Wayne State University

School of Medicine

IBio Radio Chemistry Facility

Detroit, Michigan

211-277899

Construction

June 10, 2016

PROJECT NO. 2016-01118-000

WSU PROJECT NO. 211-277899

HARLEY ELLIS DEVEREAUX

26913 Northwestern Hwy
Suite 200
Southfield, Michigan
48033-3476 | USA

(tel) (248) 262.1500
(fax) (248) 262.1515

www.HED.design

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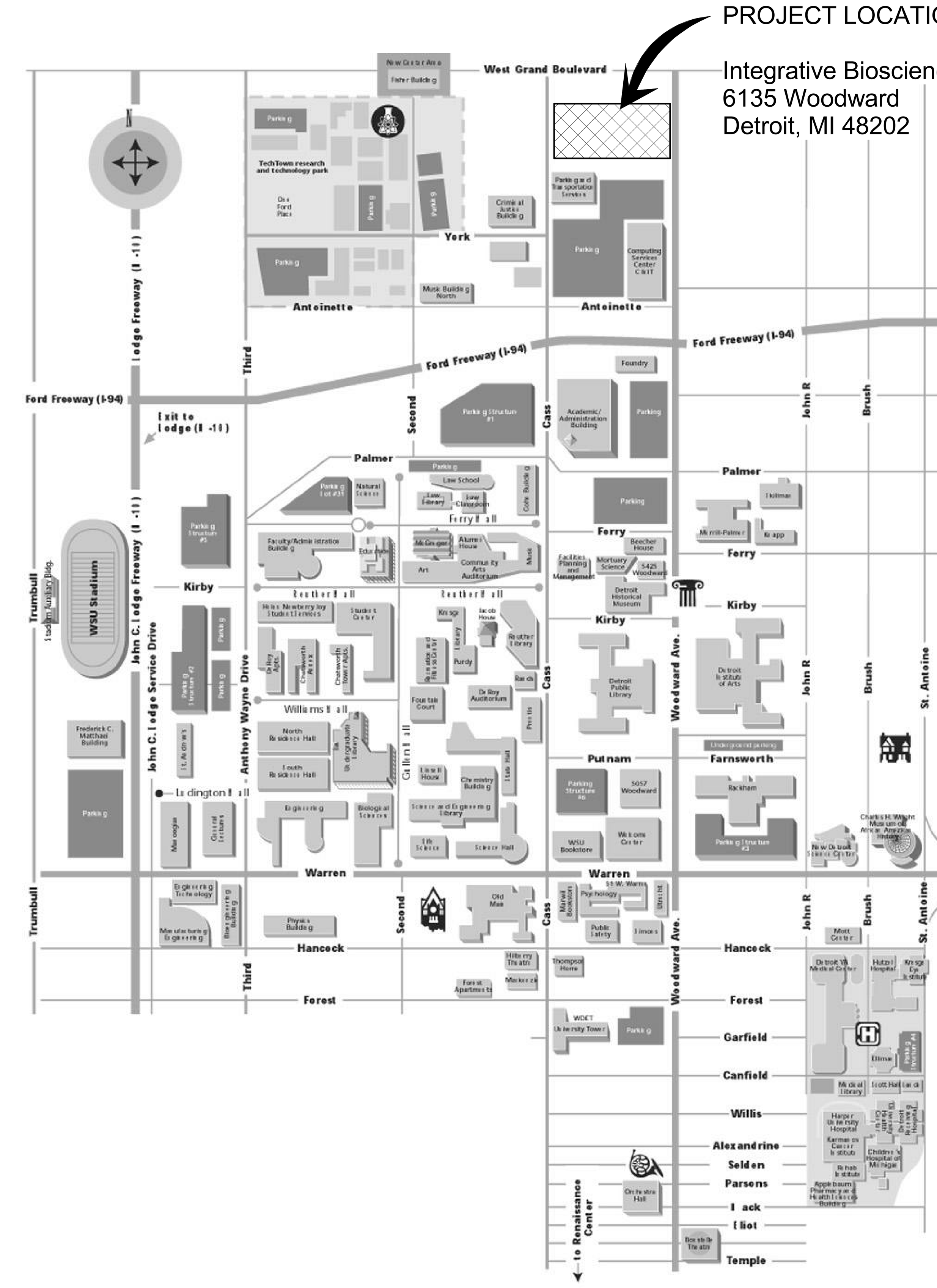
PROJECT LOCATION

Integrative Biosciences Center
6135 Woodward
Detroit, MI 48202



ABBREVIATIONS

V	
V	VOLT
VA	VOLT - AMPERE
VAC	VACUUM
VAR	VARIABLE
VAV	VARIABLE AIR VOLUME
VB	VINYL BASE
V.BARR	VAPOR BARRIER
V.C.O.	VACUUM CLEANER OUTLET
VCP	VITRIFIED CLAY PIPE
V.C.T	VINYL COMPOSITION TILE
VEL	VELOCITY
VENT	VENTILATE, VENTILATED, VENTILATION
VERT	VERTICAL, VERTICALLY
VEST	VESTIBULE
VFD	VARIABLE FREQUENCY DRIVE
VFR	VOLUMETRIC FLOW RATE
VIB	VIBRATION
V.I.F.	VERIFY IN FIELD
VISC	VISCOSITY
VIT	VITREOUS
VL	VERIFY LOCATION
VOL	VOLUME
V.R.S.	VINYL REDUCER STRIP
VS	VERSUS
V	VINYL TILE
VTR	VENT THROUGH ROOF
V.V.B.	VARIABLE AIR VOLUME BOX
W	
W	WATT
W/	WITH
WB	WET BULB
WBT	WET-BULB TEMPERATURE
W.C.	WATER CLOSET
WD	WOOD
W.F.	WASH FOUNTAIN
W.GL	WIRE GLASS
WH	WATER HEATER
WHR	WALL HYDRANT
W.I.	WROUGHT IRON
WL	WATER LEVEL
W.L.	WORKING LINE
W.M	WIRE MESH
W.O.	WINDOW OPENING
W/O	WITHOUT
WP	WORKING POINT
W.P.	WATERPROOFING
W.R.	WASTE RECEPTACLE
W.S.	WATER STOP
WT	WEIGHT
WTR	WATER
WW	WALL TO WALL
W.V.	WALL VENT
W&V	WASTE & VENT
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH
XYZ	
XH	EXTRA-HEAVY CAST IRON SOIL PIPE
Y	WYE
YD	YARD
YR	YEAR
Z	IMPEDANCE
ZC	ZINC-COATED

SYMBOLS

CL	CENTERLINE
⌀	DIAMETER
∆	DIFFERENCE or DELTA
Ø	PHASE
%	PERCENT
PL	PROPERTY LINE
∆T	TEMPERATURE DIFFERENCE
α	THERMAL EXPANSION COEFFICIENT
**	PLUS/MINUS
***	SQUARE FEET
#	POUND
****	FLAT OVAL SIZE

STEEL SHAPES

C	CHANNEL
HP	HP SHAPES
L	ANGLE
M	M SHAPES
MC	MISCELLANEOUS CHANNEL
PL	PLATE
S	S SHAPES
TS	STRUCTURAL TUBE OR TUBE SHAPE
W	WIDE FLANGE

S	
S	SOUTH
SA	SUPPLY AIR
SAN	SANITARY
SAT	SATURATION
S.B.	SHOWER BENCH
S.C.	SOLID CORE
SC	SHADING COEFFICIENT
S.C.D.	SEAT COVER DISPENSER
SCFM CFM,	STANDARD CONDITIONS
SCFS	CUBIC FT PER SEC, STANDARD
SCH	SCHEDULE
SCN	SCREEN
S.C.R.	SHOWER CURTAIN ROD
SD	STORM DRAIN
S.DR.	SHOWER DRAIN
SEC.	SECOND, SECONDARY
SECT	SECTION
SF	SQUARE FEET (FOOT)
S.F.	SUPPLY FAN
SG	SPECIFIC GRAVITY
SGFT	STRUCTURAL GLAZED FACING TILE
SGL	SINGLE
SH	SENSIBLE HEAT
SHG	SENSIBLE HEAT GAIN
SHR	SENSIBLE HEAT RATIO
SHT	SHEET
SHTG	SHEATHING
SHWR	SHOWER
S.I.	SQUARE INCH
SIM	SIMILAR
SK	SINK
SL	SEA LEVEL
S.N.P.	SANITARY NAPKIN DISPOSAL
S.N.V.	SANITARY NAPKIN VENDOR
SOL	SOLAR
SP	SPRINKLER PIPING
SP HT	SPECIFIC HEAT
SP VOL	SPECIFIC VOLUME
SPEC	SPECIFICATIONS
SPF	SOLID POLYMER FABRICATIONS
SPKLR	SPRINKLER
SPKR	SPEAKER
SPLY	SUPPLY
SPRYD	SPRAYED
SQ	SQUARE
S.R.	SOUND RETARDANT
SSF	SAYBOLT SECONDS FUROL
S.S.H.	SIDEWALL FIRE SPRINKLER HEAD
SS	STRUCTURAL STEEL
S.S.	STAINLESS STEEL
SSU	SAYBOLT SECONDS UNIVERSAL
ST	STORM
S.T.	SOUND TRAP
STA	STATION
STAG	STAGGERED
S.T.C.	SOUND TRANSMISSION CLASS
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STM	STEAM
STOR	STORAGE
STRUC	STRUCTURAL
SUB	SUBSTATION
SUBST	SUBSTITUTE
SUCT	SUCTION
SUM	SUMMER, SUMMARY, SUMMATION
SUPP	SUPPORT
SURD	SURFACE, DRY
SURF	SURFACE, SURFACING
SURW	SURFACE, WET
SUSP	SUSPEND, SUSPENSION
SW	SWITCH
S.W.	SIDEWALK
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMBOL
SYS	SYSTEM
T	
α	THERMAL EXPANSION COEFFICIENT & ABSORPTION COEFFICIENT
∆T	TEMPERATURE DIFFERENCE
t	THICKNESS
T	TEE
T.ACC	TOILET ACCESSORIES
TAB	TABULATE, TABULATION
TAP	TAP, TAPPED
TAU	TRANSMISSIVITY
T&B	TOP & BOTTOM
T&G	TONGUE & GROOVE
T.B.	TACK BOARD, TOWEL BAR
TC	TOP CHORD
T/CONC	TOP OF CONCRETE
Tdb or TDB	DRY BULB TEMPERATURE
T.D.	TOWEL DISPENSER
T.D.R.	TOWEL DISPENSER & RECEPTACLE
T.E.	TOP ELEVATION
TEL	TELEPHONE
TEMP	TEMPERATURE
TEMP GL	TEMPERED GLASS
TERM	TERMINAL
TERR	TERRAZZO
TG	TRANSFER GRILLE
THD	THREAD, THREADED
THK	THICK, THICKNESS
THRU	THROUGH

(Note: ON DWGS ONLY! All specifications and correspondence to be written out in full)

TL	TWIST LOCK
TOC	TOP OF CURB
T.O.CONC	TOP OF CONCRETE
T.O.D.	TOP OF DUCT
TOF	TOP OF FOOTING
T.O.F.	TOP OF FOUNDATION
TOIL	TOILET
TOM	TOP OF MASONRY
TONS	TONS OF REFRIGERATION
T.O.P.	TOP OF PIPE
T.O.R.	TOP OF RIM, TOP OF RISER
TOS	TOP OF STEEL
T.O.W.	TOP OF WALL
T.P.H.	TOILET PAPER HOLDER
TOT HT	TOTAL HEAT
TR	TREAD
TRAN	TRANSOM
TRANSF	TRANSFORMER
TS	TAMPER SWITCH
T'STAT	THERMOSTAT
T.TD.	TOILET TISSUE DISPENSER
TV	TELEVISION
Twb or TWB	WET BULB TEMPERATURE
TYP	TYPICAL
U	
U	U-FACTOR
U/G	UNDERGROUND
U.H.	UNIT HEATER
UL	UNDERWRITER'S LABORATORIES, INC
U.O.N.	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UR	URINAL
U-VALUE	HEAT TRANSMITTANCE COEFFICIENT

O	
O2	OXYGEN
OA	OVERALL
O.A.	OUTSIDE AIR
OBS	OBSCURE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
O.F.	OUTSIDE FACE
O.F.C.I.	OWNER FURNISHED, CONTRACTOR INSTALLED
O.F.O.I.	OWNER FURNISHED, OWNER INSTALLED
O.H.	OPPOSITE HAND
O/H	OVERHEAD
O.O	OUT TO OUT
OPG,	OPNG OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
OS&Y	OUTSIDE STEM & YOKE
OZ	OUNCE
P	
P	POLE or PHASE
PA	PUBLIC ADDRESS
PASS	PASSAGE, PASSENGER
P.B.	PUSH BUTTON
P.BD.	PARTICLE BOARD
P/C	PRECAST
PCF	POUNDS PER CUBIC FOOT
PCT	PERCENT
PD	PRESSURE DROP or DIFFERENCE
PDP	POWER DISTRIBUTION PANEL
PED	PEDESTAL
PEN	PENETRATION
PERP	PERPENDICULAR
PF	POWER FACTOR
pH	HYDROGEN-ION CONCENTRATION
PH	PHASE or Ø
PHOTO	PHOTOGRAPH
PIV	POST INDICATOR VALVE
PKG	PARKING
PL	PROPERTY LINE
PL	PLATE
P.LAM	PLASTIC LAMINATE
PLAS	PLASTIC
PLAT	PLATFORM
PLBG	PLUMBING
PLF	POUNDS PER LINEAL FOOT
PLYWD	PLYWOOD
PNL	PANEL
PNT	PAINT
POL	POLISH
PORT	PORTABLE
PP	POWER PANEL
PPM	PARTS PER MILLION
PR PAIR	
PREFAB	PREFABRICATED
PREFIN	PREFINISHED(D)
PRI	PRIMARY
PROJ	PROJECT, PROJECTION
PROP	PROPERTY, PROPOSED
PRV	PRESSURE REDUCING VALVE, PRESSURE RELIEF VALVE
PSF	POUNDS PER SQUARE FOOT
PSFA	PSF ABSOLUTE
PSGF	PSF GAGE
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAGE
PT	POTENTIAL TRANSFORMER
PT	POINT
P.T.O.	PRESENT TO OWNER
PTD	PAINTED
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PWR	POWER
Q	
QT	QUART
Q.T.	QUARRY TILE
QTR	QUARTER
QTY	QUANTITY
QUAD	QUADRUPLEX
QUAL	QUALITY
R	
R	RADIUS
R'	RANKINE
R12/R22	REFRIGERANT
RA	RETURN AIR
RAD	RADIATE, RADIATOR
RAD.	RADIUS
RADN	RADIATION
RB	RUBBER BASE
RC	RAIN CONDUCTOR
RCP	REINFORCED CONCRETE PIPE
RCVR	RECEIVER
RD	ROAD
R.D.	ROOF DRAIN
REC	RECESS
RECIRC	RECIRCULATE
RECPT	RECEPTACLE
RECT.	RECTANGLE, RECTANGULAR
RECV	RECEIVE, RECEIVING
RED	REDUCER
REF	REFER, REFERENCE
REFL	REFLECTED, REFLECTIVE
REFRIDG	REFRIGERATOR
REG	REGISTER
REINF	REINFORCE, REINFORCING, REINFORCEMENT
REL	RELAY
REM	REMOVABLE, REMOVE
REQD	REQUIRED
RES	RESISTANCE, RESISTIVITY
RESIL	RESILIENT
RET	RETAINING
REV	REVENT
RF	RETURN FAN
RGS	RIGID GALVANIZED STEEL
R.H.	RIGHT HAND
RH %	RELATIVE HUMIDITY
RHMS	ROUND HEAD METAL SCREW
RHWS	ROUND HEAD WOOD SCREW
R.H.R.B	RIGHT HAND REVERSE BEVEL
RL	ROOF LEADER, RAIN LEADER
RM	ROOM
RND	ROUND
R.O.	ROUGH OPENING
R.O.W.	RIGHT OF WAY
RP	RECEPTACLE PANEL
RPM	REVOLUTIONS PER MINUTE
RPNL	RADIANT PANEL
RPS	REVOLUTIONS PER SECOND
R.R.	RAILROAD
RR	RETURN REGISTER
R.S.	ROOF SUMP
RT	RUBBER TILE
R.T.	RESILIENT TILE
R-VALUE	THERMAL RESISTANCE (R-FACTOR)
RVT	RIVET
RWC	RIGID WALL COVERING

I	
IAM	INDIVIDUAL ADDRESSABLE MODULE
ID	INSIDE DIAMETER
I.E.	INVERT ELEVATION
I.F.	INSIDE FACE
IG	ISOLATED GROUND
IN	INCH, INCHES
INCAND	INCANDESCENT
INCIN	INCINERATOR
INFO	INFORMATION
INLK	INTERLOCK
INSUL	INSULATE, INSULATION
INT	INTERIOR
INTER	INTERMEDIATE
INV	INVERT
IPS	IRON PIPE SIZE
ISC	AVAILABLE SHORT CIRCUIT CURRENT
ISOL	ISOLATION, ISOLATE
J	
JB	JUNCTION BOX
J.C.	JANITOR CLOSET
JCT	JUNCTION
JST	JOIST
JT	JOINT
K	
k	KIPS (UNFACTORED)
K	KIP (1000 LB.)
KCMIL	1000 CIRCULAR MILS
K.D.	KNOCKDOWN
KIP FT	THOUSAND FOOT POUNDS
KIT	KITCHEN
K.O.P.	KNOCK OUT PANELS
K.P.	KICK PLATE
KVA	KILOVOLT
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATT
KWH	KILOWATT HOURS
L	
LA	LAB AIR (15 psi)
LAB	LABORATORY
LAM	LAMINATE, LAMINATED
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
L.B.	LAG BOLT
LBL	LABEL
LBS	POUNDS
LCL	LONG CONTINUOUS LOAD
L.D.	LINEAR DIFFUSER
LEV	LEVEL
L.F.	LINEAR FEET, FOOT
LG	LONG
LH	LATENT HEAT
LH	LEFT HAND
LHG	LATENT HEAT GAIN
L.H.R.B.	LEFT HAND REVERSE BEVEL
LIQ	LIQUID
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LLP	LONG LEG PROJECTING
LN	LOGARITHM (NATURAL)
LN2	LIQUID NITROGEN
L.O.	LOUVER OPENING
LOG	LOGARITHM TO BASE 10
LP	LOW POINT
L.P.	LIGHTING PANEL
LPRF	LIGHTPROOF
LPS	LOW-PRESSURE STEAM
LS	LONG SWEEP
LSW	LIMIT SWITCH
LTG	LIGHTING
LTHW	LOW-TEMP HOT WATER
LTWT	LIGHTWEIGHT
LV	LAB VENT (SEE AV)
LVR	LOUVER
LVTR	LAB VENT THRU ROOF
LW	LAB WASTE (SEE AW)
LWT	LEAVING WATER TEMPERATURE
M	
MA	MEDICAL AIR
MAINT	MAINTENANCE
MAS	MASONRY
MATL	MATERIAL
MAX.	MAXIMUM
M.B.	MARKER BOARD, MACHINE BOLT
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCF	THOUSAND CUBIC FEET
MCM	THOUSAND CIRCULAR MILS
MECH	MECHANICAL
MEMBR	MEMBRANE
MET	METAL, METALLIC
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MI.	MISCELLANEOUS IRON
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MLDG	MOLDING
MLO	MAIN LUGS ONLY
M.O.	MASONRY OPENING
MPH	MILES PER HOUR
MPS	MEDIUM-PRESSURE STEAM
MSP	MOTOR STARTER PANEL
MTD	MOUNTED, MOUNTING
MTG	MEETING
MTHW	MEDIUM-TEMP HOT WATER
MTL	METAL
MTR	MOTOR
MUAU	MAKE UP AIR UNIT
N	
N	NEW
N2	NITROGEN
N2O	NITROUS OXIDE
N/A	NOT APPLICABLE
NAT	NATURAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEUT	NEUTRAL
NF	NON-FUSED
NFPA	NATIONAL FIRE PROTECTIVE ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NO.	NUMBER
NOM	NOMINAL
NPS	NOMINAL PIPE SIZE (also called IPS)
NRC	NOISE REDUCTION COEFFICIENT
NT	NUMBER OF TUBES
NTS	NOT TO SCALE

F	
°F degree	FAHRENHEIT
F	FUSE
FA	FACE AREA
F.A.	FIRE ALARM
FAB	FABRICATE
FACP	FIRE ALARM CONTROL PANEL
FAS	FASTENER
FBO	FURNISHED BY OTHERS
F.C.U.	FAN COIL UNIT
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FDR	FEEDER
F.E.	FIRE EXTINGUISHER
F.E.B.	FIRE EXTINGUISHER AND BRACKET
F.E.C.	FIRE EXTINGUISHER CABINET
FF	FLASH FACING
FIN	FINISH, FINISHED
FITG	FITTING
FIX	FIXTURE
FLA	FULL LOAD AMPERES
FLEX	FLEXIBLE LIQUID TIGHT CONDUIT
FLG	FLANGE
FLR	FLOOR
FLUOR	FLUORESCENT
FN	FENCE
FOF	FACE OF FINISH
FOL	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FOSH	FACE OF SHEATHING
FP	FREEZING POINT
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FR	FRAME
F.R.	FIRE RETARDANT (RATE)
FRMG	FRAMING
FRZR	FREEZER FULL SIZE
FS	FINISH SWITCH
FSP	FIRE STANDPIPE
FSW	FLUSH SWITCH
FT	FEET, FOOT
FT LB	FOOT POUND
F.T.D.	FACIAL TISSUE DISPENSER
F.T.F.	FLOOR-TO-FLOOR
FTG	FOOTING
F.T.R.	FINNED TUBE RADIATION
F.U.	FIXTURE UNIT
FURN	FURNISH, FURNISHED
FURR	FURRED, FURRING
FLAT	OVAL DIMENSION
FVC	FIRE VALVE CABINET
G	
G	GAS (NATURAL)
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
G.B.	GRAB BAR
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INDICATOR
G.I.	GALVANIZED IRON
GKT	GASKET
GL	GLASS, GLAZING
G.L.	GRID LINE
GOL	GAUGE OUTSANDING LEG
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRADE
GRAV.	GRAVEL
GRD	GROUND
G.V.	GATE VALVE
GYP	GYPSUM
GYP BD	GYPSUM WALLBOARD
H	
H	HYDROGEN
H&S	HUB & SPIGOT
H.B.	HOSE BIBB
HBD	HARDBOARD
H.C.	HOLLOW CORE
HD	HEAD
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
He	HELIUM
Hg	MERCURY
HG	HEAT GAIN
HGR	HANGER
HGT	HEIGHT
HH	HAND HOLE
HID	HIGH INTENSITY DISCHARGE
H.M.	HOLLOW METAL
HDCP	HANDICAPPED
HOA	HAND-OFF-AUTOMATIC
HORIZ	HORIZONTAL, HORIZONTALLY
HOSP	HOSPITAL
HP	HORSE POWER
H.P.	HIGH POINT
HPS	HIGH-PRESSURE STEAM
HR	HANDRAIL
HR D.	HAIR DRYER
HS	HIGH STRENGTH
HTG	HEATING
HTHW	HIGH-TEMPERATURE HOT WATER
HTR	HEATER
HV	HIGH VOLTAGE
H&V	HEATING AND VENTILATION
HVAC	HEATING/VENTILATING/AIR CONDITIONING
HVC	HIGH LAB VACUUM
H.V.C.	HOSE VALVE CABINET
HW	HOT WATER
HWR	HOW WATER RETURN
HWY	HIGHWAY
HYD	HYDRANT, HYDRAULIC
HZ	HERTZ

CONC	CONCRETE
COND	CONDITION
CONF	CONFERENCE
CONN	CONNECT, CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CONV	CONVECTOR
COOR	CORRIDOR
COV	COVER
CP	CONDENSATE PUMP
CPT	CARPET
CR	CLASSROOM
CRS	COURSE, COURSES
CSMT	CASEMENT
CT	CONTROL TRANSFORMER or CURRENT TRANSFORMER
Cu	COPPER
CU. FT.	CUBIC FEET (FOOT)
C.U.H.	CABINET UNIT HEATER
CU IN	CUBIC INCH
CULV	CULVERT
CW	COLD WATER
CY	CUBIC YARD
CLY	CYLINDER
CV	COEFFICIENT, VALVE FLOW
D	
∆	DIFFERENCE or DELTA
DA	DISCHARGE AIR
D.A.	DOUBLE ACTING
DAT	DISCHARGE AIR TEMPERATURE
DB	DECIBEL
DBL	DOUBLE
DC	DIRECT CURRENT
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DEMO	DEMOLISH, DEMOLITION
DENS	DENSITY
DEPT	DEPARTMENT
DET	DETAIL
D.F.	DRINKING FOUNTAIN
DI	DEIONIZED WATER
DIA/Ø	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIR RADN	DIRECT RADIATION
DISC	DISCONNECT
DISCH	DISCHARGE
DISP	DISPENSER, DISPOSAL
DIV	DIVIDER, DIVISION
DL	DEAD LOAD
DMT	DEMOUNTABLE
DN	DOWN
D.O.	DOOR OPENING
DP	DEEP
DPDT	DOUBLE POLE, DOUBLE THROW
DPS	DEFERENTIAL PRESSURE SWITCH
DPT	DEW POINT TEMPERATURE
D.R.	DINING ROOM
DR	DOOR
DRN	DRAIN
DS	DOWNSPOUT
DSA	DIVISION/DEPARTMENT OF THE STATE ARCHITECT
DSW	DOOR SWITCH
DT	DRAIN TILE
D.T.C.	DRAIN TILE CONNECTOR
DUP	DUPLICATE
DW	DISHWASHER
DWG	DRAWING
DWL	DOWEL
DWR	DRAWER
DWV	DRAIN, WASTE & VENT
E	
E	EAST
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EDR	EQUIVALENT DIRECT RADIATION
E/E	END TO END
E.F.	EXHAUST FAN
EFF	EFFICIENCY
EG	EXHAUST GRILLE
E.J.	EXPANSION JOINT
EF	EACH FACE
EL	EXHAUST (GRADE)
ELEC	ELECTRIC, ELECTRICAL
ELEV	ELEVATOR
EM	EMERGENCY
EMBED	EMBEDMENT
EMT	ELECTRIC METALLIC TUBING
ENCL	ENCLOSURE
ENT	ENTERING
E.O.L.	END OF LINE
EP	ELECTRIC OPERATED PNEUMATIC SWITCH
EPNL	ELECTRICAL PANEL
EQ	EQUAL
EQIV FT	EQUIVALENT FEET
EQIV IN	EQUIVALENT INCHES
EQUIP	EQUIPMENT
ER	EXHAUST REGISTER
ES	EMERGENCY SHOWER
E.S.R.	ELASTOMERIC SHEET ROOFING
ESTR	ELECTRIC STRIKE
ET	EFFECTIVE TEMPERATURE
EUH	ELECTRIC UNIT HEATER
EVAP	EVAPORATE
EW	EMERGENCY EYE WASH
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXC	EXCAVATED
EXH	EXHAUST
EXIST	EXIST
EXP	EXPANSION, EXPANDED, EXPOSED
EXP ANCH	EXPANSION ANCHOR
EXP BOLT	EXPANSION BOLT
EXT	EXTERIOR
F	
°F degree	FAHRENHEIT
F	FUSE
FA	FACE AREA
F.A.	FIRE ALARM
FAB	FABRICATE
FACP	FIRE ALARM CONTROL PANEL
FAS	FASTENER
FBO	FURNISHED BY OTHERS
F.C.U.	FAN COIL UNIT
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FDR	FEEDER
F.E.	FIRE EXTINGUISHER
F.E.B.	FIRE EXTINGUISHER AND BRACKET
F.E.C.	FIRE EXTINGUISHER CABINET
FF	FLASH FACING

