CONTRACT DOCUMENTS
FOR
WAYNE STATE UNIVERSITY

007 - CHEMISTRY BUILDING
WSU PROJECT NO. 007-248857
ELECTRICAL RELIABILITY UPGRADES - BID PACK AGE No. 5
FOR BID 1-21-2015

OWNER

WAYNE STATE UNIVERSITY

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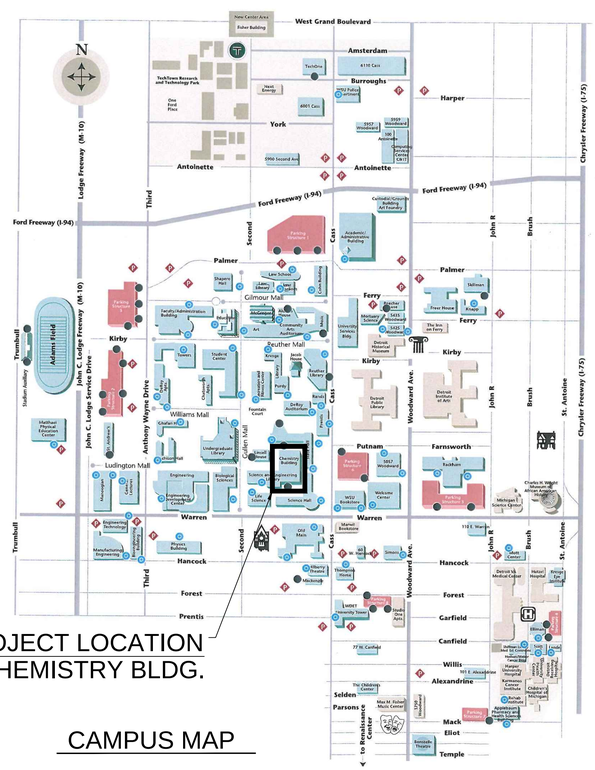

CAMPUS MAP

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007-CHEMISTRY BUILDING
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DLM DRAWN BY	CJM PROJECT LEAD
DHP DESIGNED BY	DA REVIEWED BY
APPROVED BY	DATE

MARK	ISSUED FOR/REVISIONS	DATE
A	90% CLIENT REVIEW	10-9-2014
B	FOR BID	1-21-2015

Engineers Seal

007-248857
CLIENT PROJECT NO.

320006
PROJECT NO.

AS SHOWN
SCALE:

SHEET TITLE
COVER SHEET

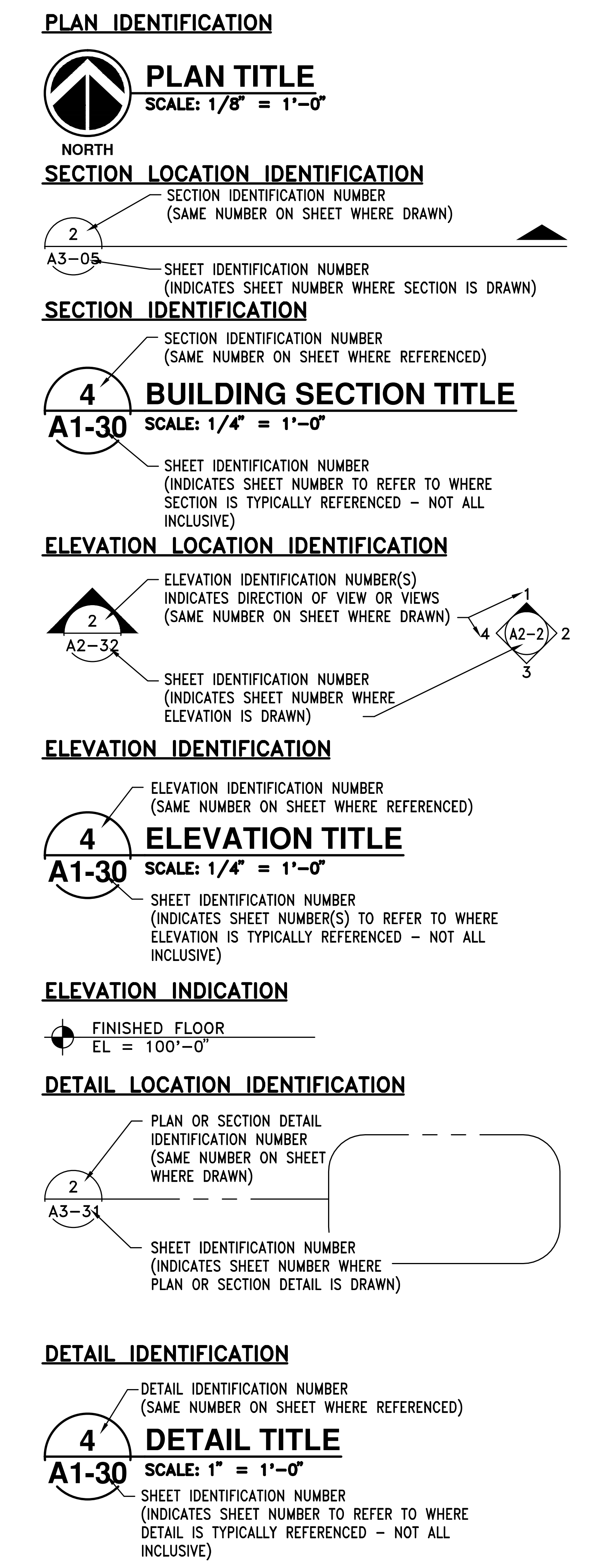
SHEET NO.
C-0

REV NO.
B

ABBREVIATIONS

A	AMPERE OR AMP
AB	ANCHOR BOLT
ABV	ABOVE
ACM	ALUMINUM COMPOSITE MATERIAL
ACOUS	ACOUSTICAL
ACWT	ACOUSTICAL WALL TREATMENT
ADDM	ADDENDUM
ADJ	ADJUSTABLE
AE	ARCHITECT/ENGINEER
AFF	ABOVE FINISH FLOOR
ALUM	ALUMINUM
AP	ACCESS PANEL
APPROX	APPROXIMATELY
ARCH	ARCHITECT
BB	BACK TO BACK
BC	BOTTOM CHORD
BD	BOARD
BETW	BETWEEN
BF	BARRIER FREE
BLDG	BUILDING
BLKG	BLOCKING
BLW	BELOW
BM	BEAM
BOT	BOTTOM
BRG	BEARING
BSMT	BASEMENT
BUR	BUILT–UP ROOF
C	COURSES
CB	CATCH BASIN
C/C	CENTER TO CENTER
CER	CERAMIC
CERTILE	CERAMIC TILE
CFE	CONTRACTOR FURNISHED EQUIPMENT
CIRorCKT	CIRCUIT
CI	CAST IRON
CJ	CONTROL JOINT
℄	CENTERLINE
CLG	CEILING
CLL	CONTRACT LIMIT LINE
CLO	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
COL(S)	COLUMN(S)
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS (ATION)
CONSTR	CONSTRUCTION
CONSTRJT	CONSTRUCTION JOINT
CONTR	CONTRACTOR
COORD	COORDINATE
CW	CURTAIN WALL
D	DEPTH/DEEP
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIM	DIMENSION
DISC	DISCONNECT
DIST	DISTRIBUTION
DL	DEAD LOAD
DN	DOWN
DWG	DRAWING
EL	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ELEV	ELEVATOR OR ELEVATION
EMER	EMERGENCY
EMERSHR	EMERGENCY SHOWER
ENGR	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
EXorEXIST	EXISTING
EXP	EXPANSION
EXPBT	EXPANSION BOLT
EXPJT	EXPANSION JOINT
EXST	EXISTING
EXT	EXTERIOR
F	FUSE
FF	FACE TO FACE
FA	FIRE ALARM
FD	FLOOR DRAIN
FT	FOOT, FEET
FDN	FOUNDATION
FEC	FIRE EXTINGUISHER CABINET
FEXT	FIRE EXTINGUISHER
FGL	FIBERGLASS
FIN	FINISH
FLEX	FLEXIABLE
FIN FL	FINISH FLOOR
FIN GR	FINISH GRADE
FL	FLASHING
FLR	FLOOR
FLRFIN	FLOOR FINISH
FLUOR	FLOURESCENT
FPRF	FIREPROOFING
FR	FIRE RATING
FRMG	FRAMING
FRT	FIRE–RETARDANT TREATED
FTG	FOOTING
FURR	FURRING
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GDR	GUARD RAIL
GL	GLASS
GLZ	GLAZING
GND	GROUND
GRC	GALVANIZED RIGID STEEL
GYP	GYPSUM
GYPBD	GYPSUM BOARD
H	HIGH/HEIGHT
HB	HOSE BIB
HGT	HEIGHT
HM	HOLLOW METAL
HMD	HOLLOW METAL DOOR
HMF	HOLLOW METAL FRAME
HORIZ	HORIZONTAL
HP	HIGH POINT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH, INCHES
INT	INTERIOR
INSUL	INSULATION/INSULATED
JC	JANITOR'S CLOSET
L	LONG/LENGTH
LAV	LAVATORY
LF	LINEAR FEET
LL	LIVE LOAD
LP	LOW POINT
LT	LIGHT
LTG	LIGHTING
MACHRM	MACHINE ROOM
MAN	MANUAL
MANUF	MANUFACTURER
MAS	MASONRY
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MET	METAL
MEZZ	MEZZANINE
MDP	MAIN DISTRIBUTION PANEL
MH	MANHOLE
MIN	MINIMUM
MO	MASONRY OPENING
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
N	NORTH
NA	NOT APPLICABLE
NEC	NATIONAL ELECTRIC CODE
NFPA	NATIONAL FIRE PROTECTION
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OO	OUT TO OUT
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED– CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED– OWNER INSTALLED
OH	OPPOSITE HAND
OPNG	OPENING
OVFL	OVERFLOW
PB	PUSH BUTTON
PBD	PARTICLEBOARD
PH	PENTHOUSE
PL	PLATE
PLAM	PLASTIC LAMINATE
PLYWD	PLYWOOD
PNLS	PANEL(S)
PNT	PAINT
PREFAB	PREFABRICATED
PREFIN	PREFINISHED
PRELIM	PRELIMINARY
PREP	PREPARATION
PRI	PRIMARY
PROJ	PROJECT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PTD	PAINTED
QTY	QUANTITY
RA	RETURN AIR
RAD	RADIUS
RD	ROOF DRAIN
REC	RECEPTICAL
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
RESIL	RESILIENT
REP	REPRESENTATIVE
REV	REVISION
RGS	RIGID GALVANIZED STEEL
RLG	RAILING
RM	ROOM
RS	ROOF SUMP
RO	ROUGH OPENING
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SALV	SALVAGE
SCHED	SCHEDULE
SD	SOAP DISPENSER
SDL	SADDLE
SE	SLAB EDGE
SECT	SECTION
SF	SQUARE FOOT
SFI	SPRAYED FOAM INSULATION
SFRM	SPRAYED FIRE RESISTIVE MATERIALS
SHR	SHOWER
SHT	SHEET (ING)
SHTHG	SHEATHING
SIM	SIMILAR
SJ	SLIP JOINT
SLNT	SEALANT
SND	SANITARY NAPKIN DISPENSER
SNR	SANITARY NAPKIN RECEPTACLE
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SQFT	SQUARE FOOT
SQIN	SQUARE INCH
SQKM	SQUARE KILOMETER
SQM	SQUARE METER
SQMM	SQUARE MILLIMETER
SQYD	SQUARE YARD
SSK	SERVICE SINK
SST	STAINLESS STEEL
STC	SOUND TRANSMISSION CLASS
STL	STEEL
STLJST	STEEL JOIST
STLPL	STEEL PLATE
STOR	STORAGE
STRUCT	STRUCTURAL
STRUCTSTL	STRUCTURAL STEEL
SW	SWITCH
SWBD	SWITCH BOARD
SUB	SUBSTATION
SUSP	SUSPENDED
SUSPCLG	SUPENDED CEILING
T	TREAD
TB	TOP OF BEAM
TC	TOP OF CONCRETE
TD	TOWEL DISPENSER
TDR	TOWEL DISPENSER/RECEPTACLE
TEL	TELEPHONE
TEMP	TEMPERATURE
TER	TERRAZZO
THK	THICKNESS
THRES	THRESHOLD
THRU	THROUGH
TMPD	TEMPERED
TMPDGL	TEMPERED GLASS
TOS	TOP OF STEEL
TPH	TOILET PAPER HOLDER
TYP	TYPICAL
UL	UNDERGROUND LABORATORIES
UG	UNDERGROUND
UNEX	UNEXCAVATED
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VR	VAPOR RETARDER
VT	VINYL TILE
VWC	VINYL WALL COVERING
W/	WITH
W	WIDE/WIDTH
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WF	WIDE FLANGE
WGL	WIRE GLASS
WHTR	WATER HEATER
WP	WORKING POINT
WR	WASTE RECEPTACLE
WWF	WELDED WIRE FABRIC
XSECT	CROSS SECTION
XFMR	TRANSFORMER

REFERENCE SYMBOLS



ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
(FAE)	FIXTURE TYPE
▭	RECESSED OR SURFACE MOUNTED FLUORESCENT LIGHTING FIXTURE
◩	RECESSED OR SURFACE MOUNTED FLUORESCENT NIGHT LIGHTING FIXTURE
—‖	SURFACE MOUNTED FLUORESCENT LIGHTING FIXTURE
◀‖	SURFACE MOUNTED FLUORESCENT NIGHT LIGHTING FIXTURE
—⊥—‖	WALL MOUNTED FLUORESCENT LIGHTING FIXTURE
○	DOWNLIGHT LIGHTING FIXTURE
◒	DOWNLIGHT NIGHT LIGHTING FIXTURE
○▸	WALLWASH OR DIRECTIONAL DOWNLIGHT
⊢○	WALL MOUNTED LIGHTING FIXTURE
⌓	WALL SCONCE
▭	TRACK LIGHTING TRACK
▽	TRACK LIGHTING FIXTURE
△□△	EMERGENCY LIGHTING UNIT
●—□	POLE MOUNTED LIGHTING FIXTURE
⊠	POLE MOUNTED LIGHTING FIXTURE – POST TOP
⊙	BOLLARD LIGHTING FIXTURE
⊢□	OUTDOOR WALL MOUNTED LIGHTING FIXTURE
⊗→	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS (SHADED AREA INDICATES FACE)
⊗ ↑ ↑	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS (SHADED AREA INDICATES FACE)
–⊗ |	EXIT LIGHTING FIXTURE – WALL MOUNTED
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATE PANEL
⌒	CIRCUIT BREAKER
∕	SWITCH
⊡	AUTOMATIC OR MANUAL TRANSFER SWITCH
⊏⊐	FUSE
≋	TRANSFORMER
→3	CURRENT TRANSFORMER
3E	POTENTIAL TRANSFORMER
—●●—|	LIGHTING ARRESTOR
▯	PANEL (LIGHTING OR RECEPTACLE)
⏚	GROUND
→|←	CONDUIT OR WIRE CROSSING, NO INTERSECTION
T/C	TIMER CONTROLLER
C	CONTACTOR

SYMBOL	DESCRIPTION
↖	CONDUIT HOME RUN
●—	CONDUIT TURNED DOWN
○—	CONDUIT TURNED UP
○┴○	PUSH BUTTON NORMALLY OPEN
○|○	PUSH BUTTON NORMALLY CLOSED
⊣ ⊢	NORMALLY OPEN CONTACT
⊣/⊢	NORMALLY CLOSED CONTACT
⦶	SINGLE RECEPTACLE
⦷	DUPLEX RECEPTACLE
⦷⦷	QUAD RECEPTACLE
⊞	DUPLEX RECEPTACLE GROUND FAULT INTERRUPTER
◐	DUPLEX EMERGENCY RECEPTACLE
◇	DUPLEX RECEPTACLE – IOSLATED GROUND
◇◇	QUAD RECEPTACLE – IOSLATED GROUND
⊡	DUPLEX FLOOR MOUNTED RECEPTACLE
⟁	SPECIAL RECEPTACLE – NEMA CONFIGURATION AS NOTED
▭	MULTI–OUTLET RACEWAY (RECEPTACLES AS NOTED ON PLANS
◢	LIGHTING PANEL $^{480}/_{277}$ VOLT
▬	RECEPTACLE PANEL $^{480}/_{277}$ VOLT
▨	DISTRIBUTION PANEL
□□□	MOTOR CONTROL CENTER
T	TRANSFORMER
○	SINGLE PHASE MOTOR
◎	THREE PHASE MOTOR
◪	MANUAL MOTOR STARTER
◪ P	MANUAL MOTOR STARTER WITH PILOT LIGHT
⊠	MOTOR STARTER
SM ⊠	SINGLE PHASE MOTOR STARTER WITH DISCONNECT SWITCH
⊠┘	COMBINATION MOTOR STARTER
□┘	NON–FUSIBLE DISCONNECT SWITCH
⧅┘	FUSIBLE DISCONNECT SWITCH
▣	PUSH BUTTON STATION
J	JUNCTION BOX
◐	HARD WIRE POWER CONNECTION
◧	HARD WIRE CONNECTION AT FLOOR BOX
PT	POTENTIAL TRANSFORMER
⊙	GROUND ROD
◁ 48"	DATA OR TELE OUTLET – WALL MOUNTED @ 8"
▽▽▽	DATA OR TELE MULTI–OUTLET RACEWAY
○○○○○	TELECOMMUNICATIONS BACKBOARD

UPS INSTALLATION:

1. INSTALL NEW UPS SYSTEM AT THE BUILDING PENTHOUSE AS FOLLOWS:
   - NEW 100KVA, 480 V, 3Ø / 480 V / 3Ø UPS
   - NEW 112 ½ KVA, 480 V, 3Ø 4W TRANSFORMER
   - NEW UPS MAIN DISTRIBUTION PANEL
   - NEW UPS ROOM WITH LIGHTS, RECEPTACLES, HVAC UNIT, 100A POWER PANEL AND CONCRETE MAINTENANCE PAD FOR UPS.
   - IN EXISTING 480V, PP–7 INSTALL NEW 150A FUSE IN EXIST SPARE 200A DISCONNECT AND FEED NEW UPS.
   - LIKEWISE, IN PP–7 INSTALL NEW 60A FUSE IN EXISTING SPARE 200A DISCONNECT AND FEED NEW 25KVA, 480V/120–240V, 1Ø TRANSFORMER THAT FEEDS NEW 100A POWER PANEL IN UPS ROOM.
2. REMOVE POWER FEED, CABLE AND CONDUIT, TO EXISTING RECEPTACLE PANEL RP–3SK, FEED IT FROM NEW UPS MAIN DISTRIBUTION PANEL. RENAME UPS–RP–3SK.
3. INSTALL SEVEN (7) NEW UPS DISTRIBUTION PANELS AT VARIOUS FLOORS/LOCATIONS AS SHOWN ON THE DRAWINGS.
4. INSTALL BRANCH CIRCUITS FROM NEW UPS DISTRIBUTION PANEL TO UPS RECEPTACLES. SHARED NEUTRALS FOR BRANCH UPS CIRCUITS ARE NOT ALLOWED.
5. ALL UPS RECEPTACLES SHALL BE A YELLOW DEVICE AND SHALL HAVE YELLOW WITH BLACK NAMEPLATES DESIGNATING RECEPTACLE USE AND CIRCUIT NUMBER.
6. FOR DEDICATED SINGLE USER, MODULAR UPS, SEE FLOOR PLANS E–0 THROUGH E–4.

ELECTRICAL INSTALLATION:

1. INSTALL CONDUIT IN ACCORDANCE WITH NFPA 70 "STANDARD OF INSTALLATION".
2. FLEXIBLE CONDUIT SHALL BE SUPPORTED AT INTERVALS OF 3'–0" MAXIMUM.
3. SUPPORT CONDUIT USING COATED STEEL OR MALLEABLE IRON STRAPS, LAY–IN ADJUSTABLE HANGERS, CLEVIS HANGERS, AND SPLIT HANGERS WITH ¼" ROD MINIMUM.
4. DO NOT ATTACH CONDUIT TO CEILING SUPPORT WIRES, OR SUPPORT OF OTHER TRADES, UNLESS SPECIFICALLY DESIGNED.
5. ARRANGE EXPOSED CONDUITS TO MAINTAIN HEADROOM AND PRESENT NEAT APPEARANCE. LAYOUT SHALL BE APPROVED BY WSU / CONSULTANTS
6. ROUTE CONDUIT PARALLEL AND PERPENDICULAR TO WALLS.
7. ROUTE CONDUIT INSTALLED ABOVE ACCESSIBLE CEILING PARALLEL AND PERPENDICULAR TO WALLS.
8. ROUTE CONDUIT UNDER SLAB FROM POINT–TO–POINT.
9. MAINTAIN 12 INCH CLEARANCE BETWEEN CONDUIT AND SURFACES WITH TEMPERATURES EXCEEDING 104F.
10. INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90 DEGREES BENDS BETWEEN BOXES. USE CONDUIT BODIES TO MAKE SHARP CHANGES IN DIRECTION, AS AROUND BEAMS. USE FACTORY ELBOWS FOR BENDS IN METAL CONDUIT LARGER THAN 2 INCH SIZE.
11. PROVIDE SUITABLE FITTINGS TO ACCOMMODATE EXPANSION AND DEFLECTION WHERE CONDUIT CROSSES CONTROL AND EXPANSION JOINT.
12. GROUND AND BOND CONDUIT UNDER PROVISIONS OF SPECIFICATIONS.
13. PROVIDE FLEXIBLE CONNECTIONS TO RESILIENTLY MOUNTED EQUIPMENT AND DRY TRANSFORMERS.
14. NOT USED
15. MAKE WIRING CONNECTIONS USING WIRE AND CABLE WITH INSULATION SUITABLE FOR TEMPERATURE ENCOUNTERED IN HEAT PRODUCING EQUIPMENT.
16. PROVIDE RECEPTACLE OUTLET WHERE CONNECTION WITH ATTACHMENT PLUG IS INDICATED. PROVIDE CORD AND CAP WHERE FIELD–SUPPLIED ATTACHMENT PLUG IS INDICATED.
17. PROVIDE SUITABLE STRAIN–RELIEF CLAMPS AND FITTINGS FOR CORD CONNECTIONS AT OUTLET BOXES AND EQUIPMENT CONNECTION BOXES.
18. MONUMENTS ARE REQUIRED FOR BELOW GRADE ELECTRIC ROUTING TO INDICATE LOCATION & ROUTING.

GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL PULL BOXES. JUNCTION BOXES, AND INCIDENTAL MATERIALS AND LABOR FOR COMPLETE ELECTRICAL INSTALLATION.
2. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
3. ALL CONDUIT ENDS STUBBED INTO SPACES AND IN PULL BOX'S SHALL BE PROVIDED WITH PLASTIC PROTECTIVE BUSHING'S.
4. PROVIDE FIRE STOPPING AROUND ALL CONDUITS, AND IN AROUND ALL SLEEVES PASSING THROUGH FIRE RATED WALLS AND FLOORS.
5. DISPOSE OF ALL MATERIALS OFF SITE AND INCLUDE ALL COSTS FOR DISPOSAL IN BID. ALL MATERIAL SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, INCLUDING TCLP TESTING, PROPER DISPOSAL AND/OR RECYCLING OF FLUORESCENT LAMPS.
6. CONTRACTOR SHALL VERIFY ALL UNDERGROUND AND IN–SLAB UTILITY LOCATIONS PRIOR TO SAW–CUTTING OR PENETRATING ANY FLOOR SLAB.
7. CONDUIT RACEWAYS IN FINISHED AREAS SHALL BE CONCEALED IN CEILING SPACES AND WALLS UNLESS NOTED OTHERWISE.
8. COMPLY WITH APPLICABLE NEC, NEMA, IEEE, UL, NFPA, ADA, NETA, ICEA, ASTM, NECA, MIOSHA, OSHA, MANUFACTURE'S RECOMMENDATIONS AND INSTRUCTIONS, AND ALL FEDERAL, STATE, LOCAL AND OTHER APPLICABLE CODES, LAWS, RULES AND ORDINANCES. ALL WORK SHALL COMPLY WITH WAYNE STATE UNIVERSITY STANDARDS AS APPLICABLE.
9. COORDINATE WORK WITH OWNER'S REP, EQUIPMENT SUPPLIERS. OTHER TRADES AND AUTHORITIES HAVING JURISDICTION.
10. CONDUIT, SIZED AS INDICATED, SHALL BE EMT OR RIDGID STEEL. WIRE FOR POWER CIRCUITS SHALL BE 600V COPPER, CLASS B STRANDED THWN.
11. PULL BOXES TO BE SUPPORTED FROM WALLS OR STRUCTURE, INDEPENDENTLY FROM CONDUIT AND OTHER SYSTEMS.
12. THESE NOTES ARE COMPLEMENTARY TO THE SPECIFICATIONS AND REPRESENT MINIMUM REQUIREMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL OR MORE STRINGENT REQUIREMENTS.
13. ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES AND REGULATIONS.
14. VERIFY THE SIZES, LOCATIONS, ELEVATIONS AND DETAILS OF THE EXISTING CONDITIONS THAT AFFECT THE WORK AND INFORM THE OWNER OF ANY DISCREPANCIES IN DIMENSIONS, SIZES, LOCATIONS AND CONDITIONS BEFORE PROCEEDING WITH THE WORK.
15. PROVIDE SHORING, BRACING, UNDERPINNING AND ANY OTHER MEANS REQUIRED TO PROTECT THE SAFETY, INTEGRITY AND STABILITY OF ALL NEW AND EXISTING CONSTRUCTION.
16. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AT THE SITE, INCLUDING UTILITIES, SERVICES, ETC., AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE PROPERTY, NEW AND EXISTING CONSTRUCTION, AND FOR UNAUTHORIZED DISRUPTIONS TO THE OWNERS OPERATION, UTILIZES AND SERVICES.
17. TYPICAL DETAILS APPLY TO ALL DRAWINGS AND SHALL BE USED UNLESS OTHERWISE NOTED OR DETAILED.
18. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SHOP DRAWINGS FOR SIZE AND LOCATION OF OPENINGS, OFFSETS, STAIR DETAILS, UTILITY LOCATIONS AND OTHER DETAILS & DIMENSIONS, NOT INDICATED ON STRUCTURAL DRAWINGS.
19. NORMAL OPERATIONS WILL BE CONTINUED BY THE OWNER THROUGHOUT THE DURATION OF CONSTRUCTION. ANY INTERFERENCE, UTILITY OUTAGE, OR DISRUPTION TO THE OWNERS OPERATION MUST BE COORDINATED WITH THE OWNER AND AUTHORIZED IN WRITING BEFORE PROCEEDING WITH WORK.
20. EQUIPMENT INSTALLATION DETAILS, REQUIREMENTS AND DIMENSIONS ARE PROVIDED FOR BIDDING PURPOSES ONLY AND ARE SUBJECT TO CHANGE UNTIL EQUIPMENT IS PURCHASED. CONTRACTOR IS RESPONSIBLE TO OBTAIN FINAL APPROVED, CERTIFIED MANUFACTURERS SHOP DRAWINGS FOR ALL EQUIPMENT AND INSTALL EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURERS WRITTEN REQUIREMENTS. THIS INCLUDES, BUT IS NOT LIMITED TO, FINAL ANCHOR BOLT SIZE, SPACING, DETAILS AND INSTALLATION, EQUIPMENT INSTALLING METHODS AND REQUIREMENTS, PROPER LEVELING GROUTING AND ANCHORAGE, AND TEMPORARY SUPPORT AND PROTECTIVE MEASURES DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL INCIDENTAL MATERIALS, TOOLS AND SUPERVISION TO PROVIDE A COMPLETE AND CORRECT INSTALLATION CAPABLE FOR CERTIFICATION BY THE EQUIPMENT MANUFACTURER. DISCREPANCIES OR PROBLEMS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE FOR DIRECTION BEFORE PROCEEDING WITH INSTALLATION OF ANY EQUIPMENT COMPONENTS. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CORRECTING NON–CONFORMING EQUIPMENT INSTALLATION.
21. RESTORATION OF WALLS SHALL INCLUDE PAINTING. EDGE TO EDGE PAINTING OF EACH WALL AFFECTED AND ONE SIDE OF COLUMNS AFFECTED. CLEAN AND DEGREASE WALLS/COLUMNS. APPLY COMMERCIAL LATEX PRIMER AND APPLY TWO COATS OF FINISH LATEX PAINT. MATCH EXISTING COLOR. EXPOSED CONDUITS SHOULD BE CLEANED & PAINTED WITH TWO COATS OF FINISH LATEX PAINT. MATCH EXISTING

BASIC MATERIALS AND METHODS:

1. MINIMUM SIZE CONDUIT IS 3/4" UNLESS OTHERWISE INDICATED.
2. EXTERIOR CONDUIT BEYOND TEN FEET FROM BUILDING SHALL BE SCHEDULE 40 PVC, MINIMUM 3/4"
3. EXTERIOR CONDUIT WITHIN TEN FEET FROM THE BUILDING FOUNDATION WALL SHALL BE GALVANIZED RIGID STEEL, MINIMUM 3/4"
4. ALL LARGE (3" OR LARGER) BURIED CONDUITS CONTAINING CONDUCTORS FROM GENERATORS SHALL BE PVC: ELBOWS OR SWEEPS SHALL BE GALVANIZED RIGID STEEL. CONDUITS PROJECTING THROUGH CONCRETE SLABS OR EXTENDING ABOVE GRADE SHALL BE GALVANIZED RIGID STEEL.
5. ALL EXTERIOR UNDERGROUND CONDUITS SHALL INCORPORATE A CONDUCTIVE WARNING TAPE BURIED ABOVE THE CONDUIT.
6. INTERIOR CONDUIT UNDER SLAB ON GRADE SHALL BE SCHEDULE 40 PVC, MINIMUM ¾"
7. NO CONDUIT SHALL BE PLACED IN CONCRETE ROOF OR FLOOR SLABS.
8. CONDUIT IN WET/DAMP LOCATIONS SHALL BE GALVANIZED RIGID STEEL, MINIMUM 3/4"
9. IN CONCEALED DRY LOCATIONS USE ELECTRICAL METALLIC TUBING (EMT) THRU 4" IN DRYWALL PARTITIONS AND ABOVE CEILING.
10. IN EXPOSED DRY LOCATIONS USE ELECTRICAL METALLIC TUBING (EMT) THRU 4".
11. CONDUITS OF 4" AND LARGER SHALL BE GALVANIZED RIGID STEEL WITH THREADED FITTINGS, PROVIDE SWEEPS IN LIEU OF ELBOWS.

