTION: A FACTORY ASSEMBLY OF ONE OR MORE CURRENT-CARRYING INSULATED CONDUCTORS IN AN OVERALL METALLIC SHEATH. B. STANDARDS:
- 1. LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE 2. COMPLY WITH UL 1569.
- C. GROUND CONDUCTOR SHALL BE INSULATED. CONDUCTOR INSULATION TYPE THHN/THWN-2 SHALL COMPLY WITH UL 83. CONDUCTOR INSULATION TYPE XHHW-2 SHALL COMPLY WITH UL 44.
- D. ARMOR SHALL BE STEEL OR ALUMINUM, INTERLOCKED. JACKET SHALL BE PVC APPLIED OVER ARMOR. 2.3 CONNECTORS AND SPLICES
- A. DESCRIPTION: FACTORY-FABRICATED CONNECTORS, SPLICES, AND LUGS OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS FOR APPLICATION AND SERVICE INDICATED; LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE.
- B. JACKETED CABLE CONNECTORS: FOR STEEL AND ALUMINUM JACKETED CABLES, ZINC DIE-CAST WITH SET SCREWS, DESIGNED TO CONNECT CONDUCTORS SPECIFIED IN THIS SECTION. C. LUGS: ONE PIECE, SEAMLESS, DESIGNED TO TERMINATE
- CONDUCTORS SPECIFIED IN THIS SECTION. MATERIAL SHALL BE COPPER. TYPE SHALL BE ONE OR TWO HOLE WITH STANDARD OR LONG BARRELS. TERMINATIONS SHALL BE COMPRESSION.

PART 3 - EXECUTION

AWG AND LARGER.

- 3.4 CONNECTIONS

SYSTEMS PART 1 - GENERAL 1.1 SUBMITTALS PART 2 - PRODUCTS

APPLICATION.

2.2 CONDUCTORS

- 2.3 CONNECTORS

- PART 3 EXECUTION
- 3.1 APPLICATIONS

- INDICATED.

- 3.2 GROUNDING AT THE SERVICE

3.1 CONDUCTOR MATERIAL APPLICATIONS A. FEEDERS: COPPER. CONDUCTORS SHALL BE SOLID OR STRANDED FOR NO. 10 AWG AND SMALLER; STRANDED FOR NO. 8

B. BRANCH CIRCUITS: COPPER. SOLID OR STRANDED FOR NO. 10 AWG AND SMALLER; STRANDED FOR NO. 8 AWG AND LARGER. WIRE SMALLER THAN NO. 12 AWG SHALL NOT BE USED FOR LIGHTING AND POWER CIRCUITS.

C. POWER-LIMITED FIRE ALARM AND CONTROL: SOLID FOR NO. 12 AWG AND SMALLER. 3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE

APPLICATIONS AND WIRING METHODS A. SERVICE ENTRANCE: TYPE THHN-THWN OR XHHW-2, SINGLE

CONDUCTORS IN RACEWAY. B. FEEDERS AND BRANCH CIRCUITING: TYPE THHN-THWN, SINGLE

CONDUCTORS IN RACEWAY. C. METAL-CLAD CABLE, TYPE MC, SHALL BE PERMISSIBLE WHERE INSTALLED AS BRANCH CIRCUITING CONCEALED IN ACCESSIBLE CEILINGS, WALLS, AND PARTITIONS, OR WHERE INSTALLED **BELOW RAISED FLOORING** 

3.3 INSTALLATION OF CONDUCTORS AND CABLES A. CONCEAL CABLES IN FINISHED WALLS, CEILINGS, AND FLOORS

UNLESS OTHERWISE INDICATED. B. USE MANUFACTURER-APPROVED PULLING COMPOUND OR LUBRICANT WHERE NECESSARY; COMPOUND USED MUST NOT DETERIORATE CONDUCTOR OR INSULATION. DO NOT EXCEED

MANUFACTURER'S RECOMMENDED MAXIMUM PULLING TENSIONS AND SIDEWALL PRESSURE VALUES. C. INSTALL EXPOSED CABLES PARALLEL AND PERPENDICULAR TO

SURFACES OF EXPOSED STRUCTURAL MEMBERS, AND FOLLOW SURFACE CONTOURS WHERE POSSIBLE D. METAL CLAD CABLING SHALL BE SECURED EVERY SIX FEET AND

WITHIN 12 INCHES OF EVERY BOX OR TERMINATION AS REQUIRED BY CODE. INSTALLATION OF METAL CLAD CABLING SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER AND FOLLOW OR BE PERPENDICULAR TO BUILDING LINES.

E. EACH DESIGNED CIRCUIT HOMERUN SHALL HAVE ITS OWN INDIVIDUAL GROUND CONDUCTOR. CONDUIT SHALL NOT BE USED A GROUND CONDUCTOR.

A. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A-486B.

B. MAKE SPLICES, TERMINATIONS, AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS.

C. WIRING AT OUTLETS: INSTALL CONDUCTOR AT EACH OUTLET, WITH AT LEAST 6 INCHES OF SLACK. D. PUSH-ON WIRE CONNECTORS, OTHER THAN FOR LUMINAIRE

DISCONNECTS, ARE NOT PERMITTED. E. ALL EXTERIOR WIRING CONNECTIONS, AND THOSE MADE AT OR BELOW GRADE SHALL BE WATERPROOF WITH UL LISTED

WATERPROOF CONNECTORS F. COPPER CONDUCTORS #10 AWG AND SMALLER SHALL BE TERMINATED AND SPLICED WITH WIRE NUT CONNECTORS. THE NYLON SELF INSULATED TYPE SHALL BE USED TO ISOLATE THE TERMINATION FROM OTHER METAL PARTS AND EQUIPMENT. G. COPPER CONDUCTORS #8 AWG AND LARGER SHALL BE TERMINATED, SPLICED, AND TAPPED WITH COLOR\_KEYED COMPRESSION CONNECTORS. THE MANUFACTURERS

RECOMMENDED TOOLS AND DIES SHALL BE USED. H. COPPER CABLE LUG CONNECTIONS #8 AND LARGER TO COPPER BUS BAR MAINS AND BRANCHES SHALL USE COPPER SOLDERLESS CONNECTORS HAVING EITHER 2 BOLT CAST COPPER CLAMPS OR COMPRESSION CONNECTORS, WITH MANUFACTURER'S RECOMMENDED HEXAGONAL DIES AND HYDRAULIC COMPRESSION TOOLS.

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

2.1 SYSTEM DESCRIPTION A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70. BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND

B. COMPLY WITH UL 467 FOR GROUNDING AND BONDING MATERIALS AND EQUIPMENT.

A. INSULATED CONDUCTORS: COPPER OR TINNED-COPPER WIRE OR CABLE INSULATED FOR 600 V UNLESS OTHERWISE REQUIRED BY APPLICABLE CODE OR AUTHORITIES HAVING JURISDICTION. B. GROUNDING BUS: PREDRILLED RECTANGULAR BARS OF ANNEALED COPPER, 1/4 BY 4 INCHES IN CROSS SECTION, WITH 9/32-INCH HOLES SPACED 1-1/8 INCHES APART. STAND-OFF INSULATORS FOR MOUNTING SHALL COMPLY WITH UL 891 FOR USE IN SWITCHBOARDS, 600 V AND SHALL BE LEXAN OR PVC, IMPULSE TESTED AT 5000 V.

A. LISTED AND LABELED BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION FOR APPLICATIONS IN WHICH USED AND FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED.

2.4 GROUNDING ELECTRODES A. GROUND RODS: COPPER-CLAD STEEL; 3/4 INCH BY 10 FEET. B. GROUND PLATES: 1/4 INCH THICK, HOT-DIP GALVANIZED.

A. CONDUCTORS: INSTALL SOLID CONDUCTOR FOR NO. 8 AWG AND SMALLER, AND STRANDED CONDUCTORS FOR NO. 6 AWG AND

LARGER UNLESS OTHERWISE INDICATED. B. UNDERGROUND GROUNDING CONDUCTORS: INSTALL BARE COPPER CONDUCTOR, NO. 3/0 AWG MINIMUM. BURY AT LEAST 24 INCHES BELOW GRADE.

C. ISOLATED GROUNDING CONDUCTORS: GREEN-COLORED INSULATION WITH CONTINUOUS YELLOW STRIPE. ON FEEDERS WITH ISOLATED GROUND, IDENTIFY GROUNDING CONDUCTOR WHERE VISIBLE TO NORMAL INSPECTION, WITH ALTERNATING BANDS OF GREEN AND YELLOW TAPE, WITH AT LEAST THREE BANDS OF GREEN AND TWO BANDS OF YELLOW.

D. GROUNDING BUS: INSTALL IN ELECTRICAL EQUIPMENT ROOMS, IN ROOMS HOUSING SERVICE EQUIPMENT, AND ELSEWHERE AS

1. INSTALL BUS HORIZONTALLY, ON INSULATED SPACERS 2 INCHES MINIMUM FROM WALL, 6 INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.

2. WHERE INDICATED ON BOTH SIDES OF DOORWAYS, ROUTE BUS UP TO TOP OF DOOR FRAME, ACROSS TOP OF DOORWAY, AND DOWN; CONNECT TO HORIZONTAL BUS.

E. CONDUCTOR TERMINATIONS AND CONNECTIONS: 1. PIPE AND EQUIPMENT GROUNDING CONDUCTOR

TERMINATIONS: BOLTED CONNECTORS.

2. UNDERGROUND CONNECTIONS: WELDED CONNECTORS EXCEPT AT TEST WELLS AND AS OTHERWISE INDICATED. 3. CONNECTIONS TO GROUND RODS AT TEST WELLS: BOLTED

CONNECTORS 4. CONNECTIONS TO STRUCTURAL STEEL: WELDED

CONNECTORS.

A. EQUIPMENT GROUNDING CONDUCTORS AND GROUNDING ELECTRODE CONDUCTORS SHALL BE CONNECTED TO THE

GROUND BUS. INSTALL A MAIN BONDING JUMPER BETWEEN THE

NEUTRAL AND GROUND BUSES. 3.3 EQUIPMENT GROUNDING A. INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH

ALL FEEDERS AND BRANCH CIRCUITS.

- B. INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH THE FOLLOWING ITEMS, IN ADDITION TO THOSE REQUIRED BY NFPA 70:
- 1. FEEDERS AND BRANCH CIRCUITS.
- 2. LIGHTING CIRCUITS.
- 3. RECEPTACLE CIRCUITS. 4. SINGLE-PHASE MOTOR AND APPLIANCE BRANCH CIRCUITS. 5. THREE-PHASE MOTOR AND APPLIANCE BRANCH CIRCUITS.
- 6. FLEXIBLE RACEWAY RUNS.
- 7. METAL-CLAD CABLE RUNS. 8. COMPUTER AND RACK-MOUNTED ELECTRONIC EQUIPMENT CIRCUITS: INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTOR IN BRANCH-CIRCUIT RUNS FROM
- EQUIPMENT-AREA POWER PANELS AND POWER-DISTRIBUTION UNITS.
- 3.4 INSTALLATION
- A. GROUNDING CONDUCTORS: ROUTE ALONG SHORTEST AND STRAIGHTEST PATHS POSSIBLE UNLESS OTHERWISE INDICATED OR REQUIRED BY CODE. AVOID OBSTRUCTING ACCESS OR PLACING CONDUCTORS WHERE THEY MAY BE SUBJECTED TO STRAIN, IMPACT, OR DAMAGE.
- B. GROUND RODS: DRIVE RODS UNTIL TOPS ARE 6 INCHES BELOW FINISHED FLOOR OR FINAL GRADE UNLESS OTHERWISE INDICATED.
- 1. INTERCONNECT GROUND RODS WITH GROUNDING ELECTRODE CONDUCTOR BELOW GRADE AND AS OTHERWISE INDICATED. MAKE CONNECTIONS WITHOUT EXPOSING STEEL
- OR DAMAGING COATING IF ANY. 2. USE EXOTHERMIC WELDS FOR ALL BELOW-GRADE CONNECTIONS
- FOR GROUNDING ELECTRODE SYSTEM, INSTALL AT LEAST THREE RODS SPACED AT LEAST ONE-ROD LENGTH FROM EACH OTHER AND LOCATED AT LEAST THE SAME DISTANCE FROM OTHER GROUNDING ELECTRODES, AND CONNECT TO
- THE SERVICE GROUNDING ELECTRODE CONDUCTOR. C. TEST WELLS: GROUND ROD DRIVEN THROUGH DRILLED HOLE IN BOTTOM OF HANDHOLE. HANDHOLES SHALL BE AT LEAST 12 INCHES DEEP, WITH COVER.
- 1. INSTALL AT LEAST ONE TEST WELL FOR EACH SERVICE UNLESS OTHERWISE INDICATED. INSTALL AT THE GROUND ROD ELECTRICALLY CLOSEST TO SERVICE ENTRANCE. SET TOP OF TEST WELL FLUSH WITH FINISHED GRADE OR FLOOR. D. BONDING STRAPS AND JUMPERS: INSTALL IN LOCATIONS
- ACCESSIBLE FOR INSPECTION AND MAINTENANCE EXCEPT WHERE ROUTED THROUGH SHORT LENGTHS OF CONDUIT. 1. BONDING TO STRUCTURE: BOND STRAPS DIRECTLY TO BASIC
- STRUCTURE, TAKING CARE NOT TO PENETRATE ANY ADJACENT PARTS. 2. BONDING TO EQUIPMENT MOUNTED ON VIBRATION ISOLATION
- HANGERS AND SUPPORTS: INSTALL BONDING SO VIBRATION IS NOT TRANSMITTED TO RIGIDLY MOUNTED EQUIPMENT. 3. USE EXOTHERMIC-WELDED CONNECTORS FOR OUTDOOR LOCATIONS; IF A DISCONNECT-TYPE CONNECTION IS
- REQUIRED, USE A BOLTED CLAMP. E. GROUNDING AND BONDING FOR PIPING:
- 1. METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING. CONNECT GROUNDING CONDUCTORS TO MAIN METAL WATER SERVICE PIPES; USE A BOLTED CLAMP CONNECTOR OR BOLT A LUG-TYPE CONNECTOR TO A PIPE FLANGE BY USING ONE OF THE LUG BOLTS OF THE FLANGE. WHERE A DIELECTRIC MAIN WATER FITTING IS INSTALLED, CONNECT GROUNDING CONDUCTOR ON STREET SIDE OF FITTING. BOND METAL GROUNDING CONDUCTOR CONDUIT OR SLEEVE TO
- CONDUCTOR AT EACH END. 2. WATER METER PIPING: USE BRAIDED-TYPE BONDING JUMPERS TO ELECTRICALLY BYPASS WATER METERS. CONNECT TO PIPE WITH A BOLTED CONNECTOR. 3. BOND EACH ABOVEGROUND PORTION OF GAS PIPING SYSTEM
- DOWNSTREAM FROM EQUIPMENT SHUTOFF VALVE. F. BONDING INTERIOR METAL DUCTS: BOND METAL AIR DUCTS TO EQUIPMENT GROUNDING CONDUCTORS OF ASSOCIATED FANS, BLOWERS, ELECTRIC HEATERS, AND AIR CLEANERS. INSTALL
- TINNED BONDING JUMPER TO BOND ACROSS FLEXIBLE DUCT CONNECTIONS TO ACHIEVE CONTINUITY. G. GROUNDING FOR STEEL BUILDING STRUCTURE: INSTALL A DRIVEN
- GROUND ROD AT BASE OF EACH CORNER COLUMN AND AT INTERMEDIATE EXTERIOR COLUMNS AT DISTANCES NOT MORE THAN 60 FEET APART.

H. CONNECTIONS: MAKE CONNECTIONS SO POSSIBILITY OF GALVANIC ACTION OR ELECTROLYSIS IS MINIMIZED. SELECT CONNECTORS, CONNECTION HARDWARE, CONDUCTORS, AND CONNECTION METHODS SO METALS IN DIRECT CONTACT ARE GALVANICALLY COMPATIBLE.

- 1. USE ELECTROPLATED OR HOT-TIN-COATED MATERIALS TO ENSURE HIGH CONDUCTIVITY AND TO MAKE CONTACT POINTS CLOSER IN ORDER OF GALVANIC SERIES.
- 2. MAKE CONNECTIONS WITH CLEAN, BARE METAL AT POINTS OF CONTACT.
- 3. MAKE ALUMINUM-TO-STEEL CONNECTIONS WITH STAINLESS-STEEL SEPARATORS AND MECHANICAL CLAMPS
- 4. MAKE ALUMINUM-TO-GALVANIZED-STEEL CONNECTIONS WITH TIN-PLATED COPPER JUMPERS AND MECHANICAL CLAMPS.
- 5. COAT AND SEAL CONNECTIONS HAVING DISSIMILAR METALS WITH INERT MATERIAL TO PREVENT FUTURE PENETRATION OF MOISTURE TO CONTACT SURFACES.

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS PART 1 - GENERAL 1.1 ACTION SUBMITTALS

- A. PRODUCT DATA: FOR SURFACE RACEWAYS, WIREWAYS AND FITTINGS, FLOOR BOXES, HINGED-COVER ENCLOSURES, AND CABINETS.
- PART 2 PRODUCTS
- 2.1 METAL CONDUITS AND FITTINGS
- A. METAL CONDUIT: 1. LISTING AND LABELING: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- 2. GRC: COMPLY WITH ANSI C80.1 IMC: COMPLY WITH ANSI C80.6.
- 4. PVC-COATED STEEL CONDUIT: PVC-COATED RIGID STEEL CONDUIT IMC. COMPLY WITH NEMA RN 1
- 5. EMT: COMPLY WITH ANSI C80.3.
- 6. FMC: COMPLY WITH UL 1; ZINC-COATED STEEL OR ALUMINUM. 7. LFMC: FLEXIBLE STEEL CONDUIT WITH PVC JACKET AND COMPLYING WITH UL 360.
- B. METAL FITTINGS:
- 1. COMPLY WITH NEMA FB 1 AND UL 514B. 2. LISTING AND LABELING: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- 3. FITTINGS, GENERAL: LISTED AND LABELED FOR TYPE OF
- CONDUIT, LOCATION, AND USE. 4. CONDUIT FITTINGS FOR HAZARDOUS (CLASSIFIED)
- LOCATIONS: COMPLY WITH UL 1203 AND NFPA 70. 5. FITTINGS FOR EMT: MATERIAL: STEEL OR DIE CAST. TYPE:
- COMPRESSION.
- 6. EXPANSION FITTINGS: PVC OR STEEL TO MATCH CONDUIT TYPE, COMPLYING WITH UL 651, RATED FOR ENVIRONMENTAL CONDITIONS WHERE INSTALLED, AND INCLUDING FLEXIBLE EXTERNAL BONDING JUMPER.
- 7. COATING FOR FITTINGS FOR PVC-COATED CONDUIT: MINIMUM THICKNESS OF 0.040 INCH, WITH OVERLAPPING SLEEVES PROTECTING THREADED JOINTS.
- C. JOINT COMPOUND FOR IMC. GRC. OR ARC: APPROVED. AS DEFINED IN NFPA 70, BY AUTHORITIES HAVING JURISDICTION FOR USE IN CONDUIT ASSEMBLIES, AND COMPOUNDED FOR USE TO LUBRICATE AND PROTECT THREADED CONDUIT JOINTS FROM

CORROSION AND TO ENHANCE THEIR CONDUCTIVITY. 2.2 NONMETALLIC CONDUITS AND FITTINGS A. NONMETALLIC CONDUIT:

- 1. LISTING AND LABELING: NONMETALLIC CONDUIT SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- 2. FIBERGLASS: COMPLY WITH NEMA TC 14. COMPLY WITH UL 2515 FOR ABOVEGROUND RACEWAYS. COMPLY WITH UL 2420 FOR BELOWGROUND RACEWAYS.
- 3. ENT: COMPLY WITH NEMA TC 13. 4. RNC: TYPE EPC-80-PVC, COMPLYING WITH NEMA TC 2 AND UL 651 UNLESS OTHERWISE INDICATED.
- 5. LFNC: COMPLY WITH UL 1660. B. NONMETALLIC FITTINGS:

LOCATION AND APPLICATION.

NEMA OS 1 AND UL 514A.

NEMA OS 2 AND UL 514C.

ALLOWABLE WEIGHT.

M. CABINETS:

CAST IRON WITH GASKETED COVER.

K. GANGABLE BOXES ARE PROHIBITED.

FREESTANDING EQUIPMENT.

APPLICATION.

UNLESS OTHERWISE INDICATED:

AND PARKING AREAS.

TYPE 3R AND TYPE 4.

UNLESS OTHERWISE INDICATED:

UNITS, MECHANICAL ROOMS.

6. DAMP OR WET LOCATIONS: GRC.

SUITABLE FOR USE AND LOCATION.

PARTITIONS: EMT.

3.1 RACEWAY APPLICATION

PART 3 - EXECUTION

MANUFACTURER'S STANDARD ENAMEL

AGENCY, AND MARKED FOR INTENDED LOCATION AND

GASKETED COVER.

2.5 BOXES, ENCLOSURES, AND CABINETS

- 1. FITTINGS, GENERAL: LISTED AND LABELED FOR TYPE OF CONDUIT, LOCATION, AND USE.
- 2. FITTINGS FOR ENT AND RNC: COMPLY WITH NEMA TC 3; MATCH TO CONDUIT OR TUBING TYPE AND MATERIAL FITTINGS FOR LFNC: COMPLY WITH UL 514B.
- 2.3 METAL WIREWAYS AND AUXILIARY GUTTERS A. DESCRIPTION: SHEET METAL, COMPLYING WITH UL 870 AND NEMA 250, TYPE 1, TYPE 3R, OR TYPE 4 UNLESS OTHERWISE
- INDICATED, AND SIZED ACCORDING TO NFPA 70. 1. METAL WIREWAYS INSTALLED OUTDOORS SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- B. FITTINGS AND ACCESSORIES: INCLUDE COVERS, COUPLINGS, OFFSETS, ELBOWS, EXPANSION JOINTS, ADAPTERS, HOLD-DOWN STRAPS, END CAPS, AND OTHER FITTINGS TO MATCH AND MATE WITH WIREWAYS AS REQUIRED FOR COMPLETE SYSTEM. C. WIREWAY COVERS: HINGED TYPE SCREW-COVER TYPE
- FLANGED-AND-GASKETED TYPE UNLESS OTHERWISE INDICATED. D. FINISH: MANUFACTURER'S STANDARD ENAMEL FINISH. 2.4 SURFACE RACEWAYS A. LISTING AND LABELING: SURFACE RACEWAYS AND TELE-POWER

- POLES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED
- B. SURFACE METAL RACEWAYS: GALVANIZED STEEL WITH SNAP-ON COVERS COMPLYING WITH UL 5. MANUFACTURER'S STANDARD ENAMEL FINISH IN COLOR SELECTED BY ARCHITECT.
- A. GENERAL REQUIREMENTS FOR BOXES, ENCLOSURES, AND CABINETS: BOXES, ENCLOSURES, AND CABINETS INSTALLED IN WET LOCATIONS SHALL BE LISTED FOR USE IN WET LOCATIONS. B. SHEET METAL OUTLET AND DEVICE BOXES: COMPLY WITH
- C. CAST-METAL OUTLET AND DEVICE BOXES: COMPLY WITH NEMA FB 1, FERROUS ALLOY ALUMINUM, TYPE FD, WITH
- D. NONMETALLIC OUTLET AND DEVICE BOXES: COMPLY WITH
- E. METAL FLOOR BOXES: MATERIAL: CAST METAL OR SHEET METAL. TYPE: FULLY ADJUSTABLE. SHAPE: RECTANGULAR. F. LUMINAIRE OUTLET BOXES: NONADJUSTABLE, DESIGNED FOR ATTACHMENT OF LUMINAIRE WEIGHING 50 LB. OUTLET BOXES DESIGNED FOR ATTACHMENT OF LUMINAIRES WEIGHING MORE
- THAN 50 LB SHALL BE LISTED AND MARKED FOR THE MAXIMUM G. SMALL SHEET METAL PULL AND JUNCTION BOXES: NEMA OS 1. H. CAST-METAL ACCESS, PULL, AND JUNCTION BOXES: COMPLY WITH NEMA FB 1 AND UL 1773, CAST ALUMINUM OR GALVANIZED,
- I. BOX EXTENSIONS USED TO ACCOMMODATE NEW BUILDING FINISHES SHALL BE OF SAME MATERIAL AS RECESSED BOX. J. DEVICE BOX DIMENSIONS: 4 INCHES SQUARE BY 2-1/8 INCHES DEEP OR 4 INCHES BY 2-1/8 INCHES BY 2-1/8 INCHES DEEP.
- L. HINGED-COVER ENCLOSURES: COMPLY WITH UL 50 AND NEMA 250, TYPE 1 TYPE 3R TYPE 4 WITH CONTINUOUS-HINGE COVER WITH FLUSH LATCH UNLESS OTHERWISE INDICATED. 1. METAL ENCLOSURES: STEEL, FINISHED INSIDE AND OUT WITH
- MANUFACTURER'S STANDARD ENAMEL 2. NONMETALLIC ENCLOSURES: FIBERGLASS. 3. INTERIOR PANELS: STEEL: ALL SIDES FINISHED WITH
- NEMA 250, TYPE 1 TYPE 3R TYPE 12 GALVANIZED-STEEL BOX WITH REMOVABLE INTERIOR PANEL AND REMOVABLE FRONT FINISHED INSIDE AND OUT WITH MANUFACTURER'S STANDARD ENAMEL. HINGED DOOR IN FRONT COVER WITH FLUSH LATCH AND CONCEALED HINGE. KEY LATCH TO MATCH PANELBOARDS. METAL BARRIERS TO SEPARATE WIRING OF DIFFERENT SYSTEMS AND VOLTAGE. ACCESSORY FEET WHERE REQUIRED FOR
- NONMETALLIC CABINETS SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION. 2.6 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING A. GENERAL REQUIREMENTS FOR HANDHOLES AND BOXES: BOXES AND HANDHOLES FOR USE IN UNDERGROUND SYSTEMS SHALL BE DESIGNED AND IDENTIFIED AS DEFINED IN NFPA 70, FOR INTENDED LOCATION AND APPLICATION. 2. BOXES INSTALLED IN WET AREAS SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING
- A. OUTDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW
- 1. EXPOSED CONDUIT: GRC, IMC, RNC, TYPE EPC-80-PVC. 2. CONCEALED CONDUIT, ABOVEGROUND: GRC, IMC AND EMT. 3. UNDERGROUND CONDUIT: RNC, TYPE EPC-80-PVC, DIRECT BURIED AND CONCRETE ENCASED WHERE UNDER DRIVES
- 4. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): LFMC AND LFNC. 5. BOXES AND ENCLOSURES, ABOVEGROUND: NEMA 250,
- B. INDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW
- 1. EXPOSED, NOT SUBJECT TO PHYSICAL DAMAGE: EMT. 2. EXPOSED, NOT SUBJECT TO SEVERE PHYSICAL DAMAGE:
- 3. EXPOSED AND SUBJECT TO SEVERE PHYSICAL DAMAGE: GRC. RACEWAY LOCATIONS INCLUDE THE FOLLOWING:
- LOADING DOCK, CORRIDORS USED FOR TRAFFIC OF MECHANIZED CARTS, FORKLIFTS, AND PALLET-HANDLING
- 4. CONCEALED IN CEILINGS AND INTERIOR WALLS AND
- 5. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): FMC, EXCEPT USE LFMC IN DAMP OR WET LOCATIONS.
- 7. BOXES AND ENCLOSURES: NEMA 250, TYPE 1, EXCEPT USE NEMA 250, TYPE 4 STAINLESS STEEL IN INSTITUTIONAL AND COMMERCIAL KITCHENS AND DAMP OR WET LOCATIONS. C. MINIMUM RACEWAY SIZE: 3/4-INCH TRADE SIZE D. RACEWAY FITTINGS: COMPATIBLE WITH RACEWAYS AND
- 1. RIGID AND INTERMEDIATE STEEL CONDUIT: USE THREADED
- RIGID STEEL CONDUIT FITTINGS UNLESS OTHERWISE INDICATED. COMPLY WITH NEMA FB 2.10. 2. PVC EXTERNALLY COATED, RIGID STEEL CONDUITS: USE
- ONLY FITTINGS LISTED FOR USE WITH THIS TYPE OF

- CONDUIT. PATCH AND SEAL ALL JOINTS, NICKS, AND SCRAPES IN PVC COATING AFTER INSTALLING CONDUITS AND FITTINGS. USE SEALANT RECOMMENDED BY FITTING MANUFACTURER AND APPLY IN THICKNESS AND NUMBER OF COATS RECOMMENDED BY MANUFACTURER.
- 3. EMT: USE SETSCREW, STEEL FITTINGS. COMPLY WITH NEMA FB 2.10.
- 4. FLEXIBLE CONDUIT: USE ONLY FITTINGS LISTED FOR USE WITH FLEXIBLE CONDUIT. COMPLY WITH NEMA FB 2.20. E. DO NOT INSTALL ALUMINUM CONDUITS, BOXES, OR FITTINGS IN CONTACT WITH CONCRETE OR EARTH. F. INSTALL SURFACE RACEWAYS ONLY WHERE INDICATED ON
- DRAWINGS 3.2 INSTALLATION
- A. COMPLY WITH NECA 1 AND NECA 101 FOR INSTALLATION REQUIREMENTS EXCEPT WHERE REQUIREMENTS ON DRAWINGS OR IN THIS ARTICLE ARE STRICTER. COMPLY WITH NECA 102 FOR ALUMINUM CONDUITS. COMPLY WITH NFPA 70 LIMITATIONS FOR TYPES OF RACEWAYS ALLOWED IN SPECIFIC OCCUPANCIES AND NUMBER OF FLOORS.
- B. KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT-WATER PIPES. INSTALL HORIZONTAL RACEWAY RUNS ABOVE WATER AND STEAM PIPING. C. ARRANGE STUB-UPS SO CURVED PORTIONS OF BENDS ARE NOT
- VISIBLE ABOVE FINISHED SLAB. D. INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS IN ANY CONDUIT RUN EXCEPT FOR CONTROL WIRING CONDUITS, FOR WHICH FEWER BENDS ARE ALLOWED. SUPPORT WITHIN 12 INCHES OF CHANGES IN DIRECTION.
- E. CONCEAL CONDUIT AND EMT WITHIN FINISHED WALLS, CEILINGS, AND FLOORS UNLESS OTHERWISE INDICATED. INSTALL CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING LINES. F. SUPPORT CONDUIT WITHIN 12 INCHES OF ENCLOSURES TO
- WHICH ATTACHED.
- G. RACEWAYS EMBEDDED IN SLABS: RUN CONDUIT LARGER THAN 1-INCH TRADE SIZE, PARALLEL OR AT RIGHT ANGLES TO MAIN REINFORCEMENT. WHERE AT RIGHT ANGLES TO REINFORCEMENT, PLACE CONDUIT CLOSE TO SLAB SUPPORT. SECURE RACEWAYS TO REINFORCEMENT AT MAXIMUM 10-FOOTINTERVALS. ARRANGE RACEWAYS TO CROSS BUILDING EXPANSION JOINTS AT RIGHT ANGLES WITH EXPANSION FITTINGS. ARRANGE RACEWAYS TO KEEP A MINIMUM OF 3 INCHES OF CONCRETE COVER IN ALL DIRECTIONS. DO NOT EMBED THREADLESS FITTINGS IN CONCRETE UNLESS SPECIFICALLY APPROVED BY ARCHITECT FOR EACH SPECIFIC LOCATIONS. SOME AUTHORITIES HAVING JURISDICTION MAY NOT PERMIT NONMETALLIC TUBING IN FIRE-RATED SLABS IN SUBPARAGRAPH BELOW. CHANGE FROM ENT TO GRC OR IMC **BEFORE RISING ABOVE FLOOR**
- H. STUB-UPS TO ABOVE RECESSED CEILINGS: USE EMT, IMC, OR RMC FOR RACEWAYS. USE A CONDUIT BUSHING OR INSULATED FITTING TO TERMINATE
- STUB-UPS NOT TERMINATED IN HUBS OR IN AN ENCLOSURE. I. THREADED CONDUIT JOINTS, EXPOSED TO WET, DAMP, CORROSIVE, OR OUTDOOR CONDITIONS: APPLY LISTED COMPOUND TO THREADS OF RACEWAY AND FITTINGS BEFORE
- MAKING UP JOINTS. FOLLOW COMPOUND MANUFACTURER'S WRITTEN INSTRUCTIONS. J. COAT FIELD-CUT THREADS ON PVC-COATED RACEWAY WITH A
- CORROSION-PREVENTING CONDUCTIVE COMPOUND PRIOR TO ASSEMBLY
- K. RACEWAY TERMINATIONS AT LOCATIONS SUBJECT TO MOISTURE OR VIBRATION: USE INSULATING BUSHINGS TO PROTECT CONDUCTORS INCLUDING CONDUCTORS SMALLER THAN NO. 4
- L. TERMINATE THREADED CONDUITS INTO THREADED HUBS OR WITH LOCKNUTS ON INSIDE AND OUTSIDE OF BOXES OR CABINETS. INSTALL BUSHINGS ON CONDUITS UP TO 1-1/4-INCH TRADE SIZE AND INSULATED THROAT METAL BUSHINGS ON 1-1/2-INCH TRADE SIZE AND LARGER CONDUITS TERMINATED WITH LOCKNUTS. INSTALL INSULATED THROAT METAL GROUNDING BUSHINGS ON SERVICE CONDUITS.
- M. INSTALL RACEWAYS SQUARE TO THE ENCLOSURE AND TERMINATE AT ENCLOSURES WITH LOCKNUTS. INSTALL LOCKNUTS HAND TIGHT PLUS 1/4 TURN MORE.
- N. DO NOT RELY ON LOCKNUTS TO PENETRATE NONCONDUCTIVE COATINGS ON ENCLOSURES. REMOVE COATINGS IN THE LOCKNUT AREA PRIOR TO ASSEMBLING CONDUIT TO ENCLOSURE TO ASSURE A CONTINUOUS GROUND PATH.
- O. CUT CONDUIT PERPENDICULAR TO THE LENGTH. FOR CONDUITS 2-INCH TRADE SIZE AND LARGER, USE ROLL CUTTER OR A GUIDE TO MAKE CUT STRAIGHT AND PERPENDICULAR TO THE LENGTH. P. INSTALL PULL WIRES IN EMPTY RACEWAYS.
- Q. FLEXIBLE CONDUIT CONNECTIONS: COMPLY WITH NEMA RV 3. USE A MAXIMUM OF 72 INCHES OF FLEXIBLE CONDUIT FOR EQUIPMENT SUBJECT TO VIBRATION. NOISE TRANSMISSION. OR MOVEMENT: AND FOR TRANSFORMERS AND MOTORS. 1. USE LFMC IN DAMP OR WET LOCATIONS SUBJECT TO SEVERE
- PHYSICAL DAMAGE. 2. USE LFMC OR LFNC IN DAMP OR WET LOCATIONS NOT
- SUBJECT TO SEVERE PHYSICAL DAMAGE. R. MOUNT BOXES AT HEIGHTS INDICATED ON DRAWINGS. IF MOUNTING HEIGHTS OF BOXES ARE NOT INDIVIDUALLY INDICATED, GIVE PRIORITY TO ADA REQUIREMENTS. INSTALL
- BOXES WITH HEIGHT MEASURED TO CENTER OF BOX UNLESS OTHERWISE INDICATED. S. RECESSED BOXES IN MASONRY WALLS: SAW-CUT OPENING FOR
- BOX IN CENTER OF CELL OF MASONRY BLOCK, AND INSTALL BOX FLUSH WITH SURFACE OF WALL. PREPARE BLOCK SURFACES TO PROVIDE A FLAT SURFACE FOR A RAINTIGHT CONNECTION BETWEEN BOX AND COVER PLATE OR SUPPORTED EQUIPMENT AND BOX.
- T. HORIZONTALLY SEPARATE BOXES MOUNTED ON OPPOSITE SIDES OF WALLS SO THEY ARE NOT IN THE SAME VERTICAL CHANNEL. U. LOCATE BOXES SO THAT COVER OR PLATE WILL NOT SPAN
- DIFFERENT BUILDING FINISHES. V. SUPPORT BOXES OF THREE GANGS OR MORE FROM MORE THAN ONE SIDE BY SPANNING TWO FRAMING MEMBERS OR MOUNTING ON BRACKETS SPECIFICALLY DESIGNED FOR THE PURPOSE.
- W. FASTEN JUNCTION AND PULL BOXES TO OR SUPPORT FROM BUILDING STRUCTURE. DO NOT SUPPORT BOXES BY CONDUITS.

SECTION 260923 - LIGHTING CONTROL DEVICES PART 1 - GENERAL

- 1.1 SUBMITTALS
- A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED. 1.2 COORDINATION
- A. COORDINATE LAYOUT AND INSTALLATION OF CEILING-MOUNTED DEVICES WITH OTHER CONSTRUCTION THAT PENETRATES CEILINGS OR IS SUPPORTED BY THEM, INCLUDING LIGHT FIXTURES, HVAC EQUIPMENT, SMOKE DETECTORS, FIRE-SUPPRESSION SYSTEM, AND PARTITION ASSEMBLIES.
- PART 2 PRODUCTS

60 HZ

- 2.1 TIME SWITCHES A. LOW VOLTAGE DIGITAL TIME SWITCH: SPECIFIC PRODUCT AS INDICATED ON DRAWINGS.
  - 1. THE DIGITAL TIME SWITCH SHALL BE PROGRAMMABLE TO TURN LOADS OFF AFTER A PRESET TIME. 2. TIME SWITCH SHALL BE A FIVE WIRE, COMPLETELY SELF
  - CONTAINED CONTROL SYSTEM THAT REPLACES A STANDARD TOGGLE SWITCH. SWITCHING MECHANISM SHALL BE A 30V, 1A AIR GAP RELAY. 3. TIME SWITCH SHALL OPERATE AT EITHER 24 VAC OR 24 VDC,
  - 4. TIME SWITCH SHALL HAVE NO MINIMUM LOAD REQUIREMENT. 5. TIME SWITCH SHALL BE 6-BUTTON WITH 30
  - MINUTE/1HOUR/2HOUR/4 HOUR/8 HOUR/12 HOUR OPTIONS, WITH EACH OPTION ENGRAVED ON THE BUTTONS TO REFLECT THOSE TIMES.
  - 6. TIME SWITCH SHALL GIVE VISUAL WARNING AT 5 MINUTES UNTIL LIGHTS TURN OFF, AND AUDIBLE/VISUAL WARNING AT 1



MINUTE BEFORE THE LIGHTS TURN OFF. 7. TIME SWITCH SHALL HAVE THE OPTION FOR A BEEP WARNING

- THAT SHALL SOUND EVERY FIVE SECONDS ONCE THE TIME SWITCH COUNTDOWN REACHES ONE MINUTE 8. TIME SWITCH SHALL HAVE MANUAL FEATURE FOR TIMER
- RESET WHERE PRESSING THE ON/OFF SWITCH FOR MORE THAN 2 SECONDS RESETS THE TIMER TO THE PROGRAMMED TIME-OUT PERIOD
- 9. TIME SWITCH SHALL BE CAPABLE OF OPERATING AS AN ON/OFF SWITCH.
- 10. TIME SWITCH CAN OPERATE WITH POWER PACKS IN ORDER TO CONTROL ADDITIONAL LOADS. 2.2 OUTDOOR PHOTOELECTRIC SWITCHES
- A. DESCRIPTION: SOLID STATE, WITH DPST DRY CONTACTS RATED FOR 1800-VA TUNGSTEN OR 1000-VA INDUCTIVE, TO OPERATE CONNECTED RELAY, CONTACTOR COILS, OR MICROPROCESSOR INPUT; COMPLYING WITH UL 773A. SPECIFIC PRODUCT AS INDICATED ON DRAWINGS
- 2.3 DAYLIGHTING SENSORS A. DESCRIPTION: SOLID-STATE, LIGHT-LEVEL SENSOR UNIT, WITH SEPARATE RELAY UNIT, TO DETECT CHANGES IN LIGHTING LEVELS THAT ARE PERCEIVED BY THE EYE. COMPATIBLE WITH LIGHTING SYSTEM AS SPECIFIED.
- 2.4 INDOOR OCCUPANCY SENSORS A. GENERAL DESCRIPTION: WALL- OR CEILING-MOUNTING, SOLID-STATE UNITS WITH A SEPARATE RELAY UNIT. SPECIFIC
- PRODUCT AS INDICATED ON DRAWINGS. 1. OPERATION: UNLESS OTHERWISE INDICATED, TURN LIGHTS ON WHEN COVERED AREA IS OCCUPIED AND OFF WHEN UNOCCUPIED; WITH A TIME DELAY FOR TURNING LIGHTS OFF, ADJUSTABLE OVER A MINIMUM RANGE OF 1 TO 30 MINUTES. 2. MOUNTING:
- a. SENSOR: SUITABLE FOR MOUNTING IN ANY POSITION ON A STANDARD OUTLET BOX.
- INDICATOR: LED, TO SHOW WHEN MOTION IS BEING DETECTED DURING TESTING AND NORMAL OPERATION OF THE SENSOR
- 4. BYPASS SWITCH: OVERRIDE THE ON FUNCTION IN CASE OF SENSOR FAILURE
- B. PIR TYPE: CEILING MOUNTING; DETECT OCCUPANCY BY SENSING A COMBINATION OF HEAT AND MOVEMENT IN AREA OF COVERAGE. SPECIFIC PRODUCT AS INDICATED ON DRAWINGS.
- DETECTOR SENSITIVITY: DETECT OCCURRENCES OF 6-INCH-(150-MM-) MINIMUM MOVEMENT OF ANY PORTION OF A HUMAN BODY THAT PRESENTS A TARGET OF NOT LESS THAN 36 SQ. IN. (232 SQ. CM). 2. DETECTION COVERAGE (ROOM): DETECT OCCUPANCY
- ANYWHERE IN A CIRCULAR AREA OF 1000 SQ. FT. (93 SQ. M) WHEN MOUNTED ON A 96-INCH- (2440-MM-) HIGH CEILING.
- 3. DETECTION COVERAGE (CORRIDOR): DETECT OCCUPANCY WITHIN 90 FEET (27.4 M) WHEN MOUNTED ON A 10-FOOT- (3-M-) HIGH CEILING C. ULTRASONIC TYPE: CEILING MOUNTING; DETECT OCCUPANCY BY
- SENSING A CHANGE IN PATTERN OF REFLECTED ULTRASONIC ENERGY IN AREA OF COVERAGE. SPECIFIC PRODUCT AS INDICATED ON DRAWINGS
- 1. DETECTOR SENSITIVITY: DETECT A PERSON OF AVERAGE SIZE AND WEIGHT MOVING NOT LESS THAN 12 INCHES (305 MM) IN EITHER A HORIZONTAL OR A VERTICAL MANNER AT AN APPROXIMATE SPEED OF 12 INCHES/S (305 MM/S).
- 2. DETECTION COVERAGE (SMALL ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 600 SQ. FT. (56 SQ. M) WHEN MOUNTED ON A 96-INCH- (2440-MM-) HIGH CEILING.
- 3. DETECTION COVERAGE (STANDARD ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 1000 SQ. FT. (93 SQ. M) WHEN MOUNTED ON A 96-INCH- (2440-MM-) HIGH CEILING.
- 4. DETECTION COVERAGE (LARGE ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 2000 SQ. FT. (186 SQ. M) WHEN MOUNTED ON A 96-INCH- (2440-MM-) HIGH CEILING.
- 5. DETECTION COVERAGE (CORRIDOR): DETECT OCCUPANCY ANYWHERE WITHIN 90 FEET (27.4 M) WHEN MOUNTED ON A 10-FOOT- (3-M-) HIGH CEILING IN A CORRIDOR NOT WIDER THAN 14 FEET (4.3 M).
- D. DUAL-TECHNOLOGY TYPE: CEILING MOUNTING; DETECT OCCUPANCY BY USING A COMBINATION OF PIR AND ULTRASONIC DETECTION METHODS IN AREA OF COVERAGE. PARTICULAR TECHNOLOGY OR COMBINATION OF TECHNOLOGIES THAT CONTROLS ON-OFF FUNCTIONS SHALL BE SELECTABLE IN THE FIELD BY OPERATING CONTROLS ON UNIT. SPECIFIC PRODUCT AS INDICATED ON DRAWINGS.
- SENSITIVITY ADJUSTMENT: SEPARATE FOR EACH SENSING TECHNOLOGY.
- 2. DETECTOR SENSITIVITY: DETECT OCCURRENCES OF 6-INCH-(150-MM-) MINIMUM MOVEMENT OF ANY PORTION OF A HUMAN BODY THAT PRESENTS A TARGET OF NOT LESS THAN 36 SQ. IN. (232 SQ. CM), AND DETECT A PERSON OF AVERAGE SIZE AND WEIGHT MOVING NOT LESS THAN 12 INCHES (305 MM) IN EITHER A HORIZONTAL OR A VERTICAL MANNER AT AN APPROXIMATE SPEED OF 12 INCHES/S (305 MM/S).
- 3. DETECTION COVERAGE (STANDARD ROOM): DETECT OCCUPANCY ANYWHERE WITHIN A CIRCULAR AREA OF 1000 SQ. FT. (93 SQ. M) WHEN MOUNTED ON A 96-INCH- (2440-MM-) HIGH CEILING.
- 2.5 EMERGENCY TRANSFER DEVICE
- A. EMERGENCY TRANSFER DEVICE -SPECIFIC PRODUCT AS
- INDICATED ON DRAWINGS 1. THE EMERGENCY TRANSFER DEVICE SHALL PROVIDE ALL REQUIRED FUNCTIONALITY TO ALLOW ANY STANDARD LIGHTING CONTROL DEVICE TO CONTROL EMERGENCY LIGHTING IN CONJUNCTION WITH NORMAL LIGHTING IN ANY AREA WITHIN A BUILDING.
- 2. THE EMERGENCY LIGHTING CONTROL UNIT SHALL ALLOW CONTROL OF EMERGENCY LIGHTING FIXTURES IN TANDEM WITH NORMAL LIGHTING IN AN AREA WHILE ENSURING THAT EMERGENCY LIGHTING WILL TURN ON IMMEDIATELY TO FULL BRIGHTNESS UPON LOSS OF NORMAL POWER SUPPLYING THE CONTROL DEVICE. EMERGENCY LIGHTING OPERATION SHALL BE INDEPENDENT FOR EACH CONTROLLED AREA AND SHALL NOT REQUIRE A GENERALIZED POWER FAILURE FOR PROPER OPERATION.
- 3. THE UNIT SHALL AUTOMATICALLY SWITCH EMERGENCY LIGHTING ON AND OFF AS NORMAL LIGHTING IS SWITCHED. WHEN NORMAL POWER IS NOT AVAILABLE, THE UNIT SHALL FORCE AND HOLD EMERGENCY LIGHTING ON REGARDLESS OF THE STATE OF ANY EXTERNAL CONTROL DEVICE UNTIL NORMAL POWER IS RESTORED.
- 4. THE UNIT SHALL BE UL924 AND CUL LISTED AND LABELED FOR CONNECTION TO BOTH NORMAL AND NORMAL/EMERGENCY LIGHTING POWER SOURCES.
- 2.7 EXECUTION
- 2.6 SENSOR INSTALLATION A. INSTALL AND AIM SENSORS IN LOCATIONS TO ACHIEVE NOT LESS THAN 90 PERCENT COVERAGE OF AREAS INDICATED. DO NOT EXCEED COVERAGE LIMITS SPECIFIED IN MANUFACTURER'S WRITTEN INSTRUCTIONS.
- B. SENSOR LOCATIONS SHOWN ON THE DRAWINGS ARE TO DENOTE ROOMS THAT SHALL HAVE SENSOR CONTROL. PROVIDE SENSORS IN LOCATIONS AND QUANTITY AS REQUIRED BY THE MANUFACTURER FOR PROPER COVERAGE AND OPERATION OF SPACE
- C. PROVIDE ALL RELATED PARTS AND ACCESSORIES FOR A COMPLETE AND OPERATIONAL SYSTEM.
- D. CEILING MOUNTED OCCUPANCY SENSORS AND DAYLIGHT
- SENSORS SHALL BE INSTALLED CENTERED IN CEILING TILES.
- E. UNLESS NOTED OTHERWISE WALL MOUNTED SWITCHES SHALL BE INSTALLED ON THE LATCH SIDE OF THE DOOR.
- F. INSTALL DAYLIGHTING SENSORS AS INDICATED TO CONTROL

LAMPS AS DETAILED ON CONTRACT DOCUMENTS. LOCATE IN CEILING TO NOT INTERFERE OPERATION BY OTHER OBJECTS AND AS REQUIRED BY MANUFACTURER TO DETECT NATURAL LIGHT LEVELS. SET SENSITIVITY LEVELS FOR CONTROL AS RECOMMENDED BY MANUFACTURER.