A	
A°	ZERO / PURIFIED AIR
A or AMP	AMPERES
ABR	ABRASIVE
ABS	ABSOLUTE
A/C	AIR CONDITIONING
AC	ALTERNATING CURRENT
ACB	AIR CIRCUIT BREAKER
ACC	ACCESS, ACCESSIBLE
ACFM	CUBIC FEET PER MINUTE (ACTUAL CONDITIONS)
ACI	AMERICAN CONCRETE INSTITUTE
ACST	ACOUSTIC, ACOUSTICAL
AD	AREA DRAIN
A.D.	ACCESS DOOR
ADDNL	ADDITIONAL
ADJ	ADJACENT, ADJUSTABLE
ADP	APPARATUS DEW POINT
A/E	ARCHITECT/ENGINEER
AF	AMPERE FRAME (Breaker Rating)
A.F.F.	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFS	ABOVE FINISH(ED) SURFACE
AGG	AGGREGATE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING RATING (Capacity)
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ALUM	ALUMINUM
AMB	AMBIENT
AMP	AMPERE
AMT	AMOUNT
ANCH	ANCHOR
ANG	ANGLE
ANOD	ANODIZED
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE, APPROXIMATELY
APT	APARTMENT
Ar	ARGON
AR	ANCHOR ROD
ARCH	ARCHITECT, ARCHITECTURAL
AS	AMP SWITCH
ASPH	ASPHALT
ASR	AUTOMATIC SPRINKLER RISER
ASTM	AMERICAN SOCIETY FOR TESTING MATERIAL
ASSY	ASSEMBLY
AT	AMPERE TRIP (Breaker Rating)
ATM	ATMOSPHERE
ATS	AUTO TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AV	ACID RESISTANT VENT
AVG	AVERAGE
AW	ACID RESISTANT WASTE
AWG	AMERICAN WIRE GAUGE
B	
B&S	BELL & SPIGOT
B/B	BACK TO BACK
B/C	BACK OF CURB
BC	BOTTOM CHORD
BD	BOARD
BETW	BETWEEN
BEV	BEVEL, BEVELED
B.E.	BOTTOM ELEVATION
B.E.J.	BRICK EXPANSION JOINT
B.F.	BARRIER FREE
BHP	BRAKE HORSEPOWER
BIT	BITUMINOUS
BKD	BACKBOARD
BKGD	BACKGROUND
BKR	BREAKER
B.L.	BUILDING LINE
BLDG	BUILDING
BLKG	BLOCKING
BM	BEAM, BENCH MARK
BOF	BOTTOM OF FOUNDATION
BP	BOILING POINT
B.O.D.	BOTTOM OF DUCT
B.O.P.	BOTTOM OF PIPE
B.O.S.	BOTTOM OF STEEL
BOT	BOTTOM
B.R.	BEDROOM
BRCG	BRACING
BRG	BEARING
BRKT	BRACKET
BS	BOTH SIDES
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
B.U.R.	BUILT-UP ROOFING
BW	BOTH WAYS
C	
°C	degree CELSIUS
CA	COMPRESSED AIR
CANT	CANTILEVER
CAT	CATALOG
CAP	CAPACITY, CAPACITOR
CATV	CABLE TELEVISION
CB	CATCH BASIN (CIVIL DWGS ONLY)
CB	CIRCUIT BREAKER (ELECTRICAL DWGS ONLY)
CBC	CALIFORNIA BUILDING CODE
CBU	CEMENTITIOUS BACKER UNIT
C/C	CENTER TO CENTER
C.C.T.	CUBICLE CURTAIN TRACK
CCTV	CLOSED CIRCUIT TELEVISION
CCW	COUNTERCLOCKWISE
C.D.	CUP DISPENSER
CEM	CEMENT
CER.T.	CERAMIC TILE
CERT	CERTIFIED
CFM	CUBIC FEET PER MINUTE
C.G.	CORNER GUARD
CHAM	CHAMFER
CHAN	CHANNEL
CHBD	CHALKBOARD
CHKD/PL	CHECKERED PLATE
CIR	CIRCLE, CIRCULAR
CIRCUM	CIRCUMFERENCE
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION OR CONTROL JOINT
CKT	CIRCUIT
CL	CENTERLINE
CLG	CEILING
CLG LOAD	COOLING LOAD
CLL	CONTRACT LIMIT LINE
CLR	CLEAR, CLEARANCE
CLRM	CLASSROOM
CMPR	COMPRESSOR
CMU	CONCRETE MASONRY UNIT(S)
CNTR	COUNTER
CO	CARBON MONOXIDE
C.O.	CLEAN OUT
CO2	CARBON DIOXIDE
COEF	COEFFICIENT
COL	COLUMN
COMB	COMBINATION
COMPO	COMPOSITION
CONC	CONCRETE

WAYNE STATE UNIVERSITY

WSU Project Number 211-277899

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48033 | USA

(T) 248 262 1500

WWW.HED.DESIGN

PROJECT NUMBER:
2016-01118-000

SHEET TITLE:
Abbreviations

SHEET NO:
AG-11

MAXIMUM ALLOWABLE HAZARDOUS MATERIALS PER CONTROL AREA (BASEMENT)

MATERIAL	CLASS	STORAGE ONLY			USE - CLOSED CONTAINER SYSTEMS			USE - OPEN CONTAINER SYSTEMS	
		SOLID	LIQUID	GAS	SOLID	LIQUID	GAS	SOLID	LIQUID
COMBUSTIBLE LIQUID	II	N/A	360 gal.	N/A	N/A	180 gal.	N/A	N/A	45 gal.
	IIA		990 gal.			495 gal.			120 gal.
	IIIB		N/L			N/L			N/L
COMBUSTIBLE FIBER	LOOSE	75 c.f.	N/A	N/A	75 cf.	N/A	N/A	15 c.f.	N/A
	BALED	750 c.f.			750 c.f.			150 c.f.	
CRYOGENICS, FLAMMABLE		N/A	67.5 gal.	N/A	N/A	67.5 gal.	N/A	N/A	15 gal.
CRYOGENICS, OXIDIZING		N/A	67.5 gal.	N/A	N/A	67.5 gal.	N/A	N/A	15 gal.
EXPLOSIVES		1.5 lbs.	1.5 lbs.	N/A	.1875 lbs.	.1875 lbs.	N/A	.1875 lbs.	.1875 lbs.
FLAMMABLE GAS	GASEOUS	N/A	N/A	3,000 c.f.	N/A	N/A	3,000 c.f.	N/A	N/A
	LIQUIFIED		90 gal.	N/A		90 gal.	N/A		
FLAMMABLE LIQUID	1A	N/A	90 gal.	N/A	N/A	45 gal.	N/A	N/A	15 gal.
	1B		180 gal.			90 gal.			22.5 gal.
	1C		270 gal.			135 gal.			30 gal.
COMBINATION (1A, 1B, 1C)		N/A	360 gal.	N/A	N/A	180 gal.	N/A	N/A	45 gal.
FLAMMABLE SOLID		375 lbs.	N/A	N/A	187.5 lbs.	N/A	N/A	37.5 lbs.	N/A
ORGANIC PEROXIDE	UD	N/L	1.5 lbs.	N/A	.1875 lbs.	.1875 lbs.	N/A	.1875 lbs.	.1875 lbs.
	I	15 lbs.	15 lbs.		1.5 lbs.	.75 lbs.		1.5 lbs.	1.5 lbs.
	II	150 lbs.	150 lbs.		75 lbs.	75 lbs.		15 lbs.	15 lbs.
	III	375 lbs.	375 lbs.		187.5 lbs.	187.5 lbs.		37.5 lbs.	37.5 lbs.
	IV	N/L	N/L		N/A	N/L		N/L	N/L
	V	N/L	N/L		N/A	N/L		N/L	N/L
OXIDIZER	4	.75 lbs.	1.5 lbs.	N/A	.1875 lbs.	.1875 lbs.	N/A	.1875 lbs.	.1875 lbs.
	3	30 lbs.	30 lbs.		3 lbs.	3 lbs.		3 lbs.	3 lbs.
	2	750 lbs.	750 lbs.		375 lbs.	375 lbs.		75 lbs.	75 lbs.
	1	12,000 lbs.	12,000 lbs.		6,000 lbs.	6,000 lbs.		1,500 lbs.	1,500 lbs.
OXIDIZING GAS	GASEOUS	N/A	N/A	4,500 c.f.	N/A	N/A	4,500 c.f.	N/A	N/A
	LIQUIFIED		45 gal.	N/A		45 gal.	N/A		
PYROPHORIC MATERIAL		6 lbs.	6 lbs.	75 c.f.	.75 lbs.	.75 lbs.	15 c.f.	0	0
UNSTABLE (REACTIVE)	4	1.5 lbs.	1.5 lbs.	15 c.f.	.1875 lbs.	.1875 lbs.	3 c.f.	.1875 lbs.	.1875 lbs.
	3	15 lbs.	15 lbs.	150 c.f.	1.5 lbs.	.75 lbs.	30 c.f.	1.5 lbs.	1.5 lbs.
	2	150 lbs.	150 lbs.	750 c.f.	75 lbs.	75 lbs.	750 c.f.	15 lbs.	15 lbs.
	1	N/L	N/L	N/A	N/L	N/L	N/L	N/L	N/L
WATER REACTIVE	3	15 lbs.	15 lbs.	N/A	7.5 lbs.	7.5 lbs.	N/A	1.5 lbs.	1.5 lbs.
	2	150 lbs.	150 lbs.	N/A	75 lbs.	75 lbs.	N/A	15 lbs.	15 lbs.
	1	N/L	N/L	N/A	N/L	N/L	N/A	N/L	N/L
CORROSIVE		15,000 lbs.	1,500 gal.	1,215 c.f.	7,500 lbs.	750 gal.	1,215 cf.	1,500 lbs.	150 gal.
HIGHLY TOXIC		30 lbs.	30 lbs.	30 c.f.	15 lbs.	15 lbs.	30 c.f.	4.5 lbs.	4.5 lbs.
TOXIC		1,500 lbs.	1,500 lbs.	2,430 c.f.	750 lbs.	750 lbs.	2,430 c.f.	187.5 lbs.	187.5 lbs.

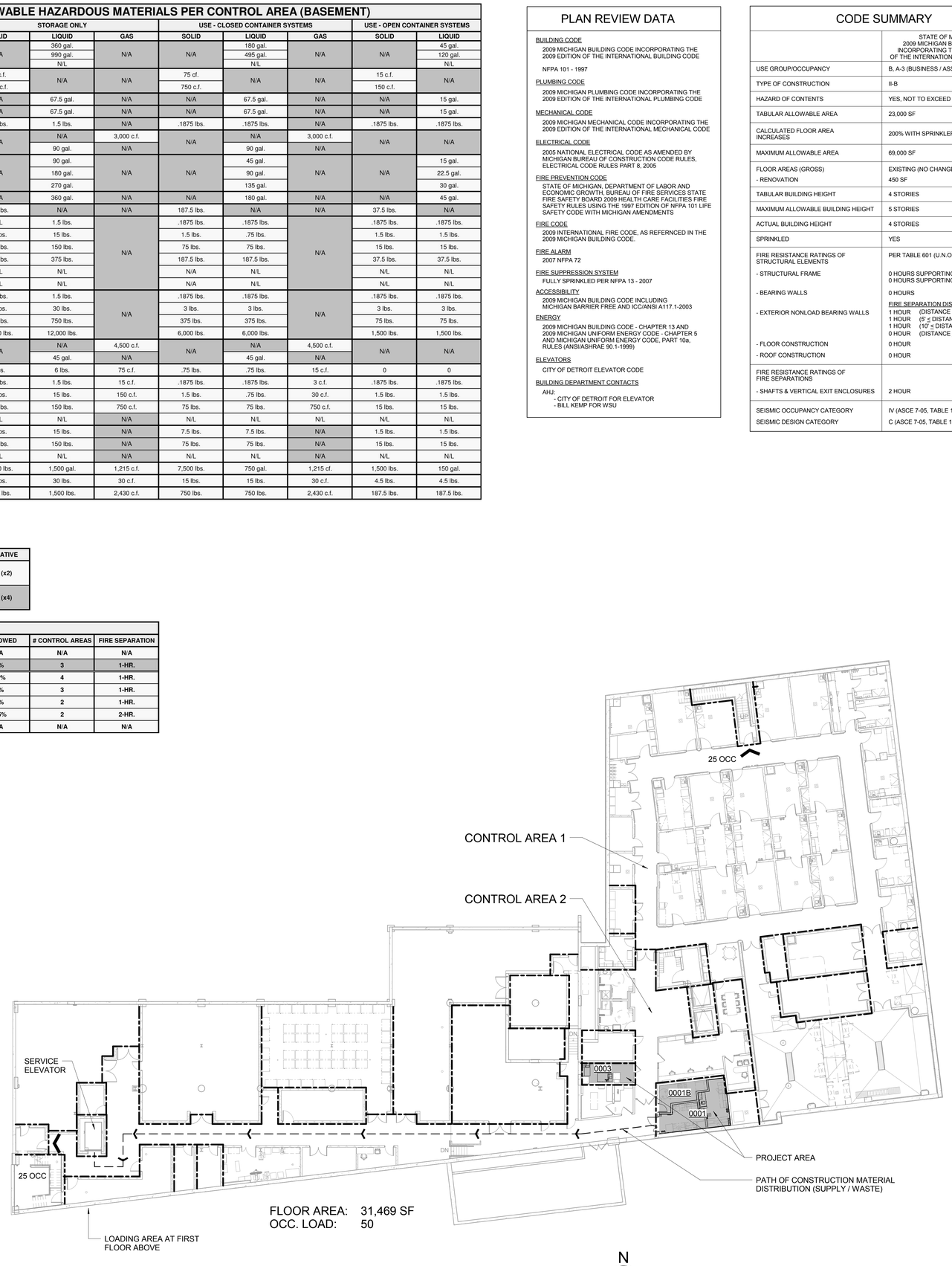
N/A = NOT APPLICABLE

N/L = NO LIMIT

QUANTITY INCREASES:	INCREASE	CUMULATIVE
AUTOMATIC SPRINKLER SYSTEM	100%	200% (x2)
STORED IN APPROVED CABINETS AND ENCLOSURES	100%	400% (x4)

TABLE 414.2.2

FLOOR LEVEL	FLOOR	% ALLOWED	# CONTROL AREAS	FIRE SEPARATION
LEVEL 2 BELOW GRADE	SUB-BASEMENT	N/A	N/A	N/A
LEVEL 1 BELOW GRADE	BASEMENT	75%	3	1-HR.
LEVEL 1 ABOVE GRADE	1ST FLOOR	100%	4	1-HR.
LEVEL 2 ABOVE GRADE	2ND FLOOR	75%	3	1-HR.
LEVEL 3 ABOVE GRADE	3RD FLOOR	50%	2	1-HR.
LEVEL 4 ABOVE GRADE	4TH FLOOR	12.5%	2	2-HR.
LEVEL 5 ABOVE GRADE	PENTHOUSE	N/A	N/A	N/A



N

BASEMENT FLOOR SCOPE SUMMARY PLAN

SCALE: 1/16" = 1'-0"

PLAN REVIEW DATA

BUILDING CODE

2009 MICHIGAN BUILDING CODE INCORPORATING THE 2009 EDITION OF THE INTERNATIONAL BUILDING CODE

NFPA 101 - 1997

PLUMBING CODE

2009 MICHIGAN PLUMBING CODE INCORPORATING THE 2009 EDITION OF THE INTERNATIONAL PLUMBING CODE

MECHANICAL CODE

2009 MICHIGAN MECHANICAL CODE INCORPORATING THE 2009 EDITION OF THE INTERNATIONAL MECHANICAL CODE

ELECTRICAL CODE

2005 NATIONAL ELECTRICAL CODE AS AMENDED BY MICHIGAN BUREAU OF CONSTRUCTION CODE RULES, ELECTRICAL CODE RULES PART 8, 2005

FIRE PREVENTION CODE

STATE OF MICHIGAN, DEPARTMENT OF LABOR AND ECONOMIC GROWTH, BUREAU OF FIRE SERVICES STATE FIRE SAFETY BOARD 2009 HEALTH CARE FACILITIES FIRE SAFETY RULES USING THE 1997 EDITION OF NFPA 101 LIFE SAFETY CODE WITH MICHIGAN AMENDMENTS

FIRE CODE

2009 INTERNATIONAL FIRE CODE, AS REFERNCED IN THE 2009 MICHIGAN BUILDING CODE.

FIRE ALARM

2007 NFPA 72

FIRE SUPPRESSION SYSTEM

FULLY SPRINKLED PER NFPA 13 - 2007

ACCESSIBILITY

2009 MICHIGAN BUILDING CODE INCLUDING MICHIGAN BARRIER FREE AND ICC/ANSI A117.1-2003

ENERGY

2009 MICHIGAN BUILDING CODE - CHAPTER 13 AND 2009 MICHIGAN UNIFORM ENERGY CODE - CHAPTER 5 AND MICHIGAN UNIFORM ENERGY CODE, PART 10a, RULES (ANSI/ASHRAE 90.1-1999)

ELEVATORS

CITY OF DETROIT ELEVATOR CODE

BUILDING DEPARTMENT CONTACTS

AHJ:
- CITY OF DETROIT FOR ELEVATOR
- BILL KEMP FOR WSU

CODE SUMMARY

	STATE OF MICHIGAN 2009 MICHIGAN BUILDING CODE INCORPORATING THE 2009 EDITION OF THE INTERNATIONAL BUILDING CODE
USE GROUP/OCCUPANCY	B, A-3 (BUSINESS / ASSEMBLY)
TYPE OF CONSTRUCTION	II-B
HAZARD OF CONTENTS	YES, NOT TO EXCEED ALLOWABLE
TABULAR ALLOWABLE AREA	23,000 SF
CALCULATED FLOOR AREA INCREASES	200% WITH SPRINKLERS
MAXIMUM ALLOWABLE AREA	69,000 SF
FLOOR AREAS (GROSS)	EXISTING (NO CHANGE)
- RENOVATION	450 SF
TABULAR BUILDING HEIGHT	4 STORIES
MAXIMUM ALLOWABLE BUILDING HEIGHT	5 STORIES
ACTUAL BUILDING HEIGHT	4 STORIES
SPRINKLED	YES
FIRE RESISTANCE RATINGS OF STRUCTURAL ELEMENTS	PER TABLE 601 (U.N.O.)
- STRUCTURAL FRAME	0 HOURS SUPPORTING FLOORS 0 HOURS SUPPORTING ROOF
- BEARING WALLS	0 HOURS
- EXTERIOR NONLOAD BEARING WALLS	FIRE SEPARATION DISTANCE (TABLE 602) 1 HOUR (DISTANCE < 5') 1 HOUR (5' ≤ DISTANCE ≤ 10') 1 HOUR (10' ≤ DISTANCE < 30') 0 HOUR (DISTANCE ≥ 30')
- FLOOR CONSTRUCTION	0 HOUR
- ROOF CONSTRUCTION	0 HOUR
FIRE RESISTANCE RATINGS OF FIRE SEPARATIONS	
- SHAFTS & VERTICAL EXIT ENCLOSURES	2 HOUR
SEISMIC OCCUPANCY CATEGORY	IV (ASCE 7-05, TABLE 1604.5)
SEISMIC DESIGN CATEGORY	C (ASCE 7-05, TABLE 1613.5.6(2))

PROJECT GENERAL NOTES

A. THE OWNER'S NORMAL OPERATIONS WILL BE CONTINUED DURING CONSTRUCTION. CONTRACTOR SHALL NOT INTERFERE WITH THESE OPERATIONS IN ANY WAY WITHOUT THE OWNER'S EXPRESSED CONSENT.

B. OWNER WILL OCCUPY PORTIONS OF THE BUILDING IMMEDIATELY ADJACENT TO AREAS OF CONSTRUCTION. CONDUCT CONSTRUCTION WORK IN A MANNER THAT WILL MINIMIZE NEED FOR DISRUPTION OF OWNER'S NORMAL OPERATIONS. REFER TO SPECIFICATIONS FOR MINIMUM ADVANCE NOTICE TO OWNER.

C. IT SHALL BE EACH TRADE CONTRACTORS RESPONSIBILITY TO VISIT THE SITE AND FAMILIARIZE HIMSELF/HERSELF WITH ALL EXISTING CONDITIONS. EACH CONTRACTOR SHALL TAKE ALL NECESSARY FIELD MEASUREMENTS AND OTHERWISE VERIFY ALL DIMENSIONS AND EXISTING CONSTRUCTION CONDITIONS INDICATED AND/OR SHOWN ON THE DRAWINGS. SHOULD ANY ERROR OR INCONSISTENCY EXIST, THE CONTRACTOR SHALL NOT PROCEED WITH THE WORK AFFECTED THEREBY UNTIL REPORTING THE SAME TO THE ARCHITECT AND THE OWNERS REPRESENTATIVE FOR CLARIFICATION AND/OR CORRECTION.

D. DIMENSIONS FOLLOWED BY +/- SHALL BE REVIEWED AND ALL NECESSARY ADJUSTMENTS MADE PRIOR TO FABRICATION AND/OR INSTALLATION OF WORK. NOTIFY ARCHITECT /ENGINEER OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

E. ALL EXISTING CONSTRUCTION AND SURFACES WHICH ARE TO REMAIN BUT ARE AFFECTED BY THE WORK UNDER THIS CONTRACT SHALL BE RESTORED AND REFINISHED TO MATCH THE CONSTRUCTION, FINISH AND ALIGNMENT OF THE EXISTING ADJACENT CONSTRUCTION AND FINISHES.

F. VERIFY QUANTITY, SIZE AND LOCATION OF ALL FLOOR, ROOF AND WALL OPENINGS FOR MECHANICAL AND ELECTRICAL WORK WITH THE APPROPRIATE TRADE. PROVIDE ALL OPENINGS SHOWN OR REQUIRED FOR COMPLETION OF WORK.

G. COORDINATE SIZE AND LOCATION OF ALL ACCESS PANELS WITH APPROPRIATE TRADES.

H. COORDINATE SIZE & LOCATION OF ALL HOUSE- KEEPING PADS AND/OR EQUIPMENT SUPPORTS WITH APPROPRIATE EQUIPMENT MANUFACTURER.

J. PROVIDE POSITIVE SLOPE TO ALL FLOOR DRAINS WHILE KEEPING FLOOR LEVEL AT WALL BASE CONDITION.

K. PROVIDE FIRE WATCH DURING FIELD CUTTING AND WELDING OPERATIONS, MEETING OWNERS REQUIREMENTS.

L. PROVIDE FIRE RETARDANT WOOD BLOCKING AND/OR 16 GA METAL PLATES BETWEEN STUDS AT ALL LOCATIONS REQUIRING BLOCKING IN WALL. THESE LOCATIONS INCLUDE BUT ARE NOT LIMITED TO GRAB BARS, CRASH RAILS, CABINETS, WALL HUNG SHELVES, ARTWORK, ETC. WHERE NEW WALL MOUNTED EQUIPMENT IS INSTALLED AT EXISTING WALLS, CONTRACTOR SHALL REMOVE WALL FINISH TO INSTALL NEW BLOCKING AS REQUIRED AND PATCH WALL BACK TO MATCH.

M. THE EXTENT OF HATCHING ON DRAWINGS IS ONLY SUFFICIENT TO INDICATE THE NATURE OF THE CONSTRUCTION OR MATERIALS. TERMINATION OF THE HATCHING SHALL NOT BE CONSTRUED TO REPRESENT A CHANGE OR TERMINATION OF MATERIAL.

N. THE CONTRACTOR SHALL VERIFY THE EXISTENCE, LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES IN WORK AREAS PRIOR TO PROCEEDING WITH CONSTRUCTION. ALL DISCREPANCIES SHALL BE DOCUMENTED AND FORWARDED TO ARCHITECT AND OWNERS REPRESENTATIVE FOR ACTION

O. IT IS THE CONTRACTORS RESPONSIBILITY TO INVESTIGATE FIELD CONDITIONS AND PROVIDE AS NEEDED TEMPORARY SUPPORTS, SHORING AND / OR PROTECTION OF EXISTING STRUCTURES AND UNDERGROUND UTILITIES DURING EXECUTION OF WORK

P. ALL WORK TO CONFIRM TO THE REQUIREMENTS OF THE LOCAL AND STATE CODES. COORDINATE WITH SPECIFICATIONS.

Q. RELEVANT DIMENSIONS AND ELEVATIONS FOR EQUIPMENT INSTALLATIONS SHALL BE VERIFIED AGAINST MANUFACTURERS CERTIFIED EQUIPMENT DRAWINGS

R. CONTRACTOR SHALL PROVIDE TEMPORARY DUST PROOF PARTITIONS AS REQUIRED, OR WHERE REQUESTED BY OWNERS' REPRESENTATIVE. PARTITIONS SHALL BE FIRE RATED WHERE REQUIRED BY CODE HAVING JURISDICTION. ALL TEMPORARY PARTITIONS SHALL BE CONSTRUCTED IN A MANNER AND OF MATERIALS OFFERING ADEQUATE PROTECTION TO OWNER'S EQUIPMENT AND PERSONNEL.

S. DO NOT SCALE DRAWINGS TO DETERMINE SIZES AND DIMENSIONS. USE FIGURED DIMENSIONS ONLY. DIMENSIONS ARE TO FINISHED FACE OF WALLS UNLESS OTHERWISE NOTED. ALL PERIMETER DIMENSIONS ARE FROM FACE OF PERIMETER WALLS.