ELECTRICAL DEMOLITION:

1. CONDUIT AND WIRE FEEDING DEVICES, AND EQUIPMENT TO BE REMOVED SHALL BE REMOVED UP TO THE NEXT ACTIVE PULL BOX, JUNCTION BOX OR PANEL. HANGERS, MESSENGER CABLE, BRACKETS ETC., SUPPORTING ITEMS TO BE REMOVED SHALL ALSO BE UNFASTENED AND REMOVED. OPEN HOLES IN DUCTS, BOXES, PANELS AND KNOCK–OUTS SHALL BE CLOSED WITH SUITABLE SNAP PLUGS OR BLANK–OFF STEEL PLATES.
2. THE CONTRACTOR SHALL REMOVE AND DELIVER TO A PLACE DESIGNATED BY THE UNIVERSITY, ALL EXISTING ELECTRICAL EQUIPMENT SELECTED FOR SALVAGE BY THE UNIVERSITY. THIS EQUIPMENT REMAINS THE PROPERTY OF THE UNIVERSITY. ANY EQUIPMENT, DEVICES, MATERIALS, ETC., THAT THE UNIVERSITY ELECTS NOT TO RETAIN SHALL BE LEGALLY DISPOSED OF BY THIS CONTRACTOR.

ELECTRIC - GENERAL:

1. THE INSTALLATION SHALL BE IN ACCORDANCE WITH WSU CONSTRUCTION DESIGN STDS AND WITH ALL APPLICABLE CODES. INCLUDING NFPA 70, NFPA 110.6 FLASH PROTECTION, FPN N01 NFP, 70E, FPN NO2, ANSI Z535.4 – 1998
2. LOCATE EQUIPMENT REQUIRING MAINTENANCE SO THAT IT IS EASILY ACCESSIBLE. AVOID INSTALLATIONS THAT REQUIRE THE USE OF LIFTS OR SCAFFOLDING, OR THE REMOVAL OF OTHER EQUIPMENT, FOR ROUTINE MAINTENANCE. PROVIDE ACCESS DOORS TO ALL MAINTAINABLE EQUIPMENT LOCATED BEHIND WALLS OR ABOVE PERMANENT CEILINGS. DO NOT CREATE CONFINED SPACES OF ANY REGULATED DESCRIPTION.
3. PROVIDE RACEWAYS FOR ALL WIRING UNLESS OTHERWISE AGREED. ALL POWER WIRING SHALL BE ENCLOSED IN CONCEALED RACEWAYS. ALL RACEWAYS SHALL BEAR UL LABELING FOR THE APPLICATION SELECTED.
4. DO NOT MIX WIRING SYSTEMS. PROVIDE SEPARATE RACEWAYS FOR DIFFERENT SYSTEMS BY VOLTAGE, TYPE OR PURPOSE. PROVIDE 120/208 VOLT SEPARATE FROM 277/480 VOLTS.
5. EXIT AND EMERGENCY LIGHTING SEPARATE. FIRE ALARM, SECURITY, TELE/COMM/DATA/AUDIOVISUAL MAY BE COMBINED IN A SUITABLE CABLE TRAY.
6. PROVIDE PIPE SLEEVES WHERE CONDUITS PASS THROUGH CONCRETE FLOORS, WALLS, BEAMS AND CEILINGS. CORE DRILLED SLEEVES SHALL BE SET WITH STEEL TABS AND GROUTED WITH EXPANDED GROUT.
   ALUMINUM CONDUIT SHALL NOT BE USED. WHERE SPECIFIC SIZES ARE NOT INDICATED ON DRAWINGS, SLEEVES SHALL BE SIZED TO PROVIDE ONE–HALF (1/2) INCH CLEARANCE BETWEEN THE OUTSIDE SURFACES OF THE ITEM FOR WHICH THEY WERE INSTALLED. THEY SHALL BE FLUSH WITH WALL SURFACES, AND SHALL EXTEND 1–1/2", OR AS DIRECTED, ABOVE FINISHED FLOOR LEVELS. THE SPACE BETWEEN CONDUIT AND SLEEVES SHALL BE FIRE STOPPED USING ONE OF THE METHODS DETAILED IN THE UL FIRE RESISTANCE DIRECTORY, VOL. 2, THROUGH – PENETRATION FIRESTOP SYSTEMS, LATEST EDITION. SEAL ANY OPENINGS BETWEEN SLEEVES AND CONCRETE IN AN APPROPRIATE MANNER.
7. THE FILLER MATERIALS AND METHODS USED SHALL BE RATED AT LEAST EQUAL TO THE FIRE RESISTANCE OF THE CONSTRUCTION MATERIAL BEING PENETRATED.
8. PROVIDE CONCRETE ENVELOPES FOR BELOW GRADE CONDUITS AND HOUSEKEEPING PADS FOR MOTOR CONTROL CENTERS, FLOOR MOUNTED DISTRIBUTION PANELS, MOTOR CONTROL CENTERS, TRANSFORMERS, SWITCHGEAR, ETC.
9. CONCRETE WORK SHALL BE DONE BY THE CONTRACTOR FOR CONCRETE WORK BUT PAID FOR BY THIS CONTRACTOR. PROVIDE 4 INCH HIGH CONCRETE HOUSEKEEPING PADS FOR EQUIPMENT UNLESS OTHERWISE NOTED.
10. CONCRETE PADS FOR PRIMARY SWITCH UNITS AND UNIT SUBSTATIONS SHALL HAVE ANGLE IRON OR CHANNEL NOSING.
11. ALL CONTRACTORS MUST OBTAIN APPROVAL FROM THE UNIVERSITY PROJECT MANAGER PRIOR TO INTERRUPTING EXISTING SERVICES. ALL SERVICE INTERRUPTIONS SHALL BE AT A TIME SUITABLE TO THE UNIVERSITY. INCLUDE SPECIFIC LANGUAGE COVERING OFF HOURS TIE–INS.
12. IN GENERAL, ALL SHUTDOWN OF ELECTRICAL SERVICES SHALL BE PERFORMED DURING OFF HOURS AND MAY INCLUDE SUNDAY AND HOLIDAY PERIODS. THE PREMIUM TIME COST SHALL BE INCLUDED IN THE CONTRACTOR'S BASE BID AS A PART OF AN **$5,000** ALLOWANCE. THE ALLOWANCE EXPENDITURE MUST BE ACCOUNTED FOR AND APPROVED IN ADVANCE BY WSU DURING THE CONSTRUCTION PHASE OF THE PROJECT. UNUSED ALLOWANCES WILL BE RETURNED TO THE UNIVERSITY.
13. ALL CONDUITS & RACEWAYS SHALL BE CONCEALED IN FINISHED AREAS UNLESS OTHERWISE NOTED. EXPOSED WORK SHALL BE INSTALLED PERPENDICULAR OR PARALLEL TO WALLS, CEILINGS, AND STRUCTURAL MEMBERS AND COORDINATED WITH MECHANICAL DUCTS, PIPES AND EQUIPMENT. PAINT TO MATCH EXISTING ADJACENT UTILITIES.
14. FOR WORK IN FINISHED ROOMS WITHOUT CEILINGS, THE CONDUIT SHALL BE RUN EXPOSED EXCEPT AS NOTED HEREINBEFORE. CONDUIT DROPS FOR OUTLETS, SWITCHES, ETC., SHALL BE RUN CONCEALED IN THE WALL CONSTRUCTION AND SUCH CONDUITS SHALL BE CONCEALED WHENEVER POSSIBLE.
15. ALL INDOOR CONDUIT SHALL COMPLY WITH WSU CONSTR. DESIGN STD 16110 & INTERIOR CONDUIT BEYOND 10' FROM BLDGS SHALL BE SCH 40 PVC; EXTERIOR CONDUIT WITHIN 10' OF BUILDING SHALL BE GRS. INDOOR CONDUIT SHALL BE EMT UNLESS OTHERWISE NOTED.

DESIGN BASIS FOR ELECTRICAL EQUIPMENT AS PROVIDED BELOW:

1. REVISIONS MAY BE REQUIRED FOR SUPPORT REQUIREMENTS AND INTERFACE WITH UTILITIES BASED UPON FINAL PURCHASED EQUIPMENT.
2. COORDINATE WITH MANUFACTURERS APPROVED SHOP DRAWINGS FOR PURCHASED EQUIPMENT BEFORE FABRICATION AND CONSTRUCTION.

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WAYNE STATE UNIVERSITY

007-CHEMISTRY BUILDING
5101 CASS AVENUE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 007-248857

WAYNE STATE UNIVERSITY
FACILITIES PLANNING & MANAGEMENT
5454 CASS AVENUE DETROIT MICHIGAN

DLM
DRAWN BY
CJM
PROJECT LEAD
DHP
DESIGNED BY
DA
REVIEWED BY
APPROVED BY
DATE

MARK	ISSUED FOR/REVISIONS	DATE
A	90% CLIENT REVIEW	10-9-2014
B	FOR BID	1-21-2015

Engineers Seal

007-248857
CLIENT PROJECT NO.
320004
PROJECT NO.
N/A
SCALE

SHEET TITLE
GENERAL NOTES AND DESIGN CRITERIA

SHEET NO.
G-1
REV NO.
B

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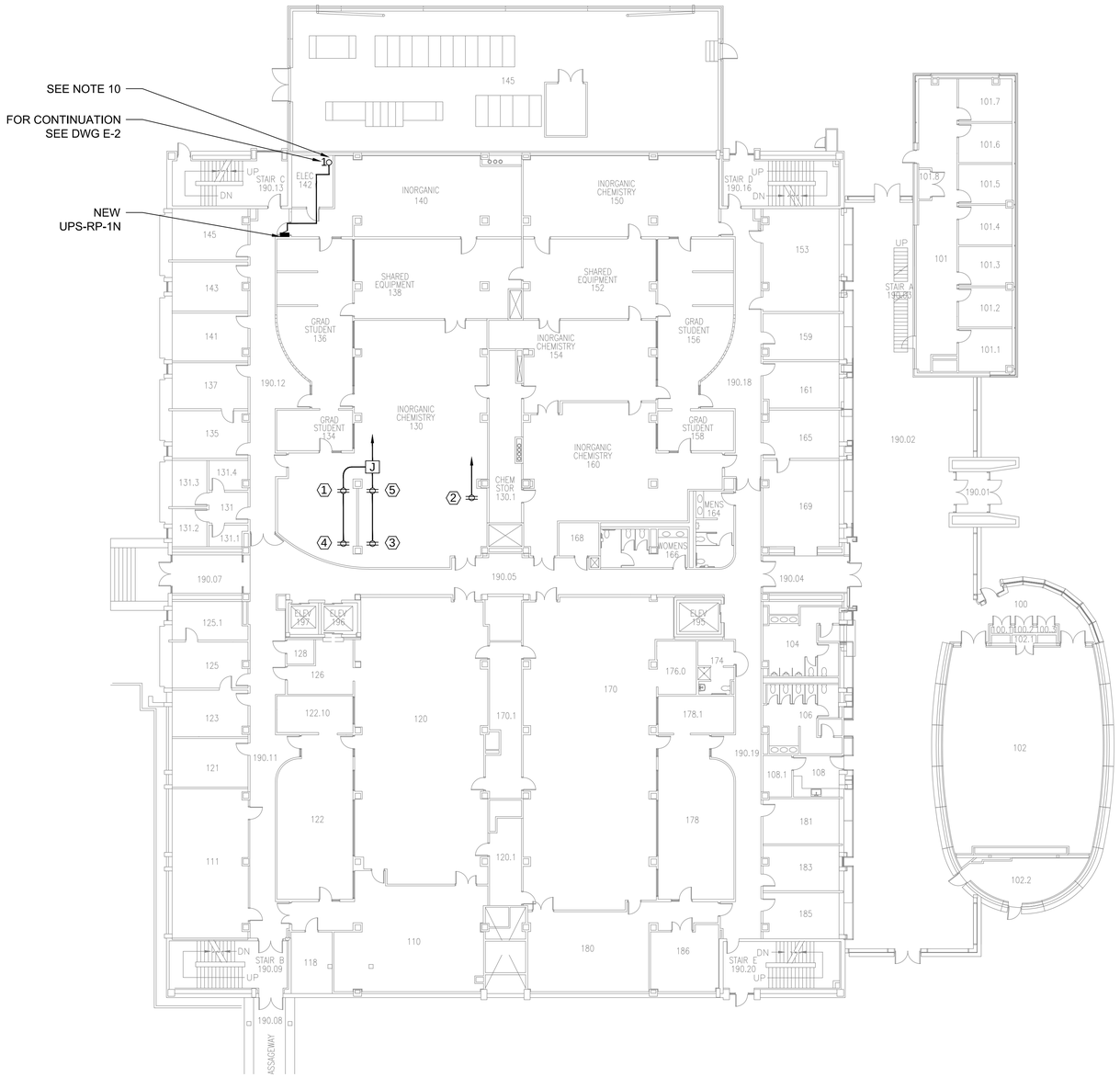

FIRST FLOOR LEVEL-EL. = 152'-10"

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

NORTH

0 10' 20' 30'

PANEL NUMBER: **UPS-RP-1N**

MAINS: 100 AMP MAIN CIRCUIT BREAKER
VOLTAGE: 208 Y-120 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ
NEUTRAL: 100 % OF MAIN BUS RATING
INTERRUPTING: 10,000 KAIC
PANEL TYPE: H-LINE (BASED ON SQUARE-D)

FILE NO.:
PROJECT: Chemistry Bldg
PANEL LOCATION: Corridor 190.12
PANEL MOUNTING: FLUSH
GRD. BUS: NON-ISOLATED

CKT NO	LOAD DESCRIPTION	LOADS (VA) LTG.	MTRS.	REC.	MISC.	BKR AMP	P	H	P	BKR AMP	LOADS (VA) LTG.	MTRS.	REC.	MISC.	LOAD DESCRIPTION	CKT NO
1	Rm 130 UV Spectro.				600	20	1	A	1	20				600	Rm 130 Globe Box	2
3	Rm 130 Gas Chrom.				1200	20	1	B	1	20				1800	Rm 130 FTIR Spectro.	4
5	Rm 130 UV-VIS 3600				800	20	1	C	1	20					Spare	6
7	Space							A							Space	8
9	Space							B							Space	10
11	Space							C							Space	12
	SUBTOTALS (VA)	0	0	0	2600						0	0	0	2400	SUBTOTALS (VA)	

CONNECTED LOADS	0.0	0.0	0.0	5.0
DESIGN FACTORS	1.25	1	NEC	1
DESIGN LOADS (KVA)	0	0.0	0.0	5.0
DEMAND FACTORS	1	1	1	1
DEMAND LOADS (KVA)	0	0.0	0.0	5.0
TOTAL CONNECTED LOAD	5	KVA	14.0	AMPS
TOTAL DESIGN LOAD	5	KVA	13.9	AMPS
TOTAL DEMAND LOAD	5.0	KVA	**13.9**	AMPS

REMARKS:

FDR SIZE:
FDR LENGTH:
VOLT DROP:
MIN FDR/OCPD SIZE (1.5xDESIGN) :

NOTE:
NEC = 10 KVA @ 100%, REST @ 50%

PANEL NUMBER
UPS-RP-1N

UPS-RP-1N

CONDUIT/CABLE SCHEDULE

Key Note	PANEL	CKT #	120/208 DESCRIPTION	LOAD VA	# POLES	WIRE LENGTH	CKT BKR	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP
1	UPS-RP-1N	1	Room 130 MC Julabo Water Circulator	600	1	100	20	12	12	12	3/4	1.4%
2	UPS-RP-1N	2	Room 130 Braun Labmaster Glove Box	600	1	100	20	12	12	12	3/4	1.4%
3	UPS-RP-1N	3	Room 130 Gas Chromatography Machine	1200	1	50	20	12	12	12	3/4	1.4%
4	UPS-RP-1N	4	Room 130 Bruker Tenser Spectrometer	1800	1	75	20	10	10	12	3/4	2.1%
5	UPS-RP-1N	5	Room 130 UV-VIS Shimadzu 3600	800	1	75	20	12	12	12	3/4	1.4%

UPS-RP-1N

NOTES:

1. SEE DRAWING G-1 FOR GENERAL NOTES AND LEGEND
2. SEE DRAWING E-103 FOR CHANGES TO EXISTING PANEL SCHEDULES
3. EXISTING RECEPTACLES DESIGNATED TO BE FOR THE UPS TO HAVE NEW CONDUIT AND WIRE INSTALLED FROM THE UPS BRANCH CIRCUIT PANEL TO THE NEW RECEPTACLE. RECEPTACLES NOT DESIGNATED FOR UPS BUT PRESENTLY SHARING THE EXISTING CIRCUIT ARE TO BE DISCONNECTED FROM THE UPS RECEPTACLE, AND ARE TO MAINTAIN THEIR CONNECTION TO THE EXISTING PANEL WITH NEW CONDUIT AND WIRE WHERE REQUIRED. CONTRACTOR TO INSTALL NEW CONDUIT AND WIRE WHERE REQUIRED AND REPAIR ACCESS POINTS PER SHT. G-1.
4. NEW CIRCUITS AS INDICATED IN THE CABLE/CONDUIT/PANEL SCHEDULES EXTEND FROM LISTED PANELS TO THE DESIGNATED LOADS THROUGHOUT THE CHEMISTRY BUILDING. EACH CIRCUIT TO HAVE ITS OWN HOT AND NEUTRAL
5. NOT USED
6. NOT USED
7. CORE DRILLING SHALL BE COORDINATED WITH WSU AND ADJACENT CORED HOLES TO BE NO CLOSER THAN 2 TIMES DIAMETER SPACING.
8. SEE CONDUIT RISER DIAGRAM ON DWG. E-102, E-102.1 FOR DIAGRAMMATIC VIEW OF CONDUIT ENTERING THIS ROOM.
9. PROVIDE FIRE STOPPING AROUND ALL CONDUITS AND AROUND ALL SLEEVES PASSING THROUGH FIRE RATED WALLS AND FLOORS.
10. INSTALL CONDUIT RISER IN A LOCATION AND MANNER THAT DOES NOT CAUSE INTERFERENCE WITH EXISTING ACCESS, EQUIPMENT, DEVICES, ETC. COORDINATE WITH OWNERS REP.

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WAYNE STATE UNIVERSITY
FACILITIES PLANNING & MANAGEMENT
5454 CASS AVENUE DETROIT, MICHIGAN

DLM DRAWN BY	CJM PROJECT LEAD
DHP DESIGNED BY	DA REVIEWED BY
APPROVED BY	DATE

MARK	ISSUED FOR/REVISIONS	DATE
A	90% CLIENT REVIEW	10-9-2014
B	FOR BID	1-21-2015

Engineers Seal

007-248857
CLIENT PROJECT NO.

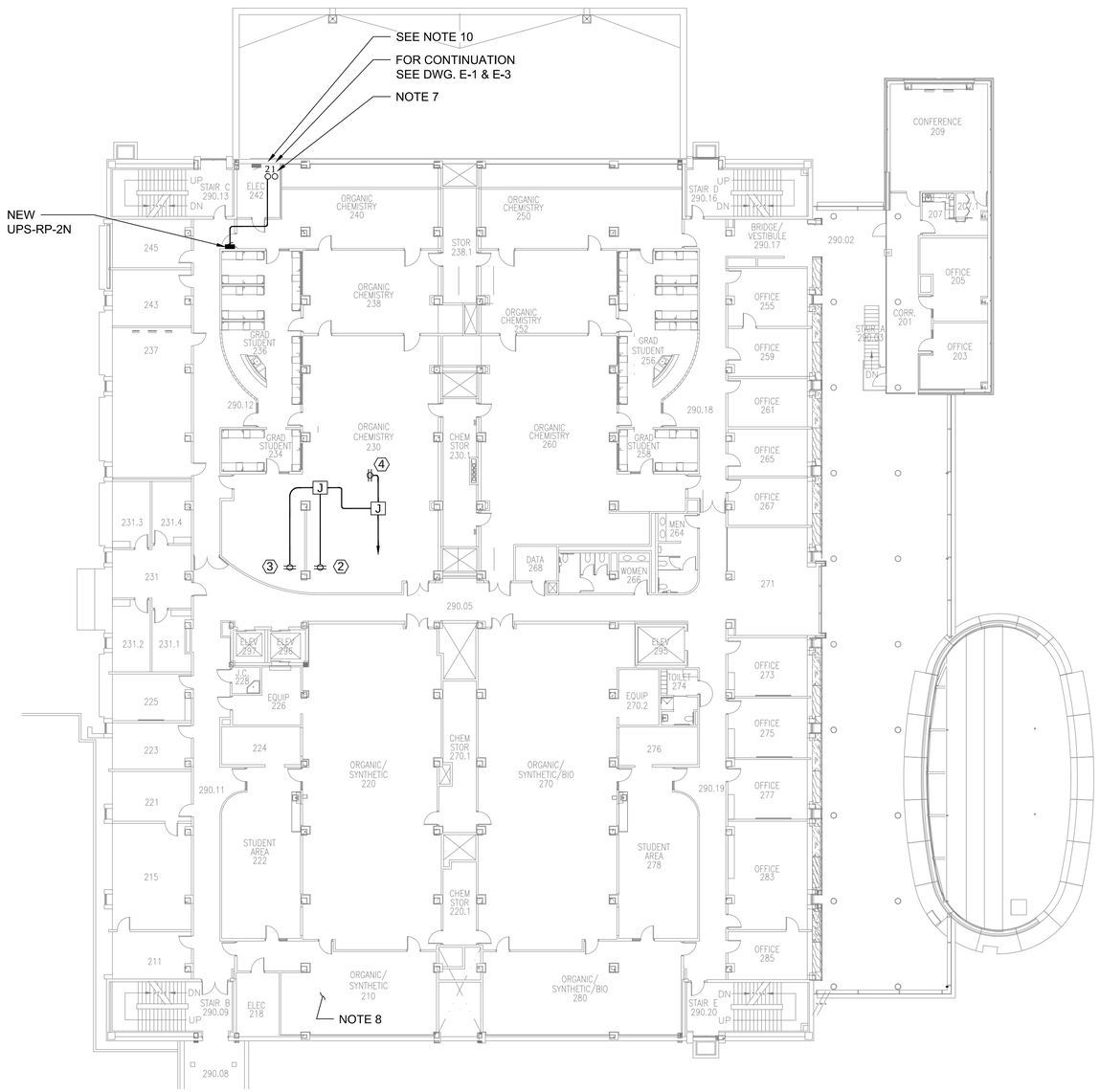
320006
PROJECT NO.