- 2.7 FIELD QUALITY CONTROL
- A. ALL OCCUPANCY SENSORS AND DAYLIGHT SENSORS SHALL BE COMMISSIONED. DUAL TECHNOLOGY SENSORS SHALL BE SET TO "TURN ON" WHEN BOTH TECHNOLOGIES SENSE MOTION AND MAINTAIN "ON" WITH EITHER TECHNOLOGY. SET SENSOR TO MID-RANGE SENSITIVITY WITH A 15 MINUTE DELAY TIME TO OFF. SET LIGHT LEVEL FUNCTION FOR DAYLIGHT SENSORS BETWEEN 11AM AND 1PM DURING A DAY OF MODERATE CLOUD COVER WHERE ILLUMINATION AT THE DESK IS AT LEAST 40 FOOTCANDLES WITH THE LUMINAIRES OFF.

2.8 ADJUSTING A. OCCUPANCY ADJUSTMENTS: WHEN REQUESTED WITHIN 12 MONTHS OF DATE OF SUBSTANTIAL COMPLETION, PROVIDE ON-SITE ASSISTANCE IN ADJUSTING SENSORS TO SUIT OCCUPIED CONDITIONS. PROVIDE UP TO TWO VISITS TO PROJECT DURING OTHER-THAN-NORMAL OCCUPANCY HOURS FOR THIS PURPOSE 2.9 DEMONSTRATION

A. ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN LIGHTING CONTROL DEVICES. REFER TO DIVISION 01 SECTION 017900 "DEMONSTRATION AND TRAINING."

SECTION 262213 - LOW-VOLTAGE DISTRIBUTION TRANSFORMERS PART 1 - GENERAL

- 1.1 SUBMITTALS
- A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT. 1. INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS. DIMENSIONS OF INDIVIDUAL COMPONENTS AND PROFILES, AND FINISHES FOR EACH TYPE AND SIZE OF TRANSFORMER.
- 2. INCLUDE RATED NAMEPLATE DATA, CAPACITIES, WEIGHTS, DIMENSIONS, MINIMUM CLEARANCES, INSTALLED DEVICES AND FEATURES, AND PERFORMANCE FOR EACH TYPE AND SIZE OF TRANSFORMER.

PART 2 - PRODUCTS

- 2.1 GENERAL TRANSFORMER REQUIREMENTS A. DESCRIPTION: FACTORY-ASSEMBLED AND -TESTED, AIR-COOLED UNITS FOR 60-HZ SERVICE.
- B. COMPLY WITH NFPA 70.
- 1. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE. C. TRANSFORMERS RATED 15 KVA AND LARGER:
- 1. COMPLY WITH 10 CFR 431 (DOE 2016) EFFICIENCY LEVELS. 2. MARKED AS COMPLIANT WITH DOE 2016 EFFICIENCY LEVELS BY AN NRTL
- 2.2 DISTRIBUTION TRANSFORMERS A. COMPLY WITH NFPA 70, AND LIST AND LABEL AS COMPLYING WITH UL 1561
- B. CORES: ELECTRICAL GRADE, NON-AGING SILICON STEEL WITH HIGH PERMEABILITY AND LOW HYSTERESIS LOSSES. 1. ONE LEG PER PHASE.
- 2. CORE VOLUME SHALL ALLOW EFFICIENT TRANSFORMER OPERATION AT 10 PERCENT ABOVE THE NOMINAL TAP **VOLTAGE**
- 3. GROUNDED TO ENCLOSURE. C. COILS: CONTINUOUS WINDINGS WITHOUT SPLICES EXCEPT FOR TAPS
- 1. COIL MATERIAL: COPPER INTERNAL COIL CONNECTIONS: BRAZED OR PRESSURE TYPE. D. ENCAPSULATION: TRANSFORMERS SMALLER THAN 30 KVA SHALL HAVE CORE AND COILS COMPLETELY RESIN ENCAPSULATED.
- E. ENCLOSURE: VENTILATED 1. NEMA 250, TYPE 2 TYPE 3R: CORE AND COIL SHALL BE ENCAPSULATED WITHIN RESIN COMPOUND USING A VACUUM-PRESSURE IMPREGNATION PROCESS TO SEAL OUT
- MOISTURE AND AIR. 2. KVA RATINGS: BASED ON CONVECTION COOLING ONLY AND
- NOT RELYING ON AUXILIARY FANS. 3. WIRING COMPARTMENT: SIZED FOR CONDUIT ENTRY AND WIRING INSTALLATION.
- 4. FINISH: COMPLY WITH NEMA 250. a. FINISH COLOR: GRAY, ANSI 49 OR GRAY ANSI 61 GRAY WEATHER-RESISTANT ENAMEL
- F. TAPS FOR TRANSFORMERS 3 KVA AND SMALLER: NONE. G. TAPS FOR TRANSFORMERS 7.5 TO 24 KVA: ONE 5 PERCENT TAP ABOVE AND ONE 5 PERCENT TAP BELOW NORMAL FULL
- CAPACITY H. TAPS FOR TRANSFORMERS 25 KVA AND LARGER: TWO 2.5 PERCENT TAPS ABOVE AND FOUR 2.5 PERCENT TAPS BELOW NORMAL FULL CAPACITY.
- I. INSULATION CLASS, SMALLER THAN 30 KVA: 180 DEG C. UL-COMPONENT-RECOGNIZED INSULATION SYSTEM WITH A MAXIMUM OF 115 DEG C RISE ABOVE 40 DEG C AMBIENT TEMPERATURE
- J. INSULATION CLASS, 30 KVA AND LARGER: 220 DEG C, UL-COMPONENT-RECOGNIZED INSULATION SYSTEM WITH A MAXIMUM OF 150 DEG C RISE ABOVE 40 DEG C AMBIENT TEMPERATURE.
- K. GROUNDING: PROVIDE GROUND-BAR KIT OR A GROUND BAR INSTALLED ON THE INSIDE OF THE TRANSFORMER ENCLOSURE.
- L. ELECTROSTATIC SHIELDING: EACH WINDING SHALL HAVE AN INDEPENDENT, SINGLE, FULL-WIDTH COPPER ELECTROSTATIC SHIELD ARRANGED TO MINIMIZE INTERWINDING CAPACITANCE 1. ARRANGE COIL LEADS AND TERMINAL STRIPS TO MINIMIZE CAPACITIVE COUPLING BETWEEN INPUT AND OUTPUT TERMINALS.
- 2. INCLUDE SPECIAL TERMINAL FOR GROUNDING THE SHIELD. M. WALL BRACKETS: WALL BRACKETS FABRICATED FROM DESIGN DRAWINGS SIGNED AND SEALED BY A LICENSED STRUCTURAL
- ENGINEER PART 3 - EXECUTION
- 3.1 EXAMINATION
- A. EXAMINE CONDITIONS FOR COMPLIANCE WITH ENCLOSURE- AND AMBIENT-TEMPERATURE REQUIREMENTS FOR EACH TRANSFORMER.
- B. VERIFY THAT FIELD MEASUREMENTS ARE AS NEEDED TO MAINTAIN WORKING CLEARANCES REQUIRED BY NFPA 70 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.
- C. ENVIRONMENT: ENCLOSURES SHALL BE RATED FOR THE ENVIRONMENT IN WHICH THEY ARE LOCATED. COVERS FOR NEMA 250, TYPE 4X ENCLOSURES SHALL NOT CAUSE ACCESSIBILITY PROBLEMS.
- 3.2 INSTALLATION
- A. INSTALL WALL-MOUNTED TRANSFORMERS LEVEL AND PLUMB WITH WALL BRACKETS FABRICATED FROM DESIGN DRAWINGS SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER. 1. COORDINATE INSTALLATION OF WALL-MOUNTED AND STRUCTURE-HANGING SUPPORTS WITH ACTUAL TRANSFORMER PROVIDED.
- 2. BRACE WALL-MOUNTED TRANSFORMERS AS SPECIFIED IN SECTION 260548.16 "SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS."
- B. INSTALL TRANSFORMERS LEVEL AND PLUMB ON A CONCRETE BASE WITH VIBRATION-DAMPENING SUPPORTS. LOCATE TRANSFORMERS AWAY FROM CORNERS AND NOT PARALLEL TO ADJACENT WALL SURFACE.
- C. CONSTRUCT CONCRETE BASES AND ANCHOR FLOOR-MOUNTED TRANSFORMERS ACCORDING TO MANUFACTURER'S WRITTEN
- INSTRUCTIONS, AND SEISMIC CODES APPLICABLE TO PROJECT. 1. COORDINATE SIZE AND LOCATION OF CONCRETE BASES WITH ACTUAL TRANSFORMER PROVIDED. CAST ANCHOR-BOLT INSERTS INTO BASES. CONCRETE, REINFORCEMENT, AND FORMWORK REQUIREMENTS ARE SPECIFIED WITH CONCRETE.

DRAWING

DEVICES.

SPD TYPE 1

STRUCTURE.

3.4 CLEANING ASSIST IN CLEANING.

PART 1 - GENERAI 1.1 SUBMITTALS

- - BALANCING

  - CABINETS.
  - LOCATION.

  - TYPE 4.

FLOOR.

3.3 CONNECTIONS

A. GROUND EQUIPMENT ACCORDING TO SECTION 260526 "GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS."

- B. CONNECT WIRING ACCORDING TO SECTION 260519 "LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES." C. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES.
- IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A-486B D. PROVIDE FLEXIBLE CONNECTIONS AT ALL CONDUIT AND
- CONDUCTOR TERMINATIONS AND SUPPORTS TO ELIMINATE SOUND AND VIBRATION TRANSMISSION TO THE BUILDING
- A. VACUUM DIRT AND DEBRIS; DO NOT USE COMPRESSED AIR TO
- SECTION 262416 PANELBOARDS
- A. PRODUCT DATA: FOR EACH TYPE OF PANELBOARD. 1. INCLUDE MATERIALS, SWITCHING AND OVERCURRENT PROTECTIVE DEVICES, SPDS, ACCESSORIES, AND
- COMPONENTS INDICATED. 2. INCLUDE DIMENSIONS AND MANUFACTURERS' TECHNICAL DATA ON FEATURES, PERFORMANCE, ELECTRICAL CHARACTERISTICS, RATINGS, AND FINISHES.
- 3. PANELBOARD SCHEDULES: FOR INSTALLATION IN PANELBOARDS. SUBMIT FINAL VERSIONS AFTER LOAD
- 1.2 MAINTENANCE MATERIAL SUBMITTALS
- A. FURNISH EXTRA MATERIALS THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS. 1. KEYS: TWO SPARES FOR EACH TYPE OF PANELBOARD CABINET LOCK.
- 2. CIRCUIT BREAKERS INCLUDING GFCI AND GFEP TYPES: TWO SPARES FOR EACH PANELBOARD. 3. FUSES FOR FUSED SWITCHES: EQUAL TO 10 PERCENT OF
- QUANTITY INSTALLED FOR EACH SIZE AND TYPE, BUT NO FEWER THAN THREE OF EACH SIZE AND TYPE. 4. FUSES FOR FUSED POWER-CIRCUIT DEVICES: EQUAL TO 10 PERCENT OF QUANTITY INSTALLED FOR EACH SIZE AND TYPE,
- BUT NO FEWER THAN THREE OF EACH SIZE AND TYPE. PART 2 - PRODUCTS 2.1 PANELBOARDS COMMON REQUIREMENTS A. ENCLOSURES: FLUSH AND SURFACE-MOUNTED, DEAD-FRONT
  - 1. RATED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED
  - a. INDOOR DRY AND CLEAN LOCATIONS: NEMA 250, TYPE 1. b. OUTDOOR LOCATIONS: NEMA 250, TYPE 3R.
  - c. KITCHEN WASH-DOWN AREAS: NEMA 250, TYPE 4X, STAINLESS STEEL. d. OTHER WET OR DAMP INDOOR LOCATIONS: NEMA 250,
  - e. INDOOR LOCATIONS SUBJECT TO DUST, FALLING DIRT AND DRIPPING NONCORROSIVE LIQUIDS: NEMA 250,
  - TYPE 5 OR TYPE 12.
  - 2. HEIGHT: 84 INCHES MAXIMUM.
  - 3. FRONT: SECURED TO BOX WITH CONCEALED TRIM CLAMPS FOR SURFACE-MOUNTED FRONTS, MATCH BOX DIMENSIONS FOR FLUSH-MOUNTED FRONTS, OVERLAP BOX. TRIMS SHALL COVER ALL LIVE PARTS AND SHALL HAVE NO EXPOSED HARDWARE
  - 4. HINGED FRONT COVER: ENTIRE FRONT TRIM HINGED TO BOX AND WITH STANDARD DOOR WITHIN HINGED TRIM COVER. TRIMS SHALL COVER ALL LIVE PARTS AND SHALL HAVE NO EXPOSED HARDWARE.
  - 5. SKIRT FOR SURFACE-MOUNTED PANELBOARDS: SAME GAGE AND FINISH AS PANELBOARD FRONT WITH FLANGES FOR ATTACHMENT TO PANELBOARD, WALL, AND CEILING OR
- B. INCOMING MAINS SHALL BE CONVERTIBLE BETWEEN TOP AND BOTTOM. MAIN LUG INTERIORS UP TO 400 AMPERES SHALL BE FIELD CONVERTIBLE TO MAIN BREAKER.
- C. PHASE, NEUTRAL, AND GROUND BUSES:
- 1. MATERIAL: HARD-DRAWN COPPER, 98 PERCENT CONDUCTIVITY. PLATING SHALL RUN ENTIRE LENGTH OF BUS. BUS SHALL BE FULLY RATED THE ENTIRE LENGTH.
- INTERIORS SHALL BE FACTORY ASSEMBLED INTO A UNIT. REPLACING SWITCHING AND PROTECTIVE DEVICES SHALL NOT DISTURB ADJACENT UNITS OR REQUIRE REMOVING THE MAIN BUS CONNECTORS.
- 3. EQUIPMENT GROUND BUS: ADEQUATE FOR FEEDER AND BRANCH-CIRCUIT EQUIPMENT GROUNDING CONDUCTORS; BONDED TO BOX.
- D. CONDUCTOR CONNECTORS: SUITABLE FOR USE WITH CONDUCTOR MATERIAL AND SIZES.
- 1. MATERIAL: HARD-DRAWN COPPER, 98 PERCENT
- CONDUCTIVITY. 2. TERMINATIONS SHALL ALLOW USE OF 75 DEG C RATED
- CONDUCTORS WITHOUT DERATING. 3. SIZE: LUGS SUITABLE FOR INDICATED CONDUCTOR SIZES, WITH ADDITIONAL GUTTER SPACE, IF REQUIRED, FOR LARGER CONDUCTORS.
- 4. MAIN AND NEUTRAL LUGS: MECHANICAL TYPE, WITH A LUG ON THE NEUTRAL BAR FOR EACH POLE IN THE PANELBOARD. 5. GROUND LUGS AND BUS-CONFIGURED TERMINATORS: MECHANICAL TYPE, WITH A LUG ON THE BAR FOR EACH POLE
- IN THE PANELBOARD. 6. FEED-THROUGH LUGS: MECHANICAL TYPE, SUITABLE FOR
- USE WITH CONDUCTOR MATERIAL. LOCATE AT OPPOSITE END OF BUS FROM INCOMING LUGS OR MAIN DEVICE. 7. SUBFEED (DOUBLE) LUGS: MECHANICAL TYPE SUITABLE FOR USE WITH CONDUCTOR MATERIAL. LOCATE AT SAME END OF
- BUS AS INCOMING LUGS OR MAIN DEVICE. 8. GUTTER-TAP LUGS: MECHANICAL TYPE SUITABLE FOR USE WITH CONDUCTOR MATERIAL AND WITH MATCHING INSULATING COVERS. LOCATE AT SAME END OF BUS AS
- INCOMING LUGS OR MAIN DEVICE. E. FUTURE DEVICES: PANELBOARDS SHALL HAVE MOUNTING
- BRACKETS, BUS CONNECTIONS, FILLER PLATES, AND NECESSARY APPURTENANCES REQUIRED FOR FUTURE INSTALLATION OF F. PANELBOARD SHORT-CIRCUIT CURRENT RATING: FULLY RATED
- TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS. ASSEMBLY LISTED BY AN NRTL FOR 100 PERCENT INTERRUPTING CAPACITY.
- G. SURGE SUPPRESSION: FACTORY INSTALLED AS AN INTEGRAL PART OF INDICATED PANELBOARDS, COMPLYING WITH UL 1449
- 2.2 DISTRIBUTION PANELBOARDS. POWER PANELBOARDS, AS SPECIFIED IN THIS ARTICLE, FALL UNDER REQUIREMENTS OF "DISTRIBUTION PANELBOARDS" IN NEMA PB 1
- A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH
- REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: EATON, SIEMENS, SQUARE D, OR GE.
- B. PANELBOARDS: NEMA PB 1, DISTRIBUTION TYPE.
- C. DOORS: SECURED WITH VAULT-TYPE LATCH WITH TUMBLER LOCK; KEYED ALIKE.
- D. MAINS: CIRCUIT BREAKER OR LUGS ONLY. REFER TO SINGLE LINE
- E. BRANCH OVERCURRENT PROTECTIVE DEVICES: BOLT-ON CIRCUIT BREAKERS.
- 2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS PANELBOARDS, AS SPECIFIED IN THIS ARTICLE, COMPLY WITH REQUIREMENTS OF "LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS" IN NEMA PB 1.
- A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE

- FOLLOWING: EATON, SIEMENS, SQUARE D, OR GE. B. PANELBOARDS: NEMA PB 1, LIGHTING AND APPLIANCE
- BRANCH-CIRCUIT TYPE. C. MAINS: CIRCUIT BREAKER OR LUGS ONLY. REFER TO SINGLE LINE
- DRAWING D. BRANCH OVERCURRENT PROTECTIVE DEVICES: BOLT-ON
- CIRCUIT BREAKERS, REPLACEABLE WITHOUT DISTURBING ADJACENT UNITS. E. DOORS: DOOR-IN-DOOR CONSTRUCTION WITH CONCEALED HINGES; SECURED WITH MULTIPOINT LATCH WITH TUMBLER
- LOCK; KEYED ALIKE. OUTER DOOR SHALL PERMIT FULL ACCESS TO THE PANEL INTERIOR. INNER DOOR SHALL PERMIT ACCESS TO BREAKER OPERATING HANDLES AND LABELING, BUT CURRENT CARRYING TERMINALS AND BUS SHALL REMAIN CONCEALED. F. PANELS KNOWN AS LOADCENTERS ARE NOT ACCEPTABLE. 2.4 IDENTIFICATION
- A. PANELBOARD LABEL: MANUFACTURER'S NAME AND TRADEMARK, VOLTAGE, AMPERAGE, NUMBER OF PHASES, AND NUMBER OF POLES SHALL BE LOCATED ON THE INTERIOR OF THE PANELBOARD DOOR.
- B. BREAKER LABELS: FACEPLATE SHALL LIST CURRENT RATING, UL AND IEC CERTIFICATION STANDARDS, AND AIC RATING.
- C. CIRCUIT DIRECTORY: DIRECTORY CARD INSIDE PANELBOARD DOOR, MOUNTED IN METAL FRAME WITH TRANSPARENT PROTECTIVE COVER. 1. CIRCUIT DIRECTORY SHALL IDENTIFY SPECIFIC PURPOSE
- WITH DETAIL SUFFICIENT TO DISTINGUISH IT FROM ALL OTHER CIRCUITS.
- PART 3 EXECUTION 3.1 INSTALLATION
- A. COORDINATE LAYOUT AND INSTALLATION OF PANELBOARDS AND COMPONENTS WITH OTHER CONSTRUCTION THAT PENETRATES WALLS OR IS SUPPORTED BY THEM, INCLUDING ELECTRICAL AND OTHER TYPES OF EQUIPMENT, RACEWAYS, PIPING, ENCUMBRANCES TO WORKSPACE CLEARANCE REQUIREMENTS, AND ADJACENT SURFACES. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR EQUIPMENT
- ACCESS DOORS AND PANELS. B. COMPLY WITH NECA 1. INSTALL PANELBOARDS AND
- ACCESSORIES ACCORDING TO NECA 407 AND NEMA PB 1.1. C. MOUNT TOP OF TRIM 90 INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.
- SECTION 262726 WIRING DEVICES
- PART 1 GENERAL
- 1.1 SUBMITTALS A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.
- PART 2 PRODUCTS
- 2.1 GENERAL WIRING-DEVICE REQUIREMENTS A. WIRING DEVICES, COMPONENTS, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND
- APPLICATION. B. DEVICES THAT ARE MANUFACTURED FOR USE WITH MODULAR PLUG-IN CONNECTORS MAY BE SUBSTITUTED UNDER THE
- FOLLOWING CONDITIONS: A. CONNECTORS SHALL COMPLY WITH UL 2459 AND SHALL BE MADE WITH STRANDING BUILDING WIRE.
- B. DEVICES SHALL COMPLY WITH THE REQUIREMENTS IN THIS SECTION
- C. DEVICES FOR OWNER-FURNISHED EQUIPMENT: RECEPTACLES: MATCH PLUG CONFIGURATIONS. CORD AND PLUG SETS: MATCH EQUIPMENT REQUIREMENTS.
- D. SOURCE LIMITATIONS: OBTAIN EACH TYPE OF WIRING DEVICE AND ASSOCIATED WALL PLATE FROM SINGLE SOURCE FROM SINGLE MANUFACTURER. ACCEPTABLE MANUFACTURERS ARE EATON, HUBBELL, PASS & SEYMOUR, AND LEVITON, UNLESS OTHERWISE NOTED.
- 2.2 STRAIGHT-BLADE RECEPTACLES
- A. DUPLEX CONVENIENCE RECEPTACLES: 125 V, 20 A; COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND FS W-C-596.
- B. ISOLATED-GROUND, DUPLEX CONVENIENCE RECEPTACLES: 125 V, 20 A: COMPLY WITH NEMA WD 1. NEMA WD 6 CONFIGURATION 5-20R, UL 498, AND FS W-C-596
- DESCRIPTION: STRAIGHT BLADE; EQUIPMENT GROUNDING CONTACTS SHALL BE CONNECTED ONLY TO THE GREEN GROUNDING SCREW TERMINAL OF THE DEVICE AND WITH INHERENT ELECTRICAL ISOLATION FROM MOUNTING STRAP. ISOLATION SHALL BE INTEGRAL TO RECEPTACLE CONSTRUCTION AND NOT DEPENDENT ON REMOVABLE
- PARTS
- 2.3 USB CHARGER DEVICES A. TAMPER-RESISTANT. USB CHARGER RECEPTACLES: 12 V DC. 2.0 A, USB DUAL TYPE A; COMPLY WITH NEMA WD 1, NEMA WD 6
- CONFIGURATION 5-20R, UL 498, UL 1310, AND FS W-C-596. 1. DESCRIPTION: SINGLE-PIECE, RIVETLESS, NICKEL-PLATED, ALL-BRASS GROUNDING SYSTEM. NICKEL-PLATED, BRASS MOUNTING STRAP
- 2.4 GFCI RECEPTACLES
- A. DUPLEX RECEPTACLE, 125 V, 20 A, STRAIGHT BLADE, NON-FEED-THROUGH TYPE.

COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION 5-20R, UL 498, UL 943 CLASS A, AND FS W-C-596 INCLUDE INDICATOR LIGHT THAT SHOWS WHEN THE GFCI HAS MALFUNCTIONED AND NO LONGER PROVIDES PROPER GFCI PROTECTION.

- 2.5 TWIST-LOCKING RECEPTACLES A. TWIST-LOCK, SINGLE CONVENIENCE RECEPTACLES: 125 V, 20 A;
- COMPLY WITH NEMA WD 1, NEMA WD 6 CONFIGURATION L5-20R, AND UL 498. 2.6 PENDANT CORD-CONNECTOR DEVICES
- A. DESCRIPTION:
- 1. MATCHING, LOCKING-TYPE PLUG AND RECEPTACLE BODY CONNECTOR.
- 2. NEMA WD 6 CONFIGURATIONS L5-20P AND L5-20R, HEAVY-DUTY GRADE, AND FS W-C-596.
- 3. BODY: NYLON, WITH SCREW-OPEN, CABLE-GRIPPING JAWS AND PROVISION FOR ATTACHING EXTERNAL CABLE GRIP.
- 4. EXTERNAL CABLE GRIP: WOVEN WIRE-MESH TYPE MADE OF HIGH-STRENGTH, GALVANIZED-STEEL WIRE STRAND,
- MATCHED TO CABLE DIAMETER, AND WITH ATTACHMENT PROVISION DESIGNED FOR CORRESPONDING CONNECTOR. 2.7 CORD AND PLUG SETS
- A. DESCRIPTION:
- 1. MATCH VOLTAGE AND CURRENT RATINGS AND NUMBER OF CONDUCTORS TO REQUIREMENTS OF EQUIPMENT BEING CONNECTED 2. CORD: RUBBER-INSULATED, STRANDED-COPPER
- CONDUCTORS, WITH TYPE SOW-A JACKET; WITH GREEN-INSULATED GROUNDING CONDUCTOR AND AMPACITY
- OF AT LEAST 130 PERCENT OF THE EQUIPMENT RATING. 3. PLUG: NYLON BODY AND INTEGRAL CABLE-CLAMPING JAWS. MATCH CORD AND RECEPTACLE TYPE FOR CONNECTION.
- 2.8 TOGGLE SWITCHES A. COMPLY WITH NEMA WD 1, UL 20, AND FS W-S-896.
- B. SWITCHES, 120/277 V, 20 A:
- C. PILOT-LIGHT SWITCHES: 120/277 V, 20 A.

IN LIEU OF SWITCH HANDLE.

UL 20, AND FS W-S-896.

2.10 WALL PLATES

1. DESCRIPTION: SINGLE POLE, WITH LED-LIGHTED HANDLE, ILLUMINATED WHEN SWITCH IS OFF. 2. KEY-OPERATED SWITCHES: 120/277 V, 20 A. 3. DESCRIPTION: SINGLE POLE, WITH FACTORY-SUPPLIED KEY

2.9 WALL SWITCH SENSOR LIGHT SWITCH, DUAL TECHNOLOGY

LIGHTING-CONTROL UNIT USING DUAL TECHNOLOGY.

LIGHTING-CONTROL SENSOR AND CONVENTIONAL SWITCH

ADJUSTABLE TIME DELAY OF 20 MINUTES. ABLE TO BE LOCKED TO

AUTOMATIC-ON OR MANUAL-ON MODE. COMPLY WITH NEMA WD 1,

A. DESCRIPTION: SWITCHBOX-MOUNTED, COMBINATION

#### A. SINGLE AND COMBINATION TYPES SHALL MATCH

CORRESPONDING WIRING DEVICES.

IN WET AND DAMP LOCATIONS.

DATA COMMUNICATION CABLING

2.12 POKE-THROUGH ASSEMBLIES

REQUIREMENTS.

DRAWINGS.

SYSTEM: RED

A. DESCRIPTION:

2.13 FINISHES

COLOR.

PART 3 - EXECUTION

3.1 INSTALLATION

C. CONDUCTORS:

STRANDED WIRE.

WITHOUT PIGTAILS.

CONDUCTORS.

D. EXISTING CONDUCTORS:

E. DEVICE INSTALLATION:

MOMENT.

F. RECEPTACLE ORIENTATION:

COVER ROUGH WALL OPENING.

FURNISHINGS.

SECTION 262813 - FUSES

SPARE-FUSE CABINETS.

1.2 MAINTENANCE MATERIAL SUBMITTALS

PART 1 - GENERAL

1.1 SUBMITTALS

3.2 IDENTIFICATION

BOXES

A. DEVICE COLOR:

2.11 FLOOR SERVICE FITTINGS

THERMOPLASTIC WITH LOCKABLE COVER.

FINISH, UNLESS OTHERWISE INDICATED.

AND MATCHED TO FLOOR THICKNESS.

WITH ORANGE TRIANGLE ON FACE.

INCLUDING PAINTING, IS COMPLETE.

CORROSION AND FOREIGN MATTER

THE WAY AROUND TERMINAL SCREW.

PIGTAILS FOR DEVICE CONNECTIONS.

POLES TO SUIT ARRANGEMENT OF PARTITIONS AND

B. COORDINATION WITH OTHER TRADES:

OF FLOOR-CEILING ASSEMBLY

PLATE FINISH

THERMOPLASTIC.

THERMOPLASTIC

- B. PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH
- C. MATERIAL FOR FINISHED SPACES: SMOOTH, HIGH-IMPACT
- D. MATERIAL FOR UNFINISHED SPACES: SMOOTH, HIGH-IMPACT
- E. MATERIAL FOR DAMP LOCATIONS: THERMOPLASTIC WITH SPRING-LOADED LIFT COVER, AND LISTED AND LABELED FOR USE
- F. WET-LOCATION, WEATHERPROOF COVER PLATES: NEMA 250, COMPLYING WITH TYPE 3R, WEATHER-RESISTANT
- A. TYPE: MODULAR, DUAL-SERVICE UNITS SUITABLE FOR WIRING
- METHOD USED. TYPE AS INDICATED ON DRAWINGS. B. COMPARTMENTS: BARRIER SEPARATES POWER FROM VOICE AND
- C. SERVICE PLATE: AS INDICATED BY ARCHITECT WITH SATIN FINISH. D. POWER RECEPTACLE: NEMA WD 6 CONFIGURATION 5-20R, GRAY
- E. DATA COMMUNICATION OUTLET: AS DIRECTED BY THE OWNER.
- 1. FACTORY-FABRICATED AND -WIRED ASSEMBLY OF BELOW-FLOOR JUNCTION BOX WITH MULTICHANNELED, THROUGH-FLOOR RACEWAY/FIRESTOP UNIT AND DETACHABLE MATCHING FLOOR SERVICE-OUTLET ASSEMBLY.
- 2. COMPLY WITH UL 514 SCRUB WATER EXCLUSION 3. SERVICE-OUTLET ASSEMBLY: TYPE AS INDICATED ON
- 4. SIZE: SELECTED TO FIT NOMINAL CORED HOLES IN FLOOR
- 5. FIRE RATING: UNIT IS LISTED AND LABELED FOR FIRE RATING
- 6. CLOSURE PLUG: ARRANGED TO CLOSE UNUSED CORED OPENINGS AND REESTABLISH FIRE RATING OF FLOOR.

#### 1. WIRING DEVICES CONNECTED TO NORMAL POWER SYSTEM: AS SELECTED BY ARCHITECT UNLESS OTHERWISE INDICATED OR REQUIRED BY NFPA 70 OR DEVICE LISTING. 2. WIRING DEVICES CONNECTED TO EMERGENCY POWER

- ISOLATED-GROUND RECEPTACLES: AS SPECIFIED ABOVE,
- A. WALL PLATE COLOR: FOR PLASTIC COVERS, MATCH DEVICE
- A. COMPLY WITH NECA 1, INCLUDING MOUNTING HEIGHTS LISTED IN THAT STANDARD, UNLESS OTHERWISE INDICATED.
- 1. PROTECT INSTALLED DEVICES AND THEIR BOXES. DO NOT PLACE WALL FINISH MATERIALS OVER DEVICE BOXES AND DO
- NOT CUT HOLES FOR BOXES WITH ROUTERS THAT ARE GUIDED BY RIDING AGAINST OUTSIDE OF BOXES.
- 2. KEEP OUTLET BOXES FREE OF PLASTER, DRYWALL JOINT
- COMPOUND, MORTAR, CEMENT, CONCRETE, DUST, PAINT, AND OTHER MATERIAL THAT MAY CONTAMINATE THE
- RACEWAY SYSTEM, CONDUCTORS, AND CABLES.
- 3. INSTALL DEVICE BOXES IN BRICK OR BLOCK WALLS SO THAT THE COVER PLATE DOES NOT CROSS A JOINT UNLESS THE JOINT IS TROWELED FLUSH WITH THE FACE OF THE WALL.
- 4. INSTALL WIRING DEVICES AFTER ALL WALL PREPARATION,
- 1. DO NOT STRIP INSULATION FROM CONDUCTORS UNTIL RIGHT BEFORE THEY ARE SPLICED OR TERMINATED ON DEVICES.
- 2. STRIP INSULATION EVENLY AROUND THE CONDUCTOR USING TOOLS DESIGNED FOR THE PURPOSE. AVOID SCORING OR NICKING OF SOLID WIRE OR CUTTING STRANDS FROM
- 3. THE LENGTH OF FREE CONDUCTORS AT OUTLETS FOR DEVICES SHALL MEET PROVISIONS OF NFPA 70, ARTICLE 300,
- a. CUT BACK AND PIGTAIL, OR REPLACE ALL DAMAGED
- b. STRAIGHTEN CONDUCTORS THAT REMAIN AND REMOVE
- c. PIGTAILING EXISTING CONDUCTORS IS PERMITTED. PROVIDED THE OUTLET BOX IS LARGE ENOUGH.
- 1. REPLACE DEVICES THAT HAVE BEEN IN TEMPORARY USE DURING CONSTRUCTION AND THAT WERE INSTALLED BEFORE BUILDING FINISHING OPERATIONS WERE COMPLETE 2. KEEP EACH WIRING DEVICE IN ITS PACKAGE OR OTHERWISE PROTECTED UNTIL IT IS TIME TO CONNECT CONDUCTORS. 3. DO NOT REMOVE SURFACE PROTECTION, SUCH AS PLASTIC FILM AND SMUDGE COVERS, UNTIL THE LAST POSSIBLE
- 4. CONNECT DEVICES TO BRANCH CIRCUITS USING PIGTAILS THAT ARE NOT LESS THAN 6 INCHES (152 MM) IN LENGTH. 5. WHEN THERE IS A CHOICE, USE SIDE WIRING WITH
- BINDING-HEAD SCREW TERMINALS. WRAP SOLID CONDUCTOR TIGHTLY CLOCKWISE, TWO-THIRDS TO THREE-FOURTHS OF 6. USE A TORQUE SCREWDRIVER WHEN A TORQUE IS
- RECOMMENDED OR REQUIRED BY MANUFACTURER 7. WHEN CONDUCTORS LARGER THAN NO. 12 AWG ARE INSTALLED ON 15- OR 20-A CIRCUITS, SPLICE NO. 12 AWG
- 8. TIGHTEN UNUSED TERMINAL SCREWS ON THE DEVICE. 9. WHEN MOUNTING INTO METAL BOXES, REMOVE THE FIBER OR PLASTIC WASHERS USED TO HOLD DEVICE-MOUNTING SCREWS IN YOKES, ALLOWING METAL-TO-METAL CONTACT.
- INSTALL GROUND PIN OF VERTICALLY MOUNTED RECEPTACLES UP, AND ON HORIZONTALLY MOUNTED RECEPTACLES TO THE
- G. DEVICE PLATES: DO NOT USE OVERSIZED OR EXTRA-DEEP PLATES. REPAIR WALL FINISHES AND REMOUNT OUTLET BOXES
- WHEN STANDARD DEVICE PLATES DO NOT FIT FLUSH OR DO NOT H. ARRANGEMENT OF DEVICES: UNLESS OTHERWISE INDICATED, MOUNT FLUSH, WITH LONG DIMENSION VERTICAL AND WITH GROUNDING TERMINAL OF RECEPTACLES ON TOP. GROUP ADJACENT SWITCHES UNDER SINGLE, MULTIGANG WALL PLATES. ADJUST LOCATIONS OF FLOOR SERVICE OUTLETS AND SERVICE
- A. IDENTIFY EACH RECEPTACLE WITH PANELBOARD IDENTIFICATION AND CIRCUIT NUMBER. USE HOT, STAMPED, OR ENGRAVED MACHINE PRINTING WITH BLACK-FILLED LETTERING ON FACE OF
- PLATE, AND DURABLE WIRE MARKERS OR TAGS INSIDE OUTLET
- A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT. INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, DIMENSIONS OF INDIVIDUAL COMPONENTS AND PROFILES, AND FINISHES FOR
- A. FURNISH EXTRA MATERIALS THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.