T. ALL PENETRATIONS TO FLOORS, CEILINGS AND WALLS SHALL BE SEALED AND FIRE STOPPED TO A FIRE RATING EQUAL TO THE CONSTRUCTION BEING PENETRATED.

U. NEW WORK SHALL ALIGN WITH AND MATCH EXISTING WORK UNLESS NOTED OTHERWISE

CODE PLAN LEGEND

1HR FIRE RATED PARTITION

2HR FIRE RATED PARTITION

EXIT ACCESS

OCCUPANT LOAD

WAYNE STATE UNIVERSITY

WSU Project Number 211-277899

Wayne State University

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WWW.HED.DESIGN

PROJECT NUMBER:
2016-01118-000

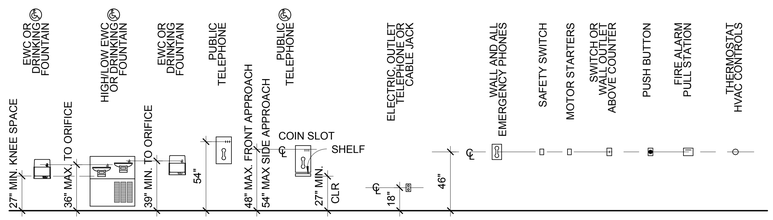
SHEET TITLE:
Code Summary / General Notes

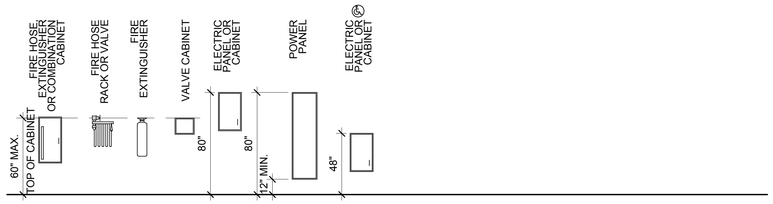
SHEET NO:
AG-21

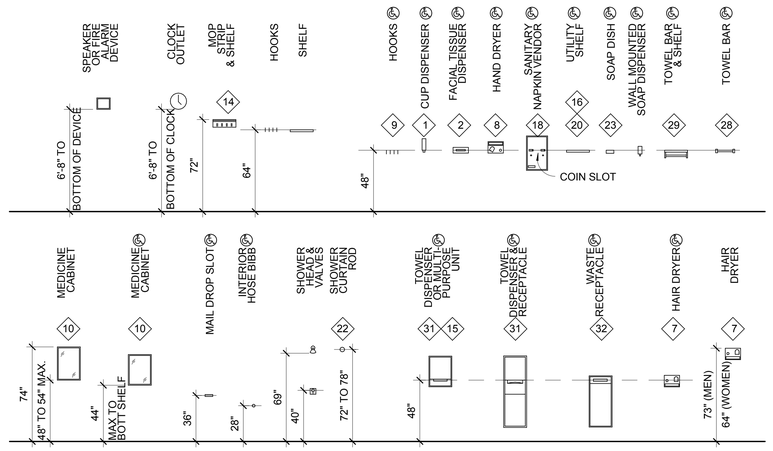
MOUNTING DIMENSIONS

NOTES:

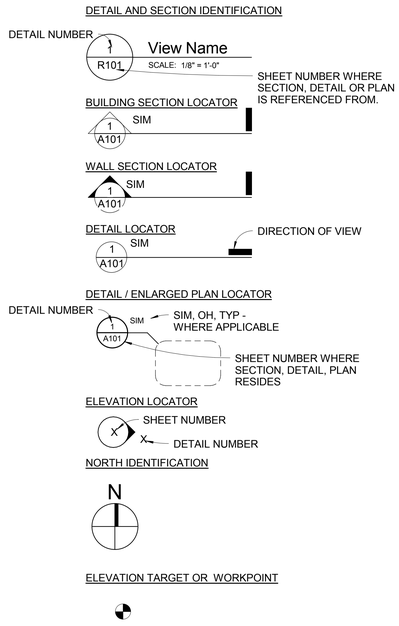
1. MOUNTING DIMENSIONS SHOW ACCESSIBLE AND NON-ACCESSIBLE CONDITIONS. WHEN ONLY ONE OPTION IS SHOWN - ALL ITEMS IN PROJECT SHALL BE ACCESSIBLE. WHEN ITEMS CAN BE ACCESSIBLE OR NON ACCESSIBLE DRAWINGS SHALL INDICATE LOCATION OF ACCESSIBLE ITEMS BY THIS SYMBOL
2. COORDINATE ITEMS SHOWN ON THIS DRAWING WITH PLANS AND SPECIFICATIONS FOR ACTUAL ITEMS USED ON THIS PROJECT. EVERY ITEM SHOWN ON THIS DRAWING MAY NOT BE USED ON THIS PROJECT.



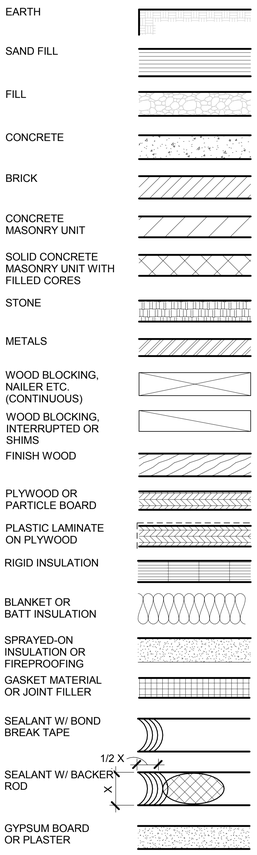




REFERENCE SYMBOLS



MATERIAL DESIGNATION LEGEND



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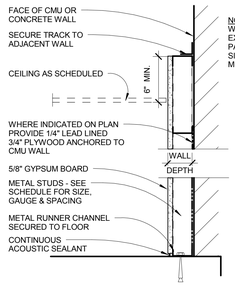
PROJECT NUMBER:
2016-01118-000

SHEET TITLE:
Material Designations / ADA Elevations

SHEET NO:
AG-31

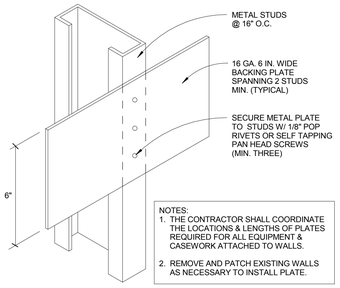
TYPE	STUD SIZE	STUD SPACING	ACOUSTIC INSUL THK	STC	WALL DEPTH	REMARKS
K1	7/8"	16" O.C.	N.A.		1 1/2"	
K2	1 1/2"	16" O.C.	N.A.		2 1/8"	
K3	2 1/2"	16" O.C.	N.A.		3 1/8"	



K GYPSUM BOARD FURRING

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

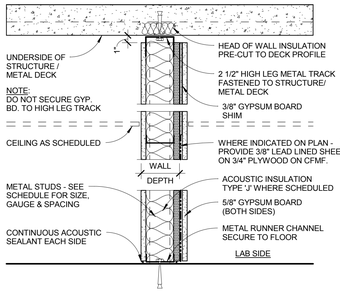
NOTE:
REFER TO DETAIL SHEET A5-82 FOR SHIELDING DETAILS.



NOTES:
1. THE CONTRACTOR SHALL COORDINATE THE LOCATIONS & LENGTHS OF PLATES REQUIRED FOR ALL EQUIPMENT & CASEWORK ATTACHED TO WALLS.
2. REMOVE AND PATCH EXISTING WALLS AS NECESSARY TO INSTALL PLATE.

TYPICAL WALL REINFORCEMENT

TYPE	STUD SIZE	STUD SPACING	ACOUSTIC INSUL THK	STC	WALL DEPTH	REMARKS
A2	3 5/8"	16" O.C.	3 1/2"	40	4 7/8"	
A4	6"	16" O.C.	6"	49	8 3/8"	CFMF 16 GA MIN.

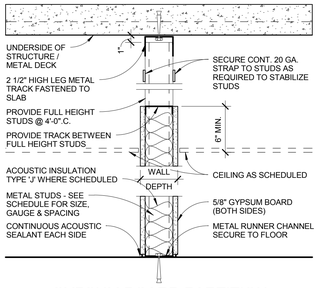


A GYPSUM BOARD PARTITION

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

NOTE:
REFER TO DETAIL SHEET A5-82 FOR SHIELDING DETAILS.

TYPE	STUD SIZE	STUD SPACING	ACOUSTIC INSUL THK	STC	WALL DEPTH	REMARKS
B1	3 5/8"	16" O.C.	N.A.		4 7/8"	
B4	6"	16" O.C.	N.A.		7 1/4"	



B GYPSUM BOARD PARTITION

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

ACCESSORY LEGEND			REFER TO SPECIFICATION SECTION 102800-A			
B.A. NO.	ITEM	MANUFACTURER	MODEL NUMBER	NOTE	FURNISHED	INSTALLED
9	HOOK STRIP	BOBRICK	B-985	1	C	C
25	SOAP DISPENSER	DIAL COMPLETE	FOAM DISPENSER 1 LITRE SMOKE PART # CM-K-00396		C	C
LEGEND: C=CONTRACTOR O=OWNER						
NOTE 1: PROVIDE WALL REINFORCEMENT - SEE THIS SHEET FOR DETAIL.						
REFER TO MOUNTING DIMENSIONS & TYP. DETAILS ON SHEET AG-31						

BASEMENT ROOM 0001 FINISH SCHEDULE

ROOM NO.	NAME	FINISH FLOOR	FINISH BASE	WALL FINISH NORTH	WALL FINISH EAST	WALL FINISH SOUTH	WALL FINISH WEST	CEILING FINISH	SPECIAL FINISH NOTES
0001	RADIO CHEM LAB	EPX-1	EPX-1	EP-1	EP-1	EP-1	EP-1	ACP-3	
0001B	PUMP RM	EX SC-1	EX / RB-1	EX PT-1	PT-1	PT-1	EX PT-1	EX	MATCH EXISTING FINISHES, TYP.
0003	INSTRU.	EX EPX-1	EX EPX-1	EX PT-1	EX PT-1	EX PT-1	EX PT-1	EX	EXISTING FINISHES TO REMAIN
X0511	EX. CORRIDOR	EX EPX-1	EX EPX-1	EX PT-1	EX PT-1	EX PT-1	EX PT-1	EX	EXISTING FINISHES TO REMAIN
X0517	EX. CORRIDOR	EX EPX-1	EX EPX-1	EX PT-1	EX PT-1	EX PT-1	EX PT-1	EX	EXISTING FINISHES TO REMAIN

FINISH MATERIALS LIST - ROOM 0001

NUMBER	MATERIAL	MANUFACTURER	STYLE	PRODUCT #	COLOR	COMMENTS
CEILING						
ACP-3	ACOUSTIC CEILING PANEL	ARMSTRONG CEILINGS	CLEAN ROOM OPTIMA	3215	WHITE	SIZE: 2' x4' x 1" GRID: 15/16" TEGULAR SUPRAFINE, WHITE
FLOORING						
EPX-1	EPOXY FLOORING	STONHARD	STONCLAD		PEWTER	LOCATION:WET LAB. INTEGRAL 4" EPOXY BASE, SEE 7/A5-81
PAINT						
EP-1	EPOXY PAINT	BENJAMIN MOORE	SEE SPEC	PM-3	DECORATORS WHITE	LOCATION: WET LAB WALLS
PT-1	PAINT	BENJAMIN MOORE	SEE SPEC, LOW VOC	PM-3	DECORATORS WHITE	LOCATION: WALLS THROUGHOUT, CEILINGS
PT-2	PAINT	PITTSBURGH PAINT	SEE SPEC, LOW VOC	513-5	SHARKSKIN	LOCATION: DOOR FRAMES, ACCENT WALLS
RUBBER BASE						
RB-1	RUBBER BASE	JOHNSONITE	4"H X 120"L X 1/8" THICK - COVE BASE	24	GREY HAZE	LOCATION: WET LAB

BASEMENT ROOM 0001 DOOR SCHEDULE

DOOR NO.	DOOR OPENING SIZE W	X	H	DOOR TYPE	DOOR MATL	DOOR FINISH	FRAME TYPE	FRAME MATL	FRAME FINISH	DETAILS HEAD	DETAILS JAMB	HW SET No.	HW SET LL	REMARKS
0001	5' - 0"	X	8' - 0"	F	HM	PT-2	1	HM	PT-2	6/A5-81	6/A5-81	101	C	3'-6" ACTIVE LEAF, CARD READER
0001B	2' - 10"	X	8' - 0"	F	HM	PT-2	1	HM	PT-2	6/A5-81	6/A5-81	102	C	
0003	3' - 0"	X	8' - 0"	EX	EX	EX	EX	EX	EX	-	-	103		EXISTING DOOR, CARD READER, REMOVE DOOR LABEL

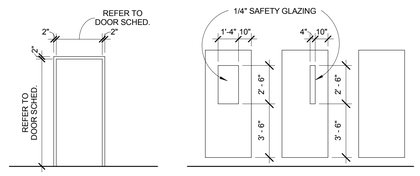
LEGEND: (MATL.) MATERIALS:

AL	ALUMINUM	SS	STAINLESS STEEL
EX	EXISTING	ST	STEEL
GL	GLASS	WD	WOOD
HM	HOLLOW METAL		

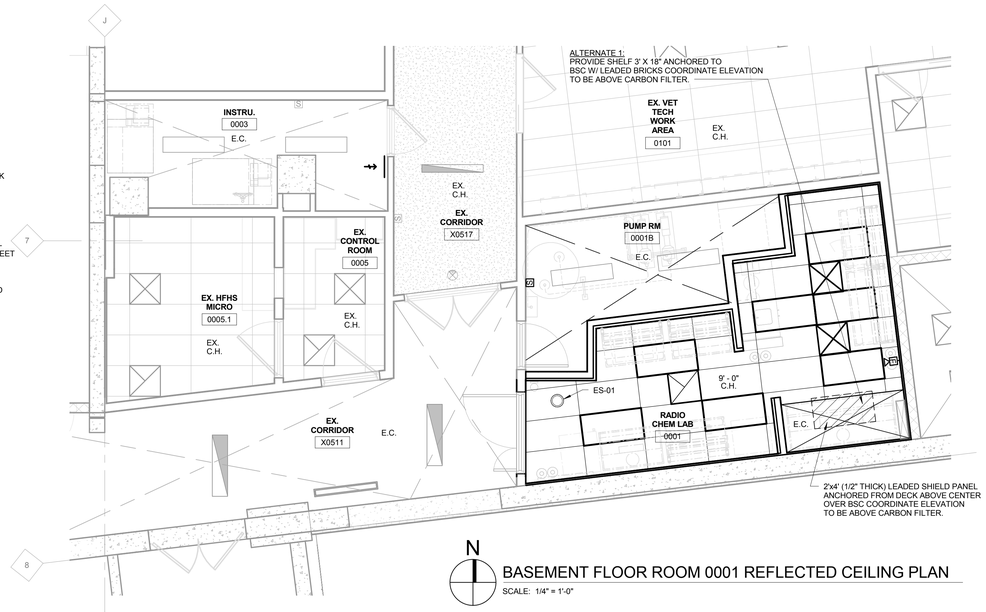
(LL) UL LABELS:

A	3 HR. "A" LABEL	C	3/4 HR. "C" LABEL
B	1-1/2 HR. "B" LABEL	D	20 MIN.
B.1	1 HR. "B" LABEL		

NOTES:
1. ALL DOORS AND FRAMES TO MATCH EXISTING COLORS, MATERIALS, HARDWARE, FINISHES UNLESS NOTED OTHERWISE.
2. ALL DOORS ARE 1 3/4" THICK AND UNDERCUT 5/8" UNLESS NOTED OTHERWISE.

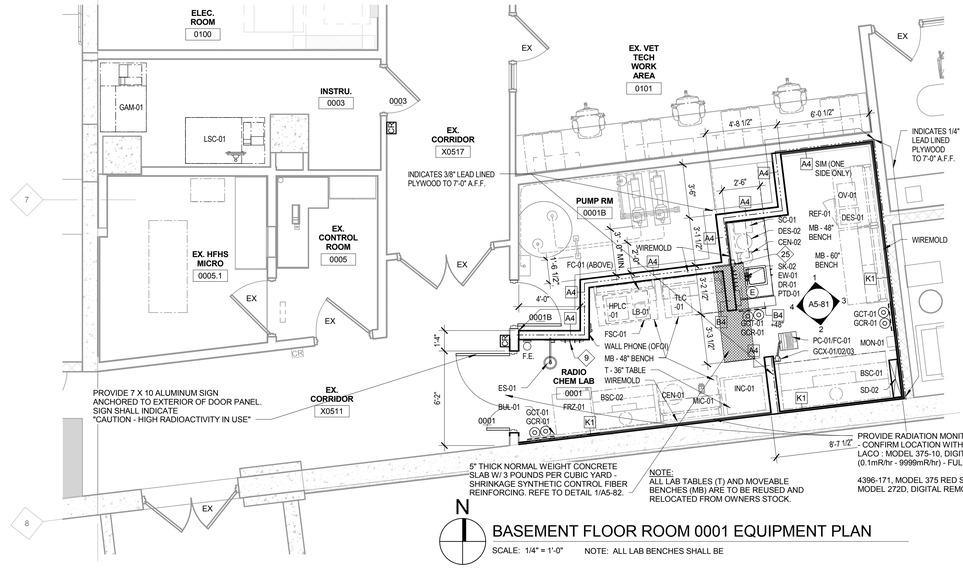


DOOR AND FRAME TYPES



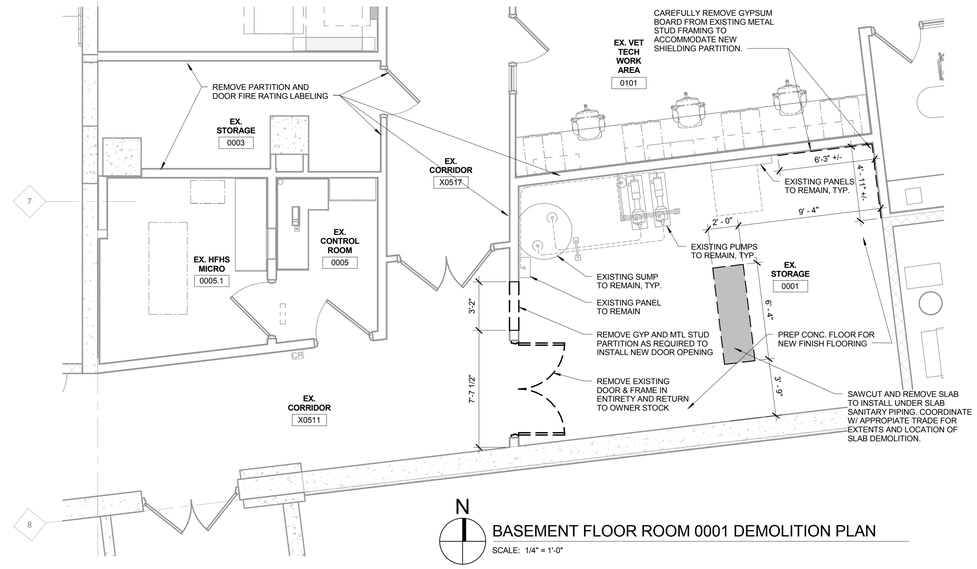
N BASEMENT FLOOR ROOM 0001 REFLECTED CEILING PLAN

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



N BASEMENT FLOOR ROOM 0001 EQUIPMENT PLAN

SCALE: 1/4" = 1'-0" NOTE: ALL LAB BENCHES SHALL BE



N BASEMENT FLOOR ROOM 0001 DEMOLITION PLAN

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

FLOOR PLAN LEGEND

- COL — EXISTING COLUMN LINE
- XXX — INDICATES ROOM NUMBER SUFFIX DENOTES NUMBER OF ADDITIONAL DOOR IN ROOM
- NEW DOOR
- 4" TYP (U.O.N.)
- X — PARTITION TYPE
- ROOM NAME XXXX — ROOM NAME & NUMBER
- FD — FLOOR DRAIN (FD)
- FS — FLOOR SINKS (FS)
- TD — TRENCH DRAIN (TD)
- CR — DOOR ACCESS CONTROL CARD READER
- PUSH BUTTON FOR DOOR AUTO OPERATOR
- FEC — FIRE EXTINGUISHING CABINETS
- LEAD LINED PLYWOOD TO 7'-0" A.F.F. U.O.N.

CEILNG PLAN LEGEND

- 1HR FIRE RATED PARTITION
- 2HR FIRE RATED PARTITION
- 2 x 4 ACOUSTIC CEILING PANEL IN SUSPENSION SYSTEM
- $ — SWITCH
- EXIT SIGNAGE ARROW DESIGNATIES EGRESS DIRECTION
- S — SMOKE DETECTORS
- M — MOTION SENSOR
- S — SPEAKER (GRILLE)
- DOWN LIGHTS
- FLUORESCENT FIXTURE (REFER ELEC. DWGS)
- SUPPLY AIR DIFFUSER
- RETURN AIR DIFFUSER
- SUPPLY AIR DIFFUSER
- LINEAR DIFFUSER
- J — JUNCTION BOX IN CEILING
- # — LIGHT SENSOR
- C.J. — GYPSUM BOARD CONTROL JOINT. EXTEND CONTROL JOINT UP VERTICAL FACE OF SOFFIT WHERE APPLICABLE
- PATTERN INDICATES PANELS AND GRID ARE CUT BASED ON FIELD CONDITIONS AND GRID LAYOUT. WHERE CEILING PANELS ARE LARGER THAN 2'-0", CUT PANELS FROM 2x4 CEILING PANELS (TYPICAL)
- E.C. — EXPOSED CONSTRUCTION - PAINT NEW CONSTRUCTION TO MATCH EXISTING CONDITIONS

COUNTER / BENCHTOP SCHEDULE

ALL COUNTER / BENCHTOPS TO BE EPOXY UNLESS OTHERWISE NOTED

- (S) = STAINLESS STEEL, WITH STAINLESS STEEL CASEWORK
- (E) = EPOXY, WITH METAL LAB CASEWORK

LAB DEVICE PLAN LEGEND

MARK	SYMBOL	DEVICE
SD-		SERVICE DROP, REFER TO SHEET A5-81
EC-		EXHAUST CONNECTION, REFER TO SHEET A5-1
SK-		LAB SINK
ES-		EMERGENCY BODY SHOWER
EW-		EMERGENCY EYE FACE WASH
FH-		FUME HOOD, REFER TO SHEET A5-81
BSC-		BIOLOGICAL SAFETY CABINET
DR-		GLASS DRYING RACK
GCR-		GAS CYLINDER STORAGE RACK

DEMOLITION GENERAL NOTES

A. THE OWNER'S NORMAL OPERATIONS WILL BE CONTINUED DURING DEMOLITION. DEMOLITION CONTRACTOR SHALL NOT INTERFERE WITH THESE OPERATIONS IN ANY WAY WITHOUT THE OWNER'S EXPRESSED CONSENT.

B. OWNER WILL OCCUPY PORTIONS OF THE BUILDING IMMEDIATELY ADJACENT TO AREAS OF SELECTIVE DEMOLITION. CONDUCT SELECTIVE DEMOLITION WORK IN MANNER THAT WILL MINIMIZE NEED FOR DISRUPTION OF OWNER'S NORMAL OPERATIONS. REFER TO SPECIFICATIONS FOR MINIMUM ADVANCE NOTICE TO OWNER.

C. ALL DIMENSIONS ON DEMOLITION PLANS, SECTIONS AND DETAILS ARE TO BE COORDINATED WITH NEW WORK SCOPE AS TO EXTENT AND REQUIREMENTS OF DEMOLITION REMOVAL.

D. PROVIDE TEMPORARY BARRICADES AND OTHER FORMS OF PROTECTION TO PROTECT OWNER'S PERSONNEL AND GENERAL PUBLIC FROM INJURY DUE TO SELECTIVE & STRUCTURAL DEMOLITION WORK.

E. PROVIDE 1- HOUR FIRE RESISTANT CONSTRUCTION BARRIERS WHERE REQUIRED TO PROTECT EXISTING CONSTRUCTION AND OWNERS OPERATIONS.

F. PROTECT FLOORS WITH SUITABLE COVERING WHEN NECESSARY.

G. PRIOR TO CUTTING EXISTING CONSTRUCTION, LOCATE AND IDENTIFY SERVICES TO REMAIN IN OPERATION, INCLUDING ALL FLOOR PENETRATIONS. UNDOCUMENTED CONDITIONS, UTILITY RISERS, ETC. AND ANY WALLS THAT CONTAIN LIFE SAFETY VERTICAL RISERS THAT MUST REMAIN IN OPERATION DURING THE DEMOLITION WORK.

H. CONTRACTOR SHALL VERIFY ALL EXISTING BUILDING DIMENSIONS, PARTITION AND WALL LOCATIONS AND FLOOR ELEVATIONS IN FIELD AND NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES BEFORE THE START OF WORK.

J. WHEN UNANTICIPATED MECHANICAL, ELECTRICAL, OR STRUCTURAL ELEMENTS THAT CONFLICT WITH INTENDED FUNCTION OF DESIGN ARE ENCOUNTERED, INVESTIGATE AND MEASURE BOTH NATURE AND EXTENT OF THE CONFLICT AND NOTIFY OWNER'S REPRESENTATIVE.

K. MAINTAIN EXISTING UTILITIES INDICATED TO REMAIN IN SERVICE AND PROTECT THEM AGAINST DAMAGE DURING DEMOLITION OPERATIONS. DO NOT INTERRUPT UTILITIES SERVING OCCUPIED OR USED FACILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY AUTHORITIES HAVING JURISDICTION.

L. WHERE DEMOLITION IS REQUIRED BEYOND THE LIMITS OF THE CONTRACT TO ROUTE NEW DUCTWORK, PIPING, CONDUITS ETC., RATED WALLS AND SMOKE BARRIERS SHALL BE PATCHED BY CONTRACTOR REQUIRING PENETRATIONS. ALL FINISHES DAMAGED BY THE WORK SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.

M. REPAIR DEMOLITION PERFORMED IN EXCESS OF THAT REQUIRED. RETURN ELEMENTS OF CONSTRUCTION AND SURFACES TO REMAIN, TO THE CONDITION EXISTING PRIOR TO START OF OPERATIONS. REPAIR ADJACENT CONSTRUCTION OR SURFACES SOILED OR DAMAGED BY SELECTIVE DEMOLITION.

N. PROVIDE SHORING, BRACING AND ANY OTHER MEANS REQUIRED TO PROTECT AND MAINTAIN THE SAFETY, INTEGRITY AND STABILITY OF ALL EXISTING AND NEW CONSTRUCTION.