AS SHOWN
SCALE

SHEET TITLE
FIRST FLOOR PLAN

SHEET NO.
E-1

REV NO.
B



SECOND FLOOR LEVEL-EL. = 166'-6"

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

NORTH

0 10' 20' 30'

PANEL NUMBER: **UPS-RP-2N**

MAINS: 100 AMP MAIN CIRCUIT BREAKER
VOLTAGE: 208 Y-120 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ
NEUTRAL: 100 % OF MAIN BUS RATING
INTERRUPTING: 10,000 KAIC
PANEL TYPE: HLINE (BASED ON SQUARE-D)

FILE NO.:
PROJECT: Chemistry Bldg
PANEL LOCATION: Corridor 290.12
PANEL MOUNTIMG: FLUSH
GRD. BUS: NON-ISOLATED

CKT NO	LOAD DESCRIPTION	LOADS (VA) LTG.	MTRS.	REC.	MISC.	BKR AMP	P	H	P	BKR AMP	LOADS (VA) LTG.	MTRS.	REC.	MISC.	LOAD DESCRIPTION	CKT NO
1	Spare					20	1	A	1	20				1200	Rm 230 LCMS	2
3	Rm 230 Spectro.				480	20	1	B	1	20					Spare	4
5	Rm 230 Minispec Analy.				500	20	1	C							Space	6
7	Space							A							Space	8
9	Space							B							Space	10
11	Space							C							Space	12
	SUBTOTALS (VA)	0	0	0	980						0	0	0	1200	SUBTOTALS (VA)	
	CONNECTED LOADS	0.0	0.0	0.0	2.2											
	DESIGN FACTORS	1.25	1	NEC	1											
	DESIGN LOADS (KVA)	0	0.0	0.0	2.2											
	DEMAND FACTORS	1	1	1	1											
	DEMAND LOADS (KVA)	0	0.0	0.0	2.2											
	TOTAL CONNECTED LOAD	2	KVA	6.1	AMPS											
	TOTAL DESIGN LOAD	2	KVA	6.1	AMPS											
	TOTAL DEMAND LOAD	2.2	KVA	**6.1**	AMPS											

REMARKS:

FDR SIZE:
FDR LENGTH:
VOLT DROP:
MIN FDR/OCPD SIZE (1.5xDESIGN) :

NOTE:
NEC = 10 KVA @ 100%, REST @ 50%

PANEL NUMBER
UPS-RP-2N

UPS-RP-2N

CONDUIT/CABLE SCHEDULE

Key Note	PANEL	CKT #	120/208 DESCRIPTION	LOAD VA	# POLES	WIRE LENGTH	CKT BKR	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP
3	UPS-RP-2N	2	Rm 230 LCMS w/Pmps & Dectors	1200	1	75	20	12	12	12	3/4	2.1%
4	UPS-RP-2N	3	Room 230 Minispec Analyzer	480	1	75	20	12	12	12	3/4	0.9%
2	UPS-RP-2N	5	Room 230 Spectrofluorometer	500	1	75	20	12	12	12	3/4	0.9%

UPS-RP-2N

NOTES:

1. SEE DRAWING G-1 FOR GENERAL NOTES AND LEGEND
2. SEE DRAWING E-103 FOR CHANGES TO EXISTING PANEL SCHEDULES
3. NEW CIRCUITS AS INDICATED IN THE CABLE/CONDUIT/PANEL SCHEDULES EXTEND FROM LISTED PANELS TO THE DESIGNATED LOADS THROUGHOUT THE CHEMISTRY BUILDING.
4. NOT USED
5. NOT USED
6. CORE DRILLING SHALL BE COORDINATED WITH WSU AND ADJACENT CORED HOLES TO BE NO CLOSER THAN 2 TIMES DIAMETER SPACING.
7. SEE CONDUIT RISER DIAGRAM ON DWG. E-102, E-102.1 FOR DIAGRAMMATIC VIEW OF CONDUIT ENTERING THIS ROOM.
8. CONTRACTOR SHALL PROVIDE NEW MODULAR UPS FOR THIS LOAD AND CONNECT UPS TO EXISTING NON-UPS RECEPTACLE. UPS TOSHIBA 1500VA 1050W MODEL UT1A1A015C6. LOAD IS A FLOW HYDROGENERATOR CURRENTLY POWERED BY RECEPT. RP-2SL.
9. PROVIDE FIRE STOPPING AROUND ALL CONDUITS AND AROUND ALL SLEEVES PASSING THROUGH FIRE RATED WALLS AND FLOORS
10. INSTALL CONDUIT RISER IN A LOCATION AND MANNER THAT DOES NOT CAUSE INTERFERENCE WITH EXISTING ACCESS, EQUIPMENT, DEVICES, ETC. COORDINATE WITH OWNERS REP.
11. EXISTING RECEPTACLES DESIGNATED TO BE FOR THE UPS TO HAVE NEW CONDUIT AND WIRE INSTALLED FROM THE UPS BRANCH CIRCUIT PANEL TO THE NEW RECEPTACLE. RECEPTACLES NOT DESIGNATED FOR UPS BUT PRESENTLY SHARING THE EXISTING CIRCUIT ARE TO BE DISCONNECTED FROM THE UPS RECEPTACLE, AND ARE TO MAINTAIN THEIR CONNECTION TO THE EXISTING PANEL WITH NEW CONDUIT AND WIRE WHERE REQUIRED. CONTRACTOR TO INSTALL NEW CONDUIT AND WIRE WHERE REQUIRED AND REPAIR ACCESS POINTS PER SHT. G-1.

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MARK	ISSUED FOR/REVISIONS	DATE
A	90% CLIENT REVIEW	10-9-2014
B	FOR BID	1-21-2015

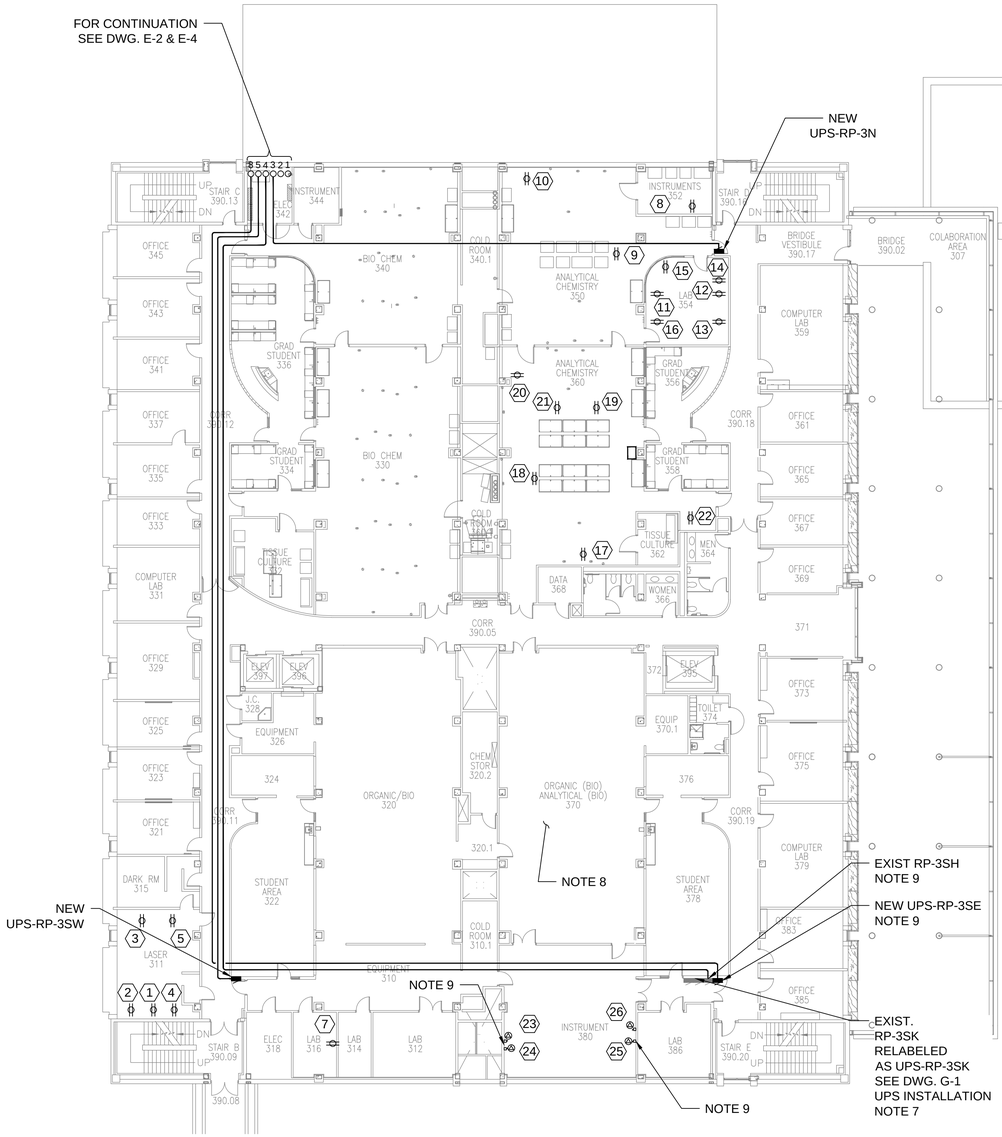
Engineers Seal

007-248857
CLIENT PROJECT NO.
320006
PROJECT NO.
AS SHOWN
SCALE:

SHEET TITLE
SECOND FLOOR PLAN

SHEET NO.
E-2

REV NO.
B



THIRD FLOOR LEVEL -EL. = 180'-8"

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

NORTH

0 10' 20' 30'

PANEL NUMBER: UPS-RP-3N

MAINS: 100 AMP MAIN CIRCUIT BREAKER
VOLTAGE: 208 Y-120 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ
NEUTRAL: 100 % OF MAIN BUS RATING
INTERRUPTING: 10,000 VAC
PANEL TYPE: HLINE (BASED ON SQUARE-D)

FILE NO.:
PROJECT: Chemistry Bldg
PANEL LOCATION: Corridor 390.18
PANEL MOUNTING: FLUSH
GRD. BUS: NON-ISOLATED

CKT NO	LOAD DESCRIPTION	LOADS (VA) LTG	MTRS	REC	MISC	BKR AMP	P	H	P	BKR AMP	LOADS (VA) LTG	MTRS	REC	MISC	LOAD DESCRIPTION	CKT NO
1	Rm 350 UV-VIS Spectro				1200	20	1	A	1	20				1200	Rm 354 Beckman Cent	2
3	Rm 354 Fluorimeter				100	20	1	B	1	20				1800	Rm 350 UV-Vis Spectro	4
5	Rm 354 UV-Vis/spect				960	20	1	C	1	20				1000	Rm 354 HPLC	6
7	Rm 354 BioFlo				600	20	1	A	1	20				1800	Rm 354 BioRad FPLC	8
9	Rm 360 Crystal				360	20	1	B	1	20				1800	Rm 360 Vir Pure System	10
11	Rm 360 Fir Sciaro				1200	20	1	C	1	20				1800	Rm 360 Lab Cretom	12
13	Rm 360 Titer Plate Shaker				1000	20	1	A	1	20				1000	Rm 360 HPLC	14
15	Space					20	1	B	1	20					Space	16
17	Space							C							Space	18
19	Space							A							Space	20
21	Space							B							Space	22
23	Space							C							Space	24
	SUBTOTALS (VA)	0	0	0	5420						0	0	0	9960	SUBTOTALS (VA)	
	CONNECTED LOADS	0.0	0.0	0.0	15.0											
	DESIGN FACTORS	1.25	1	NEC	1											
	DESIGN LOADS (KVA)	0	0.0	0.0	15.0											
	DEMAND FACTORS	1	1	1	1											
	DEMAND LOADS (KVA)	0	0.0	0.0	15.0											
	TOTAL CONNECTED LOAD	15	KVA		42.5	AMPS										
	TOTAL DESIGN LOAD	15	KVA		41.7	AMPS										
	TOTAL DEMAND LOAD	15.0	KVA		41.7	AMPS										

REMARKS:

FOR SIZE:
FOR LENGTH:
VOLT DROP:
MIN FOR/OCPD SIZE (1.5xDESIGN):

NOTE:
NEC = 10 KVA @ 100%, REST @ 50%

PANEL NUMBER
UPS-RP-3N

UPS-RP-3N

PANEL NUMBER: UPS-RP-3SW

MAINS: 100 AMP MAIN CIRCUIT BREAKER
VOLTAGE: 208 Y-120 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ
NEUTRAL: 100 % OF MAIN BUS RATING
INTERRUPTING: 10,000 VAC
PANEL TYPE: HLINE (BASED ON SQUARE-D)

FILE NO.:
PROJECT: Chemistry Bldg
PANEL LOCATION: Corridor 390.11
PANEL MOUNTING: SURFACE
GRD. BUS: NON-ISOLATED

CKT NO	LOAD DESCRIPTION	LOADS (VA) LTG	MTRS	REC	MISC	BKR AMP	P	H	P	BKR AMP	LOADS (VA) LTG	MTRS	REC	MISC	LOAD DESCRIPTION	CKT NO
1	Rm 311 YAG/OPO Laser				2400	20	2	A	1	20				725	Rm 311 APL-1 Lmp suppl	2
3								B	1	20				1200	Rm 311 APL-2 Remainder	4
5	Rm 311 APL T/A System				5000	30	2	A	1	20				480	Rm 311 UV-2101PC	6
7								B	1	20				720	Rm 316 Electrochem anal	8
9	Spare					20	1	A	1	20					Space	10
11	Space							C							Space	12
	SUBTOTALS (VA)	0	0	0	7400						0	0	0	3125	SUBTOTALS (VA)	
	CONNECTED LOADS	0.0	0.0	0.0	10.5											
	DESIGN FACTORS	1.25	1	NEC	1											
	DESIGN LOADS (KVA)	0	0.0	0.0	10.5											
	DEMAND FACTORS	1	1	1	1											
	DEMAND LOADS (KVA)	0	0.0	0.0	10.5											
	TOTAL CONNECTED LOAD	11	KVA		29.4	AMPS										
	TOTAL DESIGN LOAD	11	KVA		29.2	AMPS										
	TOTAL DEMAND LOAD	10.5	KVA		29.2	AMPS										

REMARKS:

FOR SIZE:
FOR LENGTH:
VOLT DROP:
MIN FOR/OCPD SIZE (1.5xDESIGN):

NOTE:
NEC = 10 KVA @ 100%, REST @ 50%

PANEL NUMBER
UPS-RP-3SW

UPS-RP-3SW

PANEL NUMBER: UPS-RP-3SE

MAINS: 100 AMP MAIN CIRCUIT BREAKER
VOLTAGE: 208 Y-120 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ
NEUTRAL: 100 % OF MAIN BUS RATING
INTERRUPTING: 10,000 VAC
PANEL TYPE: HLINE (BASED ON SQUARE-D)

FILE NO.:
PROJECT: Chemistry BLDG
PANEL LOCATION: VESTIBULE 380.2
PANEL MOUNTING: FLUSH
GRD. BUS: NON-ISOLATED

CKT NO	LOAD DESCRIPTION	LOADS (VA) LTG	MTRS	REC	MISC	BKR AMP	P	H	P	BKR AMP	LOADS (VA) LTG	MTRS	REC	MISC	LOAD DESCRIPTION	CKT NO
1	Rm 380 Dis c/Rec E Wall				3200	20	2	A	2	20				3200	Rm 380 Disc/Rec W Wall	2
3								B								4
5	Rm 380 Dis c/Rec E Wall				3200	20	2	A	2	20				3200	Rm 380 Disc/Rec W Wall	6
7								B								8
9	Spare					20	1	A	2	20					Space	10
11	Space							C							Space	12
	SUBTOTALS (VA)	0	0	0	6400						0	0	0	6400	SUBTOTALS (VA)	
	CONNECTED LOADS	6.0	0.0	0.0	12.8											
	DESIGN FACTORS	1.25	1	NEC	1											
	DESIGN LOADS (KVA)	0	0.0	0.0	12.8											
	DEMAND FACTORS	1	1	1	1											
	DEMAND LOADS (KVA)	0	0.0	0.0	12.8											
	TOTAL CONNECTED LOAD	13	KVA		36.8	AMPS										
	TOTAL DESIGN LOAD	13	KVA		36.8	AMPS										
	TOTAL DEMAND LOAD	12.8	KVA		35.8	AMPS										

REMARKS:

FOR SIZE:
FOR LENGTH:
VOLT DROP:
MIN FOR/OCPD SIZE (1.5xDESIGN):

NOTE:
NEC = 10 KVA @ 100%, REST @ 50%

PANEL NUMBER
UPS-RP-3SE

UPS-RP-3SE

CONDUIT/CABLE SCHEDULE

Key Note	PANEL	CKT #	120/208 DESCRIPTION	LOAD VA	# POLES	WIRE LENGTH	CKT BKR	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP
9	UPS-RP-3N	1	Room 350 UV-VIS Spectrophotometer	1200	1	100	20	12	12	12	3/4	2.8%
8	UPS-RP-3N	2	Room 354 Beckman Centrifuge	1200	1	100	20	12	12	12	3/4	2.8%
12	UPS-RP-3N	3	Room 354 Fluorimeter	1000	1	100	20	12	12	12	3/4	2.4%
11	UPS-RP-3N	4	Room 350 Milli-Q Water Purification Sys	1800	1	100	20	10	10	12	3/4	2.8%
13	UPS-RP-3N	5	Room 354 UV-VIS Spectrophotometer	1000	1	100	20	12	12	12	3/4	2.4%
10	UPS-RP-3N	6	Room 354 HPLC	1000	1	100	20	12	12	12	3/4	2.4%
15	UPS-RP-3N	7	Room 354 BioFlo	600	1	100	20	12	12	12	3/4	1.4%
14	UPS-RP-3N	8	Room 354 BioRad FPLC	1000	1	100	20	12	12	12	3/4	2.4%
17	UPS-RP-3N	9	Room 360 Cryostat	360	1	100	20	12	12	12	3/4	0.9%
16	UPS-RP-3N	10	Room 360 Milli-Q Water Purification Sys	1800	1	75	20	10	10	12	3/4	2.1%
19	UPS-RP-3N	11	Room 360 Fluorescence Spectrometer	1200	1	75	20	12	12	12	3/4	2.1%
18	UPS-RP-3N	12	Room 360 Liquid Chromatography (HPLC)	1800	1	75	20	10	10	12	3/4	2.1%
21	UPS-RP-3N	13	Room 360 Titer Plate Shaker	1000	1	75	20	12	12	12	3/4	1.8%
20	UPS-RP-3N	14	Room 360 HPLC	1000	1	75	20	12	12	12	3/4	1.8%

UPS-RP-3N

CONDUIT/CABLE SCHEDULE

Key Note	PANEL	CKT #	120/208 DESCRIPTION	LOAD VA	# POLES	WIRE LENGTH	CKT BKR	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP
1	UPS-RP-3SW	1/3	Room 311 YAG/OPO Laser Sys (T/A Sys)	2400	2	50	20	12	---	12	3/4	0.9%
2	UPS-RP-3SW	2	Room 311 APL-1 Xe Lamp Power Supply	725	1	50	20	12	12	12	3/4	0.9%
3	UPS-RP-3SW	4	Room 311 APL-2 Remainder T/A System	1200	1	50	20	12	12	12	3/4	1.4%
4	UPS-RP-3SW	5/7	Room 311 APL Transient Absorption Sys	5000	2	50	30	10	---	10	3/4	1.3%
5	UPS-RP-3SW	6	Room 311 Shimadzu UV-2101PC (UV-VIS)	480	1	50	20	12	12	12	3/4	0.6%
7	UPS-RP-3SW	8	Room 316 Electrochemical Analyzer	720	1	100	20	12	12	12	3/4	1.7%

UPS-RP-3SW

CONDUIT/CABLE SCHEDULE

Key Note	PANEL	CKT #	120/208 DESCRIPTION	LOAD VA	# POLES	WIRE LENGTH	CKT BKR	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP
21	UPS-RP-3SE	1/3	Room 380 Disconnect/Recept East Wall	3200	2	50	20	12	---	12	3/4	1.3%
24	UPS-RP-3SE	2/4	Room 380 Disconnect/Recept West Wall	3200	2	50	20	12	---	12	3/4	1.3%
25	UPS-RP-3SE	5/7	Room 380 Disconnect/Recept East Wall	3200	2	50	20	12	---	12	3/4	1.3%
26	UPS-RP-3SE	6/8	Room 380 Disconnect/Recept West Wall	3200	2	50	20	12	---	12	3/4	1.3%

UPS-RP-3SE

NOTES:

1. SEE DRAWING G-1 FOR GENERAL NOTES AND LEGEND.
2. SEE DRAWING E-103 AND E-104 FOR CHANGES TO EXISTING PANEL SCHEDULES.
3. NEW CIRCUITS AS INDICATED IN THE CABLE/CONDUIT/PANEL SCHEDULES EXTEND FROM LISTED PANELS TO THE DESIGNATED LOADS THROUGHOUT THE CHEMISTRY BUILDING. EACH CIRCUIT TO HAVE ITS OWN HOT AND NEUTRAL
4. NOT USED
5. CORE DRILLING SHALL BE COORDINATED WITH WSU AND ADJACENT CORED HOLES TO BE NO CLOSER THAN 2 TIMES DIAMETER SPACING.
6. SEE CONDUIT RISER DIAGRAM ON DWG. E-102, FOR DIAGRAMMATIC VIEW OF CONDUIT ENTERING THIS ROOM.
7. POWER FEEDER CONDUIT AND WIRE FROM EXIST PANEL DP-3S IN ELEC RM 318 TO EXIST PANEL RP-3SK IN VESTIBULE 380.2 TO BE DISCONNECTED AND REMOVED. NEW POWER FEEDER CONDUIT AND WIRE TO BE INSTALLED FROM NEW PANEL UPS-MDP IN PENTHOUSE TO EXIST PANEL RP-3SK, WHICH NOW BECOMES UPS-RP-35K. PLUG UNUSED KNOCKOUTS AND RELABELED CIRCUITS AS REQUIRED.
8. CONTRACTOR SHALL PROVIDE NEW MODULAR UPS FOR THIS LOAD AND CONNECT UPS TO EXISTING NON-UPS RECEPTACLE. UPS TOSHIBA 1500VA 1050W MODEL UT1A1A015C6. LOAD IS A TISSUE LYSER II CURRENTLY POWERED BY RECEPT. RP-3SJ-20.
9. EXISTING 30A, 250 VOLT DISCONNECT SWITCH (TYP 4 PLACES IN LAB 380), DISCONNECT FROM EXIST CIRCUITS IN PANEL RP-3SH AND RECONNECT TO NEW CIRCUITS IN NEW PANEL UPS-RP-3SE. SEE, CIRCUIT SCHEDULE, THIS DRAWING, FOR CIRCUIT NUMBERS.
10. EXISTING RECEPTACLES DESIGNATED TO BE FOR THE UPS TO HAVE NEW CONDUIT AND WIRE INSTALLED FROM THE UPS BRANCH CIRCUIT PANEL TO THE NEW RECEPTACLE. RECEPTACLES NOT DESIGNATED FOR UPS BUT PRESENTLY SHARING THE EXISTING CIRCUIT ARE TO BE DISCONNECTED FROM THE UPS RECEPTACLE, AND ARE TO MAINTAIN THEIR CONNECTION TO THE EXISTING PANEL WITH NEW CONDUIT AND WIRE WHERE REQUIRED. CONTRACTOR TO INSTALL NEW CONDUIT AND WIRE WHERE REQUIRED AND REPAIR ACCESS POINTS PER SHT. G-1.
11. PROVIDE FIRE STOPPING AROUND ALL CONDUITS AND AROUND ALL SLEEVES PASSING THROUGH FIRE RATED WALLS AND FLOORS.
12. INSTALL CONDUIT RISER IN A LOCATION AND MANNER THAT DOES NOT CAUSE INTERFERENCE WITH EXISTING ACCESS, EQUIPMENT, DEVICES, ETC. COORDINATE WITH OWNERS REP.
13. THE EXISTING CABLES FOR RECEPTACLES CONNECTED TO PANEL UPS-RP-3SK (FORMERLY RP-3SK) TO BE REMOVED AND NEW TWO WIRE PLUS GROUND CIRCUITS FROM PANEL TO RECEPTACLES TO BE INSTALLED. EACH CIRCUIT TO HAVE ITS OWN HOT AND NEUTRAL. THE EXISTING RECEPTACLES TO BE REPLACED WITH NEW YELLOW COLORED RECEPTACLES OF MATCHING CONFIGURATION.