- 1. FUSES: EQUAL TO 10 PERCENT OF QUANTITY INSTALLED FOR EACH SIZE AND TYPE, BUT NO FEWER THAN THREE OF EACH SIZE AND TYPE
- PART 2 PRODUCTS 2.1 MANUFACTURERS
- A. SOURCE LIMITATIONS: OBTAIN FUSES, FOR USE WITHIN A SPECIFIC PRODUCT OR CIRCUIT, FROM SINGLE SOURCE FROM SINGLE MANUFACTURER. 2.2 CARTRIDGE FUSES
- A. CHARACTERISTICS: NEMA FU 1, CURRENT-LIMITING,
- NONRENEWABLE CARTRIDGE FUSES WITH VOLTAGE RATINGS CONSISTENT WITH CIRCUIT VOLTAGES.
- B. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- C. COMPLY WITH NEMA FU 1 FOR CARTRIDGE FUSES. D. COORDINATE FUSE RATINGS WITH UTILIZATION EQUIPMENT NAMEPLATE LIMITATIONS OF MAXIMUM FUSE SIZE AND WITH SYSTEM SHORT-CIRCUIT CURRENT LEVELS.
- 2.3 SPARE-FUSE CABINET
- A. CHARACTERISTICS: WALL-MOUNTED STEEL UNIT WITH FULL-LENGTH, RECESSED PIANO-HINGED DOOR AND KEY-CODED CAM LOCK AND PULL
- 1. SIZE: ADEQUATE FOR STORAGE OF SPARE FUSES SPECIFIED WITH 15 PERCENT SPARE CAPACITY MINIMUM. 2. FINISH: GRAY, BAKED ENAMEL
- 3. IDENTIFICATION: "SPARE FUSES" IN 1-1/2-INCH- (38-MM-) HIGH LETTERS ON EXTERIOR OF DOOR
- 4. FUSE PULLERS: FOR EACH SIZE OF FUSE, WHERE APPLICABLE AND AVAILABLE, FROM FUSE MANUFACTURER. PART 3 - EXECUTION
- 3.1 FUSE APPLICATIONS
- A. CARTRIDGE FUSES: 1. SERVICE ENTRANCE: CLASS L, FAST ACTING
- 2. FEEDERS: CLASS RK1, FAST ACTING
- 3. MOTOR BRANCH CIRCUITS: CLASS RK1, TIME DELAY. 4. LARGE MOTOR BRANCH (601-4000 A): CLASS L, TIME DELAY.
- 5. OTHER BRANCH CIRCUITS: CLASS RK1, TIME DELAY
- 6. ELEVATOR POWER MODULES: CLASS J
- 3.2 INSTALLATION A. INSTALL FUSES IN FUSIBLE DEVICES. ARRANGE FUSES SO RATING INFORMATION IS READABLE WITHOUT REMOVING FUSE.
- B. INSTALL SPARE-FUSE CABINET(S) IN LOCATION SHOWN ON THE DRAWINGS OR AS INDICATED IN THE FIELD BY OWNER.
- SECTION 262816 ENCLOSED SWITCHES AND CIRCUIT BREAKERS PART 1 - GENERAL
- 1.1 SUBMITTALS A. PRODUCT DATA: FOR EACH TYPE OF ENCLOSED SWITCH, CIRCUIT BREAKER, ACCESSORY, AND COMPONENT INDICATED. INCLUDE NAMEPLATE RATINGS, DIMENSIONED ELEVATIONS, SECTIONS, WEIGHTS, AND MANUFACTURERS' TECHNICAL DATA ON FEATURES, PERFORMANCE, ELECTRICAL CHARACTERISTICS, RATINGS, ACCESSORIES, AND FINISHES.
- 1.2 MAINTENANCE MATERIAL SUBMITTALS A. FURNISH EXTRA MATERIALS THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS. 1. FUSES: EQUAL TO 10 PERCENT OF QUANTITY INSTALLED FOR EACH SIZE AND TYPE, BUT NO FEWER THAN THREE OF EACH
- SIZE AND TYPE PART 2 - PRODUCTS
- 2.1 GENERAL REQUIREMENTS A. SOURCE LIMITATIONS: OBTAIN ENCLOSED SWITCHES AND CIRCUIT BREAKERS, OVERCURRENT PROTECTIVE DEVICES. COMPONENTS, AND ACCESSORIES, WITHIN SAME PRODUCT CATEGORY, FROM SINGLE MANUFACTURER.
- B. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY AN NRTL, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- C. ACCEPTABLE MANUFACTURERS ARE EATON, SIEMENS, SQUARE D, AND GE. 2.2 FUSIBLE SWITCHES
- A. FUSIBLE SWITCH, 800 A AND SMALLER: NEMA KS 1, TYPE HD, WITH CLIPS OR BOLT PADS TO ACCOMMODATE SPECIFIED FUSES, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION. B. ACCESSORIES:
- 1. EQUIPMENT GROUND KIT: INTERNALLY MOUNTED AND LABELED FOR COPPER AND ALUMINUM GROUND CONDUCTORS.
- 2. NEUTRAL KIT: INTERNALLY MOUNTED; INSULATED, CAPABLE OF BEING GROUNDED, AND BONDED; AND LABELED FOR COPPER AND ALUMINUM NEUTRAL CONDUCTORS
- 3. AUXILIARY CONTACT KIT: AUXILIARY SET OF CONTACTS ARRANGED TO OPEN BEFORE SWITCH BLADES OPEN. PROVIDE WHEN USED AS REMOTE DISCONNECT FOR VARIABLE FREQUENCY MOTOR CONTROLLER CIRCUITS.
- 4. SERVICE-RATED SWITCHES: LABELED FOR USE AS SERVICE EQUIPMENT. 2.3 NONFUSIBLE SWITCHES
- A. NONFUSIBLE SWITCH, 800 A AND SMALLER: NEMA KS 1, TYPE HD, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION. B. ACCESSORIES:
- 1. EQUIPMENT GROUND KIT: INTERNALLY MOUNTED AND LABELED FOR COPPER AND ALUMINUM GROUND CONDUCTORS.
- 2. NEUTRAL KIT: INTERNALLY MOUNTED; INSULATED, CAPABLE OF BEING GROUNDED, AND BONDED; AND LABELED FOR COPPER AND ALUMINUM NEUTRAL CONDUCTORS
- 3. AUXILIARY CONTACT KIT: AUXILIARY SET OF CONTACTS ARRANGED TO OPEN BEFORE SWITCH BLADES OPEN. PROVIDE WHEN USED AS REMOTE DISCONNECT FOR VARIABLE FREQUENCY MOTOR CONTROLLER CIRCUITS.
- 4. SERVICE-RATED SWITCHES: LABELED FOR USE AS SERVICE EQUIPMENT.
- 2.4 MOLDED-CASE CIRCUIT BREAKERS
- A. MOLDED-CASE CIRCUIT BREAKER: NEMA AB 1, WITH INTERRUPTING CAPACITY TO MEET AVAILABLE FAULT CURRENTS. 1. THERMAL-MAGNETIC CIRCUIT BREAKERS: INVERSE TIME-CURRENT ELEMENT FOR LOW-LEVEL OVERLOADS AND INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS. ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT-BREAKER FRAME SIZES 250 A AND LARGER.
- 2. ADJUSTABLE INSTANTANEOUS-TRIP CIRCUIT BREAKERS: MAGNETIC TRIP ELEMENT WITH FRONT-MOUNTED, FIELD-ADJUSTABLE TRIP SETTING.
- 3. ELECTRONIC TRIP-UNIT CIRCUIT BREAKERS: RMS SENSING; FIELD-REPLACEABLE RATING PLUG; WITH THE FOLLOWING FIELD-ADJUSTABLE SETTINGS:
- a. INSTANTANEOUS TRIP
- b. LONG- AND SHORT-TIME PICKUP LEVELS.
- c. LONG- AND SHORT-TIME TIME ADJUSTMENTS. d. GROUND-FAULT PICKUP LEVEL, TIME DELAY, AND I2T RESPONSE
- B. MOLDED-CASE CIRCUIT-BREAKER FEATURES AND ACCESSORIES: 1. STANDARD FRAME SIZES, TRIP RATINGS, AND NUMBER OF POLES.
- 2. LUGS: MECHANICAL STYLE SUITABLE FOR NUMBER, SIZE, TRIP RATINGS, AND CONDUCTOR MATERIAL.
- 3. APPLICATION LISTING: HACR FOR HEATING,
- AIR-CONDITIONING, AND REFRIGERATING EQUIPMENT. 4. GROUND-FAULT PROTECTION: INTEGRALLY MOUNTED RELAY AND TRIP UNIT WITH ADJUSTABLE PICKUP AND TIME-DELAY SETTINGS, PUSH-TO-TEST FEATURE, AND GROUND-FAULT INDICATOR.
- 5. SHUNT TRIP: 120-V TRIP COIL ENERGIZED FROM SEPARATE CIRCUIT, SET TO TRIP AT 55 PERCENT OF RATED VOLTAGE. 6. UNDERVOLTAGE TRIP: SET TO OPERATE AT 35 TO 75
- WINSTON DESIGN+ DEVELOPMENT 907 EAST END AVENUE PITTSBURGH, PA 15221 TEL:240.461.1093 www.winstonarchitecture.com COMMUNION ARCHITECTURE IS ADVOCACY AND ACTIVISM Allen+Shariff MEP Engineering Allegheny Center, Nova Tower 2 º Suite 1001 º Pittsburgh, PA 15212 ASE JOB #: 2041078 0 (1)  $\mathbf{\omega}$ S 0 O Ω Seal: FOR PRICING ONLY 50% CD Revisions: April 16, 2021 **Project Number:** 2020-06 Owner / Client: TomTom24 Development, LLC Drawing Title: Electrical Specifications Scale: As indicated Drawing Number:

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PERCENT OF RATED VOLTAGE WITHOUT INTENTIONAL OR WITH FIELD-ADJUSTABLE 0.1- TO 0.6-SECOND TIME DELAY. 7. AUXILIARY SWITCH: ONE SPDT SWITCH OR TWO SPDT

- SWITCHES WITH "A" AND "B" CONTACTS; "A" CONTACTS MIMIC CIRCUIT-BREAKER CONTACTS, "B" CONTACTS OPERATE IN REVERSE OF CIRCUIT-BREAKER CONTACTS.
- 2.5 ENCLOSURES A. NEMA AB 1 AND NEMA KS 1 TO MEET ENVIRONMENTAL
- CONDITIONS OF INSTALLED LOCATION.
- 1. INDOOR LOCATIONS: NEMA 250, TYPE 1. 2. OUTDOOR LOCATIONS: NEMA 250, TYPE 3R.
- 3. OTHER WET OR DAMP INDOOR LOCATIONS: NEMA 250,
- TYPE 4. B. CONDUIT ENTRY: NEMA 250 TYPES 4, 4X, AND 12 ENCLOSURES SHALL CONTAIN NO KNOCKOUTS. NEMA 250 TYPES 7 AND 9 ENCLOSURES SHALL BE PROVIDED WITH THREADED CONDUIT OPENINGS IN BOTH ENDWALLS.
- C. ENCLOSURES DESIGNATED AS NEMA 250 TYPE 4, 4X STAINLESS STEEL, 12, OR 12K SHALL HAVE A DUAL COVER INTERLOCK MECHANISM TO PREVENT UNINTENTIONAL OPENING OF THE ENCLOSURE COVER WHEN THE CIRCUIT BREAKER IS ON AND TO
- PREVENT TURNING THE CIRCUIT BREAKER ON WHEN THE ENCLOSURE COVER IS OPEN. D. ALL ENCLOSURES SHALL INCLUDE A BONDED EQUIPMENT BUS.
- PART 3 EXECUTION
- 3.1 INSTALLATION A. COORDINATE LAYOUT AND INSTALLATION OF SWITCHES, CIRCUIT BREAKERS, AND COMPONENTS WITH EQUIPMENT SERVED AND ADJACENT SURFACES. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR EQUIPMENT
- ACCESS DOORS AND PANELS. B. INSTALL INDIVIDUAL WALL-MOUNTED SWITCHES AND CIRCUIT BREAKERS WITH TOPS AT UNIFORM HEIGHT UNLESS OTHERWISE
- INDICATED. C. INSTALL FUSES IN FUSIBLE DEVICES.
- D. COMPLY WITH NFPA 70 AND NECA 1.
- SECTION 265119 LED LIGHTING PART 1 - PART 1 - GENERAL
- 1.1 SUBMITTALS
- A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.
- B. PRODUCT SCHEDULE: FOR LUMINAIRES AND LAMPS. USE SAME DESIGNATIONS INDICATED ON DRAWINGS. 1.2 QUALITY ASSURANCE
- A. LUMINAIRE PHOTOMETRIC DATA TESTING LABORATORY QUALIFICATIONS: PROVIDED BY AN INDEPENDENT AGENCY, WITH THE EXPERIENCE AND CAPABILITY TO CONDUCT THE TESTING INDICATED, THAT IS AN NRTL AS DEFINED BY OSHA IN 29 CFR 1910.7, ACCREDITED UNDER THE NVLAP FOR ENERGY EFFICIENT LIGHTING PRODUCTS, AND COMPLYING WITH THE APPLICABLE IES TESTING STANDARDS.
- B. PROVIDE LUMINAIRES FROM A SINGLE MANUFACTURER FOR EACH LUMINAIRE TYPE. C. EACH LUMINAIRE TYPE SHALL BE BINNED WITHIN A THREE-STEP
- MACADAM ELLIPSE TO ENSURE COLOR CONSISTENCY AMONG LUMINAIRES D. MOCKUPS: FOR INTERIOR LUMINAIRES IN ROOM OR MODULE
- MOCKUPS, COMPLETE WITH POWER AND CONTROL CONNECTIONS.
- 1. OBTAIN ARCHITECT'S APPROVAL OF LUMINAIRES IN MOCKUPS BEFORE STARTING INSTALLATIONS. 2. MAINTAIN MOCKUPS DURING CONSTRUCTION IN AN
- UNDISTURBED CONDITION AS A STANDARD FOR JUDGING THE COMPLETED WORK 3. APPROVAL OF MOCKUPS DOES NOT CONSTITUTE APPROVAL
- OF DEVIATIONS FROM THE CONTRACT DOCUMENTS CONTAINED IN MOCKUPS UNLESS ARCHITECT SPECIFICALLY APPROVES SUCH DEVIATIONS IN WRITING.
- 4. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, APPROVED MOCKUPS MAY BECOME PART OF THE COMPLETED WORK IF UNDISTURBED AT TIME OF SUBSTANTIAL COMPLETION. 1.3 DELIVERY, STORAGE, AND HANDLING
- A. PROTECT FINISHES OF EXPOSED SURFACES BY APPLYING A STRIPPABLE, TEMPORARY PROTECTIVE COVERING BEFORE SHIPPING
- 1.4 WARRANTY
- A. WARRANTY: MANUFACTURER AND INSTALLER AGREE TO REPAIR OR REPLACE COMPONENTS OF LUMINAIRES THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD. WARRANTY PERIOD: FIVE YEAR(S) FROM DATE OF SUBSTANTIAL COMPLETION.
- PART 2 PRODUCTS 2.1 LUMINAIRE REQUIREMENTS
- A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
- B. CRI AS INDICATED IN LIGHTING FIXTURE SCHEDULE. CCT AS INDICATED IN LIGHTING FIXTURE SCHEDULE.
- C. RATED LAMP LIFE OF 50,000 HOURS TO L70.
- D. LAMPS DIMMABLE FROM 100 PERCENT TO 0 PERCENT OF MAXIMUM LIGHT OUTPUT. E. LAMPS, BOTH INTEGRAL TO THE FIXTURE AND SCREW-IN TYPE,
- SHALL POSSESS A MINIMUM 75% EFFICACY TO MEET ENERGY CODES. LAMPS WITH EFFICACY LESS THAN 75% ARE NOT ACCEPTABLE AND SHALL NOT BE UTILIZED. F. INTERNAL DRIVER.
- G. NOMINAL OPERATING VOLTAGE: AS INDICATED IN LIGHTING FIXTURE SCHEDULE
- 2.2 LUMINAIRE SUPPORT A. SINGLE-STEM HANGERS: 1/2-INCH (13-MM) STEEL TUBING WITH SWIVEL BALL FITTINGS AND CEILING CANOPY. FINISH SAME AS LUMINAIRE
- B. WIRES: ASTM A 641/A 641 M, CLASS 3, SOFT TEMPER,
- ZINC-COATED STEEL, 12 GAGE (2.68 MM)
- C. ROD HANGERS: 3/16-INCH (5-MM) MINIMUM DIAMETER, CADMIUM-PLATED, THREADED STEEL ROD.
- D. HOOK HANGERS: INTEGRATED ASSEMBLY MATCHED TO LUMINAIRE, LINE VOLTAGE, AND EQUIPMENT WITH THREADED ATTACHMENT, CORD, AND LOCKING-TYPE PLUG.
- PART 3 EXECUTION
- 3.1 INTERIOR LIGHTING INSTALLATION
- A. COMPLY WITH NECA 1.
- B. INSTALL LUMINAIRES LEVEL, PLUMB, AND SQUARE WITH CEILINGS AND WALLS UNLESS OTHERWISE INDICATED. C. INSTALL LAMPS IN EACH LUMINAIRE.
- D. SUPPORTS:
- 1. SIZED AND RATED FOR LUMINAIRE WEIGHT. 2. ABLE TO MAINTAIN LUMINAIRE POSITION AFTER CLEANING
- AND RELAMPING.
- 3. PROVIDE SUPPORT FOR LUMINAIRE WITHOUT CAUSING
- DEFLECTION OF CEILING OR WALL 4. LUMINAIRE MOUNTING DEVICES SHALL BE CAPABLE OF SUPPORTING A HORIZONTAL FORCE OF 100 PERCENT OF LUMINAIRE WEIGHT AND VERTICAL FORCE OF 400 PERCENT OF LUMINAIRE WEIGHT
- E. FLUSH-MOUNTED LUMINAIRE SUPPORT:
- . SECURED TO OUTLET BOX. 2. ATTACHED TO CEILING STRUCTURAL MEMBERS AT FOUR POINTS EQUALLY SPACED AROUND CIRCUMFERENCE OF LUMINAIRE.
- 3. TRIM RING FLUSH WITH FINISHED SURFACE.
- F. WALL-MOUNTED LUMINAIRE SUPPORT:
- 1. ATTACHED TO STRUCTURAL MEMBERS IN WALLS. 2. DO NOT ATTACH LUMINAIRES DIRECTLY TO GYPSUM BOARD.
- G. CEILING-MOUNTED LUMINAIRE SUPPORT 1. CEILING MOUNT WITH FOUR-POINT PENDANT MOUNT WITH 5/32-INCH- (4-MM-) DIAMETER AIRCRAFT CABLE SUPPORTS ADJUSTABLE TO 120 INCHES (6 M) IN LENGTH.
- 2. CEILING MOUNT WITH HOOK MOUNT. H. SUSPENDED LUMINAIRE SUPPORT:
- 1. PENDANTS AND RODS: WHERE LONGER THAN 48 INCHES

(1200 MM), BRACE TO LIMIT SWINGING.

- 2. STEM-MOUNTED, SINGLE-UNIT LUMINAIRES: SUSPEND WITH TWIN-STEM HANGERS. SUPPORT WITH APPROVED OUTLET BOX AND ACCESSORIES THAT HOLD STEM AND PROVIDE DAMPING OF LUMINAIRE OSCILLATIONS. SUPPORT OUTLET BOX VERTICALLY TO BUILDING STRUCTURE USING APPROVED DEVICES.
- 3. CONTINUOUS ROWS OF LUMINAIRES: USE TUBING OR STEM FOR WIRING AT ONE POINT AND WIRE SUPPORT FOR SUSPENSION FOR EACH UNIT LENGTH OF LUMINAIRE CHASSIS, INCLUDING ONE AT EACH END.
- 4. DO NOT USE CEILING GRID AS SUPPORT FOR PENDANT LUMINAIRES. CONNECT SUPPORT WIRES OR RODS TO BUILDING STRUCTURE.
- I. CEILING-GRID-MOUNTED LUMINAIRES:
- 1. SECURE TO ANY REQUIRED OUTLET BOX. 2. SECURE LUMINAIRE TO THE LUMINAIRE OPENING USING APPROVED FASTENERS IN A MINIMUM OF FOUR LOCATIONS,
- SPACED NEAR CORNERS OF LUMINAIRE. 3. USE APPROVED DEVICES AND SUPPORT COMPONENTS TO CONNECT LUMINAIRE TO CEILING GRID AND BUILDING STRUCTURE IN A MINIMUM OF FOUR LOCATIONS, SPACED NEAR CORNERS OF LUMINAIRE.
- 3.2 ADJUSTING A. OCCUPANCY ADJUSTMENTS: WHEN REQUESTED WITHIN 12 MONTHS OF DATE OF SUBSTANTIAL COMPLETION, PROVIDE ON-SITE ASSISTANCE IN ADJUSTING THE DIRECTION OF AIM OF LUMINAIRES TO SUIT OCCUPIED CONDITIONS. MAKE UP TO TWO VISITS TO PROJECT DURING OTHER-THAN-NORMAL HOURS FOR THIS PURPOSE. SOME OF THIS WORK MAY BE REQUIRED DURING HOURS OF DARKNESS. ADJUST THE AIM OF LUMINAIRES IN THE PRESENCE OF THE ARCHITECT.
- 3.3 GENERAL EXTERIOR LIGHTING INSTALLATION REQUIREMENTS A. COMPLY WITH NECA 1 B. USE FASTENING METHODS AND MATERIALS SELECTED TO RESIST SEISMIC FORCES DEFINED FOR THE APPLICATION AND APPROVED
- BY MANUFACTURER. C. INSTALL LAMPS IN EACH LUMINAIRE.
- D. FASTEN LUMINAIRE TO STRUCTURAL SUPPORT.
- E. SUPPORTS: 1. SIZED AND RATED FOR LUMINAIRE WEIGHT.
- 2. ABLE TO MAINTAIN LUMINAIRE POSITION AFTER CLEANING
- AND RELAMPING. 3. SUPPORT LUMINAIRES WITHOUT CAUSING DEFLECTION OF FINISHED SURFACE.
- 4. LUMINAIRE-MOUNTING DEVICES SHALL BE CAPABLE OF SUPPORTING A HORIZONTAL FORCE OF 100 PERCENT OF LUMINAIRE WEIGHT AND A VERTICAL FORCE OF 400 PERCENT OF LUMINAIRE WEIGHT.
- F. INSTALL LUMINAIRES LEVEL, PLUMB, AND SQUARE WITH FINISHED GRADE UNLESS OTHERWISE INDICATED. INSTALL LUMINAIRES AT HEIGHT AND AIMING ANGLE AS INDICATED ON DRAWINGS.
- G. COORDINATE LAYOUT AND INSTALLATION OF LUMINAIRES WITH OTHER CONSTRUCTION.
- H. ADJUST LUMINAIRES THAT REQUIRE FIELD ADJUSTMENT OR AIMING
- 3.4 BOLLARD LUMINAIRE INSTALLATION: A. ALIGN UNITS FOR OPTIMUM DIRECTIONAL ALIGNMENT OF LIGHT DISTRIBUTION
- 1. INSTALL ON CONCRETE BASE WITH TOP 4 INCHES (100 MM) ABOVE FINISHED GRADE OR SURFACE AT LUMINAIRE LOCATION. CAST CONDUIT INTO BASE, AND SHAPE BASE TO MATCH SHAPE OF BOLLARD BASE. FINISH BY TROWELING AND RUBBING SMOOTH
- 3.5 INSTALLATION OF INDIVIDUAL GROUND-MOUNTED LUMINAIRES A. AIM AS INDICATED ON DRAWINGS
- B. INSTALL ON CONCRETE BASE WITH TOP 4 INCHES (100 MM) ABOVE FINISHED GRADE OR SURFACE AT LUMINAIRE LOCATION. CAST CONDUIT INTO BASE, AND FINISH BY TROWELING AND RUBBING SMOOTH.
- SECTION 283111 ADDRESSABLE FIRE ALARM SYSTEM PART 1 - GENERAL

1.1 GENERAL DESCRIPTION - PROVIDE ADDRESSABLE DIGITAL FIRE ALARM SYSTEM INSTALLED AS SHOWN ON DRAWINGS AND DESCRIBED HEREIN. THE OPERATION SHALL BE SUCH THAT ACTUATION OF ANY MANUAL FIRE ALARM STATION OR ANY OTHER INITIATION DEVICE SHALL CAUSE AUDIBLE/VISIBLE SIGNAL DEVICES THROUGHOUT THE BUILDING TO OPERATE, SHALL CAUSE THE MAIN ANNUNCIATOR TO DISPLAY THE "ADDRESS"/"ZONE" OF THE INITIATING DEVICE UNTIL THE DEVICE IS

RESTORED TO ITS NORMAL POSITION AND THE CONTROL PANEL IS RESET AND SHALL CAUSE AN ALARM SIGNAL TO BE TRANSMITTED TO A CENTRAL STATION. ALL INITIATING DEVICES SHALL BE FULLY COMPATIBLE WITH EXISTING SYSTEMS AND SHALL

BE PER MANUFACTURER'S RECOMMENDATIONS. ALL COMPONENTS SHALL BE ADDRESSABLE OR BE PROVIDED WITH ADDRESSABLE ZONE INTERFACE MODULES.

- 1.2 SUBMITTALS
- A. GENERAL SUBMITTAL REQUIREMENTS:
- 1. SUBMITTALS SHALL BE APPROVED BY AUTHORITIES HAVING JURISDICTION PRIOR TO SUBMITTING THEM TO ARCHITECT. 2. SHOP DRAWINGS SHALL BE PREPARED BY PERSONS WITH
- THE FOLLOWING QUALIFICATIONS:
- a. TRAINED AND CERTIFIED BY MANUFACTURER IN FIRE-ALARM SYSTEM DESIGN.
- b. NICET-CERTIFIED FIRE-ALARM TECHNICIAN, LEVEL III
- MINIMUM. c. LICENSED OR CERTIFIED BY AUTHORITIES HAVING
- JURISDICTION.
- B. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED. C. SHOP DRAWINGS: FOR FIRE-ALARM SYSTEM. INCLUDE PLANS, ELEVATIONS, SECTIONS, DETAILS, AND ATTACHMENTS TO OTHER WORK.
- 1. COMPLY WITH RECOMMENDATIONS IN THE
- "DOCUMENTATION" SECTION OF THE "FUNDAMENTALS OF
- FIRE ALARM SYSTEMS" CHAPTER IN NFPA 72. 2. INCLUDE VOLTAGE DROP CALCULATIONS FOR NOTIFICATION APPLIANCE CIRCUITS.
- 3. INCLUDE BATTERY-SIZE CALCULATIONS.
- 4. INCLUDE PERFORMANCE PARAMETERS AND INSTALLATION DETAILS FOR EACH DETECTOR, VERIFYING THAT EACH DETECTOR IS LISTED FOR COMPLETE RANGE OF AIR VELOCITY, TEMPERATURE, AND HUMIDITY POSSIBLE WHEN AIR-HANDLING SYSTEM IS OPERATING.
- 5. INCLUDE AUDIO/ALARM SIGNALING-SERVICE EQUIPMENT RACK OR CONSOLE LAYOUT, GROUNDING SCHEMATIC, AMPLIFIER POWER CALCULATION, AND SINGLE-LINE CONNECTION DIAGRAM.
- 6. INCLUDE FLOOR PLANS TO INDICATE FINAL OUTLET LOCATIONS SHOWING ADDRESS OF EACH ADDRESSABLE DEVICE. SHOW SIZE AND ROUTE OF CABLE AND CONDUITS. 1.3 QUALITY ASSURANCE

B. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED

AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING

AND CERTIFIED BY MANUFACTURER FOR INSTALLATION OF UNITS

A. INSTALLER QUALIFICATIONS: PERSONNEL SHALL BE TRAINED

AGENCY, AND MARKED FOR INTENDED LOCATION AND

NFPA 72 BY A UL-LISTED ALARM COMPANY.

PERCENT OF AMOUNT INSTALLED.

C. NFPA CERTIFICATION: OBTAIN CERTIFICATION ACCORDING TO

A. FURNISH EXTRA MATERIALS THAT MATCH PRODUCTS INSTALLED

AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR

1. LAMPS FOR REMOTE INDICATING LAMP UNITS: QUANTITY

EQUAL TO 10 PERCENT OF AMOUNT INSTALLED.

2. LAMPS FOR STROBE UNITS: QUANTITY EQUAL TO 10

STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.

3. SMOKE DETECTORS, FIRE DETECTORS: QUANTITY EQUAL TO

10 PERCENT OF AMOUNT OF EACH TYPE INSTALLED. BUT NO

REQUIRED FOR THIS PROJECT.

APPLICATION.

1.4 EXTRA MATERIALS

FEWER THAN 1 UNIT OF EACH TYPE. 4. DETECTOR BASES: QUANTITY EQUAL TO 2 PERCENT OF AMOUNT OF EACH TYPE INSTALLED, BUT NO FEWER THAN 1

UNIT OF EACH TYPE 5. KEYS AND TOOLS: ONE EXTRA SET FOR ACCESS TO LOCKED AND TAMPERPROOFED COMPONENTS. 6. AUDIBLE AND VISUAL NOTIFICATION APPLIANCES: ONE OF

EACH TYPE INSTALLED. 7. FUSES: TWO OF EACH TYPE INSTALLED IN THE SYSTEM.

1.5 SEQUENCING AND SCHEDULING A. EXISTING FIRE-ALARM EQUIPMENT: MAINTAIN EXISTING EQUIPMENT FULLY OPERATIONAL UNTIL NEW EQUIPMENT HAS BEEN TESTED AND ACCEPTED. AS NEW EQUIPMENT IS INSTALLED,

LABEL IT "NOT IN SERVICE" UNTIL IT IS ACCEPTED. REMOVE LABELS FROM NEW EQUIPMENT WHEN PUT INTO SERVICE, AND LABEL EXISTING FIRE-ALARM EQUIPMENT "NOT IN SERVICE" UNTIL REMOVED FROM THE BUILDING. B. EQUIPMENT REMOVAL: AFTER ACCEPTANCE OF NEW FIRE-ALARM SYSTEM, REMOVE EXISTING DISCONNECTED FIRE-ALARM

EQUIPMENT AND WIRING. 1.6 WARRANTY A. SPECIAL WARRANTY: MANUFACTURER AGREES TO REPAIR OR

REPLACE FIRE-ALARM SYSTEM EQUIPMENT AND COMPONENTS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD

1. WARRANTY EXTENT: ALL EQUIPMENT AND COMPONENTS NOT COVERED IN THE MAINTENANCE SERVICE AGREEMENT. 2. WARRANTY PERIOD: FIVE YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

PART 2 - PRODUCTS 2.1 MANUFACTURERS

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: 1. NOTIFIER; A HONEYWELL COMPANY.

2. SIEMENS BUILDING TECHNOLOGIES, INC.; FIRE SAFETY DIVISION.

SIMPLEX GRINNELL LP; A TYCO INTERNATIONAL COMPANY. 4. EDWARDS

2.2 SYSTEM DESCRIPTION A. NONCODED, UL-CERTIFIED ADDRESSABLE SYSTEM, WITH MULTIPLEXED SIGNAL TRANSMISSION AND HORN/STROBE

EVACUATION B. AUTOMATIC SENSITIVITY CONTROL OF CERTAIN SMOKE

DETECTORS.

C. ALL COMPONENTS PROVIDED SHALL BE LISTED FOR USE WITH THE SELECTED SYSTEM. D. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING

AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION. 2.3 FIRE-ALARM CONTROL UNIT

A. GENERAL REQUIREMENTS FOR FIRE-ALARM CONTROL UNIT: 1. FIELD-PROGRAMMABLE, MICROPROCESSOR-BASED, MODULAR, POWER-LIMITED DESIGN WITH ELECTRONIC MODULES, COMPLYING WITH UL 864 AND LISTED AND

LABELED BY AN NRTL a. SYSTEM SOFTWARE AND PROGRAMS SHALL BE HELD IN NONVOLATILE FLASH, ELECTRICALLY ERASABLE, PROGRAMMABLE, READ-ONLY MEMORY, RETAINING THE INFORMATION THROUGH FAILURE OF PRIMARY AND

SECONDARY POWER SUPPLIES. b. INCLUDE A REAL-TIME CLOCK FOR TIME ANNOTATION OF EVENTS ON THE EVENT RECORDER AND PRINTER. c. PROVIDE COMMUNICATION BETWEEN THE FACP AND REMOTE CIRCUIT INTERFACE PANELS, ANNUNCIATORS, AND DISPLAYS.

d. THE FACP SHALL BE LISTED FOR CONNECTION TO A CENTRAL-STATION SIGNALING SYSTEM SERVICE. e. PROVIDE NONVOLATILE MEMORY FOR SYSTEM DATABASE, LOGIC, AND OPERATING SYSTEM AND EVENT HISTORY. THE SYSTEM SHALL REQUIRE NO MANUAL INPUT TO INITIALIZE IN THE EVENT OF A COMPLETE POWER DOWN CONDITION. THE FACP SHALL PROVIDE A MINIMUM

500-EVENT HISTORY LOG. 2. ADDRESSABLE INITIATION DEVICES THAT COMMUNICATE

DEVICE IDENTITY AND STATUS. a. SMOKE SENSORS SHALL ADDITIONALLY COMMUNICATE SENSITIVITY SETTING AND ALLOW FOR ADJUSTMENT OF SENSITIVITY AT FIRE-ALARM CONTROL UNIT.

b. TEMPERATURE SENSORS SHALL ADDITIONALLY TEST FOR AND COMMUNICATE THE SENSITIVITY RANGE OF THE DEVICE.

3. ADDRESSABLE CONTROL CIRCUITS FOR OPERATION OF MECHANICAL EQUIPMENT

B. ALPHANUMERIC DISPLAY AND SYSTEM CONTROLS: ARRANGED FOR INTERFACE BETWEEN HUMAN OPERATOR AT FIRE-ALARM CONTROL UNIT AND ADDRESSABLE SYSTEM COMPONENTS INCLUDING ANNUNCIATION AND SUPERVISION. DISPLAY ALARM,

SUPERVISORY, AND COMPONENT STATUS MESSAGES AND THE PROGRAMMING AND CONTROL MENU. C. INITIATING-DEVICE, NOTIFICATION-APPLIANCE, AND

SIGNALING-LINE CIRCUITS:

1. PATHWAY CLASS DESIGNATIONS: NFPA 72, CLASS B. D. PRIMARY POWER: 24-V DC OBTAINED FROM 120-V AC SERVICE AND A POWER-SUPPLY MODULE. INITIATING DEVICES, NOTIFICATION APPLIANCES, SIGNALING LINES, TROUBLE SIGNALS,

SUPERVISORY AND DIGITAL ALARM COMMUNICATOR TRANSMITTERS SHALL BE POWERED BY 24-V DC SOURCE. 1. ALARM CURRENT DRAW OF ENTIRE FIRE-ALARM SYSTEM

SHALL NOT EXCEED 80 PERCENT OF THE POWER-SUPPLY MODULE RATING.

E. SECONDARY POWER: 24-V DC SUPPLY SYSTEM WITH BATTERIES, AUTOMATIC BATTERY CHARGER, AND AUTOMATIC TRANSFER SWITCH.

1. BATTERIES: SEALED LEAD CALCIUM.

2. GENERAL DESCRIPTION - PROVIDE ADDRESSABLE DIGITAL FIRE ALARM SYSTEM INSTALLED AS SHOWN ON DRAWINGS AND DESCRIBED HEREIN. THE OPERATION SHALL BE SUCH THAT ACTUATION OF ANY MANUAL FIRE ALARM STATION OR ANY OTHER INITIATION DEVICE SHALL CAUSE

AUDIBLE/VISIBLE SIGNAL DEVICES THROUGHOUT THE BUILDING TO OPERATE, SHALL CAUSE THE MAIN ANNUNCIATOR TO DISPLAY THE "ADDRESS"/"ZONE" OF THE INITIATING DEVICE UNTIL THE DEVICE IS RESTORED TO ITS NORMAL POSITION AND THE CONTROL PANEL IS RESET AND SHALL CAUSE AN ALARM SIGNAL TO BE TRANSMITTED TO A CENTRAL STATION. ALL INITIATING DEVICES SHALL BE FULLY COMPATIBLE WITH EXISTING SYSTEMS AND SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. ALL COMPONENTS SHALL BE ADDRESSABLE OR BE PROVIDED WITH

ADDRESSABLE ZONE INTERFACE MODULES. 2.4 MANUAL FIRE-ALARM BOXES

A. PROVIDE NON-CODED DOUBLE ACTION MANUAL STATIONS WHERE SHOWN ON THE DRAWINGS, TO BE FLUSH OR SURFACE MOUNTED AS REQUIRED. PULL STATION ACTIVATION SHALL PROVIDE ALARM INPUT TO THE SYSTEM AND ALARM OUTPUT FROM THE SYSTEM WITHIN FOUR (4) SECONDS. THE MANUAL STATION SHALL BE EQUIPPED WITH TERMINAL STRIP AND PRESSURE STYLE SCREW TERMINALS FOR THE CONNECTION OF FIELD WIRING. HOUSINGS SHALL BE MADE OF THERMOPLASTIC MATERIAL WITH RAISED FIRE ALARM LETTERING AND BE COLORED RED. STATIONS THAT REQUIRE THE BREAKING OF GLASS WILL NOT BE ACCEPTABLE. SURFACE MOUNTED STATIONS WHERE INDICATED ON THE DRAWINGS SHALL BE MOUNTED USING A MANUFACTURER'S PRESCRIBED MATCHING RED ENAMEL OUTLET BOX.

2.5 SYSTEM SMOKE DETECTORS

A. PROVIDE PHOTOELECTRIC TYPE. DETECTORS SHALL BE LISTED FOR USE AS OPEN AREA PROTECTIVE COVERAGE AND SHALL BE INSENSITIVE TO AIR VELOCITY CHANGES. THE SMOKE DETECTOR SHALL CONTAIN A MULTI-COLORED LED INDICATOR THAT WILL

FLASH GREEN TO INDICATE THAT THE DETECTOR IS OPERATIONAL AND FLASH RED WHEN THE DETECTOR IS IN ALARM. THE DETECTOR SHALL BE CONTINUALLY SELF-TESTING AND SHALL BE DESIGNED TO ELIMINATE CALIBRATION ERRORS ASSOCIATED WITH FIELD CLEANING OF THE CHAMBER. DETECTOR SHALL TWIST LOCK INTO A BASE ASSEMBLY WITH SCREW CLAMP TERMINALS. DETECTOR ACTIVATION SHALL PROVIDE ALARM INPUT TO THE SYSTEM AND ALARM OUTPUT FROM THE SYSTEM WITHIN FOUR (4) SECONDS. THE DETECTOR SHALL SUPPORT THE USE OF A RELAY OR LED REMOTE INDICATOR. DETECTOR SPACING AND LOCATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, THE REQUIREMENTS OF NFPA 72, AND AS INDICATED. NO DETECTOR SHALL BE LOCATED CLOSER THAN 12 INCHES TO ANY PART OF ANY LIGHTING FIXTURE NOR SHALL ANY DETECTOR BE MOUNTED CLOSER THAT 36 INCHES TO ANY AHU AIR DIFFUSER. 2.6 HEAT DETECTORS

A. HEAT DETECTOR (SYSTEM) - THERMAL DETECTORS SHALL BE RATED AT 135 DEGREES FIXED TEMPERATURE AND 15 DEGREES PER MINUTE RATE OF RISE. DETECTORS SHALL BE CONSTRUCTED TO COMPENSATE FOR THE THERMAL LAG INHERENT IN CONVENTIONAL TYPE DETECTORS DUE TO THE THERMAL MASS, AND ALARM AT THE SET POINT OF 135 DEGREES FAHRENHEIT. THE DETECTORS FURNISHED SHALL HAVE A LISTED SPACING FOR COVERAGE UP TO 2,500 SQUARE FEET AND SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS OF NFPA 72 FOR OPEN AREA COVERAGE 2.7 NOTIFICATION APPLIANCES

A. NOTIFICATION APPLIANCES - THE HORN, STROBE OR HORN/STROBE APPLIANCE AS INDICATED ON THE DRAWINGS SHALL BE A SYNCHRONIZED TEMPORAL HORN WITH A SYNCHRONIZED STROBE LIGHT WITH MULTIPLE CANDELA TAPS TO MEET THE INTENDED APPLICATION. THE STROBE LIGHT TAPS SHALL BE ADJUSTABLE FOR 15, 30, 75, AND 110 CANDELA. THE STROBE SHALL FLASH AT A RATE BETWEEN 1/3 AND 3 FLASHES/SECOND. THE APPLIANCE SHALL BE RED FOR WALL MOUNTED AND WHITE FOR CEILING MOUNTED. CEILING MOUNTED APPLIANCES SHALL BE RATED FOR THAT APPLICATION. 2.8 REMOTE ANNUNCIATOR

A. PROVIDE ANNUNCIATOR WITH FUNCTIONS TO MATCH THOSE OF FIRE-ALARM CONTROL UNIT FOR ALARM, SUPERVISORY, AND TROUBLE INDICATIONS. MANUAL SWITCHING FUNCTIONS SHALL MATCH THOSE OF FIRE-ALARM CONTROL UNIT, INCLUDING ACKNOWLEDGING, SILENCING, RESETTING, AND TESTING MOUNTING SHALL BE FLUSH CABINET, NEMA 250, TYPE 1. ALPHANUMERIC DISPLAY AND LED INDICATING LIGHTS SHALL MATCH THOSE OF FIRE ALARM CONTROL UNIT. PROVIDE CONTROLS TO ACKNOWLEDGE, SILENCE, RESET, AND TEST FUNCTIONS FOR ALARM, SUPERVISORY, AND TROUBLE SIGNALS.

2.9 ADDRESSABLE INTERFACE DEVICE A. PROVIDE ADDRESSABLE INTERFACE DEVICES WITH THE FOLLOWING FUNCTIONS:

- INCLUDE ADDRESS-SETTING MEANS ON THE MODULE. 2. STORE AN INTERNAL IDENTIFYING CODE FOR CONTROL
- PANEL USE TO IDENTIFY THE MODULE TYPE. 3. LISTED FOR CONTROLLING HVAC FAN MOTOR CONTROLLERS.

B. MONITOR MODULE: MICROELECTRONIC MODULE PROVIDING A SYSTEM ADDRESS FOR ALARM-INITIATING DEVICES FOR WIRED APPLICATIONS WITH NORMALLY OPEN CONTACTS.

- C. INTEGRAL RELAY: CAPABLE OF PROVIDING A DIRECT SIGNAL TO ELEVATOR CONTROLLER TO INITIATE ELEVATOR RECALL OR TO CIRCUIT-BREAKER SHUNT TRIP FOR POWER SHUTDOWN. 1. ALLOW THE CONTROL PANEL TO SWITCH THE RELAY
- CONTACTS ON COMMAND. 2. HAVE A MINIMUM OF TWO NORMALLY OPEN AND TWO
- NORMALLY CLOSED CONTACTS AVAILABLE FOR FIELD WIRING
- D. CONTROL MODULE:
- 1. OPERATE NOTIFICATION DEVICES. 2. OPERATE SOLENOIDS FOR USE IN SPRINKLER SERVICE.
- 2.10 DIGITAL ALARM COMMUNICATOR TRANSMITTER A. PROVIDE DIGITAL ALARM COMMUNICATOR TRANSMITTER
- ACCEPTABLE TO THE REMOTE CENTRAL STATION AND COMPLYING WITH UL 632.
- B. FUNCTIONAL PERFORMANCE: UNIT SHALL RECEIVE AN ALARM. SUPERVISORY, OR TROUBLE SIGNAL FROM FIRE-ALARM CONTROL UNIT AND AUTOMATICALLY CAPTURE TWO TELEPHONE LINE(S) AND DIAL A PRESET NUMBER FOR A REMOTE CENTRAL STATION. WHEN CONTACT IS MADE WITH CENTRAL STATION(S), SIGNALS SHALL BE TRANSMITTED. IF SERVICE ON EITHER LINE IS INTERRUPTED FOR LONGER THAN 45 SECONDS, TRANSMITTER SHALL INITIATE A LOCAL TROUBLE SIGNAL AND TRANSMIT THE SIGNAL INDICATING LOSS OF TELEPHONE LINE TO THE REMOTE ALARM RECEIVING STATION OVER THE REMAINING LINE. TRANSMITTER SHALL AUTOMATICALLY REPORT TELEPHONE SERVICE RESTORATION TO THE CENTRAL STATION. IF SERVICE IS LOST ON BOTH TELEPHONE LINES, TRANSMITTER SHALL INITIATE THE LOCAL TROUBLE SIGNAL.
- C. LOCAL FUNCTIONS AND DISPLAY AT THE DIGITAL ALARM COMMUNICATOR TRANSMITTER SHALL INCLUDE THE FOLLOWING: 1. VERIFICATION THAT BOTH TELEPHONE LINES ARE AVAILABLE.
- 2. PROGRAMMING DEVICE.
- 3. LED DISPLAY.
- 4. MANUAL TEST REPORT FUNCTION AND MANUAL TRANSMISSION CLEAR INDICATION.
- 5. COMMUNICATIONS FAILURE WITH THE CENTRAL STATION OR FIRE-ALARM CONTROL UNIT.
- D. SECONDARY POWER: INTEGRAL RECHARGEABLE BATTERY AND AUTOMATIC CHARGER.
- E. SELF-TEST: CONDUCTED AUTOMATICALLY EVERY 24 HOURS WITH REPORT TRANSMITTED TO CENTRAL STATION.
- PART 3 EXECUTION
- 3.1 EQUIPMENT INSTALLATION A. COMPLY WITH NFPA 72, NFPA 101, AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION FOR INSTALLATION AND TESTING OF FIRE-ALARM EQUIPMENT. INSTALL ALL ELECTRICAL WIRING TO COMPLY WITH REQUIREMENTS IN NFPA 70 INCLUDING. BUT NOT LIMITED TO, ARTICLE 760, "FIRE ALARM SYSTEMS."
- B. CONNECTING TO EXISTING EQUIPMENT: VERIFY THAT EXISTING FIRE-ALARM SYSTEM IS OPERATIONAL BEFORE MAKING CHANGES OR CONNECTIONS.
- C. INSTALL WALL-MOUNTED EQUIPMENT, WITH TOPS OF CABINETS NOT MORE THAN 78 INCHES (1980 MM) ABOVE THE FINISHED FLOOR.
- D. MANUAL FIRE-ALARM BOXES:
- 1. INSTALL MANUAL FIRE-ALARM BOX IN THE NORMAL PATH OF EGRESS WITHIN 60 INCHES (1520 MM) OF THE EXIT DOORWAY.
- 2. MOUNT MANUAL FIRE-ALARM BOX ON A BACKGROUND OF A CONTRASTING COLOR. 3. THE OPERABLE PART OF MANUAL FIRE-ALARM BOX SHALL BE
- BETWEEN 42 INCHES (1060 MM) AND 48 INCHES (1220 MM) ABOVE FLOOR LEVEL. ALL DEVICES SHALL BE MOUNTED AT THE SAME HEIGHT UNLESS OTHERWISE INDICATED.
- E. SMOKE- OR HEAT-DETECTOR SPACING: COMPLY WITH NFPA 72. F. DUCT SMOKE DETECTORS: COMPLY WITH NFPA 72 AND NFPA 90A INSTALL SAMPLING TUBES SO THEY EXTEND THE FULL WIDTH OF DUCT. TUBES MORE THAN 36 INCHES (9100 MM) LONG SHALL BE SUPPORTED AT BOTH ENDS.
- G. SINGLE-STATION SMOKE DETECTORS: WHERE MORE THAN ONE SMOKE ALARM IS INSTALLED WITHIN A DWELLING OR SUITE, THEY SHALL BE CONNECTED SO THAT THE OPERATION OF ANY SMOKE ALARM CAUSES THE ALARM IN ALL SMOKE ALARMS TO SOUND.
- H. REMOTE STATUS AND ALARM INDICATORS: INSTALL IN A VISIBLE LOCATION NEAR EACH SMOKE DETECTOR, SPRINKLER WATER-FLOW SWITCH, AND VALVE-TAMPER SWITCH THAT IS NOT

- READILY VISIBLE FROM NORMAL VIEWIN
- I. AUDIBLE ALARM-INDICATING DEVICES: INCHES (150 MM) BELOW THE CEILING. ON FLUSH-MOUNTED BACK BOXES WITH MECHANISM CONCEALED BEHIND A GRI AT THE SAME HEIGHT UNLESS OTHERW
- J. VISIBLE ALARM-INDICATING DEVICES: IN EACH ALARM BELL OR ALARM HORN AN MM) BELOW THE CEILING. INSTALL ALL HEIGHT UNLESS OTHERWISE INDICATED
- K. DEVICE LOCATION-INDICATING LIGHTS: NEAR THE DEVICE THEY MONITOR.
- 3.2 PATHWAYS A. PATHWAYS SHALL BE INSTALLED IN EM IS SUITABLE ONLY WHERE NOT EXPOSE
- B. FIRE ALARM BOXES SHALL BE PAINTED C. WIRING SHALL BE IN ACCORDANCE WIT
- THE NATIONAL ELECTRIC CODE AND NF APPLICABLE STATE AND LOCAL CODES. PROVIDE, IN ACCORDANCE WITH MANU INSTRUCTIONS, ALL WIRING, CONDUIT, REQUIRED FOR THE ERECTION OF THE DESCRIBED HEREIN AND AS SHOWN ON CONDUIT AND WIRE SHALL CONFORM T REQUIREMENTS FOR LIGHTING AND RE CIRCUITS. THE SIZES OF THE DIFFEREN REQUIRED FOR SYSTEM OPERATION. (

SHALL BE USED. 3.3 CONNECTIONS

- SYSTEMS. 2. MAGNETICALLY HELD-OPEN DOORS
- 3. ELECTRONICALLY LOCKED DOORS
- 4. ALARM-INITIATING CONNECTION TO SYSTEM AND COMPONENTS.
- 5. ALARM-INITIATING CONNECTION TO LIGHTING CONTROL.
- 6. ALARM-INITIATING CONNECTION TO SHUTOFFS FOR GAS AND FUEL SUF
- 7. SUPERVISORY CONNECTIONS AT V SWITCHES 8. SUPERVISORY CONNECTIONS AT LO
- OF EACH DRY-PIPE SPRINKLER SYS 9. SUPERVISORY CONNECTIONS AT EL BREAKER.
- 10. SUPERVISORY CONNECTIONS AT FI LOCATIONS.