O. REMOVAL OF ITEMS NOTED INCLUDES REMOVAL OF ANCHORS, ADHESIVES, HARDWARE, CONDUIT, WIRE, PIPING, ETC. FOR A COMPLETE REMOVAL OF THE ITEMS OR SYSTEMS.

P. WHEREVER WATER CLOSETS, FLOOR SINKS OR OTHER EQUIPMENT AND RELATED PIPING ARE TO BE REMOVED, PATCH FLOOR SLAB W/ CONCRETE AS REQUIRED.

Q. SEE MECHANICAL AND ELECTRICAL DEMOLITION DRAWINGS FOR ADDITIONAL SCOPE OF DEMOLITION WORK. PATCH FINISHES TO MATCH AS REQUIRED FOR MECHANICAL / ELECTRICAL DEVICE REMOVAL.

R. DEMOLITION OF ANY EXISTING CONSTRUCTION SHALL INCLUDE WHAT IS NECESSARY AND REQUIRED TO ACCOMMODATE THE REQUIREMENTS OF NEW CONSTRUCTION. REFER TO THE APPROPRIATE DRAWINGS AS TO THE EXTENT OF NEW CONSTRUCTION TO REMAIN.

S. SURFACES SHALL BE CLEANED AND PREPPED WITHIN THE NEW MATERIALS GUIDELINES OF INSTALLATION OF THEIR PRODUCT IN EXISTING CONSTRUCTION

T. ALL DEMOLITION SHALL COMPLY WITH APPLICABLE LOCAL CODES AND STATE CODES AND ORDINANCES

U. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

FLOOR PLAN GENERAL NOTES

A. FOR TYPICAL BARRIER FREE MOUNTING HEIGHTS - SEE DWG. AG-31.

B. ALL NEW GYPSUM BOARD INFILL PARTITIONS SHALL MATCH THE TYPE, SIZE AND MATERIALS OF THE HOST PARTITION AND FINISHES PATCHED SEAMLESSLY.

C. COORDINATE PARTITION FIRE RATED REQUIREMENTS AS INDICATED ON CODE SUMMARY SHEET, DRAWING AG-21.

D. ALL WALLS TO RECEIVE 2" ACOUSTICAL INSULATION U.O.N. - TYPICAL.

E. TYPICALLY INSTALL SOAP DISPENSERS & PAPER TOWEL DISPENSER @ ALL SINKS UNLESS NOTED OTHERWISE.

F. FIELD VERIFY & CONFIRM WALL REINFORCEMENT PER DETAIL ON A5-81 AT ALL WALL-MOUNTED SHELVES AND STORAGE UNITS, MARKERBOARDS, BULLETIN BOARDS, TACKBOARDS,TELEVISIONS AND OTHER CONTRACTOR OR OWNER FURNISHED WALL- MOUNTED ITEMS (REFER TO ACCESSORIES AND EQUIPMENT SCHEDULE) SEE DWG AG-31. INSTALL MISSING REINFORCEMENT AS REQUIRED.

G. FOR ALL FLOORING TYPE CHANGES BETWEEN ROOMS - TRANSITION SHALL OCCUR @ CENTERLINE OF DOOR TYPICALLY - U.N.O.

H. COORDINATE DIMENSIONS W/ ASTERISK (IE - "X" - X") W/ EQUIPMENT VENDOR.

J. ALL DIMENSIONS ARE TO FACE OF GYPSUM BOARD OR MASONRY UNLESS OTHERWISE NOTED.

K. REFER TO SHEET A5-81 FOR TYPICAL CASEWORK ELEVATIONS & DETAILS.

CEILING PLAN GENERAL NOTES

A. SEE ELECTRICAL DRAWINGS FOR FIXTURE TYPES AND NIGHT LIGHT LOCATIONS.

B. COORDINATE CEILING SUSPENSION SYSTEMS WITH OTHER CEILING SPACE EQUIPMENT SUPPORTING DEVICES.

C. CEILING GRID SYSTEM TO BE CENTERED IN ROOM IN BOTH DIRECTIONS UNLESS NOTED OTHERWISE.

D. NO CEILING PANEL TO BE CUT TO LESS THAN 6" WIDTH @ CEILING PANEL INSTALLATION TYPICAL.

E. AT CONDITIONS WHERE CEILING TILE PADS EXCEED 2'-0" TRIM 2' X 4' CEILING PADS AS REQUIRED TO FIT.

F. SPRINKLER HEADS TO BE LOCATED IN THE CENTER OF CEILING PANELS AND/ OR PLANKS TYPICALLY.

G. COORDINATE THE LOCATION OF ESCUTCHEON PLATES AT CEILING PANEL PENETRATIONS WITH ELECTRICAL AND MECHANICAL TRADES.

PARTITION GENERAL NOTES

A. REFER TO DRAWING AP-01 FOR PARTITION LOCATIONS AND ROOM FINISH SCHEDULE.

B. PROVIDE NON-COMPOSITE METAL FRAMING ASSEMBLIES OF METAL STUD DEPTH AND SPACING AS INDICATED FOR PROJECT SPECIFIC SPANS MEETING AN ALLOWABLE DEFLECTION OF L/240 WITH MINIMUM LATERAL LOAD OF 5 PSF FOR LIMITING HEIGHTS. PROVIDE 20 GA. STUDS (MINIMUM) ON ALL FLOORS. PROVIDE HEAVIER GAUGE AND/OR WIDER FLANGE WIDTH TO MEET STATED PERFORMANCE REQUIREMENTS FOR LIMITING HEIGHTS. COMPLY WITH METAL FRAMING SUPPLIERS REQUIREMENTS FOR BRACING STUD FLANGES AND PROVIDING HORIZONTAL MECHANICAL BRIDGING AT 48" O.C. MAXIMUM VERTICAL SPACING.

C. WALL TYPES SHOW ONLY BASE WALL CONSTRUCTION. WOOD TRIM, ACOUSTICAL PANELS, ETC. MAY BE ADDED AS SCHEDULED OR DETAILED.

D. LOCATE VERTICAL CONTROL JOINTS AT 30'-0" O.C.(MAX.) OR AS SHOWN ON PLANS OR "CJ" ON ELEVATIONS.

E. AT FULL- HEIGHT PARTITIONS WHERE DUCTWORK OR OTHER OBSTACLES PREVENT EXTENSION OF ALL STUDS TO DECK, FRAME STUDS AROUND OBSTACLES WITH HEADERS AND BRACING AS NECESSARY. ATTACH DOUBLED STUDS AT ENDS TO DECK ABOVE.

F. AT PARTITIONS THAT ARE NOT FULL HEIGHT, PROVIDE FULL HEIGHT STUDS AT 4'-0" O.C.

G. PROVIDE LEAD SHIELDING IN PARTITIONS AS INDICATED AS DESIGNATED ON PLANS. PROVIDE 20 GA. MINIMUM METAL STUDS AT LEAD LINING LOCATIONS.

WAYNE STATE UNIVERSITY

WSU Project Number 211-277899

Wayne State University

IBio Radio Chemistry Facility

Detroit, Michigan

DATE	ISSUE
04/19/2016	Owner Review
06/10/2016	Construction

HED

26913 NORTHWESTERN HWY
SUITE 200
SOUTHFIELD, MICHIGAN
48033 | USA

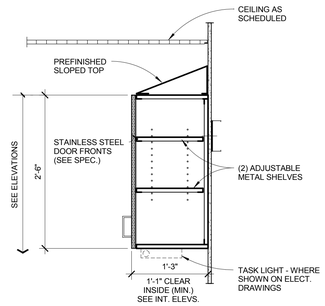
(T) 248 262 1500

WWW.HED.DESIGN

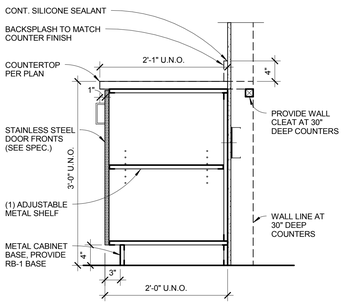
PROJECT NUMBER:
2016-01118-000

SHEET TITLE:
Radio Chem Lab Plans and Schedules

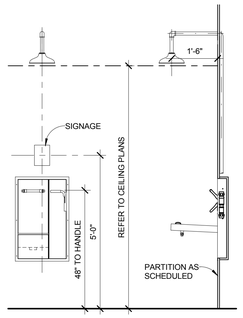
SHEET NO:
AP-01



TYPICAL LAB WALL CABINET SECTION

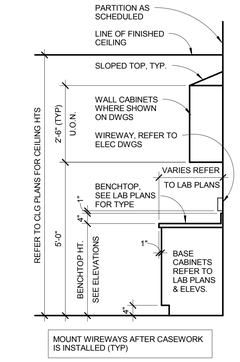


TYPICAL LAB BASE CABINET SECTION



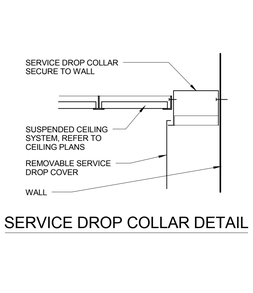
SEE PLUMBING DRAWINGS FOR FIXTURE SPECIFICATIONS

EMERGENCY SHOWER 'ES-01'

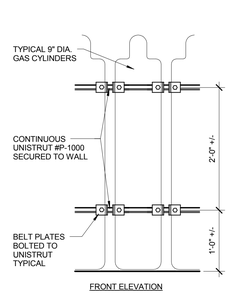


MOUNT WIREWAYS AFTER CASEWORK IS INSTALLED (TYP)

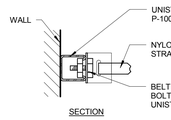
TYPICAL CASEWORK PROFILE



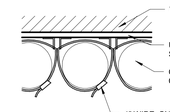
SERVICE DROP COLLAR DETAIL



FRONT ELEVATION



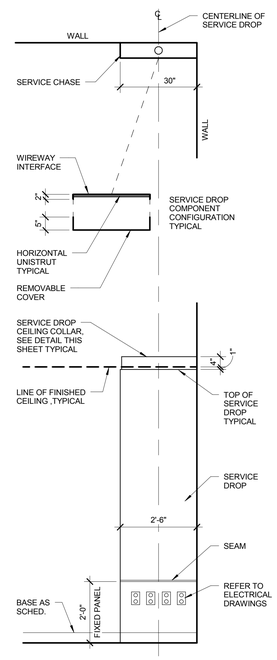
SECTION



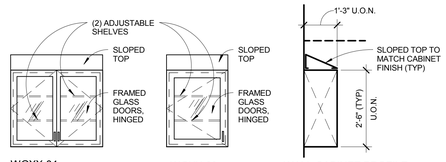
PLAN

1" WIDE, ONE PIECE NYLON STRAPPING W/ RATCHET BUCKLE AND QUICK DISCONNECT AS MFG. BY MACMASTER CARR.

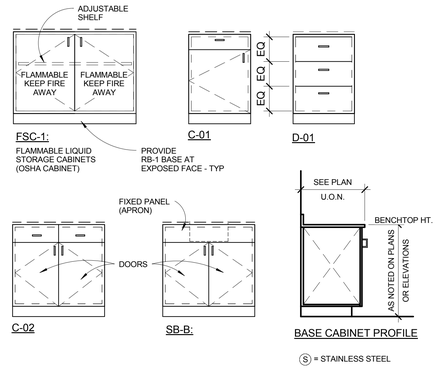
CYLINDER RACK 'GCR-01'



SERVICE DROP 'SD-02'



TYPICAL LAB WALL CABINET TYPES



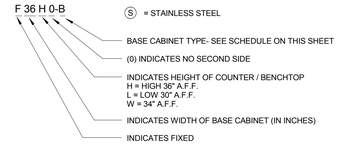
TYPICAL LAB BASE UNIT TYPES

CASEWORK GENERAL NOTES

1. CASEWORK CONTRACTOR(S) SHALL CAREFULLY EXAMINE THE DRAWINGS AND SPECIFICATIONS TO PROPERLY DETERMINE CONTRACTUAL RESPONSIBILITIES.
2. FOR ACTUAL ROOM DIMENSIONS REFER TO FLOOR PLAN ON AP-01. CONTRACTOR SHALL FIELD CHECK ALL DIMENSIONS BEFORE FABRICATION.
3. OVERALL LENGTH OF TOPS SHALL BE DETERMINED BY CASEWORK DIMENSIONS AS INDICATED ON PLANS. SUCH LENGTHS SHALL REMAIN CONSTANT REGARDLESS OF SUCCESSFUL BIDDER'S STANDARDS. TOPS SHALL OVERHANG 1" AT EACH END AND 1" FROM THE FRONT OF BASE CABINET WHEN OVERALL DIMENSIONS ARE GIVEN, 1" OVERHANG IS NOT INCLUDED.
4. OVERALL HEIGHT OF BASE CABINET TOPS MUST BE MAINTAINED AS SHOWN ON CABINET SCHEDULE.
5. INSTALLATION OF CASEWORK SHALL BEGIN AT THE HIGH POINT OF THE ROOM WITH THE LEVELERS IN AS FAR AS POSSIBLE.
6. COUNTERTOPS AND SPLASHES SHALL BE SCRIBED TO MATCH IRREGULARITIES AND CONTOURS OF WALLS.
7. CASEWORK SHALL BE INSTALLED ON TOP OF FINISHED VCT, OR WELDED SHEET FLOORING WHERE THESE FLOOR FINISHES ARE SCHEDULED.
8. PROVIDE FINISHED BACK & END PANELS TO COMPLETE THE ENCLOSURE OF ALL CABINETRY TO WALLS AND ADJACENT CABINETRY.
9. REFER TO ELECTRICAL GENERAL NOTES, FOR ADDITIONAL INFORMATION
10. PROVIDE EQUAL SIZED FILLERS AT WALLS WHERE CONTINUOUS RUN OF CASEWORK ABUTS TWO WALLS.
11. PROVIDE BRACKET AT ANY COUNTER OR SHELF SPANNING MORE THAN 4'-0" UNSUPPORTED
12. ALL SHELVING OVER 36" WIDE SHALL BE 1" THICK.
13. DOORS IN TALL CABINETS SHALL BE 1 1/4" THICK.

FIXED CASEWORK IDENTIFICATION LEGEND

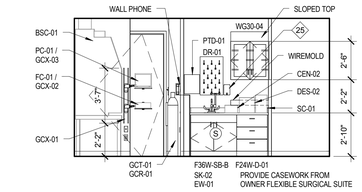
REFER TO FLOOR PLANS & INTERIOR ELEVATIONS



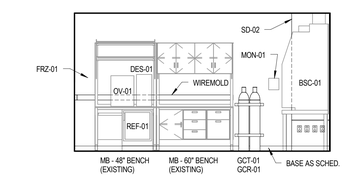
ROOM 0001 EQUIPMENT KEYNOTE MATRIX

Keynote		Basis of Design		Responsibility		Electrical							Size (in.)			Utilities																		Remarks
Code	Name/Description	Company	Model	Furnish	Install	Power				Voice	Data		W	D	H	Water				Waste	Exh.	Vac	Air		Gas				Steam	Other						
						V	PH	Cyc	Amp							Cold	Hot	Pol.	PCW	(drain)			15	90	Nat.	CO2	O2								
BSC-01	Bio-Safety Cabinet, 48" (II)	Existing (Labconco)	3620404	O	L	115	1	60	12	N	N		-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N					Existing, relocated
BSC-02	Bio-Safety Cabinet, 82" (II A2)	Existing (Nuaire)	NU-440-600	O	L	115	1	60	14	N	N		-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N					Existing, relocated
BUL-01	Bulletin Board	Existing		O	C	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
CEN-01	Centrifuge, Tabletop	Existing	IEC Clincal 428	O	O	120	1	50	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
CEN-02	Micro Centrifuge, Tabletop	Existing	Micro Spin	O	O	120	1	60	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
DES-01	Auto Desiccator, Tabletop	Existing		O	O	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
DES-02	Vacuum Desiccator, Tabletop	Existing	Dry Keeper	O	O	120	1	60	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
DR-01	Drying Rack	Kewaunee Scientific	18" x 24" w/ drip pan & drain hose	L	L	-	-	-	-	-	-		18		24	-	-	-	-	Y	-	-	-	-	-	-	-	-	-					
E-00	Electrical Outlet	See Electrical Dwgs.		E	E	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					See Electrical Drawings
E-05	Electrical GFI Duplex Outlet	See Electrical Dwgs.		E	E	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					See Electrical Drawings
ELP-00	Electrical Panel: See Elec.	See Electrical Dwgs.		E	E	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					See Electrical Drawings
ES-01	Emergency Shower & Eye Wash, Recessed	See Plumbing Dwgs.		P	P	-	-	-	-	-	-		-	-	-	Temp.	-	-	-	-	-	-	-	-	-	-	-	-	-					No Floor Drain. Pipe eyewash basin to waste piping.
EW-01	Eye/Face Wash, Deck Mounted	Speakman	SEF-1850-8	L	P	-	-	-	-	-	-		-	-	-	Temp.	-	-	-	Y	-	-	-	-	-	-	-	-	-					
FC-01	Flow-Count HPLC Detection	Existing		O	O	120	1	60	-	N	N		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
FD-00	Floor Drain	See Plumbing Dwgs.		P	P	-	-	-	-	-	-		-	-	-	-	-	-	-	Y	-	-	-	-	-	-	-	-	-					
Fxx-	Fixed Casework	Kewaunee Scientific	See Sheet A5-81	L	L	Var.					Var.					Var.	Var.	Var.		Var.	-	-	-	-	-	-	-	-	-					
FRZ-01	Lab Freezer, -20 Deg., Full Size	Existing		O	O	115	1	60	5	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
FSC-01	Flammable Storage Cabinet, Under Counter	Uline	H-4177M-Y	L	L	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Coordinate MB benchtop height
GAM-01	Gamma Counter	Existing		O	O	117	-	60	2	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
GCR-01	Gas Cylinder Restraint: Single	Kewaunee Scientific	See Sheet A5-81	L	L	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
GCR-02	Gas Cylinder Restraint: 2 Deep	Kewaunee Scientific	See Sheet A5-81	L	L	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Made from Unistrut parts
GCT-01	Gas Cylinder Tank	See Equipment Dwgs.		O	O	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Gas Type Varies
GCX-01	Seismic Channel with cover, Wall Mount	GCX	43" - WC-0002-13 with UT-0001-23	C	C	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
GCX-02	Utility Tray and Arm for GCX-01	GCX	RST-0009-09 with WMM-0002-01	C	C	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
GCX-03	Laptop Tray and Arm for GCX-01	GCX	WS-0004-56 with RST-0003-05	C	C	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
HPLC-01	High Performance Liquid Chromotography System	Existing		O	O	120	1	60	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
INC-01	Incubator, Tabletop	Existing		O	O	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	Y	-	-	-					Existing, relocated
LB-01	Lead Box, Tabletop	Existing		O	O	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
LSC-01	Liquid Scintillation Counter	Existing		O	L	120	-	60	2.5	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
MBxx-	Movable Casework	Existing	See Sheet A5-81	O	L	Var.	-	-	-	-	Var.		-	-	-	-	-	-	-	-	-	Var.	Var.	-	Var.	-	-	-	-					Existing, relocated
MIC-01	Microscope, Tabletop	Existing		O	O	120	1	60	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
MON-01	Monitor for BSC-02, Wall Mount	Existing		O	L	110	1	60	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
PC-01	Computer for BSC-02, Mobile	Existing		O	O	110	1	60	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
PRU-01	Pre-Rinse Unit, Deck Mounted w/ Vacuum Breaker	WaterSaver	PR1020VB	L	P	-	-	-	-	-	-		-	-	-	Y	-	-	-	Y	-	-	-	-	-	-	-	-	-					-
PTD-01	Paper Towel Dispensor	San Jamar	T1900SS	C	C	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Stainless Steel C-Fold/ Multi-Fold
REF-01	Lab Refrigerator, Under Counter	Existing		O	O	115	1	60	5	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated, Coordinate MB benchtop height
SC-01	Scale, Tabletop	Existing		O	O	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
SD-xx	Service Drop	Kewaunee Scientific	See Sheet A5-81	L	L	-	-	-	-	-	Y		-	-	-	Var.	Var.	Var.	-	Var.	-	Var.	Var.	-	Var.	Var.	Var.	-	-					
SK-01	Sink: Epoxy, Under mount	Kewaunee Scientific	1005-00	L	L	-	-	-	-	-	-		25	15	11	Y	Y	-	-	Y	-	-	-	-	-	-	-	-	-					
SK-02	Sink: Epoxy, Under mount	Kewaunee Scientific	1006-00	L	L	-	-	-	-	-	-		18	15	9	Y	Y	-	-	Y	-	-	-	-	-	-	-	-	-					
SK-04	Sink, Integral Stainless Steel	Kewaunee Scientific	-	L	L	-	-	-	-	-	-		25	15	10	Y	Y	-	-	Y	-	-	-	-	-	-	-	-	-					
Txx-	Table	Existing	See Sheet A5-81	O	L	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					Existing, relocated
TLC-01	TLC Imaging Scanner	Existing		O	O	120	-	60	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	Argor	-	-	-	-					Existing, relocated
WCxx-	Wall Cabinets w/ Solid Doors	Kewaunee Scientific	See Sheet A5-81	L	L	120	-	60	2.5	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
WGxx-	Wall Cabinets w/ Glass Doors	Kewaunee Scientific	See Sheet A5-81	L	L	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
WSxx-	Wall Shelving	Kewaunee Scientific	See Sheet A5-81	L	L	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					

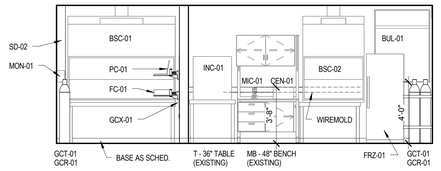
LEGEND:
E = Electrical Contractor, F = FUTURE, L = Lab Contractor, M = Mechanical Contractor, O = Owner, P = Plumbing Contractor, S = Special Contr., T = Equipment Contr., C = General Trades Contractor
Ani Wat = Animal Watering System from AWS-01 & 02, Exh. = Exhaust, Nat. Natural Gas (G), PCW = Process Chilled Water: Supply & Return, Pol. = Polished Water: Type & Quantity TBD,
Temp = Tempered Water from EMV-00, Vac = Vacuum, Var. = Varies, Y = Yes; provide service to this device



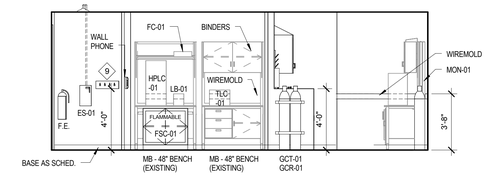
4 AP-01 WEST ELEVATION - ROOM 0001
SCALE: 1/4" = 1'-0"



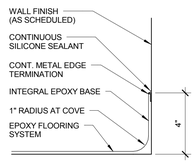
3 AP-01 EAST ELEVATION - ROOM 0001
SCALE: 1/4" = 1'-0"



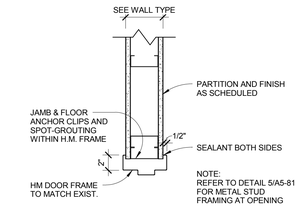
2 AP-01 SOUTH ELEVATION - ROOM 0001
SCALE: 1/4" = 1'-0"



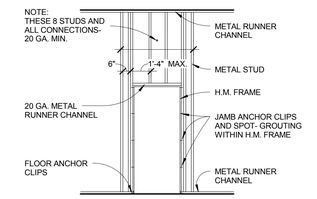
1 AP-01 NORTH ELEVATION - ROOM 0001
SCALE: 1/4" = 1'-0"



7 TYP. INTEGRAL EPOXY BASE DETAIL
SCALE: 3" = 1'-0"



6 TYP. H.M. DOOR FRAME - JAMB (HEAD SIM.)
SCALE: 1 1/2" = 1'-0"



5 TYP. METAL STUD FRAMING @ DOOR
SCALE: 1/4" = 1'-0"

WAYNE STATE UNIVERSITY

WSU Project Number 211-277899

Wayne State University

IBio Radio Chemistry Facility

Detroit, Michigan

DATE	ISSUE
04/19/2016	Owner Review
06/10/2016	Construction

HED

26913 NORTHWESTERN HWY
SUITE 200
SOUTHFIELD, MICHIGAN
48033 | USA

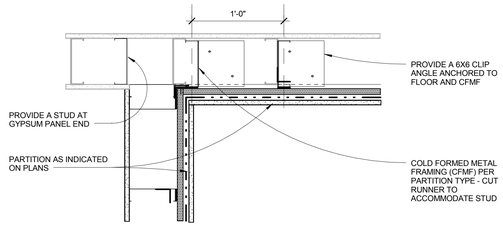
(T) 248 262 1500

WWW.HED.DESIGN

PROJECT NUMBER:
2016-01118-000

SHEET TITLE:
Lab Elevations & Details

SHEET NO:
A5-81

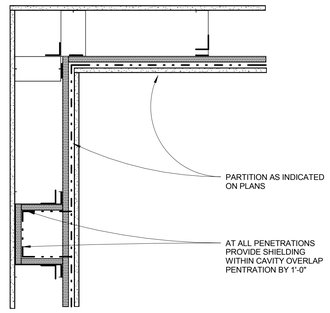


5

LEAD SHIELDING CORNER TRANSITION @ NEW AND EXISTING WALL

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

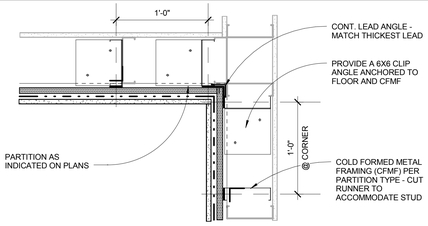
NOTE:
EXISTING STUD LOCATION REQUIRES VERIFICATION.



6

LEAD SHIELDING CORNER TRANSITION AND PENTRATION DETAIL

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

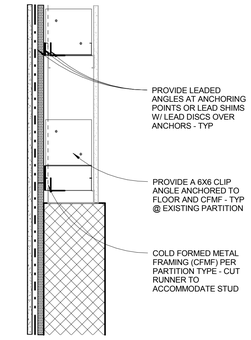


4

LEAD SHIELDING CORNER TRANSITION @ EXISTING WALL

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

NOTE:
EXISTING STUD LOCATION REQUIRES VERIFICATION.

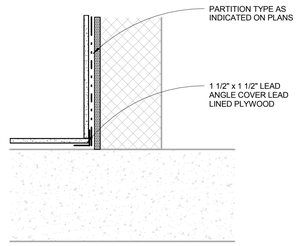


3

LEAD SHIELDING WALL TRANSITION DETAIL

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

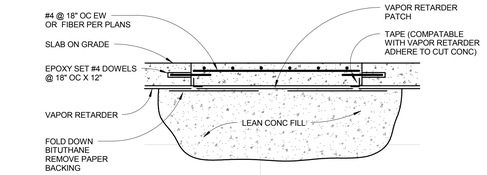
NOTE:
EXISTING STUD LOCATION REQUIRES VERIFICATION.