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WAYNE STATE UNIVERSITY

007 - CHEMISTRY BUILDING
5101 CASS AVENUE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 007-248857

WAYNE STATE UNIVERSITY
FACILITIES PLANNING & MANAGEMENT
5454 CASS AVENUE DETROIT, MICHIGAN

DLM DRAWN BY	CJM PROJECT LEAD
DHP DESIGNED BY	DA REVIEWED BY
APPROVED BY	DATE

MARK	ISSUED FOR/REVISIONS	DATE
A	90% CLIENT REVIEW	10-9-2014
B	FOR BID	1-21-2015

Engineers Seal

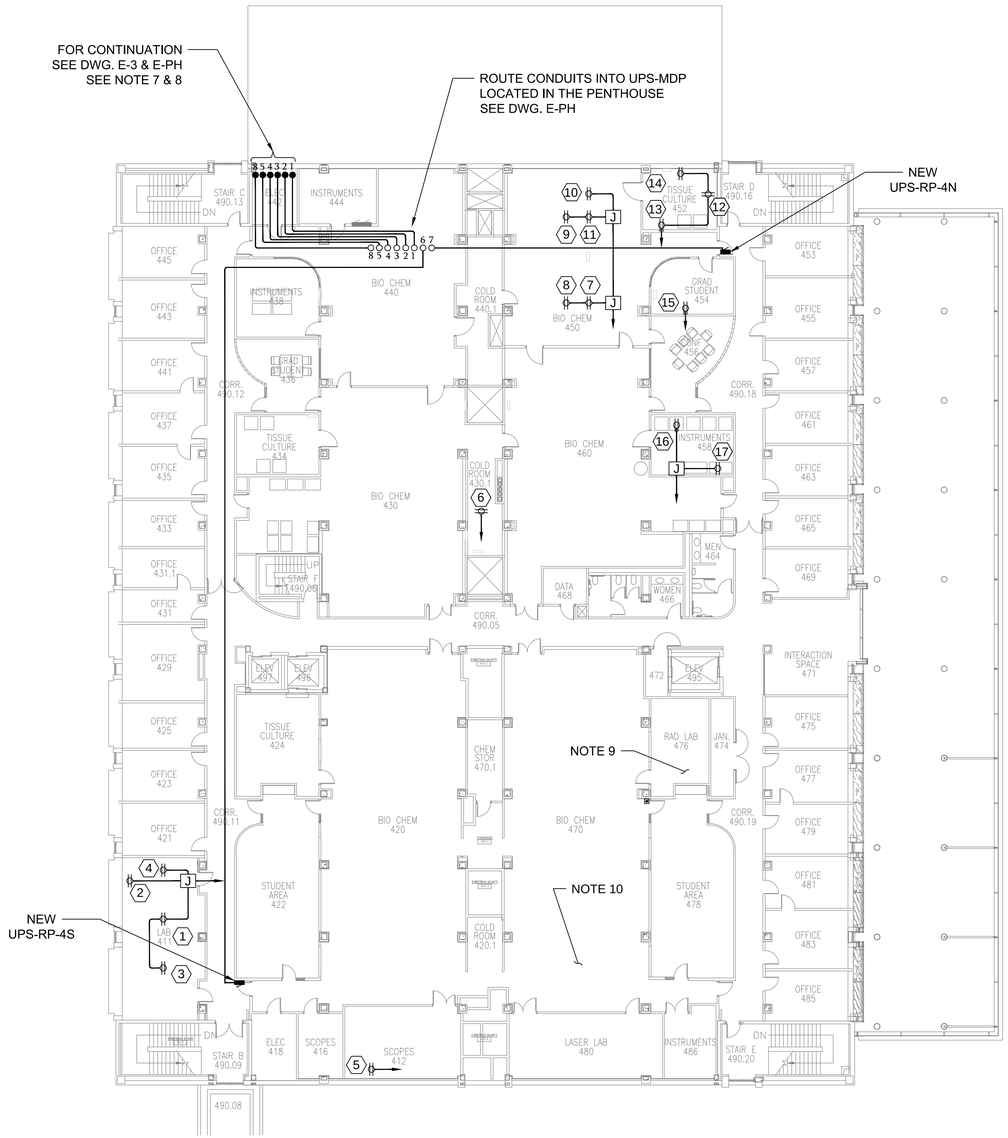
007-248857
CLIENT PROJECT NO.
320006
PROJECT NO.
AS SHOWN
SCALE:

SHEET TITLE
THIRD FLOOR PLAN

SHEET NO.
E-3

REV NO.
B

FILE NAME: C:\pw_work\pw_pro\dlmaier\d0447957\E-3.dwg ■ PLOTTED DATE: 1/16/2015 2:05 PM ■ PLOTTED BY: Daniel L. Maier ■



NORTH

FOURTH FLOOR LEVEL - EL. = 193'-10"

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

0 10' 20' 30'

PANEL NUMBER: **UPS-RP-4N**

MAINS: 100 AMP MAIN CIRCUIT BREAKER
VOLTAGE: 208 Y-120 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ
NEUTRAL: 100 % OF MAIN BUS RATING
INTERRUPTING: 10,000 KAIC
PANEL TYPE: I-LINE (BASED ON SQUARE-D)

FILE NO.:
PROJECT: Chemistry Bldg
PANEL LOCATION: North End Corridor 490.18
PANEL MOUNTING: FLUSH
GRD. BUS: NON-ISOLATED

CKT NO	LOAD DESCRIPTION	LOADS (VA) LTG.	MTRS.	REC.	MISC.	BKR AMP	P	P H.	P	BKR AMP	LOADS (VA) LTG.	MTRS.	REC.	MISC.	LOAD DESCRIPTION	CKT NO
1	Rm 450 VP ITC				600	20	1	A	1	20				600	Rm 450 VP-DSC	2
3	Rm 450 Spectrophotometer				1740	20	1	B	1	20				600	Rm 450 PCR-PE	4
5	Rm 452 Nikon Microscope				1320	20	1	C	1	20				432	Rm 452 Biosafety Hood	6
7	Rm 450 BioRad NPG				700	20	1	A	2	40				6240	Rm 454 Avanti JE Centrifuge	8
9	Rm 452 Avanti JE Centrifuge				6240	40	2	B								10
11								C	1	20				400	Rm 430 FPLG Akta Purifier	12
13	Rm 458 Varian HPLC Sys				1920	20	1	A	1	20				400	Rm 458 Scintillation Counter	14
15	Spare					20	1	B	1	20					Spare	16
17	Space							C							Space	18
19	Space							A							Space	20
21	Space							B							Space	22
23	Space							C							Space	24
	SUBTOTALS (VA)	0	0	0	12520						0	0	0	8672	SUBTOTALS (VA)	
	CONNECTED LOADS	0.0	0.0	0.0	21.2											
	DESIGN FACTORS	1.25	1	NEC	1											
	DESIGN LOADS (KVA)	0	0.0	0.0	21.2											
	DEMAND FACTORS	1	1	1	1											
	DEMAND LOADS (KVA)	0	0.0	0.0	21.2											
	TOTAL CONNECTED LOAD	21	KVA	59.2	AMPS											
	TOTAL DESIGN LOAD	21	KVA	58.9	AMPS											
	TOTAL DEMAND LOAD	21.2	KVA	**58.9**	AMPS											

REMARKS:

FDR SIZE:
FDR LENGTH:
VOLT DROP:
MIN FDR/OCPD SIZE (1.5xDESIGN) :

NOTE:
NEC = 10 KVA @ 100%, REST @ 50%

PANEL NUMBER
UPS-RP-4N

UPS-RP-4N

CONDUIT/CABLE SCHEDULE

Key Note	PANEL	CKT #	120/208 DESCRIPTION	LOAD VA	# POLES	WIRE LENGTH	CKT BKR	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP
11	UPS-RP-4N	1	Room 450 VP-ITC	600	1	100	20	12	12	12	3/4	1.4%
8	UPS-RP-4N	2	Room 450 VP DSC	600	1	100	20	12	12	12	3/4	1.4%
10	UPS-RP-4N	3	Room 450 Agilent 843 Spectrophotometer	1740	1	100	20	10	10	12	3/4	2.7%
9	UPS-RP-4N	4	Room 450 PCR-PE Gene Amp2400	600	1	100	20	12	12	12	3/4	1.4%
14	UPS-RP-4N	5	Room 452 Nikon Fluorescence Microscope	1320	1	100	20	10	10	12	3/4	2.0%
12	UPS-RP-4N	6	Room 452 Labconco Biosafety Hood	432	1	100	20	12	12	12	3/4	1.0%
7	UPS-RP-4N	7	Room 450 BioRad NPG	700	1	100	20	12	12	12	3/4	1.7%
15	UPS-RP-4N	8/10	Room 454 BC Avanti JE Centrifuge	6240	2	100	40	8	—	10	3/4	2.0%
13	UPS-RP-4N	9/11	Room 452 Avanti JE Centrifuge	6240	2	100	40	8	—	10	3/4	2.0%
6	UPS-RP-4N	12	Room 430 APLG Akta Purifier	400	1	100	20	12	12	12	3/4	0.9%
16	UPS-RP-4N	13	Room 458 Varian HPLC System	1920	1	100	20	10	10	12	3/4	2.9%
17	UPS-RP-4N	14	Room 458 Scintillation Counter	400	1	100	20	12	12	12	3/4	0.9%

UPS-RP-4N

PANEL NUMBER: **UPS-RP-4S**

MAINS: 100 AMP MAIN CIRCUIT BREAKER
VOLTAGE: 208 Y-120 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ
NEUTRAL: 100 % OF MAIN BUS RATING
INTERRUPTING: 10,000 KAIC
PANEL TYPE: I-LINE (BASED ON SQUARE-D)

FILE NO.:
PROJECT:
PANEL LOCATION: Corridor 490.11
PANEL MOUNTING: SURFACE
GRD. BUS: NON-ISOLATED

CKT NO	LOAD DESCRIPTION	LOADS (VA) LTG.	MTRS.	REC.	MISC.	BKR AMP	P	P H.	P	BKR AMP	LOADS (VA) LTG.	MTRS.	REC.	MISC.	LOAD DESCRIPTION	CKT NO.
1	Rm 411 Chirascan				400	20	1	A	1	20				1200	Rm 411 Biacore 2000	2
3	Rm 411 UV Melt inst				70	20	1	B	1	20				1080	Rm 411 Capilary Sequence	4
5	Rm 412 Lyophilizer				1840	20	1	C	1	20					Spare	6
7	Spare					20	1	A							Space	8
9	Space							B							Space	10
11	Space							C							Space	12
	SUBTOTALS (VA)	0	0	0	2310						0	0	0	2280	SUBTOTALS (VA)	
	CONNECTED LOADS	0.0	0.0	0.0	4.6											
	DESIGN FACTORS	1.25	1	NEC	1											
	DESIGN LOADS (KVA)	0	0.0	0.0	4.6											
	DEMAND FACTORS	1	1	1	1											
	DEMAND LOADS (KVA)	0	0.0	0.0	4.6											
	TOTAL CONNECTED LOAD	5	KVA	12.8	AMPS											
	TOTAL DESIGN LOAD	5	KVA	12.8	AMPS											
	TOTAL DEMAND LOAD	4.6	KVA	**12.8**	AMPS											

REMARKS:

FDR SIZE:
FDR LENGTH:
VOLT DROP:
MIN FDR/OCPD SIZE (1.5xDESIGN) :

NOTE:
NEC = 10 KVA @ 100%, REST @ 50%

PANEL NUMBER
UPS-RP-4S

UPS-RP-4S

CONDUIT/CABLE SCHEDULE

Key Note	PANEL	CKT #	120/208 DESCRIPTION	LOAD VA	# POLES	WIRE LENGTH	CKT BKR	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP
1	UPS-RP-4S	1	Room 411 Chirascan	400	1	50	20	12	12	12	3/4	0.5%
2	UPS-RP-4S	2	Room 411 Biacore 2000	1200	1	50	20	12	12	12	3/4	1.4%
3	UPS-RP-4S	3	Room 411 DU800 UV Melt Instrument	70	1	50	20	12	12	12	3/4	0.1%
4	UPS-RP-4S	4	Room 411 Capillary Sequencing CEQ 8000	1080	1	50	20	12	12	12	3/4	1.3%
5	UPS-RP-4S	5	Room 412 Labconco Freezone Lyophilizer	1840	1	50	20	12	12	12	3/4	2.2%

UPS-RP-4S

NOTES:

1. SEE DRAWING G-1 FOR GENERAL NOTES AND LEGEND.
2. SEE DRAWING E-103 FOR CHANGES TO EXISTING PANEL SCHEDULES.
3. PROVIDE FIRE STOPPING AROUND ALL CONDUITS AND AROUND ALL SLEEVES PASSING THROUGH FIRE RATED WALLS AND FLOORS.
4. NEW CIRCUITS AS INDICATED IN THE CABLE/CONDUIT/PANEL SCHEDULES EXTEND FROM LISTED PANELS TO THE DESIGNATED LOADS THROUGHOUT THE CHEMISTRY BUILDING. EACH CIRCUIT TO HAVE ITS OWN HOT AND NEUTRAL.
5. NOT USED
6. CORE DRILLING SHALL BE COORDINATED WITH WSU AND ADJACENT CORED HOLES TO BE NO CLOSER THAN 2 TIMES DIAMETER SPACING.
7. SEE CONDUIT RISER DIAGRAM ON DWG. E-102, E-102.1 FOR DIAGRAMMATIC VIEW OF CONDUIT ENTERING THIS ROOM.
8. INSTALL CONDUIT RISER IN A LOCATION AND MANNER THAT DOES NOT CAUSE INTERFERENCE WITH EXISTING ACCESS, EQUIPMENT, DEVICES, ETC. COORDINATE WITH OWNERS REP.
9. CONTRACTOR SHALL PROVIDE NEW MODULAR UPS FOR THIS LOAD & CONNECT UPS TO EXISTING NON-UPS RECEPTACLE. UPS TOSHIBA 1500VA TOWER 1050W MODEL UT1A1A015C6. LOAD IS A SPEED VAC SYSTEM CURRENTLY POWERED BY RECEPT. RP-4SD-24.
10. CONTRACTOR SHALL PROVIDE NEW MODULAR UPS FOR THIS LOAD & CONNECT UPS TO EXISTING NON-UPS RECEPTACLE. UPS TOSHIBA 1500VA TOWER 1050W MODEL NO. UT1A1A015C6. LOAD IS A HPLC CURRENTLY POWERED BY RECEPT. RP-4SH-7.

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WAYNE STATE UNIVERSITY

007 - CHEMISTRY BUILDING
5101 CASS AVENUE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 007-248857

WAYNE STATE UNIVERSITY
FACILITIES PLANNING & MANAGEMENT
5454 CASS AVENUE DETROIT, MICHIGAN

DLM — DRAWN BY
CJM — PROJECT LEAD
DHP — DESIGNED BY
DA — REVIEWED BY
APPROVED BY
DATE

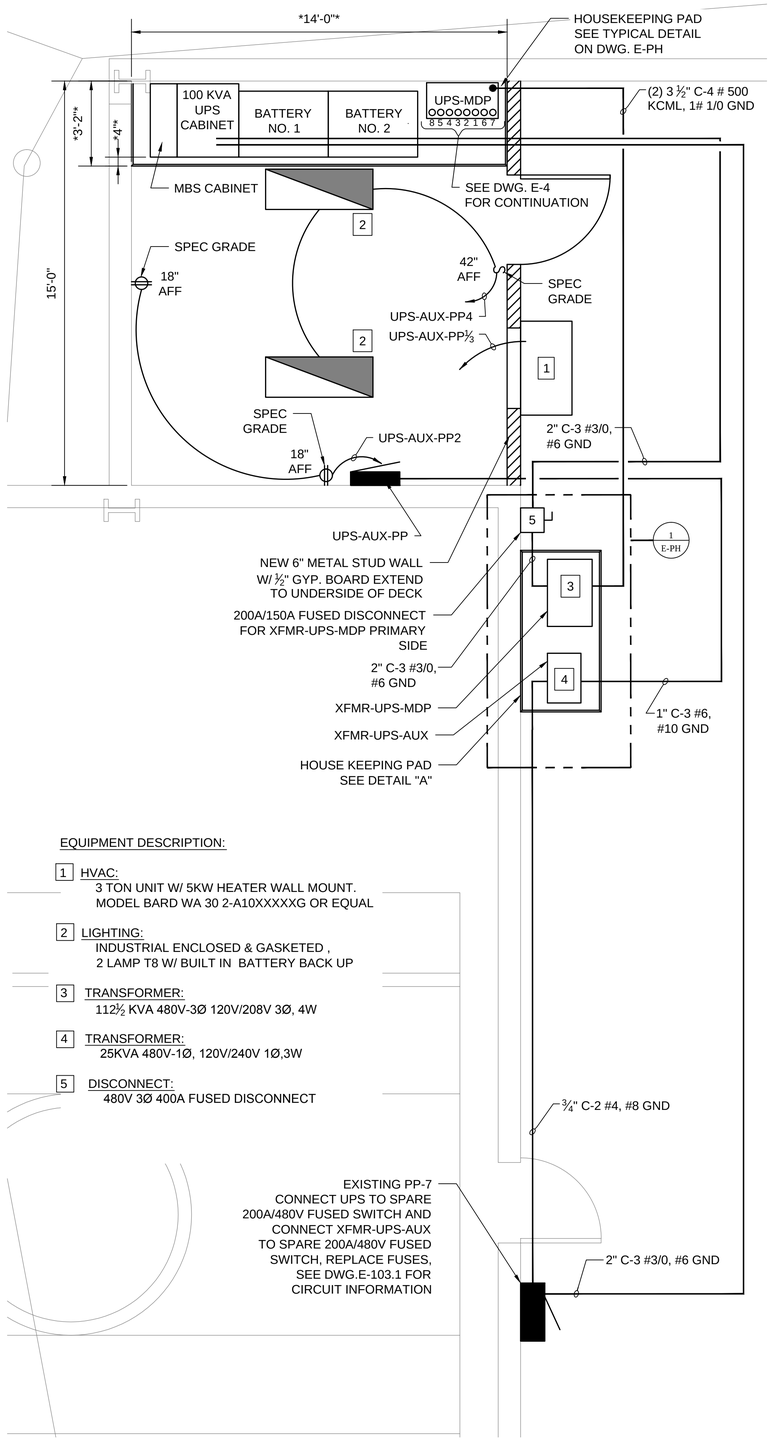
MARK	ISSUED FOR/REVISIONS	DATE
A	90% CLIENT REVIEW	10-9-2014
B	FOR BID	1-21-2015

Engineers Seal

007-248857
CLIENT PROJECT NO.
320006
PROJECT NO.
AS SHOWN
SCALE:

SHEET TITLE
FOURTH FLOOR PLAN

SHEET NO.
E-4
REV NO.
B



EQUIPMENT DESCRIPTION:

1 HVAC:
3 TON UNIT W/ 5KW HEATER WALL MOUNT.
MODEL BARD WA 30 2-A10XXXXXG OR EQUAL

2 LIGHTING:
INDUSTRIAL ENCLOSED & GASKETED ,
2 LAMP T8 W/ BUILT IN BATTERY BACK UP

3 TRANSFORMER:
112½ KVA 480V-3Ø 120V/208V 3Ø, 4W

4 TRANSFORMER:
25KVA 480V-1Ø, 120V/240V 1Ø,3W

5 DISCONNECT:
480V 3Ø 400A FUSED DISCONNECT

ENLARGED PLAN DETAIL
PENTHOUSE EL. = 207'-3½"

SCALE: 3/8" = 1'-0"

NORTH

0 5' 10'

PANEL NUMBER: **UPS-AUX-PP**

MAINS: **100** AMP MAIN CIRCUIT BREAKER
VOLTAGE: 120 120/240 VOLT, 1 PHASE, 3 WIRE, 60 HERTZ
NEUTRAL: 100 % OF MAIN BUS RATING
INTERRUPTING: 22 KAIC
PANEL TYPE:

FILE NO.:
PROJECT: **CHEMISTRY**
PANEL LOCATION: **PENTHOUSE UPS ROOM**
PANEL MOUNTING: **SURFACE**
GRD. BUS: NON-ISOLATED

CKT NO	LOAD DESCRIPTION	LOADS (A) LTG.	MTRS.	REC.	MISC.	BKR AMP	P	H	P	BKR AMP	LOADS (A) LTG.	MTRS.	REC.	MISC.	LOAD DESCRIPTION	CKT NO
1	WALL MOUNT HVAC				11280	60	2	A		20	1				PNTHSE UPS RECPTICLS	2
3								B		20	1	150			PNTHSE UPS LIGHTS	4
5	SPARE							C		20	1				SPARE	6
7	SPACE							A		20	1				SPACE	8
9	SPACE							B		20	1				SPACE	10
11	SPACE							C		20	1				SPACE	12
	SUBTOTALS (VA)	0	0	0	11280							150	0	180	0	SUBTOTALS (VA)
	CONNECTED LOADS	0.2	0.0	0.2	11.3											
	DESIGN FACTORS	1.25	1	NEC	1											
	DESIGN LOADS (KVA)	0.1875	0.0	0.2	11.3											
	DEMAND FACTORS	1	1	1	1											
	DEMAND LOADS (KVA)	0.1875	0.0	0.2	11.3											
	TOTAL CONNECTED LOAD	12	KVA	56.25	AMPS											
	TOTAL DESIGN LOAD	12	KVA	56.1	AMPS											
	TOTAL DEMAND LOAD	11.6	KVA	**56.1**	AMPS											

REMARKS:

FDR SIZE:
FDR LENGTH:
VOLT DROP:
MIN FDR/OCPD SIZE (1.5xDESIGN) :

NOTE:
NEC = 10 KVA @ 100%, REST @ 50%

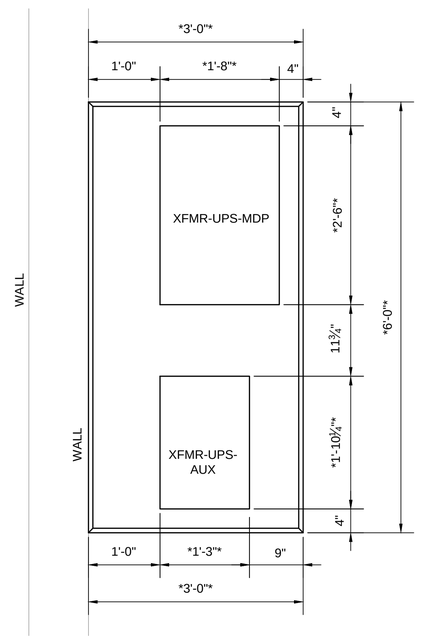
PANEL NUMBER
UPS-AUX-PP

UPS-AUX-PP

CONDUIT/CABLE SCHEDULE

PANEL	CKT #	120/208 DESCRIPTION	LOAD VA	# POLES	WIRE LENGTH	MINIMUM CKT BKR	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP
UPS-AUX-PP	1/3	UPS Rm in Penthouse Wall Mount HVAC Unit	11280	2	30	60	6	---	6	1	0.6%
UPS-AUX-PP	2	UPS Rm in Penthouse Receptacle	160	1	50	20	12	12	12	3/4	0.2%
UPS-AUX-PP	4	UPS Rm in Penthouse Lights	150	1	50	20	12	12	12	3/4	0.2%

UPS-AUX-PP

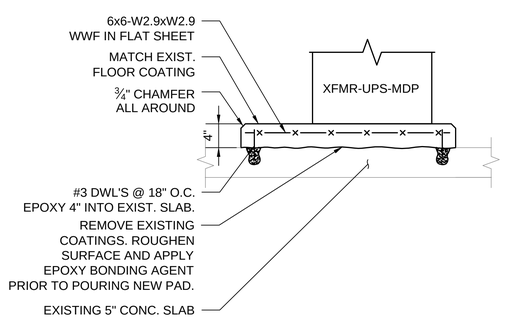


* - DIMENSIONS MARKED WITH AN ASTERISK ARE TO BE COORDINATED WITH APPROVED EQUIPMENT SHOP DRAWINGS PRIOR TO POURING NEW HOUSEKEEPING PAD.

1 E-PH HOUSE KEEPING PAD PLAN

SCALE: 1" = 1'-0"

0 3'



2 E-PH TYPICAL DETAIL

SCALE: 1" = 1'-0"

0 3'

PANEL NUMBER: **UPS-MDP**

MAINS: 600 AMP MAIN CIRCUIT BREAKER
VOLTAGE: 208 Y-120 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ
NEUTRAL: 100 % OF MAIN BUS RATING
INTERRUPTING: 22 KAIC
PANEL TYPE: I-LINE (BASED ON SQUARE-D)

FILE NO.:
PROJECT: Chemistry Bldg
PANEL LOCATION: Penthouse
PANEL MOUNTING: SURFACE
GRD. BUS: NON-ISOLATED

CKT NO	LOAD DESCRIPTION	LOADS (VA) LTG.	MTRS.	REC.	MISC.	BKR AMP	P	H	P	BKR AMP	LOADS (VA) LTG.	MTRS.	REC.	MISC.	LOAD DESCRIPTION	CKT NO
1	UPS-RP-1N				5000	100	3	A	3	100				2580	UPS-RP-2N	2
3								B								4
5								C								6
7	UPS-RP-3N				15000	100	3	A	3	100				21200	UPS-RP-4N	8
9								B								10
11								C								12
13	UPS-RP-3SK				53000		3	A	3	150				35600	UPS-RP-3SE	14
15								B								16
17						150		C								18
19	UPS-RP-4S				4400	100	3	A	3	100				29700	UPS-RP-3SW	20
21								B								22
23								C								24
25	Space							A							Space	26
27	Space							B							Space	28
29	Space							C							Space	30
	SUBTOTALS (VA)	0	0	0	77400						0	0	0	89080	SUBTOTALS (VA)	
	CONNECTED LOADS	0.0	0.0	0.0	166.5											
	DESIGN FACTORS	1.25	1	NEC	1											
	DESIGN LOADS (KVA)	0	0.0	0.0	166.5											
	DEMAND FACTORS	1	1	1	1											
	DEMAND LOADS (KVA)	0	0.0	0.0	166.5											
	TOTAL CONNECTED LOAD	166	KVA	465.3	AMPS											
	TOTAL DESIGN LOAD	166	KVA	462.7	AMPS											
	TOTAL DEMAND LOAD	166.5	KVA	**462.7**	AMPS											

REMARKS:

FDR SIZE:
FDR LENGTH:
VOLT DROP:
MIN FDR/OCPD SIZE (1.5xDESIGN) :

NOTE:
NEC = 10 KVA @ 100%, REST @ 50%

PANEL NUMBER
UPS-MDP

UPS-MDP

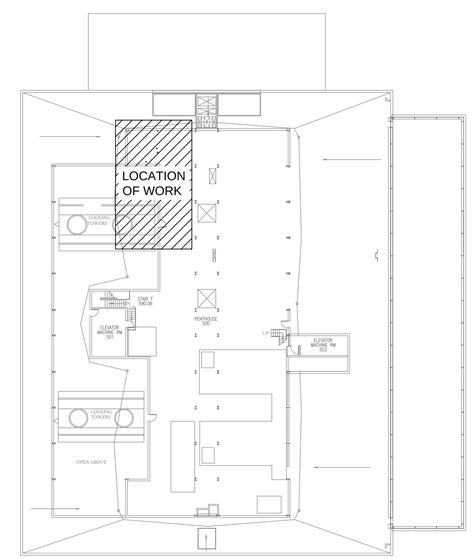
CONDUIT/CABLE SCHEDULE

PANEL	CKT #	120/208 DESCRIPTION	LOAD VA	# POLES	WIRE LENGTH	CKT BKR	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP
UPS-MDP	1/3/5	Corridor 190.12 UPS-RP-1N	5000	3	250	100	1	1	6	1 1/2	2.5%
UPS-MDP	2/4/6	Corridor 290.12 UPS-RP-2N	2580	3	230	100	1	1	6	1 1/2	2.3%
UPS-MDP	7/9/11	Corridor 390.18 UPS-RP-3N	15000	3	220	100	1	1	6	1 1/2	2.2%
UPS-MDP	8/10/12	Corridor 490.18 UPS-RP-4N	21200	3	200	100	1	1	6	1 1/2	2.0%
UPS-MDP	13/15/17	Vestibule 380.2 UPS-RP-3SK (Formerly RP-3SK	53000	3	175	100	1	1	6	1 1/2	1.7%
UPS-MDP	14/16/18	Corridor 380.18 UPS-RP-3SE	35600	3	220	150	3/0	3/0	4	2	1.1%
UPS-MDP	19/21/23	Corridor 490.11 UPS-RP-4S	4400	3	200	150	3/0	3/0	4	2	1.0%
UPS-MDP	20/22/24	Corridor 390.11 UPS-RP-3SW	29700	3	200	100	1	1	6	1 1/2	2.0%

UPS-MDP

NOTES:

1. SEE DRAWING G-1 FOR GENERAL NOTES AND LEGEND
2. SEE DRAWING E-103 FOR CABLE/CONDUIT/PANEL SCHEDULES
3. NEW CIRCUITS AS INDICATED IN THE CABLE/CONDUIT/PANEL SCHEDULES EXTEND FROM LISTED PANELS TO THE DESIGNATED LOADS THROUGHOUT THE CHEMISTRY BUILDING.
4. NOT USED
5. CONTRACTOR TO FIELD ROUTE 1" PVC PIPING FROM HVAC UNIT TO NEAREST DRAIN. DRAIN PIPING TO BE ROUTED AND SECURED TO THE FLOOR TO MINIMIZE TRIP HAZARD .
6. NOT USED
7. CORE DRILLING SHALL BE COORDINATED WITH WSU AND ADJACENT CORED HOLES TO BE NO CLOSER THAN 2 TIMES DIAMETER SPACING.
8. SEE DISTRIBUTION RISER DIAGRAM ON DWG. E-102, FOR DIAGRAMMATIC VIEW OF CONDUIT ENTERING THIS ROOM.
9. PROVIDE FIRE STOPPING AROUND ALL CONDUITS AND AROUND ALL SLEEVES PASSING THROUGH FIRE RATED WALLS AND FLOORS.