- SERVICE GROUND TO FIRE-ALARM CON 3.5 FIELD QUALITY CONTROL A. FIELD TESTS SHALL BE WITNESSED BY
- JURISDICTION. B. PERFORM THE FOLLOWING TESTS AND ASSISTANCE OF A FACTORY-AUTHORIZ
- REPRESENTATIVE: 1. VISUAL INSPECTION: CONDUCT VISU
- TESTING a. INSPECTION SHALL BE BASED C DRAWINGS AND SYSTEM DOCUM REQUIRED BY NFPA 72 IN ITS "C PREPARATION" TABLE IN THE "D
- OF THE "FUNDAMENTALS" CHAP b. COMPLY WITH THE "VISUAL INSP TABLE IN THE "INSPECTION" SEC
- "INSPECTION, TESTING AND MAI NFPA 72; RETAIN THE "INITIAL/RE AND LIST ONLY THE INSTALLED
- 2. SYSTEM TESTING: COMPLY WITH TH IN THE "TESTING" SECTION OF THE AND MAINTENANCE" CHAPTER IN N

3.6 DEMONSTRATION

READILY VISIBLE FROM NORMAL VIEWING POSITION. I. AUDIBLE ALARM-INDICATING DEVICES: INSTALL NOT LESS THAN 6 INCHES (150 MM) BELOW THE CEILING. INSTALL BELLS AND HORNS ON FLUSH-MOUNTED BACK BOXES WITH THE DEVICE-OPERATING MECHANISM CONCEALED BEHIND A GRILLE. INSTALL ALL DEVICES	WINSTON DESIGN+ DEVELOPMENT
AT THE SAME HEIGHT UNLESS OTHERWISE INDICATED. J. VISIBLE ALARM-INDICATING DEVICES: INSTALL ADJACENT TO EACH ALARM BELL OR ALARM HORN AND AT LEAST 6 INCHES (150 MM) BELOW THE CEILING. INSTALL ALL DEVICES AT THE SAME HEICHT UNLESS OTHERWISE INDICATED	
K. DEVICE LOCATION-INDICATING LIGHTS: LOCATE IN PUBLIC SPACE NEAR THE DEVICE THEY MONITOR.	207 FASTENDAVENUE
A. PATHWAYS A. PATHWAYS SHALL BE INSTALLED IN EMT. FIRE ALARM MC CABLE IS SUITABLE ONLY WHERE NOT EXPOSED.	PITTSBURGH, PA 15221 TEL:240.461.1093
<ul> <li>B. FIRE ALARM BOXES SHALL BE PAINTED RED ENAMEL.</li> <li>C. WIRING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE AND NEDA 72 AND ALL OTHER</li> </ul>	w w w . w instonarchitecture.com
APPLICABLE STATE AND LOCAL CODES. THE CONTRACTOR SHALL PROVIDE, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, ALL WIRING, CONDUIT, AND OUTLET BOXES REQUIRED FOR THE ERECTION OF THE COMPLETE SYSTEM AS DESCRIBED HEREIN AND AS SHOWN ON THE DRAWINGS.	COMMUNION Architecture is advocacy and activism
CONDUIT AND WIRE SHALL CONFORM TO THE APPLICABLE REQUIREMENTS FOR LIGHTING AND RECEPTACLE BRANCH CIRCUITS. THE SIZES OF THE DIFFERENT WIRES SHALL BE AS	
REQUIRED FOR SYSTEM OPERATION. COLOR-CODED WIRES SHALL BE USED. 3.3 CONNECTIONS	Allen + Shariff MEP Engineering
<ul> <li>A. FOR FIRE-PROTECTION SYSTEMS RELATED TO DOORS IN FIRE-RATED WALLS AND PARTITIONS AND TO DOORS IN SMOKE PARTITIONS, COMPLY WITH REQUIREMENTS IN SECTION 087100 "DOOR HARDWARE." CONNECT HARDWARE AND DEVICES TO FIRE-ALARM SYSTEM.</li> </ul>	2 Allegheny Center, Nova Tower 2 « Suite 1001 « Pittsburgh, PA 15212 ASE JOB #: 2041078
1. VERIFY THAT HARDWARE AND DEVICES ARE LISTED FOR USE WITH INSTALLED FIRE-ALARM SYSTEM BEFORE MAKING CONNECTIONS.	
<ul> <li>B. MARE ADDRESSABLE CONNECTIONS WITH A SUPERVISED</li> <li>INTERFACE DEVICE TO THE FOLLOWING DEVICES AND SYSTEMS.</li> <li>INSTALL THE INTERFACE DEVICE LESS THAN 36 INCHES (910 MM)</li> <li>FROM THE DEVICE CONTROLLED. MAKE AN ADDRESSABLE</li> <li>CONFIRMATION CONNECTION WHEN SUCH FEEDBACK IS</li> <li>AVAILABLE AT THE DEVICE OR SYSTEM BEING CONTROLLED.</li> <li>1. SMOKE DAMPERS IN AIR DUCTS OF DESIGNATED HVAC DUCT</li> </ul>	
<ul> <li>SYSTEMS.</li> <li>MAGNETICALLY HELD-OPEN DOORS.</li> <li>ELECTRONICALLY LOCKED DOORS AND ACCESS GATES.</li> <li>ALARM-INITIATING CONNECTION TO ELEVATOR RECALL SYSTEM AND COMPONENTS.</li> </ul>	rshop 1, PA 15219
<ol> <li>ALARM-INITIATING CONNECTION TO ACTIVATE EMERGENCY LIGHTING CONTROL.</li> <li>ALARM-INITIATING CONNECTION TO ACTIVATE EMERGENCY SHUTOFFS FOR GAS AND FUEL SUPPLIES.</li> <li>SUPERVISORY CONNECTIONS AT VALVE SUPERVISORY</li> </ol>	C L D C D T D C D D D D D D D D D D D D D D D D D D
SWITCHES. 8. SUPERVISORY CONNECTIONS AT LOW-AIR-PRESSURE SWITCH OF EACH DRY-PIPE SPRINKLER SYSTEM. 9. SUPERVISORY CONNECTIONS AT ELEVATOR SHUNT TRIP.	NSB Re venue, L
<ul> <li>BREAKER.</li> <li>10. SUPERVISORY CONNECTIONS AT FIRE-EXTINGUISHER LOCATIONS.</li> </ul>	T O D Build
3.4 GROUNDING A. GROUND FIRE-ALARM CONTROL UNIT AND ASSOCIATED CIRCUITS; COMPLY WITH IFFE 1100_INSTALL A GROUND WIRE FROM MAIN	Big 178 c
SERVICE GROUND TO FIRE-ALARM CONTROL UNIT. 3.5 FIELD QUALITY CONTROL A. FIELD TESTS SHALL BE WITNESSED BY AUTHORITIES HAVING	
JURISDICTION. B. PERFORM THE FOLLOWING TESTS AND INSPECTIONS WITH THE ASSISTANCE OF A FACTORY-AUTHORIZED SERVICE	
<ul> <li>REPRESENTATIVE:</li> <li>1. VISUAL INSPECTION: CONDUCT VISUAL INSPECTION PRIOR TO TESTING.</li> <li>a. INSPECTION SHALL BE BASED ON COMPLETED RECORD</li> </ul>	
DRAWINGS AND SYSTEM DOCUMENTATION THAT IS REQUIRED BY NFPA 72 IN ITS "COMPLETION DOCUMENTS, PREPARATION" TABLE IN THE "DOCUMENTATION" SECTION OF THE "FUNDAMENTALS" CHAPTER.	Seal:
TABLE IN THE "INSPECTION" SECTION FREQUENCIES TABLE IN THE "INSPECTION" SECTION OF THE "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72; RETAIN THE "INITIAL/REACCEPTANCE" COLUMN AND LIST ONLY THE INSTALLED COMPONENTS.	
<ol> <li>SYSTEM TESTING: COMPLY WITH THE "TEST METHODS" TABLE IN THE "TESTING" SECTION OF THE "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72.</li> <li>TEST AUDIBLE APPLIANCES FOR THE PUBLIC OPERATING</li> </ol>	FOR PRICING ONLY
MODE ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. PERFORM THE TEST USING A PORTABLE SOUND-LEVEL METER COMPLYING WITH TYPE 2 REQUIREMENTS IN ANSI S1.4.	
<ol> <li>TEST AUDIBLE APPLIANCES FOR THE PRIVATE OPERATING MODE ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.</li> <li>TEST VISIBLE APPLIANCES FOR THE PUBLIC OPERATING</li> </ol>	Revisions.
MODE ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. 6 FACTORY-AUTHORIZED SERVICE REPRESENTATIVE SHALL	
PREPARE THE "FIRE ALARM SYSTEM RECORD OF COMPLETION" IN THE "DOCUMENTATION" SECTION OF THE "FUNDAMENTALS" CHAPTER IN NFPA 72 AND THE "INSPECTION AND TESTING FORM" IN THE "RECORDS" SECTION OF THE	
"INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72. C. REACCEPTANCE TESTING: PERFORM REACCEPTANCE TESTING TO VERIFY THE PROPER OPERATION OF ADDED OR REPLACED DEVICES AND APPLIANCES.	Date: <b>April 16, 2021</b>
<ul> <li>D. FIRE-ALARM SYSTEM WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.</li> <li>3.6 DEMONSTRATION</li> <li>A TRAIN OWNER'S MAINTENANCE DEPISIONNEL TO ADJUST</li> </ul>	Project Number: <b>2020-06</b>
OPERATE, AND MAINTAIN FIRE-ALARM SYSTEM.	Owner / Client: TomTom24 Development, LLC
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LIGHTING GENERAL NOTES:

- FIRE STOP ALL FIRE RATED FLOORS, CEILINGS, AND WALLS AS REQUIRED BY CODE. PENETRATIONS INTO OR THROUGH FIRE RESISTANCE RATED WALLS SHALL COMPLY WITH IBC CHAPTER 7.
- 2. PROVIDE EXPANSION FITTINGS AS REQUIRED AT ALL EXPANSION JOINTS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- 3. WHERE EXPOSED, BRANCH CIRCUITS SHALL BE RUN IN EMT CONDUIT ROUTED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE. WHERE CONCEALED WITHIN WALLS OR ABOVE CEILING, MC CABLE IS PERMISSIBLE. EXPOSED CONDUIT SHALL BE PAINTED PER THE ARCHITECTURAL DRAWINGS.
- REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES AND EXACT LIGHTING FIXTURE LOCATIONS AND DIMENSIONAL INFORMATION.
- 5. EXIT SIGNS AND BATTERY PACKS SHALL BE CIRCUITED TO AN UNSWITCHED HOT LEG OF THE CIRCUIT NOTED AHEAD OF LOCAL CONTROLS.
- 6. OCCUPANCY / VACANCY SENSORS HAVE BEEN LOCATED PER THE RECOMMENDED SPACING OF THE BASIS OF DESIGN PRODUCTS. THE EXACT LOCATIONS AND QUANTITY OF SENSORS SHALL BE VERIFIED BY THE MANUFACTURER FOR PRODUCTS SUBMITTED AS EQUALS.

#### LIGHTING GENERAL NOTES:

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	Floor Lighting Plans
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POWER GENERAL NOTES:

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- 4. COORDINATE EXACT LOCATIONS OF MECHANICAL EQUIPMENT WITH DIVISION 23. UNLESS NOTED OTHERWISE, MECHANICAL EQUIPMENT DISCONNECTS AND VARIABLE FREQUENCY DRIVES SHALL BE FURNISHED BY DIVISION 23, INSTALLED AND WIRED BY EC. THESE DISCONNECTS HAVE NOT BEEN SHOWN ON THIS PLAN.
- 5. EC SHALL NOT HAVE MORE THAN THREE CURRENT CARRYING CONDUCTORS IN A CONDUIT WITHOUT DERATING AMPACITIES PER THE NEC.
- 6. WHERE DEVICES ARE INCLUDED AND DIMENSIONED ON THE ARCHITECTURAL DRAWINGS, THOSE LOCATIONS SHALL GOVERN. WHERE DEVICES ARE OMITTED FROM THE ARCHITECTURAL DRAWINGS, INSTALL IN ACCORDANCE WITH THIS PLAN AND THE DEFAULT LOCATIONS IN THE ELECTRICAL SPECIFICATIONS. ALL DEVICES SHALL BE INSTALLED PER ADA. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO VERIFY EXACT DEVICE LOCATIONS. WHERE DEVICES ARE INSTALLED IN THE FIELD AND DIFFER FROM DESIGN DOCUMENT DIMENSIONS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CORRECT DEVICE LOCATIONS TO MATCH CONSTRUCTION DOCUMENTS, AT NO COST TO THE OWNER.

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- 2. PROVIDE EXPANSION FITTINGS AS REQUIRED AT ALL EXPANSION JOINTS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- 3. WHERE EXPOSED, BRANCH CIRCUITS SHALL BE RUN IN EMT CONDUIT ROUTED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE. WHERE CONCEALED WITHIN WALLS OR ABOVE CEILING, MC CABLE IS PERMISSIBLE. EXPOSED CONDUIT SHALL BE PAINTED PER THE ARCHITECTURAL DRAWINGS.
- 4. COORDINATE EXACT LOCATIONS OF MECHANICAL EQUIPMENT WITH DIVISION 23. UNLESS NOTED OTHERWISE, MECHANICAL EQUIPMENT DISCONNECTS AND VARIABLE FREQUENCY DRIVES SHALL BE FURNISHED BY DIVISION 23, INSTALLED AND WIRED BY EC. THESE DISCONNECTS HAVE NOT BEEN SHOWN ON THIS PLAN.
- 5. EC SHALL NOT HAVE MORE THAN THREE CURRENT CARRYING CONDUCTORS IN A CONDUIT WITHOUT DERATING AMPACITIES PER THE NEC.
- 6. WHERE DEVICES ARE INCLUDED AND DIMENSIONED ON THE ARCHITECTURAL DRAWINGS, THOSE LOCATIONS SHALL GOVERN. WHERE DEVICES ARE OMITTED FROM THE ARCHITECTURAL DRAWINGS, INSTALL IN ACCORDANCE WITH THIS PLAN AND THE DEFAULT LOCATIONS IN THE ELECTRICAL SPECIFICATIONS. ALL DEVICES SHALL BE INSTALLED PER ADA. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO VERIFY EXACT DEVICE LOCATIONS. WHERE DEVICES ARE INSTALLED IN THE FIELD AND DIFFER FROM DESIGN DOCUMENT DIMENSIONS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CORRECT DEVICE LOCATIONS TO MATCH CONSTRUCTION DOCUMENTS, AT NO COST TO THE OWNER.

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

1. EF-A SHALL BE CIRCUITED TO THE SAME CIRCUIT AS THE LIGHTING IN THIS SPACE AND SHALL BE CONTROLLED VIA THE LIGHT SWITCH IN THIS SPACE.

![](_page_30_Picture_25.jpeg)

Owner / Client: TomTom24 Development, LLC

#### Drawing Title:

Basment & First Floor Power Plans Scale: As indicated Drawing Number:

![](_page_31_Figure_0.jpeg)

## SECOND FLOOR POWER PLAN E-302 1/4" = 1'-0"

Possible electrical connection for garbage disposal in all apt units

![](_page_31_Figure_3.jpeg)

![](_page_31_Figure_4.jpeg)

POWER GENERAL NOTES:

- 1. FIRE STOP ALL FIRE RATED FLOORS, CEILINGS, AND WALLS AS REQUIRED BY CODE. PENETRATIONS INTO OR THROUGH FIRE RESISTANCE RATED WALLS SHALL COMPLY WITH IBC CHAPTER 7.
- 2. PROVIDE EXPANSION FITTINGS AS REQUIRED AT ALL EXPANSION JOINTS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- 3. WHERE EXPOSED, BRANCH CIRCUITS SHALL BE RUN IN EMT CONDUIT ROUTED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE. WHERE CONCEALED WITHIN WALLS OR ABOVE CEILING, MC CABLE IS PERMISSIBLE. EXPOSED CONDUIT SHALL BE PAINTED PER THE ARCHITECTURAL DRAWINGS.
- 4. COORDINATE EXACT LOCATIONS OF MECHANICAL EQUIPMENT WITH DIVISION 23. UNLESS NOTED OTHERWISE MECHANICAL EQUIPMENT DISCONNECTS AND VARIABLE FREQUENCY DRIVES SHALL BE FURNISHED BY DIVISION 23, INSTALLED AND WIRED BY EC. THESE DISCONNECTS HAVE NOT BEEN SHOWN ON THIS PLAN.
- 5. EC SHALL NOT HAVE MORE THAN THREE CURRENT CARRYING CONDUCTORS IN A CONDUIT WITHOUT DERATING AMPACITIES PER THE NEC.
- 6. WHERE DEVICES ARE INCLUDED AND DIMENSIONED ON THE ARCHITECTURAL DRAWINGS, THOSE LOCATIONS SHALL GOVERN. WHERE DEVICES ARE OMITTED FROM THE ARCHITECTURAL DRAWINGS, INSTALL IN ACCORDANCE WITH THIS PLAN AND THE DEFAULT LOCATIONS IN THE ELECTRICAL SPECIFICATIONS. ALL DEVICES SHALL BE INSTALLED PER ADA. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO VERIFY EXACT DEVICE LOCATIONS. WHERE DEVICES ARE INSTALLED IN THE FIELD AND DIFFER FROM DESIGN DOCUMENT DIMENSIONS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CORRECT DEVICE LOCATIONS TO MATCH CONSTRUCTION DOCUMENTS, AT NO COST TO THE OWNER.
- 7. UNLESS OTHERWISE NOTED, ALL CIRCUIT NUMBERS CORRESPOND TO THE LOAD CENTER LOCATED WITHIN THE UNIT.

6 electrical connections to mechanical equipment on the roof

POWER GENERAL NOTES:

- 1. FIRE STOP ALL FIRE RATED FLOORS, CEILINGS, AND WALLS AS REQUIRED BY CODE. PENETRATIONS INTO OR THROUGH FIRE RESISTANCE RATED WALLS SHALL COMPLY WITH IBC CHAPTER 7.
- 2. PROVIDE EXPANSION FITTINGS AS REQUIRED AT ALL EXPANSION JOINTS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- 3. WHERE EXPOSED, BRANCH CIRCUITS SHALL BE RUN IN EMT CONDUIT ROUTED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE. WHERE CONCEALED WITHIN WALLS OR ABOVE CEILING, MC CABLE IS PERMISSIBLE. EXPOSED CONDUIT SHALL BE PAINTED PER THE ARCHITECTURAL DRAWINGS.
- 4. COORDINATE EXACT LOCATIONS OF MECHANICAL EQUIPMENT WITH DIVISION 23. UNLESS NOTED OTHERWISE MECHANICAL EQUIPMENT DISCONNECTS AND VARIABLE FREQUENCY DRIVES SHALL BE FURNISHED BY DIVISION 23, INSTALLED AND WIRED BY EC. THESE DISCONNECTS HAVE NOT BEEN SHOWN ON THIS PLAN.
- 5. EC SHALL NOT HAVE MORE THAN THREE CURRENT CARRYING CONDUCTORS IN A CONDUIT WITHOUT DERATING AMPACITIES PER THE NEC.
- 6. WHERE DEVICES ARE INCLUDED AND DIMENSIONED ON THE ARCHITECTURAL DRAWINGS, THOSE LOCATIONS SHALL GOVERN. WHERE DEVICES ARE OMITTED FROM THE ARCHITECTURAL DRAWINGS, INSTALL IN ACCORDANCE WITH THIS PLAN AND THE DEFAULT LOCATIONS IN THE ELECTRICAL SPECIFICATIONS. ALL DEVICES SHALL BE INSTALLED PER ADA. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO VERIFY EXACT DEVICE LOCATIONS. WHERE DEVICES ARE INSTALLED IN THE FIELD AND DIFFER FROM DESIGN DOCUMENT DIMENSIONS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CORRECT DEVICE LOCATIONS TO MATCH CONSTRUCTION DOCUMENTS, AT NO COST TO THE OWNER.
- 7. UNLESS OTHERWISE NOTED, ALL CIRCUIT NUMBERS CORRESPOND TO THE LOAD CENTER LOCATED WITHIN THE UNIT.

#### WINSTON DESIGN+ DEVELOPMENT POWER KEY NOTES: $\langle \# \rangle$ RECEPTACLE SERVING DISHWASHER SHALL BE 907 EAST END AVENUE MOUNTED WITHIN CASEWORK UNDER SINK TO MAINTAIN PITTSBURGH, PA 15221 ACCESSIBILITY FOR GFCI TESTING. TEL:240.461.1093 www.winstonarchitecture.com 2. CABLE/TELE/DATA ENCLOSURE BY CABLE PROVIDER PROVIDE 3/4" CONDUIT WITH PULL STRING FROM ELECTRICAL CLOSET TO ENCLOSURE LOCATION. VERIFY FINAL LOCATION WITH CABLE PROVIDER. COMMUNION ARCHITECTURE IS ADVOCACY AND ACTIVISM Allen+Sharif **MEP Engineering** ASE JOB #: 2041078 PROVIDE UL LISTED TAMPER-RESISTANT RECEPTACLES WHICH ARE REQUIRED IN DWELLINGS FOR ALL 125 VOLT, 15 AND 20 AMPERE RECEPTACLES IN AREAS SPECIFIED IN NEC ARTICLE 210.52. THE LOCATIONS IN 210.52 INCLUDE BUT ARE NOT LIMITED TO: BEDROOMS BALCONIES, DECKS, PORCHES, BATHROOMS COUNTERTOPS ershop DENS DINING ROOMS FAMILY ROOMS HALLWAYS KITCHENS LAUNDRY AREAS LIVING ROOMS arb OUTDOORS Ω S OM Big

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

- RECEPTACLE SERVING DISHWASHER SHALL BE MOUNTED WITHIN CASEWORK UNDER SINK TO MAINTAIN ACCESSIBILITY FOR GFCI TESTING.
- 2. CABLE/TELE/DATA ENCLOSURE BY CABLE PROVIDER. PROVIDE 3/4" CONDUIT WITH PULL STRING FROM ELECTRICAL CLOSET TO ENCLOSURE LOCATION. VERIFY FINAL LOCATION WITH CABLE PROVIDER.

PROVIDE UL LISTED TAMPER-RESISTANT RECEPTACLES WHICH ARE REQUIRED IN DWELLINGS FOR ALL 125 VOLT, 15 AND 20 AMPERE RECEPTACLES IN AREAS SPECIFIED IN NEC ARTICLE 210.52. THE LOCATIONS IN 210.52 INCLUDE BUT ARE NOT LIMITED TO: BEDROOMS • BALCONIES, DECKS, PORCHES, BATHROOMS

- COUNTERTOPS DENS DINING ROOMS FAMILY ROOMS
- HALLWAYS KITCHENS
- LAUNDRY AREAS
- LIVING ROOMS OUTDOORS

FOR PRICING ONLY

50% CD

Revisions:  $\bigtriangleup$ 

Seal:

Date: April 16, 2021

**Project Number:** 2020-06

Owner / Client: TomTom24 Development, LLC

# Drawing Title: Second & Third Floor Power Plans

Scale: As indicated Drawing Number:

![](_page_32_Figure_0.jpeg)

![](_page_32_Picture_1.jpeg)

![](_page_32_Figure_2.jpeg)

![](_page_32_Picture_3.jpeg)

![](_page_32_Figure_4.jpeg)

FIRE ALARM GENERAL NOTES:

- 1. REFER TO PARTIAL FIRE ALARM RISER DIAGRAM 2/E602 FOR GENERAL FIRE ALARM SYSTEM NOTES.
- 2. FIRE STOP ALL FIRE RATED FLOORS,CEILINGS, AND WALLS AS REQUIRED BY CODE. PENETRATIONS INTO OR THROUGH FIRE RESISTANCE RATED WALLS SHALL COMPLY WITH IBC CHAPTER 7.
- 3. PROVIDE EXPANSION FITTINGS AS REQUIRED AT ALL EXPANSION JOINTS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- 4. WHERE EXPOSED, BRANCH CIRCUITS SHALL BE RUN IN EMT CONDUIT ROUTED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE. WHERE CONCEALED WITHIN WALLS OR ABOVE CEILING, MC CABLE IS PERMISSIBLE. EXPOSED CONDUIT SHALL BE PAINTED PER THE ARCHITECTURAL DRAWINGS.
- 5. THE COLOR OF FIRE ALARM NOTIFICATION DEVICES SHALL BE VERIFIED WITH ARCHITECT PRIOR TO PROCUREMENT.
- 6. THE EXACT LOCATION OF ALL DEVICES AND ASSOCIATED EQUIPMENT SHALL BE LOCATED PER NFPA, ADA, AND ALL OTHER CODES HAVING JURISDICTION.

#### FIRE ALARM KEY NOTES: (#)

1. COORDINATE THE EXACT QUANTITY OF TAMPER, FLOW, AND PRESSURE SWITCH CONNECTIONS, AS APPLICABLE, WITH DIVISION 21 PRIOR TO PROCUREMENT.

#### FIRE ALARM GENERAL NOTES:

- REFER TO PARTIAL FIRE ALARM RISER DIAGRAM 2/E602 FOR GENERAL FIRE ALARM SYSTEM NOTES.
- 2. FIRE STOP ALL FIRE RATED FLOORS,CEILINGS, AND WALLS AS REQUIRED BY CODE. PENETRATIONS INTO OR THROUGH FIRE RESISTANCE RATED WALLS SHALL COMPLY WITH IBC CHAPTER 7.
- 3. PROVIDE EXPANSION FITTINGS AS REQUIRED AT ALL EXPANSION JOINTS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- 4. WHERE EXPOSED, BRANCH CIRCUITS SHALL BE RUN IN EMT CONDUIT ROUTED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE. WHERE CONCEALED WITHIN WALLS OR ABOVE CEILING, MC CABLE IS PERMISSIBLE. EXPOSED CONDUIT SHALL BE PAINTED PER THE ARCHITECTURAL DRAWINGS.
- 5. THE COLOR OF FIRE ALARM NOTIFICATION DEVICES SHALL BE VERIFIED WITH ARCHITECT PRIOR TO PROCUREMENT.
- 6. THE EXACT LOCATION OF ALL DEVICES AND ASSOCIATED EQUIPMENT SHALL BE LOCATED PER NFPA, ADA, AND ALL OTHER CODES HAVING JURISDICTION.

#### <u>FIRE ALARM KEY NOTES:</u> $\langle \# \rangle$

- 1. COORDINATE THE EXACT QUANTITY OF TAMPER, FLOW, AND PRESSURE SWITCH CONNECTIONS, AS APPLICABLE, WITH DIVISION 21 PRIOR TO PROCUREMENT.
- COORDINATE LOCATION OF MOUNTING OF SUPERVISORY ALARM CONTROL PANEL WITH AHJ AND OWNER PRIOR TO ROUGH-IN.
- 3. PROVIDE WEATHERPROOF FIRE ALARM NOTIFICATION DEVICE OVER THE FIRE DEPARTMENT CONNECTION. WHERE REQUIRED BY THE LOCAL JURISDICTION, ALSO PROVIDE A SPRINKLER BELL. COORDINATE EXACT LOCATION WITH DIVISION 21.

![](_page_32_Picture_25.jpeg)

![](_page_33_Figure_0.jpeg)

![](_page_33_Picture_1.jpeg)

![](_page_33_Figure_2.jpeg)

![](_page_33_Picture_3.jpeg)

FIRE ALARM GENERAL NOTES:

- 1. REFER TO PARTIAL FIRE ALARM RISER DIAGRAM 2/E602 FOR GENERAL FIRE ALARM SYSTEM NOTES.
- 2. FIRE STOP ALL FIRE RATED FLOORS,CEILINGS, AND WALLS AS REQUIRED BY CODE. PENETRATIONS INTO OR THROUGH FIRE RESISTANCE RATED WALLS SHALL COMPLY WITH IBC CHAPTER 7.
- 3. PROVIDE EXPANSION FITTINGS AS REQUIRED AT ALL EXPANSION JOINTS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- 4. WHERE EXPOSED, BRANCH CIRCUITS SHALL BE RUN IN EMT CONDUIT ROUTED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE. WHERE CONCEALED WITHIN WALLS OR ABOVE CEILING, MC CABLE IS PERMISSIBLE. EXPOSED CONDUIT SHALL BE PAINTED PER THE ARCHITECTURAL DRAWINGS.
- 5. THE COLOR OF FIRE ALARM NOTIFICATION DEVICES SHALL BE VERIFIED WITH ARCHITECT PRIOR TO PROCUREMENT.
- 6. THE EXACT LOCATION OF ALL DEVICES AND ASSOCIATED EQUIPMENT SHALL BE LOCATED PER NFPA, ADA, AND ALL OTHER CODES HAVING JURISDICTION.

#### FIRE ALARM KEY NOTES: (#)

1. COORDINATE THE EXACT QUANTITY OF TAMPER, FLOW, AND PRESSURE SWITCH CONNECTIONS, AS APPLICABLE, WITH DIVISION 21 PRIOR TO PROCUREMENT.

#### FIRE ALARM GENERAL NOTES:

- 1. REFER TO PARTIAL FIRE ALARM RISER DIAGRAM 2/E602 FOR GENERAL FIRE ALARM SYSTEM NOTES.
- 2. FIRE STOP ALL FIRE RATED FLOORS, CEILINGS, AND WALLS AS REQUIRED BY CODE. PENETRATIONS INTO OR THROUGH FIRE RESISTANCE RATED WALLS SHALL COMPLY WITH IBC CHAPTER 7.
- 3. PROVIDE EXPANSION FITTINGS AS REQUIRED AT ALL EXPANSION JOINTS. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- 4. WHERE EXPOSED, BRANCH CIRCUITS SHALL BE RUN IN EMT CONDUIT ROUTED PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE. WHERE CONCEALED WITHIN WALLS OR ABOVE CEILING, MC CABLE IS PERMISSIBLE. EXPOSED CONDUIT SHALL BE PAINTED PER THE ARCHITECTURAL DRAWINGS.
- 5. THE COLOR OF FIRE ALARM NOTIFICATION DEVICES SHALL BE VERIFIED WITH ARCHITECT PRIOR TO PROCUREMENT.
- 6. THE EXACT LOCATION OF ALL DEVICES AND ASSOCIATED EQUIPMENT SHALL BE LOCATED PER NFPA, ADA, AND ALL OTHER CODES HAVING JURISDICTION.

#### FIRE ALARM KEY NOTES: $\langle \# \rangle$

 COORDINATE THE EXACT QUANTITY OF TAMPER, FLOW, AND PRESSURE SWITCH CONNECTIONS, AS APPLICABLE, WITH DIVISION 21 PRIOR TO PROCUREMENT.

![](_page_33_Picture_22.jpeg)

![](_page_34_Figure_0.jpeg)

![](_page_34_Picture_1.jpeg)

![](_page_34_Picture_2.jpeg)

NOTES:

1. PANEL NAME SHALL HAVE A MINIMUM LETTER HEIGHT OF 3/8". ALL OTHER TEXT SHALL HAVE A MINIMUM LETTER HEIGHT OF 1/4".

2. NAMEPLATE SHALL BE MACHINE ENGRAVED, LAMINATED PLASTIC, WITH WHITE LETTERING. BACKGROUND COLOR SHALL BE BLACK.

3. NAMEPLATE SHALL BE ATTACHED WITH RIVETS OR SELF TAPPING SCREWS. 4. DIMENSIONS INDICATED ARE MINIMUM DIMENSIONS. PROVIDE LARGER NAMEPLATE IF REQUIRED TO FIT ALL SPECIFIED INFORMATION ON NAMEPLATE.

5. "X" INDICATES FIELD TO BE FILLED IN PER PANEL SCHEDULE.

![](_page_34_Picture_8.jpeg)

#### GROUNDING SYSTEM GENERAL NOTES:

## GROUNDING SYSTEM KEY NOTES:

- PER NEC.

- 5. PROVIDE NEUTRAL TO GROUND BONDING JUMPER SIZED PER NEC.

![](_page_34_Figure_19.jpeg)

![](_page_34_Picture_20.jpeg)

COPPER BAR

![](_page_34_Figure_23.jpeg)

\_\_\_\_\_

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

1. FLOOR OR WALL ASSEMBLY MINIMUM 5" THICK NORMAL WEIGHT CONCRETE FLOOR OR WALL OR MINIMUM 7-5/8" THICK MASONRY WALL HAVING A MINIMUM 2 HOUR FIRE RESISTIVE RATING WITH A NOMINAL 6" DIAMETER OPENING.

- THAN CONDUIT).
- 3. STEEL OR EMT CONDUIT NOMINAL 4" DIAMETER CENTERED THROUGH THE OPENING.
- OF 3" FOR FLOORS. FOR WALLS, THE MINERAL WOOL SHALL BE CENTERED IN THE OPENING.

5. FILL, VOID OR CAVITY MATERIAL\* - FILL MATERIAL THAT IS TROWELED INTO THE OPENING TO A MINIMUM THICKNESS OF 1/2" IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS. IN WALLS, THE FILL MATERIAL SHALL BE INSTALLED ON BOTH SURFACES OF THE OPENING.

\* BEARING THE "UL" CLASSIFICATION MARKING

![](_page_34_Picture_31.jpeg)

1. REFER TO ELECTRICAL SPECIFICATIONS AND RISER DIAGRAM FOR ADDITIONAL INFORMATION. 2. ALL BUILDING STEEL COMPONENTS SHALL BE EFFECTIVELY BONDED TOGETHER. 3. ALL CONDUCTORS INDICATED ARE COPPER.

1. BONDING CONDUCTOR TO GROUND BUS AND ENCLOSURE, SIZED PER NEC. 2. GROUNDING ELECTRODE CONDUCTOR TO A GROUNDING ELECTRODE FIELD PER NEC 250.52, SIZED

3. BONDING JUMPER TO METAL FRAME OF BUILDING STRUCTURE PER NEC 250.52, SIZED PER NEC. 4. BONDING JUMPER TO METAL UNDERGROUND WATER PIPE PER NEC 250.52, SIZED PER NEC.

6. BONDING JUMPER TO A METAL UNDERGROUND GAS PIPE PER NEC 250.104(B), SIZED PER NEC.

![](_page_34_Figure_36.jpeg)

FLOOR ASSEMBLY

2. STEEL PIPE SLEEVE (OPTIONAL) NOMINAL 6" DIAMETER SCHEDULE 40 OR HEAVIER STEEL PIPE SLEEVE. (2 TRADE SIZES LARGER

4. FORMING MATERIAL MINERAL WOOL, MINIMUM DENSITY OF 4.4 PCF FIRMLY PACKED WITHIN THE OPENING TO A NOMINAL THICKNESS

WINSTON DESIGN+ DEVELOPMENT 907 EAST END AVENUE PITTSBURGH, PA 15221 TEL:240.461.1093 www.winstonarchitecture.com COMMUNION ARCHITECTURE IS ADVOCACY AND ACTIVISM Allen+Sharit MEP Engineering ASE JOB #: 2041078 doys. **e** arb Δ S -Wo Big Seal: FOR PRICING ONLY 50% CD **Revisions:** Date: April 16, 2021 **Project Number:** 2020-06 Owner / Client: TomTom24 Development, LLC Drawing Title: **Electrical Details** Scale: As indicated Drawing Number:

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E-50

#### GENERAL NOTES:

- 1. THE RISER DIAGRAM IS DIAGRAMMATIC IN NATURE AND IS INTENDED TO SHOW SYSTEM CONNECTIVITY AND FEEDER SIZES. REFER TO POWER PLANS FOR EQUIPMENT LAYOUTS AND LOCATIONS. ELECTRICAL CONTRACTOR SHALL VERIFY THAT THE SUBMITTED EQUIPMENT DIMENSIONS FIT WITHIN THE CORRESPONDING ELECTRICAL SPACE(S). ALL EQUIPMENT CLEARANCES AND MOUNTING HEIGHTS REQUIRED BY THE NEC SHALL BE MAINTAINED.
- 2. ELECTRICAL CONTRACTOR SHALL COORDINATE SITE WORK WITH CIVIL SITE PLANS, WHERE APPLICABLE, AND EXISTING SITE CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK.
- 3. THE ELECTRICAL SERVICE INSTALLATION AND METERING STRATEGY SHALL BE APPROVED BY THE UTILITY COMPANY PRIOR TO THE COMMENCEMENT OF WORK. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH UTILITY RULES AND REGULATIONS.
- 4. ELECTRICAL CONTRACTOR SHALL COORDINATE THE PROCUREMENT AND INSTALLATION OF ALL METERING EQUIPMENT WITH THE UTILITY, INCLUDING METERS, METER SOCKETS, METER TRANSOCKETS, INSTRUMENT CABINETS, CURRENT TRANSFORMERS (CT'S), AND VOLTAGE TRANSFORMERS (VT'S). THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT THAT IS THE RESPONSIBILITY OF THE "CUSTOMER" PER THE UTILITY'S SERVICE GUIDELINES.
- 5. ELECTRICAL CONTRACTOR SHALL PROVIDE BUILDING MOUNTED WEATHERHEADS FOR THE OVERHEAD SERVICE. WEATHERHEADS SHALL BE LOCATED TO MINIMIZE THE DISTANCE TO THE SERVICE ENTRANCE EQUIPMENT OR METERING INSTALLATION. VERIFY EXACT LOCATION WITH UTILITY PRIOR TO INSTALLATION.
- 6. ELECTRICAL CONTRACTOR SHALL PROVIDE SECONDARY SERVICE CONDUCTORS AND CONDUIT FROM THE WEATHERHEADS TO THE SERVICE ENTRANCE EQUIPMENT OR METERING INSTALLATION.
- 7. UNDERGROUND CONDUIT SHALL BE RMC WITH RMC ELBOWS. WHERE APPROVED BY THE OWNER, SCHEDULE 80 PVC WITH RMC OR FIBERGLASS ELBOWS MAY BE SUBMITTED AS A VALUE ENGINEERING OPTION. UNDERGROUND FEEDER(S) SHALL BE CONCRETE ENCASED WHERE ROUTED UNDER PARKING LOTS OR DRIVE LANES. ELECTRICAL CONTRACTOR SHALL TRENCH AND BACKFILL FOR ALL UNDERGROUND PATHWAYS. UNDERGROUND CONDUIT SHALL BE A MINIMUM OF 36" BFG.
- 8. EXPOSED EXTERIOR CONDUIT SHALL BE RMC. WHERE APPROVED BY THE OWNER, SCHEDULE 80 PVC MAY BE SUBMITTED AS A VALUE ENGINEERING OPTION. ALL EXTERIOR BUILDING MOUNTED CONDUIT SHALL BE PAINTED PER THE ARCHITECT'S SPECIFICATIONS.
- 9. PROVIDE PULL BOXES WHERE REQUIRED PER NEC FOR CONDUIT BENDS.
- 10. THE BASIS OF DESIGN MATERIAL FOR ALL EQUIPMENT BUSES IS COPPER.
- 11. REFER TO THE GROUNDING RISER DIAGRAM E-2/501 FOR MORE INFORMATION ON THE BUILDING GROUNDING SYSTEM.

## KEY NOTES:

1. COORDINATE WITH UTILITY THE PROCUREMENT AND INSTALLATION OF UTILITY METERS WITHIN RESIDENTIAL METER CENTER.

![](_page_35_Picture_14.jpeg)

![](_page_35_Figure_15.jpeg)

# COPPER FEEDER SCHEDULE:

FEEDER TAG		FEEDER AMPS
30125	125	3#1, 1#
30200	200	3#3/0, 1
30600	600	2 SETS
30250	250	3-

FEEDER TAG KEY:

FEEDER

#6 GND - 1 1/2"C 1#6 GND - 2"C S EACH: 3-350 KCMIL - 3"C

![](_page_35_Picture_22.jpeg)

-250kcmil, 1#4G, 2-1/2"C

![](_page_35_Picture_24.jpeg)

Scale: As indicated Drawing Number:

![](_page_36_Figure_1.jpeg)

# 3 SUPERVISORY FIRE ALARM SYSTEM DIAGRAM E003 NOT TO SCALE

- 1. REFER TO FLOOR PLAN FOR QUANTITY AND LOCATION OF SYSTEM COMPONENTS. EXACT ARRANGEMENT AND QUANTITY OF DEVICES SHALL BE INDICATED ON THE SHOP DRAWINGS. PROVIDE COMPLETE RISER DIAGRAM AS PART OF SHOP DRAWINGS.
- 2. VERIFY WIRING SIZES WITH THE FIRE ALARM SYSTEM MANUFACTURER AND INSTALL AS DIRECTED. DO NOT LOAD ANY CIRCUIT BEYOND 80% OF RATED CAPACITY. ADD CIRCUITS AS REQUIRED AND SUBMIT CALCULATIONS TO SUBSTANTIATE.
- 3. FIRE ALARM WIRING SHALL BE ROUTED VIA A SEPARATE CONDUIT SYSTEM (3/4" MINIMUM). FIRE RATED MC CABLE IS ACCEPTABLE WHERE CONCEALED. MC CABLE SHALL BE COLORED RED. PROVIDE CONDUIT SLEEVES WITH ESCUTCHEON PLATES WHERE PASSING THROUGH WALLS, FLOOR, OR CEILINGS. WIRING SHALL BE INSTALLED IN THE APPROPRIATE RACEWAY TO MEET THE SURVIVABILITY REQUIREMENTS OF THE CITY OF PITTSBURGH.
- 4. FIRE ALARM CIRCUITS SHALL BE CLEARLY IDENTIFIED AT TERMINAL AND JUNCTION LOCATIONS IN COMPLIANCE WITH 2014 NEC SECTION 760.30.
- 5. PROVIDE ADDITIONAL POWER SUPPLIES, BATTERIES, EXTENDER PANELS, ETC. AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. PROVIDE BATTERY CALCULATIONS, WIRING DIAGRAMS, EQUIPMENT CUTS, ETC. AS PART OF THE SHOP DRAWING SUBMITTAL.
- 6. CANDELA RATING SHALL BE PER 2013 NFPA-72 CHAPTER 18 REQUIREMENTS. ALL VISUAL AND AUDIO DEVICES SHALL BE SYNCHRONIZED. 7. AUDIBLE ALARM SYSTEM SOUND PRESSURE LEVELS SHALL COMPLY WITH 2015 IBC SECTION 907.5.2.1.
- 8. COORDINATE WITH DIVISION 23 TO PROVIDE DUCT DETECTORS WHERE REQUIRED FOR HVAC EQUIPMENT. COORDINATE LOCATION OF REMOTE TEST SWITCHES WITH OWNER PRIOR TO INSTALLATION. THESE SHALL BE LOCATED IN UTILITY OR BACK OF HOUSE SPACES.
- 9. COORDINATE THE EXACT QUANTITY OF TAMPER, FLOW, AND PRESSURE SWITCH CONNECTIONS, AS APPLICABLE, WITH DIVISION 21 PRIOR TO PROCUREMENT.
- 10. PROVIDE 120V CONNECTION, DUCT DETECTOR(S), ADDRESSABLE CONTROL MODULE, AND REMOTE TEST SWITCH FOR EACH FIRE SMOKE AND SMOKE DAMPER. COORDINATE QUANTITY AND LOCATION WITH DIVISION 23. COORDINATE LOCATION OF REMOTE TEST SWITCHES WITH OWNER PRIOR TO INSTALLATION. THESE SHALL BE LOCATED IN UTILITY OR BACK OF HOUSE SPACES.
- 11. PROVIDE ADDRESSABLE CONTROL MODULES TO INTERFACE WITH ALL ACCESS CONTROLLED DOORS AS REQUIRED BY CODE. CONTROL MODULES SHALL FUNCTION TO SIGNAL DOORS TO FAIL SAFE UPON ACTIVATION OF FIRE ALARM.
- 12. THE COMPLETED FIRE ALARM SYSTEM SHALL BE FULLY TESTED IN ACCORDANCE WITH NFPA-72 AND LOCAL FIRE DEPARTMENT REQUIREMENTS BY THE INSTALLER, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE AND THE LOCAL FIRE MARSHALL. UPON COMPLETE ON A SUCCESSFUL TEST, THE INSTALLER SHALL SO CERTIFY, IN WRITING, TO THE OWNER AND GENERAL CONTRACTOR.
- 13. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS, PRODUCTS, EXECUTION, AND INSTALLATION OF THE FIRE ALARM SYSTEM. 14. THE COMPLETE EXTENT OF THE EXISTING FIRE ALARM SYSTEM HAS NOT BEEN REPRESENTED ON THIS RISER DIAGRAM. EXISTING FIRE
- ALARM CONNECTIONS TO OTHER SYSTEMS, INCLUDING DUCT DETECTORS, FIRE SMOKE AND SMOKE DAMPERS, FIRE PROTECTION SYSTEM INTERFACES, ELEVATOR CONNECTIONS, AND RELATED EQUIPMENT (NOT SHOWN) SHALL REMAIN IN PLACE AND IN SERVICE DURING THIS RENOVATION. WHERE REQUIRED, EC SHALL RELOCATE ALL TEST SWITCHES ASSOCIATED WITH EXISTING EQUIPMENT TO MAINTAIN ACCESSIBILITY IN NEW CEILINGS. EXTEND FIRE ALARM CIRCUIT(S) AS REQUIRED.