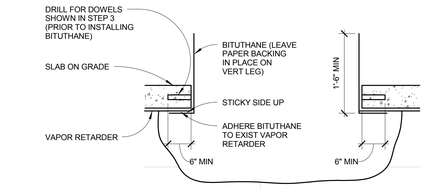
2

LEAD SHIELDING PLAN DETAIL

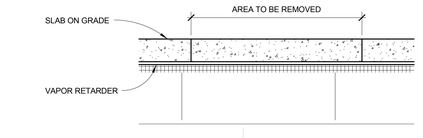
SCALE: 1 1/2" = 1'-0"



STEP THREE



STEP TWO



STEP ONE

1
TYP.

TYP VAPOR RETARDER REPAIR SEQUENCE

SCALE: N.T.S.

3/10.09

WAYNE STATE UNIVERSITY

WSU Project Number 211-277899

Wayne State University

IBio Radio Chemistry Facility

Detroit, Michigan

DATE	ISSUE
06/10/2016	Construction

HED

26913 NORTHWESTERN HWY
SUITE 200
SOUTHFIELD, MICHIGAN
48033 | USA

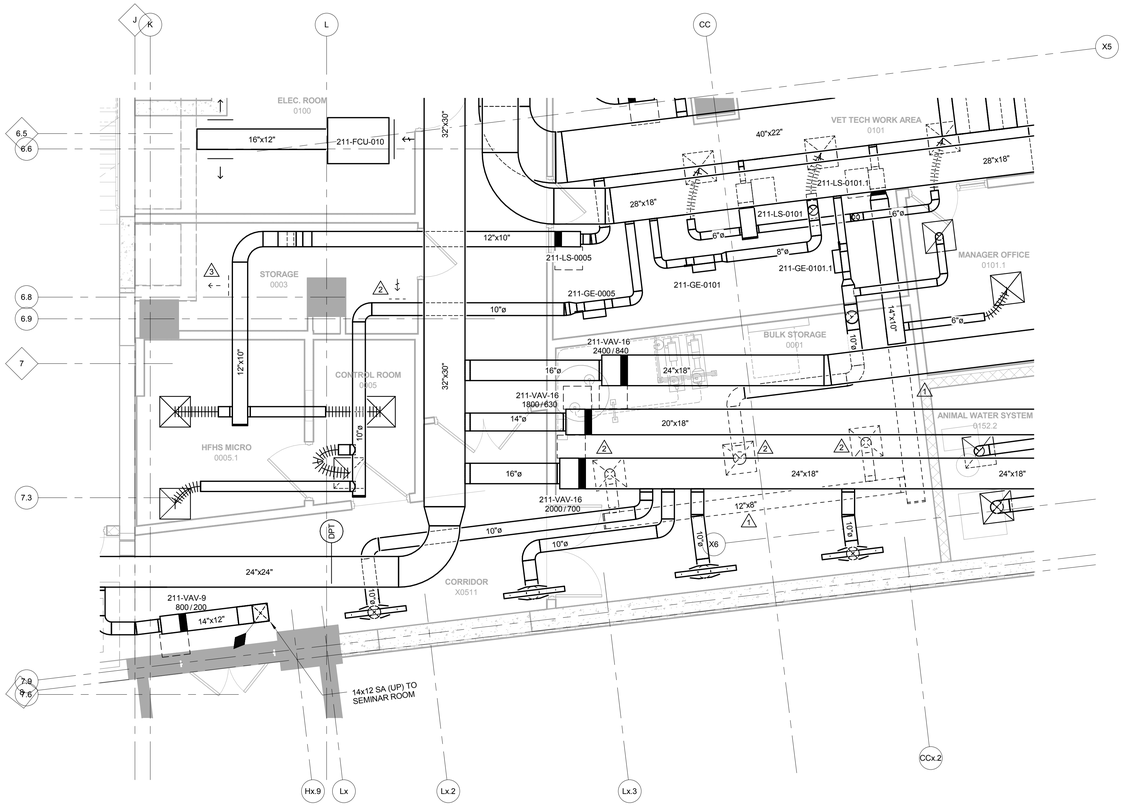
(T) 248 262 1500

WWW.HED.DESIGN

PROJECT NUMBER:
2016-01118-000

SHEET TITLE:
Shielding and Slab Details

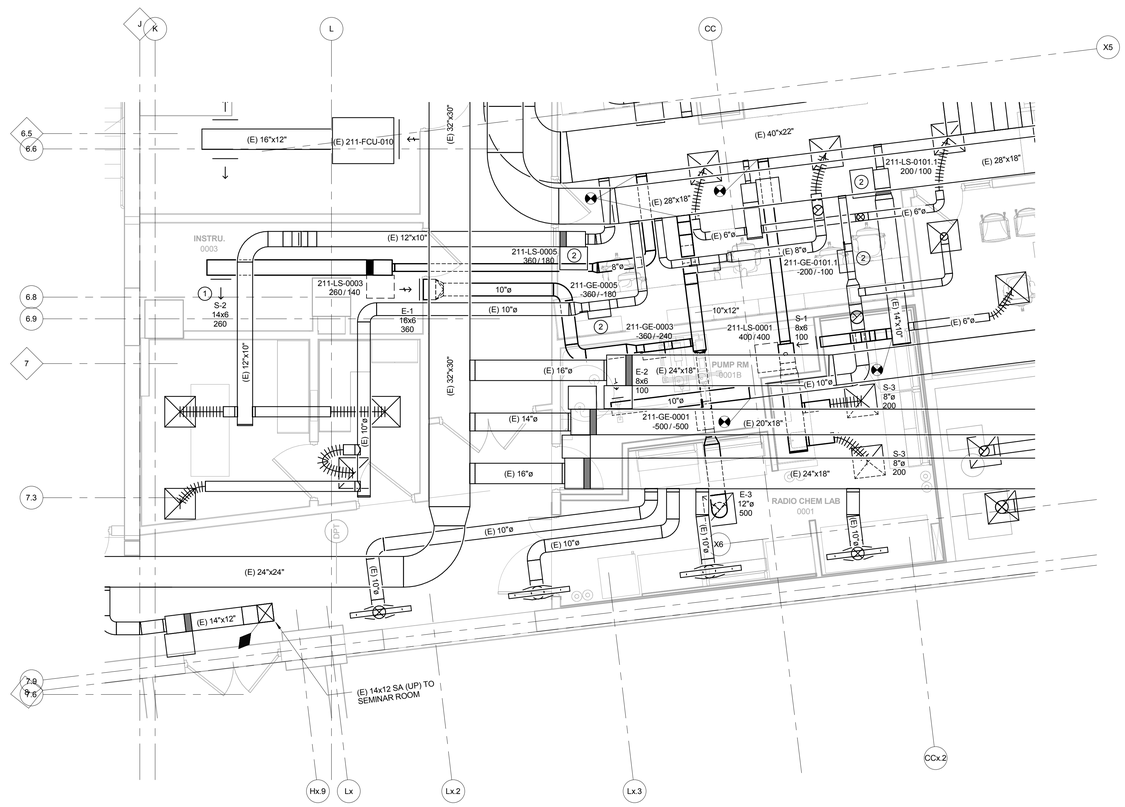
SHEET NO:
A5-82



N

PARTIAL BASEMENT HVAC DEMOLITION PLAN

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



N

PARTIAL BASEMENT HVAC NEW WORK PLAN

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

MECHANICAL DEMOLITION NOTES

1. THE DEMOLITION DRAWINGS ARE INTENDED TO CONVEY A GENERAL DESCRIPTION OF AREA AND SYSTEMS TO BE DEMOLISHED. CONDUCT A COMPLETE AND THROUGH INVESTIGATION OF THE SITE TO CONFIRM THE SCOPE OF DEMOLITION REQUIRED AND INCLUDE ALL PERTINENT COSTS IN BID. EXISTING EQUIPMENT AND/OR MATERIAL AND ASSOCIATED SYSTEMS TO REMAIN ARE SHOWN. THE EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK AND REMOVAL OF MATERIALS/COMPONENTS NOT REQUIRED FOR THE NEW AND RENOVATED SYSTEMS.
2. REPLACE ANY EXISTING MATERIALS WHICH ARE DAMAGED DURING THE COURSE OF THE DEMOLITION WORK.
3. PATCH ADJACENT FINISHED SURFACES AND BUILDING COMPONENTS DISTURBED OR DAMAGED BY THE REMOVAL OF EXISTING MATERIALS USING NEW MATERIALS TO MATCH SIMILAR INSTALLATION AS OUTLINED IN THE SPECIFICATIONS. INSTALLATION SHALL BE BY EXPERIENCED INSTALLERS QUALIFIED UNDER SPECIFICATION REQUIREMENTS.
4. REMOVE ALL HANGERS AND SUPPORTS FOR DEMOLISHED ITEMS.
5. DEMOLITION OF EXISTING FIRE PROTECTION SYSTEM INCLUDING BUT NOT LIMITED TO: BRANCH PIPING SPRINKLERS INCLUDING ACCESSORIES AND SUPPORTS IN ITS ENTIRETY. MAINTAIN ACTIVE FIRE SUPPRESSION SYSTEM DURING CONSTRUCTION.
6. DEMOLITION OF EXISTING PLUMBING WORK INCLUDING, BUT NOT LIMITED TO: DOMESTIC WATER PIPING, SANITARY DRAIN, WASTE AND VENT PIPING, PLUMBING FIXTURES INCLUDING VALVES, ACCESSORIES AND SUPPORTS IN ITS ENTIRETY.
7. DEMOLITION OF EXISTING HVAC WORK INCLUDING, BUT NOT LIMITED TO: DUCTWORK, AIR INLETS AND OUTLETS, HVAC EQUIPMENT AND ASSOCIATED PIPING, AND CONTROLS INCLUDING SYSTEM ACCESSORIES AND SUPPORTS IN ITS ENTIRETY.
8. ANY INTERRUPTIONS OF EXISTING SERVICES OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE SO AS NOT TO INTERFERE WITH THE BUILDING OPERATION
SEE NOTE #7 ABOVE.
9. ALL MECHANICAL SYSTEMS REMOVED SHALL BE REMOVED COMPLETE WITH ALL RELATED ITEMS INCLUDING HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN PIPES.
10. ALL ITEMS ON THE DEMOLITION PLAN SHALL BE CONSIDERED EXISTING UNLESS OTHERWISE NOTED.
11. ALL ITEMS AND EQUIPMENT REMOVED SHALL BE LEGALLY DISPOSED OF IN STRICT ACCORDANCE WITH APPLICABLE RULES AND CONTRACT DOCUMENTS.
12. FIELD VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING SERVICES PRIOR TO DEMOLITION.
13. ALL CONTRACTORS ARE TO USE CAUTION AND BE AWARE OF HAZARDOUS MATERIALS ON SITE.
14. ANY WALL OR FLOOR OPENINGS REQUIRED FOR THE DEMOLITION AND WHERE DEMOLISHED PIPING IS REMOVED AND NOT UTILIZED FOR NEW WORK SHALL BE FILLED WITH MATERIALS TO MATCH THE EXISTING AND PROVIDE REQUIRED FIRE RATING.
15. REFER TO ARCHITECTURAL DRAWING, AG-21 FOR KEYPLAN.

MECHANICAL DEMOLITION KEYNOTES

1. REMOVE DUCTWORK INCLUDING ALL ASSOCIATED DAMPERS, HANGERS, ETC.
2. REMOVE GRILLE/REGISTER/DIFFUSER INCLUDING ALL ASSOCIATED DUCTWORK, HANGERS, ETC.
3. REMOVE AND RELOCATE GRILLE/REGISTER/DIFFUSER. REFER TO NEW WORK PLAN FOR LOCATION. REMOVE ALL ASSOCIATED DUCTWORK, HANGERS, ETC.

LEGEND

EXISTING DUCT TO REMAIN

EXISTING DUCT TO BE REMOVED

HVAC GENERAL NOTES

1. DUCTWORK DOWNSTREAM OF A VAV/CV BOX SHALL MATCH THE BOX OUTLET SIZE (U.N.O.)
2. PROVIDE MINIMUM 36" CLEARANCE ON THE SIDE OF ALL TERMINAL UNITS FOR ACCESS CLEARANCE TO CONTROLLER.
3. PROVIDE TERMINAL UNITS WITH COIL AND CONTROLLER ON THE SAME SIDE.
4. LOCATE ALL HOT WATER DUCT COILS AND TERMINAL UNITS IN ACCESSIBLE AREAS. PROVIDE ACCESS PANELS WHERE NOT POSSIBLE. COORDINATE LOCATION OF ALL ACCESS PANELS WITH A/E FIELD REPRESENTATIVE.
5. COORDINATE ROUGH-IN LOCATIONS FOR ALL UTILITIES WITH THE EQUIPMENT SUPPLIER AND PROVIDE ALL FINAL CONNECTIONS AS REQUIRED.
6. DO NOT ROUTE ANY DUCTWORK PIPING OVER ELECTRICAL EQUIPMENT OR THROUGH THE ELECTRICAL EQUIPMENT ROOMS UNLESS IT SERVES THE ROOM.
7. FLEX DUCT SIZE SHALL MATCH NECK SIZE OF AIR INLET/OUTLET. REFER TO DETAIL ON M-3.
8. PROVIDE MANUAL VOLUME DAMPER WITH LOCKING QUADRANT IN BRANCH RUNOUT TO EACH RETURN AND EACH EXHAUST GRILLE.
9. C.F.C.I. = "CONTRACTOR FURNISHED, CONTRACTOR INSTALLED". O.F.C.I. = "OWNER FURNSHED, CONTRACTOR INSTALLED". O.F.O.I. = "OWNER FURNISHED, OWNER INSTALLED".
10. ALL DUCTWORK ABOVE INACCESSIBLE CEILINGS SHALL BE RIGID STEEL; FLEXIBLE DUCT IS NOT ACCEPTABLE.
11. BOTTOM OF ALL DUCTWORK EXCLUDING RUNOUT TO AIR INLET/OUTLET SHALL BE A MINIMUM 6" ABOVE THE CEILING GRID.
12. REFER TO ARCHITECTURAL DRAWING, AG-21 FOR KEYPLAN.
13. PROVIDE ALL NECESSARY OFFSETS.
14. COORDINATE DUCT LAYOUT WITH CABLE TRAY LAYOUT.
15. REFER TO ARCHITECTURAL DRAWINGS, AP SERIES AND AS SERIES FOR LAB EQUIPMENT DETAILS AND UTILITY ROUGH-IN LOCATIONS.

HVAC KEYNOTES

1. RELOCATED DIFFUSER.
2. REBALANCE EXISTING VAV BOX TO AIRFLOWS INDICATED.

LEGEND

LS- X/X		LAB SUPPLY TERMINAL WITH REHEAT COIL (MAX/MIN AIRFLOW)
LE- X/X		LAB EXHAUST TERMINAL (MAX/MIN AIRFLOW)
GE- X/X		GENERAL EXHAUST TERMINAL (MAX/MIN AIRFLOW)

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48033 | USA

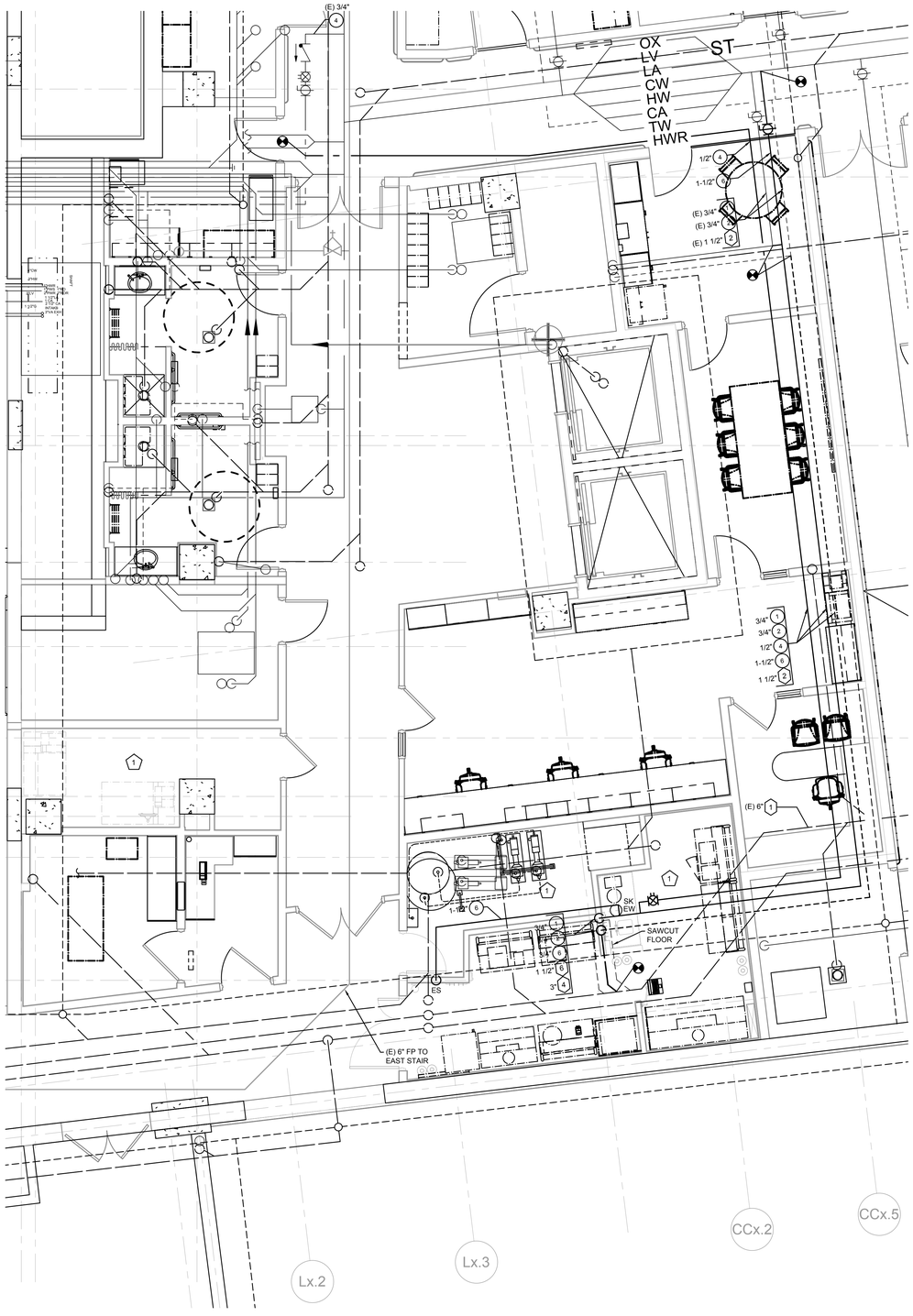
(T) 248 262 1500

WWW.HED.DESIGN

PROJECT NUMBER:
2016-01118-000

SHEET TITLE:
Partial Basement HVAC Plans

SHEET NO:
MH-01



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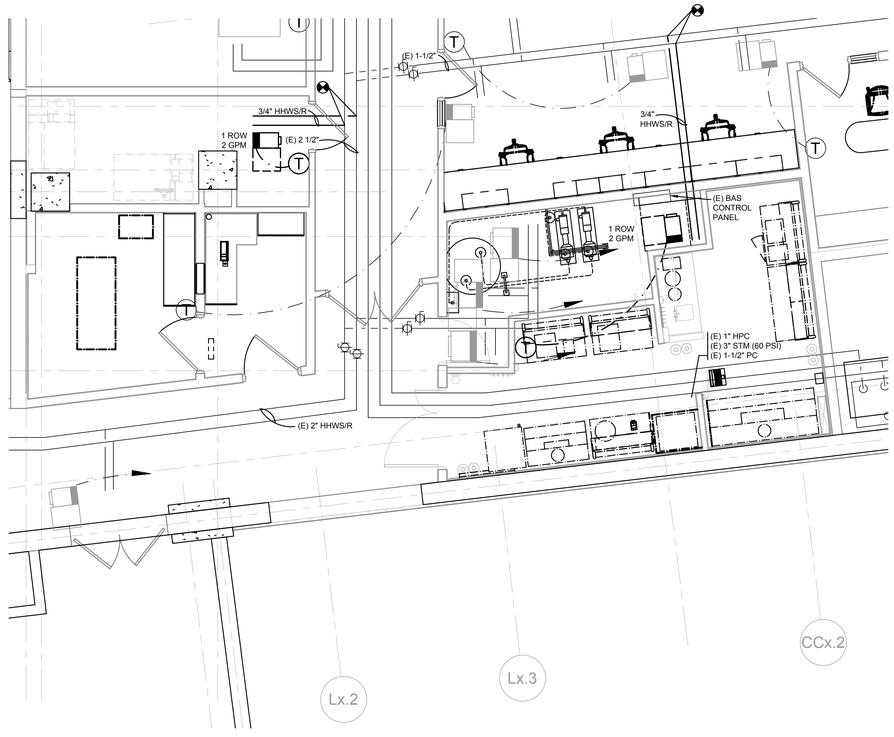
PARTIAL BASEMENT PLUMBING AND FIRE PROTECTION PLAN

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



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PARTIAL BASEMENT HVAC PIPING PLAN PLAN

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

GASES

- # 1 LV
- # 2 LA (15 PSI)
- # 3 G
- # 4 CO2

LIQUIDS

- # 1 CW
- # 2 HW
- # 3 PW
- # 4 HWR
- # 5 FP
- # 6 TW

DRAINAGE

- # 1 WASTE
- # 2 VENT
- # 3 WASTE FA
- # 4 WASTE DN
- # 5 WASTE & VENT
- # 6 VENT UP
- # 7 VENT FB

- DENOTES PIPE SIZES
FA - FROM ABOVE
FB - FROM BELOW
VTR - VENT THRU ROOF
E - EXISTING

LEGEND

- CW — DOMESTIC COLD WATER
- HW — DOMESTIC HOT WATER
- HWR — DOMESTIC HOT WATER RETURN
- TW — TEMPERED WATER
- LV — VACUUM
- LA — LAB COMPRESSED AIR (15 PSI)
- FP — FIRE LINE
- PLUMBING VENT PIPING
- WASTE BELOW GRADE
- DRAIN TILE CONNECTION

PLUMBING GENERAL NOTES

1. REFER TO PLUMBING FIXTURE PIPE SIZING SCHEDULE AND PLUMBING BRANCH PIPE SIZING SCHEDULE TO SIZE ANY PLUMBING PIPE NOT SHOWN ON THE PLANS.
2. REFER TO ARCHITECTURAL ELEVATIONS AND PLANS ("AQ" SERIES) FOR LOCATIONS OF PLUMBING FIXTURES AND LAB FIXTURES. REFER TO ARCHITECTURAL DRAWINGS, AQ SERIES AND A5 SERIES FOR LAB EQUIPMENT DETAILS AND UTILITY ROUGH-IN LOCATIONS.
3. C.F.C.I.= "CONTRACTOR FURNISHED, CONTRACTOR INSTALLED". O.F.C.I.= "OWNER FURNISHED, CONTRACTOR INSTALLED" O.F.O.I.= "OWNER FURNISHED, OWNER INSTALLED".
4. PROVIDE ROUGH-IN LOCATIONS FOR ALL PLUMBING UTILITIES WITH EQUIPMENT PROVIDER. PROVIDE FINAL CONNECTION AT ALL LAB EQUIPMENT & FIXTURES. PROVIDE BALL VALVE AT ROUGH-IN LOCATION.
5. DO NOT ROUTE ANY PIPING OVER ELECTRICAL EQUIPMENT OR ELECTRICAL EQUIPMENT ROOMS.
6. INSTALL ALL SLOPED PIPING TIGHT TO STRUCTURAL AS POSSIBLE. MAINTAIN REQUIRED SLOPE.
7. PROVIDE SURESEAL TRAP SEAL FOR ALL FLOOR DRAINS.
8. PROVIDE SHUT-OFF VALVE FOR EACH PIPING SYSTEM IN THE SUPPLY AND RETURN MAINS AND BRANCH LINES AT LOCATIONS FOR SUITABLE SERVICE. PROVIDE ALL NECESSARY OFFSETS.
9. PROVIDE ALL NECESSARY OFFSETS.
10. DIVISION 22 SHALL FURNISH AND/OR PROVIDE FIXTURES AS NOTED FROM EQUIPMENT SCHEDULE ON ARCHITECTURAL DRAWINGS, A5 SERIES. DIVISION 22 SHALL PROVIDE PLUMBING ROUGH-IN AND FINAL CONNECTIONS FOR LAB EQUIPMENT AND FIXTURES.
11. REFER TO ARCHITECTURAL DRAWING, AG-21 FOR KEYPLAN.

MECHANICAL PIPING GENERAL NOTES

1. DO NOT ROUTE ANY PIPING OVER ELECTRICAL EQUIPMENT OR THROUGH ELECTRICAL EQUIPMENT ROOMS UNLESS IT TERMINATES WITHIN AND SERVES THE ROOM.
2. PROVIDE ALL NECESSARY OFFSETS.
3. REFER TO ARCHITECTURAL DRAWING, AG-21 FOR KEYPLAN.
4. LOCATE PIPING IN SLEEVES THROUGH BEAMS WHERE INDICATED. LOCATE PIPING AS HIGH AS POSSIBLE.
5. REFER TO ARCHITECTURAL DRAWINGS FOR WALL ELEVATIONS OF THERMOSTATS AND OTHER BAS SENSORS.
6. REFER TO ARCHITECTURAL DRAWINGS, AP SERIES AND A5 SERIES FOR LAB EQUIPMENT DETAILS AND UTILITY ROUGH-IN LOCATIONS.