NORTH

PENTHOUSE FLOOR LEVEL KEY MAP

SCALE: NOT TO SCALE

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WAYNE STATE UNIVERSITY

007 - CHEMISTRY BUILDING
5101 CASS AVENUE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 007-248857

WAYNE STATE UNIVERSITY
FACILITIES PLANNING & MANAGEMENT
5454 CASS AVENUE DETROIT, MICHIGAN

JAS DRAWN BY	DA PROJECT LEAD
DHP DESIGNED BY	JDM REVIEWED BY
APPROVED BY	DATE

MARK	ISSUED FOR/REVISIONS	DATE
A	90% CLIENT REVIEW	10-9-2014
B	FOR BID	1-21-2015

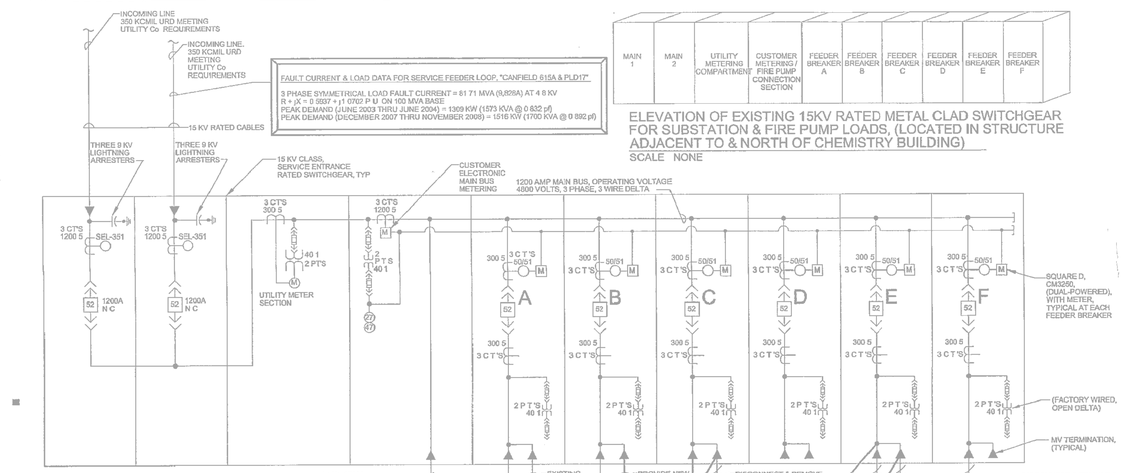
Engineers Seal

007-248857
CLIENT PROJECT NO.
320006
PROJECT NO.
AS SHOWN
SCALE:

SHEET TITLE
PENTHOUSE FLOOR PLAN

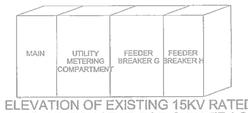
SHEET NO.
E-PH

REV NO.
B



BASIC ONE-LINE DIAGRAM OF EXISTING SWITCHGEAR FOR FIRE PUMP & SUBSTATION LOAD
SCALE: NONE

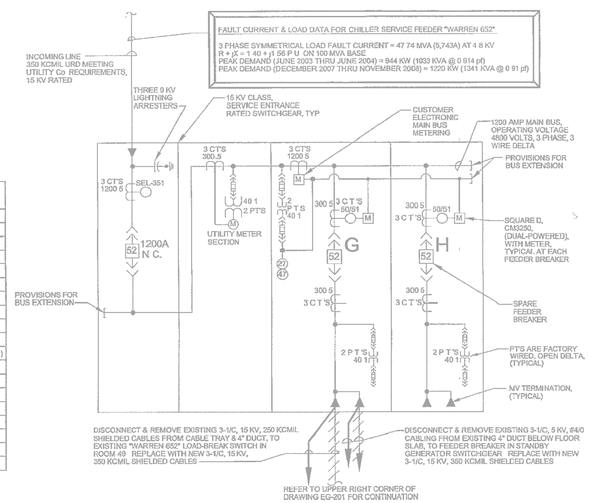
ELEVATION OF EXISTING 15KV RATED METAL CLAD SWITCHGEAR FOR SUBSTATION & FIRE PUMP LOADS, (LOCATED IN STRUCTURE ADJACENT TO & NORTH OF CHEMISTRY BUILDING)
SCALE NONE



ELEVATION OF EXISTING 15KV RATED METAL CLAD SWITCHGEAR FOR CHILLER LOAD, (LOCATED IN STRUCTURE ADJACENT TO & NORTH OF CHEMISTRY BUILDING)
SCALE NONE

CONDUIT & WIRE SCHEDULE FOR THIS DRAWING EG-202

A	EXISTING, 3 No 10 & 1 No 10 GRD , 3/4" C
B	NOT USED
C	EXISTING, 4 No 4/0 & 1 No 4 GRD , 2-1/2" C MAXIMUM 25' LENGTH
D	EXISTING, 3 No 6 & 1 No 10 GRD , 3/4" C
E	EXISTING, 3 No 4 & 1 No 8 GRD , 1-1/4" C
F	NOT USED
G	EXISTING, 2 No 4 & 1 No 8 GRD , 3/4" C
H	NEW, 3 No 6 & 1 No 10 GRD , 1" C (CONSTRUCTION ISSUE 1)
I	EXISTING, 4 No 2 & 1 No 8 GRD , 1-1/2" C , MAXIMUM 25' LENGTH
J	NEW, 3 No 2 & 1 No 8 GRD , 1-1/4" C (CONSTRUCTION ISSUE 1)
K	NEW, 4 No 4/0 & 1 No 4 GRD , 2-1/2" C , MAXIMUM TEN FOOT CONDUCTOR LENGTH, (C I 1)
L	NEW, 4 No 1/0 & 1 No 6 GRD , 2" C (CONSTRUCTION ISSUE 1)
M	NEW, 4 No 1 & 1 No 8 GRD , 1-1/2" C (CONSTRUCTION ISSUE 1)
N	NEW, 3 No 10 & 1 No 10 GRD , 3/4" C (CONSTRUCTION ISSUE 1)
O	NEW, 4 No 6 & 1 No 6 GRD , 1-1/4" C (CONSTRUCTION ISSUE 1)
P	NEW, 4 No 4/0 & 1 No 4 GRD , 2-1/2" C MAXIMUM 25' LENGTH, (CONSTRUCTION ISSUE 1)
Q	NEW, 4 No 1 & 1 No 8 GRD , 1-1/2" C MAXIMUM 25' LENGTH, (CONSTRUCTION ISSUE 1)
R	NEW, 3 No 4 & 1 No 8 GRD , 1-1/4" C
S	NEW, 4 No 4/0 & 1 No 4 GRD , 2-1/2" C



BASIC ONE-LINE DIAGRAM OF EXISTING CHILLER SYSTEM SWITCHGEAR
SCALE NONE

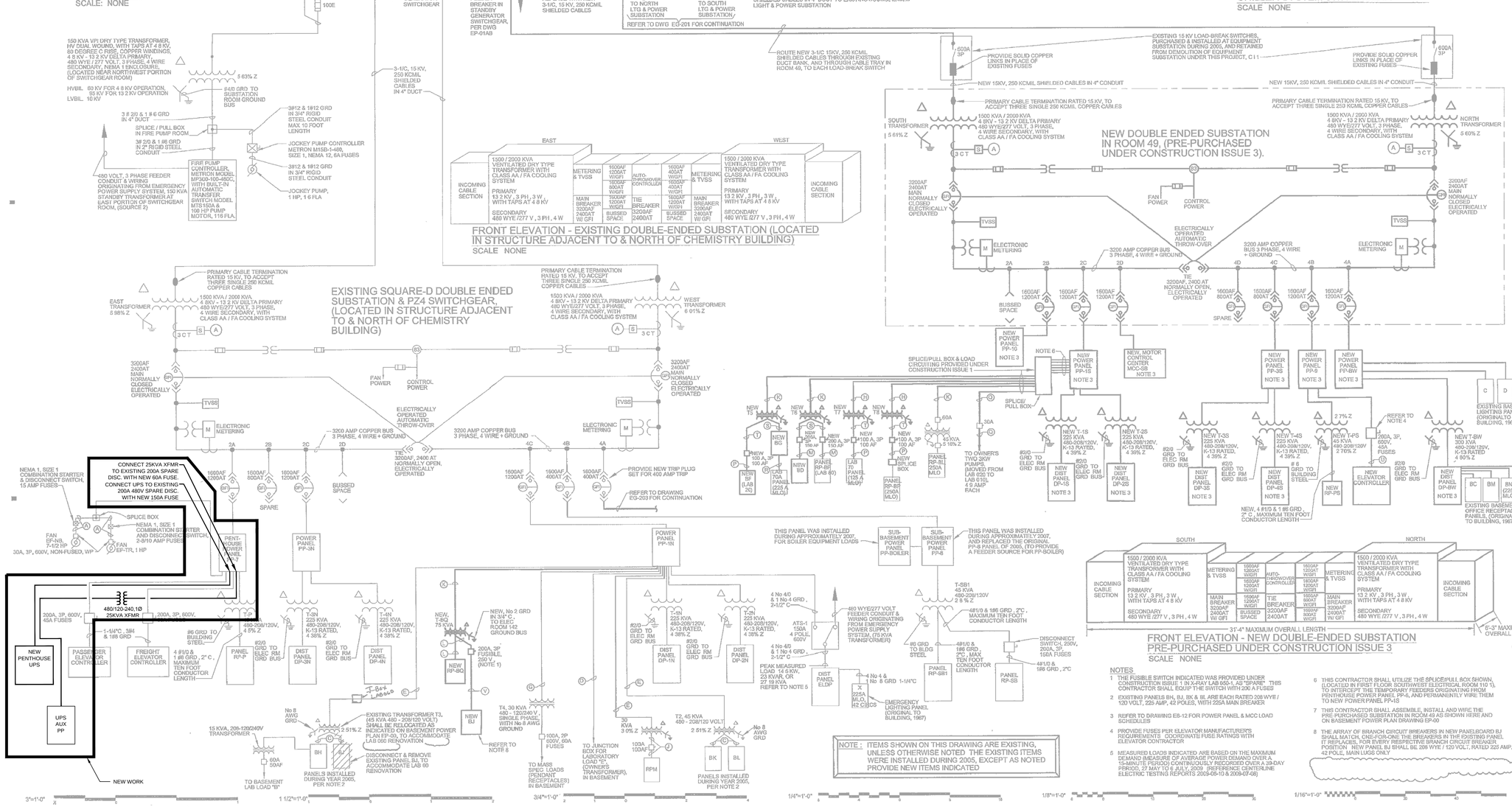
WAYNE STATE UNIVERSITY

Chemistry Building Expansion & Renovation

WSU Project Number
007-155746
007-157561

Detroit, Michigan

Date	Issue
02/13/09	RENOVATION S D
04/06/09	Progress Review
06/17/09	C.I 1 O.R.
06/12/09	D.D
06/30/09	C.I. 1
10/26/09	C.I 5 O.R.
12/02/09	C.I 5
02/12/10	C.I. 6
12/17/10	C.I. 14
02/07/11	C.I. 15 O.R.
03/01/11	C.I 15



NOTES

1. THE FUSIBLE SWITCH INDICATED WAS PROVIDED UNDER CONSTRUCTION ISSUE 1 IN X-RAY LAB 650-1, AS "SPARE". THIS CONTRACTOR SHALL EQUIP THE SWITCH WITH 200 A FUSES
2. EXISTING PANELS BH, BJ, BK & BL ARE EACH RATED 208 WYE / 120 VOLT, 225 AMP, 42 POLES, WITH 225A MAIN BREAKER
3. REFER TO DRAWING EB-12 FOR POWER PANEL & MCC LOAD SCHEDULES
4. PROVIDE FUSES PER ELEVATOR MANUFACTURER'S REQUIREMENTS COORDINATE FUSE RATINGS WITH ELEVATOR CONTRACTOR
5. MEASURED LOADS INDICATED ARE BASED ON THE MAXIMUM DEMAND (MEASURE OF AVERAGE POWER DEMAND OVER A 15-MINUTE PERIOD) CONTINUOUSLY RECORDED OVER A 39-DAY PERIOD, 27 MAY TO 6 JULY 2009 (REFERENCE CENTERLINE ELECTRIC TESTING REPORTS 2009-05-10 & 2009-07-08)
6. THIS CONTRACTOR SHALL UTILIZE THE SPLICE/PULL BOX SHOWN, LOCATED IN FIRST FLOOR SOUTHWEST ELECTRICAL ROOM 110 1), TO INTERCEPT THE TEMPORARY FEEDERS ORIGINATING FROM PENTHOUSE POWER PANEL PP-A, AND PERMANENTLY WIRE THEM TO NEW POWER PANEL PP-1S
7. THIS CONTRACTOR SHALL ASSEMBLE, INSTALL AND WIRE THE PRE-PURCHASED SUBSTATION IN ROOM 49 AS SHOWN HERE AND ON BASEMENT POWER PLAN DRAWING EP-00
8. THE ARRAY OF BRANCH CIRCUIT BREAKERS IN NEW PANELBOARD BJ SHALL MATCH, ONE-FOR-ONE THE BREAKERS IN THE EXISTING PANEL IT REPLACES, FOR EVERY RESPECTIVE BRANCH CIRCUIT BREAKER POSITION NEW PANEL BJ SHALL BE 208 WYE / 120 VOLT, RATED 225 AMP, 42 POLE, MAIN LUGS ONLY

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WAYNE STATE UNIVERSITY

007-CHEMISTRY BUILDING
5101 CASS AVENUE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 007-248857

WAYNE STATE UNIVERSITY
FACILITIES PLANNING & MANAGEMENT
5454 CASS AVENUE DETROIT, MICHIGAN

JAS DRAWN BY	CJM PROJECT LEAD
DHP DESIGNED BY	DA REVIEWED BY
APPROVED BY	DATE

MARK	ISSUED FOR/REVISIONS	DATE
A	90% CLIENT REVIEW	10-9-2014
B	FOR BID	1-21-2015

Engineers Seal

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Planning
Architecture
Engineering
Interior Architecture
Landscape Architecture
Construction Services

007-248857
CLIENT PROJECT NO.
320006
PROJECT NO.
AS SHOWN
SCALE:

AS BUILT

SHEET TITLE
ELECTRICAL ONE LINE DIAGRAM

Project No 2008-10071-000
Drawn K Chow
Checked B Newgeon
Approved P Granitz

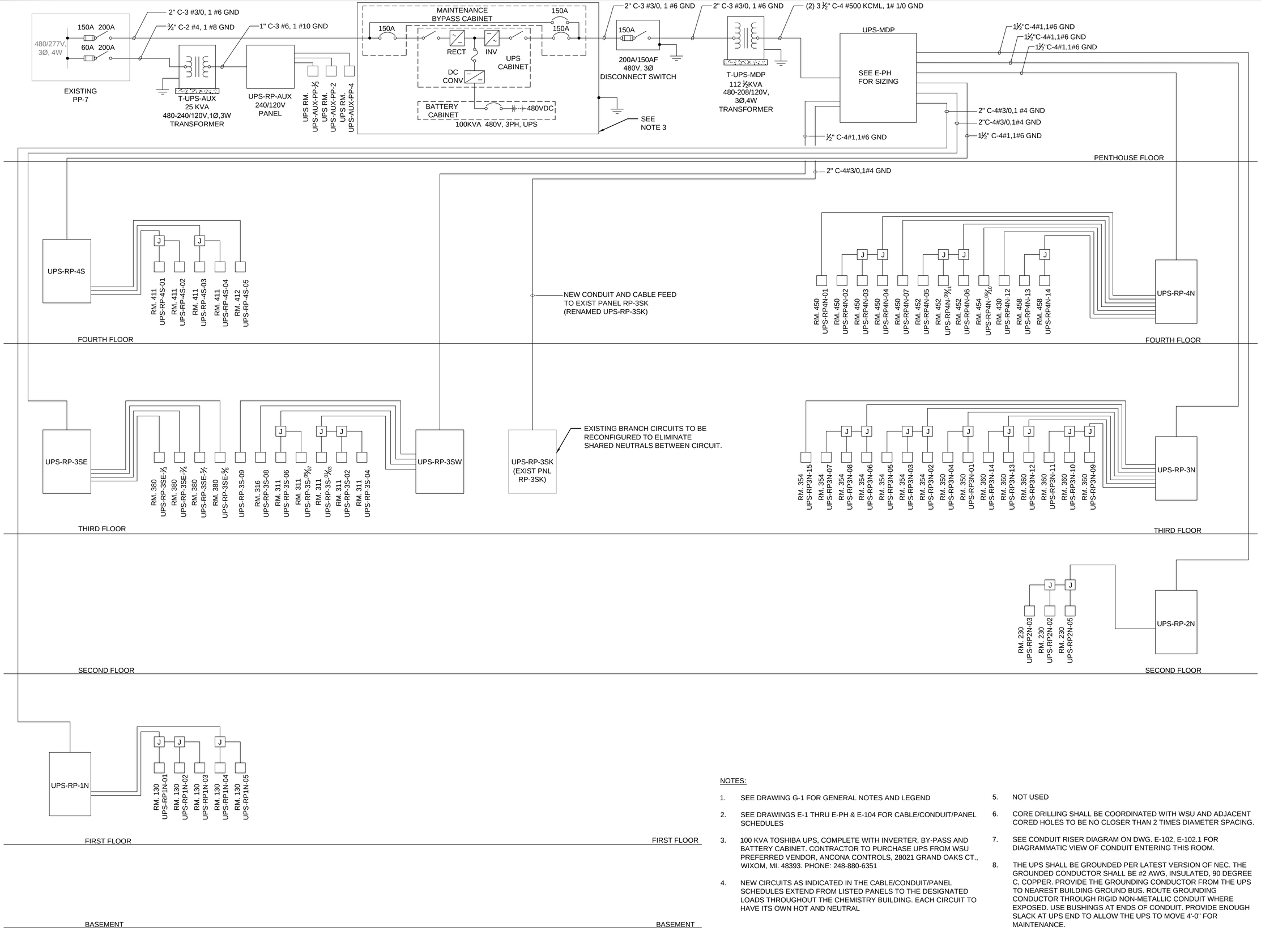
Title One Line Diagram, Primary Switchgear & Substations

SHEET NO.
E-101

Sheet No EG-202

REV NO.
B

FILE NAME: C:\pw_work\pw_proj\dlmaier\d0447957\E-101.dwg ■ PLOTTED DATE: 1/14/2015 3:02 PM ■ PLOTTED BY: Daniel L. Maier ■



NOTES:

1. SEE DRAWING G-1 FOR GENERAL NOTES AND LEGEND
2. SEE DRAWINGS E-1 THRU E-PH & E-104 FOR CABLE/CONDUIT/PANEL SCHEDULES
3. 100 KVA TOSHIBA UPS, COMPLETE WITH INVERTER, BY-PASS AND BATTERY CABINET. CONTRACTOR TO PURCHASE UPS FROM WSU PREFERRED VENDOR, ANCONA CONTROLS, 28021 GRAND OAKS CT., WIXOM, MI. 48393. PHONE: 248-880-6351
4. NEW CIRCUITS AS INDICATED IN THE CABLE/CONDUIT/PANEL SCHEDULES EXTEND FROM LISTED PANELS TO THE DESIGNATED LOADS THROUGHOUT THE CHEMISTRY BUILDING. EACH CIRCUIT TO HAVE ITS OWN HOT AND NEUTRAL
5. NOT USED
6. CORE DRILLING SHALL BE COORDINATED WITH WSU AND ADJACENT CORED HOLES TO BE NO CLOSER THAN 2 TIMES DIAMETER SPACING.
7. SEE CONDUIT RISER DIAGRAM ON DWG. E-102, E-102.1 FOR DIAGRAMMATIC VIEW OF CONDUIT ENTERING THIS ROOM.
8. THE UPS SHALL BE GROUNDED PER LATEST VERSION OF NEC. THE GROUNDED CONDUCTOR SHALL BE #2 AWG, INSULATED, 90 DEGREE C, COPPER. PROVIDE THE GROUNDING CONDUCTOR FROM THE UPS TO NEAREST BUILDING GROUND BUS. ROUTE GROUNDING CONDUCTOR THROUGH RIGID NON-METALLIC CONDUIT WHERE EXPOSED. USE BUSHINGS AT ENDS OF CONDUIT. PROVIDE ENOUGH SLACK AT UPS END TO ALLOW THE UPS TO MOVE 4'-0" FOR MAINTENANCE.

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DLM DRAWN BY	CJM PROJECT LEAD
DHP DESIGNED BY	DA REVIEWED BY
APPROVED BY	DATE

MARK	ISSUED FOR/REVISIONS	DATE
A	90% CLIENT REVIEW	10-9-2014
B	FOR BID	1-21-2015

Engineers Seal

007-248857
CLIENT PROJECT NO.
320006
PROJECT NO.
AS SHOWN
SCALE:

SHEET TITLE
UPS DISTRIBUTION RISER DIAGRAM

SHEET NO.
E-102
REV NO.
B

1"=10'   1"=20'   1"=30'   1"=40'   1"=50'   1"=100'

POWER PANEL SCHEDULE PP-BW
480 WYE / 277 VOLT 3PH. 4W. 1200A MLO 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			DP-BW VIA T-BW	3	400A	400A	487 8	0 69	338 9	3#500 KCMIL & 1#2 GRD , 3" C.	
2		181	EXISTING POWER PANEL PP-1 IN SUB-BASEMENT	3	400A	300A	218 0	0 75	163 5	3#350 KCMIL & 1#4 GRD , 3" C	EXTEND NEW FEEDER TO EXISTING PANEL
3			EXISTING LDP No 1	3	400A	400A	200 0 *	0 75	150 0 *	4#500 KCMIL & 1#2 GRD , 3-1/2" C	EXTEND NEW FEEDER TO EXISTING PANEL
4			EXISTING LIGHTING PANEL C	3	60A	60A	48 0	1 0	48 0	4#6 & 1#10 GRD , 1" C	EXTEND NEW FEEDER TO EXISTING PANEL
5			EXISTING LIGHTING PANEL D	3	60A	60A	48 0	1 0	48 0	4#6 & 1#10 GRD , 1" C	EXTEND NEW FEEDER TO EXISTING PANEL
6			SPARE	3	30A						PROVIDE SPARE FUSIBLE SWITCH
7			LP-BW	3	100A	100A	11 9	1 0	11 9	4#2 & 1#8 GRD , 1 1/4" C	
8			AC-1A UNIT AT STUDENT AREA 010.5	3	30A	20A	7 1	1 0	7 1	3#10 & 1#10 GRD , 3/4" C	① ④ ⑤
9			AC-1B UNIT AT LAB 070	3	30A	20A	7 1	1 0	7 1	3#10 & 1#10 GRD , 3/4" C	① ④ ⑤
10			SPARE	3	100A						PROVIDE SPARE FUSIBLE SWITCH
11			SPARE	3	100A						PROVIDE SPARE FUSIBLE SWITCH
12			AC-1C UNIT AT LAB 060	3	30A	20A	7 1	1 0	7 1	3#10 & 1#10 GRD , 3/4" C	① ④ ⑤
13			SPARE	3	100A						PROVIDE SPARE FUSIBLE SWITCH

TOTAL CONNECTED LOAD 1035 0 AMPS OR 860 5 KVA — MOUNTING FLOOR

FEEDER SIZE THREE 4"C , EACH WITH 4-600 KCMIL & 1#3/0 GRD — LOCATION SUBSTATION ROOM 49 IN SCI & ENGINEERING LIBRARY

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 781 6 AMPS OR 649 8 KVA
2 PANEL SHALL HAVE MINIMUM 65,000 RMS SYMMETRICAL AMP RATING AT 480 VAC.

* - INDICATES LOAD IS ESTIMATED

DISTRIBUTION PANEL SCHEDULE DP-BW
208 WYE / 120 VOLT 3PH. 4W. 1200A MLO 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-BR	3	200A	150A	77 4	0 75	58.0	4#3/0 & 1#4 GRD , 2" C
2			RP-BS	3	200A	150A	124 7	0 75	93 5	4#3/0 & 1#4 GRD , 2" C
3			RP-BT	3	200A	150A	110 1	0 75	82 6	4#3/0 & 1#4 GRD , 2" C
4			SPARE	3	200A					PROVIDE SPARE FUSIBLE SWITCH
5			RP-BV	3	200A	150A	77 8	0 67	51 9	4#1/0 & 1#6 GRD , 2" C LAB 010
6			RP-BW	3	200A	150A	82 9	0 70	57 9	4#1/0 & 1#6 GRD , 2" C LAB 010
7			RP-BX	3	200A	150A	50 9	0 75	38 2	4#1/0 & 1#6 GRD , 2" C
8			RP-BY	3	200A	150A	96 1	0 75	72 1	4#1/0 & 1#6 GRD , 2" C
9			RP-BZ	3	200A	150A	0 0	0 75	0 0	4#1/0 & 1#6 GRD , 2" C
10			EXISTING PANEL BC	3	100A	90A	33 3 *	0 75	25 0 *	EXTEND NEW 4#2 & 1#8 GRD , 1-1/4" C TO EXISTING PANEL
11			EXISTING PANEL BM	3	100A	90A	33 3 *	0 75	25 0 *	EXTEND NEW 4#2 & 1#8 GRD , 1-1/4" C TO EXISTING PANEL
12			EXISTING PANEL BN	3	100A	90A	33 3 *	0 75	25 0 *	EXTEND NEW 4#2 & 1#8 GRD , 1-1/4" C TO EXISTING PANEL
13		48 7 **	EXISTING EDP No 1	3	400A	350A	229 2 *	0 59	135 2 **	EXTEND NEW 4#500 KCMIL & 1# 2 GRD , 3-1/2" C TO EXISTING PANEL
14			RP-BAA	3	200A	200A	176 6	0 67	117 7	4#4/0 & 1#4 GRD , 2-1/2" C REFER TO DRAWING E6-23 FOR WORK SCOPE
15			SPARE	3	100A					PROVIDE SPARE FUSIBLE SWITCH
16			SPACE	3	100A					PROVIDE BUSSED SPACE FOR 100A SWITCH
17			SPACE	3	100A					PROVIDE BUSSED SPACE FOR 100A SWITCH

TOTAL CONNECTED LOAD 1125 6 AMPS OR 405 5 KVA — MOUNTING FLOOR

FEEDER SIZE THREE 4"C , EACH WITH 4-600 KCMIL & 1#3/0 GRD — LOCATION SUBSTATION ROOM 49 IN SCI & ENG LIBRARY

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 782 1 AMPS OR 281 8 KVA
2 FEEDER CONDUCTOR LENGTH SHALL BE LIMITED TO TEN FEET
3 PANEL SHALL HAVE MINIMUM 65,000 RMS SYMMETRICAL AMP RATING AT 208 VAC

* - INDICATES LOAD IS ESTIMATED

** MEASURED LOAD ON EDP No 1 IS BASED ON THE MAXIMUM DEMAND (MEASURE OF AVERAGE POWER DEMAND OVER A 15-MINUTE PERIOD) CONTINUOUSLY RECORDED OVER A 39-DAY PERIOD, 27 MAY TO 6 JULY, 2009 (REFERENCE CENTERLINE ELECTRIC TESTING REPORTS 2009-06-10 & 2009-07-08) 48.7 KVA = 58 6 AMPS AT 480 V , 3 PHASE = 135.2 AMPS AT 208 V , 3 PHASE.