#### KEY NOTES:

1. IN ORDER TO PROVIDE DIAL OUT CAPABILITIES TO THE FIRE DEPARTMENT, TWO TRANSMISSION CHANNELS SHALL BE PROVIDED TO THE DACT WITHIN THE FIRE ALARM SYSTEM PER 2013 NFPA-72 SECTION 26.6.3.2.1.4. THE SYSTEM SHALL EMPLOY ONE PHONE LINE AND AN ADDITIONAL, APPROVED TRANSMISSION MEANS AS OUTLINED UNDER THAT CODE SECTION AND DEEMED AVAILABLE AT THE SITE. WHERE ONE OF THE ALTERNATE TRANSMISSION CHANNELS IS NOT AVAILABLE AT THE SITE AND WHERE THE AHJ APPROVES, A SECOND TELEPHONE LINE MAY BE USED IN LIEU OF THE ALTERNATE TECHNOLOGY. COORDINATE WITH OWNER TO DETERMINE IF THE DACT DIALS DIRECTLY TO FIRE DEPARTMENT OR TO THIRD PARTY 24/7 MONITORING SERVICE CONTRACTED BY OWNER.

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Seal: FOR PRICING ONLY 50% CD
Revisions:
Date: <b>April 16, 2021</b>
2020-06 Owner / Client: TomTom24 Development, LLC
Drawing Title: Fire Alarm Riser Diagram
Scale: <b>As indicated</b> Drawing Number:
E-602

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FIRE ALARM PERMIT NOTE (CITY OF PITTSBURGH):

THE E.C. BID SHALL INCLUDE THE COST FOR AN INDEPENDENT THIRD PARTY PROFESSIONAL ENGINEER TO SIGN, DATE, AND SEAL ALL FIRE ALARM DOCUMENTS REQUIRED FOR BUILDING PERMIT. THE FIRE ALARM DOCUMENTS INCLUDED WITH THE E-SERIES DRAWINGS ARE PROVIDED FOR FIRE ALARM DESIGN INTENT WITHIN THE CITY OF PITTSBURGH. THE CITY OF PITTSBURGH WILL REQUIRE SIGNED/SEALED MANUFACTURER SHOP DRAWINGS (BY THE INDEPENDENT THIRD PARTY) FOR PERMIT APPROVAL BEYOND THE DOCUMENTS CONTAINED IN THE E-SERIES DRAWINGS.

THE FIRE ALARM SHOP DRAWINGS SHALL INCLUDE AT A MINIMUM FIRE ALARM FLOOR PLANS AND A RISER DIAGRAM. EACH PLAN OR RISER SHALL INDICATE THE NUMBER AND TYPES OF FIRE ALARM DEVICES INSTALLED ON EACH CIRCUIT, DEVICE ADDRESSES, CONDUCTOR TYPES AND SIZES, FIRE ALARM ZONES, PRIMARY AND SECONDARY POWER SUPPLIES (AS NECESSARY), AND ALL NEW FIRE ALARM DEVICES AS ADDED TO EXISTING CIRCUITS. DOCUMENTS SHALL ALSO CONTAIN BATTERY AND VOLTAGE DROP CALCULATIONS.

	LIGHTING FIXTURE SCHEDULE										
TYPE	FIXTURE DESCRIPTION	MANUFACTURER	MODEL	LAMP #	AMP(S) LAMP TYPE	DRIVER/ BALLAST	INPUT WATTS	VOLTS	MOUNTING	NOTES	
DL1	6" LED DOWNLIGHT, SHOWER RATED, NON- CONDUCTIVE	GOTHAM	EVO6		LED	0-10V, DIM TO 10%		120V	RECESSED		
DL2	6" LED DOWNLIGHT	LITHONIA	LDN6		LED	0-10V, DIM TO 10%		120V	RECESSED		
DP1	DECORATIVE PENDANT	TECH LIGHTING	PROVIDE A \$500 ALLOWANCE		LED	0-10V, DIM TO 10%		120V	PENDANT		
TH1	TRACK HEAD	JUNO	R606L		LED	0-10V, DIM TO 10%		120V	TRACK		
TR1	120VTRACK	JUNO	TRAC-MASTER		LED	0-10V, DIM TO 10%		120V	TRACK		
SM1	9" SURFACE MOUNTED DECORATIVE FIXTURE	MAXIM	57694-WTEK		LED	0-10V, DIM TO 10%		120V	SURFACE, CEILING		
SP1	4' STRIP FIXTURE	LITHONIA	ZL1D		LED	0-10V, DIM TO 10%		120V	SURFACE, PENDANT		
SP1E	4' STRIP FIXTURE WITH BATTERY BACKUP	LITHONIA	ZL1D		LED	0-10V, DIM TO 10%		120V	SURFACE, PENDANT		
VMM1	WALL MOUNTED VANITY FIXTURE	LITHONIA	FMVCSLS		LED	0-10V, DIM TO 10%		120V	SURFACE, WALL		
WM2	2' WALL MOUNTED CLOSET FIXTURE	LITHONIA	ZL1D	~ 	LED	0-10V, DIM TO 10%		120V	SURFACE, WALL		
VMM3	4' WALL MOUNTED STAIRWELL FIXTURE WTH BATTERY BACKUP	LITHONIA	WL4		LED	0-10V, DIM TO 10%		120V	SURFACE, WALL		
XE1	EXIT SIGN WITH EMERGENCY HEADS, BATTERY BACKUP	LITHONIA	LHQM		LED	0-10V, DIM TO 10%		120V	UNIVERSAL	PROVIDE NUMBER OF FACES AND CHEVRONS AS SHOWN ON PLANS.	
NOTES											

 ARCHITECT SHALL SPECIFY / VERIFY ALL FINISH SELECTIONS.
 REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
 REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
 ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MOUNTING ACCESSORIES.
 LIGHTING FIXTURE SUBSTITUTIONS THAT ARE CONSIDERED EQUAL TO THE SPECIFIED PRODUCTS MAY BE SUBMITTED AND WILL BE REVIEWED BY ARCHITECT AND ELECTRICAL ENGINEER. ACCEPTANCE WILL BE EVALUATED BASED ON AESTHETICS, PERFORMANCE, AND QUALITY. DO NOT PROVIDE VALUE ENGINEERING OPTIONS UNLESS SPECIFICALLY DIRECTED BY THE OWNER, ARCHITECT, OR ENGINEER. 5. THE STANDARD DRIVER OPTION FOR MOST FIXTURES IS 0-10V DIM. THE CONTRACTOR IS ONLY REQUIRED TO PROVIDE 0-10V WRING WHERE DIMMING CONTROLS ARE SHOWN ON THE LIGHTING PLAN.

Minimal mid tier cost exterior lighting fixtures will be added

W	INST	ΓΟΝ	DESIGN+ DEVELOPMENT
P w w v	907E/ ITTSBL TEL: w.wins	ASTEND JRGH, 240.46 tonarch	AVENUE PA 15221 1.1093 itecture.com
	RCHITECT	NION ure is adv	OCACY AND ACTIVISM
	A A A A A A A A A A A A A A A A A A A	IIen - P Engine eny Center, Nova To E JOB #: 20	H Shariff eering wer 2 + Suite 1001 + Pittsburgh, PA 15212 041078
	Building Renovation	big lom's barbershop	2178 Centre Avenue, Pittsburgh, PA 15219
Seal:	FOR	PRICING 50% C	6 ONLY D
Revisio	ns:		
Date: <b>April</b>	16, 202	1	
Project 2020- Owner TomTo	<sup>•</sup> Numbe 06 <sup>•</sup> / Clier om24 D	er: nt: Developn	nent, LLC
Drawin Eleo Sch	ng Title: ctric edu	al les	
Scale: Drawi	As in ng Num	<b>dicated</b> ber:	
E-	.7	01	

Bı	Canch Panel: Location: Supply From: Mounting: Enclosure:	BASEMENT METER CENT SURFACE TYPE 1
скт	Circuit Description	Wire
1	\A/LI 1	2#4 1#10
3		J#4, 1#10
5	CP-1	2#12, 1#12
7	REC DATA BASEMENT	2#12, 1#12
9	REC DATA BASEMENT	2#12, 1#12
11	REC MECH EQUIP	2#12, 1#12
13 15	FCU-B	3#4, 1#10
17		
19	ERV-A	3#12, 1#12
21	REC TOILET RM 101	2#12, 1#12
23	REC WEATHERPROOF	2#12, 1#12
25 27	REC DRYER	3#12, 1#12
29		-
31	-	
33		-
35	1	
37		-
39		
41		
43		
45		
47		
49		
51		
53		
55		
57		
59		
NOT	ES:	

L	oad Center:	2A											
	Location: Supply From: Mounting: Enclosure:	UNIT 2A METER CENTER RECESSED TYPE 1			Volts: Phases: Wires:	lts: 240/120V es: 1 es: 3			A.I.C. Rating: 22 KAIC Mains Type: MLO Mains Rating: 125 MCB Rating: -				
СКТ	Circuit Description	Wire Size	Trip	Pole	LOAI A	) (VA)	В	Pole	Trip	Wire Size	Circuit Description	СКТ	
1	REC FRIDGE	2#12, 1#12G-3/4"C	20	1				2	25	1#9 1#100 2////0		2	
3	REC KITCHEN COUNTER	2#12, 1#12G-3/4"C	20	1				2	30	-#0, 1#100-5/4 C	WATER HEATER	4	
5	REC KITCHEN COUNTER	2#12, 1#12G-3/4"C	20	1				2	50	A#9 1#10C 2/A"C	DANCE	6	
7	REC DISHWASHER	2#12, 1#12G-3/4"C	20	1				2	50	4#0, 1#10G-5/4 C	RANGE	8	
9	REC LIVING ROOM	2#12, 1#12G-3/4"C	20	1				2	20	4#10 1#100 2/4"0	ECU	10	
11	REC BEDROOM	2#12, 1#12G-3/4"C	20	1				2	30		FCU	12	
13	REC BATHROOM GFI	2#12, 1#12G-3/4"C	20	1				2	30	4#10, 1#10G-3/4"C	CU	14	
15	LTG/EXHAUST FANS	2#12, 1#12G-3/4"C	20	1				2	30			16	
17	REC DEMARC	2#12, 1#12G-3/4"C	20	1				1	20	2#12, 1#12G-3/4"C	SMOKE DETECTORS	18	
19	PROVISION										PROVISION	20	
21	PROVISION										PROVISION	22	
23	PROVISION										PROVISION	24	
		1	Tota I L	_oad:	0	)	0						
			Α	mps:	0	).0							
NOT	TES:												

L	Load Center: 3A										
	Location: UNIT 3A										
	Supply From: METER										
	Mounting:	RECES									
	Enclosure:	TYPE 1									
-											
CKT	Circuit Description										
1	REC FRIDGE	2#12									
3	REC KITCHEN COUNTER	2#12									
5	REC KITCHEN COUNTER	2#12									
7	REC DISHWASHER	2#12									
9	REC LIVING ROOM	2#12									
11	REC BEDROOM	2#12									
13	REC BATHROOM GFI	2#12									
15	LTG/EXHAUST FANS	2#12									
17	REC DEMARC	2#12									
19	PROVISION										
21	PROVISION										
23	PROVISION										
NOT	ES:										

HA													
EMENT				Volts:	2	40/120V	1		A.I.C. Rating	: 22 KAIC			
ER CENTER			1	Phases:		1			Mains Type: MCB				
FACE				Wires:		3			Mains Rating	: 200 250A main, 2	250A N		
E 1									MCB Rating	: 200			
	_		-							-			
Wire Size	Trip	Pole		LOAD			Pole	Trip	Wire Size	Circuit Description	СКТ		
				A	E	3							
3#4, 1#10G - 1"C	60A	2	5000	16			1	20A	2#12, 1#12G - 3/4"C	LTG BIG TOM'S, EF-A	2		
					5000	360	1	20A	2#12, 1#12G - 3/4"C	LTG BASEMENT	4		
12, 1#12G - 3/4"C	20A	1	100	360			1	20A	2#12, 1#12G - 3/4"C	REC BARBERSHOP CHAIR	6		
12, 1#12G - 3/4"C	20A	1			360	360	1	20A	2#12, 1#12G - 3/4"C	REC BARBERSHOP CHAIR	8		
12, 1#12G - 3/4"C	20A	1	360	360			1	20A	2#12, 1#12G - 3/4"C	REC BARBERSHOP CHAIR	10		
12, 1#12G - 3/4"C	20A	1			360	360	1	20A	2#12, 1#12G - 3/4"C	REC BARBERSHOP CHAIR	12		
3#4. 1#10G - 1"C	25A	2	2400	360			1	20A	2#12, 1#12G - 3/4"C	REC BARBERSHOP CHAIR	14		
	20/1	-			2400	720	1	20A	2#12, 1#12G - 3/4"C	REC BIG TOM'S	16		
12 1#12G - 3/4"C	154	2	372	180			1	20A	2#12, 1#12G - 3/4"C	REC WASH STATION	18		
12, 1#120 - 5/4 0	IJA	2			372	1200	1	20A	2#12, 1#12G - 3/4"C	REC WASHER	20		
12, 1#12G - 3/4"C	20A	1	180								22		
12, 1#12G - 3/4"C	20A	1			540						24		
42 4#420 2/480	40.4		3600								26		
12, 1#12G - 3/4 C	40A	2	-		3600						28		
											30		
					2	1					32		
											34		
											36		
											38		
											40		
											42		
					-						44		
											46		
	-				-						48		
	-		-								50		
	-				1						50		
	-						-				52		
							<u> </u>				54		
	-			-							00		
											58		
							<u> </u>				60		
	otalL	.oad:	132	288	156	632	<u> </u>						
	A	mps:		12	0.5								

	Location: BASEMENT Supply From: METER CENTER Mounting: SURFACE Enclosure: TYPE 1									
СКТ	Circuit Description	Wire Size								
1	LTG MICRO SHOP, EF-A	2#12, 1#12G - 3/4"C								
3	AC-A	3#10, 1#10G - 3/4"C								
7	REC MICRO SHOP	2#12, 1#12G - 3/4"C								
9	REC MICRO SHOP	2#12, 1#12G - 3/4"C								
11	REC MICRO SHOP	2#12, 1#12G - 3/4"C								
13										
15										
17										
19										
21										
23										
25										
27										
29										
31										
33										
35										
37										
39										
41										
NOT	Te									
NUI	Eð.									

4									
3A			Volts:	240/120\	/		A.I.C. Rating	: 22 KAIC	
ER CENTER			Phases:	1	[		Mains Type	: MLO	
ESSED			Wires:	3	3		Mains Rating	: 125	
1							MCB Rating	: -	
Wire Size	Trip	Pole	LOAD	(VA)	Pole	Trip	Wire Size	Circuit Description	CK
			A	В		1.00			
12, 1#12G-3/4"C	20	1			2	35	4#8 1#10G-3/4"C	WATER HEATER	2
12, 1#12G-3/4"C	20	1			2	00	-#0, 1#100 0/4 0		4
12, 1#12G-3/4"C	20	1			2	50	4#8 1#10G-3/4"C	RANGE	6
<sup>±</sup> 12, 1#12G-3/4"C	20	1			2	50	4#0, 1#100-5/4 0	INNOL	8
<sup>±</sup> 12, 1#12G-3/4"C	20	1			2	20	A#10 1#10C 3/A"C	ECU	10
12, 1#12G-3/4"C	20	1				50	4#10, 1#10 <del>0</del> -3/4 C	100	12
12, 1#12G-3/4"C	20	1			2	20	1#10 1#10C 2//"C		14
12, 1#12G-3/4"C	20	1			<b>1</b> <sup>2</sup>	30	4#10, 1#10G-5/4 C	CU	16
12, 1#12G-3/4"C	20	1			1	20	2#12, 1#12G-3/4"C	SMOKE DETECTORS	18
								PROVISION	20
								PROVISION	22
								PROVISION	24
	Total L	oad:	0	0				•	
	Α	mps:	0.	0					

														WIN	ISTON	DESIGN+ DEVELOPMENT
Brai	nch Panel: Location: Supply From: Mounting: Enclosure:	<b>1TA</b> BASEMENT METER CENTER SURFACE TYPE 1			F	Volts: Phases: Wires:	2 2 4	240/120V 1 3	3		A.I.C. Rating Mains Type Mains Rating MCB Rating	: 65 KAIC : MCB : 125 : 125		9 ( P I T w w w	07 EAST EN TSBURGH, TEL:240.4 winstonarc	D AVENUE PA 15221 61.1093 hitecture.com
скт	Circuit Description	Wire Size	Trip	Pole	A	LOAE	) (VA)	В	Pole	Trip	Wire Size	Circuit Description	СКТ	COM	MUNIO	
1 LTG	MICRO SHOP, EF-A	2#12, 1#12G - 3/4"C	20A	1	16	180	1320	180	1	20A 20A	2#12, 1#12G - 3/4"C 2#12, 1#12G - 3/4"C	REC MICRO SHOP	2	ARCI	HITECTURE IS A	DVOCACY AND ACTIVISM
5 AC-/		3#10, 1#10G - 3/4"C	30A	2	1320	180	180	180	1	20A	2#12, 1#12G - 3/4"C	REC MICRO SHOP	6			
9 REC	C MICRO SHOP	2#12, 1#12G - 3/4 C 2#12, 1#12G - 3/4"C	20A	1	180	180	100	100	2	20A	2#12, 1#12G - 3/4 C 2#12, 1#12G - 3/4"C	REC TOILET RM 103	10		Allen	+Shariff
11 REC	C MICRO SHOP	2#12, 1#12G - 3/4"C	20A	1			180		-				12 14		MEP Engi	neering
15													16		ASE JOB #:	2041078
19													20			
21 23													22			
25 27													26 28			
29				F									30			
33													34			
35 37													36		-	6
39 41													40		do	1521
		1	Total	Load:	20	56	20	040							sh	PA
NOTES:			,	amps.	•	17	1							tion	)er	urgh,
Loa	ad Center: Location: Supply From: Mounting: Enclosure:	<b>2B</b> UNIT 2B METER CENTER RECESSED TYPE 1			ŀ	Volts: Phases: Wires:	2	240/120V 1 3	/   }		A.I.C. Rating Mains Type Mains Rating MCB Rating	I: 14 KAIC I: MLO I: 125 I: -		<u>م</u>	Big To	2178 Centre
СКТ	Circuit Description	Wire Size	Trip	Pole		LOAE	) (VA)		Pole	Trip	Wire Size	Circuit Description	СКТ			
1 REC		2#12, 1#12G-3/4"C	20	1	́ А	A .		B					2			
3 REC	C KITCHEN COUNTER	2#12, 1#12G-3/4"C 2#12_1#12G-3/4"C	20 20	1						35	4#8, 1#10G- <i>3</i> /4°C		4			
7 REC		2#12, 1#12G-3/4"C	20	1					2	50	4#8, 1#10G-3/4"C	RANGE	8			
11 REC	CBEDROOM	2#12, 1#12G-3/4°C	20	1					2	30	4#10, 1#10G-3/4"C	FCU	12	Seal		
13 REC 15 LTG	C BATHROOM GFT E/EXHAUST FANS	2#12, 1#12G-3/4"C 2#12, 1#12G-3/4"C	20 20	1					2	30	4#10, 1#10G-3/4"C	CU	14 16			
17 REC 19 PRC	DEMARC	2#12, 1#12G-3/4"C	20	1					1	20	2#12, 1#12G-3/4"C	SMOKE DETECTORS PROVISION	18 20			
21 PRC	OVISION											PROVISION	22			
25 110			Total	Load	: (	)		0					24		50%	CD
Loa	ad Center:	<b>3B</b> UNIT 3B				Volts:		240/120V	,		A.I.C. Rating	: 14 KAIC		Revisions	:	
	Supply From: Mounting: Enclosure:	METER CENTER RECESSED TYPE 1			F	Phases: Wires:		1 3	1 3		Mains Type Mains Rating MCB Rating	:: MLO :: 125 :: -		Date:		
СКТ	Circuit Description	Wire Size	Trip	Pole	A	LOAE	) (VA)	В	Pole	Trip	Wire Size	Circuit Description	СКТ	April 16	, 2021	
I REC	C KITCHEN COUNTER	2#12, 1#12G-3/4"C 2#12, 1#12G-3/4"C	20 20	1					2	35	4#8, 1#10G-3/4"C	WATER HEATER	4	Project N	lumber:	
5 REC	C KITCHEN COUNTER	2#12, 1#12G-3/4"C 2#12, 1#12G-3/4"C	20 20	1					2	50	4#8, 1#10G-3/4"C	RANGE	6 8		Clicat	
9 REC	C LIVING ROOM	2#12, 1#12G-3/4"C 2#12_1#12G-3/4"C	20	1					2	30	4#10, 1#10G-3/4"C	FCU	10 12	TomTom	124 Develop	oment, LLC
13 REC	C BATHROOM GFI	2#12, 1#12G-3/4"C	20	1					2	30	4#10, 1#10G-3/4"C	CU	14			
17 REC	DEMARC	2#12, 1#12G-3/4"C 2#12, 1#12G-3/4"C	20 20	1					1	20	2#12, 1#12G-3/4"C	SMOKE DETECTORS	16	Drawing	Title:	
19 PRC 21 PRC	OVISION			$\vdash$					E			PROVISION PROVISION	20 22	Elect	rical	
23 PRC	DVISION		Total	Load:	: (	)		0				PROVISION	24	Sche	dules	
NOTES:			ŀ	Amps:	:	0	.0								<b>A e : !!</b> • • !	
														Drawing	Number:	·
														E-7	70	

	Supply From: METER CENTER Mounting: RECESSED Enclosure: TYPE 1									
CKT	Circuit Description	Wire Size								
1	REC FRIDGE	2#12, 1#12G-3/4								
3	REC KITCHEN COUNTER	2#12, 1#12G-3/4								
5	REC KITCHEN COUNTER	2#12, 1#12G-3/4								
7	REC DISHWASHER	2#12, 1#12G-3/								
9	REC LIVING ROOM	2#12, 1#12G-3/4								
11	REC BEDROOM	2#12, 1#12G-3/4								
13	REC BATHROOM GFI	2#12, 1#12G-3/4								
15	LTG/EXHAUST FANS	2#12, 1#12G-3/4								
17	REC DEMARC	2#12, 1#12G-3/4								
19	PROVISION									
21	PROVISION									
	DDOVICION									

	PLUMBING LEGEND										
SYMBOL	ABRV.	DESCRIPTION	SYMBOL	ABRV.	DESCRIPTION						
<b>⊱</b> SAN <b>∫</b>	SAN	SANITARY PIPING	<b>۶</b>	BV	BALANCING VALVE						
<b>⊱</b> st	ST	STORM PIPING (PRIMARY)	<b>ب</b>	PRV	PRESSURE REDUCING VALVE						
<b>۶</b> ۷۲	V	VENT PIPING	¥,	PRV	PRESSURE REGULATING VALVE						
<b>۶</b>	CW	COLD WATER PIPING	ĮĮ	CV	CHECK VALVE						
<b>۶</b> ــــــــــ	НW	HOT WATER PIPING	۲۲۶۲۲		STRAINER						
<b>⊱</b> HWR <b></b>	HWR	HOT WATER RETURN PIPING	ŢЧ,	T&P	TEMPERATURE AND PRESSURE RELIEF VALVE						
<b>⊱−−−−</b> TP <b>−−−−</b> ⊀	TP	TRAP PRIMER PIPING	¥7	BFP	BACK FLOW PREVENTER						
<b>⊱</b> G <b></b> ⊀	G	GAS PIPING (NATURAL OR PROPANE)	, ₩Q	PG	PRESSURE GAUGE						
<b>\$</b> CD <b>\$</b>	CD	CONDENSATE DRAIN PIPING	ب آ		THERMOMETER						
<del>ب</del>		PIPING ROUTED BELOW GRADE / SLAB (LINE TYPE INDICATES SERVICE TYPE UNO)	<del>ب ک</del> ز		AQUASTAT						
م سر		PIPE UP	х Дал		HOT WATER RECIRC. PUMP						
<b>ب</b>		PIPE DOWN	Ţ		INTERIOR HOSE BIBB OR HOSE END DRAIN VALVE						
<del>، م</del> ا		PIPE TEE DOWN	+		EXTERNAL WALL HYDRANT						
<b>۶</b> ـــــاابـــــــ۲		PIPE UNION	⊱ <sup>₽×</sup> ⊀		DOMESTIC SHOCK ABSORBER/WATER HAMMER ARRESTER; TEXT DENOTES SIZE (PDI: A ~ F)						
\$		PIPE CAP	)	FCO	CLEAN OUT, FLOOR						
œ——		PIPE TRAP	ا→	со	CLEAN OUT, EXPOSED						
⊱⊸₹		BALL VALVE		FD	FLOOR DRAIN						
£		BALL VALVE OR SHUTOFF VALVE IN RISE	∠J,		FLOOR DRAIN WITH TRAP PRIMER						
HXH		GATE VALVE	₽₽₽₽	OS&Y	OS&Y VALVE						
⊱₹→		GAS COCK	(I.E. XX.XX)		INVERT ELEVATION B.F.F. (IN FEET)						
HXH	MV	MIXING VALVE	⊊		UTILITY METER						
۲		VACUUM RELIEF VALVE	<u>}</u>		FLEXIBLE PIPE CONNECTION						
۲	VB	VACUUM BREAKER									

SHOC SCHE	SHOCK ARRESTOR SCHEDULE										
MARK	SFU's	CONN. SIZE	MODEL NO.								
SA - A	1 TO 11	1/2"	652-A								
SA - B	SA - B 12 TO 32 3/4" 653-B										

654-C 33 TO 60 SA - C 1" 655-D SA - D 61 TO 113 1" SA - E 114 TO 154 656-E 1" SA - F 657-F 155 TO 330 1" MODEL NUMBERS BASED ON SIOUX CHIEF PISTON TYPE ARRESTORS COMMUNION ARCHITECTURE IS ADVOCACY AND ACTIVISM Allen+Shariff MEP Engineering 2 Allegheny Center, Nova Tower 2 - Suite 1001 - Pittsburgh, PA 15212 ASE JOB #: 2041078 Barbershop om's Big 217

WINSTON DESIGN+ DEVELOPMENT

907 EAST END AVENUE PITTSBURGH, PA 15221 TEL:240.461.1093 www.winstonarchitecture.com

Seal:

ā

FOR PRICING ONLY 50% CD

**Revisions:** 

![](_page_39_Picture_8.jpeg)

Date: **April 16, 2021** 

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# Drawing Title: Plumbing Data Sheet

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m C}$  Winston Design+Development 2020

#### PLUMBING SPECIFICATION

#### **GENERAL INFORMATION**

#### A. GENERAL

- 1. CONFORM TO GENERAL AND SPECIAL CONDITIONS OF CONTRACT.
- 2. SPECIFICATIONS ARE APPLICABLE TO CONTRACTORS AND/OR SUBCONTRACTORS.
- 3. THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING AND EQUIPMENT DRAWINGS AND SPECIFICATIONS ARE INCORPORATED INTO, AND BECOME A PART OF THIS DIVISION. THIS CONTRACTOR SHALL EXAMINE ALL SUCH DRAWINGS AND SPECIFICATIONS AND BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS CONTAINED THEREIN. THE SUBMISSION OF THE BID SHALL INDICATE SUCH KNOWLEDGE.
- 4. VISIT SITE, CHECK FACILITIES AND CONDITIONS.
- 5. SYSTEMS SHALL BE COMPLETE AND WORKABLE IN ALL RESPECTS AND PLACED IN OPERATION.
- 6. EACH CONTRACTOR SHALL PROVIDE FOR HIS OWN CLEAN-UP, REMOVAL AND LEGAL DISPOSAL OF ALL RUBBISH DAILY. CONTRACTOR SHALL PROTECT THEIR WORK AND EXISTING OR ADJACENT PROPERTY AGAINST WEATHER, TO MAINTAIN THEIR WORK, MATERIALS, APPARATUS AND FIXTURES FREE FROM INJURY OR DAMAGE. ANY WORK DAMAGED BY FAILURE TO PROVIDE PROTECTION REQUIRED, SHALL BE REMOVED AND REPLACED WITH NEW WORK AT THE CONTRACTOR'S EXPENSE
- 7. CONTRACTORS SHALL CONFIRM AND COMPLY WITH ALL UTILITY COMPANY REQUIREMENTS, COORDINATE CONNECTION POINTS IN FIELD.
- 8. ARRANGE FOR AND OBTAIN OWNER'S AND INSURANCE REPRESENTATIVE'S PERMISSION FOR ANY SERVICE SHUTDOWNS.
- 9. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, SEQUENCES OF CONSTRUCTION AND THE SAFETY OF WORKMEN.
- 10. PIPING, CONTROLS, ETC., SHALL NOT BE INSTALLED, OR ROUTED ABOVE, ELECTRICAL PANELS AND EQUIPMENT OR THROUGH ELEVATOR MACHINE ROOMS.
- 11. THE CONTRACTOR SHALL COORDINATE AND PROVIDE A WRITTEN LISTING OF ELECTRICAL CHARACTERISTICS OF ALL MECHANICAL EQUIPMENT TO ELECTRICAL CONTRACTOR PRIOR TO ORDERING OF EQUIPMENT. NO ADDITIONAL COMPENSATION WILL NOT BE MADE FOR LACK OF CONTRACTOR COORDINATION OF ELECTRICAL EQUIPMENT CHARACTERISTICS.
- 12. DURING THE BUILDING CONSTRUCTION SOME EXISTING INSTALLATION MAY BE EXPOSED THAT WILL HAVE TO BE CHANGED, ALTERED, REROUTED AND/OR ABANDONED. ANY SUCH WORK WHICH COMES UNDER THE JURISDICTION OF THIS CONTRACTOR SHALL BE DONE BY THIS CONTRACTOR WITHOUT ADDITIONAL COST TO THE OWNER.
- 13. WORK RELATED TO THE EXISTING BUILDING SHALL BE COORDINATED TO MINIMIZE INTERFERENCE OR INTERRUPTION OF NORMAL BUILDING USE BY OWNER. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR PHASING REQUIREMENTS.
- 14. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIRIZE THEMSELVES WITH EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING CONDITIONS THAT MAY AFFECT THE BID. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR FAILURE TO REVIEW EXISTING CONDITIONS PRIOR TO BIDDING.
- B. CODES, PERMITS, STANDARDS AND REGULATIONS
  - 1. CONFORM TO APPLICABLE CODES (LOCAL, STATE, NATIONAL CODES, NFPA, OSHA, ETC.), GOVERNMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, AND APPLICABLE STANDARDS.
  - 2. OBTAIN PERMITS AND PAY FEES. ARRANGE FOR REQUIRED TESTS, INSPECTIONS AND APPROVALS. PROVIDE COPIES OF INSPECTIONS, AND APPROVALS TO THE ARCHITECT-ENGINEER.
- C. RELATED WORK SPECIFIED ELSEWHERE
  - 1. OPENINGS AND CHASES, WHEN SHOWN ON ARCHITECTURAL DRAWINGS.
  - 2. TEMPORARY WATER SERVICE, SANITARY FACILITIES, FIRE PROTECTION AND HEATING DURING CONSTRUCTION.
  - 3. POURED-IN-PLACE CONCRETE.
  - 4. FINISH PAINTING.
  - 5. ELECTRIC POWER WIRING
- D. DRAWINGS
- 1. THE SYSTEMS SHOWN THE DRAWINGS ARE DIAGRAMMATIC. CONFIRM DIMENSIONS BY FIELD MEASUREMENT.
- 2. THE EXACT LOCATIONS FOR APPARATUS, FIXTURES, EQUIPMENT AND PIPING WHICH IS NOT COVERED BY DRAWINGS, SHALL BE OBTAINED FROM THE ARCHITECT OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY.
- 3. DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT ONE ANOTHER. ANY MATERIALS OR LABOR CALLED FOR IN ONE BUT NOT THE OTHER SHALL BE PROVIDED.
- DEMOLITION AND REMOVAL

BE REMOVED

- 1. DISCONNECT, DISASSEMBLE, CAP, PLUG AND REMOVE ALL PIPING, DUCTS AND EQUIPMENT INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR THE PROJECT.
- 2. ANY EQUIPMENT DESIGNATED BY OWNER TO BE SALVAGED SHALL BE PROTECTED AND DELIVERED TO THE OWNER'S ON SITE.
- 3. DEMOLITION TO BE DONE IN A MANNER NOT TO DAMAGE ADJACENT WORK AND NOT AFFECT THE OPERATION OF SYSTEMS TO REMAIN IN USE. ANY ITEM TO REMAIN THAT IS DAMAGED BY THE CONTRACTOR OR THAT REQUIRES DAMAGE DUE TO THE ABSOLUTE NECESSITY FOR DEMOLITION REQUIREMENTS SHALL BE REPLACED AND/OR REPAIRED AT HIS EXPENSE.
- 4. OPENINGS ON PIPING AND DUCTS THAT REMAIN SHALL BE CAPPED AND PROPERLY SECURED.
- 5. ASBESTOS REMOVAL WILL BE HANDLED BY THE OWNER AND IS NOT A PART OF THIS WORK.
- 6. EXAMINE AREAS AND CONDITIONS UNDER WHICH DEMOLITION WORK SHALL BE PERFORMED. CONTRACTOR SHALL COORDINATE WORK WITH OTHER TRADES PERFORMING DEMOLITION WORK.
- 7. REMOVE SUPPORTS, HANGERS, AND ACCESSORIES FROM EQUIPMENT AND MATERIAL INDICATED TO
- BASE EQUIPMENT, MATERIALS AND SUBSTITUTIONS
- 1. EQUIPMENT AND MATERIALS SHALL BE NEW, FREE OF DEFECTS AND U.L. LABELED.
- 2. BASE BID MANUFACTURERS ARE INCLUDED IN SPECIFICATIONS OR LISTED IN SCHEDULE ON DRAWINGS. OTHER MANUFACTURERS ARE CONSIDERED A SUBSTITUTION.
- 3. THE NAME OR MAKE OF ANY ARTICLE, DEVICE, MATERIAL, FORM OF CONSTRUCTION, FIXTURE, ETC., STATED IN THIS SPECIFICATION, SHALL BE KNOWN AS A "STANDARD".
- 4. PROPOSALS SHALL BE BASED ON "STANDARDS" SPECIFIED.

- 5. THE EQUIPMENT SCHEDULES ON DRAWINGS INDICATE MANUFACTURERS EQUIPMENT MODEL NUMBERS UPON WHICH DESIGN HAS BEEN BASED. THE USE OF OTHER MANUFACTURERS CHANGES IN ROOF OPENINGS, CHANGE OF PIPE SIZES & BUILDING CONFIGURATION, COSTS OF SUCH CHANGES SHALL BE PAID BY THE CONTRACTOR SUBMITTING THE ALTERNATE.
- EQUIVALENT IN ALL RESPECTS TO THE BASE SPECIFICATIONS.
- CONTRACTOR FROM THIS RESPONSIBILITY.
- CONFORM TO THESE REQUIREMENTS.
- G. CHECK, TEST, START, ADJUST, BALANCE AND INSTRUCTIONS
  - MANUFACTURER'S INSTRUCTIONS, AND REQUIREMENTS OF THE SPECIFICATIONS.
  - 2. PIPING SHALL BE TESTED AND FREE OF LEAKS. MAKE REPAIRS NEEDED FOR LEAK FREE SYSTEMS. 3. CONCEALED OR INSULATED WORK SHALL REMAIN UNCOVERED UNTIL REQUIRED INSPECTIONS, AND TESTS HAVE BEEN COMPLETED. IF CONSTRUCTION SCHEDULE REQUIRES IT, ARRANGE FOR PRIOR
  - TESTS ON PARTS OF SYSTEM AS APPROVED BY THE TENANT.
  - 4. INSTRUCT OWNER IN OPERATION OF SYSTEMS AND SUBMIT OPERATING AND MAINTENANCE MANUAL ON ALL EQUIPMENT AND SYSTEMS AS REQUIRED BY THE SPECIFICATION. PROVIDE A MINIMUM OF 16 HOURS INSTRUCTION TO OWNER'S REPRESENTATIVES.
- H. CUTTING, PATCHING AND DRILLING
- 1. CUTTING AND PATCHING OF THE BUILDING CONSTRUCTION REQUIRED FOR THIS WORK SHALL BE BY THIS CONTRACTOR. CUTTING SHALL BE IN A NEAT AND WORKMANLIKE MANNER.
- 2. NEATLY SAW CUT RECTANGULAR OPENINGS, SET SLEEVE THROUGH OPENING, AND FINISH PATCH OR PROVIDE TRIM FLANGE AROUND OPENINGS.
- 3. NEATLY SAW CUT FLOORS FOR SEWER INSTALLATION AND PATCH FLOOR TO MATCH EXISTING, INCLUDING FLOOR COVERING. PROVIDE IRON DOWEL RODS TO ANCHOR CONCRETE PATCH TO EXISTING CONCRETE FLOORS. RODS SHALL BE PLACED @ 12" ON CENTER FOR THE ENTIRE LENGTH OF PATCH.
- 4. CORE DRILL AND SLEEVE ROUND OPENINGS.
- 5. DO NOT CUT ANY STRUCTURAL COMPONENTS WITHOUT ARCHITECT'S/ENGINEER'S APPROVAL.
- 6. PATCH AND FINISH TO MATCH ADJACENT AREAS THAT HAVE BEEN CUT, DAMAGED OR MODIFIED AS A RESULT OF THE INSTALLATION OF THE MECHANICAL OR ELECTRICAL EQUIPMENT. FIRE STOP PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER. MAINTAIN FIRE RATING OF ASSEMBLY. COORDINATE FIRE RATING ASSEMBLIES WITH ARCHITECT.
- CONTRACTORS SHALL CONFIRM WITH OWNER, PRIOR TO BID, TIMES AVAILABLE FOR NOISE PRODUCING WORK SUCH AS CUTTING AND CORE DRILLING OF FLOORS, WALLS, ETC., AS WELL AS TIMES FOR WORK WHICH REQUIRE ACCESS INTO ADJOINING TENANT SPACES. INCLUDE PREMIUM TIME IN BID.
- 8. INFORMATION REGARDING REQUIRED PIPE OPENINGS IN WALLS, FLOORS, CHASES, ETC., AND CONCRETE EQUIPMENT PADS OR FOUNDATIONS SHALL BE GIVEN TO THE GENERAL CONTRACTOR BY THIS CONTRACTOR PRIOR TO THE CONSTRUCTION PERIOD. IF THIS CONTRACTOR FAILS TO COMPLY WITH THIS REQUEST, OR IF INCORRECT INFORMATION IS GIVEN, THE NECESSARY CUTTING AND PATCHING WILL BE PERFORMED BY THE GENERAL CONTRACTOR, AT THIS CONTRACTOR'S EXPENSE.
- I. WARRANTY
  - 1. FULLY WARRANT MATERIALS, EQUIPMENT AND WORKMANSHIP FOR ONE (1) YEAR FROM DATE OF ACCEPTANCE.
- PROVIDE MANUFACTURER'S WARRANTIES TO OWNER, INCLUDING ALL AVAILABLE EXTENDED WARRANTIES.
- 3. REPAIR OR REPLACE WITHOUT CHARGE TO THE OWNER ITEMS FOUND DEFECTIVE DURING THE WARRANTY PERIOD. IN THE CASE OF REPLACEMENT OR REPAIR DUE TO FAILURE WITHIN THE WARRANTY PERIOD, THE WARRANTY ON THAT PORTION OF THE WORK SHALL BE EXTENDED FOR A MINIMUM PERIOD OF ONE (1) YEAR FROM THE DATE OF SUCH REPLACEMENT OR REPAIR.
- J. SHOP DRAWING SUBMITTALS
- 1. SUBMIT SHOP DRAWINGS WITH ADEQUATE DETAILS AND SCALES TO CLEARLY SHOW CONSTRUCTION. INDICATE THE OPERATING CHARACTERISTICS FOR EACH REQUIRED ITEM. CLEARLY IDENTIFY EACH ITEM ON THE SUBMITTAL AS TO MARK, LOCATION AND USE, USING SAME IDENTIFICATION AS PROVIDED ON DESIGN DRAWINGS. SUBMITTAL WITH MULTIPLE ITEMS MUST BE MARKED FOR PROPOSED ITEM OR SUBMITTAL WILL BE REJECTED.
- 2. PLUMBING DRAWINGS SHALL BE FULLY DIMENSIONED BASED ON FIELD VERIFIED BUILDING CLEARANCES AND ARCHITECTURAL CEILING LAYOUTS. INDICATE STRUCTURAL, LIGHTING, DUCTWORK AND PIPING AT ALL CRITICAL LOCATIONS.
- 3. CONTRACTOR SHALL REVIEW AND INDICATE HIS APPROVAL OF EACH SHOP DRAWING PRIOR TO SUBMITTAL FOR REVIEW. DO NOT START WORK OR FABRICATION UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED BY THE ENGINEER AND RETURNED TO THE CONTRACTOR.
- 4. SUBMITTALS SHALL BE REVIEWED ONLY FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS AND NOT FOR DIMENSIONS OR QUANTITIES. THE SUBMITTAL REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PURCHASE OF ANY ITEM IN FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS OR ITS COMPLETE AND PROPER INSTALLATION.
- 5. WHERE SUBMITTALS VARY FROM THE CONTRACT REQUIREMENTS, THE CONTRACTOR SHALL CLEARLY INDICATE ON SUBMITTAL OR ACCOMPANYING DOCUMENTS THE NATURE AND REASON FOR VARIATIONS.
- 6. REFER TO VARIOUS SECTIONS FOR LISTING OF SHOP DRAWINGS REQUIRED ON THIS PROJECT.
- 7. EACH MANUFACTURER OR HIS REPRESENTATIVE SHALL CHECK THE APPLICATION OF HIS EQUIPMENT AND CERTIFY AT TIME OF SHOP DRAWING SUBMITTAL THAT EQUIPMENT HAS BEEN PROPERLY SELECTED AND CAN BE INSTALLED, SERVICED AND MAINTAINED WHERE INDICATED ON DRAWINGS. ADVISE ENGINEER IN WRITING WITH SUBMITTAL DRAWINGS OF ANY POTENTIAL PROBLEMS. THE MANUFACTURER SHALL BE RESPONSIBLE FOR ANY CHANGES THAT MIGHT BE NECESSARY BECAUSE OF PHYSICAL CHARACTERISTICS OF EQUIPMENT THAT HAVE NOT BEEN CALLED TO THE ENGINEER'S ATTENTION AT THE TIME OF SUBMITTAL.
- K. RECORD DRAWINGS
- 1. EACH CONTRACTOR OR SUBCONTRACTOR SHALL KEEP ONE (1) COMPLETE SET OF THE CONTRACT WORKING DRAWINGS ON THE JOB SITE. THE CONTRACTOR SHALL REGULARLY RECORD DEVIATIONS OR CHANGES FROM SUCH CONTRACT DRAWINGS MADE DURING CONSTRUCTION.
- 2. THESE DRAWINGS SHALL RECORD THE LOCATION OF ALL CONCEALED EQUIPMENT, PIPING, ELECTRIC SERVICE, SEWERS, WASTES, VENTS, DUCTS, CONDUIT AND OTHER PIPING, BY MEASURED DIMENSIONS TO EACH SUCH ITEM FROM READILY IDENTIFIABLE AND ACCESSIBLE WALLS OR

EQUIPMENT THAT IS LISTED AS ACCEPTABLE ALTERNATES THAT REQUIRES STRUCTURAL CHANGES, ARCHITECTURAL CHANGES, ETC., SHALL BE THE CONTRACTOR'S RESPONSIBILITY. ADDITIONAL

6. SUBSTITUTIONS ARE SUBJECT TO THE APPROVAL OF THE OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE AND CERTIFY WITH DOCUMENTATION THAT THE SUBSTITUTION IS

7. IF SUBSTITUTIONS ARE APPROVED, NOTIFY ALL OTHER CONTRACTORS, SUBCONTRACTORS OR TRADES AFFECTED BY SUBSTITUTION AND FULLY COORDINATE. ANY COSTS RESULTING FROM SUBSTITUTION, WHETHER BY CONTRACTOR OR OTHERS, SHALL BE RESPONSIBILITY OF, AND PAID FOR BY SUBSTITUTING CONTRACTOR. APPROVED SHOP DRAWINGS DOES NOT ABSOLVE THIS

8. ALL EQUIPMENT SHALL BE INSTALLED IN FULL ACCORDANCE WITH THE MANUFACTURER'S DATA AND INSTALLATION INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHECK AND

1. AFTER INSTALLATION, CHECK ALL EQUIPMENT, AND PERFORM START UP IN ACCORDANCE WITH THE

- CORNERS OF THE BUILDING. PLANS ALSO SHALL SHOW INVERT ELEVATION OF SANITARY AND/OR STORM SEWERS AND TOP ELEVATION OF OTHER BELOW-GRADE LINES.
- 3. RECORD DRAWINGS SHALL BE KEPT CLEAN AND UNDAMAGED AND SHALL NOT BE USED FOR ANY PURPOSE OTHER THAN RECORDING DEVIATIONS FROM WORKING DRAWINGS AND EXACT LOCATIONS OF CONCEALED WORK.
- 4. AFTER THE PROJECT IS COMPLETED, THESE SETS OF DRAWINGS SHALL BE DELIVERED TO THE ARCHITECT IN GOOD CONDITION, AS A PERMANENT RECORD OF THE INSTALLATION.