FIRE PROTECTION KEYNOTES:

1. REWORK FIRE SUPPRESSION WITHIN THE AREA INDICATED. MAINTAIN ACTIVE FIRE SUPPRESSION SYSTEM DURING CONSTRUCTION.

FIRE PROTECTION NOTES:

1. PROVIDE WET SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13, WAYNE STATE STANDARDS AND ALL OTHER LOCAL, STATE AND FEDERAL CODES HAVING JURISDICTION.
2. THE ENTIRE BUILDING SHALL BE FULLY SPRINKLED WITH A WET PIPE AUTOMATIC FIRE PROTECTION SYSTEM.
3. ALL LABS, MECHANICAL AND ELECTRICAL ROOMS SHALL BE BASED ON ORDINARY HAZARD, GROUP 2 OCCUPANCY AND SHALL BE HYDRAULICALLY CALCULATED AT 0.20 GPM/SF DENSITY COVERAGE OVER THE MOST REMOTE 3,000 SF OF APPLICATION.
4. ALL OFFICE AND SPECIAL EQUIPMENT AREAS SHALL BE BASED ON LIGHT HAZARD OCCUPANCY AND SHALL BE HYDRAULICALLY CALCULATED AT 0.10 GPM/SF DENSITY COVERAGE OVER THE MOST REMOTE 3,000 SF OF APPLICATION.
5. ALL AREAS WITH FLAMMABLE LIQUID STORAGE SHALL BE BASED ON EXTRA HAZARD OCCUPANCY AND SHALL BE HYDRAULICALLY CALCULATED AT 0.60 GPM/SF DENSITY COVERAGE OVER THE ENTIRE AREA OF APPLICATION.
6. THE FIRE PROTECTION CONTRACTOR SHALL CONFIRM SPRINKLER DENSITIES WITH THE OWNERS INSURANCE UNDERWRITER, FM GLOBAL.
7. PRIOR TO ANY EXISTING FIRE PROTECTION SYSTEM SHUT DOWNS, NOTIFY WSU OFFICE OF RISK MANAGEMENT:

CONTACT: WILLIAM A. KEMP
OFFICE (313) 577-3110
5700 CASS AVENUE
DETROIT, MI. 48202
E-MAIL: william.kemp@wayne.edu

8. ALL FIRE PROTECTION EQUIPMENT, DEVICES, AND MATERIALS SHALL BE UNDERWRITERS LABORATORIES (UL) LISTED AND FACTORY MUTUAL (FM) APPROVED FOR FIRE PROTECTION SERVICE AS APPLICABLE.
9. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE, LOCATE AND MOUNT ALL PIPING, SPRINKLER HEADS AND OTHER DEVICES IN ACCORDANCE WITH CODE REQUIREMENTS, EASILY ACCESSIBLE, SUCH THAT NO INTERFERENCE EXISTS WITH OTHER TRADES WORK.
10. SEE SPECIFICATIONS FOR SPRINKLER HEAD TYPES. PROVIDE CONCEALED TYPE HEADS FOR ALL AREAS WITH A CEILING. EXPOSED AREAS SHALL BE PROVIDED WITH UPRIGHTS HEADS.
11. REFER TO ARCHITECTURAL DRAWING, AG-21 FOR KEYPLAN.

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SUITE 200
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2016-01118-000

SHEET TITLE:
Partial
Basement
Piping
Plans

SHEET NO:
MP-01

GRILLE, REGISTER AND DIFFUSER SCHEDULE

MARK	MANUFACTURER AND MODEL NUMBER	MAX. NC	REMARKS REFER TO PLAN DRAWINGS FOR CFM, NECK SIZE, AND THROW PATTERN
S-1	TITUS 272FL	25	WALL MOUNTED SUPPLY GRILLE WITH 3/4" BLADE SPACING, DOUBLE DEFLECTION ADJUSTABLE BLADES. FRONT BLADES PARALLEL TO LONG DIMENSION, ALUMINUM, #26 OFF-WHITE BACKED-ON ENAMEL FINISH. NO DAMPER PROVIDED. REFER TO PLANS FOR SIZES.
S-2	TITUS 272FL	25	DUCT MOUNTED SUPPLY GRILLE WITH 3/4" BLADE SPACING, DOUBLE DEFLECTION ADJUSTABLE BLADES. FRONT BLADES PARALLEL TO LONG DIMENSION, ALUMINUM, #26 OFF-WHITE BACKED-ON ENAMEL FINISH. WITH DAMPER. REFER TO PLANS FOR SIZES.
S-3	TITUS TRITEC-AL	25	24x24 CRITICAL ENVIRONMENT CEILING DIFFUSER. TYPE 304 STAINLESS STEEL FACE WITH ALUMINIMUM BACKPAN. #26 OFF-WHITE BAKED-ON ENAMEL FINISH. NO DAMPER PROVIDED.
E-1	TITUS 56FL	25	WALL MOUNTED GRILLE WITH 3/4" BLADE SPACING, 0° DEFLECTION FIXED BLADES. FRONT BLADES PARALLEL TO LONG DIMENSION, ALUMINUM, #26 OFF-WHITE BACKED-ON ENAMEL FINISH. WITH DAMPER. REFER TO PLANS FOR SIZES.
E-2	TITUS 56FL	25	DUCT MOUNTED GRILLE WITH 3/4" BLADE SPACING, 0° DEFLECTION FIXED BLADES. FRONT BLADES PARALLEL TO LONG DIMENSION, ALUMINUM, #26 OFF-WHITE BACKED-ON ENAMEL FINISH. WITH DAMPER. REFER TO PLANS FOR SIZES.
E-3	TITUS PAR-AA	25	24"x24" PERFORATED CEILING MOUNTED GRILLE. #26 OFF-WHITE BAKED ENAMEL FINISH WITH BLACKED-OUT BACK PANEL. NO DAMPER PROVIDED. ALUMINUM

LAB SUPPLY TERMINAL UNIT (SIEMENS)

INLET (IN.)	OUTLET	FLOW RANGE	P.D. @ MAX. CFM (IN. W.C)	MAX (RADIATED) N.C. @ 1.0 IN W.C.	REHEAT COIL MBH	ROWS	MAX. FLOW	MANUFACTURER AND MODEL NUMBER	REMARKS
4	12x8	75-249	0.08	30	1.4	1	0.5	SIEMENS LOS	SEE NOTES
6	12x8	250-374	0.36	30	10.1	2	1	SIEMENS LOS	SEE NOTES
8	12x10	375-699	0.49	30	19	2	2	SIEMENS LOS	SEE NOTES
10	14x12	700-1199	0.51	40	32.5	2	5	SIEMENS LOS	SEE NOTES
12	16x15	1200-1699	0.66	40	46.1	2	5	SIEMENS LOS	SEE NOTES
14	20x17	1700-2399	0.6	40	65.1	2	6	SIEMENS LOS	SEE NOTES
16	24x18	2400-3200	0.6	40	86	2	9	SIEMENS LOS	SEE NOTES

NOTES:
1. PROVIDE FACTORY MOUNTED DDC CONTROLLER
2. PROVIDE WITH FIBER FREE LINER.
3. PROVIDE 36" LONG ATTENUATOR FOR EACH TERMINAL UNIT LOCATED IN AREAS WITHOUT A CEILING. PRESSURE DROP INCLUDES LOSSES FOR ATTENUATOR.
4. PRESSURE DROP INCLUDES COIL LOSSES
5. PROVIDE 120 V/24 VA TRANSFORMER
6. REHEAT COIL SELECTIONS SHALL BE BASED ON 50 DEG. F EAT, 140 DEG. F EWT
7. REFER TO PLANS FOR REQUIRED AIR AND WATER FLOW

LAB EXHAUST TERMINAL UNIT (SIEMENS)

INLET (IN.)	OUTLET (IN.)	FLOW RANGE	P.D. @ MAX CFM (IN. W.C.)	MAX (RADIATED) N.C. @ 1.0 W.C.)	MANUFACTURER AND MODEL NUMBER	REMARKS
4	4	75-199	0.26	30	SIEMENS LGE	
6	6	200-399	0.51	30	SIEMENS LGE	
7	7	400-674	0.60	30	SIEMENS LGE	
8	8	675-839	0.32	30	SIEMENS LGE	
9	9	840-1099	0.29	30	SIEMENS LGE	
10	10	1100-1349	0.24	40	SIEMENS LGE	
12	12	1350-1899	0.08	40	SIEMENS LGE	
14	14	1900-2599	0.12	40	SIEMENS LGE	
16	16	2600-3499	0.07	40	SIEMENS LGE	
18	18	3500-4400	0.07	40	SIEMENS LGE	

NOTES:
1. PROVIDE FACTORY MOUNTED DDC CONTROLLER
2. PROVIDE 120 V/24 VA TRANSFORMER

DUCTWORK CONST, & APPLICATION SCHEDULE

GENERAL SUPPLY/RETURN/TRANSFER/EXHAUST

DUCT	PRESSURE CLASS (IN. W.G.)	SMACNA SEAL CLASS	ASHRAE LEAK CLASS	MATERIAL	NOTES
SUPPLY FROM AHU TO TAU	+6	A	3	G-90	---
SUPPLY DOWNSTREAM FROM TAU	+2	C	N/A	G-90	---
RETURN IN SHAFTS TO RF	-3	A	3	G-90	---
RETURN BRANCHES	-2	C	N/A	G-90	---
EXHAUST ON ROOF	+/-2	A	3	ALUM.	---
RELIEF/EXH. FROM RF/EF	+3	A	N/A	G-90	---
EXHAUST STACKS	+3	WELDED	0	316L S.S.	---
ALL OTHER SUPPLY/RETURN/EXHAUST NOT SPECIFICALLY IDENTIFIED	+/-2	C	N/A	G-90	---

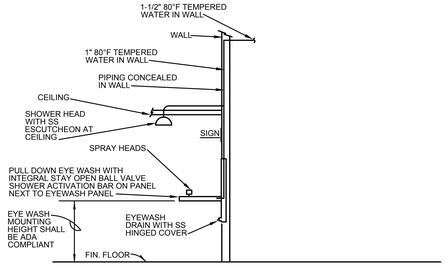
LABORATORY SUPPLY/RETURN/EXHAUST

DUCT	PRESSURE CLASS (IN. W.G.)	SEAL CLASS	LEAK CLASS	MATERIAL	NOTES
SUPPLY FROM AHU TO LTAU	+6	A	3	G-90	---
SUPPLY DOWNSTREAM FROM LTAU	+2	A	3	G-90	---
EXH. IN SHAFTS AND INACCESSIBLE LOCATIONS	-6	A	3	G-90	---
EXH. IN PENTHOUSE AND MECH. ROOMS-ACCESSIBLE	+/-6	A	3	G-90	---
EXH. ON ROOF	+/-6	A	3	G-90	---
EXH. DOWNSTREAM FROM LTAU	-6	A	3	G-90	---
EXH. UPSTREAM FROM LTAU	-2	A	3	G-90	---

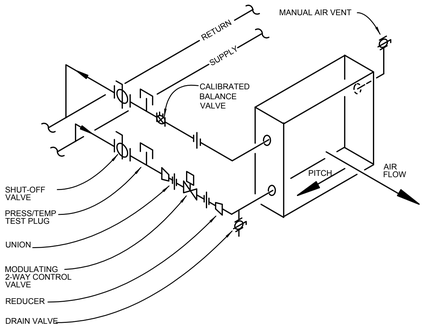
ABBREVIATIONS:
EF = EXHAUST FAN
FCU = FAN COIL UNIT
LTAU = LABORATORY TERMINAL AIRFLOW UNIT
RF = RETURN FAN
TAU = TERMINAL AIRFLOW UNIT
ECD = EPOXY POWDERED COATED DUCT

PLUMBING FIXTURE PIPE SIZING SCHEDULE

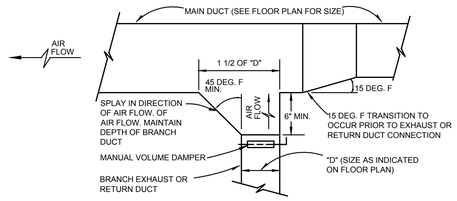
FIXTURE	OVERHEAD RUNOUT PIPE SIZE (IN)			PIPE SIZE IN WALL (IN) OR SERVICE DROP				
	CW	HW	TW	CW	HW	TW	WASTE	VENT
SINK (SK)	3/4	3/4	NA	1/2	1/2	NA	1-1/2	1-1/2
COMBINATON EMERGENCY SHOWER/ EYEWASH (ES)	NA	NA	1-1/2	NA	NA	1	NA	NA
EMERGENCY EYEWASH (EW)	NA	NA	3/4	NA	NA	1/2	NA	NA



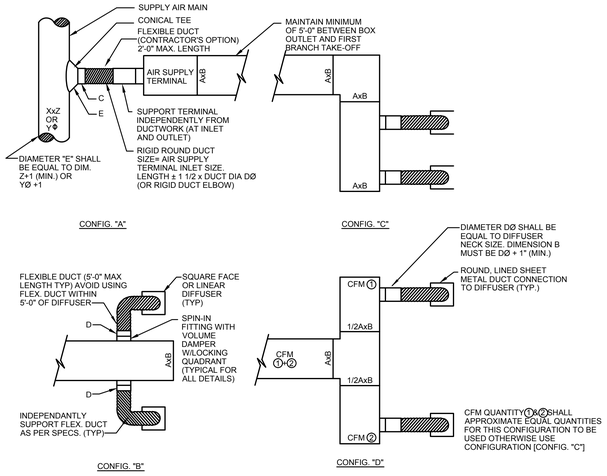
COMBINATION EMERGENCY SHOWER & EYE WASH PIPING DIAGRAM
SCALE : NO SCALE



TYPICAL REHEAT COIL PIPING DIAGRAM
SCALE : NO SCALE



EXHAUST OR RETURN AIR BRANCH DUCT CONNECTION DETAIL
SCALE : NO SCALE



SUPPLY AIR TERMINAL DUCT CONNECTIONS
SCALE: NO SCALE

NOTE:
1. AXB = OUTLET SIZE OF TERMINAL BOX PER MANUFACTURER AND CFM (PER DRAWINGS). EXTEND AXB DUCT FROM BOX FOR FULL LENGTH OF LOW PRESSURE DUCT, UNLESS OTHERWISE NOTED ON PLANS.
2. FLEX DUCT IS NOT ALLOWED IN EXPOSED CONSTRUCTION AREAS.

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SUITE 200
SOUTHFIELD, MICHIGAN
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(T) 248 262 1500

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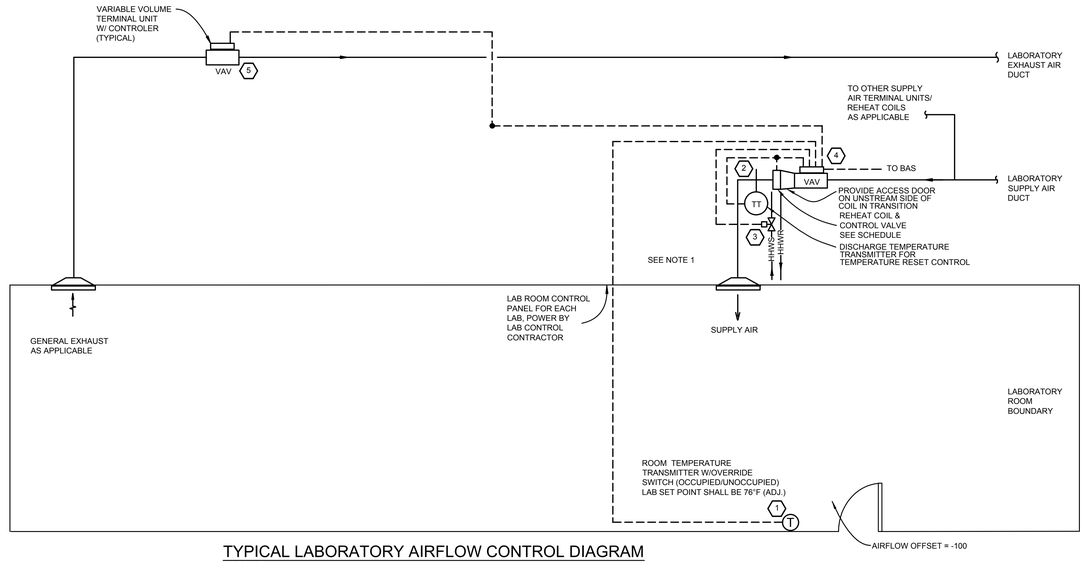
2016-01118-000

SHEET TITLE:
Mechanical Schedules and Details

SHEET NO:
M7-01



TYPICAL LABORATORY AIRFLOW CONTROL DIAGRAM

NO SCALE

SEQUENCE OF OPERATION: TYPICAL CONFIGURATION

SUPPLY AIRFLOW SHALL TRACK CHANGES IN EXHAUST AIRFLOW TO MAINTAIN A ZERO CFM OFFSET BETWEEN THE LAB AND CORRIDOR VIA FLOW TRACKING. THE TOTAL SUPPLY AIRFLOW FROM THE LAB SHALL EQUAL THE TOTAL EXHAUST MINUS FIXED OFFSET.

DURING THE OCCUPIED OR UNOCCUPIED MODE THE MINIMUM EXHAUST AIR FLOW TO THE ROOM SHALL BE AS REQUIRED FOR MAKEUP AIR.
EXHAUST REQUIREMENTS OF LAB EQUIPMENT MAY OVER-RIDE MINIMUM ACH.
THE GENERAL EXHAUST (WITH SUPPLY TRACKING) SHALL MODULATE ABOVE THIS VOLUME AS NECESSARY TO SATISFY COOLING, HEATING AND MAKEUP AIR DEMANDS. THE HEATING VALVE SHALL MODULATE AS NECESSARY TO MAINTAIN THE ROOM TEMPERATURE SET POINT. SET POINT SHALL BE (76 DEG F SUMMER/76 DEG F WINTER), ADJUSTABLE. IN THE UNOCCUPIED MODE, AS DETERMINED BY THE BAS, THE ROOMS SET POINT WILL BE ADJUSTED DOWN 5 DEGREES IN THE WINTER AND UP 5 DEGREES IN THE SUMMER. ROOM TEMPERATURE CONTROLS SHALL MAINTAIN THE SPACE TEMPERATURE @ +/- 2 DEGREES FAHRENHEIT OF SET POINT EVENLY THROUGH OUT THE SPACE.

SEE THE PLANS FOR QUANTITY AND CFM FOR SUPPLY AND EXHAUST TERMINAL UNITS. THE MAXIMUM AND MINIMUM VALUES FOR EACH VAV DEVICE ARE INDICATED.

DISCHARGE AIR TEMPERATURE CONTROL :

CALIBRATE THE PID LOOPS FOR EACH LAB CONTROLLER SERVING VARIABLE VOLUME VALVES AND THEIR ASSOCIATED HEATING CONTROL VALVES. THE SUPPLY AIR CONTROLLER CONTROLS THE REHEAT COIL BASED ON THE DISCHARGE AIR TEMPERATURE SET POINT RESET BY THE ROOM TEMPERATURE TRANSMITTER IN A 2:1 (ADJ) RATIO. FOR EVERY +/- 1 DEGREE CHANGE IN ROOM TEMPERATURE THE DISCHARGE TEMPERATURE CHANGES +/- 2 DEGREES POINT.

NOTES (LABS):

1. MOUNT LAB ROOM CONTROL PANEL ABOVE CEILING NEAR MAIN DOOR TO CORRIDOR. PROVIDE ONE CONTROL PANEL FOR EACH LAB.

   PROVIDE THE FOLLOWING MINIMUM POINTS OF INTERFACE FROM THE LAB CONTROL MODULE TO THE BAS.

   A. TEMPERATURE SET POINT.
   B. HOT WATER VALVE POSITION.
   C. SPACE TEMPERATURE.
   D. SUPPLY AIR FLOW VOLUME FOR EACH VALVE.
   E. SUPPLY AIR FLOW TEMPERATURE
   F. MODE OCCUPIED/UNOCCUPIED AND OVERRIDE
   G. EXHAUST AIR FLOW VOLUME FOR EACH VALVE

2. PROVIDE DIGITAL CONTROL LAB AIRFLOW CONTROL VALVES AND ACCESSORIES, NETWORKED TO ACHIEVE CONTROL AS NOTED IN SEQUENCE OF OPERATION.
3. ALL SUPPLY AND EXHAUST VALVES SET POINTS SHALL BE ADJUSTABLE FROM THE BAS ACROSS THE VALVES RANGE.
4. ALL SUPPLY AND EXHAUST VALVES USED SHALL BE VARIABLE VOLUME AND PROVIDE CLOSED LOOP CONTROL WITH AIR FLOW MEASUREMENT OF EACH VALVE AVAILABLE AT THE BAS.
5. EACH TERMINAL UNIT CONTROLLER SHALL DENOTE THE DISCHARGE CFM AND TEMPERATURE, DAMPER POSITION, AND HEATING VALVE POSITION TO THE BAS.
6. ALL AIRFLOW RATES SHALL BE FIELD ADJUSTABLE..

ALARMS:

1. IF THE FIXED OFFSET BETWEEN EXHAUST AND SUPPLY AIRFLOW CANNOT BE MAINTAINED, THE LAB CONTROL SYSTEM SHALL INITIATE A "LABORATORY CONTROL SYSTEM GENERAL FAULT" ALARM AT THE BUILDING AUTOMATION SYSTEM.
2. PROVIDE GRAPHICS AT THE BAS THAT IDENTIFY SPACE TEMPERATURE VARIATIONS IN COLOR ABOVE AND BELOW SET POINT.
3. BAS SHALL ALARM IF THERE'S A "NETWORK FAILURE" OR "LAB LOST SIGNAL" CONDITION.
4. IF THE ROOM OFFSET IS MORE THAN 10% ABOVE OR BELOW SET POINT AN ALARM SHALL BE INITIATED AT THE BAS.

CONTROLS POINTS LIST

DIGITAL INPUT/OUTPUT
ANALOG INPUT/OUTPUT

ANALOG POINT #	DIGITAL POINT #	INPUT - OUTPUT	DESCRIPTION	REMARKS
1		INPUT	LAB TEMPERATURE	
2		INPUT	DISCHARGE AIR TEMPERATURE	
3		OUTPUT	HEATING HOT WATER VALVE	
4		INPUT	SUPPLY AIR FLOW / CFM	
5		INPUT	EXHAUST AIR FLOW / CFM	

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Control
Diagrams

SHEET NO:
M8-01

ABBREVIATIONS

A	AMPERE	(E)	EXISTING	GYP.	GYPSUM	MIN.	MINIMUM
AF	AMP FUSE	EMT	ELECTRICAL METALLIC TUBING	KA	KILO-AMPS	MLO	MAIN LUGS ONLY
AFF	ABOVE FINISHED FLOOR	(ER)	EXISTING RELOCATED ITEM	KV	KILO-VOLTS	(N)	NEW
AWG.	AMERICAN WIRE GAUGE	FLA	FULL LOAD AMPERES	KVA	KILO-VOLT AMPERES	N.	NORTH
BMS	BUILDING MANAGEMENT SYSTEMS (SIEMENS)	GRB.	GROUND BUS	KW	KILOWATTS	PB	PULLBOX
C.	CONDUIT	GRD.	GROUND	LV	LOW VOLTAGE	PH	PHASE
CIR	CIRCUIT	GFI	GROUND FAULT INTERRUPTER	MCB	MAIN CIRCUIT BREAKER	RMS	ROOT MEAN SQUARE

TYP.	TYPICAL		
U.O.N.	UNLESS OTHERWISE NOTED		
V	VOLTS		
W.	WIRE		

SEQUENCING & COORDINATION REQUIREMENTS

1. COORDINATE OVERALL PROJECT PHASING WITH OWNER. SEQUENCE, SCHEDULE & COORDINATE ALL WORK TO MAINTAIN THE FUNCTIONAL USAGE OF ADJACENT SPACES, AND AS DIRECTED BY OWNER.
2. THOROUGHLY COORDINATE SEQUENCING OF ELECTRICAL RENOVATION WITH OTHER TRADES AND BUILDING OPERATIONS. MAINTAIN EXISTING POWER SOURCE OR PROVIDE TEMPORARY POWER TO ITEMS WHICH MUST REMAIN IN OPERATION THROUGHOUT RENOVATION OPERATIONS.
3. ELECTRICAL WORK SHALL BE SEQUENCED TO FACILITATE THE OVERALL PHASING. INCORPORATE ALL SHUTDOWNS AND CHANGEOVERS IN THE CONSTRUCTION SCHEDULE.
4. WHERE SHUT DOWN OF POWER LOADS IS REQUIRED, COORDINATE SUCH MAXIMUM SHUT DOWN DURATIONS AS DIRECTED BY OWNER. PERFORM AS MUCH PREP WORK AS POSSIBLE PRIOR TO SHUT DOWNS. ARRANGE & CONFIGURE NEW WORK TO MINIMIZE SHUT DOWN DURATION. PLAN WORK TO MINIMIZE QUANTITY & DURATION OF POWER INTERRUPTIONS.
5. UPON START OF A SHUT DOWN CHANGE OVER AND TIE-IN, PERFORM ASSOCIATED WORK CONTINUOUSLY UNTIL WORK IS COMPLETE AND LOAD IS CONNECTED TO PERMANENT SOURCE.
6. WHERE NECESSARY PROVIDE TEMPORARY FEED TO EXISTING LOADS DURING SHUT DOWN, CHANGEOVERS AND TIE-INS, TO ACCOMMODATE THE MAXIMUM ALLOWABLE SHUT DOWN DURATION.
7. WHERE TEMPORARY WIRING SHOULD BECOME NECESSARY TO ACCOMMODATE THE RENOVATION WORK, THE ELECTRICAL TRADES SHALL SURVEY THE FACILITY AND LOCATE AN APPROPRIATE TEMPORARY POWER SOURCE. THE ELECTRICAL TRADES SHALL FIELD MEASURE (AMPROBE) THE EXISTING LOAD OF PROPOSED SOURCE AND THE LOAD OF THE SUBJECT PANEL / EQUIPMENT TO BE SUPPLIED VIA TEMPORARY WIRING. INCLUDE A 50% SAFETY FACTOR ON TESTED LOADS AND PROPOSED SOURCE LOADS UNLESS OTHERWISE DIRECTED BY THE OWNER. REVIEW THE PROPOSED SOURCE AND TESTED LOADS WITH THE OWNERS' REPRESENTATIVE FOR APPROVAL.
8. TEMPORARY WIRING SHALL BE SIZED TO ACCOMMODATE THE TESTED DEMAND LOAD, PLUS MINIMUM 50% SAFETY FACTOR. TEMPORARY WIRING INSTALLATION SHALL BE INSTALLED PER NATIONAL ELECTRICAL CODE. TEMPORARY WIRING SHALL BE ROUTED & SUPPORTED IN A MANNER WHICH DOES NOT DISRUPT BUILDING OPERATIONS AND WORK OF OTHER TRADES. PROVIDE PROTECTION OF TEMPORARY WIRING AS NEEDED.
9. ANY REQUIRED SHUTDOWNS, CHANGEOVERS AND TIE-INS, INCLUDING ANY REQUIRED BY OTHER TRADES, SHALL BE PROVIDED AS PART OF THE WORK. PROVIDE APPROPRIATE QUANTITY OF WORKERS / CREWS TO PERFORM NECESSARY WORK IN THE DURATION REQUIRED FOR ANY REQUIRED CHANGEOVERS AND TIE-INS.
10. COORDINATE SCHEDULING AND METHODS AND SEQUENCE OF RENOVATION WITH OWNER, PRIOR TO COMMENCEMENT OF WORK. INCLUDE DETAILS FOR DUST AND NOISE CONTROL AND COORDINATION FOR POWER INTERRUPTIONS.