MOTOR CONTROL CENTER SCHEDULE MCC-SB
480 VOLT 3PH. 3W. 1200A MLO WITH GROUND BUS

CKT No	HP	KVA	EQUIPMENT	POLES	SW SIZE	FUSE SIZE	STARTER SIZE	CAPACITOR RATING	CONNECTED LOAD IN AMPS	ESTIMATED DEMAND FACTOR	ESTIMATED DEMAND LOAD IN AMPS	WIRE & CONDUIT / REMARKS
1	200		CWP-1	3	400A	350A	5	40 KVAR	225	0 67	150	3# 500 KCMIL & 1#2 GRD , 3" C
2	200		CWP-2	3	400A	350A	5	40 KVAR	225	0 67	150	3# 500 KCMIL & 1#2 GRD , 3" C
3	200		CWP-3	3	400A	350A	5	40 KVAR	225	0 67	150	3# 500 KCMIL & 1#2 GRD , 3" C
4	150		CWP-4	3	400A	250A	5	30 KVAR	170	1 0	170	3# 250 KCMIL & 1#4 GRD , 2-1/2" C ⑨
5			SPARE	3	400A		5	40 KVAR				PROVIDE SPARE SIZE 5 STARTER, WITH 40 KVAR CAPACITOR
6												
7												
8												

TOTAL CONNECTED LOAD 845 0 AMPS OR 702 5 KVA — MOUNTING FLOOR

FEEDER SIZE THREE 3-1/2"C , EACH WITH 3-600 KCMIL & 1#3/0 GRD — LOCATION SUB-BASEMENT

NOTES
1 TOTAL ESTIMATED DEMAND LOAD. 450 0 AMPS OR 374 1 KVA
2 MCC SHALL HAVE MINIMUM 100,000 RMS SYMMETRICAL AMP RATING AT 480 VAC
3 MCC SHALL HAVE BUILT-IN POWER FACTOR CORRECTION CAPACITORS WITHIN THE MCC, RATINGS AS INDICATED CAPACITORS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 16480
4 STARTERS SHALL BE REDUCED VOLTAGE, AUTOTRANSFORMER TYPE REFER TO SPECIFICATION SECTION 16480 FOR ADDITIONAL REQUIREMENTS

KEYED NOTES

① PACKAGED UNIT BY MECHANICAL, WITH SINGLE POINT POWER CONNECTION

② WITH HEAVY DUTY DISCONNECT SWITCH PER DIVISION 16 SPECIFICATIONS

③ WITH COMBINATION STARTER AND HEAVY DUTY DISCONNECT SWITCH, PER DIVISION 16 SPECIFICATIONS

④ HEAVY DUTY DISCONNECT SWITCH PROVIDED WITH UNIT

⑤ STARTER(S) PROVIDED WITH UNIT

⑥ VFD(S) PROVIDED WITH UNIT

⑦ ONLY ONE OF THE TWO 20 HP HOT WATER PUMPS RUNS AT A TIME THE 20 HP PUMPS ARE EACH PROVIDED WITH A VFD THE PACKAGE UNIT INCLUDES A 10 HP PUMP, P-SL-1

⑧ AMONG THE THREE COMPRESSORS, LAC-3 IS STANDBY

⑨ CWP-4 IS STANDBY TO CWP-1, CWP-2 & CWP-3

⑩ AHU-5 PACKAGED UNIT IS PLANNED TO INCLUDE A 40 HP SUPPLY FAN, 25 HP EXHAUST FAN, AND A FRACTIONAL HP ENERGY RECOVERY WHEEL THE PACKAGED UNIT IS PLANNED TO INCLUDE VFD'S FOR THE SUPPLY FAN, EXHAUST FAN & ENERGY RECOVERY WHEEL, ASSOCIATED DISCONNECT SWITCHES, FUSES AND INTERCONNECTING WIRING THE PACKAGED UNIT IS PLANNED TO BE PROVIDED COMPLETELY WIRED BY THE MANUFACTURER, AND READY TO RECEIVE A SINGLE POINT POWER CONNECTION, AS DESIGNATED HEREIN

⑪ ONLY ONE OF THE TWO ENERGY RECOVERY PUMPS RUNS AT A TIME

⑫ AMONG THE FOUR LAB EXHAUST FANS, ONE 50 HP FAN IS STANDBY PROVIDE MOTOR STARTERS, POWER FACTOR CORRECTION CAPACITORS AND INTERCONNECTING WIRING FOR EACH LAB EXHAUST FAN
FOR 100 HP LAB EXHAUST FANS, PROVIDE NEMA SIZE 4 REDUCED VOLTAGE MAGNETIC STARTERS & 21 KVAR POWER FACTOR CORRECTION CAPACITORS
FOR 50 HP LAB EXHAUST FANS, PROVIDE NEMA SIZE 3 MAGNETIC STARTERS & 11 KVAR POWER FACTOR CORRECTION CAPACITORS INSTALL & WIRE CAPACITORS AS SPECIFIED IN SECTION 16480, "MOTOR CONTROL"

⑬ CHWP-3 IS STANDBY TO CHWP-1 & CHWP-2

NEW WORK

⑭ DISCONNECT CIRCUIT FOR RP-3SK FROM DP-3S CIRCUIT 10 AND LABEL AS SPARE.
CONNECT RP-3SK TO UPS AND RENAME AS UPS-RP-3SK. SEE DWG. E-102

B

LOAD SUMMARY FOR NEW SUBSTATION, NORTH TRANSFORMER

CKT No	KVA CONN	EQUIPMENT	CONNECTED AMPS	ESTIMATED DEMAND LOAD IN AMPS	REMARKS
1		PP-3S	613 2	468 5	
2		PP-9	1048 1	921 4	
3		PP-BW	1035 0	781 6	
4		SPARE			PROVIDE SPARE BREAKER PER DRAWING EG-202

TOTAL CONNECTED LOAD 2696 3 AMPS OR 2241 7 KVA — MOUNTING FLOOR — LOCATION WEST PORTION OF SUBSTATION ROOM 49

NOTES TOTAL ESTIMATED DEMAND LOAD 2171 5 AMPS OR 1805 4 KVA

LOAD SUMMARY FOR NEW SUBSTATION, SOUTH TRANSFORMER

CKT No	KVA CONN	EQUIPMENT	CONNECTED AMPS	ESTIMATED DEMAND LOAD IN AMPS	REMARKS
1		PP-1S	1464 2	938 6	
2		PP-10	756 7	529 4	
3		MCC-SB	845 0	450 0	
4		SPACE			PROVIDE BUSSED SPACE PER DRAWING EG-202

TOTAL CONNECTED LOAD: 3065 9 AMPS OR 2548 9 KVA — MOUNTING FLOOR — LOCATION WEST PORTION OF SUBSTATION ROOM 49

NOTES TOTAL ESTIMATED DEMAND LOAD 1918 0 AMPS OR 1594 6 KVA

DISTRIBUTION PANEL SCHEDULE DP-4S
208 WYE / 120 VOLT 3PH. 4W. 800A MLO 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-4SA	3	200A	150A	28 7	0 75	21 5	4#1/0 & 1#6 GRD , 2" C
2			RP-4SB	3	200A	150A	58 9	0 75	44 2	4#1/0 & 1#6 GRD , 2" C
3			RP-4SC	3	200A	150A	32 8	0 75	24 6	4#1/0 & 1#6 GRD , 2" C
4			RP-4SD	3	200A	150A	76 7	0 75	57 5	4#1/0 & 1#6 GRD , 2" C
5			RP-4SE	3	200A	150A	53 3	0 75	40 0	4#1/0 & 1#6 GRD , 2" C
6			RP-4SF	3	200A	150A	65 1	0 75	48 8	4#1/0 & 1#6 GRD , 2" C
7			RP-4SG	3	200A	150A	46 9	0 75	35 2	4#1/0 & 1#6 GRD , 2" C
8			RP-4SH	3	200A	150A	22 5	0 75	16 9	4#1/0 & 1#6 GRD , 2" C
9			RP-4SJ	3	200A	150A	49 4	0 75	37 1	4#1/0 & 1#6 GRD , 2" C
10			RP-4SK	3	200A	150A	35 8	0 75	26 9	4#1/0 & 1#6 GRD , 2" C
11			RP-4SL	3	200A	150A	56 7	0 75	42 5	4#1/0 & 1#6 GRD , 2" C
12			SPARE	3	200A					PROVIDE SPARE FUSIBLE SWITCH
13			SPARE	3	200A					PROVIDE SPARE FUSIBLE SWITCH
14			SPACE	3	200A					PROVIDE BUSSED SPACE FOR 200A SWITCH
15			SPACE	3	200A					PROVIDE BUSSED SPACE FOR 200A SWITCH
16			SPACE	3	200A					PROVIDE BUSSED SPACE FOR 200A SWITCH

TOTAL CONNECTED LOAD 526 8 AMPS OR 189 8 KVA — MOUNTING FLOOR

FEEDER SIZE TWO 3-1/2"C , EACH WITH 4-500 KCMIL & 1#1/0 GRD — LOCATION FOURTH FLOOR SOUTH WEST ELECTRICAL ROOM

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 395 2 AMPS OR 142 4 KVA
2 FEEDER CONDUCTOR LENGTH SHALL BE LIMITED TO TEN FEET
3 PANEL SHALL HAVE MINIMUM 65,000 RMS SYMMETRICAL AMP RATING AT 208 VAC

DISTRIBUTION PANEL SCHEDULE DP-3S
208 WYE / 120 VOLT 3PH. 4W. 800A MLO 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-3SA	3	200A	150A	28 3	0 75	21 2	4#1/0 & 1#6 GRD , 2" C
2			RP-3SB	3	200A	150A	98 1	0 75	73 6	4#1/0 & 1#6 GRD , 2" C
3			RP-3SC	3	200A	150A	33 3	0 75	25 0	4#1/0 & 1#6 GRD , 2" C
4			RP-3SD	3	200A	150A	86 1	0 75	64.6	4#1/0 & 1#6 GRD , 2" C
5			RP-3SE	3	200A	150A	28 3	0 75	21 2	4#1/0 & 1#6 GRD , 2" C
6			RP-3SF	3	200A	150A	117 8	0 75	88 3	4#1/0 & 1#6 GRD , 2" C
7			RP-3SG	3	200A	150A	68 6	0 75	51 5	4#1/0 & 1#6 GRD , 2" C
8			RP-3SH	3	200A	150A	41 4	0 75	31 0	4#1/0 & 1#6 GRD , 2" C
9			RP-3SJ	3	200A	150A	83 3	0 75	62 5	4#1/0 & 1#6 GRD , 2" C
10			SPARE	3	200A	150A				⑭
11			RP-3SL	3	200A	150A	76 4	0 75	57 3	4#1/0 & 1#6 GRD , 2" C
12			SPARE	3	200A					PROVIDE SPARE FUSIBLE SWITCH
13			SPARE	3	200A					PROVIDE SPARE FUSIBLE SWITCH
14			SPACE	3	200A					PROVIDE BUSSED SPACE FOR 200A SWITCH
15			SPACE	3	200A					PROVIDE BUSSED SPACE FOR 200A SWITCH
16			SPACE	3	200A					PROVIDE BUSSED SPACE FOR 200A SWITCH

NEW WORK

B

TOTAL CONNECTED LOAD 808 9 AMPS OR 291 4 KVA — MOUNTING FLOOR

FEEDER SIZE TWO 3-1/2"C , EACH WITH 4-500 KCMIL & 1#1/0 GRD — LOCATION THIRD FLOOR SOUTH WEST ELECTRICAL ROOM

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 606 6 AMPS OR 218 5 KVA
2 FEEDER CONDUCTOR LENGTH SHALL BE LIMITED TO TEN FEET
3 PANEL SHALL HAVE MINIMUM 65,000 RMS SYMMETRICAL AMP RATING AT 208 VAC

DISTRIBUTION PANEL SCHEDULE DP-2S
208 WYE / 120 VOLT 3PH. 4W. 800A MLO 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-2SA	3	200A	150A	28 3	0 75	21 2	4#1/0 & 1#6 GRD , 2" C
2			RP-2SB	3	200A	150A	89 8	0 75	67 3	4#1/0 & 1#6 GRD , 2" C
3			RP-2SC	3	200A	150A	32 2	0 75	24 1	4#1/0 & 1#6 GRD , 2" C
4			RP-2SD	3	200A	150A	122 2	0 75	91 7	4#1/0 & 1#6 GRD , 2" C
5			RP-2SE	3	200A	150A	65 8	0 75	49 4	4#1/0 & 1#6 GRD , 2" C
6			RP-2SF	3	200A	150A	73 9	0 75	55 4	4#1/0 & 1#6 GRD , 2" C
7			RP-2SG	3	200A	150A	58 1	0 75	43 6	4#1/0 & 1#6 GRD , 2" C
8			RP-2SH	3	200A	150A	46 9	0 75	35 2	4#1/0 & 1#6 GRD , 2" C
9			RP-2SJ	3	200A	150A	51 1	0 75	38 3	4#1/0 & 1#6 GRD , 2" C
10			RP-2SK	3	200A	150A	69 7	0 75	52 3	4#1/0 & 1#6 GRD , 2" C
11			RP-2SL	3	200A	150A	87 6	0 75	65 7	4#1/0 & 1#6 GRD , 2" C.
12			RP-BU (IN BSMT LAB 010)	3	200A	150A	112 1	0 67	74 7	4#1/0 & 1#6 GRD , 2" C
13			SPARE	3	200A					PROVIDE SPARE FUSIBLE SWITCH
14			SPACE	3	200A					PROVIDE BUSSED SPACE FOR 200A SWITCH
15			SPACE	3	200A					PROVIDE BUSSED SPACE FOR 200A SWITCH
16			SPACE	3	200A					PROVIDE BUSSED SPACE FOR 200A SWITCH

TOTAL CONNECTED LOAD 837 7 AMPS OR 301 8 KVA — MOUNTING FLOOR

FEEDER SIZE TWO 3-1/2"C , EACH WITH 4-500 KCMIL & 1#1/0 GRD — LOCATION SECOND FLOOR SOUTH WEST ELECTRICAL ROOM

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 618 9 AMPS OR 223 0 KVA
2 FEEDER CONDUCTOR LENGTH SHALL BE LIMITED TO TEN FEET
3 PANEL SHALL HAVE MINIMUM 65,000 RMS SYMMETRICAL AMP RATING AT 208 VAC

DISTRIBUTION PANEL SCHEDULE DP-1S
208 WYE / 120 VOLT 3PH. 4W. 800A MLO 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-1SA	3	200A	150A	28 3	0.75	21 2	4#1/0 & 1#6 GRD , 2" C
2			RP-1SB	3	200A	150A	88 4	0 75	66 3	4#1/0 & 1#6 GRD , 2" C
3			RP-1SC	3	200A	150A	39 4	0 75	29 6	4#1/0 & 1#6 GRD , 2" C
4			RP-1SD	3	200A	150A	110 0	0 75	82 5	4#1/0 & 1#6 GRD , 2" C
5			RP-1SE	3	200A	150A	87 2	0 75	65 4	4#1/0 & 1#6 GRD , 2" C
6			RP-1SF	3	200A	150A	51 9	0 75	38 9	4#1/0 & 1#6 GRD , 2" C
7			RP-1SG	3	200A	150A	23 3	0 75	17 5	4#1/0 & 1#6 GRD , 2" C
8			RP-1SH	3	200A	150A	46 9	0 75	35 2	4#1/0 & 1#6 GRD , 2" C
9			RP-1SJ	3	200A	150A	52 2	0 75	39 1	4#1/0 & 1#6 GRD , 2" C
10			RP-1SK	3	200A	150A	77 2	0 75	57 9	4#1/0 & 1#6 GRD , 2" C
11			RP-1SL	3	200A	150A	61 3	0 75	46 0	4#1/0 & 1#6 GRD , 2" C
12		20 8	BUSWAY N1 IN LAB 010	3	100A	100A	57 7	0 40	23 1	4#2 & 1#8 GRD , 1-1/4" C
13		26 8	BUSWAY N2 IN LAB 010	3	100A	100A	74 4	0 40	29 8	4#2 & 1#8 GRD , 1-1/4" C
14		30 0	BUSWAY N3 IN LAB 010	3	100A	100A	83 3	0 40	33 3	4#2 & 1#8 GRD , 1-1/4" C
15		18 7	BUSWAY N4 IN LAB 010	3	100A	100A	51 9	0 40	20 8	4#2 & 1#8 GRD , 1-1/4" C
16		68 9	BUSWAY N5 IN LAB 010	3	100A	100A	191 2	0 40	76 5	4#2 & 1#8 GRD , 1-1/4" C
17			SPARE	3	200A					PROVIDE SPARE FUSIBLE SWITCH
18			SPARE	3	100A					PROVIDE SPARE FUSIBLE SWITCH

TOTAL CONNECTED LOAD 1124 6 AMPS OR 405 2 KVA — MOUNTING FLOOR

FEEDER SIZE TWO 3-1/2"C , EACH WITH 4-500 KCMIL & 1#1/0 GRD — LOCATION FIRST FLOOR SOUTH WEST ELECTRICAL ROOM

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 683 1 AMPS OR 246 1 KVA
2 FEEDER CONDUCTOR LENGTH SHALL BE LIMITED TO TEN FEET
3 PANEL SHALL HAVE MINIMUM 65,000 RMS SYMMETRICAL AMP RATING AT 208 VAC

POWER PANEL SCHEDULE PP-9
480 VOLT 3PH. 3W. 1200A MLO WITH GROUND BUS

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	2@30 HP ea		NEW AHU-3, SF-3-1 FANS	3	200A	100A	72 0	1.0	72 0	3#1/0 & 1#6 GRD , 1-1/2" C	VFD OPERATION ⑥
2	2@30 HP ea		NEW AHU-3, SF-3-2 FANS	3	200A	100A	72 0	1 0	72 0	3#1/0 & 1#6 GRD , 1-1/2" C	VFD OPERATION ⑥
3	2@30 HP ea		NEW AHU-4, SF-4-1 FANS	3	200A	100A	72 0	1 0	72 0	3#1/0 & 1#6 GRD , 1-1/2" C	VFD OPERATION ⑥
4	2@30 HP ea		NEW AHU-4, SF-4-2 FANS	3	200A	100A	72 0	1 0	72 0	3#1/0 & 1#6 GRD , 1-1/2" C	VFD OPERATION ⑥
5			NEW AHU-5 PACKAGE UNIT	3	200A	125A	76 9	1 0	76 9	3#1/0 & 1#6 GRD , 1-1/2" C	VFD OPERATION ⑩
6	2@15 HP ea		NEW ENERGY RECOVERY PACKAGE ERP-2A, ERP-2B	3	100A	40A	18 0	0 5	9 0	3#8 & 1#10 GRD , 3/4" C	① ③ ⑪
7	60		NEW ELEV (PASSENGER)	3	200A	150A	65 0	1 0	65 0	3#1/0 & 1#6 GRD , 1-1/2" C	
8			NEW PROCESS WATER COOLING TOWER & BASIN HEATER	3	30A	30A	21 2	1 0	21 2	3#10 & 1#10 GRD , 3/4" C	⑥
9			SPARE	3	30A						PROVIDE SPARE FUSIBLE SWITCH
10	40		EXISTING CHEMISTRY TOWER FAN 1 - WEST	3	100A	70A	47 1	0 67	31 4	3#2 & 1#8 GRD , 1-1/4" C	EXTEND NEW FEEDER TO EXISTING FAN STARTER
11	40		EXISTING CHEMISTRY TOWER FAN 2 - CENTER	3	100A	70A	47 1	0 67	31 4	3#2 & 1#8 GRD , 1-1/4" C	EXTEND NEW FEEDER TO EXISTING FAN STARTER
12	40		EXISTING CHEMISTRY TOWER FAN 3 - EAST	3	100A	70A	47 1	0 67	31 4	3#2 & 1#8 GRD , 1-1/4" C	EXTEND NEW FEEDER TO EXISTING FAN STARTER
13	10		NEW EXHAUST FAN EF-SB	3	30A	30A	14 0	0 7	9 8	3#10 & 1#10 GRD , 3/4" C	VFD OPERATION
14			NEW, RP-PS VIA T-PS	3	100A	70A	41 0	0 82	33 6	3#2 & 1#8 GRD , 1-1/4" C	
15	3/4		NEW UNIT HEATER UH-2	3	30A	10A	1 7	1 0	1 7	3#10 & 1#10 GRD , 3/4" C	
16	100		NEW OUTER WEST LAB EXHAUST FAN	3	200A	175A	113 0	1 0	113 0	3#2/0 & 1#6 GRD , 2" C	⑫
17	100		NEW OUTER EAST LAB EXHAUST FAN	3	200A	175A	113 0	1 0	113 0	3#2/0 & 1#6 GRD , 2" C	⑫
18	50		NEW INNER WEST LAB EXHAUST FAN	3	200A	90A	59 0	0 5	29 5	3#2 & 1#8 GRD , 1-1/4" C	⑫
19			SPARE	3	400A						PROVIDE SPARE FUSIBLE SWITCH
20			NEW WEST ELEVATOR MACHINE ROOM COOLING UNIT AC-3	3	30A	10A	4 4	1 0	4 4	3#10 & 1#10 GRD , 3/4" C	① ④ ⑤
21	3		AHU-3 HEATING COIL CIRCULATING PUMP RCP-3	3	30A	10A	4 8	1 0	4 8	3#10 & 1#10 GRD , 3/4" C	
22	3		AHU-4 HEATING COIL CIRCULATING PUMP RCP-4	3	30A	10A	4 8	1 0	4 8	3#10 & 1#10 GRD , 3/4" C	
23			NEW PROCESS WATER PUMPS PWP-1 THROUGH PWP-4	3	200A	45A	23 0	1 0	23 0	3#8 & 1#10 GRD , 3/4" C	(PROVIDE FUSE REDUCERS)
24	50		NEW INNER EAST LAB EXHAUST FAN	3	100A	90A	59 0	0 5	29 5	3#2 & 1#8 GRD , 1-1/4" C	⑫

TOTAL CONNECTED LOAD 1048 1 AMPS OR 871 4 KVA — MOUNTING FLOOR

FEEDER SIZE THREE 3-1/2"C , EACH WITH 3-600 KCMIL & 1#3/0 GRD — LOCATION SOUTH AREA OF PENTHOUSE

NOTES:
1 TOTAL ESTIMATED DEMAND LOAD 921 4 AMPS OR 766 0 KVA
2 PANEL SHALL HAVE MINIMUM 65,000 RMS SYMMETRICAL AMP RATING AT 480 VAC

POWER PANEL SCHEDULE PP-3S
480 WYE / 277 VOLT 3PH. 4W. 800A MLO 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			DP-3S-VIA T-3S	3	400A	350A	350 5	0 75	262 9	3-500 KCMIL & 1#2 GRD , 3"C	
2			DP-4S VIA T-4S	3	400A	350A	228 3	0 75	171 2	3-500 KCMIL & 1#2 GRD , 3"C	
3			LP-3S	3	100A	100A	17 9	1 0	17 9	4#2 & 1#8 GRD , 1-1/4" C	
4			LP-4S	3	100A	100A	16 5	1 0	16 5	4#2 & 1#8 GRD , 1-1/4" C	
5			SPARE	3	200A						PROVIDE SPARE FUSIBLE SWITCH
6			SPARE	3	100A						PROVIDE SPARE FUSIBLE SWITCH

TOTAL CONNECTED LOAD 613 2 AMPS OR 509 8 KVA — MOUNTING FLOOR

FEEDER SIZE TWO 3-1/2"C , EACH WITH 4-500 KCMIL & 1#1/0 GRD — LOCATION 3RD FLOOR SOUTH ELECTRICAL CLOSET

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 468 5 AMPS OR 389 5 KVA
2 PANEL SHALL HAVE MINIMUM 65,000 RMS SYMMETRICAL AMP RATING AT 480 VAC

POWER PANEL SCHEDULE PP-1S
480 WYE / 277 VOLT 3PH. 4W. 1200A MLO 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		75	PANELS BF & BG VIA 75 KVA TRANSFORMER T5	3	100A	90A	* 210 1	0 4	84 0	3#2 & 1#8 GRD , 1-1/4" C	SPLICE NEW FEEDER IN SPLICE BOX PROVIDED UNDER C I 1, NEAR PP-1S
2		75	PANELS BD & RP-BF VIA 75 KVA TRANSFORMER T6	3	100A	90A	* 194 3	0 4	77 7	3#2 & 1#8 GRD , 1-1/4" C	SPLICE NEW FEEDER IN SPLICE BOX PROVIDED UNDER C I 1, NEAR PP-1S
3		30	LAB 70 PANEL VIA 30 KVA TRANSFORMER T7	3	60A	45A	42 6	0 80	34 1	3#6 & 1#10 GRD , 1" C	SPLICE NEW FEEDER IN SPLICE BOX PROVIDED UNDER C I 1 NEAR PP-1S
4		30	PANEL RP-BP VIA 30 KVA TRANSFORMER T8	3	60A	45A	* 50 8	0 5	25 4	3#6 & 1#10 GRD , 1" C	SPLICE NEW FEEDER IN SPLICE BOX PROVIDED UNDER C I 1 NEAR PP-1S
5			PANEL RP-BL VIA EXISTING 45 KVA XFMR	3	60A	60A	* 73 1	0 5	36 6	3#2 & 1#8 GRD , 1-1/4" C	SPLICE NEW FEEDER IN SPLICE BOX PROVIDED UNDER C.I 1, NEAR PP-1S
6			DP-1S VIA T-1S	3	400A	400A	487 3	0 75	365 5	3-500 KCMIL & 1#2 GRD , 3" C	
7			DP-2S VIA T-2S	3	400A	350A	363 0	0 75	272 3	3-500 KCMIL & 1#2 GRD , 3" C	
8			LP-1S	3	100A	100A	14 7	1 0	14 7	4#2 & 1#8 GRD , 1-1/4" C	
9			LP-2S	3	100A	100A	18 5	1 0	18 5	4#2 & 1#8 GRD , 1-1/4" C	
10			OWNER'S PUMPS IN LAB 010 VACUUM CLOSET	3	30A	20A	9 8	1 0	9 8	3#10 & 1#10 GRD , 3/4" C	
11			SPARE	3	100A						PROVIDE SPARE FUSIBLE SWITCH
12			SPARE	3	100A						PROVIDE SPARE FUSIBLE SWITCH