## PLUMBING SYSTEMS

- A. SCOPE
  - 1. PROVIDE PLUMBING FIXTURES, EQUIPMENT AND MATERIAL INDICATED AND SHOWN ON DRAWINGS AND PLACE IN PROPER OPERATION.
  - 2. PLUMBING SYSTEMS TO ESSENTIALLY CONSIST OF BUT NOT LIMITED TO THE FOLLOWING: a. ROOF DRAINS, RAIN CONDUCTORS, HUBS FOR DOWN SPOUTS, CATCH BASINS, CLEANOUTS, MANHOLES AND STORM SEWERS TO FIVE (5) FEET OUTSIDE BUILDING, OR AS DEFINED BY CONTRACT DOCUMENTS.
  - b. SANITARY WASTE AND VENT PIPING AND SANITARY SEWER EXTENDED TO FIVE (5) FEET OUTSIDE BUILDING, OR AS DEFINED BY CONTRACT DOCUMENTS.
  - c. SANITARY WASTE AND VENT PIPING AND SANITARY SEWER EXTENDED TO EXISTING BUILDING FACILITIES. CONTRACTOR SHALL MAKE THE CONNECTIONS TO THE EXISTING SERVICES AS INDICATED ON DRAWINGS. EXISTING LINE SIZES, CONDITIONS, INVERT ELEVATIONS, AND CAPACITIES SHALL BE VERIFIED, CLEAN, TEST, AND VIDEO TAPE PIPING FOR PROPER OPERATION BEFORE FINAL CONNECTION FOR ALL UTILITIES. IMMEDIATELY REPORT TO THE ARCHITECT OR ENGINEER ANY INSTANCES WHERE CONNECTIONS CANNOT BE MADE BETWEEN NEW AND EXISTING SYSTEMS AS INDICATED ON PLANS. ADDITIONAL COMPENSATION WILL NOT BE GRANTED FOR NEW WORK THAT MUST BE ABANDONED AND REPLACED BECAUSE LOCATION AND ELEVATION OF EXISTING WAS NOT DETERMINED BEFORE STARTING NEW WORK.
  - d. DOMESTIC WATER EXTENDED FROM CITY MAIN AND DISTRIBUTION SYSTEM. INCLUDING TAP TO MAIN, METER VAULT AND METER, BACKFLOW PREVENTION DEVICE AS REQUIRED;
  - e. PROVIDE DOMESTIC WATER FROM CITY MAIN INTO BUILDING AS INDICATED ON DRAWINGS. INSTALL WATER METER WITH REMOTE REGISTER AND REDUCED PRESSURE BACKFLOW PREVENTION DEVICE INSIDE BUILDING. PIPE BACKFLOW DEVICE DRAIN TO FLOOR DRAIN. INCLUDE FITTINGS, VALVES, HANGERS, AND OTHER ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION. PROVIDE INSTALLATION AS REQUIRED BY AUTHORITY HAVING JURISDICTION.

- f. EXTEND DOMESTIC WATER FROM FIVE (5) FEET OUTSIDE BUILDING INTO BUILDING AS INDICATED ON DRAWINGS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING SAME. INCLUDE ALL FITTINGS, VALVES, HANGERS, AND OTHER ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION. PROVIDE WATER METER AS REQUIRED. PROVIDE INSTALLATION AS REQUIRED BY AUTHORITY HAVING JURISDICTION.
- EXTEND DOMESTIC WATER FROM EXISTING BUILDING FACILITIES AS INDICATED ON DRAWINGS. INSTALL WATER METER WITH REMOTE REGISTER AS INDICATED ON DRAWINGS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING SAME. INCLUDE ALL FITTINGS, VALVES, HANGERS, AND OTHER ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION. PROVIDE INSTALLATION AS REQUIRED BY AUTHORITY HAVING JURISDICTION.
- h. DOMESTIC WATER EXTENDED FROM FIVE (5) FEET OUTSIDE BUILDING AND DISTRIBUTION SYSTEM, INCLUDING PRESSURE REDUCING VALVE AND BACKFLOW PREVENTION DEVICES AND UTILITY METER.
- DOMESTIC WATER EXTENDED FROM EXISTING BUILDING FACILITIES AND DISTRIBUTION SYSTEM TO NEW FIXTURES.
- GAS SERVICE EXTENDED FROM FIVE (5) FEET OUTSIDE THE BUILDING TO ALL GAS USING EQUIPMENT, INCLUDING METER MANIFOLDS AND SETTING OF GAS METER.
- k. GAS SERVICE EXTENDED FROM EXISTING BUILDING FACILITIES TO ALL GAS USING EQUIPMENT, AND SUB METERS IF SO REQUIRED.
- PLUMBING FIXTURES, DRAINS AND EQUIPMENT WITH REQUIRED TRIM, CONTROLS AND ACCESSORIES.
- m. INSULATION OF PLUMBING PIPING.
- n. NEW GREASE INTERCEPTOR TANK WITH REQUIRED ACCESSORIES, AND PIPING.
- A COMPLETE SYSTEM OF COMPRESSED AIR DISTRIBUTION AS SHOWN ON DRAWINGS.
- p. OTHER ITEMS INDICATED ON DRAWINGS OR REQUIRED FOR COMPLETE INSTALLATION.
- B. EXCAVATION AND BACKFILL
  - 1. PERFORM EXCAVATION AND BACKFILL REQUIRED FOR INSTALLATION OF PIPING.
  - 2. EXCAVATE TO DEPTH REQUIRED TO INSTALL PIPING AT REQUIRED LEVEL AND PITCH. PIPE SHALL BE INSTALLED ON SAND BEDDING TO GIVE UNIFORM BEARING ALONG LENGTH OF PIPE (SAND INSIDE BUILDING AND INTERLOCKING AGGREGATE OUTSIDE BUILDING).
  - 3. BACKFILL WITH BEDDING MATERIAL TO A MINIMUM OF TWELVE (12) INCHES ABOVE TOP OF PIPES AND COMPACT. BALANCE OF BACKFILL IN GRASS AREAS SHALL BE CLEAN EARTH UP TO SIX (6) INCHES ABOVE SURROUNDING GRADES, UNDER FLOORS SAND, AND UNDER PAVING INTERLOCKING AGGREGATE. ALL BACKFILL SHALL BE COMPACTED IN MAXIMUM SIX (6) INCH LAYERS.
  - 4. OTHER EXCAVATIONS SHALL BE BACKFILLED WITH CLEAN EARTH, EXCLUDING RUBBISH AND BOULDERS AND THE DIRT SHALL BE PROPERLY COMPACTED.
- 5. PATCH FLOOR TO MATCH EXISTING.
- C. CONNECTIONS TO EQUIPMENT FURNISHED BY OTHERS
  - 1. PROVIDE VALVED WATER AND/OR GAS CONNECTION FOR EQUIPMENT FURNISHED BY OTHER CONTRACTORS OR OWNER. PROVIDE SANITARY DRAINAGE AND VENT CONNECTIONS FOR EQUIPMENT FURNISHED BY OTHERS.
  - 2. INCLUDE ACCESSORIES REQUIRED BY CODE, DRAWINGS, OR MANUFACTURER'S INSTRUCTIONS.
- 3. FULLY COORDINATE WITH KITCHEN EQUIPMENT SUPPLIER AND CONFIRM ALL ROUGH-IN REQUIREMENTS PRIOR TO STARTING WORK. PROVIDE FINAL CONNECTIONS TO EQUIPMENT

#### D. SANITARY AND STORM SEWERS

- 1. PROVIDE SANITARY AND STORM SEWERS, RAIN CONDUCTORS, STACKS, VENTS, FLOOR DRAINS, HUBS FOR DOWN SPOUTS AND CLEANOUTS FOR PROJECT AND EXTEND TO EXISTING BUILDING FACILITIES AS INDICATED ON THE DRAWINGS.
- 2. SEWERS SHALL BE PITCHED A MINIMUM OF 1/4" PER FOOT FOR SIZES 3" AND UNDER, AND 1/8" PER FOOT FOR SIZES 4" AND LARGER OR TO GRADES INDICATED ON DRAWINGS.
- 3. CHANGES IN DIRECTION AND BRANCH CONNECTIONS SHALL BE MADE WITH CODE APPROVED DRAINAGE FITTINGS COMPATIBLE WITH THE PIPING SYSTEM MATERIAL.
- 4. FIXTURES AND SANITARY DRAINS SHALL BE VENTED AS INDICATED ON DRAWINGS AND IN ACCORDANCE WITH CODE. VENTS ARE TO BE EXTENDED TO EXISTING BUILDING FACILITIES THROUGH ROOF AS INDICATED ON DRAWING AND FLASHED WITH 4 LB. LEAD WITH VENT FLASHING TOP TURNED DOWN TWO (2) INCHES MINIMUM INSIDE PIPE. COORDINATE WITH ROOFING CONTRACTOR.

		I	
5.	PVC PIPING	Н	
	a. THIS PROJECT HAS A RETURN AIR PLENUM AND PVC SHALL NOT BE INSTALLED IN RETURN AIR PLENUMS, USE NO-HUB CAST IRON, DWV COPPER ASTM B306 PIPING, OR PRESS FIT STAINLESS STEEL.		WINSTON DESIGN+ DEVELOPMENT
	b. WHERE PVC PIPING IS USED, PROVIDE CODE APPROVED FIRE STOPPING MATERIAL AT FIRE RATED WALL PENETRATIONS.		
6.	SEWER AND VENT MATERIAL SHALL BE AS FOLLOWS:		
	<ul> <li>a. BELOW GRADE STORM AND SANITARY INSIDE BUILDING <ul> <li>SERVICE WEIGHT - CAST IRON PIPE ASTM A-74-82 WITH ASTM C-564-70 NEOPRENE</li> <li>COMPRESSION JOINTS. ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED</li> <li>WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND</li> <li>BE LISTED BY NSF INTERNATIONAL.</li> <li>NO-HUB COUPLINGS</li> <li>HEAVY-DUTY, 4 BAND, SHIELDED FOR 4" AND SMALLER.</li> <li>HEAVY-DUTY, 6 BAND, SHIELDED FOR 5" AND LARGER.</li> <li>PVC-DWV PLASTIC ASTM D-1785 WITH ASTM D-2665 DWV SOLVENT WELD SOCKET FITTINGS.</li> </ul> </li> </ul>	н I.	907 EAST END AVENUE PITTSBURGH, PA 15221 TEL:240.461.1093 www.winstonarchitecture.com
	<ul> <li>ABOVE GRADE RAIN CONDUCTORS, VENTS AND SANITARY -</li> <li>NO-HUB CAST IRON PIPE CISPI 1-301-78. ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.</li> </ul>	J.	COMMUNION architecture is advocacy and activism
	<ul> <li>NO-HUB COUPLINGS HEAVY-DUTY, 4 BAND, SHIELDED FOR 4" AND SMALLER. HEAVY-DUTY, 6 BAND, SHIELDED FOR 5" AND LARGER.</li> <li>PVC-DWV PLASTIC ASTM D-1785 WITH ASTM D-2665 DWV SOLVENT WELD SOCKET FITTINGS. NOT FOR USE IN RETURN AIR PLENUM.</li> <li>DWV COPPER ASTM B306.</li> <li>FOR HIGH RISE TENANT SPACE: PIPING 2 INCH AND SMALLER SHALL BE DWV GRADE COPPER.</li> <li>STAINLESS STEEL</li> </ul>		Allen + Shariff MEP Engineering 2 Allegheny Center, Nova Tower 2 - Suite 1001 - Pittsburgh, PA 15212 ASE JOB #: 2041078
	<ul> <li>c. SITE STORM AND SANITARY SEWERS</li> <li>- UP TO 15" - PVC PLASTIC ASTM D-3034 SDR 35 WITH ASTM D-3212 GASKET JOINTS.</li> <li>- 18" AND OVER - REINFORCED CONCRETE PIPE (RCP) ASTM C 76-83 WITH ASTM C 443-79 RUBBER GASKET JOINTS.</li> </ul>		
E. W	ATER PIPING		
1.	INCLUDE UNIONS, OR OTHER DISCONNECT MEANS, STOPS OR VALVES FOR ISOLATION OF FIXTURES AND EQUIPMENT. VALVES SHALL FULLY COMPATIBLE WITH PIPING FOR SERVICE INTENDED. AS MANUFACTURED BY APOLLO, NIBCO, CRANE OR OTHER APPROVED MANUFACTURER. INCLUDE HOSE OR DRAIN VALVES AT LOW POINTS WHERE FIXTURES CANNOT BE USED FOR DRAINAGE.		
2. 3.	INSTALL SHOCK ABSORBERS AT EACH FIXTURE OR WHERE REQUIRED TO PREVENT WATER HAMMER. HANGERS ON INSULATED PIPE SHALL BE OUTSIDE OF INSULATION. SIZED ACCORDINGLY AND WITH		5219
4	SUFFICIENT SADDLE TO PROTECT INSULATION.		Shc PA 1
4.	a. TYPE "L" HARD COPPER ASTM B 88-832 WITH WROUGHT COPPER FITTINGS ASTM B 16.22 1980 AND	K.	ation Der Durgh,
	<ul> <li>b. TYPE "L" HARD COPPER ASTM B 88-832 WITH WROUGHT COPPER FITTINGS ASTM B 16.22 1980 AND PRESS-FIT JOINTS.</li> </ul>		
	c. PEX TUBING TYPE "A" (CROSS-LINKED POLYETHYLENE) MEETING SECTION 6.6 OF ASTM F876 AND USING "PROPEX" FITTINGS MEETING ASTM F1980, CSA B137.5, NSF/AMSI 14, AND NSF/ANSI 61.		enue, B
6. 7.	WATER PIPING BELOW GRADE SHALL BE TYPE "K" SOFT COPPER WITHOUT JOINTS. FLUSH, VENT AND SANITIZE ALL WATER PIPING WITH EQUIVALENT SOLUTION OF 50 PPM OF		Build OM re Ave
	AVAILABLE CHLORINE UPON COMPLETION. COMPLY WITH PLUMBING CODE REQUIREMENTS FOR SANITIZATION. SUBMIT WRITTEN VERIFICATION OF PIPING SANITIZATION.		
8.	DOMESTIC HOT AND COLD WATER PIPING UNDER CONCRETE FLOOR TO BE COVERED WITH SAND SO THAT PIPING WILL NOT BECOME EMBEDDED IN THE CONCRETE.		Biç
9.	ALL PIPING UNDER CONCRETE FLOOR SHALL BE TYPE "K" SOFT COPPER OR PEX - TYPE A TUBING AND SHALL BE CONTINUOUS. SPLICES OR FITTINGS SHALL NOT BE PERMITTED.		
10	. EXTREME CAUTION MUST BE TAKEN SO THAT COPPER LINES AND INSULATION UNDER CONCRETE ARE NOT CRUSHED, CUT, SPLIT, RUPTURED OR DEFORMED DURING THE POURING OF THE FLOOR SLAB.		
F. G	AS PIPING		
1.	EXTEND GAS PIPING FROM EXISTING MAIN, INCLUDING TAP TO MAIN, METER AND REGULATOR, AS INDICATED ON DRAWINGS AND CONNECT TO ALL GAS USING EQUIPMENT.		
1.	EXTEND GAS PIPING FROM FIVE (5) FEET OUTSIDE BUILDING INTO BUILDING, INCLUDING METER SET AND REGULATOR, AS INDICATED ON DRAWINGS AND CONNECT TO ALL GAS USING EQUIPMENT.		Seal:
1.	EXTEND GAS PIPING FROM EXISTING BUILDING FACILITIES AS INDICATED ON DRAWINGS AND CONNECT TO ALL GAS USING EQUIPMENT. PROVIDE SUB METERS AS SHOWN ON CONSTRUCTION DOCUMENTS.		
2.	EQUIPMENT CONNECTIONS AT EACH UNIT SHALL INCLUDE GAS COCK, PRESSURE REGULATOR, UNION AND DIRT LEG.		FOR PRICING ONLY 50% CD
3.	CONSTRUCT CONCRETE BASE TO BELOW FROST LINE FOR METER INSTALLATION.		
4.	GAS PIPING SHALL CONFORM TO RECOMMENDED PRACTICE AND REGULATIONS OF THE LOCAL GAS CO. AND STATE CODE.		
5.	<ul> <li>GAS PIPING SHALL BE AS FOLLOWS:</li> <li>a. ABOVE-GRADE INSIDE OR OUTSIDE BUILDING, LOW PRESSURE - SCHEDULE 40 SEAMLESS BLACK STEEL PIPE, BEVELED ENDS.</li> <li>- 2" AND SMALLER - THREADED FITTINGS, WROUGHT IRON.</li> <li>- 2 1/2" AND LARGER - WELDED FITTINGS, BLACK STEEL.</li> </ul>	F	Revisions:
	<ul> <li>INSIDE BUILDING, REGULATED PRESSURE - SCHEDULE 40 BLACK STEEL WITH WELDED BLACK STEEL FITTINGS.</li> </ul>	1 2	
	<ul> <li>BELOW GRADE, LOW AND MEDIUM PRESSURE GAS SERVICE - POLYETHYLENE PLASTIC ASTM</li> <li>D 2542 WITH STAR COURTINGS OF FUSION WELD JOINTS</li> </ul>	4 6	
	<ul> <li>d. BELOW GRADE, HIGH PRESSURE SERVICE 60 PSI AND OVER - SCHEDULE 40 BLACK STEEL COATED AND WRAPPED WITH WELDED BLACK STEEL FITTINGS. INSTALL CATHODIC PROTECTION ANODE ON SERVICE LINE.</li> </ul>	( [_ 1	Date: <b>April 16, 2021</b>
	e. VALVES SHALL NOT BE LOCATED ABOVE ACCESSIBLE CEILING SPACES (SUBJECT TO THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION), WHETHER OR NOT SUCH SPACES ARE USED AS A PLENUM.	4 6 1	Project Number: <b>2020-06</b>
	f. EXTERIOR EXPOSED BARE STEEL PIPE SHALL BE PAINTED WITH TWO (2) COATS RUST INHIBITIVE PAINT. PAINTING SHALL OCCUR AFTER PIPE INSTALLATION AND TESTING.		Owner / Client:
	g. WELDING SHALL BE PERFORMED BY STATE CERTIFIED WELDERS. PROVIDE WELDING CERTIFICATIONS TO A/E.	1	TomTom24 Development, LLC
	h. MOUNT GAS PIPING ON ADJUSTABLE ROOF PIPE SUPPORTS ADHERED TO THE ROOF MEMBRANE. SEE DETAIL ON DRAWINGS. SUPPORTS SHALL BE MODEL #3-RAH-7AS MANUFACTURED BY MIRO INDUSTRIES OR APPROVED EQUAL.	Ε.	Drawing Title: Plumbing Specifications
			Scale: <b>As indicated</b> Drawing Number:

#### H. FIXTURES AND EQUIPMENT

- 1. FURNISH FIXTURES AND EQUIPMENT INDICATED AND SCHEDULED ON DRAWINGS, COMPLETE WITH ACCESSORIES, CONTROLS AND INSTALLATION ITEMS REQUIRED.
- 2. INSTALL IN FULL ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND PLACE IN SATISFACTORY OPERATION.
- 3. FIXTURES AND EQUIPMENT SHALL BE AS INDICATED ON THE PLUMBING FIXTURE SCHEDULE.

#### H. CLEANOUTS

- 1. CLEANOUTS SHALL BE INSTALLED FLUSH WITH FINISHED FLOOR OR WALLS WITH PLATED COVERS.
- 2. CLEANOUTS SHALL BE AS SCHEDULED ON DRAWINGS.
- I. FLOOR, CEILING AND WALL PLATES:
- 1. FIT PIPE PASSING THROUGH WALLS, FLOORS OR CEILINGS IN FINISHED ROOMS WITH STEEL OR BRASS ESCUTCHEONS. WHERE SURFACE IS TO RECEIVE A PAINT FINISH ESCUTCHEONS SHALL BE PRIME PAINTED; OTHERWISE MAKE ESCUTCHEONS NICKEL OR CHROME PLATED. WHERE PIPING IS INSULATED, FIT ESCUTCHEONS OUTSIDE INSULATION.
- J. INSULATION
  - INSULATE ABOVE-GRADE HOT AND COLD WATER PIPING, RAIN CONDUCTORS AND ROOF DRAIN SUMPS WITH ONE (1") INCH THICK MOLDED FIBERGLASS HAVING TYPE ASJ JACKET AND MANUFACTURED BY OWENS-CORNING FIBERGLASS COMPANY.
- 2. INSULATE ALL HOT WATER PIPING WITHIN TEN (10) FEET OF HEATER WITH ONE (1") INCH THICK MOLDED FIBERGLASS HAVING TYPE ASJ JACKET AND MANUFACTURED BY OWENS-CORNING FIBERGLASS COMPANY.
- 3. INCLUDE INSULATION OF FITTINGS AND VALVES. KEEP VAPOR BARRIERS INTACT. APPLY TO MANUFACTURER'S RECOMMENDATIONS.
- 4. AT PIPE HANGERS, PROVIDE SOLID INSULATION COUPLING SYSTEM TO PREVENT INSULATION DAMAGE OR COMPRESSION. INSULATION COUPLINGS SHALL BE THE KLO-SHURE INSULATION COUPLING SYSTEM AS MANUFACTURED BY ANVIL-STRUT.
- 5. INSULATE BELOW-GRADE PIPING INSIDE BUILDING WITH 3/8" FOAMED PLASTIC INSULATION.
- 6. INSULATE EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES WITH THE LAV-SHIELD SAFETY COVERS AS PER "PLUMBEREX SPECIALTY PRODUCTS, INC." OR EQUAL.
- 7. REPAIR DAMAGED SECTIONS OF EXISTING PIPING INSULATION, BOTH PREVIOUSLY DAMAGED OR DAMAGED DURING THIS CONSTRUCTION PERIOD. USE INSULATION OF SAME THICKNESS AS SPECIFIED, INSTALL NEW JACKET LAPPING AND SEALED OVER EXISTING.
- EXISTING PVC PIPING IN PLENUM CEILINGS SHALL BE INSULATED TO MEET PLENUM RATINGS, WITH PRODUCT TYPICAL TO FYR-WRAP. INSTALL AS REQUIRED BY MANUFACTURER.

#### K. HANGERS AND SUPPORTS

- HANGERS FOR BLACK OR GALVANIZED STEEL PIPE SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL NO. 100, OR APPROVED EQUAL.
- 2. HANGERS FOR CAST IRON PIPE SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL NO. 400, OR APPROVED EQUAL.
- 3. HANGERS FOR COPPER TUBING SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL NO. 102-A, OR APPROVED EQUAL.
- 4. TRAPEZE HANGERS OF A TYPE APPROVED BY THE ENGINEER. MAINTAIN PIPE INSULATION AT PIPE ANCHORS. PROVIDE INSULATION COUPLERS AS SPECIFIED ABOVE.
- CONTRACTOR SHALL PROVIDE INSULATION HANGER WITH PROTECTIVE SHIELDS. SUCH AS MICHIGAN HANGER CO., MODEL NO. 103, OR APPROVED EQUAL. 5 INCH LONG SECTION OF 1/2 INCH THICK CALCIUM SILICATE SECTIONAL PIPE INSULATION WITH FACTORY LONGITUDINAL LAP SHALL BE PROVIDED AT HANGER POINTS. BUTT JOINTS SHALL BE SEALED WITH INSULATING CEMENT.
- 6. STRAP HANGERS SHALL NOT BE PERMITTED.
- CONTRACTOR SHALL PROVIDE RISER CLAMPS FOR VERTICAL PIPING AT EACH LEVEL. RISER CLAPS SHALL BE MICHIGAN HANGER CO., MODEL NO. 510 FOR STEEL PIPING AND MODEL NO. 511 FOR COPPER TUBING OR APPROVED EQUAL. USE "SHORT-END" RISER CLAMPS WHERE SPACE IS LIMITED.
- 8. IN CONCRETE, MICHIGAN HANGER CO., MODEL NO. 355 INSERTS, OR APPROVED EQUAL. INSERTS SHALL PERMIT ADJUSTMENT FROM 3/4 INCH THROUGH 1-1/4 INCH. IN METAL DECKS, CONTRACTOR SHALL PROVIDE REDHEAD SDI INSERTS, OR APPROVED EQUAL. POWDER PROPELLED INSERTS WILL BE PERMITTED IN NEW CONSTRUCTION WHERE TYPE AND LOCATION ARE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
- 9. CONTRACTOR SHALL PROVIDE SIDE BEAM CLAMPS FOR SUPPORTING PIPING FROM STRUCTURAL STEEL MEMBERS. BEAM CLAMPS SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL 300 OR APPROVED EQUAL.
- 10. WHERE OTHER MEANS OF SUPPORT PIPING ARE REQUIRED OR DESIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE ENGINEER'S APPROVAL PRIOR TO INSTALLING THOSE SUPPORTS.
- 11. HANGER SHALL BE PROVIDED AT EACH CHANGE OF DIRECTION
- 12. HANGERS AND SUPPORTS SHALL BE SPACED AT INTERVALS WHICH WILL PREVENT SAGGING AND REDUCE STRAIN ON VALVES AND SPECIALTIES. HANGER SPACING SHALL BE NO GREATER AND ROD SIZE SHALL BE NO SMALLER THAN THAT SHOWN IN THE FOLLOWING TABLE. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION.

#### FERROUS PIPING AND COPPER TUBING

DIAMETER OF PIPE	MAXIMUM SPACING		ROD SIZE
1/2" THRU 1-1/2" 2" THRU 3" 4" THRU 5" 6" AND LARGER	6 FT. 10 FT 12 FT 16 FT	3/8" 1/2" 5/8" 3/4	
CAST IRON PIPING:			
DIAMETER OF PIPE	MAXIMUM SPACING		ROD SIZE
1 1/2" THRU 3" 4" AND 5" 6" AND 8" 10" THRU 15" (TWO HANGERS)	EACH JOINT EACH JOINT EACH JOINT EACH JOINT	3/8 1/2 3/4 3/4	, , ,

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

L. PIPE WALL SEALS

WALL PIPE SEALS WITH RUBBER LINKS SHALL BE THUNDERLINE LINK SEAL, OR APPROVED EQUAL WALL PIPE SEALS WITH INORGANIC MATERIAL LINKS THE PENETRATIONS OF FIRE RATED WALLS SHALL BE THUNDERLINE PYRO-PAC, OR APPROVED EQUAL.

- 2. SEALS SHALL BE MODULAR MECHANICAL TYPE CONSISTING OF INTERLOCKING SYNTHETIC RUBBER OR INORGANIC MATERIAL LINKS SHAPED TO CONTINUOUSLY FILL THE ANNULAR SPACE BETWEEN THE PIPE AND WALL OPENING.
- 3. LINKS SHALL BE LOOSELY ASSEMBLED WITH BOLTS TO FORM A CONTINUOUS BELT AROUND THE PIPE. A PRESSURE PLATE SHALL BE PROVIDED UNDER THE BOLT HEAD AND NUT OF EACH LINK.
- 4. AFTER THE SEAL ASSEMBLY IS POSITIONED IN THE SLEEVE, THE TIGHTENING OF THE BOLTS SHALL CAUSE THE SEALING ELEMENTS TO EXPAND AND PROVIDE AN ABSOLUTELY WATER-TIGHT SEAL BETWEEN THE PIPE AND SLEEVE.
- 5. SEALS SHALL BE CONSTRUCTED TO PROVIDE ELECTRICAL INSULATION BETWEEN THE PIPE AND SLEEVE, THUS REDUCING CHANCES OF CATHODIC REACTION BETWEEN THESE TWO MEMBERS.
- 6. SLEEVES SHALL BE MANUFACTURED FROM HEAVY-WALL, WELDED OR SEAMLESS STEEL PIPE. A FULL CIRCLE CONTINUOUSLY WELDED WATER STOP PLATE SHALL BE PROVIDED TO ASSURE POSITIVE WATER SEALING OF THE SLEEVE. SLEEVE SHALL BE PROTECTED BY A COATING OF ENRICHED RED PRIMER.
- M. VALVES
  - 1. BALL VALVES 2-INCHES AND SMALLER SHALL BE 150 PSI SWP, 600 PSI WOG, BRONZE, 2-PIECE DESIGN, WITH PTFE TEFLON SEATS AND SEALS, AND BLOW-OUT PROOF STEMS MADE OF LEAD FREE BRONZE. VALVES SHALL HAVE THREADED ENDS FOR USE IN STEEL PIPING AND SOLDER OR PRESS-FIT ENDS FOR USE IN COPPER TUBING. BALL VALVES SHALL BE APOLLO 70LF-11/70LF-200-11, OR APPROVED EQUAL. PROVIDE THERMA-SEAL INSULATING TEE HANDLES FOR VALVES USED IN LINES WHICH ARE TO BE INSULATED.
  - 2. BUTTERFLY VALVES SHALL BE LUG WAFER TYPE, SUITABLE FOR 150 PSI WOG AT TEMPERATURE RANGING FROM 25 DEGREES F THROUGH 230 DEGREES F.
  - 3. BUTTERFLY VALVES SHALL HAVE FULLY REPLACEABLE SEATS MADE OF EPDM ELASTOMER. BUTTERFLY VALVES CLOSURE SHALL BE BUBBLE TIGHT.
  - 4. BUTTERFLY VALVES SHALL HAVE CAST IRON OR SEMI-STEEL BODIES, ONE PIECE TYPE 416 STAINLESS STEEL STEMS, AND BRONZE DISCS. DISCS SHALL BE ANCHORED TO STEM WITH BRONZE DRIVE PINS. SEMI-STEEL DISCS WITH WELDED NICKEL EDGE MAY BE USED IN LIEU OF BRONZE DISCS.
  - 5. PROVIDE 2 INCH EXTENSION NECKS ON ALL VALVES INSTALLED IN INSULATED LINES.
  - 6. LEVER TYPE HANDLE OPERATORS SHALL BE PROVIDED ON VALVES UP TO 4 INCHES IN SIZE. GEAR OPERATORS SHALL BE PROVIDED ON VALVES OVER 4 INCHES IN SIZE, AND ON VALVES REQUIRING CHAIN OPERATION. VALVES USED FOR BALANCING SHALL HAVE INFINITE POSITION LEVER OR GEAR OPERATORS WITH ADJUSTABLE, OPEN POSITION "MEMORY" STOP.
- 7. BUTTERFLY VALVES SHALL BE NIBCO LD-2000, ITT GRINNELL 8000 SERIES, OR APPROVED EQUAL.
- 8. GLOBE VALVES (3 INCH AND SMALLER) SHALL BE 150#, TEFLON DISC, UNION BONNET TYPE VALVES WITH THREADED OR SOLDER JOINT ENDS, GLOVE VALVES WITH THREADED ENDS SHALL BE HAMMOND, MODEL 1B413T, OR APPROVED EQUAL. GLOBE VALVES FOR INSTALLATION IN COPPER TUBING SHALL BE HAMMOND, MODEL 1B423, OR APPROVED EQUAL
- 9. CHECK VALVES (3 INCH AND SMALLER) SHALL BE 125# WITH REMOVABLE, REGRINDABLE DISCS AND THREADED OR SOLDER JOINT ENDS. CHECK VALVES TO BE INSTALLED IN HORIZONTAL LINES SHALL BE HAMMOND, MODEL IB940, OR APPROVED EQUAL, (SCREWED JOINTS) OR HAMMOND, MODEL IB941, OR APPROVED EQUAL (SOLDER JOINTS). CHECK VALVES TO BE INSTALLED IN VERTICAL PIPING SHALL BE HAMMOND, MODEL, IB939, OR APPROVED EQUAL. CONTRACTOR SHALL PROVIDE SWEAT-TO-THREAD ADAPTERS FOR SOLDER JOINT CONNECTIONS.
- 10. GATE VALVES FOR UNDERGROUND WATER SERVICE SHALL BE UL LISTED AND FM APPROVED, 175#, WWP, WITH CAST IRON BODIES BRONZE MOUNTED, NON-RISING STEMS, SOLID WEDGE DISCS, AND INDICATOR POST FLANGES. VALVES SHALL BE STOCKHAM VALVE MODEL, G-635, WITH CONVENTIONAL PACKING AND MECHANICAL JOINT ENDS.
- 11. PROVIDE VALVE TAGS AND VALVE CHART PER ASME A13.1 SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS
- N. STRAINERS
  - 1. Y-TYPE STRAINERS BRONZE 3" AND SMALLER
  - a. STRAINER BODY TO BE ASTM B584 OR B62 BRONZE WITH THREADED OR SOLDER END CONNECTIONS AND .033 INCH PERFORATED TYPE 304 STAINLESS STEEL SCREEN OR 20 MESH TYPE 304 STAINLESS STEEL SCREEN ACCESSIBLE WITHOUT REMOVING THE STRAINER FROM THE IINE
- 2. Y-TYPE STRAINERS IRON 3" AND SMALLER
- a. STRAINER BODY TO BE CLASS 250 THREADED, TAPPED SCREW-IN BONNET WITH PLUG AND STAINLESS STEEL SCREEN. BODY AND BONNET TO BE ASTM A126. SCREEN MUST BE ACCESSIBLE WITHOUT REMOVING THE STRAINER FROM THE LINE.
- 3. Y-TYPE STRAINERS IRON 2 1/2" AND LARGER
- a. STRAINER BODY TO BE CLASS 125 FLANGED, TAPPED BOLTED BONNET WITH PLUG AND STAINLESS STEEL SCREEN. BODY AND BONNET TO BE ASTM A126. SCREEN MUST BE ACCESSIBLE WITHOUT REMOVING THE STRAINER FROM THE LINE.

4. ACCEPTABLE MANUFACTURERS -

- a. NIBCO
- b. APOLLO c. WATTS
- O. PIPE IDENTIFICATION
  - 1. CONTRACTOR SHALL PROVIDE IDENTIFICATION LABELS, TAGS, ETC., FOR PLUMBING AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.
  - 2. THE IDENTIFICATION OF PLUMBING PIPING SHALL BE IN ACCORDANCE WITH ANSI STANDARD A13.1, EXCEPT AS HEREINAFTER SPECIFIED.
  - 3. PRESSURE SENSITIVE PIPE MARKERS SHALL BE MANUFACTURED BY THE BRADY CO., OR APPROVED EQUAL. PIPE MARKERS SHALL BE MANUFACTURER'S STANDARD PRODUCT.
- P. VACUUM BREAKERS
  - 1. VACUUM BREAKERS SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL CODE AND SHALL BE PROVIDED FOR HOSE BIBBS, WALL HYDRANTS, FLUSHOMETERS AND ANY FIXTURE OR EQUIPMENT HAVING DOMESTIC WATER SUPPLY.
- Q. ACCESS DOORS
  - 1. ACCESS DOORS SHALL BE PROVIDED IN WALLS AND CEILINGS WHERE REQUIRED TO PERMIT PROPER ACCESS TO VALVES AND ANY OTHER SUCH DEVICES WHICH REQUIRE MAINTENANCE OR SERVICE. DOORS PLACED IN WALLS, PARTITIONS OR OTHER FIRE-RATED CONSTRUCTION SHALL HAVE A LABEL SIGNIFYING THAT THE DOOR HAS THE SAME FIRE RATING AS THE FIRE-RATED CONSTRUCTION.
  - 2. THIS CONTRACTOR SHALL FURNISH ACCESS PANELS TO THE GENERAL CONTRACTOR FOR INSTALLATION.
- 3. ACCESS PANELS SHALL BE CONSTRUCTED OF 14 GAUGE STEEL, WITH 16 GAUGE STEEL FRAMES.

DOORS SHALL FINISH FLUSH WITH THE SURROUNDING SURFACE. FRAMES SHALL HAVE 3 INCH WIDE EXPANDED METAL FOR PLASTERED SURFACES AND PLAIN FLANGED TYPE FRAME FOR TILE. MASONRY OR GYPSUM BOARD SURFACES. DOORS AND FRAMES SHALL BE FURNISHED PRIME COATED. DOORS INSTALLED IN CERAMIC TILE OR OTHER NON-PAINTED SURFACES SHALL BE STAINLESS STEEL.

- 4. HINGES SHALL BE CONCEALED SPRING TYPE, TO ALLOW DOORS TO BE OPENED 175 DEGREES. LOCKS SHALL BE FLUSH SCREWDRIVER TYPE WITH STEEL CAMS.
- 5. ACCESS PANELS SHALL BE 16 INCHES BY 16 INCHES OR LARGER AS MAY BE REQUIRED FOR PROPER ACCESS TO THE DEVICE BEING SERVED.
- 6. ACCESS PANELS ARE NOT REQUIRED IN COMPLETELY ACCESSIBLE LIFT OUT TILE CEILINGS. PRIOR TO BIDDING CONTRACTOR SHALL REVIEW THE ROOM FINISH SCHEDULE ON THE ARCHITECTURAL DRAWINGS IN ORDER TO VERIFY THE NEED FOR ACCESS PANELS.
- R. CONCRETE HOUSEKEEPING PADS
- 1. ALL EQUIPMENT SHALL BE INSTALLED ON CONCRETE HOUSEKEEPING PADS. MINIMUM PAD THICKNESS SHALL BE 6 INCHES. PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 4 INCHES ON EACH SIDE.
- 2. CONCRETE PADS SHALL BE PROVIDED BY THIS CONTRACTOR.IT SHALL BE THE RESPONSIBILITY OF THE THIS CONTRACTOR TO COORDINATE THE SIZE AND LOCATION OF THE CONCRETE HOUSEKEEPING PADS WITH THE GENERAL CONTRACTOR.
- T. DISCONNECT SWITCHES
- 1. THIS CONTRACTOR SHALL FURNISH SAFETY DISCONNECT SWITCHES (FUSED AND NON-FUSED) REQUIRED FOR EQUIPMENT FURNISHED UNDER THIS CONTRACT. IN ADDITION, THIS CONTRACTOR SHALL FURNISH A SAFETY DISCONNECT SWITCH FOR MOTORS AND EQUIPMENT WHICH DO NOT HAVE COMBINATION STARTERS OR INTEGRAL DISCONNECTING MEANS. FUSIBLE DISCONNECT SWITCHES SHALL BE PROVIDED FOR EQUIPMENT RATED FOR USE ONLY WITH FUSES (SUCH AS CONDENSING UNITS, COMPRESSORS, ETC.). SUCH SWITCHES SHALL BE ONE, TWO OR THREE POLE TYPE, WITH SOLID NEUTRAL FOR 4 WIRE SERVICE, AND SHALL HAVE THE PROPER CURRENT AND VOLTAGE RATING AS REQUIRED. INSTALLATION OF ALL DISCONNECT SWITCHES SHALL BE BY THE ELECTRICAL CONTRACTOR.
- 2. SAFETY SWITCHES SHALL BE NEMA HEAVY DUTY TYPE AND SHALL CARRY THE UNDERWRITERS' LABORATORIES LABEL. FUSIBLE SWITCHES SHALL INCORPORATE CLASS "R" FUSE REJECTION FEATURE AND SHALL BE BRACED TO WITHSTAND 200,000 AMPERE RMS SYMMETRICAL FAULT CURRENT. SAFETY SWITCHES SHALL CONFORM TO FEDERAL SPECIFICATION W-S-865.
- 3. PROVIDE HEAVY-DUTY TYPE, SHEET ENCLOSED, SAFETY SWITCHES. THE TYPE, SIZE, AND RATING SHALL BE AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE MOTOR OR EQUIPMENT SERVED. THE ENCLOSURE FOR DISCONNECT SWITCHES SHALL BE NEMA TYPE 1 FOR INDOOR USE, NEMA TYPE 4X FOR OUTDOOR USE AND NEMA TYPE 7 FOR EXPLOSION PROOF USE. DISCONNECTS SHALL BE MANUFACTURED BY ALLEN-BRADLEY, GENERAL ELECTRIC, CUTLER-HAMMER APPROVED EQUAL.
- 4. SWITCHES SHALL INCORPORATE QUICK-MAKE, QUICK-BREAK OPERATING HANDLES. THE MECHANISM SHALL BE AN INTEGRAL PART OF THE BOX, NOT THE COVER, AND SWITCHES SHALL HAVE A COVER INTERLOCK TO PREVENT UNAUTHORIZED OPENING OF THE SWITCH DOOR IN THE ON POSITION OR CLOSING OF THE SWITCH MECHANISM WITH THE DOOR OPEN. CURRENT CARRYING PARTS SHALL BE CONSTRUCTED OF HIGH-CONDUCTIVITY COPPER WITH SILVER-TUNGSTEN TYPE SWITCH CONTACT.
- 5. FUSE CLIPS SHALL BE POSITIVE PRESSURE TYPE REINFORCED FUSE CLIPS.
- U. VIBRATION ISOLATION
- 1. EQUIPMENT SHALL BE MOUNTED ON VIBRATION ISOLATORS TO PREVENT THE TRANSMISSION OF VIBRATION AND MECHANICALLY TRANSMITTED SOUND TO THE BUILDING STRUCTURE.
- 2. ISOLATION EQUIPMENT SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER, AND SHALL BE DESIGNED SPECIFICALLY FOR THE APPLICATION REQUIRED. THIS INCLUDES, BUT IS NOT LIMITED TO, PIPING DUCTWORK, PUMPS, COMPRESSORS. VIBRATION ISOLATORS SHALL BE RATED FOR THE WEIGHT AND SPACING REQUIRED FOR THE EQUIPMENT REQUIRING ISOLATION.
- V. FIRESTOPPING
- 1. SERVICES THAT PASS THRU FIRE OR SMOKE RATED PARTITIONS, WALLS, FLOORS, SHALL BE FIRESTOPPED. FIRE STOPPING SYSTEM RATING SHALL MATCH PARTITION RATING. FIRE STOPPING SYSTEM SHALL MEET THE REQUIREMENTS OF ASTM E 814, UL 1479, AND BE FACTORY MUTUAL APPROVED
- 2. FIRESTOPING AND/OR SMOKE STOPPING MATERIAL AND INSTALLATION SHALL BE AS MANUFACTURED BY HILTI OR APPROVED EQUAL
- W. WATER HEATERS
- 1. DOMESTIC WATER HEATERS MARKED WH ON THE DRAWINGS SHALL BE MANUFACTURED BY "LOCHINVAR", "STATE", OR "BRADFORD-WHITE". WATER HEATERS SHALL BE AS SPECIFIED ON THE WATER HEATER SCHEDULE OF THE DRAWINGS AND SHALL HAVE MINIMUM STORAGE CAPACITIES AND RECOVERY RATES NOTED. HEATERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
- 2. PROPERLY SUPPORT HEATER AND WATER. THE BASE SHALL BE COMPRISED OF A STEEL CHANNEL SYSTEM AS MANUFACTURED BY "UNISTRUT", OR ARCHITECT/ENGINEER APPROVED EQUIVALENT. THE SYSTEM SHALL BE FACTORY FABRICATED FOR FIELD INSTALLATION. BASE SHALL BE EQUIPPED WITH A STEEL PLATE PLATFORM AND SHALL BE ANCHORED TO THE BUILDING CONSTRUCTION WITH POWDER ACTIVATED OR MECHANICAL TYPE FASTENERS ("HILTI" OR ARCHITECT APPROVED EQUIVALENT) WITH THREADED HANGER RODS. ANCHORING SYSTEM SHALL BE COMPATIBLE WITH TYPE OF BULIDING CONSTRUCTION. ANCHOR FASTENERS TO BUILDING CONSTRUCTION WITH PULL-OUT AND SHEAR CAPACITIES APPROPRIATE FOR THE SUSPENDED CEILING.
- 3. WATER HEATERS SHALL BE EQUIPPED WITH TEMPERATURE AND PRESSURE RELIEF VALVES AND STAINLESS STEEL DRIP PANS WITH MINIMUM 4" RAISED EDGES. CONTRACTOR SHALL PIPE THE DRAIN PANS AND THE T&P VALVES TO INDIRECT WASTE ASSEMBLIES AS INDICATED ON THE PLANS OR AS REQUIRED BY CODE.