SCHEDULE FOR NEW LUMINAIRES

NOTES:
1. NEW LUMINAIRES SHALL BE AS SCHEDULED HEREIN; (SAME AS EXISTING OF LIKE-KIND IN USE IN THE BUILDING).
2. NEW LUMINAIRES SHALL BE PURCHASED THROUGH A DISTRIBUTION HOUSE LOCAL TO DETROIT AND SHALL HAVE LOCAL (DETROIT AREA) MANUFACTURER REPRESENTATIVE SUPPORT.
3. ILLUMINATION SHALL BE 4100 DEGREE KELVIN COLOR TEMPERATURE.
4. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

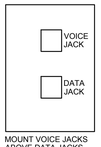
TYPE	NOMINAL LOAD (VA)	DESCRIPTION	NOTES
"FA1"	58	FLUORESCENT 2' X 4' VOLUMETRIC RECESSED LUMINAIRE TROFFER FOR INSTALLATION IN AN INVERTED T-GRID CEILING SYSTEM. LUMINAIRE SHALL HAVE REGRESSED, TWO-PIECE REFRACTIVE SYSTEM, ONE-PIECE STEEL REFLECTOR WITH EMBOSSED FACETS AND IMPACT ACRYLIC PRISMATIC REFRACTOR WITH POLYMER LIGHT-DIFFUSING FILM, TWO (2) 28 WATT 46-INCH LONG T5 (4100K) LAMPS, POSITIVE ROTATING LOCKING SOCKETS, 277 VOLT FUSED ELECTRONIC PROGRAM RAPID START STEP-DIMMING BALLAST. LITHONIA CAT. No. 2RT5S-28T5-277V-GEB95S STEP DIMMING-LPM841/ECO-GMF-LATC	PHILIPS LAMP F28T5/841/ALTO UNIVERSAL LIGHTING TECHNOLOGIES BALLAST B228PU95S50D

REQUIREMENTS FOR VOICE & DATA SYSTEMS:

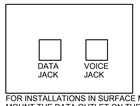
1. PROVIDE NEW CABLING & EQUIPMENT INDICATED AND AS SPECIFIED, TO EFFECT VOICE & DATA OPERATION THROUGHOUT THE AREA OF RENOVATION (RADIO CHEM LAB ROOM 0001 & INSTRUMENT LAB 0003). AT VOICE/DATA OUTLETS WHERE INDICATED ON PLANS. THIS CONTRACTOR SHALL FURNISH, INSTALL, TEST AND TERMINATE VOICE & DATA CABLING FOR EACH VOICE & DATA OUTLET WHERE INDICATED ON PLANS WITHIN LAB ROOMS 0001 AND 0003.
2. COMPLY WITH THE LATEST EDITION OF WAYNE STATE UNIVERSITY "STANDARDS FOR COMMUNICATIONS INFRASTRUCTURE" FOR ALL WORK, EQUIPMENT AND CABLING FURNISHED. THIS DOCUMENT SHALL FORM A PART OF THIS CONTRACT.
3. PROVIDE EQUIPMENT LABELS AS SPECIFIED FOR NEW VOICE & DATA EQUIPMENT, INCLUDING FACEPLATES, WIRES, CABLES, AND THEIR RESPECTIVE TERMINATIONS. ALL CABLES SHALL BE LABELED AT EACH END.
4. ALL VOICE (PHONE) CABLES SHALL TERMINATE IN THE DESIGNATED TELECOMMUNICATIONS ROOM (0112) TO STANDARD 110 TYPE PUNCH DOWN BLOCKS / (VOICE PATCH PANEL IN RACK; AS DIRECTED BY OWNER). COORDINATE PROVISIONS FOR TERMINATING VOICE CABLES WITH OWNER.
5. THE OWNER WILL PROVIDE ALL VOICE & DATA CROSS-CONNECT JUMPERS. VOICE & DATA CABLING SHALL BE INSTALLED & TERMINATED AS SPECIFIED.
6. PROVIDE UTP PATCH PANELS IN RACKS (IF SO REQUIRED TO ACCOMMODATE NEW DATA OUTLETS INDICATED IN RADIO CHEM LAB 0001 AND IN INSTRUMENT LAB 0003), TO SERVE AS DATA JACK HORIZONTAL CROSS CONNECT. PATCH PANELS SHALL HAVE CAPACITY FOR TERMINATING 24 DATA ADDRESSES.
7. THE OWNER WILL PROVIDE NETWORK ELECTRONICS EQUIPMENT (DATA SWITCHES) AS REQUIRED, IN EQUIPMENT RACKS. DATA SWITCHES WILL BE PROVIDED BY WAYNE STATE UNIVERSITY. COORDINATE EXACT POSITION OF ELECTRONICS EQUIPMENT IN RACK AND ITS SPECIFIC CABLE TERMINATION PROVISIONS WITH OWNER.
8. PROVIDE CONNECTOR CABLES FROM PATCH PANELS IN RACK, TO DATA SWITCHES.
9. ALL DATA CABLES SHALL BE TERMINATED ON RACK MOUNTED, HIGH DENSITY PATCH PANELS, (IN TELECOMMUNICATIONS ROOM 0112). COORDINATE EXACT POSITION OF PATCH PANELS WITH RACK MOUNTED ELECTRONIC EQUIPMENT BEING PROVIDED BY OWNER.
10. PROVIDE DATA CABLES & VOICE CABLES, AS INDICATED. VOICE & DATA CABLES SHALL BE 23 AWG, 4-PAIR AND AS SPECIFIED IN WSU STANDARDS FOR COMMUNICATIONS INFRASTRUCTURE.

    DATA: CATEGORY "6E" UTP CABLE. TERMINATE ON PATCH PANEL IN RACK. DATA CABLE SHALL BE GREEN AND JACKS SHALL BE ORANGE. IN THE DATA CLOSET, PROVIDE A PATCH CORD FOR EACH DATA OUTLET. AT THE OUTLET.

    VOICE: CATEGORY "6E" UTP CABLE. TERMINATE ON WALL MOUNT 110 BLOCKS / (VOICE PATCH PANEL IN RACK; AS DIRECTED BY OWNER). VOICE CABLE SHALL BE YELLOW AND JACKS SHALL BE WHITE. PROVIDE ADEQUATE SLACK LOOPS IN THE CLOSET TO ENABLE THE OWNER TO BE ABLE TO MOVE VOICE CONNECTIONS TO RACKS IN THE FUTURE.
11. J-HOOKS FOR INSTALLATION OF VOICE & DATA CABLING SHALL BE PERMITTED ABOVE ACOUSTIC CEILING PANELS. J-HOOKS SHALL NOT BE INSTALLED AT EXPOSED CEILINGS.
12. PROVIDE JACKS & FACEPLATES AS SPECIFIED, FOR VOICE & DATA CABLING.



MOUNT VOICE JACKS ABOVE DATA JACKS, UNLESS IN SURFACE METAL RACEWAY.



FOR INSTALLATIONS IN SURFACE METAL RACEWAY, MOUNT THE DATA OUTLET ON THE LEFT SIDE, AS VIEWED FROM THE FRONT FACE OF THE RACEWAY.

ELECTRICAL GENERAL NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR CABINETRY, FURNITURE AND CASEWORK. COORDINATE EXACT LOCATION OF ELECTRICAL DEVICES WITH COUNTER TOPS, BACK SPLASHES, CASEWORK, FURNITURE, CABINETRY, MILLWORK, ETC. INDICATED ON ARCHITECTURAL DRAWINGS AND ALL RELATED SUPPORTS. REFER TO ELEVATION DETAILS ON ARCHITECTURAL DRAWINGS FOR POSITION OF WIRING DEVICES INDICATED AT CASEWORK, COUNTER TOPS, CABINETRY & MILLWORK. SEQUENCE, SCHEDULE & COORDINATE INSTALLATION OF WIRING DEVICES WITH OTHER TRADES.
2. WHERE LAB WALLS ARE INDICATED ON ARCHITECTURAL DRAWINGS AS LEAD-LINED, COORDINATE INSTALLATION OF WIRING DEVICES, ASSOCIATED OUTLET BOXES, RACEWAY SYSTEMS AND CABLING, WITH THE LEAD LINING INSTALLATION. ELECTRICAL INSTALLATIONS SHALL NOT DIMINISH OR COMPROMISE THE EFFECT OF LEAD LINING WHERE LEAD LINING IS INDICATED ON ARCHITECTURAL DRAWINGS.
3. PERFORM WORK AND COORDINATION AS INDICATED IN SPECIFICATIONS FOR ITEMS PROVIDED BY MECHANICAL TRADES AND REQUIRING INSTALLATION OF BRANCH CIRCUITING. REFER TO PLANS, SPECIFICATIONS & MECHANICAL DRAWINGS FOR EXTENT OF WORK.
4. CONNECT NO MORE THAN 1600 VA OF ELECTRICAL LOAD TO A 120 VOLT, SINGLE PHASE CIRCUIT, UNLESS OTHERWISE NOTED. CONNECT NO MORE THAN 3700 VA OF ELECTRICAL LOAD TO A 277 VOLT, SINGLE PHASE CIRCUIT.
5. ALL BRANCH CIRCUITS SHALL HAVE INSULATED EQUIPMENT GROUND WIRES.
6. ALL RECEPTACLES AND DEVICES BEARING THE SAME CIRCUIT NUMBER SHALL BE CONNECTED TO THAT SAME CIRCUIT. ALL LUMINAIRES BEARING THE SAME CIRCUIT NUMBER SHALL BE CONNECTED TO THAT SAME CIRCUIT. CONNECT ALL LUMINAIRES IN A ROOM TO THE LIGHTING CIRCUIT LISTED WITHIN THE ROOM, UNLESS INDICATED OTHERWISE.
7. EXPOSED CONDUIT SHALL BE ROUTED AS HIGH AS POSSIBLE. WHERE PRACTICABLE, ROUTE AT UNDERSIDE OF DECK ABOVE.
8. CIRCUIT HOME RUNS IN GENERAL SHALL BE ROUTED ABOVE CEILING, UNLESS OTHERWISE NOTED. COORDINATE WITH MECHANICAL PIPING AND DUCTS.
9. COORDINATE CEILING LAYERING AND CONDUIT ROUTING WITH OTHER TRADES PRIOR TO INSTALLATION.
10. PROVIDE GROUNDING & BONDING FOR ALL WORK.
11. GROUND FLAMMABLE (OSHA), ACID & SOLVENT STORAGE CABINETS. EXTEND A No.10 AWG GREEN INSULATED COPPER CONDUCTOR FROM EACH OSHA STORAGE CABINET TO THE NEAREST ELECTRICAL ROOM GROUND BUS.
12. WHERE PRACTICABLE, POWER, FEEDER AND BRANCH CIRCUIT CONDUIT AND WIRING SHALL BE SEPARATED FROM RACEWAY SYSTEMS INTENDED FOR ROUTING VOICE / DATA WIRING BY NO LESS THAN 24". WHERE THIS SEPARATION CANNOT BE ACHIEVED, DUE TO WORK OF OTHER TRADES, OBSTRUCTIONS OR INTERFERENCE, CONTRACTOR SHALL ROUTE CONDUITS & RACEWAYS AT ITS OWN DISCRETION, IN AN EFFORT TO ACHIEVE AS MUCH SEPARATION AS PRACTICABLE.
13. PROVIDE ALL REQUIRED SUPPORTS FOR LUMINAIRES & WIRING DEVICES AT CEILING SPACES, INCLUDING ANY AUXILIARY SUPPORTS REQUIRED TO BE ATTACHED TO THE BUILDING STRUCTURE TO ENABLE MOUNTING AT THE ELEVATIONS REQUIRED OR INDICATED. NEW LUMINAIRES SHALL BE FURNISHED WITH ALL HARDWARE REQUIRED FOR INSTALLATION AT THE LOCATIONS INDICATED ON ARCHITECTURAL PLANS.
14. ALL LAY-IN TROFFER LUMINAIRES SHALL HAVE EARTHQUAKE CLIPS INSTALLED.
15. PROVIDE LAMPS FOR ALL LUMINAIRES. FOR LUMINAIRES REQUIRED TO BE RELOCATED OR REMOVED & RE-INSTALLED TO FACILITATE RENOVATION, THE LUMINAIRES SHALL BE CLEANED AND RE-LAMPED WITH NEW LAMPS. FIELD VERIFY EXISTING LAMPS & BALLASTS. THIS CONTRACTOR SHALL THOROUGHLY COORDINATE & VERIFY COMPATIBILITY OF PROPOSED NEW LAMPS WITH LUMINAIRES AND ASSOCIATED BALLASTS, PRIOR TO ORDERING.
16. RACEWAYS & ASSOCIATED SUPPORT SYSTEMS WHICH ARE EXPOSED SHALL BE PRIMED & PAINTED. COORDINATE EXACT COLOR WITH ARCHITECT.
17. WHERE NEW WIRING DEVICES ARE INDICATED AT EXISTING WALLS, CHANNEL, PATCH & RESTORE WALLS AS REQUIRED TO ACCOMMODATE NEW OUTLET BOXES & ASSOCIATED RACEWAY SYSTEMS.
18. ON THE FRONT FACE OF EACH RECEPTACLE PLATE, PROVIDE PERMANENT IDENTIFICATION OF THE PANELBOARD AND BREAKER NUMBER FROM WHICH THE CIRCUIT ORIGINATES.
19. EACH NEW VOICE / DATA SYSTEM CONDUIT EXTENDED TO ACCESSIBLE SPACE ABOVE CEILING SHALL BE IDENTIFIED, TO INDICATE THE CONDUIT ORIGIN / DESTINATION.
20. NEW RACEWAYS EXTENDED INTO TELECOMMUNICATION ROOMS SHALL EACH BE IDENTIFIED, TO INDICATE THE RACEWAY ORIGIN / DESTINATION.
21. ALL SHUTDOWN OF ELECTRICAL SYSTEMS SHALL BE PERFORMED DURING OFF- HOURS AND MAY INCLUDE SUNDAY & HOLIDAY PERIODS. THIS PREMIUM TIME COST SHALL BE INCLUDED IN THE CONTRACTORS' BASE BID. COORDINATE ALL SHUTDOWNS WITH OWNER, A MINIMUM OF 5 DAYS IN ADVANCE UNLESS OTHERWISE NOTED. THE MAXIMUM DURATION OF PERMISSIBLE POWER SYSTEM SHUTDOWN SHALL BE COORDINATED WITH OWNER. PROVIDE APPROPRIATE QUANTITY OF WORKERS / CREWS TO PERFORM NECESSARY WORK IN THE DURATION AVAILABLE. BIDS SHALL BE BASED ON NO REQUIRED SHUTDOWN OF NORMAL POWER & EMERGENCY POWER SYSTEMS FOR THE RENOVATION PROJECT FOR THE PURPOSE OF CONNECTING NEW OUTLETS, LUMINAIRES OR EQUIPMENT TO EXISTING DISTRIBUTION SYSTEMS. FOR ELECTRICAL WORK ANTICIPATED TO REQUIRE ANY SHUTDOWN DURATION, THE CONTRACTOR SHALL PROVIDE, COORDINATE AND CONNECT ALTERNATIVE POWER SUPPLIES AT ITS OWN EXPENSE, TO SUSTAIN OPERATION OF EXISTING ELECTRICAL SYSTEMS. INCLUDE ALL SUCH COSTS IN THE BASE BID, AS NO ALLOWANCE WILL BE MADE THEREAFTER.
22. PROVIDE EXPANSION FITTINGS FOR EACH RACEWAY TRAVERSING AN EXPANSION JOINT.
23. DERATE MULTIPLE CONDUCTORS IN CONDUIT & RACEWAYS PER NEC.
24. COORDINATE EXACT LOCATION & REQUIREMENTS OF ALL THERMOSTATS WITH MECHANICAL TRADES.
25. EXTEND NEW BRANCH CIRCUIT CONDUIT & WIRING FROM PANELBOARD(S) AS INDICATED, TO NEW WIRING DEVICES, TO NEW LUMINAIRES AND TO NEW EQUIPMENT.
26. THIS CONTRACTOR SHALL PROVIDE QUANTITIES OF BRANCH CIRCUITS AS REQUIRED TO EFFECT COMPLETE OPERATING SYSTEMS. PROVIDE BRANCH CIRCUITING REQUIRED BY INDIVIDUAL REQUIREMENTS OF MANUFACTURERS' SHOP DRAWINGS FOR ALL EQUIPMENT, INCLUDING EQUIPMENT PROVIDED AND/OR FURNISHED BY OTHER TRADES.
27. FOR ANY AREAS WHERE THE CEILING BELOW AREAS OF RENOVATION IS REQUIRED TO BE REMOVED TO ACCOMMODATE MECHANICAL SYSTEMS OR PLUMBING MODIFICATIONS AND/OR INSTALLATION OF NEW RACEWAYS, THIS CONTRACTOR SHALL TEMPORARILY REMOVE & RE-INSTALL ELECTRICAL DEVICES INCIDENTAL TO THE SPACE, AND AS REQUIRED, TO FACILITATE THE RENOVATION. THIS SHALL INCLUDE BUT NOT BE LIMITED TO LUMINAIRES. SEQUENCE, SCHEDULE & COORDINATE ALL SUCH WORK WITH OWNER AND WITH WORK OF OTHER TRADES. EXTEND NEW CONDUIT AND WIRING TO DEVICES REQUIRED TO BE TEMPORARILY REMOVED AND/OR RELOCATED TO ACCOMMODATE WORK ABOVE CEILINGS.
28. PROVIDE SUPPORTS FOR ALL RACEWAY SYSTEMS AS SPECIFIED. SUPPORTS SHALL BE PROVIDED FOR NEW RACEWAY SYSTEMS, AS WELL AS ANY AND ALL EXISTING RACEWAY SYSTEMS WHICH ARE TO REMAIN. WHERE DEMOLITION WORK REVEALS RACEWAY SYSTEMS, WIRING OR CABLING TO REMAIN IS RELYING ON THE EXISTING CEILING SYSTEM FOR SUPPORT, OR IS OTHERWISE IMPROPERLY SUPPORTED, (OR SUPPORTED BY OTHER ITEMS BEING DEMOLISHED OR REMOVED), PROVIDE PROPER SUPPORT. AT THE COMPLETION OF THE WORK, ALL NEW AND EXISTING RACEWAY SYSTEMS, CABLING & WIRING IN AREAS OF RENOVATION SHALL BE SUPPORTED IN COMPLIANCE WITH CURRENT NFPA 70 MANDATES AND REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
29. AT THE END OF EACH DAILY CONSTRUCTION SHIFT, CLEAN THE WORK SITE AND REMOVE ALL DEBRIS & RUBBISH TO THE SATISFACTION OF THE OWNER. PERFORM WORK TO KEEP THE AREA AS CLEAN AS PRACTICABLE THROUGHOUT ALL CONSTRUCTION OPERATIONS. CONSTRUCTION MATERIALS & PORTABLE TOOLS SHALL BE SECURED AND/OR REMOVED AT THE END OF EACH DAILY WORK SHIFT. COORDINATE HANDLING OF LIFTS AND TIME DURATIONS FOR WHICH LIFTS MAY BE PERMITTED TO OCCUPY AREAS OF RENOVATION IN ADVANCE, AND IN ACCORDANCE WITH OWNERS' BUILDING SCHEDULE.
30. RACEWAY PENETRATIONS THROUGH FLOORS SHALL BE SLEEVED. FLOOR SLEEVES SHALL BE GROUTED. SLEEVES SHALL EXTEND 3" ABOVE FINISHED FLOOR.
31. THE ELECTRICAL TRADES SHALL "TAKE CHARGE" TO COORDINATE AND MAINTAIN REQUIRED ELECTRICAL CLEARANCES IN FRONT OF EQUIPMENT AND REQUIRED DEDICATED SPACE ABOVE EQUIPMENT PER NEC WITH ALL OTHER TRADES.
32. DRAWINGS INDICATE ROOM NUMBERS FOR CONSTRUCTION ONLY. ALL ITEMS INCLUDING BUT NOT LIMITED TO, ROOM SIGNAGE, RACEWAY SYSTEM LABELING AND ELECTRICAL IDENTIFICATION AS OUTLINED IN THE PROJECT SPECIFICATIONS SHALL BE COORDINATED WITH WSU DESIGNATED ROOM NUMBERS.
33. ELECTRICAL LAYOUT AND DESIGN HAVE BEEN BASED ON PRELIMINARY INFORMATION AND SHOP DRAWINGS FROM EQUIPMENT MANUFACTURERS. WHERE SUBSTITUTION OF OTHER LISTED APPROVED MANUFACTURERS ARE PROVIDED BY THE CONTRACTOR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION OR DESIGN REVISIONS FROM ALL DISCIPLINES OR TRADES NECESSARY TO ACCOMMODATE THE SUBSTITUTED EQUIPMENT.
34. REFER TO MECHANICAL HVAC PLAN DRAWINGS FOR LOCATIONS OF AIR TERMINAL UNITS. EXTEND BRANCH CIRCUIT CONDUIT & WIRING FROM SELECT JUNCTION BOX(ES) DESIGNATED ON ELECTRICAL PLAN DRAWINGS, TO CONTROL POWER TRANSFORMERS FOR AIR TERMINAL UNITS. COORDINATE ELECTRICAL INSTALLATION WITH MECHANICAL CONTROLS CONTRACTOR AND WORK OF OTHER TRADES.
35. PROVIDE RACEWAY SYSTEMS, BOXES & SELECT WIRING ASSOCIATED WITH ACCESS CONTROL & INTRUSION DETECTION FOR RADIO CHEM LAB ROOM 0001 DOOR AND FOR INSTRUMENT LAB ROOM 0003 DOOR, AND PER ASSOCIATED SECURITY SYSTEM SHOP DRAWINGS. COORDINATE ALL SUCH WORK WITH SECURITY SYSTEM CONTRACTOR.

ELECTRICAL SYMBOLS

- FLUORESCENT LUMINAIRE
- 2' X 4' FLUORESCENT LUMINAIRE
- LUMINAIRE CONNECTED TO EMERGENCY LIGHTING CIRCUIT
- $ — 20 AMP, 120/277 VOLT AC SINGLE POLE LIGHT SWITCH
- VS — CEILING MOUNT OCCUPANCY SENSOR FOR LIGHTING CONTROL
- INDICATES CONNECTION OR SPLICE POINT
- VOICE/DATA OUTLET BOX, (TWO-GANG), WITH A SINGLE-GANG PLASTER RING & SINGLE-GANG PLATE
- 20 AMP, 120 VOLT, 2 POLE, 3 WIRE, GROUNDING TYPE DUPLEX CONVENIENCE RECEPTACLE, NEMA 5-20R. MOUNT 18" AFF, U.O.N.
- SPECIAL RECEPTACLE, VOLTAGE & AMPERE RATING AS INDICATED; (STRAIGHT BLADE UNLESS OTHERWISE NOTED ON PLANS)
- (J) OR [J] — JUNCTION BOX / OUTLET BOX
- [J] CLG — OUTLET BOX AT CEILING. TYPE AND FUNCTIONAL USAGE AS INDICATED ON PLANS.
- [T] — DISTRIBUTION TRANSFORMER
- CIRCUIT HOME RUN OR CONNECTION TO EQUIPMENT PER MANUFACTURER'S REQUIREMENTS
- OR [PB] — CONDUIT RUN WITH PULLBOX. SOME EXAMPLARY PULLBOXES & CONDUIT RUNS ARE SHOWN; PROVIDE PULLBOXES WHERE REQUIRED PER NEC.
- PANELBOARD OR CONTROL / DISPLAY PANEL, AS INDICATED ON PLANS
- POWER PANEL OR DISTRIBUTION PANEL, AS INDICATED
- [S] — FIRE ALARM SYSTEM VISUAL NOTIFICATION APPLIANCE
- [FH] — COMBINATION AUDIBLE AND VISUAL FIRE ALARM NOTIFICATION APPLIANCE
- (S) — BUILDING FIRE ALARM SYSTEM CEILING MOUNT SMOKE DETECTOR
- SURFACE MOUNT MULTI-OUTLET TWO COMPARTMENT METAL RACEWAY, LOCATE TOP OF RACEWAY AT 44" AFF, UNLESS OTHERWISE NOTED ON ARCHITECTURAL ELEVATION PLANS.
- [CR] — BACK BOX FOR CARD READER

PANEL DESIGNATIONS:

- LP-1 — 480/277V LIGHTING PANEL; LEVEL DESIGNATION
- ELP-1 — 480/277V EMERGENCY LIGHTING PANEL; LEVEL DESIGNATION
- RP-X X — 208/120V RECEPTACLE PANEL; PANEL SEQUENCE LETTER; LEVEL DESIGNATION
- ERP-X X — 208/120V EMERGENCY RECEPTACLE PANEL; PANEL SEQUENCE LETTER; LEVEL DESIGNATION
- PP-X — 480V OR 480/277V POWER PANEL; CLOSET OR AREA ORIGINATION LEVEL DESIGNATION
- DP-X — 208/120V DISTRIBUTION PANEL; CLOSET OR AREA ORIGINATION LEVEL DESIGNATION
- T-X — TRANSFORMER; LEVEL DESIGNATION

WAYNE STATE UNIVERSITY

WSU Project Number 211-277899

Wayne State University

IBio Radio Chemistry Facility

Detroit, Michigan

DATE	ISSUE
04/19/2016	Owner Review
06/10/2016	Construction

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SUITE 200
SOUTHFIELD, MICHIGAN
48033 | USA

(T) 248 262 1500

WWW.HED.DESIGN

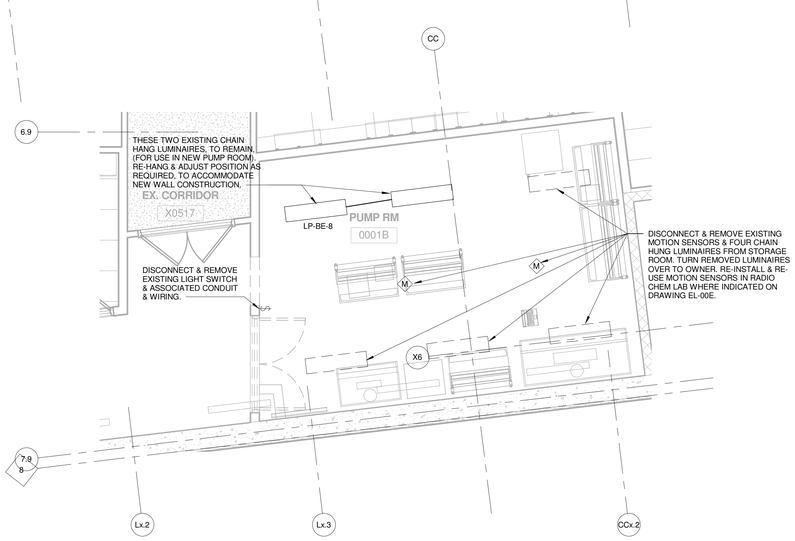
PROJECT NUMBER:
2016-01118-000

SHEET TITLE:
Electrical Symbol List, General Notes & Abbreviations

SHEET NO:
EG-01

BASEMENT ELECTRICAL EQUIPMENT /DEMO PLAN - AREA F

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



BASEMENT ENLARGED DEMO LIGHTING PLAN

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

NOTE: UNLESS OTHERWISE NOTED, ITEMS SHOWN ON THIS DRAWING ARE TO REMAIN.