TOTAL CONNECTED LOAD 1464 2 AMPS OR 1217 3 KVA — MOUNTING FLOOR

FEEDER SIZE: THREE 4"C , EACH WITH 4-600 KCMIL & 1#3/0 GRD — LOCATION 1ST FLOOR SOUTH ELECTRICAL CLOSET

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 938 6 AMPS OR 780 3 KVA
2 PANEL SHALL HAVE MINIMUM 65,000 RMS SYMMETRICAL AMP RATING AT 480 VAC
* ESTIMATED, AT MAXIMUM ALLOWABLE LOAD FOR THE SUM OF THE BRANCH BREAKERS IN THE SERVED PANELBOARDS

POWER PANEL SCHEDULE PP-10
480 WYE / 277 VOLT 3PH. 4W. 1200A MLO WITH GROUND BUS

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	5		NEW SF-RP-1	3	30A	20A	7 6	0 7	5 3	3#10 & 1#10 GRD , 3/4" C VFD OPERATION ②
2	5		EXISTING SANITARY PUMP 1	3	30A	30A	8 0	1 0	8 0	EXTEND NEW 3 #10 & 1 #10 GRD , 3/4" C TO EXISTING STARTER FOR SANITARY PUMP
3	7-1/2		EXISTING SANITARY PUMP 2	3	30A	30A	10 3	1 0	10 3	EXTEND NEW 3 #10 & 1 #10 GRD , 3/4" C TO EXISTING STARTER FOR SANITARY PUMP
4	30		NEW LAB AIR COMPRESSOR LAC-1	3	60A	60A	40 0	0 67	26 7	3#4 & 1#6 GRD , 1-1/4" C ⑧
5	3		EXISTING ACID WASTE PUMP 1	3	30A	30A	4 5	0 5	2 3	EXTEND NEW 3 #10 & 1 #10 GRD , 3/4" C TO EXISTING STARTER FOR ACID WASTE PUMP
6	3		EXISTING ACID WASTE PUMP 2	3	30A	30A	4 5	0 5	2 3	EXTEND NEW 3 #10 & 1 #10 GRD , 3/4" C TO EXISTING STARTER FOR ACID WASTE PUMP
7	30		NEW LAB AIR COMPRESSOR LAC-2	3	60A	60A	40 0	0 67	26 7	3#4 & 1#6 GRD , 1-1/4" C ⑧
8	30	FUTURE	NEW LAB AIR COMPRESSOR LAC-3	3	60A	60A	40 0	0 67	26 7	3#4 & 1#6 GRD , 1-1/4" C ⑧
9	2@20, 1@10		NEW HOT WATER SYSTEM	3	100A	90A	65 2	0 6	39 2	3#2 & 1#8 GRD , 1-1/4" C ④ ⑥ ⑦
10			LP-SB	3	100A	100A	4 0	1 0	4 0	4#2 & 1#8 GRD , 1-1/4" C
11			Air Compressor	3	30A					3 #10 & 1 # 10 GRND
12			NEW CHILLER CH-1 OIL PUMP & HEATER	3	30A	15A	6 8	1 0	6 8	3#10 & 1#10 GRD , 3/4" C
13			NEW CHILLER CH-2 OIL PUMP & HEATER	3	30A	15A	6 8	1 0	6 8	3#10 & 1#10 GRD , 3/4" C
14	150		CHWP-1	3	400A	250A	170 0	0 7	119 0	3#250 KCMIL & 1#4 GRD , 2-1/2" C ① ⑥
15	150		CHWP-2	3	400A	250A	170 0	0 7	119 0	3#250 KCMIL & 1#4 GRD , 2-1/2" C ① ⑥
16	125		EXISTING CHWP-3 & VFD	3	200A	200A	141 0	0 7	98 7	EXTEND NEW 3#4/0 & 1#4 GRD , 2" C , TO EXISTING VFD CONTROLLER ⑬
17	5		NEW EF-RP-1	3	30A	20A	7 6	0 7	5 3	3#10 & 1#10 GRD , 3/4" C ②
18			SPARE	3	200A					PROVIDE SPARE FUSIBLE SWITCH
19	20		SIDE STREAM SEPARATOR PACKAGE UNIT	3	100A	40A	27 0	0 7	18 9	3#8 & 1#10 GRD , 3/4" C ① ③
20			LAC CONTROL CABINET	3	30A	30A				3#10 & 1#10 GRD 3/4" C

TOTAL CONNECTED LOAD 756 7 AMPS OR 629 1 KVA — MOUNTING FLOOR

FEEDER SIZE THREE 4"C-, EACH WITH 4-600 KCMIL & 1#3/0 GRD — LOCATION SUB-BASEMENT

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 529 4 AMPS OR 440 1 KVA
2 PANEL SHALL HAVE MINIMUM 65,000 RMS SYMMETRICAL AMP RATING AT 480 VAC

3"=1'-0"   1 1/2"=1'-0"   3/4"=1'-0"   1/4"=1'-0"   1/8"=1'-0"   1/16"=1'-0"

WAYNE STATE UNIVERSITY

Chemistry Building Expansion & Renovation

WSU Project Number
007-155746
007-157561

Detroit, Michigan

Date	Issue
02/13/09	RENOVATION S.D
04/06/09	Progress Review
06/12/09	D D
10/26/09	C.I. 5 O.R.
12/02/09	C.I 5
01/15/10	C.I 6 O.R.
02/12/10	C.I. 6
05/07/10	C.I 7
05/28/10	C.I 8
06/04/10	C.I 9
08/16/10	C.I 10
08/23/10	C.I 11
10/20/10	C.I 12
11/22/10	C.I 13
12/17/10	C.I 14
02/07/11	C.I 15 O.R.
03/01/11	C.I 15

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Landscape Architecture
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AS BUILT

Project No 2008-10071-000
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Title Schedules for New Power & Distribution Equipment

Sheet No E6-12

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WAYNE STATE UNIVERSITY

007-CHEMISTRY BUILDING
5101 CASS AVENUE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 007-248857

WAYNE STATE UNIVERSITY
FACILITIES PLANNING & MANAGEMENT
5454 CASS AVENUE DETROIT, MICHIGAN

JAS DRAWN BY	CJM PROJECT LEAD
DHP DESIGNED BY	DA REVIEWED BY
APPROVED BY	DATE

MARK	ISSUED FOR/REVISIONS	DATE
A	90% CLIENT REVIEW	10-9-2014
B	FOR BID	1-21-2015

Engineers Seal

007-248857
CLIENT PROJECT NO.

320006
PROJECT NO.

AS SHOWN
SCALE:

SHEET TITLE
EXISTING POWER PANEL

SHEET NO.
E-103

REV NO.
B

FILE NAME: C:\pw_work\pw_projdl\maier\d0447957\E-105.dwg   PLOTTED DATE: 1/14/2015 2:59 PM   PLOTTED BY: Daniel L. Maier

FILE NAME: C:\pw_work\pw_proj\dlmaier\d0447957\E-105.1.dwg ■ PLOTTED DATE: 1/14/2015 2:58 PM ■ PLOTTED BY: Daniel L. Maier

EMERGENCY LIGHTING DISTRIBUTION PANEL SCHEDULE ELDP

480 WYE / 277 VOLT 3PH. 4W. 250A MLO 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	REMARKS
1			ELP-1N	3	60A	40A	8 8	1 0	8 8	4 No 6 & 1 No 10 GRD , 1" C
2			ELP-2N	3	60A	40A	5 6	1 0	5 6	4 No 6 & 1 No 10 GRD , 1" C
3			ELP-3N	3	60A	40A	5 2	1 0	5 2	4 No 6 & 1 No 10 GRD , 1" C
4			ELP-4N	3	60A	40A	4 9	1 0	4 9	4 No 6 & 1 No 10 GRD , 1" C
5			ELP-P	3	60A	40A	1 3	1 0	1 3	4 No 6 & 1 No 10 GRD , 1" C
6			ELP-SB	3	60A	40A	11 4	1 0	11 4	4 No 6 & 1 No 10 GRD , 1" C
7			EXISTING "X" PANEL	3	60A	60A	* 48 0	1 0	48 0	4 No 4 & 1 No 8 GRD , 1-1/4" C
8			EMERGENCY LOADS IN NEW BUILDING ADDITION	3	60A	60A	8 9	1 0	8 9	NEW, 3 No 6 & 1 No 10 GRD , 1" C REFER TO NOTE 3

TOTAL CONNECTED LOAD 94.1 AMPS OR 78 2 KVA — MOUNTING FLOOR

FEEDER SIZE 4 #4/0 & 1 #4 GRD , 2-1/2" C — LOCATION SECOND FLOOR NORTH WEST ELECTRICAL ROOM

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 94 1 AMPS OR 78 2 KVA
2 PEAK MEASURED LOAD 14 5 KW, 23 KVAR, OR 27 19 KVA MEASURED LOAD IS BASED ON THE MAXIMUM DEMAND (MEASURE OF AVERAGE POWER DEMAND OVER A 15-MINUTE PERIOD), CONTINUOUSLY RECORDED OVER A 38-DAY PERIOD, 27 MAY TO 6 JULY, 2009 (REFERENCE CENTERLINE ELECTRIC TESTING REPORTS 2009-06-10 & 2009-07-08)
3 PROVIDE A NEW FUSIBLE SWITCH IN EXISTING SPACE POSITION EXTEND NEW FEEDER CONDUIT & WIRING FROM THE NEW SWITCH, TO EMERGENCY LOADS IN NEW BUILDING ADDITION, PER DRAWING EG-203
* ESTIMATED, AT MAXIMUM ALLOWABLE LOAD FOR THE FEEDER INDICATED

GENERAL NOTES

1 EACH POWER & DISTRIBUTION PANEL SHOWN HAS AN INTERRUPTING RATING OF 65,000 RMS SYMMETRICAL AMPERES AT RATED VOLTAGE

KEYED NOTES

① PACKAGED UNIT BY MECHANICAL, WITH SINGLE POINT POWER CONNECTION
② WITH HEAVY DUTY DISCONNECT SWITCH PER DIVISION 16 SPECIFICATIONS
③ WITH COMBINATION STARTER AND HEAVY DUTY DISCONNECT SWITCH PER DIVISION 16 SPECIFICATIONS
④ HEAVY DUTY DISCONNECT SWITCH PROVIDED WITH UNIT
⑤ STARTER(S) PROVIDED WITH UNIT
⑥ VFD(S) PROVIDED WITH UNIT
⑦ ONLY ONE PUMP RUNS AT A TIME
⑧ AMONG DCWBP-1 & DCWBP-2, ONLY ONE PUMP RUNS AT A TIME

NEW WORK

B

⑨ NEW UPS UNIT. INSTALL 150A FUSE.
⑩ NEW DISTRIBUTION PANEL XFMR FOR NEW UPS ROOM. INSTALL 60A FUSE.

LOAD SUMMARY FOR EXISTING EAST SUBSTATION TRANSFORMER, (LOCATED IN PRIMARY SWITCHGEAR ROOM ADJACENT TO & NORTH OF THE CHEMISTRY BUILDING, INSTALLED DURING 2005).

CKT No	KVA CONN	EQUIPMENT	CONNECTED AMPS	ESTIMATED DEMAND LOAD IN AMPS	REMARKS
1		PP-3N	609 7	471 3	
2		PP-7	1187 0	933 8	
3		SPARE			SPARE BREAKER PER DRAWING EG-202
4		SPACE			

TOTAL CONNECTED LOAD 1796 7 AMPS OR 1493 7 KVA — MOUNTING FLOOR — LOCATION PRIMARY SWITCHGEAR ROOM NORTH OF CHEMISTRY BUILDING

NOTES 1 TOTAL ESTIMATED DEMAND LOAD 1405 1 AMPS OR 1168 2 KVA

LOAD SUMMARY FOR EXISTING WEST SUBSTATION TRANSFORMER, (LOCATED IN PRIMARY SWITCHGEAR ROOM ADJACENT TO & NORTH OF THE CHEMISTRY BUILDING; INSTALLED DURING 2005)

CKT No	KVA CONN	EQUIPMENT	CONNECTED AMPS	ESTIMATED DEMAND LOAD IN AMPS	REMARKS
1		PP-1N	1154 5	862 6	
2		PP-8	422 5	308 8	
3		NEW PANEL PP-BE	292 2	219 6	REFER TO NOTE 2
4		SPACE			

TOTAL CONNECTED LOAD 1869 2 AMPS OR 1554 0 KVA — MOUNTING FLOOR — LOCATION PRIMARY SWITCHGEAR ROOM NORTH OF CHEMISTRY BUILDING

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 1391 0 AMPS OR 1156 5 KVA
2 CONNECT NEW FEEDER TO EXISTING SPARE BREAKER, PER DRAWINGS EG-202 & EG-203

DISTRIBUTION PANEL SCHEDULE DP-4N

208 WYE / 120 VOLT 3PH. 4W. 800A MLO 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-4NA	3	200A	150A	52 7	0 75	39 5	4#1/0 & 1#6 GRD , 2" C
2			RP-4NB	3	200A	150A	63 3	0 75	47 5	4#1/0 & 1#6 GRD , 2" C
3			RP-4NC	3	200A	150A	39 4	0 75	29 6	4#1/0 & 1#6 GRD , 2" C
4			RP-4ND	3	200A	150A	44 1	0 75	33 1	4#1/0 & 1#6 GRD , 2" C
5			RP-4NE	3	200A	150A	50 0	0 75	37 5	4#1/0 & 1#6 GRD , 2" C
6			RP-4NF	3	200A	150A	81 6	0 75	61 2	4#1/0 & 1#6 GRD , 2" C
7			RP-4NG	3	200A	150A	22 2	0 75	16 7	4#1/0 & 1#6 GRD , 2" C
8			RP-4NH	3	200A	150A	30 8	0 75	23 1	4#1/0 & 1#6 GRD , 2" C
9			RP-4NJ	3	200A	150A	81 6	0 75	61 2	4#1/0 & 1#6 GRD , 2" C
10			RP-4NK	3	200A	150A	25 0	0 75	18 8	4#1/0 & 1#6 GRD , 2" C
11			RP-4NL	3	200A	150A	82 5	0 75	61 9	4#1/0, 1#6 GRD & 1 #6 ISOLATED GRD , 2" C
12			NEW, RP-4NM	3	200A	150A	17 8	0 75	13 3	EXTEND NEW 4#1/0 & 1#6 GRD , 2" C FEEDER FROM EXISTING SPARE SW TO NEW RP-4NM
13			SPACE	3	200A					BUSSED SPACE FOR FUTURE 200A SWITCH
14			SPACE	3	200A					BUSSED SPACE FOR FUTURE 200A SWITCH
15			SPACE	3	200A					BUSSED SPACE FOR FUTURE 200A SWITCH
16			SPACE	3	200A					BUSSED SPACE FOR FUTURE 200A SWITCH

TOTAL CONNECTED LOAD 591 0 AMPS OR 212 9 KVA — MOUNTING FLOOR

FEEDER SIZE TWO 3 1/2"C , EACH WITH 4-500 KCMIL & 1#1/0 GRD — LOCATION FOURTH FLOOR NORTH WEST ELECTRICAL ROOM

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 443 4 AMPS OR 159 7 KVA
2 FEEDER CONDUCTOR LENGTH IS LIMITED TO TEN FEET

DISTRIBUTION PANEL SCHEDULE DP-3N

208 WYE / 120 VOLT 3PH. 4W. 800A MLO 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-3NA	3	200A	150A	69 4	0 75	52 1	4#1/0 & 1#6 GRD , 2" C
2			RP-3NB	3	200A	150A	65 5	0 75	49 1	4#1/0 & 1#6 GRD , 2" C
3			RP-3NC	3	200A	150A	42 7	0 75	32 0	4#1/0 & 1#6 GRD , 2" C
4			RP-3ND	3	200A	150A	70 5	0 75	52 9	4#1/0 & 1#6 GRD , 2" C
5			RP-3NE	3	200A	150A	67 5	0 75	50 6	4#1/0 & 1#6 GRD , 2" C
6			RP-3NF	3	200A	150A	50 5	0 75	37 9	4#1/0 & 1#6 GRD , 2" C
7			RP-3NG	3	200A	150A	61 9	0 75	46 4	4#1/0 & 1#6 GRD , 2" C
8			RP-3NH	3	200A	150A	52 5	0 75	39 4	4#1/0 & 1#6 GRD , 2" C
9			RP-3NJ	3	200A	150A	42 5	0 75	31 9	4#1/0 & 1#6 GRD , 2" C
10			RP-3NK	3	200A	150A	43 3	0 75	32 5	4#1/0 & 1#6 GRD , 2" C
11			RP-3NL	3	200A	150A	80 6	0 75	60 4	4#1/0, 1#6 GRD & 1 #6 ISOLATED GRD , 2" C
12			RP-3NM	3	200A	150A	39 1	0 75	29 4	4#1/0 & 1#6 GRD , 2" C
13			SPACE	3	200A					BUSSED SPACE FOR FUTURE 200A SWITCH
14			SPACE	3	200A					BUSSED SPACE FOR FUTURE 200A SWITCH
15			SPACE	3	200A					BUSSED SPACE FOR FUTURE 200A SWITCH
16			SPACE	3	200A					BUSSED SPACE FOR FUTURE 200A SWITCH

TOTAL CONNECTED LOAD 686 0 AMPS OR 247 1 KVA — MOUNTING FLOOR

FEEDER SIZE TWO 3 1/2"C , EACH WITH 4-500 KCMIL & 1#1/0 GRD — LOCATION THIRD FLOOR NORTH WEST ELECTRICAL ROOM

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 514 6 AMPS OR 185 4 KVA
2 FEEDER CONDUCTOR LENGTH IS LIMITED TO TEN FEET

DISTRIBUTION PANEL SCHEDULE DP-2N

208 WYE / 120 VOLT 3PH. 4W. 800A MLO 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-2NA	3	200A	150A	58 3	0 75	43 7	4#1/0 & 1#6 GRD , 2" C
2			RP-2NB	3	200A	150A	40 0	0 75	30 0	4#1/0 & 1#6 GRD , 2" C
3			RP-2NC	3	200A	150A	50 0	0 75	37 5	4#1/0 & 1#6 GRD , 2" C
4			RP-2ND	3	200A	150A	42 7	0 75	32 1	4#1/0 & 1#6 GRD , 2" C
5			RP-2NE	3	200A	150A	63 3	0 75	47 5	4#1/0 & 1#6 GRD , 2" C
6			RP-2NF	3	200A	150A	40 0	0 75	30 0	4#1/0 & 1#6 GRD , 2" C
7			RP-2NG	3	200A	150A	63 8	0 75	47 9	4#1/0 & 1#6 GRD , 2" C
8			RP-2NH	3	200A	150A	72 7	0 75	54 5	4#1/0 & 1#6 GRD , 2" C
9			RP-2NJ	3	200A	150A	91 6	0 75	68 7	4#1/0 & 1#6 GRD , 2" C
10			RP-2NK	3	200A	150A	51 1	0 75	38 3	4#1/0 & 1#6 GRD , 2" C
11			RP-2NL	3	200A	150A	70 0	0 75	52 5	4#1/0 & 1#6 GRD , 2" C
12			RP-2NM	3	200A	150A	35 8	0 75	26 9	4#1/0 & 1#6 GRD , 2" C
13			RP-2NN	3	200A	150A	54 3	0 75	40 8	4#1/0, 1#6 GRD & 1 #6 ISOLATED GRD , 2" C
14			NEW, RP-2NP	3	200A	150A	12 2	0 75	9 2	EXTEND NEW 4#1/0 & 1#6 GRD , 2" C FEEDER FROM EXISTING SPARE SW TO NEW RP-2NP
15			SPACE	3	200A					BUSSED SPACE FOR FUTURE 200A SWITCH
16			SPACE	3	200A					BUSSED SPACE FOR FUTURE 200A SWITCH

TOTAL CONNECTED LOAD 745 8 AMPS OR 268 7 KVA — MOUNTING FLOOR

FEEDER SIZE TWO 3 1/2"C , EACH WITH 4-500 KCMIL & 1#1/0 GRD — LOCATION SECOND FLOOR NORTH WEST ELECTRICAL ROOM

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 559 6 AMPS OR 201 6 KVA
2 FEEDER CONDUCTOR LENGTH IS LIMITED TO TEN FEET

DISTRIBUTION PANEL SCHEDULE DP-1N

208 WYE / 120 VOLT 3PH. 4W. 800A MLO 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-1NA	3	200A	150A	45 5	0 75	34 1	4#1/0 & 1#6 GRD , 2" C
2			RP-1NB	3	200A	150A	41 9	0 75	31 4	4#1/0 & 1#6 GRD , 2" C
3			RP-1NC	3	200A	150A	42 7	0 75	32 0	4#1/0 & 1#6 GRD , 2" C
4			RP-1ND	3	200A	150A	85 8	0 75	64 3	4#1/0 & 1#6 GRD , 2" C
5			RP-1NE	3	200A	150A	53 0	0 75	39 8	4#1/0 & 1#6 GRD , 2" C
6			RP-1NF	3	200A	150A	38 9	0 75	29 2	4#1/0 & 1#6 GRD , 2" C
7			RP-1NG	3	200A	150A	54 4	0 75	40 8	4#1/0 & 1#6 GRD , 2" C
8			RP-1NH	3	200A	150A	51 6	0 75	38 7	4#1/0 & 1#6 GRD , 2" C
9			RP-1NJ	3	200A	150A	66 6	0 75	50 0	4#1/0 & 1#6 GRD , 2" C
10			RP-1NK	3	200A	150A	95 8	0 75	71 9	4#1/0 & 1#6 GRD , 2" C
11			RP-1NL	3	200A	150A	71 6	0 75	53 7	4#1/0 & 1#6 GRD , 2" C
12			RP-1NM	3	200A	150A	22 2	0 75	16 7	4#1/0 & 1#6 GRD , 2" C
13			RP-1NN	3	200A	150A	76 2	0 75	57 1	4#1/0, 1#6 GRD & 1 #6 ISOLATED GRD , 2" C
14			GENERATOR SYSTEM 120 V POWER	3	200A		* 25 0	1 0	25 0	FUSE RATINGS, FEEDER CONDUIT & WIRING SIZES & LOADS SHALL BE VERIFIED BY THIS CONTRACTOR.
15			NEW, RP-1NP & RP-1NQ	3	200A	150A	34 5	0 75	25 8	EXTEND NEW 4#1/0 & 1#6 GRD , 2" C FEEDER FROM EXISTING SPARE SW TO NEW RP-1NP & RP-1NQ
16			SPACE	3	200A					BUSSED SPACE FOR FUTURE 200A SWITCH

PROVIDE A NEW 200 A FUSIBLE SWITCH IN EXISTING SPACE POSITION EXTEND NEW FEEDER CONDUIT & WIRING TO LOAD INDICATED

TOTAL CONNECTED LOAD 805 7 AMPS OR 290 3 KVA — MOUNTING FLOOR

FEEDER SIZE TWO 3 1/2"C , EACH WITH 4-500 KCMIL & 1#1/0 GRD — LOCATION FIRST FLOOR NORTH WEST ELECTRICAL ROOM

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 610 5 AMPS OR 219 9 KVA
2 FEEDER CONDUCTOR LENGTH IS LIMITED TO TEN FEET

* ESTIMATED

POWER PANEL SCHEDULE PP-7

480 WYE / 277 VOLT 3PH. 4W. 1200A MLO 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	2@ 100 HP ea		AHU-1	3	400A	350A	312 0	0 7	218 4	3-500 KCMIL & 1#1 GRD , 3" C	①④⑥
2	2@ 100 HP ea		AHU-2	3	400A	350A	312 0	0 7	218 4	3-500 KCMIL & 1#1 GRD , 3" C	①④⑥
3	2@ 30 HP ea		ERP-1A & 1B	3	100A	45A	40 0	0 5	20 0	3#6 & 1#10 GRD , 1" C	①④⑤
4	2@ 50 HP ea		EF-1 & 2 (EAHU-1)	3	200A	175A	130 0	1 0	130 0	3#2/0 & 1#6 GRD , 1-1/2" C	①④⑤
5	2@ 50 HP ea		EF-3 & 4 (EAHU-2)	3	200A	175A	130 0	1 0	130 0	3#2/0 & 1#6 GRD , 1-1/2" C	①④⑤
6	20		ELEV (PASSENGER)	3	200A	150A	27 0	1 0	27 0	3#1/0 & 1#6 GRD , 1-1/2" C	
7	25		ELEVATOR (FREIGHT)	3	200A	150A	34 0	1 0	34 0	3#1/0 & 1#6 GRD , 1-1/2" C	
8			PURIFIED WATER SYSTEM	3	30A	20A	10 8	1 0	10 8	3#10 & 1#10 GRD , 3/4" C	CONNECT NEW FEEDER TO EXISTING SPARE SWITCH
9			LP-P	3	100A	100A	4 4	1 0	4 4	4#2 & 1#8 GRD , 1-1/4" C	
10	1/2		UH-1	3	30A	20A	1 1	1 0	1 1	3#12 & 1#12 GRD , 3/4" C	
11			PANEL RP-P VIA T-P (45 KVA)	3	100A	70A	48 2	0 82	39 5	3#4 & 1#8 GRD , 1-1/4" C	
12			EF-NB & EF-TR	3	30A	20A	13 1	1 0	13 1	3#10 & 1#10 GRD , 3/4" C	
13	5		COMPRESSOR (EXISTING)	3	30A	NOTE 2	24 0	0 7	16 8	TO BE VERIFIED BY THIS CONTRACTOR	LOAD IS ESTIMATED
14			NEW PENTHOUSE UPS	3	200A	150A	120	10	120	3# 3/0 & 1#4 GND, 1-1/2" C	⑨
15			UPS-AUX-PP XFMR	3	100A	60A	60	10	70	2#4 & 1#8 GND, 1" C	⑩
16	20		EXISTING STATE HALL FAN 1	3	60A	50A	26 4	0 7	18 5	EXTEND NEW 3#6 & 1#10 GRD , 1"C FROM EXISTING SPARE SWITCH TO FAN STARTER	
17	20		EXISTING STATE HALL FAN 2	3	60A	50A	26 4	0 7	18 5	EXTEND NEW 3#6 & 1#10 GRD , 1"C FROM EXISTING SPARE SWITCH TO FAN STARTER	
18	5		NEW COMPRESSOR	3	60A	20A	7 6	0 7	5 3	3#10 & 1#10 GRD , 3/4" C	CONNECT NEW FEEDER TO EXISTING SPARE SWITCH
19			SPARE	3	200A						SPARE FUSIBLE SWITCH
20	30		NEW SCIENCE HALL COOLING TOWER	3	100A	60A	40 0	0 7	28 0	3#6 & 1#10 GRD , 1" C	