END OF PLUMBING SPECIFICATIONS

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![](_page_42_Picture_0.jpeg)

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#### PLUMBING DRAINAGE GENERAL NOTES:

1. XXXXXXXXXXXXXXXXXXXXXXX

#### PLUMBING DRAINAGE KEY NOTES: (#)

- 1. SAW-CUT EXISTING CONCRETE FLOOR TO INSTALL NEW 4 INCH PVC SANITARY PIPING BELOW SLAB. PATCH AND REPAIR CONCRETE TO MATCH EXISTING.
- 2. PROVIDE NEW SANITARY HOUSE TRAP COMPLETE WITH CLEAN OUT AND FRESH AIR INLET IN COMPLIANCE WITH PWSA REQUIREMENTS.
- 3. PROVIDE NEW STORM HOUSE TRAP COMPLETE WITH CLEAN OUT AND FRESH AIR INLET IN COMPLIANCE WITH PWSA REQUIREMENTS.
- 4. COORDINATE WITH SITE CIVIL DRAWINGS AND CONNECT TO NEW SERVICE LINE.

#### PLUMBING DRAINAGE GENERAL NOTES:

A. PLUMBING CONTRACTOR SHALL INSTALL PLUMBING FIXTURES IN ACCORDANCE WITH MANUFACTURER PRINTED INSTRUCTIONS AND IN COMPLIANCE WITH ACHD PLUMBING CODE.

## PLUMBING DRAINAGE KEY NOTES: (#)

- EXTEND DISHWASHER DRAIN HOSE UP TO UNDERSIDE OF COUNTERTOP AND ANCHOR, CONTINUE AND CONNECT TO SINK TAIL PIECE WITH SIDE INLET.
- 2. NEW SHEET METAL DOWNSPOUT BY GC, SHOWN HERE FOR REFERENCE. PROVIDE 4 INCH DOWNSPOUT BOOT WITH CLEAN OUT.

![](_page_42_Picture_17.jpeg)

P-20

![](_page_43_Figure_0.jpeg)

![](_page_43_Picture_1.jpeg)

![](_page_43_Figure_2.jpeg)

![](_page_43_Picture_3.jpeg)

PLUMBING SUPPLY KEY NOTES:  $\langle \# \rangle$ 

![](_page_43_Picture_7.jpeg)

PLUMBING SUPPLY GENERAL NOTES:

1. XXXXXXXXXXXXXXXXXXXXXX

PLUMBING SUPPLY KEY NOTES: (#)

1. XXXXXXXXXXXXXXXXXXXXX

![](_page_44_Figure_0.jpeg)

![](_page_44_Picture_1.jpeg)

![](_page_44_Figure_2.jpeg)

![](_page_44_Picture_3.jpeg)

PLUMBING DRAINAGE GENERAL NOTES:

- A. PLUMBING CONTRACTOR SHALL INSTALL PLUMBING FIXTURES IN ACCORDANCE WITH MANUFACTURER PRINTED INSTRUCTIONS AND IN COMPLIANCE WITH ACHD PLUMBING CODE.
- PLUMBING DRAINAGE KEY NOTES: (#)
- EXTEND DISHWASHER DRAIN HOSE UP TO UNDERSIDE OF COUNTERTOP AND ANCHOR, CONTINUE AND CONNECT TO SINK TAIL PIECE WITH SIDE INLET.
- 2. NEW SHEET METAL DOWNSPOUT BY GC, SHOWN HERE FOR REFERENCE.

#### PLUMBING DRAINAGE GENERAL NOTES:

A. PLUMBING CONTRACTOR SHALL INSTALL PLUMBING FIXTURES IN ACCORDANCE WITH MANUFACTURER PRINTED INSTRUCTIONS AND IN COMPLIANCE WITH ACHD PLUMBING CODE.

PLUMBING DRAINAGE KEY NOTES: (#)

- 1. OFFSET VENT PIPING AWAY FROM EXTERIOR WALLS TO CLEAR PARAPET CANT STRIP AND FLASHING.
- EXTEND DISHWASHER DRAIN HOSE UP TO UNDERSIDE OF COUNTERTOP AND ANCHOR, CONTINUE AND CONNECT TO SINK TAIL PIECE WITH SIDE INLET.
- 3. PROVIDE DUAL UTILITY BOX FOR WASHING MACHINE DRAINAGE AND SUPPLY. AT DRAIN BOX PROVIDE 2 INCH BY 24 INCH TALL DRAIN STANDPIPE WITH TRAP TO ACCEPT WASHING MACHINE DISCHARGE.
- 4. PROVIDE SOLID DRAIN PAN BELOW WASHING MACHINE.
- 5. NEW SHEET METAL DOWNSPOUT BY GC, SHOWN HERE FOR REFERENCE.

![](_page_44_Picture_17.jpeg)

FOR PRICING ONLY 50% CD

**Revisions:** 

![](_page_44_Picture_20.jpeg)

Date: **April 16, 2021** 

Project Number: **2020-06** 

Owner / Client: TomTom24 Development, LLC

#### Drawing Title:

Second & Third Floor Plumbing Drainage Plans Scale: As indicated Drawing Number:

![](_page_45_Figure_0.jpeg)

![](_page_45_Picture_1.jpeg)

![](_page_45_Figure_2.jpeg)

![](_page_45_Picture_3.jpeg)

PLUMBING SUPPLY GENERAL NOTES:

PLUMBING SUPPLY KEY NOTES: (#)

![](_page_45_Picture_7.jpeg)

PLUMBING SUPPLY GENERAL NOTES:

PLUMBING SUPPLY KEY NOTES:  $\langle \# \rangle$ 

1. XXXXXXXXXXXXXXXXXXXXX

![](_page_46_Figure_0.jpeg)

![](_page_46_Picture_1.jpeg)

PLUMBING DRAINAGE GENERAL NOTES:

1. XXXXXXXXXXXXXXXXXXXXXXXX

PLUMBING DRAINAGE KEY NOTES: (#)

- ROOF DRAINAGE SCUPPER TO BE RENOVATED BY GC AS PART OF NEW ROOF INSTALLATION. DOWNSPOUT DRAIN BOX AND OVERFLOW TO BE PROVIDED BY GC AND SHOWN HERE FOR REFERENCE AND DRAIN SIZING.
- NEW DOWNSPOUT TO BE PROVIDED BY GC AT THIS APPROXIMATE LOCATION AND SHOWN HERE FOR REFERENCE.

![](_page_46_Picture_7.jpeg)

**Revisions:** 

![](_page_46_Picture_9.jpeg)

Date: **April 16, 2021** 

Project Number: **2020-06** 

Owner / Client: TomTom24 Development, LLC

Drawing Title: Roof Plumbing Drainage Plan

Scale: **As indicated** Drawing Number:

![](_page_47_Figure_0.jpeg)

![](_page_48_Figure_0.jpeg)

DRAIN AND SPECIALITIES SCHEDULE									
MARK	DESCRIPTION	MANUFACTURER & MODEL NUMBER	NOTES						
FD-1	FINISHED AREA FLOOR DRAIN	ZURN ZN-415-6B-P, WITH Z-1000 DEEP SEAL TRAP, Z-1035 STABILIZER	6" ROUND NICKLE BRONZE TOP, TRAP PRIMER CONNECTION, CLAMPING COLLAR						
FD-2	MECHANICAL ROOM FLOOR DRAIN - MEDIUM DUTY	ZURN Z-525-C-P, WITH Z-1036 STABILIZER	ADJUSTABLE MEDIUM DUTY CAST IRON GRATE, CLAMP COLLAR, TRAP PRIMER CONNECTION						
FD-3	MECHANICAL ROOM FLOOR DRAIN - LARGE SUMP	ZURN Z568-GT-KC	LARGE VOLUME SUMP, C.I. TOP GRATE, CLAMPING COLLAR, TRAP PRIMER CONNECTION						
HB-1	EXTERIOR HOSE BIBB - NON FREEZE - SELF DRAINING	ZURN Z1310-34UN	STAINLESS STEEL PLATE, 3/4" 90 DEGREE INLET WITH UNION, LOOSE KEY HANDLE, COMPRESSION WASHER						
UB-1	UTILITY BOX AT WASHING MACHINE	OATEY MODA BOX #37625	2 BOX SYSTEM WITH 1/4 TURN STOP VALVES, SHOCK ARRESTORS, AND 2ND BOX WITH 2" DRAIN OUTLET						
WM-1	WASHING MACHINE DRAIN PAN	E L MUSTEE DURAPAN MODEL #99	WITH 2 INCH DRAIN OUTLET AND REMOVABLE THRESHOLD						
TP-1	TRAP PRIMER - PRESSURE DIFFERENTIAL TYPE	ZURN Z1022-DU2-DU4	PROVIDE MULTIPLE OUTLET DISTRIBUTION AS REQUIRED						
TP-2	TRAP PRIMER - ELECTRONIC TYPE	ZURN Z1020-DU4-10	PROVIDE MULTIPLE OUTLET DISTRIBUTION AS REQUIRED						
ALL DRAINS			PC SHALL VERIFY ALL FLOOR DRAINS TRAPS ARE COMPLETELY FILLED WITH WATER AT PROJECT END.						

## FI FCTRIC INSTANTANEOUS WATER HEATER SCHEDULE

	LLLOIN												
	MARK+	DESCRIPTION	MANUFACTURER & MODEL NUMBER (BASIS OF DESIGN)	LOCATION	TEMP RISE AT .5 GPM	POWER	VOLTAGE	EFFICIENCY	NOTES				
•	IWH-1	ELECTRIC INSTANTANEOUS WATER HEATER	CHRONOMITE - CM-30L/240	BELOW ROOF LOUNGE SINK	90°+	7.2 KW	240 VOLT, 1 PHASE	99%	1, 2, 3				

NOTES -1. ELECTRIC INSTANTANEOUS WATER HEATER SHALL HAVE INTEGRAL ASSE 1070 MIXING VALVE.

2. DISCONNECTS BY PLUMBING CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR. 3. REFER TO "ELECTRIC INSTANTANEOUS WATER HEATER DETAIL" ON DETAIL SHEET P-401 FOR ADDITIONAL PLUMBING REQUIREMENTS.

MIXING VALVE SCHEDULE										
MARK	DESCRIPTION	LOCATION	MANUFACTURER & MODEL NUMBER	OPTIONS/NOTES	LO					
MV-1	120 DEG TO 105 DEG FOR PUBLIC LAVATORIES	AT PUBLIC LAVATORIES AND HAIR WASHING STATION	"BRADLEY VERNATHERM MODEL # S59-4008"	ADJUSTABLE SET POINT, INTEGRAL STRAINERS ON SUPPLY INLET, BRONZE FINISH, MOUNTING BRACKET, PROVIDED IN ACCESS PANEL	2.5 GPM					

BACKFLOW PREVENTER SCHEDULE									
MARK	DESCRIPTION	MANUFACTURER & MODEL NUMBER	LOCATION	NOTES					
BP-1	REDUCED PRESSURE BACKFLOW PREVENTER ASSE-1013	WATTS LF009-QT	DOMESTIC WATER SERVICE ENTRANCE (1 1/2")	1					
BP-2	DUAL CHECK VALVE ASSE-1024	WATTS LF7	COFFEE MAKERS, REFRIGERATORS						

NOTES -1. PROVIDE AIR GAP FITTING. ROUTE DRAIN TO AN APPROVED WASTE RECEPTOR.

#### 

PLUMBI																	
MARK	FIXTURE TYPE	CW	CW SFU's	HW	HW SFU's	WASTE	WASTE DFU'S	VENT	MANUFACTURER	MODEL NUMBER	FAUCET/FLUSH VALVE	ACCESSORIES	REMARKS				
WC-1	FLOOR MOUNTED FLUSH TANK WATER CLOSET - 1.6 GPF - RIGHT HEIGHT FOR STANDARD AND ADA ACCESS	1"	5			4"	3	2"	TOTO - ELONGATED	E-MAX ENTRADA UNIVERSAL HEIGHT ELONGATED #CST244EF(R) - PUT HANDLE ON WIDE SIDE OF ROOM; #01 COTTON COLOR	QUARTER TURN SUPPLY VALVE AND SS FLEX SUPPLY HOSE	TOTO ELONGATED CLOSED FRONT SEAT #SS114 WITH SLOW CLOSE COVER	1, 6				
L-1	WALL MOUNTED LAVATORY - ADA ACCESSIBLE - WHITE COLOR	1/2"	0.5	1/2"	0.5	1 1/2"	1	1 1/2"	TOTO - COMMERCIAL WALL HUNG	#LT307.4	DELTA FAUCET 520-MPU-DST - SINGLE LEVER; 1.5 GPM AERATOR	GRID DRAIN, 17 GA TRAP, SUPPLIES, TRAP/SUPPLY INSULATION, INTEGRAL ASSE #1070 MIXING VALVE	1, 2, 4, 5, 6, 7				
L-2	COUNTERTOP MOUNTED - DROP IN LAVATORY - ADA ACCESSIBLE - WHITE COLOR	1/2"	0.5	1/2"	0.5	1 1/2"	1	1 1/2"	TOTO - SELF RIMMING	#LT501 - #01 COTTON COLOR	DELTA FAUCET 520-MPU-DST - SINGLE LEVER; 1.5 GPM AERATOR	METAL POP-UP DRAIN, 17 GA TRAP, SUPPLIES, TRAP/SUPPLY INSULATION,	1, 2, 4, 5, 6, 7				
S-1	STAINLESS STEEL SINGLE BOWL DROP-IN SINK	1/2"	1.0	1/2"	1.0	1 1/2"	2	1 1/2"	ELKAY	LUSTERTONE SINK #LR2521PD DELTA FAUCET #4140DST SINGLE HOLE RANGE BRASS TAILPIN SPOUT AND LEVER HANDLE QUARTER		PERFECT DRAIN ASSEMBLY #LKPDVR18B, CHROME PLATED BRASS TAILPIECE WITH SIDE INLET, McGUIRE 17 GA TRAP, QUARTER TURN SUPPLY VALVES,TRAP INSULATION	1, 2, 3, 4				
S-2	HAIR WASH SINK - WALL MOUNTED SINK	1/2"	1.0	1/2"	1.0	1 1/2"	2	1 1/2"	JEFFCO	BLACK PORCELAIN SHAMPOO BOWL SINK #8100-570-VB WITH GELL NECK REST #6600NR	CENTRAL BRASS SHAMPOO FAUCET #1130 2-HOLE FAUCET PULL-OUT SPRAY AND LEVER HANDLE	GRID DRAIN ASSEMBLY, CHROME PLATED BRASS TAILPIECE; CHROME PLATED HAIR INTERCEPTOR TRAP ZURN #ZAB-1175-CP, QUARTER TURN SUPPLY VALVES,	1, 2, 3, 4				
BT-1	BATH TUB - 4-SECTION FIBERGLASS TUB WITH SHOWER WALL SURROUND	1/2"	1.5	1/2"	1.5	2"	2	1 1/2"	CLARION - FIBERGLASS	MODEL# 4T40LT OR 4T40RT - CONTROLS ON RIGHT OR LEFT TO MATCH PLANS	DELTA MODEL #T13420 - SINGLE LEVER PRESSURE BALANCING VALVE #R10000-UN, LEVER VOLUME CONTROL, DIVERTER TUB SPOUT#RP19895, SOFT RUBBER SPRAY SHOWER HEAD #RP38357	MOLDED IN SOAP DISH TRAY; PROVIDE ADJUSTABLE CURTAIN ROD; WHITE SHOWER CURTAIN	1, 2, 5, 6				
DW-1	DISHWASHER CONNECTION	1/2"	0.5			1"	2		DAHL CHROME PLATED SHUT OFF VALVE WITH SHOCK ARRESTOR	MODEL #211-QG3-30-14WHA		MOUNT UNDER SINK NEXT TO DISHWASHER	1, 5				
LT-1	FLOOR MOUNTED LAUNDRY SINK ON STEEL LEGS	3/4"	1.0	3/4"	1.0	3"	2	1 1/2"	LDR INDUSTRIES	1#040-JS6000BLK - 23" x 24" x 34" HIGH - BLACK COLOR	LDR PULL OUT FAUCET #012-52445CP WITH FLEXIBLE HOSE	PROVIDE FAUCET HOSE, AND BLACK STEEL LEGS	1, 5, 6				
MB-1	FLOOR MOUNTED MOP BASIN	3/4"	2.25	3/4"	2.25	3"	2	1 1/2"	MUSTEE	63M - 24" x 24" x 10"	CHICAGO FAUCET 897-RCF WITH VACUUM BREAKER	PROVIDE FAUCET HOSE, HOSE HOLDER, MOP HANGER, STAINLESS STEEL WALL PROTECT PANELS	1, 5, 6				

REMARKS: 1200 SERIES, NOT ALL REQUIRED COMPONENTS ARE SPECIFIED ABOVE.

2. FIXTURES SHALL BE ADA COMPLIANT AND PROVIDED WITH ADA COMPLIANT ACCESSORIES. MOUNT AT ADA COMPLIANT ELEVATIONS. SEE ARCHITECTURAL PLAN FOR ELEVATIONS. 3. COORDINATE FLUSH HANDLE WITH ADA TOILET STALL. HANDLE SHALL BE LOCATED SO THAT IT IS ON THE WIDE SIDE OF THE STALL FOR ADA APPROACH ACCESSIBILITY.

4. PROVIDE MCGUIRE PRO-WRAP WHITE ANTI-MICROBIAL INSULATING WRAP ON EXPOSED UNDER LAVATORY OR SINK SUPPLY AND WASTE PLUMBING.

5. PROVIDE 12" WIDE MINIMUM 3/4" PLYWOOD BACKING ATTACHED TO STUDS TO SUPPORT FIXTURE, FAUCET, OR ACCESSORIES.

6. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE PLAN LOCATION DIMENSION REQUIREMENTS AND COORDINATE PLUMBING ROUGH-IN ACCORDINGLY. 7. PROVIDE PVC SHROUD UNDER LAVATORY SINK TO CONCEAL SUPPLY AND DRAINAGE PIPING: TRU-BRO "LAV-SHIELD" MODEL #2018-AS-L

# DAD RANGE

M AT 5 PSI DROP

#### ELECTRIC WATER HEATER SCHEDULE

MARK	DESCRIPTION	MANUFACTURER & MODEL NUMBER (BASIS OF DESIGN)	LOCATION	STORAGE VOLUME	GPH RECOVERY @ 100 DEG F RISE	POWER	VOLTAGE	EFFICIENCY	NOTES
EWH-1	ELECTRIC WATER HEATER	LOCHINVAR - KSA050KDB	BASEMENT MECH ROOM	50 GALLONS	42 GALLONS	(2) 5KW SIMULTANEOUS = 10.0 KW	240 VOLT, 1 PHASE	93%	1, 3, 5
EWH-2	ELECTRIC WATER HEATER	LOCHINVAR - KSA020KDB	EACH APARTMENT MECH ROOM	40 GALLONS	25 GALLONS	6.0 KW	240 VOLT, 1 PHASE	93%	1, 3, 5

NOTES -

PROVIDE EXPANSION TANK. REFER TO EXPANSION TANK SCHEDULE ON DRAWING #
 PROVIDE CIRCULATION PUMP. REFER TO CIRCULATION PUMP SCHEDULE ON DRAWING #.
 PROVIDE HEAT TRAPS ON WATER HEATER.

4. REFER TO DETAIL #X ON PXXX FOR ADDITIONAL INFORMATION.

5. DISCONNECTS BY PLUMBING CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR. 6. ACCEPTABLE MANUFACTURERS - LOCHINVAR, A.O.SMITH.

EXPANSION TANK SCHEDULE										
MARK	DESCRIPTION	MANUFACTURER & MODEL NUMBER (BASIS OF DESIGN)	LOCATION	TANK SIZE	ACCEPTANCE VOLUME	NOTES				
ET-1	DOMESTIC WATER EXPANSION TANK	AMTROL ST-12	AT WATER HEATER WH-1 IN BASEMENT	4.5 GALLONS	3.2 GALLONS	1, 2				
ET-2	DOMESTIC WATER EXPANSION TANK	AMTROL ST-5	AT WATER HEATER WH-2 IN EACH APARTMENT	2 GALLONS	0.9 GALLONS	1, 2				
NOTES -										

NOTES -1. WORKING PRESSURE - 150 PSIG. 2. MAXIMUM SYSTEM TEMPERATURE - 140 DEG F.

3. ACCEPTABLE MANUFACTURERS - WESSELS, WATTS

![](_page_49_Figure_31.jpeg)

arb Δ S -Wo Big

Seal:

FOR PRICING ONLY 50% CD

**Revisions:** 

![](_page_49_Picture_37.jpeg)

Date: April 16, 2021

Project Number: 2020-06

Owner / Client: TomTom24 Development, LLC

# Drawing Title: Plumbing Schedules

Scale: As indicated Drawing Number:

![](_page_50_Figure_0.jpeg)

B. IRON PIPE — NOM 12 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE. D. COPPER PIPE — NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

PIPE COVERING\* — NOM 1, 1-1/2 OR 2 IN. THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH 3. METAL FASTENERS OR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT.

3A. PIPE COVERING\* — (NOT SHOWN) — AS AN ALTERNATE TO ITEM 3, MAX 2 IN. THICK CYLINDRICAL CALCIUM SILICATE (MIN 14 PCF) UNITS SIZED TO THE OUTSIDE DIAM OF THE PIPE OR TUBE MAY BE USED. PIPE INSULATION SECURED WITH STAINLESS STEEL BANDS OR MIN 8 AWG STAINLESS STEEL WIRE SPACED MAX 12 IN. OC. WHEN THE ALTERNATE PIPE COVERING IS USED, THE T RATING SHALL BE DETERMINED FROM THE TABLE ABOVE.

FILL, VOID OR CAVITY MATERIAL\* — SEALANT (HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE SEALANT) — MIN 5/8 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH 4. SURFACES OF WALL . AT THE POINT CONTACT LOCATION BETWEEN PIPE COVERING AND GYPSUM BOARD, A MIN 1/2 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE PIPE COVERING/GYPSUM BOARD INTERFACE ON BOTH SURFACES OF WALL.

5. 1/2" BEAD OF SEALANT WHERE PIPING IS TIGHT TO WALL.

\*BEARING THE UL CLASSIFICATION MARK

PIPE PENETRATION DETAIL - DRYWALL NOT TO SCALE FP-001

	ANNULA	ANNULAR SPACE				
THKNS IN.	MIN IN.	MAX IN.				
1	0	1-1/2	1/2			
1 or 1-1/2	0	1-1/2	1/2			
1-1/2	0	1-1/2	1			
2	0	1-7/8	3/4			
2	0	1-7/8	1			
1	0	1-1/2	1			
1 or 1-1/2	0	1-1/2	1			
2	0	1-7/8	1			
1-1/2	0	1-1/2	1-3/4			
2	0	1-7/8	1-1/2			
2	0	1-7/8	1			
	PIPE COVERING THKNS IN. 1 1 or 1-1/2 2 2 2 1 2 2 1 1 or 1-1/2 2 1-1/2 2 1-1/2 2 2	PIPE COVERING THKNS IN.         ANNULAI           1         MIN IN.           1         0           1 or 1-1/2         0           1-1/2         0           2         0           2         0           1 or 1-1/2         0           2         0           1 or 1-1/2         0           1 or 1-1/2         0           1 or 1-1/2         0           2         0           1 or 1-1/2         0           2         0           2         0           2         0           2         0           2         0           2         0           2         0           2         0           2         0           2         0	PIPE COVERING THKNS IN.         ANNULAR SPACE           1         MIN IN.         MAX IN.           1         0         1-1/2           1 or 1-1/2         0         1-1/2           1 or 1-1/2         0         1-1/2           1-1/2         0         1-1/2           2         0         1-7/8           2         0         1-7/8           1 or 1-1/2         0         1-1/2           2         0         1-7/8           1 or 1-1/2         0         1-1/2           1 or 1-1/2         0         1-1/2           2         0         1-7/8           1 or 1-1/2         0         1-1/2           2         0         1-7/8           2         0         1-7/8           1-1/2         0         1-7/8           2         0         1-7/8           2         0         1-7/8           2         0         1-7/8           2         0         1-7/8			

SPRINKLER SCHEDULE										
SYMBOL	TYPE	SPRINKLER MODEL #	SIN	K FACTOR	ORIFICE	TEMP RATING	PRESSURE RATING	BULB OR LINK	SPRINKLER FINISH	ESCUTCHEON TYPE AND FINISH
0	UPRIGHT	VIKING MICROFAST	VK300	5.6	1/2"	155°F	175	QUICK RESPONSE BULB	BRASS	
0	CONCEALED	VIKING	VK462	5.6	1/2"	165°F	175	QUICK RESPONSE BULB	BRASS	COORDINATE COLOR WITH ARCHITECT

ION	
RE	

FIRE PROTECTION SCHEDULE AND LEGEND			
SYMBOL	ABRV.	DESCRIPTION	
<del>، م</del>		PIPE TURNED UP	
<b>ج</b>		PIPE TURNED DOWN	
⊱⊶		PIPE TEE UP	
⊱⊶		PIPE TEE DOWN	
<b></b> ]	S		
Fine         PIPE BREAK		PIPE BREAK	
0		CONCEALED PENDENT SPRINKLER	
$\overline{ullet}$		UPRIGHT SPRINKLER	
Δ		HORIZONTAL SIDEWALL SPRINKLER	
Ĭ,		CHECK VALVE	
Ę ۲		FLOW SWITCH	
<u>ب</u> ب		TAMPER SWITCH	
Ģ.	PG	PRESSURE GAUGE	
ыфы ф		OS&Y VALVE	
		OS&Y VALVE WITH TAMPER SWITCH	
Ŀ\$,		FIRE DEPARTMENT SIAMESE CONNECTION	
<b>۶</b> ← F −−− <b>\$</b>	F	FIRE PROTECTION PIPING	
∽D\$	D	FIRE PROTECTION DRAIN PIPING	
<b>۶−−−− \$</b>	SP	SPRINKLER PIPING	

NOTE: SOME SYMBOLS MAY NOT BE USED ON DRAWINGS.

FIRE PROTECTION NOTES AND DESIGN PARAMETERS:

1. THESE DRAWINGS ARE DIAGRAMATICAL AND SHOW THE GENERAL INTENT OF THE FIRE SUPPRESSION SYSTEM. THE CONTRACTOR SHALL PROVIDE FULL SPRINKLER COVERAGE IN THE PROJECT AREAS. MAKE ADJUSTMENTS TO PIPE RUNS AND SPRINKLER LOCATIONS SHOWN ON THESE DRAWINGS AS NECESSARY TO COORDINATE WITH OTHER TRADES.

2. CONTRACTOR SHALL PERFORM A NEW WATER FLOW TEST OR OBTAIN WATER FLOW INFORMATION FROM BUILDING MANAGEMENT STAFF. FLOW TEST INFORMATION MUST BE NOT MORE THAN 1 YEAR OLD TO BE VALID

3. PROJECT SCOPE INCLUDES: INSTALLATION OF A WET SPRINKLER SYSTEM IN THE OCCUPIED SPACES COMPLETE WITH NEW BRANCH LINES NEW CROSS MAINS, NEW ARM-OVERS, NEW SPRINKLERS, AND SYSTEM

4. THE CONTRACTOR SHALL HYDRAULICALLY CALCULATE AND DESIGN THE SUPPRESSION SYSTEMS BASED ON THE RESULTS OF THE NEW WATER FLOW TEST. A 10 PERCENT PRESSURE FACTOR SHALL BE USED BETWEEN THE FLOW TEST RESULTS AND THE DESIGN PRESSURE. DO NOT USE THE QUICK RESPONSE DERATING FACTOR FOR COVERAGE AREA.

5. DESIGN STANDARDS SHALL INCLUDE: INTERNATIONAL BUILDING CODE - CURRENTLY ENFORCED EDITION; NFPA -13 STANDARD FOR AUTOMATIC SPRINKLERS - CURRENTLY ENFORCED EDITION.

6. GENERAL BUILDING CLASSIFICATION: LIGHT HAZARD IN PUBLIC SPACES AND APARTMENTS, AND ORDINARY HAZARD IN MECHANICAL OR ELECTRICAL ROOMS.

7. DESIGN DENSITY: LIGHT HAZARD = 0.10 GPM/SQ. FT. OVER 1,500 SQ. FT. 225 SQ. FT. MAXIMUM PER SPRINKLER, EXCEPT FOR USE OF EXTENDED COVERAGE SPRINKLERS - THEN USE THE MANUFACTURERS PRINTED INFORMATION ON EXTENDED COVERAGE FOR REQUIRED FLOW AND PRESSURE BASED ON COVERAGE AREA. ORDINARY HAZARD - 0.15 GPM/SQ. FT. OVER 1,500 SQ. FT. WITH 130 SQ. FT. MAX PER SPRINKLER.

8. LOCATE SPRINKLERS AS NECESSARY TO MEET NFPA-13 SPACING RULES AS THEY APPLY TO NEW BUILDING CONSTRUCTION OF NON-COMBUSTIBLE CONSTRUCTION.

9. PROVIDE A COMPLETE SET OF LAYOUT DRAWINGS SHOWING ALL PIPING, SPRINKLERS AND HANGERS, AND HYDRAULIC CALCULATIONS. SUBMIT (3) COPIES OF DRAWINGS AND CALCULATIONS TO THE CITY AND OWNERS INSURANCE COMPANY FOR REVIEW AND APPROVAL PRIOR TO START OF CONSTRUCTION.

10. SYSTEM COMPONENTS SHALL BE UL LISTED AND FM/GLOBAL APPROVED.

11. PROVIDE INSPECTORS TEST VALVE AT MOST REMOTE AREA AS REQUIRED BY THE CITY, AND AUXILIARY DRAINS AS NECESSITATED BY THE SYSTEM LAYOUT.

12. PROVIDE A STANDPIPE FOR USE DURING CONSTRUCTION IN COMPLIANCE WITH SECTION 9 OF THE BUILDING CODE. WHEN EXISTING SYSTEMS ARE SHUT DOWN FOR CONSTRUCTION, PROVIDE FIRE WATCH SERVICES UNTIL THE SUPPRESSION SYSTEM IS REACTIVATED.

13. COORDINATE FINAL LOCATION OF SPRINKLERS WITH FINAL LOCATION OF LIGHTS, DUCTWORK, DIFFUSERS, STRUCTURAL ELEMENTS AND CEILING ELEVATIONS. CONTRACTOR SHALL PROVIDE AN END PRODUCT OF A FULLY CODE COMPLIANT SPRINKLERED PROJECT SITE WITH THE ENTIRE WORK AREA SPACE COVERED UNDER THE CONTRACT. SOME AREAS MAY REQUIRE MORE THAN CODE MINIMUM NUMBER OF SPRINKLERS TO COINCIDE WITH ARCHITECTURAL LAYOUTS AND CENTER OF TILE REQUIREMENTS.

14. CONTRACTOR SHALL OBTAIN NECESSARY FIRE PROTECTION SYSTEMS PERMITS, TESTS, APPROVALS, AND INSPECTIONS AS PART OF THE SCOPE OF THIS PROJECT.

E PROTECTION SPECIALTIES SCHEDULE				
IARK	DESCRIPTION	MANUFACTURER & MODEL NUMBER	SIZE	NOTES
DC-1	FIRE DEPARTMENT CONNECTION	POTTER-ROEMER MODEL # 5022-D	4" x 2-1/2" x 2-1/2"	1
BP-1	BACKFLOW PREVENTER - ASSE 1048	WATTS SERIES MODEL # 757DCDAOSY	4"	2, 3

NOTES -1. POLISHED CHROME FINISH AND CITY OF PITTSBURGH THREADS, LETTERING - "AUTO SPKR.". 2. PROVIDED WITH STRAINER, BY-PASS METER AND OS&Y VALVES. 3. ROUTE DRAIN TO A FLOOR DRAIN OR MOP BASIN.

<image/> <text><text><text><text><text><text><text></text></text></text></text></text></text></text>			
Building Renovation	Big Tom's Barbershop	2178 Centre Avenue, Pittsburgh, PA 15219	
Seal: FOR PRICING ONLY 50% CD			
Revisions:			
Date: April 16, 2021 Project Number: 2020-06 Owner / Client: TomTom24 Development, LLC			
Drawing Title: <b>Fire Protection</b> <b>Data Sheet</b> Scale: As indicated Drawing Number:			

#### GENERAL INFORMATION

A. GENERAL

- 1. CONFORM TO GENERAL AND SPECIAL CONDITIONS OF CONTRACT.
- 2. CHECK OTHER PLANS AND SPECIFICATIONS AND FULLY COORDINATE WITH OTHER TR AND ARCHITECT REQUIREMENTS.
- 3. VISIT SITE, CHECK FACILITIES AND CONDITIONS MAKE NECESSARY OBSERVATIONS, MEASUREMENTS, NOTE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED, AND INTO CONSIDERATION IN BID.
- 4. SYSTEMS SHALL BE COMPLETE AND WORKABLE IN RESPECTS, AND PLACED IN OPERA
- 5. CONTRACTOR SHALL PROVIDE FOR HIS OWN CLEAN-UP, REMOVAL AND LEGAL DISPO RUBBISH DAILY. CONTRACTOR SHALL PROTECT THEIR WORK AND EXISTING OR ADJA PROPERTY AGAINST WEATHER. TO MAINTAIN THEIR WORK, MATERIALS, APPARATUS, FREE FROM INJURY OR DAMAGE. ANY WORK DAMAGED BY FAILURE TO PROVIDE PRO REQUIRED, SHALL BE REMOVED AND REPLACED WITH NEW WORK AT THE CONTRACT EXPENSE.
- 6. CONTRACTORS SHALL CONFIRM TO UTILITY COMPANY REQUIREMENTS. COORDINAT POINTS IN FIELD.
- 7. ARRANGE FOR AND OBTAIN OWNER'S AND INSURANCE REPRESENTATIVE'S PERMISSI SERVICE SHUTDOWNS.
- 8. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, MET SEQUENCES OF CONSTRUCTION AND THE SAFETY OF WORKMEN.
- 9. PIPING, CONTROLS, ETC., SHALL NOT BE INSTALLED, OR ROUTED ABOVE, ELECTRICAL EQUIPMENT OR THROUGH ELEVATOR MACHINE ROOMS.
- 10. THE CONTRACTOR SHALL COORDINATE AND PROVIDE A WRITTEN LISTING OF ELE CHARACTERISTICS OF MECHANICAL EQUIPMENT TO THE ELECTRICAL CONTRACTOR ORDERING OF EQUIPMENT. ADDITIONAL COMPENSATION WILL NOT BE MADE FOR LAC CONTRACTOR COORDINATION OF EQUIPMENT ELECTRICAL CHARACTERISTICS.
- 11. DURING THE BUILDING CONSTRUCTION SOME EXISTING INSTALLATION MAY BE E WILL HAVE TO BE CHANGED, ALTERED, REROUTED AND/OR ABANDONED. ANY SUCH COMES UNDER THE JURISDICTION OF THIS CONTRACTOR SHALL BE DONE BY THIS COI WITHOUT ADDITIONAL COST TO THE OWNER.
- 12. WORK RELATED TO THE EXISTING BUILDING SHALL BE COORDINATED TO MINIMIZ INTERFERENCE OR INTERRUPTION OF NORMAL BUILDING USE BY OWNER. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR PHASING REQUIREMENTS.
- 13. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH E CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING CONDITIONS TH AFFECT THE BID. ADDITIONAL COMPENSATION WILL NOT BE PROVIDED FOR FAILURE EXISTING CONDITIONS PRIOR TO BIDDING.
- B. CODES, PERMITS, STANDARDS AND REGULATIONS
- 1. CONFORM TO APPLICABLE CODES (LOCAL, STATE, NATIONAL CODES, NFPA, OSHA, ET GOVERNMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, AND APPLICABLE S
- 2. OBTAIN PERMITS AND PAY FEES. ARRANGE FOR ALL REQUIRED TESTS, INSPECTIONS APPROVALS. PROVIDE COPIES OF INSPECTIONS AND APPROVALS TO THE A/E.
- C. RELATED WORK SPECIFIED ELSEWHERE
- 1. OPENINGS AND CHASES, WHEN SHOWN ON ARCHITECTURAL DRAWINGS.
- 2. TEMPORARY FIRE PROTECTION.
- 3. POURED-IN-PLACE CONCRETE.
- 4. FINISH PAINTING.
- 5. ELECTRIC POWER WIRING.
- D. DRAWINGS
- 1. THE SYSTEMS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC. CONTRACTOR WILL RESPONSIBLE TO PROVIDE COMPLETE FINAL LAYOUT DRAWINGS IN COMPLIANCE WIT REQUIREMENTS OF NFPA-13. CONFIRM DIMENSIONS BY FIELD MEASUREMENT.
- 2. THE EXACT LOCATIONS FOR APPARATUS, FIXTURES, EQUIPMENT AND PIPING WHICH COVERED BY DRAWINGS, SHALL BE OBTAINED FROM THE ARCHITECT OR HIS REPRES THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY.
- 3. DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT ONE ANOTHER. ANY OR LABOR CALLED FOR IN ONE BUT NOT THE OTHER SHALL BE PROVIDED.
- E. DEMOLITION AND REMOVAL
- 1. DISCONNECT, DISASSEMBLE, CAP, PLUG AND REMOVE PIPING, DUCTS AND EQUIPMEN ON THE DRAWINGS, AND AS REQUIRED FOR THE PROJECT.
- 2. ANY EQUIPMENT DESIGNATED BY OWNER TO BE SALVAGED SHALL BE PROTECTED AN TO THE OWNER'S STORAGE.
- 3. DEMOLITION TO BE DONE IN A MANNER NOT TO DAMAGE ADJACENT WORK AND NOT A OPERATION OF SYSTEMS TO REMAIN IN USE. ANY ITEM TO REMAIN THAT IS DAMAGED CONTRACTOR OR THAT REQUIRES DAMAGE DUE TO THE ABSOLUTE NECESSITY FOR REQUIREMENTS SHALL BE REPLACED AND/OR REPAIRED AT HIS EXPENSE.
- 4. OPENINGS ON PIPING AND DUCTS THAT REMAIN SHALL BE CAPPED AND PROPERLY SI
- 5. ASBESTOS REMOVAL WILL BE HANDLED BY THE OWNER AND IS NOT A PART OF THIS N
- 6. EXAMINE AREAS AND CONDITIONS UNDER WHICH DEMOLITION WORK SHALL BE PERFO CONTRACTOR SHALL COORDINATE WORK WITH OTHER DEMOLITION WORK.
- 7. REMOVE SUPPORTS, HANGERS, AND ACCESSORIES FROM EQUIPMENT AND MATERIAL TO BE REMOVED.
- F. BASE EQUIPMENT, MATERIALS AND SUBSTITUTIONS
- 1. EQUIPMENT AND MATERIALS SHALL BE NEW, FREE OF DEFECTS AND U.L. LISTED AND APPROVED IF APPROPRIATE.
- 2. BASE BID MANUFACTURERS ARE INCLUDED IN SPECIFICATIONS OR LISTED IN SCHEDU DRAWINGS. ANY OTHER MANUFACTURER'S ARE CONSIDERED A SUBSTITUTION.
- 3. THE NAME, OR MAKE OF ANY ARTICLE, DEVICE, MATERIAL, FORM OF CONSTRUCTION, ETC., STATED IN THIS SPECIFICATION, SHALL BE KNOWN AS A "STANDARD".
- 4. PROPOSALS SHALL BE BASED ON "STANDARDS" SPECIFIED.
- 5. THE EQUIPMENT SCHEDULES ON DRAWINGS INDICATE MANUFACTURERS EQUIPMEN NUMBERS UPON WHICH DESIGN HAS BEEN BASED. THE USE OF OTHER MANUFACTUR EQUIPMENT THAT IS LISTED AS ACCEPTABLE ALTERNATES THAT REQUIRES STRUCTU CHANGES, CHANGES IN ROOF OPENINGS, CHANGE OF PIPE SIZES & BUILDING CONFIG ARCHITECTURAL CHANGES, ETC., SHALL BE THE CONTRACTOR'S RESPONSIBILITY. AD COSTS OF SUCH CHANGES SHALL BE PAID BY THE CONTRACTOR SUBMITTING THE ALT
- 6. SUBSTITUTIONS ARE SUBJECT TO THE APPROVAL OF THE OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE AND CERTIFY WITH DOCUMENTATION SUBSTITUTION IS EQUIVALENT IN ALL RESPECTS TO THE BASE SPECIFICATIONS.
- 7. IF SUBSTITUTIONS ARE APPROVED, NOTIFY ALL OTHER CONTRACTORS, SUBCONTRAC TRADES AFFECTED BY SUBSTITUTION AND FULLY COORDINATE. ANY COSTS RESULTI SUBSTITUTION, WHETHER BY CONTRACTOR OR OTHERS, SHALL BE RESPONSIBILITY ( FOR BY SUBSTITUTING CONTRACTOR. APPROVED SHOP DRAWINGS DOES NOT ABSOL CONTRACTOR FROM THIS RESPONSIBILITY.
- 8. EQUIPMENT SHALL BE INSTALLED IN FULL ACCORDANCE WITH THE MANUFACTURER'S DATA AND INSTALLATION INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHECK AND CONFORM TO THESE REQUIREMENTS.