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SUITE 200
SOUTHFIELD, MICHIGAN
48033 | USA

(T) 248 262 1500

WWW.HED.DESIGN

PROJECT NUMBER:
2016-01118-000

SHEET TITLE:
Basement Floor Electrical Equip. Demo Plan - Area F

SHEET NO:
EQD-0Bf

BASEMENT ELECTRICAL EQUIPMENT PLAN - AREA F

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

NOTES:

1. EXTEND 2 No.12 & 1 No. 12 GRD., ¾" C. FROM THE CIRCUIT INDICATED, TO THE JUNCTION BOX NOTED. PROVIDE A TOGGLE SWITCH AT THE JUNCTION BOX, TO TURN OFF ITS SUPPLIED LOADS. MOUNT JUNCTION BOX & ASSOCIATED TOGGLE SWITCH AT EAST WALL OF LAB 0003, APPROXIMATELY 8'-0" AFF. EXTEND 120 VOLT CONDUIT & WIRING FROM JUNCTION BOX TO CONTROL POWER TRANSFORMERS SUPPLYING AIR TERMINAL UNITS & LAB AIR CONTROL VALVES IN LAB ROOM 0001 AND IN LAB ROOM 0003.
COORDINATE EXACT LOCATION AND QUANTITY OF CONTROL POWER TRANSFORMERS WITH CONTROLS CONTRACTOR AND MECHANICAL TRADES. REFER TO MECHANICAL DRAWINGS FOR AIR TERMINAL UNITS.
PROVIDE PERMANENT IDENTIFICATION AT JUNCTION BOX, TO INDICATE THE PANEL AND BREAKER FROM WHICH THE BRANCH CIRCUIT ORIGINATES.

2. EXTEND DEDICATED 120 VOLT, 20 AMP BRANCH CIRCUIT CONDUIT & WIRING TO OWNERS' EXISTING BIOSAFETY CABINET. (BIOSAFETY CABINET IS EQUIPPED WITH INTERNAL EXHAUST HOOD, BUILT-IN DUPLEX OUTLETS (2) , INTERNAL FLUORESCENT & ULTRAVIOLET LIGHTING AND BUILT-IN CONTROL PANEL). PROVIDE ALL BRANCH CIRCUIT FIELD WIRING CONNECTIONS TO EFFECT OPERATION OF THIS UNIT. PERFORM FIELD INVESTIGATION OF EXISTING BIOSAFETY CABINET TO DETERMINE ITS SPECIFIC FIELD WIRING REQUIREMENTS AND COORDINATE WORK WITH OWNERS' REPRESENTATIVE AND WITH WORK OF OTHER TRADES.

3. EXTEND 120 VOLT BRANCH CIRCUIT CONDUIT & WIRING, CIRCUIT AS INDICATED, TO RADIATION DETECTOR (LUDLUM MEASUREMENTS, INC., MODEL 375-10 GAMMA AREA MONITOR). PROVIDE ALL FIELD WIRING FOR RADIATION DETECTOR, ITS ASSOCIATED REMOTE ALARM DEVICE (120V RED STROBE) & 50' CABLE (3 PIN CONN.); ALL IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS' WRITTEN INSTRUCTIONS. LOCATE REMOTE ALARM STROBE IN CORRIDOR X0511, OUTSIDE THE RADIO CHEM. LAB. COORDINATE EXACT LOCATION OF RADIATION DETECTOR & ASSOCIATED REMOTE ALARM STROBE WITH OWNERS' RADIO CHEM. LAB REPRESENTATIVE.

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SUITE 200
SOUTHFIELD, MICHIGAN
48033 | USA

(T) 248 262 1500

WWW.HED.DESIGN

PROJECT NUMBER:
2016-01118-000

SHEET TITLE:
Basement Floor Electrical Equip. Plan - Area F

SHEET NO:
EQ-0Bf

BASEMENT LIGHTING PLAN - EAST

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

NOTES:

1. IN LAB 0001, LUMINAIRES SHALL BE STEP-DIM CONTROLLED. WITH OCCUPANCY DETECTED IN THE ROOM, THE TWO SWITCHES SHALL EACH CONTROL 50% OF ILLUMINATION. MOTION SENSOR SHALL BE PROVIDED FOR AUTO-ON/AUTO-OFF OPERATION. WITH NO OCCUPANCY DETECTED, LUMINAIRES IN THE ROOM SHALL AUTOMATICALLY TURN OFF AFTER A PRESET TIME DELAY.

2. PROVIDE NEW MOTION SENSOR AND NEW LIGHT SWITCH FOR OPERATION OF EXISTING CHAIN HUNG LUMINAIRES IN PUMP ROOM 0001B. WITH OCCUPANCY DETECTED IN THE ROOM, THE SWITCH SHALL BE ENABLED FOR CONTROLLING ROOM LIGHTING. WITH NO OCCUPANCY SENSED, LUMINAIRES IN THE ROOM SHALL AUTOMATICALLY TURN OFF AFTER PRESET TIME DELAY. CONNECT TO SAME CIRCUIT AS ORIGINALLY SUPPLIED LUMINAIRES IN THIS ROOM (LP-BE-8).

WAYNE STATE UNIVERSITY

WSU Project Number 211-277899

Wayne State University

iBio Radio Chemistry Facility

Detroit, Michigan

DATE	ISSUE
04/19/2016	Owner Review
06/10/2016	Construction

HED

26913 NORTHWESTERN HWY
SUITE 200
SOUTHFIELD, MICHIGAN
48033 | USA

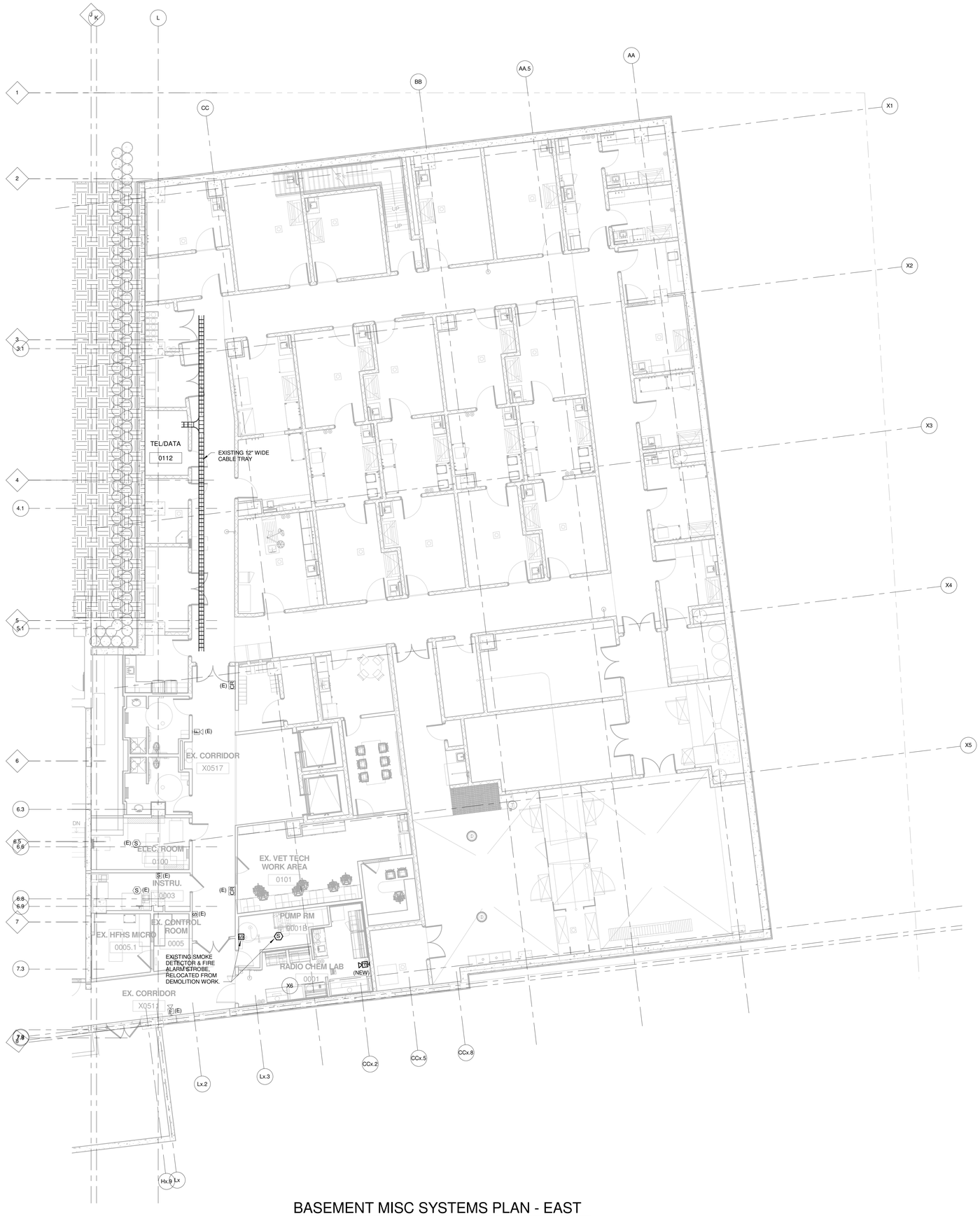
(T) 248 262 1500

WWW.HED.DESIGN

PROJECT NUMBER:
2016-01118-000

SHEET TITLE:
Basement Lighting Plan
- East

SHEET NO:
EL-00E



BASEMENT MISC SYSTEMS PLAN - EAST

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

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Basement Misc.
Systems Plan - East

SHEET NO:
EM-00E

DISTRIBUTION PANEL SCHEDULE DP-BE

208 WYE / 120 VOLT 3PH. 4W. 400A MAIN FUSIBLE SWITCH, WITH GROUND BUS & 100% NEUTRAL

CKT. No.	HP	KVA	EQUIPMENT	POLES	SW SIZE	FUSE SIZE	CONNECTED LOAD IN AMPS	ESTIMATED DEMAND FACTOR	ESTIMATED DEMAND LOAD IN AMPS	WIRE & CONDUIT / REMARKS
1			RP-BEA	3	200A	150A	76	0.75	57.0	4#1/0 & 1#6 GRD., 2" C.
2			RP-BEB	3	200A	150A	75	0.75	56.3	4#1/0 & 1#6 GRD., 2" C.
3			RP-BEC	3	200A	150A	91	0.75	68.3	4#1/0 & 1#6 GRD., 2" C.
4			NEW PANEL RP-BED	3	200A	150A	65	0.75	48.7	NEW, 4#1/0 & 1#6 GRD., 2" C.
5			SPARE	3	100A					SPARE FUSIBLE SWITCH
6			SPARE	3	100A					SPARE FUSIBLE SWITCH

TOTAL CONNECTED LOAD: 307.0 AMPS OR 110.6 KVA — MOUNTING: FLOOR

FEEDER SIZE: 4 No. 500 KCMIL & 1 No.2 GRD., 3-1/2" C. — LOCATION: BASEMENT EAST ELECTRICAL ROOM

NOTES: 1. TOTAL ESTIMATED DEMAND LOAD: 230.3 AMPS OR 83.0 KVA
2. PANEL HAS MINIMUM 65,000 RMS SYMMETRICAL AMP RATING AT 208 VAC.

PROVIDE NEW FUSES AT EXISTING SPARE SWITCH. EXTEND NEW FEEDER CONDUIT & WIRING NOTED, TO NEW PANEL RP-BED, AS INDICATED ON BASEMENT PLANS.

Panel Schedule

VOLTAGE: 480 / 277V | PHASE: 3 | WIRE: 4 | MAINS: 100A MLO | NEUTRAL RATING: 100% | PANEL DESIGNATION: LP-BE
MOUNTING: SURFACE | MAX. POLE CAPACITY: 30 | PANEL A.I.C. RATING: 25,000 | LOCATION: ELEC. ROOM 0100

NO	DESCRIPTION	BRANCH POLES	BRANCH BKR	VA PH A	VA PH B	VA PH C	L, S R, E	L, S R, E	VA PH A	VA PH B	VA PH C	BRANCH BKR	BRANCH POLES	DESCRIPTION	NO.
1	LTG., ROOMS 0014, 0016, 0020, 0022, 0024	1	20 A	1074			L	L	767			20 A	1	LIGHTING, ROOMS 0122, 0126	2
3	LIGHTING, ROOMS 0013, 0017	1	20 A		540		L	L		658		20 A	1	LTG., ROOMS 0111, 0112, 0114, 111, 0108-1, 0115	4
5	LIGHTING, MECH. ROOM 0011	1	20 A			660	L	L			720	20 A	1	LTG., ROOMS 0007, 0009, 0009.1, 856	6
7	LTG., ROOMS 0023, X0511-2, X0512, X0513	1	20 A	900			L	L	1509			20 A	1	LTG RMS. 0001, 0101, 0101.1, 0152.2, 0154, 0154.1	8
9	LIGHTING, ROOMS 0019, 0021, 0025	1	20 A		840		L	L		1037		20 A	1	LIGHTING, ROOMS X0510-1, X0511-1	10
11	LIGHTING, ROOMS 0128, 0128.1, 0128.2	1	20 A			952	L	L			1074	20 A	1	LTG., ROOMS 0138.1, 0140, 0144, 0146, 0150	12
13	LIGHTING, ROOMS 0019, 0021, 0023, 0025	1	20 A	1652			L	L	1652			20 A	1	LTG., ROOMS 0147, 0149, 0151, 0153	14
15	LTG., ROOMS 0119.1, 0123.1, 0147.1, 0151.1	1	20 A		1357		L	L		1363		20 A	1	LTG., ROOMS 0109, 0113, 0155	16
17	LTG., ROOMS 0003, 0005, 107, 108, 109, 110	1	20 A			919	L	L			1180	20 A	1	LTG., ROOMS 0116, 0116.1, 0118, 0120	18
19	SPARE	1	20 A	1000			S	S	1000			20 A	1	SPARE	20
21	LIGHTING, ROOMS 0142, 0152	1	20 A		1475		L	S		1000		20 A	1	SPARE	22
23	SPARE	1	20 A			1000	S	S			1711	20 A	1	LTG., ROOMS 0130, 0130.1, 0134, 0136, 0138	24
25	SPARE	1	20 A	1000			S	S	1000			20 A	1	SPARE	26
27	SPARE	1	20 A		1000		S	S		1000		20 A	1	SPARE	28
29	400W EMERGENCY LTG. INVERTER	1	20 A			320	L	S			1000	20 A	1	SPARE	30

	ODD NO. CIRCUITS VA				EVEN NO. CIRCUITS VA				
LIGHTING (L)	3626	4212	2851	+	3928	3058	2974	=	20.65 KVA CONNECTED LTG. LOAD
RECEPTS (R)	0	0	0	+	0	0	0	=	0.00 KVA CONNECTED RECP. LOAD
EQUIP. (E)	0	0	0	+	0	0	0	=	0.00 KVA CONNECTED EQUIP. LOAD
SPARE (S)	2000	1000	1000	+	2000	2000	2711	=	10.71 KVA SPARE LOAD
TOTAL (less spare)	3626	4212	2851	+	3928	3058	2974	=	20.65 KVA TOTAL CONNECTED LOAD (less spare)
REMARKS:								=	**20.65 KVA TOTAL DEMAND LOAD**
DEMAND LOAD EQUAL TO 1.25 % OF LTG							PLUS	=	5.16 KVA 25% OF LIGHTING LOAD
PLUS 80 % EQUIPMENT PLUS FIRST 10KVA									SPARE LOAD + CONNECTED LOAD EQUAL
OF RECP AND 50% OF REMAINDER PER 2011 NEC ART 220.							TOTAL	=	**36.52 KVA FOR MIN.FEEDER DESIGN LOAD**

NOTES:
1. THIS PANEL FEEDER IS 4 No.2 & 1 No. 8 GRD, 1-1/4" C.; ORIGINATING FROM A 100A SWITCH WITH 100 A FUSES IN PP-BE.

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EXISTING PANEL LP-BE

CONNECT NEW LUMINAIRES IN RADIO CHEM. LAB 0001 TO SAME CIRCUIT AS SUPPLIED LUMINAIRES REMOVED FROM FORMER BULK STORAGE AREA.

LOAD ADDED: SEVEN "FA1" x 58 VA = 406 VA.
LOAD REMOVED: FOUR CHAIN HUNG LUMINAIRES x 60 VA = 240 VA.
NET LOAD ADD = 166 VA.

Panel Schedule

VOLTAGE: 208 / 120V | PHASE: 3 | WIRE: 4 | MAINS: 100A MCB | NEUTRAL RATING: 100% | PANEL DESIGNATION: RP-BED
MOUNTING: SURFACE | MAX. POLE CAPACITY: 42 | PANEL A.I.C. RATING: 22,000 | LOCATION: ELEC. ROOM 0100

NO	DESCRIPTION	BRANCH POLES	BRANCH BKR	VA PH A	VA PH B	VA PH C	L, S R, E	L, S R, E	VA PH A	VA PH B	VA PH C	BRANCH BKR	BRANCH POLES	DESCRIPTION	NO.
1	RADIO CH. LAB 0001 OUTLET, N.WALL	1	20 A	200			R	R	400			20 A	1	LAB 0001 S. WALL OUTLET & RADIATION DET.	2
3	RADIO CH. LAB 0001 OUTLET, N.WALL	1	20A		200		R	R		200		20 A	1	RADIO CH. LAB 0001 OUTLET, S.WALL	4
5	RADIO CH. LAB OUTLET NEAR SINK	1	20 A			200	R	R			400	20 A	1	RADIO CH. LAB 0001 OUTLETS, S.WALL	6
7	RADIO CH. LAB 0001 OUTLETS, N.WALL	1	20 A	400			R	R	400			20 A	1	RADIO CH. LAB 0001 OUTLETS, S.WALL	8
9	RADIO CH. LAB 0001 OUTLETS, N.WALL	1	20 A		400		R	R		400		20 A	1	RADIO CH. LAB 0001 OUTLETS, S.WALL	10
11	RADIO CH. LAB, OUTLETS NEAR SINK	1	20 A			400	R	R			1000	20 A	1	RADIO CH. LAB 0001 OUTLET, N.WALL	12
13	RADIO CH. LAB 0001 OUTLET, E.WALL	1	20 A	400			R	R	1000			20 A	1	LAB 0001 REFRIGERATOR, , E.WALL	14
15	RADIO CH. LAB 0001 OUTLET, E.WALL	1	20 A		200		R	R		600		20 A	1	LAB 0001 OUTLETS NEAR BIOSAFETY CAB.	16
17	RADIO CH. LAB 0001 OUTLET, E.WALL	1	20 A			200	R	E			1920	20 A	1	LAB 0001 BIOSAFETY CABINET	18
19	RADIO CH. LAB 0001 OUTLETS, E.WALL	1	20 A	400			R	R	600			20 A	1	LAB 0001 OUTLETS NEAR BIOSAFETY CAB.	20
21	RADIO CH. LAB 0001 OUTLETS, N.WALL	1	20 A		400		R	E		1000		20 A	1	LAB 0001 & 0003 AIR TERMINAL UNITS	22
23	RADIO CH. LAB 0001 OUTLET, N.WALL	1	20 A			200	R	S			1000	20 A	1	SPARE	24
25	RADIO CH. LAB 0001 OUTLET, N.WALL	1	20 A	1500			R	S	1000			20 A	1	SPARE	26
27	SPARE	1	20 A		1000		S	S		1000		20 A	1	SPARE	28
29	SPARE	1	20 A			1000	S	S			1000	20 A	1	SPARE	30
31	SPARE	1	20 A	1000			S	S	1000			20 A	1	SPARE	32
33	SPARE	1	20 A		1000		S	S		1000		20 A	1	SPARE	34
35	SPARE	1	20 A			1000	S	S			1000	20 A	1	SPARE	36
37	INSTRUMENT LAB 0003	1	20 A	400			R	S	1000			20 A	1	SPARE	38
39	WEST WALL, INSTRUMENT LAB 0003	2	30 A		2496		E	E		2496		30 A	2	SOUTH WALL, INSTRUMENT LAB 0003	40
41						2496	E	E			2496				42

	ODD NO. CIRCUITS VA				EVEN NO. CIRCUITS VA				
LIGHTING (L)	0	0	0	+	0	0	0	=	0.00 KVA CONNECTED LTG. LOAD
RECEPTS (R)	3300	1200	1000	+	2400	1200	1400	=	10.50 KVA CONNECTED RECP. LOAD
EQUIP. (E)	0	2496	2496	+	0	3496	4416	=	12.90 KVA CONNECTED EQUIP. LOAD
SPARE (S)	1000	2000	2000	+	3000	2000	3000	=	13.00 KVA SPARE LOAD
TOTAL (less spare)	3300	3696	3496	+	2400	4696	5816	=	23.40 KVA TOTAL CONNECTED LOAD (less spare)
REMARKS:								=	**20.57 KVA TOTAL DEMAND LOAD**
DEMAND LOAD EQUAL TO 1.25 % OF LTG.							PLUS	=	0.00 KVA 25% OF LIGHTING LOAD
PLUS 80 % EQUIPMENT PLUS FIRST 10KVA									SPARE LOAD + CONNECTED LOAD EQUAL
OF RECP AND 50% OF REMAINDER PER 2011 NEC ART 220.							TOTAL	=	**36.40 KVA FOR MIN.FEEDER DESIGN LOAD**

NOTES:
1

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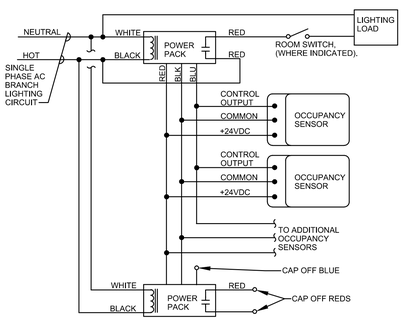
NEW PANEL RP-BED

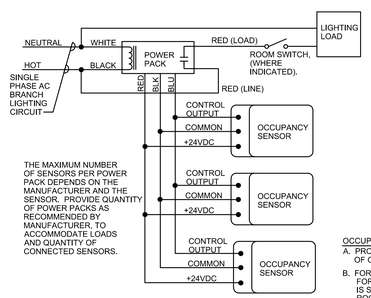
PROVIDE ARC FLASH HAZARD LABEL FOR NEW PANEL RP-BED. NEW ARC FLASH LABEL SHALL MATCH DATA ON EXISTING ARC FLASH HAZARD LABEL AT EXISTING PANEL RP-BEC, WHERE INDICATED ON FLOOR PLAN.



USE THIS DIAGRAM WHEN CURRENT CONSUMPTION OF MULTIPLE SENSORS EXCEEDS CURRENT OUTPUT OF A SINGLE POWER PACK.

BASIC WIRING DIAGRAM - AREAS OR ROOMS CONTROLLED BY MULTIPLE OCCUPANCY SENSORS

SCALE: NONE



THE MAXIMUM NUMBER OF SENSORS PER POWER PACK DEPENDS ON THE MANUFACTURER AND THE SENSOR. PROVIDE QUANTITY OF POWER PACKS AS RECOMMENDED BY MANUFACTURER, TO ACCOMMODATE LOADS AND QUANTITY OF CONNECTED SENSORS.

BASIC WIRING DIAGRAM - AREAS OR ROOMS CONTROLLED BY MULTIPLE OCCUPANCY SENSORS ON ONE POWER PACK

SCALE: NONE

OCCUPANCY SENSOR NOTES:
A. PROVIDE ALL POWER SUPPLIES AS REQUIRED, TO ACCOMMODATE THE QUANTITY OF OCCUPANCY SENSORS IN ROOMS INDICATED ON PLANS.
B. FOR ROOMS INDICATED ON PLANS WITH OCCUPANCY SENSORS, THE MANUAL CONTROL FOR LIGHTING WITHIN THE ROOM SHALL BE AUTOMATICALLY ENABLED WHEN OCCUPANCY IS SENSED, TO CONTROL SWITCHING. WITH NO OCCUPANCY SENSED, LIGHTS IN THE ROOM SHALL TURN OFF AUTOMATICALLY, AFTER A PRESET TIME DELAY.
C. DIAGRAMS SHOWN ARE BASED ON A 3-WIRE SENSOR. PROVIDE ADDITIONAL WIRING AS REQUIRED BY THE MANUFACTURER, FOR THE SPECIFIC SENSOR USED. PERFORM ALL INSTALLATION PER LIGHTING CONTROL SYSTEM MANUFACTURER'S RECOMMENDATIONS AND MANUFACTURER'S WIRING DIAGRAMS.
D. ALL POWER WIRING FOR 277 VOLT AND 120 VOLT LIGHTING SHALL BE INSTALLED IN CONDUIT. CONTROL WIRING (24 VOLT) DC BETWEEN SENSORS AND CONTROL UNITS SHALL BE CLASS II, 16 AWG STRANDED, COPPER, UL CLASSIFIED, TEFLON INSULATED CABLE APPROVED FOR USE IN PLENUMS.

1 / E6-01 BASIC OCCUPANCY SENSOR DIAGRAMS FOR LIGHTING CONTROL

SCALE: NONE

NOTE:
PERFORM NEW WORK AND PROVIDE NEW AND/OR REVISED CIRCUITING AS REQUIRED, TO ACCOMMODATE NEW AND/OR REVISED WIRING DEVICES & LOADS INDICATED ON DRAWINGS. DATA INDICATED FOR EXISTING CIRCUITS IS AS COPIED FROM EXISTING PANEL SCHEDULES. FIELD VERIFY, LOCATE AND IDENTIFY LOADS & CORRESPONDING ROOM IDENTIFICATION FOR EACH CIRCUIT REVISED UNDER THIS PROJECT. FIELD VERIFY EXISTING BRANCH CIRCUITS AND PANELBOARD LOADING FOR COMPLIANCE WITH NATIONAL ELECTRICAL CODE, PRIOR TO PERFORMING BRANCH CIRCUITING MODIFICATIONS FOR WHICH INCIDENTAL LOAD MODIFICATIONS OCCUR UNDER THIS RENOVATION PROJECT.

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