	1. AFTER INSTALLATION, CHECK ALL EQUIPMENT, AND PERFORM START UP IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND REQUIREMENTS OF THE SPECIFICATIONS.		g. PIPING SHALL NOT BE INSTALLED AT LOCATIONS SUBJECT TO FREEZING, UNLESS PROVIDED AS DRY PIPE SYSTEM, OR ANTI-FREEZE SYSTEM. PROVIDE FIRE WATCH.
RADES, OWNER	2. PIPING SHALL BE TESTED AND FREE OF LEAKS. MAKE REPAIRS NEEDED FOR A LEAK FREE SYSTEM.	B.	DESIGN BASIS
D TAKE ITEMS	3. CONCEALED OR INSULATED WORK SHALL REMAIN UNCOVERED UNTIL REQUIRED INSPECTIONS, AND TESTS HAVE BEEN COMPLETED. IF CONSTRUCTION SCHEDULE REQUIRES IT, ARRANGE FOR TESTS ON PARTS OF SYSTEM AS REQUIRED.	2.	<ol> <li>DESIGN BASIS FOR SYSTEM SHALL BE PER NFPA 13, LIFE SAFETY CODE 101 IN ACCORDANCE WITH CODE AND LOCAL AUTHORITY HAVING JURISDICTION. SYSTEM SHALL BE A HYDRAULICALLY DESIGNED</li> </ol>
ATION.	4. INSTRUCT OWNER IN OPERATION OF SYSTEMS AND SUBMIT OPERATING AND MAINTENANCE MANUAL ON EQUIPMENT AND SYSTEMS AS REQUIRED BY THE SPECIFICATIONS. PROVIDE A MINIMUM OF 4 HOURS OF INSTRUCTION TO OWNER'S REPRESENTATIVE.		2. PIPE SIZES INDICATED ON DRAWING ARE APPROXIMATE AND SHALL BE VERIFIED BY CONTRACTOF HYDRAULIC DESIGN.
ACENT AND FIXTURES	H. CUTTING, PATCHING AND DRILLING		3. STANDARD-PRESSURE PIPING SYSTEM COMPONENT: LISTED FOR 175-PSIG MAXIMUM WORKING
OTECTION FOR'S	1. CUTTING AND PATCHING OF THE BUILDING CONSTRUCTION REQUIRED FOR THIS WORK SHALL BE BY THIS CONTRACTOR. CUTTING SHALL BE IN A NEAT AND WORKMANLIKE MANNER.		4. SPRINKLER SYSTEM DESIGN SHALL BE APPROVED BY AUTHORITIES HAVING JURISDICTION, AND
E CONNECTION	2. NEATLY SAW CUT RECTANGULAR OPENINGS, SET SLEEVE THROUGH OPENING, AND FINISH PATCH OR PROVIDE TRIM FLANGE AROUND OPENING.		5. PROVIDE MARGIN OF SAFETY FOR AVAILABLE WATER FLOW AND PRESSURE AND 10 PERCENT.
ION FOR ANY	3. CORE DRILL AND SLEEVE ROUND OPENINGS.		6. SPRINKLER OCCUPANCY HAZARD CLASSIFICATIONS:
ETHODS.	4. DO NOT CUT ANY STRUCTURAL COMPONENTS WITHOUT ARCHITECT'S/ENGINEER'S APPROVAL.		<ul><li>a. BUILDING SERVICE AREAS: ORDINARY HAZARD, GROUP 1.</li><li>b. ELECTRICAL EQUIPMENT ROOMS: ORDINARY HAZARD, GROUP 1.</li></ul>
L PANELS AND	5. PATCH AND FINISH TO MATCH ADJACENT AREAS THAT HAVE BEEN CUT, DAMAGED OR MODIFIED AS A RESULT OF THE INSTALLATION OF THE MECHANICAL OR ELECTRICAL EQUIPMENT. FIRE STOP PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER, AND MAINTAIN FIRE RATING OF ASSEMBLY.		<ul> <li>c. GENERAL STORAGE AREAS: ORDINARY HAZARD, GROUP 1.</li> <li>d. MECHANICAL EQUIPMENT ROOMS: ORDINARY HAZARD, GROUP 1.</li> <li>e. OFFICE AND PUBLIC AREAS: LIGHT HAZARD.</li> <li>f. RESIDENTIAL LIVING AREAS: LIGHT HAZARD.</li> </ul>
LECTRICAL PRIOR TO CK OF	6. CONTRACTORS SHALL CONFIRM WITH OWNER/ARCHITECT, PRIOR TO BID, TIMES AVAILABLE FOR NOISE PRODUCING WORK SUCH AS CUTTING AND CORE DRILLING OF FLOORS, WALLS, ETC., AS WELL AS TIMES FOR WORK WHICH REQUIRE ACCESS INTO ADJOINING TENANT SPACES. INCLUDE PREMIUM TIME IN BID.		<ul> <li>7. MINIMUM DENSITY FOR AUTOMATIC-SPRINKLER PIPING DESIGN:</li> <li>a. LIGHT-HAZARD OCCUPANCY: 0.10 GPM OVER 1500-SQ. FT. AREA.</li> <li>b. ORDINARY-HAZARD, GROUP 1 OCCUPANCY: 0.15 GPM OVER 1500-SQ. FT. AREA.</li> <li>c. SPECIAL OCCUPANCY HAZARD: AS DETERMINED BY AUTHORITIES HAVING JURISDICTION.</li> </ul>
EXPOSED THAT WORK WHICH	7. INFORMATION REGARDING REQUIRED PIPE OPENINGS IN WALLS, FLOORS, CHASES, ETC., AND CONCRETE EQUIPMENT PADS OR FOUNDATIONS SHALL BE GIVEN TO THE GENERAL CONTRACTOR		8. MAXIMUM PROTECTION AREA PER SPRINKLER:
	BY THIS CONTRACTOR PRIOR TO THE CONSTRUCTION PERIOD. IF THIS CONTRACTOR FAILS TO COMPLY WITH THIS REQUEST, OR IF INCORRECT INFORMATION IS GIVEN, THE NECESSARY CUTTING AND PATCHING WILL BE PERFORMED BY THE GENERAL CONTRACTOR, AT THIS CONTRACTOR'S EXPENSE.		a. RESIDENTIAL AREAS: 225 SQ. FT. (37 SQ. M) b. OFFICE AND PUBLIC SPACES: 225 SQ. FT. (20.9 SQ. M) c. STORAGE AREAS: 130 SQ. FT. d. MECHANICAL EQUIPMENT ROOMS: 130 SQ. FT.
)	I. WARRANTY		e. ELECTRICAL EQUIPMENT ROOMS: 130 SQ. FT. f. OTHER AREAS: ACCORDING TO NFPA 13 RECOMMENDATIONS UNLESS OTHERWISE INDICATE
EXISTING HAT MAY TO REVIEW	1. FULLY WARRANT MATERIALS, EQUIPMENT AND WORKMANSHIP FOR ONE (1) YEAR FROM DATE OF ACCEPTANCE.		9. TOTAL COMBINED HOSE-STREAM DEMAND REQUIREMENT: ACCORDING TO NFPA 13 UNLESS OTHERWISE INDICATED:
	<ol> <li>2. PROVIDE MANUFACTURER'S WARRANTIES TO OWNER, INCLUDING EXTENDED WARRANTIES.</li> <li>3. REPAIR OR REPLACE WITHOUT CHARGE TO THE OWNER ITEMS FOUND DEFECTIVE DURING THE WARRANTY PERIOD. IN THE CASE OF REPLACEMENT OR REPAIR DUE TO FAILURE WITHIN THE</li> </ol>		<ul> <li>a. LIGHT-HAZARD OCCUPANCIES: 100 GPM (6.3 L/S) FOR 30 MINUTES.</li> <li>b. ORDINARY-HAZARD OCCUPANCIES: 250 GPM (15.75 L/S) FOR 60 TO 90 MINUTES.</li> <li>c. EXTRA-HAZARD OCCUPANCIES: 500 GPM (31.5 L/S) FOR 90 TO 120 MINUTES.</li> </ul>
FC.), STANDARDS.	WARRANTY PERIOD, THE WARRANTY ON THAT PORTION OF THE WORK SHALL BE EXTENDED FOR A MINIMUM PERIOD OF ONE (1) YEAR FROM THE DATE OF SUCH REPLACEMENT OR REPAIR.	C.	DRAWINGS AND CALCULATIONS
S AND	<ul> <li>J. SHOP DRAWING SUBMITTALS</li> <li>1. SUBMIT SHOP DRAWINGS FOR FIRE PROTECTION SYSTEMS AND EQUIPMENT WITH ADEQUATE DETAILS AND SCALES TO CLEARLY SHOW CONSTRUCTION. INDICATE THE OPERATING</li> </ul>		1. CONTRACTOR SHALL PREPARE SUBMITTAL DRAWING AND HYDRAULIC CALCULATIONS FOR SPACE IN ACCORDANCE WITH OWNER'S INSURANCE COMPANY AND BUILDING DEPARTMENT REQUIREMENTS. DRAWINGS AND CALCULATIONS SHALL BE PERFORMED BY A REGISTERED PROFESSIONAL ENGINEER. PROVIDE PROFESSIONAL ENGINEERS STAMP AND SIGNATURE ON DRAWINGS AND HYDRAULIC CALCULATIONS
	CHARACTERISTICS FOR EACH REQUIRED ITEM. CLEARLY IDENTIFY EACH ITEM ON THE SUBMITTAL AS TO MARK, LOCATION AND USE, USING SAME IDENTIFICATION AS PROVIDED ON DESIGN DRAWINGS. SUBMITTAL PAGES WITH MULTIPLE ITEMS MUST BE MARKED FOR THE PROPOSED ITEM OR SUBMITTAL WILL BE REJECTED.		2. CONTRACTOR SHALL OBTAIN FLOW TEST DATA ON CITY WATER MAIN AND SUBMIT DATA WITH CALCULATIONS. PERFORM FLOW TEST IF DATA IS OLDER THAN ONE YEAR.
	2. FIRE PROTECTION DRAWINGS SHALL BE FULLY DIMENSIONED BASED ON FIELD VERIFIED BUILDING CLEARANCES AND ARCHITECTURAL CEILING LAYOUTS. INDICATE STRUCTURAL, LIGHTING, DUCTWORK AND PIPING AT ALL CRITICAL LOCATIONS.		3. CONTRACTOR AND DESIGNER SHALL BE STATE AND LOCAL CERTIFIED. DESIGNER SHALL BE MINIMUM LEVEL 3 NICET CERTIFIED. CONTRACTOR DRAWINGS AND CALCULATIONS SHALL BE REVIEWED AND STAMPED BY REGISTERED ENGINEER.
	3. CONTRACTOR SHALL REVIEW AND INDICATE HIS APPROVAL OF EACH SHOP DRAWING PRIOR TO SUBMITTAL FOR REVIEW. DO NOT START WORK OR FABRICATION UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED BY THE ENGINEER AND RETURNED TO THE CONTRACTOR.		4. DRAWINGS SHALL SHOW ALL PIPING, HANGERS, VALVES, SPRINKLERS AND APPURTENANCES REQUIRED FOR A FULLY OPERATIONAL SYSTEM AND IN COMPLIANCE WITH NFPA-13 REQUIREMENT FOR PREPARATION OF DRAWINGS AND CALCULATIONS.
BE	4. SUBMITTALS SHALL BE REVIEWED ONLY FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS AND NOT FOR DIMENSIONS OR QUANTITIES. THE SUBMITTAL REVIEW SHALL NOT	D.	EXCAVATION AND BACKFILL
TH	RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PURCHASE OF ANY ITEM IN FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS OR ITS COMPLETE AND PROPER INSTALLATION.		1. PERFORM EXCAVATION AND BACKFILL REQUIRED FOR INSTALLATION OF PIPING. EXCAVATION SHALL BE ON AN UNCLASSIFIED BASIS.
IS NOT SENTATIVE IN	5. WHERE SUBMITTALS VARY FROM THE CONTRACT REQUIREMENTS, THE CONTRACTOR SHALL CLEARLY INDICATE ON SUBMITTAL OR ACCOMPANYING DOCUMENTS THE NATURE AND REASON FOR VARIATIONS.		2. EXCAVATE TO DEPTH REQUIRED TO INSTALL PIPING AT REQUIRED LEVEL AND PITCH. PIPE SHALL BE INSTALLED ON SAND BEDDING TO GIVE UNIFORM BEARING ALONG LENGTH OF PIPE (SAND INSIDE BUILDING AND INTERLOCKING AGGREGATE OUTSIDE BUILDING).
NY MATERIALS	<ol> <li>REFER TO VARIOUS SECTIONS FOR LISTING OF SHOP DRAWINGS REQUIRED ON THIS PROJECT.</li> <li>EACH MANUFACTURER OR HIS REPRESENTATIVE SHALL CHECK THE APPLICATION OF HIS EQUIPMENT AND CERTIFY AT TIME OF SHOP DRAWING SUBMITTAL THAT EQUIPMENT HAS BEEN</li> </ol>		3. BACKFILL WITH BEDDING MATERIAL TO A MINIMUM OF TWELVE (12) INCHES ABOVE TOP OF PIPES AND COMPACT. BALANCE OF BACKFILL IN GRASS AREAS SHALL BE CLEAN EARTH UP TO SIX (6) INCHES ABOVE SURROUNDING GRADES, UNDER FLOORS SAND, AND UNDER PAVING INTERLOCKIN AGGREGATE. BACKFILL SHALL BE COMPACTED IN MAXIMUM SIX (6) INCH LAYERS.
NT INDICATED	PROPERLY SELECTED AND CAN BE INSTALLED, SERVICED AND MAINTAINED WHERE INDICATED ON DRAWINGS. ADVISE ENGINEER IN WRITING WITH SUBMITTAL DRAWINGS OF ANY POTENTIAL PROBLEMS. THE MANUFACTURER SHALL BE RESPONSIBLE FOR ANY CHANGES THAT MIGHT BE NECESSARY BECAUSE OF PHYSICAL CHARACTERISTICS OF EQUIPMENT THAT HAVE NOT BEEN		4. EXCAVATIONS SHALL BE BACKFILLED WITH CLEAN EARTH, EXCLUDING RUBBISH AND BOULDERS AND THE DIRT SHALL BE PROPERLY COMPACTED.
ND DELIVERED	CALLED TO THE ENGINEER'S ATTENTION AT THE TIME OF SUBMITTAL. 8. FIRE PROTECTION SUBMITTAL SHALL BE SUBMITTED AS A COMPLETE PACKAGE CONSISTING OF	E.	5. PATCH FLOOR TO MATCH EXISTING.
AFFECT THE D BY THE	PRODUCT DATA SHEETS, DRAWINGS AND CALCULATIONS. INCOMPLETE PACKAGE WILL BE REJECTED.		1. PIPING SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13 AND 24 REQUIREMENTS.
DEMOLITION	K. RECORD DRAWINGS		2. FIRE PROTECTION PIPING SHALL BE AS FOLLOWS:
SECURED. WORK.	<ol> <li>EACH CONTRACTOR OR SUBCONTRACTOR SHALL KEEP ONE (1) COMPLETE SET OF THE CONTRACT WORKING DRAWINGS ON THE JOB SITE, THE CONTRACTOR SHALL REGULARLY RECORD ANY DEVIATIONS, AND/OR CHANGES FROM CONTRACT DRAWINGS MADE DURING CONSTRUCTION.</li> </ol>		<ul> <li>a. UNDERGROUND SERVICE-ENTRANCE PIPING:</li> <li>DUCTILE-IRON, MECHANICAL-JOINT PIPE AND FITTINGS AND RESTRAINED JOINTS. INCLUDE CORROSION-PROTECTIVE POLYETHYLENE ENCASEMENT.</li> </ul>
	2. THESE DRAWINGS SHALL RECORD THE LOCATION OF EQUIPMENT, PIPING, ELECTRIC SERVICE, SEWERS, WASTES, VENTS, DUCTS, CONDUIT AND OTHER PIPING, BY MEASURED DIMENSIONS TO EACH SUCH ITEM FROM READILY IDENTIFIABLE AND ACCESSIBLE WALLS OR CORNERS OF THE		<ul> <li>b. INSIDE BUILDING:</li> <li>- 2 INCH AND SMALLER: THREADED-END, SCHEDULE 40 STEEL PIPE; CAST- OR MALLEABLE-IRON THREADED FITTINGS; AND THREADED JOINTS.</li> </ul>
	AND TOP ELEVATION OF OTHER BELOW-GRADE LINES. 3. RECORD DRAWINGS SHALL BE KEPT CLEAN AND UNDAMAGED AND SHALL NOT BE USED FOR ANY		2 1/2 INCH AND LARGER: GROOVED-END, SCHEDULE 10 STEEL PIPE; GROOVED-END FITTINGS; GROOVED-END-PIPE COUPLINGS; AND GROOVED JOINTS.
) F.M.	PURPOSE OTHER THAN RECORDING DEVIATIONS FROM WORKING DRAWINGS AND EXACT LOCATIONS OF CONCEALED WORK.		OWNER MAINTENANCE AND FIRE ALARM PERSONNEL, AND INSURANCE UNDERWRITER. PROVIDE FIRE WATCH WHILE SYSTEM IS SHUT DOWN.
ULE ON	4. AFTER THE PROJECT IS COMPLETED, THESE SETS OF DRAWINGS SHALL BE DELIVERED TO THE ARCHITECT IN GOOD CONDITION, AS A PERMANENT RECORD OF THE INSTALLATION.		d. FLUSH PIPING UPON COMPLETION OF PROJECT AND TEST PER NFPA 13.
, FIXTURE,	FIRE PROTECTION SPRINKLER SYSTEM		THROUGH EXTERIOR WALL WITH GALVANIZED PIPE, TEST FITTING AND SPLASH BLOCK.
	A. SCOPE	F.	SPRINKLERS
T MODEL RERS	PROTECTION SYSTEMS FOR PROJECT. SPRINKLER SYSTEM DESIGN AND HYDRAULIC CALCULATIONS SHALL BE PROVIDED WITH THIRD PARTY PROFESSIONAL ENGINEERS STAMP.		<ol> <li>SPRINKLERS SHALL BE AS SCHEDULED ON DRAWINGS.</li> <li>BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE DRAPHOT INDICATED IN OPENING A COMPLIANCE WITH REQUIREMENTS, PROVIDE THE</li> </ol>
JRAL GURATION, IDDITIONAL	2. SPRINKLER WORK FOR PROJECT ESSENTIALLY CONSISTS OF, BUT NOT LIMITED TO, THE FOLLOWING:		PRODUCT INDICATED IN SPECIFICATION OR A COMPARABLE PRODUCT BY ONE OF THE FOLLOWING MANUFACTURERS:
TERNATES.	a. FIRE PROTECTION SERVICE MAIN EXTENDED FROM 5'-0" OUTSIDE THE BUILDING, INCLUDING BACKFLOW PREVENTER WITH BY PASS METER AND BACKFLOW, VALVES AND FIRE DEPARTMENT CONNECTION.		a. VIKING CORPORATION b. VICTAULIC CO. c. TYCO
	b. PREPARE SUBMITTAL DRAWINGS AND HYDRAULIC CALCULATIONS AS REQUIRED FOR APPROVAL BY OWNER'S INSURANCE COMPANY, BUILDING DEPARTMENT. LOCAL AUTHORITY		3. INSTALL HIGHER TEMPERATURE SPRINKLER HEADS AS REQUIRED BY CODE OR APPLICATION.
TING FROM OF, AND PAID	HAVING JURISDICTION AND NFPA REQUIREMENTS. COMPLY WITH NFPA-13 REQUIREMENTS FOR PREPARATION OF DRAWINGS AND CALCULATIONS.	G.	FIRE PROTECTION SPECIALTIES
	c. FLUSH AND CONDUCT PRESSURE TEST OF COMPLETED SYSTEM IN ACCORDANCE WITH NFPA AND AUTHORITIES HAVING JURISDICTION. DELIVER ALL CERTIFICATES TO OWNER. FIRE PROTECTION CONTRACTOR SHALL FLUSH THE NEW SERVICE LINE INSTALLED BY PLUMBING		1. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE PRODUCT INDICATED IN FIRE PROTECTION SPECIALTIES SCHEDULE OR A COMPARABLE PRODUCT

CONTRACTOR FROM CITY MAIN TO THE BUILDING IN COMPLIANCE WITH NFPA REQUIREMENTS.

G. CHECK, TEST, START, ADJUST, BALANCE AND INSTRUCTIONS

a. POTTER ROEMER

d. OTHER ITEMS INDICATED ON DRAWINGS OR REQUIRED FOR COMPLETE INSTALLATION AND TO SATISEY ALL CODE REQUIREMENTS	
g. PIPING SHALL NOT BE INSTALLED AT LOCATIONS SUBJECT TO FREEZING, UNLESS PROVIDED AS DRY PIPE SYSTEM, OR ANTI-FREEZE SYSTEM. PROVIDE FIRE WATCH.	WINSTON DESIGN+ DEVELOPMENT
DESIGN BASIS	
DESIGN BASIS FOR SYSTEM SHALL BE PER NFPA 13, LIFE SAFETY CODE 101 IN ACCORDANCE WITH CODE AND LOCAL AUTHORITY HAVING JURISDICTION. SYSTEM SHALL BE A HYDRAULICALLY DESIGNED.	
PIPE SIZES INDICATED ON DRAWING ARE APPROXIMATE AND SHALL BE VERIFIED BY CONTRACTORS HYDRAULIC DESIGN.	907 EAST END AVENUE
STANDARD-PRESSURE PIPING SYSTEM COMPONENT: LISTED FOR 175-PSIG MAXIMUM WORKING	TEL:240.461.1093 www.winstongrchitecture.com
PRESSURE.	
OWNER'S INSURANCE UNDERWRITER. PRIOR TO START OF CONSTRUCTION.	
PROVIDE MARGIN OF SAFETY FOR AVAILABLE WATER FLOW AND PRESSURE AND 10 PERCENT.	ARCHITECTURE IS ADVOCACY AND ACTIVISM
a. BUILDING SERVICE AREAS: ORDINARY HAZARD. GROUP 1.	
<ul> <li>b. ELECTRICAL EQUIPMENT ROOMS: ORDINARY HAZARD, GROUP 1.</li> <li>c. GENERAL STORAGE AREAS: ORDINARY HAZARD, GROUP 1.</li> </ul>	Allen+Shariff
d. MECHANICAL EQUIPMENT ROOMS: ORDINARY HAZARD, GROUP 1. e. OFFICE AND PUBLIC AREAS: LIGHT HAZARD. f. RESIDENTIAL LIVING AREAS: LIGHT HAZARD.	MEP Engineering
MINIMUM DENSITY FOR AUTOMATIC-SPRINKLER PIPING DESIGN:	ASE JOB #: 2041078
a. LIGHT-HAZARD OCCUPANCY: 0.10 GPM OVER 1500-SQ. FT. AREA.	
c. SPECIAL OCCUPANCY HAZARD: AS DETERMINED BY AUTHORITIES HAVING JURISDICTION.	
MAXIMUM PROTECTION AREA PER SPRINKLER:	
a. RESIDENTIAL AREAS: 225 SQ. FT. (37 SQ. M) b. OFFICE AND PUBLIC SPACES: 225 SQ. FT. (20.9 SQ. M) c. STORAGE AREAS: 130 SQ. FT.	
d. MECHANICAL EQUIPMENT ROOMS: 130 SQ. FT. e. ELECTRICAL EQUIPMENT ROOMS: 130 SQ. FT.	
f. OTHER AREAS: ACCORDING TO NFPA 13 RECOMMENDATIONS UNLESS OTHERWISE INDICATED.	219 D
OTHERWISE INDICATED:	A 15 ho
<ul> <li>a. LIGHT-HAZARD OCCUPANCIES: 100 GPM (6.3 L/S) FOR 30 MINUTES.</li> <li>b. ORDINARY-HAZARD OCCUPANCIES: 250 GPM (15.75 L/S) FOR 60 TO 90 MINUTES.</li> <li>c. EXTRA-HAZARD OCCUPANCIES: 500 GPM (31.5 L/S) FOR 90 TO 120 MINUTES.</li> </ul>	ah, P S a
DRAWINGS AND CALCULATIONS	r b or sburg
CONTRACTOR SHALL PREPARE SUBMITTAL DRAWING AND HYDRAULIC CALCULATIONS FOR SPACE	e Barana Reno
N ACCORDANCE WITH OWNER'S INSURANCE COMPANY AND BUILDING DEPARTMENT REQUIREMENTS. DRAWINGS AND CALCULATIONS SHALL BE PERFORMED BY A REGISTERED PROFESSIONAL ENGINEER. PROVIDE PROFESSIONAL ENGINEERS STAMP AND SIGNATURE ON	enue S
DRAWINGS AND HYDRAULIC CALCULATIONS.	
CONTRACTOR SHALL OBTAIN FLOW TEST DATA ON CITY WATER MAIN AND SUBMIT DATA WITH CALCULATIONS. PERFORM FLOW TEST IF DATA IS OLDER THAN ONE YEAR.	
CONTRACTOR AND DESIGNER SHALL BE STATE AND LOCAL CERTIFIED. DESIGNER SHALL BE MINIMUM LEVEL 3 NICET CERTIFIED. CONTRACTOR DRAWINGS AND CALCULATIONS SHALL BE REVIEWED AND STAMPED BY REGISTERED ENGINEER.	Big 2178
DRAWINGS SHALL SHOW ALL PIPING, HANGERS, VALVES, SPRINKLERS AND APPURTENANCES REQUIRED FOR A FULLY OPERATIONAL SYSTEM AND IN COMPLIANCE WITH NFPA-13 REQUIREMENTS FOR PREPARATION OF DRAWINGS AND CALCULATIONS.	
XCAVATION AND BACKFILL	
SHALL BE ON AN UNCLASSIFIED BASIS.	
EXCAVATE TO DEPTH REQUIRED TO INSTALL PIPING AT REQUIRED LEVEL AND PITCH. PIPE SHALL 3E INSTALLED ON SAND BEDDING TO GIVE UNIFORM BEARING ALONG LENGTH OF PIPE (SAND NSIDE BUILDING AND INTERLOCKING AGGREGATE OUTSIDE BUILDING).	Seal
BACKFILL WITH BEDDING MATERIAL TO A MINIMUM OF TWELVE (12) INCHES ABOVE TOP OF PIPES AND COMPACT. BALANCE OF BACKFILL IN GRASS AREAS SHALL BE CLEAN EARTH UP TO SIX (6) NCHES ABOVE SURROUNDING GRADES, UNDER FLOORS SAND, AND UNDER PAVING INTERLOCKING AGGREGATE. BACKFILL SHALL BE COMPACTED IN MAXIMUM SIX (6) INCH LAYERS.	
EXCAVATIONS SHALL BE BACKFILLED WITH CLEAN EARTH, EXCLUDING RUBBISH AND BOULDERS AND THE DIRT SHALL BE PROPERLY COMPACTED.	
PATCH FLOOR TO MATCH EXISTING.	50% CD
PIPING	
PIPING SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13 AND 24 REQUIREMENTS.	
a. UNDERGROUND SERVICE-ENTRANCE PIPING:	Devisions
- DUCTILE-IRON, MECHANICAL-JOINT PIPE AND FITTINGS AND RESTRAINED JOINTS. INCLUDE CORROSION-PROTECTIVE POLYETHYLENE ENCASEMENT.	
<ul> <li>b. INSIDE BUILDING:</li> <li>2 INCH AND SMALLER: THREADED-END, SCHEDULE 40 STEEL PIPE; CAST- OR</li> </ul>	
- 2 1/2 INCH AND LARGER: GROOVED-END, SCHEDULE 10 STEEL PIPE; GROOVED-END	
FITTINGS; GROOVED-END-PIPE COUPLINGS; AND GROOVED JOINTS.	
c. CONTRACTOR SHALL ARRANGE FOR SHUTDOWN OF EXISTING SYSTEM WITH LANDLORD, OWNER MAINTENANCE AND FIRE ALARM PERSONNEL, AND INSURANCE UNDERWRITER. PROVIDE FIRE WATCH WHILE SYSTEM IS SHUT DOWN.	Date: April 16, 2021
d. FLUSH PIPING UPON COMPLETION OF PROJECT AND TEST PER NFPA 13.	Project Number:
e. INSTALL INSPECTOR'S TEST CONNECTION WITH DRAIN VALVE AND TERMINATE DRAIN THROUGH EXTERIOR WALL WITH GALVANIZED PIPE, TEST FITTING AND SPLASH BLOCK.	2020-06
PRINKLERS	Owner / Client:
SPRINKLERS SHALL BE AS SCHEDULED ON DRAWINGS.	
BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE PRODUCT INDICATED IN SPECIFICATION OR A COMPARABLE PRODUCT BY ONE OF THE FOLLOWING MANUFACTURERS:	Drawing Title:
a. VIKING CORPORATION b. VICTAULIC CO. c. TYCO	Specifications
NSTALL HIGHER TEMPERATURE SPRINKLER HEADS AS REQUIRED BY CODE OR APPLICATION.	Scale. As indicated
IRE PROTECTION SPECIALTIES	Drawing Number:
BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE	
-RODUCT INDICATED IN FIRE PROTECTION SPECIALTIES SCHEDULE OR A COMPARABLE PRODUCT 3Y ONE OF THE FOLLOWING MANUFACTURERS:	$ \mathbf{FP}-\mathbf{UU} ^2$
a. POTTER ROEMER	

- b. FIRE END AND CROKER CORP c. ELKHART BRASS
- d. GUARDIAN FIRE EQUIPMENT, INC.
- 2. PROVIDE VALVES AND TRIM AS REQUIRED BY NFPA 13 AND 24. "UL" VALUES SHALL BE LISTED, AND "FM" APPROVED.
- 4. PROVIDE CHROME PLATED WALL SIAMESE FIRE DEPARTMENT CONNECTION INCLUDING NAMEPLATE, CAPS AND CHAINS AND CHECK VALVE WITH 3/4" AUTOMATIC BALL DRIP PIPED TO FLOOR DRAIN.
- 5. PROVIDE "UL" LISTED, FM APPROVED ALARM CHECK VALVE WITH ALL REQUIRED TRIM, INCLUDING WATER MOTOR ALARM BELL AND DRAINS.
- 6. PROVIDE DOUBLE DETECTOR CHECK VALVE BACKFLOW PREVENTER WITH BYPASS WATER METER, AS REQUIRED BY LOCAL WATER COMPANY.
- 7. PROVIDE SPRINKLER CABINET: FINISHED, WALL-MOUNTING, STEEL CABINET WITH HINGED COVER, WITH SPACE FOR MINIMUM OF SIX SPARE SPRINKLERS PLUS SPRINKLER WRENCH. INCLUDE NUMBER OF SPRINKLERS REQUIRED BY NFPA 13 AND SPRINKLER WRENCH. INCLUDE SEPARATE CABINET WITH SPRINKLERS AND WRENCH FOR EACH TYPE OF SPRINKLER ON PROJECT.
- H. PRESSURE GAUGES
- 1. PRESSURE GAUGES SHALL BE UL LISTED, 3-1/2- TO 4-1/2-INCH DIAMETER, DIAL PRESSURE GAGE WITH RANGE OF 0 TO 250 PSIG MINIMUM.
- a. WATER SYSTEM PIPING: INCLUDE CAPTION "WATER" OR "AIR/WATER" ON DIAL FACE.
- I. HANGERS AND SUPPORTS
- 1. HANGERS FOR BLACK OR GALVANIZED STEEL PIPE SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL NO. 100, OR APPROVED EQUAL.
- 2. HANGERS FOR COPPER TUBING SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL NO. 102-A, OR APPROVED EQUAL.
- 3. TRAPEZE HANGERS OF A TYPE APPROVED BY THE ENGINEER MAY BE USED WHERE PIPES ARE DESIGNED TO RUN PARALLEL AND AT THE SAME ELEVATION.
- 4. STRAP HANGERS SHALL NOT BE PERMITTED.
- 5. IN CONCRETE, MICHIGAN HANGER CO., MODEL NO. 355 INSERTS, OR APPROVED EQUAL. INSERTS SHALL PERMIT ADJUSTMENT FROM 3/4 INCH THROUGH 1-1/4 INCH. IN METAL DECKS, CONTRACTOR SHALL PROVIDE REDHEAD SDI INSERTS, OR APPROVED EQUAL. POWDER PROPELLED INSERTS WILL BE PERMITTED IN NEW CONSTRUCTION WHERE TYPE AND LOCATION ARE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
- 6. CONTRACTOR SHALL PROVIDE SIDE BEAM CLAMPS FOR SUPPORTING PIPING FROM STRUCTURAL STEEL MEMBERS. BEAM CLAMPS SHALL BE MANUFACTURED BY MICHIGAN HANGER CO., MODEL 300 OR APPROVED EQUAL.
- 7. WHERE OTHER MEANS OF SUPPORT PIPING ARE REQUIRED OR DESIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE ENGINEER'S APPROVAL PRIOR TO INSTALLING THOSE SUPPORTS.
- 8. HANGER SHALL BE PROVIDED AT EACH CHANGE OF DIRECTION.
- 9. HANGERS AND SUPPORTS SHALL BE SPACED AT INTERVALS WHICH WILL PREVENT SAGGING AND REDUCE STRAIN ON VALVES AND SPECIALTIES. HANGER SPACING SHALL BE NO GREATER AND ROD SIZE SHALL BE NO SMALLER THAN THAT SHOWN IN THE FOLLOWING TABLE. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION. HANGERS AND SUPPORTS MUST COMPLY WITH NFPA-13 REQUIREMENTS.

FERROUS PIPING AND COPPER TUBING:

DIAMETER OF PIPE	MAXIMUM SPACING	ROD SIZE
UP TO 1" 1-1/4" TO 1-1/2" 2" THRU 3" 4" AND 5"	8 FT. 10 FT 12 FT 15 FT	3/8" 3/8" 3/8" 1/2"

- J. PIPE WALL SEALS
- 1. WALL PIPE SEALS WITH RUBBER LINKS SHALL BE THUNDERLINE LINK SEAL. OR APPROVED EQUAL WALL PIPE SEALS WITH INORGANIC MATERIAL LINKS THE PENETRATIONS OF FIRE RATED WALLS SHALL BE THUNDERLINE PYRO-PAC, OR APPROVED EQUAL.
- 2. SEALS SHALL BE MODULAR MECHANICAL TYPE CONSISTING OF INTERLOCKING SYNTHETIC RUBBER OR INORGANIC MATERIAL LINKS SHAPED TO CONTINUOUSLY FILL THE ANNULAR SPACE BETWEEN THE PIPE AND WALL OPENING.
- 3. LINKS SHALL BE LOOSELY ASSEMBLED WITH BOLTS TO FORM A CONTINUOUS BELT AROUND THE PIPE. A PRESSURE PLATE SHALL BE PROVIDED UNDER THE BOLT HEAD AND NUT OF EACH LINK.
- 4. AFTER THE SEAL ASSEMBLY IS POSITIONED IN THE SLEEVE, THE TIGHTENING OF THE BOLTS SHALL CAUSE THE SEALING ELEMENTS TO EXPAND AND PROVIDE AN ABSOLUTELY WATER-TIGHT SEAL BETWEEN THE PIPE AND SLEEVE.
- 5. SEALS SHALL BE CONSTRUCTED TO PROVIDE ELECTRICAL INSULATION BETWEEN THE PIPE AND SLEEVE, THUS REDUCING CHANCES OF CATHODIC REACTION BETWEEN THESE TWO MEMBERS.
- 6. SLEEVES SHALL BE MANUFACTURED FROM HEAVY-WALL, WELDED OR SEAMLESS STEEL PIPE. A FULL CIRCLE CONTINUOUSLY WELDED WATER STOP PLATE SHALL BE PROVIDED TO ASSURE POSITIVE WATER SEALING OF THE SLEEVE. SLEEVE SHALL BE PROTECTED BY A COATING OF ENRICHED RED PRIMER.
- K. VALVES
- 1. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE PRODUCT INDICATED IN SPECIFICATION OR A COMPARABLE PRODUCT BY ONE OF THE FOLLOWING MANUFACTURERS:
- a. VIKING CORPORATION b. VICTAULIC CO.
- c. NIBCO
- d. APOLLO
- 2. INSTALL VALVES AND TRIM AS REQUIRED BY NFPA 13 AND 24, "UL" LISTED AND "FM" APPROVED.
- 3. SHUT-OFF VALVES SHALL BE FITTED WITH TAMPER SWITCHES BY FIRE PROTECTION CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR. COORDINATE LOCATIONS WITH ELECTRICAL CONTRACTOR.
- 4. PROVIDE FLOW SWITCH IN RISER COORDINATE WITH ELECTRICAL CONTRACTOR.
- 5. BALL VALVES:
- a. 2-INCHES AND SMALLER: SHALL BE RATED FOR A MINIMUM OF 400 PSI WOG, VALVE BODY CONSTRUCTED OF BRONZE, 2-PIECE BODY, STANDARD PORT, WITH TEFLON SEATS AND SEALS, AND BLOW-OUT PROOF STEMS. VALVES SHALL HAVE LOCKABLE HANDLES AND SHALL BE UL LISTED AND FM APPROVED. THEY SHALL HAVE THREADED ENDS FOR USE IN STEEL PIPING. BALL VALVES SHALL BE VICTAULIC SERIES 722. VALVES SHALL BE PROVIDED WITH TAMPERPROOF SWITCHES.
- 6. OS&Y GATE VALVES WITH TAMPER SWITCH:
- a. 2 1/2-INCHES TO 12-INCHES: SHALL BE RATED FOR A MINIMUM OF 250 PSI FIRE PROTECTION SERVICE, FACTORY COATED DUCTILE IRON BODY WITH GROOVED ENDS AND EPDM COATED CAST IRON DISC. VALVES SHALL SEAL IN OPEN POSITION. VALVES SHALL BE UL LISTED AND FM APPROVED. PROVIDE VALVE WITH STEM MOUNTED SUPERVISORY SWITCH FROM POTTER ROEMER MODEL 6220. VALVES SHALL BE VICTAULIC SERIES 771H.
- 7. CHECK VALVES:
- a. 2-INCHES AND LARGER: SHALL BE RATED FOR A MINIMUM OF 250 PSI FIRE PROTECTION SERVICE, FACTORY COATED DUCTILE IRON BODY WITH GROOVED ENDS AND ELASTOMER-COATED DUCTILE IRON DISC. VALVES SHALL BE INSTALLED HORIZONTAL AND VERTICAL POSITIONS. VALVES SHALL BE UL LISTED AND FM APPROVED. VALVES SHALL BE VICTAULIC VALVE SERIES 717.

- L. PIPE IDENTIFICATION

- M. ACCESS DOORS
- CONSTRUCTION.
- INSTALLATION.
- STAINLESS STEEL.
- PROPER ACCESS TO THE DEVICE BEING SERVED.
- VERIFY THE NEED FOR ACCESS PANELS.
- N. FIRESTOPPING

#### 8. PROVIDE VALVE TAGS AND VALVE CHART PER ASME A13.1 SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS. PROVIDE BUILDING PLAN SHOWING LOCATIONS OF VALVES.

1. CONTRACTOR SHALL PROVIDE IDENTIFICATION LABELS, TAGS, ETC., FOR FIRE PROTECTION PIPING AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.

2. THE IDENTIFICATION OF PLUMBING PIPING SHALL BE IN ACCORDANCE WITH ANSI STANDARD A13.1. 3. PRESSURE SENSITIVE PIPE MARKERS SHALL BE MANUFACTURED BY THE BRADY CO., OR APPROVED EQUAL. PIPE MARKERS SHALL BE MANUFACTURER'S STANDARD PRODUCT.

1. ACCESS DOORS SHALL BE PROVIDED IN WALLS AND CEILINGS WHERE REQUIRED TO PERMIT PROPER ACCESS TO VALVES AND ANY OTHER SUCH DEVICES WHICH REQUIRE MAINTENANCE OR

SERVICE. DOORS PLACED IN WALLS. PARTITIONS OR OTHER FIRE-RATED CONSTRUCTION SHALL HAVE A LABEL SIGNIFYING THAT THE DOOR HAS THE SAME FIRE RATING AS THE FIRE-RATED

2. THIS CONTRACTOR SHALL FURNISH ACCESS PANELS TO THE GENERAL CONTRACTOR FOR

3. ACCESS PANELS SHALL BE CONSTRUCTED OF 14 GAUGE STEEL, WITH 16 GAUGE STEEL FRAMES. DOORS SHALL FINISH FLUSH WITH THE SURROUNDING SURFACE. FRAMES SHALL HAVE 3 INCH WIDE EXPANDED METAL FOR PLASTERED SURFACES AND PLAIN FLANGED TYPE FRAME FOR TILE, MASONRY OR GYPSUM BOARD SURFACES. DOORS AND FRAMES SHALL BE FURNISHED PRIME COATED. DOORS INSTALLED IN CERAMIC TILE OR OTHER NON-PAINTED SURFACES SHALL BE

4. HINGES SHALL BE CONCEALED SPRING TYPE, TO ALLOW DOORS TO BE OPENED 175 DEGREES. LOCKS SHALL BE FLUSH SCREWDRIVER TYPE WITH STEEL CAMS. 5. ACCESS PANELS SHALL BE 16 INCHES BY 16 INCHES OR LARGER AS MAY BE REQUIRED FOR

6. ACCESS PANELS ARE NOT REQUIRED IN COMPLETELY ACCESSIBLE LIFT OUT TILE CEILINGS. CONTRACTOR SHALL REVIEW THE ROOM FINISH SCHEDULE ON THE ARCHITECTURAL DRAWINGS TO

1. SERVICES THAT PASS THRU FIRE OR SMOKE RATED PARTITIONS, WALLS, FLOORS, SHALL BE FIRESTOPPED. FIRE STOPPING SYSTEM RATING SHALL MATCH PARTITION RATING. FIRE STOPPING SYSTEM SHALL MEET THE REQUIREMENTS OF BUILDING CODE.

2. FIRESTOPING AND/OR SMOKE STOPPING MATERIAL AND INSTALLATION SHALL BE AS MANUFACTURED BY HILTI OR APPROVED EQUAL.

END OF FIRE PROTECTION SPECIFICATIONS

![](_page_52_Picture_72.jpeg)

![](_page_53_Figure_0.jpeg)

![](_page_53_Picture_1.jpeg)

![](_page_53_Figure_2.jpeg)

![](_page_53_Picture_3.jpeg)

#### FIRE PROTECTION GENERAL NOTES:

- A. INSTALL SPRINKLER INSPECTORS TEST AT THE MOST REMOTE AREA.
- B. FIRESTOPPING IS REQUIRED AT ALL SLAB PENETRATIONS.

#### <u>FIRE PROTECTION KEY NOTES:</u> $\langle \# \rangle$

- REFER TO FIRE PROTECTION SERVICE ENTRANCE THROUGH WALL DETAIL #1 ON SHEET FP-001 FOR ADDITIONAL INFORMATION. REFER TO SITE/CIVIL DRAWINGS FOR CONTINUATION OF 4" FIRE MAIN. INSTALL 4" FIRE MAIN AT -3'-6" BELOW GRADE.
- 2. PROVIDE DETECTOR DOUBLE CHECK BACKFLOW PREVENTER IN COMPLIANCE WITH PWSA WATER AUTHORITY REQUIREMENTS. PROVIDE WITH TAMPER SWITCHES ON SHUT OFF VALVES. INCLUDE 4 INCH TAP AND VALVE TO CONDUCT FULL FLOW TESTING OF BACKFLOW PREVENTER.
- PROVIDE ALARM VALVE COMPLETE WITH SHUT OFF VALVE, TAMPER SWITCH, CHECK VALVE, SYSTEM DRAIN VALVE, FLOW SWITCH AND PRESSURE GAUGE.
- 4. PROVIDE FLOOR CONTROL ASSEMBLY AND APPURTENANCES. REFER TO CONTROL VALVE ASSEMBLY DETAIL #2 ON SHEET FP-001 FOR ADDITIONAL INFORMATION. ROUTE DRAIN PIPING TO NEAREST FLOOR DRAIN.
- 5. 4" FIRE PIPING TO FLOOR ABOVE.
- 6. FIRE PIPING TO FLOOR ABOVE.
- PROVIDE SPRINKLER COVERAGE MEETING NFPA 13 REQUIREMENTS FOR ORDINARY HAZARD OCCUPANCY, 0.15 GPM OVER 1500 SF IN THIS AREA.

#### FIRE PROTECTION GENERAL NOTES:

- A. INSTALL SPRINKLER INSPECTORS TEST AT THE MOST REMOTE AREA.
- B. FIRESTOPPING IS REQUIRED AT ALL SLAB PENETRATIONS.

#### <u>FIRE PROTECTION KEY NOTES: $\langle \# \rangle$ </u>

- 1. PROVIDE FLOOR CONTROL ASSEMBLY AND APPURTENANCES. REFER TO CONTROL VALVE ASSEMBLY DETAIL #2 ON SHEET FP-001 FOR ADDITIONAL INFORMATION. ROUTE DRAIN PIPING TO MOP BASIN.
- 2. FIRE PIPING FROM FLOOR BELOW.
- 3. FIRE PIPING TO FLOOR ABOVE.
- PROVIDE SPRINKLER COVERAGE MEETING NFPA 13 REQUIREMENTS FOR LIGHT HAZARD OCCUPANCY, 0.10 GPM OVER 1500 SF IN THIS AREA.
- 5. FIRE DEPARTMENT CONNECTION, FDC-1. COORDINATE FINAL LOCATION WITH LOCAL AUTHORITIES HAVING JURISDICTION. ELECTRICAL CONTRACTOR TO PROVIDE STROBE ABOVE FDC.
- 6. PROVIDE CONCEALED SPRINKLERS WITH WHITE COVER PLATES. (TYPICAL) COORDINATE FINAL LOCATIONS WITH OTHER DISCIPLINES.

![](_page_53_Picture_25.jpeg)

![](_page_54_Figure_0.jpeg)

![](_page_54_Picture_1.jpeg)

![](_page_54_Figure_2.jpeg)

![](_page_54_Picture_3.jpeg)

#### FIRE PROTECTION GENERAL NOTES:

- A. INSTALL SPRINKLER INSPECTORS TEST AT THE MOST REMOTE AREA.
- B. FIRESTOPPING IS REQUIRED AT ALL SLAB PENETRATIONS.

#### <u>FIRE PROTECTION KEY NOTES:</u> $\langle \# \rangle$

- 1. PROVIDE FLOOR CONTROL ASSEMBLY AND APPURTENANCES. REFER TO CONTROL VALVE ASSEMBLY DETAIL #2 ON SHEET FP-001 FOR ADDITIONAL INFORMATION. ROUTE DRAIN PIPING TO FLOOR BELOW.
- 2. FIRE PIPING FROM FLOOR BELOW TO FLOOR ABOVE.
- 3. PROVIDE SPRINKLER COVERAGE MEETING NFPA 13 REQUIREMENTS FOR LIGHT HAZARD OCCUPANCY, 0.10 GPM OVER 1500 SF IN THIS AREA.
- PROVIDE CONCEALED SPRINKLERS WITH WHITE COVER PLATES. (TYPICAL) COORDINATE FINAL LOCATIONS WITH OTHER DISCIPLINES.

#### FIRE PROTECTION GENERAL NOTES:

- A. INSTALL SPRINKLER INSPECTORS TEST AT THE MOST REMOTE AREA.
- B. FIRESTOPPING IS REQUIRED AT ALL SLAB PENETRATIONS.

#### <u>FIRE PROTECTION KEY NOTES:</u> $\langle \# \rangle$

- PROVIDE FLOOR CONTROL ASSEMBLY AND APPURTENANCES. REFER TO CONTROL VALVE ASSEMBLY DETAIL #2 ON SHEET FP-001 FOR ADDITIONAL INFORMATION. ROUTE DRAIN PIPING TO FLOOR BELOW.
- 2. FIRE PIPING FROM FLOOR BELOW.
- 3. PROVIDE SPRINKLER COVERAGE MEETING NFPA 13 REQUIREMENTS FOR LIGHT HAZARD OCCUPANCY, 0.10 GPM OVER 1500 SF IN THIS AREA.
- 4. PROVIDE CONCEALED SPRINKLERS WITH WHITE COVER PLATES. (TYPICAL) COORDINATE FINAL LOCATIONS WITH OTHER DISCIPLINES.

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Date: **April 16, 2021** 

Project Number: **2020-06** 

Owner / Client: TomTom24 Development, LLC

Drawing Title:

Second & Third Floor Fire Protection Plans Scale: As indicated Drawing Number:

FP-202