NEW WORK

B

TOTAL CONNECTED LOAD 1187 0 AMPS OR 986 9 KVA — MOUNTING FLOOR

FEEDER SIZE THREE 4"C , EACH WITH 4-600 KCMIL & 1#3/0 GRD — LOCATION PENTHOUSE

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 933 8 AMPS OR 776 3 KVA
2 THIS CONTRACTOR SHALL VERIFY FUSE SIZES & PROVIDE INFORMATION TO ENGINEER

POWER PANEL SCHEDULE PP-3N

480 WYE / 277 VOLT 3PH. 4W. 1200A MLO 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			DP-3N-VIA T-3N	3	400A	350A	297 3	0 75	222 9	3-500 KCMIL & 1#2 GRD , 3"C	
2			DP-4N VIA T-4N	3	400A	350A	256 1	0 75	192 1	3-500 KCMIL & 1#2 GRD , 3"C	
3			LP-3N	3	100A	100A	27 0	1 0	27 0	4#2 & 1#8 GRD , 1-1/4" C	
4			LP-4N	3	100A	100A	29 3	1 0	29 3	4#2 & 1#8 GRD , 1-1/4" C	
5			SPARE	3	100A						SPARE FUSIBLE SWITCH
6			SPARE	3	100A						SPARE FUSIBLE SWITCH

TOTAL CONNECTED LOAD 609 7 AMPS OR 506 9 KVA — MOUNTING FLOOR

FEEDER SIZE THREE 4"C , EACH WITH 4-600 KCMIL & 1#3/0 GRD — LOCATION 3RD FLOOR NORTH ELECTRICAL CLOSET

NOTES 1 TOTAL ESTIMATED DEMAND LOAD 471 3 AMPS OR 391 8 KVA

POWER PANEL SCHEDULE PP-1N

480 WYE / 277 VOLT 3PH. 4W. 1200A MLO 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		45	PANELS BK & BL VIA 45 KVA TRANSFORMER	3	100A	70A	* 43 4	0 5	21 7	3#4 & 1#8 GRD , 1-1/4" C	
2		45	PANEL BH VIA 45 KVA TRANSFORMER	3	100A	70A	* 43 4	0 5	21 7	3#4 & 1#8 GRD , 1-1/4" C	
3		30	PANEL RPM VIA 30 KVA TRANSFORMER	3	60A	60A	* 52 5	0 5	26 3	3#4 & 1#8 GRD , 1-1/4" C	
4			LAB LOAD "E" (OWNER'S TRANSFORMER)	3	60A	60A	* 39 9	0 5	20 0	3#6 & 1#10 GRD , 1" C	
5			MASS SPECS VIA 30 KVA TRANSFORMER	2	100A	70A	* 28 9	0 5	14 4	2#4 & 1#8 GRD , 3/4" C	
6			DP-1N VIA T-1N	3	400A	350A	349 1	0 75	261 9	3-500 KCMIL & 1#2 GRD , 3" C	
7			DP-2N VIA T-2N	3	400A	350A	323 2	0 75	242 4	3-500 KCMIL & 1#2 GRD , 3" C	
8			LP-1N	3	100A	100A	25 9	1 0	25 9	4#2 & 1#8 GRD , 1-1/4" C	
9			LP-2N	3	100A	100A	22 1	1 0	22 1	4#2 & 1#8 GRD , 1-1/4" C	
10	1		SF-SG-1	3	30A	15A	2 1	1 0	2 1	3#12 & 1#12 GRD , 3/4" C	③
11	1		SF-SG-2	3	30A	15A	2 1	1 0	2 1	3#12 & 1#12 GRD , 3/4" C	③
12		20	EUH-1 (WEST)	3	30A	30A	24 1	1 0	24 1	3#10 & 1#10 GRD , 3/4" C	④⑤
13		20	EUH-1 (EAST)	3	60A	30A	24 1	1 0	24 1	3#10 & 1#10 GRD , 3/4" C	④⑤
14			NEW, RP-BQ & PANEL BJ, VIA T-BQ	3	100A	90A	79 6	0 75	59 7	NEW, 3#2 & 1#8 GRD , 1-1/4" C	EXTEND NEW FEEDER FROM EXISTING SPARE SWITCH
15			ELDP VIA ATS-1	3	200A	150A	94 1	1 0	94 1	4#4/0 & 1#4 GRD , 2-1/2" C	
16			SPARE	3	60A						SPARE FUSIBLE SWITCH
17			SPACE	3	30A						BUSSED SPACE FOR FUTURE 30 A FUSIBLE SWITCH
18			SPACE	3	200A						BUSSED SPACE FOR FUTURE 200 A FUSIBLE SWITCH

TOTAL CONNECTED LOAD 1154 5 AMPS OR 959 8 KVA — MOUNTING FLOOR

FEEDER SIZE THREE 4"C , EACH WITH 4-600 KCMIL & 1#3/0 GRD — LOCATION 1ST FLOOR NORTH ELECTRICAL CLOSET

NOTES
1 TOTAL ESTIMATED DEMAND LOAD 862 6 AMPS OR 717 2 KVA
* ESTIMATED, AT MAXIMUM ALLOWABLE LOAD FOR THE FEEDER INDICATED

POWER PANEL SCHEDULE PP-8

(THIS SIEMENS PANEL REPLACED FORMER PP-8 UNDER BOILER PROJECT, APPROXIMATELY YEAR 2007)

480 WYE / 277 VOLT 3PH. 4W. 400A MLO 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	2@ 25 HP ea		HHWP-1 & 2	3	60A	45A	30 0	0 5	15 0	3 No 6 & 1 No 10 GRD , 1" C	①④⑥⑦
2			SPARE	3	60A						
3	2		CRP-1	3	30A	4 5A	3 4	1 0	3 4	3 No 12 & 1 No 12 GRD , 3/4" C	①④⑤
4	30		DCWBP-2,(STANDBY) & AC TECH MH4300BG135 VFD	3	60A	50A	36 5	0 79	28 0	3 No.4 & 1 No 8 GRD , 1-1/4" C	①④⑥⑧
5			T-SB1 (45 KVA)	3	100A	70A	39 9	0 86	34 3	3 No 4 & 1 No 8 GRD , 1-1/4" C	(RP-SB & RP-SB1)
6			PP-BOILER	3	400A	300A	135 2	0 75	101 4	3 No 600 KCMIL & 1 No.2 GRD , 3-1/2" C	LOAD IS ESTIMATED
7	125		CHWP	3	200A	200A	141 0	0 7	98 7	TO BE VERIFIED BY THIS CONTRACTOR	
8	30		DCWBP-1, (DUTY) & AC TECH MH4300BG135 VFD	3	100A	50A	36 5	0 79	28 0	3 No 4 & 1 No 8 GRD , 1-1/4" C	①④⑥⑧

TOTAL CONNECTED LOAD 422 5 AMPS OR 351 3 KVA — MOUNTING FLOOR

FEEDER SIZE 4-500 KCMIL & 1#2 GRD , 3-1/2" C — LOCATION SUB-BASEMENT

NOTES 1 TOTAL ESTIMATED DEMAND LOAD 308 8 AMPS OR 256 7 KVA

POWER PANEL SCHEDULE PP-BOILER

(THIS SIEMENS PANEL WAS INSTALLED UNDER BOILER PROJECT, APPROXIMATELY YEAR 2007)

480 WYE / 277 VOLT 3PH. 4W. 400A MLO WITH GROUND BUS

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	10	11 6	BOILER -25A	3	30A	20A	14 0	0 75	10 5	3 No 12 & 1 No 12 GRD , 3/4" C
2	10	11 6	BOILER -25B	3	30A	20A	14 0	0 75	10 5	3 No 12 & 1 No 12 GRD , 3/4" C
3	10	11 6	BOILER -25C	3	30A	20A	14 0	0 75	10 5	3 No 12 & 1 No 12 GRD , 3/4" C
4	10	11 6	BOILER -25D	3	30A	20A	14 0	0 75	10 5	3 No 12 & 1 No 12 GRD , 3/4" C
5			BFP-25A, B, D, E	3	30A	30A	24 0	0 75	18 0	3 No 10 & 1 No 10 GRD , 1" C
6			CTP-25A, B, C, D	3	30A	30A	24 0	0 75	18 0	3 No 10 & 1 No 10 GRD , 1" C CONDENSATE TRANSFER PUMPS, LOAD IS ESTIMATED
7	2@ 2HP 2@ 3HP		CR-1 & CR-4	3	30A	30A	15 2	0 75	11 4	CONDENSATE RECEIVERS 3 No. 10 & 1 No. 10 GRD 1" C CR-1 = 2 @ 2HP EACH 3 1 FLA. CR-4 = 2 @ 3HP, EACH 4 5 FLA.
8			CAU-1	3	30A	20A	16 0	0 75	12 0	3 No 12 & 1 No 12 GRD , 3/4" C COMBUSTION AIR UNIT, LOAD IS ESTIMATED
9			SPARE	3	30A					-
10			SPARE	3	30A					-
11			SPARE	3	60A					-
12			SPARE	3	60A					-
13			SPARE	3	60A					-
14			SPARE	3	60A					-

TOTAL CONNECTED LOAD ESTIMATED AT 135 2 AMPS OR 112 4 KVA — MOUNTING FLOOR

FEEDER SIZE 3-600 KCMIL & 1#2 GRD , 3-1/2" C — LOCATION SUB-BASEMENT

NOTES 1 TOTAL ESTIMATED DEMAND LOAD 101 4 AMPS OR 84 3 KVA

3"=1'-0" 1 1/2"=1'-0" 3/4"=1'-0" 1/4"=1'-0" 1/8"=1'-0" 1/16"=1'-0"

WAYNE STATE UNIVERSITY

Chemistry Building Expansion & Renovation

WSU Project Number
007-155746
007-157561

Detroit, Michigan

Date	Issue
02/13/09	RENOVATION S.D
04/06/09	Progress Review
06/10/09	C.I 1 O.R.
06/12/09	D.D
06/30/09	C.I 1
10/26/09	C.I 5 O.R.
12/02/09	C.I 5
01/15/10	C.I 6 O.R.
02/12/10	C.I 6
05/07/10	C.I. 7
05/28/10	C.I 8
08/16/10	C.I 10
10/20/10	C.I 12
11/22/10	C.I. 13
12/17/10	C.I 14
02/07/11	C.I 15 O.R.
03/01/11	C.I 15

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Planning
Architecture
Engineering
Interior Architecture
Landscape Architecture
Construction Services

AS BUILT

Project No 2008-10071-000
Drawn K. Chow
Checked B Newgeon
Approved P Granitz

Title Schedule for Existing Power Distribution Panels

Sheet No E6-01

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WAYNE STATE UNIVERSITY

007-CHEMISTRY BUILDING
5101 CASS AVENUE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 007-248857

WAYNE STATE UNIVERSITY
FACILITIES PLANNING & MANAGEMENT
5454 CASS AVENUE DETROIT, MICHIGAN

JAS — DRAWN BY
CJM — PROJECT LEAD
DHP — DESIGNED BY
DA — REVIEWED BY
APPROVED BY
DATE

MARK	ISSUED FOR/REVISIONS	DATE
A	90% CLIENT REVIEW	10-9-2014
B	FOR BID	1-21-2015

Engineers Seal

007-248857 — CLIENT PROJECT NO.
320006 — PROJECT NO.
AS SHOWN — SCALE:

SHEET TITLE
EXISTING POWER PANEL

SHEET NO.
E-103.1

REV NO.
B

Panel Schedule

VOLTAGE	PHASE	WIRE	MAINS	NEUTRAL RATING	PANEL DESIGNATION
208 / 120V	3	4	225A MLO	100%	RP-3SL
MOUNTING	MAX POLE CAPACITY			PANEL A I.C. RATING	LOCATION
SURFACE	42			22000	ELEC RM 310 4

NO	DESCRIPTION	BRANCH POLES	BKR	VA PHA	VA PHB	VA PHC	L S R	L S R	VA PHA	VA PHB	VA PHC	BKR	BRANCH POLES	DESCRIPTION	NO
1	CORRIDOR 301 & JANITOR 329 7	1	20 A	600			R	E	250			20 A	1	SHUNT TRIP CONTROL, LAB PNLS	2
3	ELEC. ROOM 310 4 & LAB ENTRY	1	20 A		800		R	R		400		20 A	1	COMPUTATIONAL LAB 379	4
5	INTERACTION SPACE 371 LIGHTING	1	20 A			533	L	R			400	20 A	1	COMPUTATIONAL LAB 379	6
7	IN WALL & FURNITURE IN COMP LAB 379	1	20 A	600			R	R	400			20 A	1	COMPUTATIONAL LAB 379	8
9	REFRIGERATOR IN COMP LAB 379	1	20 A		1200		R	R		400		20 A	1	COMPUTATIONAL LAB 379 FURNITURE	10
11	COFFEE MAKER COMP LAB 379	1	20 A			1500	R	R			600	20 A	1	COMPUTER LAB 331	12
13	SPARE	1	20 A	1000			S	R	400			20 A	1	COMPUTER LAB 331	14
15	SPARE	1	20 A		500		L	R		400		20 A	1	SOUTH STAIRS	16
17	COLD ROOM 310 5 PANEL	2	50 A	2538			R	S			1000	20 A	1	SPARE	18
19						2538	E	E	400			20 A	1	FIRE/SMOKE DAMPERS	20
21	SPARE	2	30 A		1000		S	E		800		20 A	1	AIR TERM UNITS ORG/ANG/BIO 320	22
23						1000	S	E			800	20 A	1	AIR TERM UNITS INST & EQUIP 310	24
25	OFFICES 325 & 325	1	20 A	800			R	E	800			20 A	1	AIR TERM UNITS ORG/BIO 310	26
27	OFFICES 321 & 323	1	20 A		1000		R	E		800		20 A	1	AIR TERM UNITS ORG/BIO 370, INST 380	28
29	DARK ROOM 311	1	20 A			1000	R	R			800	20 A	1	OFFICES 372 & 373	30
31	LASER ROOM 307	1	20 A	600			R	R	400			20 A	1	OFFICE 373	32
33	LASER ROOM 307 NORTH BENCH	1	20 A		1000		R	R		600		20 A	1	OFFICE 363	34
35	LASER ROOM 307 SOUTH BENCH	1	20 A			1000	R	R			800	20 A	1	OFFICE 365	36
37	DARK Rm. 311 Limits	1	20 A	1000			S	E	200			20 A	1	CORRIDOR DOOR HOLD-OPEN DEVICES	38
39	SPARE	1	20 A		1000		S	S		1000		20 A	1	SPARE	40
41	SPARE	1	20 A			1000	S	S			1000	20 A	1	SPARE	42
				ODD NO CIRCUITS VA					EVEN NO CIRCUITS VA						

LIGHTING (L)	0	560	533	+	0	0	0	= 1 06 KVA CONNECTED LTG LOAD
RECEPTS (R)	3000	4900	4100	+	1200	1800	2600	= 17 30 KVA CONNECTED RECP LOAD
EQUIP (E)	2538	0	2538	+	1600	1600	800	= 9 13 KVA CONNECTED EQUIP. LOAD
SPARE (S)	2000	2000	2000	+	0	1000	2000	= 9 00 KVA SPARE LOAD
TOTAL (less spare)	5538	5160	7171	+	2800	3400	3400	= 27 52 KVA TOTAL CONNECTED LOAD (less spare)

REMARKS		=	22 04 KVA TOTAL DEMAND LOAD
DEMAND LOAD EQUAL TO 125 % OF LTG	PLUS	=	0 27 KVA 25% OF LIGHTING LOAD
PLUS 60 % EQUIPMENT PLUS FIRST 10KVA			SPARE LOAD + CONNECTED LOAD EQUAL
OF RECP AND 50% OF REMAINDER PER 2005 NEC ART 220	TOTAL	=	36 79 KVA FOR MIN FEEDER DESIGN LOAD

NOTES
1 PANEL SHALL HAVE GROUND BUS
2
3
4

RP – 3SL

Panel Schedule

VOLTAGE	PHASE	WIRE	MAINS	NEUTRAL RATING	PANEL DESIGNATION
208 / 120V	3	4	150A MCB	100%	RP-3SH
MOUNTING	MAX POLE CAPACITY			PANEL A I.C. RATING	LOCATION
FLUSH	42			22000	VESTIBULE 380 2

NO	DESCRIPTION	BRANCH POLES	BKR	VA PHA	VA PHB	VA PHC	L S R	L S R	VA PHA	VA PHB	VA PHC	BKR	BRANCH POLES	DESCRIPTION	NO
1	ISLAND IN ORG/ANALY 370	1	20 A	600			R	L	200			20 A	1	FUME HD LTS/ALARM - ORG/ANALY 370	2
3	ISLAND IN ORG/ANALY 370	1	20 A		800		R	R		200		20 A	1	FUME HD RECEPT - ORG/ANALY 370	4
5	ISLAND IN ORG/ANALY 370	1	20 A			600	R	R			200	20 A	1	FUME HD RECEPT - ORG/ANALY 370	6
7	ISLAND IN ORG/ANALY 370	1	20 A	800			R	E	1000			20 A	1	FUME HD VAC PUMP - ORG/ANALY 370	8
9	SPARE	1	20 A		1000		S	R		200		20 A	1	FUME HD RECEPT - ORG/ANALY 370	10
11	4 RECEPT - ORG /ANALY 370	1	20 A			600	R	S			1000	20 A	1	SPARE	12
13	4 RECEPT - ORG /ANALY 370	1	20 A	800			R	R	200			20 A	1	FUME HD RECEPT - ORG/ANALY 370	14
15	ISLAND IN ORG/ANALY 370	1	20 A		400		R	S		1000		20 A	1	SPARE	16
17	ORG /ANALY 370	1	30 A			2880	R	S			1000	20 A	1	SPARE	18
19	ORG /ANALY 370 WEST WALL	2	20 A	1664			R	S	1000			20 A	1	SPARE	20
21					1664		R	S		1000		20 A	1	SPARE	22
23	GLASS WASH STATION IN LAB 370	1	20 A			1000	E	S			1000	20 A	1	SPARE	24
25	[illegible]	1	20 A	500			E	S	1000			20 A	1	SPARE	26
27	① SPARE	1	20 A		1000		S	S		1000		20 A	1	SPARE	28
29	① SPARE	1	20 A			1000	S	S					1	① SPARE	30
31	① SPARE	1	20 A	1000			S						1	① SPARE	32
33	① SPARE	1											1	① SPARE	34
		1											1	① SPARE	36
37	SPACE	1											1	SPACE	38
39	SPACE	1											1	SPACE	40
41	SPACE	1											1	SPACE	42
				ODD NO CIRCUITS VA					EVEN NO CIRCUITS VA						

LIGHTING (L)	0	0	0	+	200	0	0	= 0 20 KVA CONNECTED LTG LOAD
RECEPTS (R)	8064	2864	4480	+	200	400	200	= 12.21 KVA CONNECTED RECP LOAD
EQUIP (E)	500	0	1000	+	1000	0	0	= 2.50 KVA CONNECTED EQUIP LOAD
SPARE (S)	1000	2000	1000	+	2000	3000	3000	= 12.00 KVA SPARE LOAD
TOTAL (less spare)	4564	2864	5480	+	1400	400	200	= 14 91 KVA TOTAL CONNECTED LOAD (less spare)

REMARKS		=	13 30 KVA TOTAL DEMAND LOAD
DEMAND LOAD EQUAL TO 125 % OF LTG	PLUS	=	0 05 KVA 25% OF LIGHTING LOAD
PLUS 60 % EQUIPMENT PLUS FIRST 10KVA			SPARE LOAD + CONNECTED LOAD EQUAL
OF RECP AND 50% OF REMAINDER PER 2005 NEC ART 220	TOTAL	=	20 96 KVA FOR MIN FEEDER DESIGN LOAD

NOTES
1 PANEL SHALL HAVE GROUND BUS
2 PANEL SHALL HAVE SHUNT TRIP MAIN BREAKER
3
4

RP – 3SH

NEW WORK

NEW WORK

Panel Schedule

VOLTAGE	PHASE	WIRE	MAINS	NEUTRAL RATING	PANEL DESIGNATION
480 / 277V	3	4	100A MLO	100%	LP-3S
MOUNTING	MAX POLE CAPACITY			PANEL A I.C. RATING	LOCATION
SURFACE	30			25000	ELECTRICAL ROOM 310 4

NO	DESCRIPTION	BRANCH POLES	BKR	VA PHA	VA PHB	VA PHC	L S R	L S R	VA PHA	VA PHB	VA PHC	BKR	BRANCH POLES	DESCRIPTION	NO
1	WEST SIDE OFFICES	1	20 A	3000			L	L	2400			20 A	1	ORGANIC / ANALYTICAL BIO 370	2
3	INST LAB 310, ORG /BIO 320 & STORAGE 320 5	1	20 A		3152		L	S		1000		20 A	1	SPARE	4
5	STUDENT AREA 320 5 & EQUIP RM	1	20 A			701	L	L			868	20 A	1	INSTRUMENTATION 380	6
7	SPARE	1	20 A	1000			S	L	1664			20 A	1	STUDENT AREA 370 2, LASER LAB	8
9	ROOMS 310 1, 310 2 & 310 3	1	20 A		672		L	L		2968		20 A	1	EAST SIDE OFFICES COMPUTER LAB	10
11	SPARE	1	20 A			1000	S	S			1000	20 A	1	SPARE	12
13	SPARE	1	20 A	1000			S	S	1000			20 A	1	SPARE	14
15	SPARE	1	20 A		1000		S	S		1000		20 A	1	SPARE	16
17	SPACE	1											1	SPACE	18
19	SPACE	1											1	SPACE	20
21	SPACE	1											1	SPACE	22
23	SPACE	1											1	SPACE	24
25	SPACE	1											1	SPACE	26
27	SPACE	1											1	SPACE	28
29	SPACE	1											1	SPACE	30
				ODD NO CIRCUITS VA					EVEN NO CIRCUITS VA						

LIGHTING (L)	3080	3824	707	+	3462	2968	868	= 14 91 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	+	1000	2000	1000	= 8 00 KVA SPARE LOAD
TOTAL (less spare)	3080	3824	707	+	3462	2968	868	= 14 91 KVA TOTAL CONNECTED LOAD (less spare)

REMARKS		=	14 91 KVA TOTAL DEMAND LOAD
DEMAND LOAD EQUAL TO 125 % OF LTG	PLUS	=	3 72 KVA 25% OF LIGHTING LOAD
PLUS 60 % EQUIPMENT PLUS FIRST 10KVA			SPARE LOAD + CONNECTED LOAD EQUAL
OF RECP AND 50% OF REMAINDER PER 2005 NEC ART 220	TOTAL	=	26 64 KVA FOR MIN FEEDER DESIGN LOAD

NOTES
1 PANEL SHALL HAVE GROUND BUS
2
3
4

LP – 3S

Panel Schedule

VOLTAGE	PHASE	WIRE	MAINS	NEUTRAL RATING	PANEL DESIGNATION
208 / 120V	3	4	150A MCB	100%	RP-3SJ
MOUNTING	MAX POLE CAPACITY			PANEL A I.C. RATING	LOCATION
FLUSH	42			22000	VESTIBULE 380 2

NO	DESCRIPTION	BRANCH POLES	BKR	VA PHA	VA PHB	VA PHC	L S R	L S R	VA PHA	VA PHB	VA PHC	BKR	BRANCH POLES	DESCRIPTION	NO
1	4 RECEPT INSTRUMENTATION 380	1	20 A	800			R	L	500			20 A	1	FUME HD LTS/ALARM-ORG/ANALY 370	2
3	4 RECEPT INSTRUMENTATION 380	1	20 A		800		R	R		200		20 A	1	FUME HD RECEPT -ORG/ANALY 370	4
5	INSTRUMENTATION 380	1	30 A			2880	R	R			200	20 A	1	FUME HD RECEPT -ORG/ANALY 370	6
7	WEST WALL - INSTRUMENTATION 380	2	20 A	1664			R	E	1000			20 A	1	FUME HD VAC PUMP-ORG/ANALY 370	8
9					1664		R	R		200		20 A	1	FUME HD RECEPT -ORG/ANALY 370	10
11	4 RECEPT - ORG /ANALY 370	1	20 A			600	R	E			1000	20 A	1	FUME HD VAC PUMP-ORG/ANALY 370	12
13	4 RECEPT - ORG /ANALY 370	1	20 A	800			R	R	200			20 A	1	FUME HD RECEPT -ORG/ANALY 370	14
15	ORGANIC/ANALYTICAL 370	1	30 A		2880		R	E		1000		20 A	1	FUME HD VAC PUMP-ORG/ANALY 370	16
17	WEST WALL ORGANIC/ANALYTICAL 370	2	20 A			1664	R	R			200	20 A	1	FUME HD RECEPT -ORG/ANALY 370	18
19				1664			R	R	200			20 A	1	FUME HD RECEPT -ORG/ANALY 370	20
21	5 RECEPT - ORG /ANALY 370 & LAB 380	1	20 A		1600		R	R		200		20 A	1	FUME HD RECEPT -ORG/ANALY 370	22
23	4 RECEPT - ORG /ANALY 370 & LAB 380	1	20 A			800	R	R			200	20 A	1	FUME HD RECEPT -ORG/ANALY 370	24
25	4 RECEPT - ORG /ANALY 370 & LAB 380	1	20 A	800			R	E	1000			20 A	1	FUME HD VAC PUMP-ORG/ANALY 370	26
27	ISLAND IN ORGANIC/ANALYTICAL 370	1	20 A		800		R	R		200		20 A	1	FUME HD RECEPT -ORG/ANALY 370	28
29	ISLAND IN ORGANIC/ANALYTICAL 370	1	20 A			500	R	E			1000	20 A	1	FUME HD VAC PUMP-ORG/ANALY 370	30
31	ISLAND IN ORGANIC/ANALYTICAL 370	1	20 A	800			R	R	200			20 A	1	FUME HD RECEPT -ORG/ANALY 370	32
33	PURIFIED WATER SYS ORG/ANALY 370	1	20 A		500		E	R		400		20 A	1	ISLAND IN ORGANIC/ANALYTICAL 370	34
35	GLASS WASH STATION	1	20 A			1000	E	S			1000	20 A	1	SPARE	36
37	SPARE	1	20 A	1000			S						1	SPACE	38
39	SPARE	1	20 A		1000		S						1	SPACE	40
41	SPARE	1	20 A			1000	S						1	SPACE	42
				ODD NO CIRCUITS VA					EVEN NO CIRCUITS VA						

LIGHTING (L)	0	0	0	+	500	0	0	= 0 50 KVA CONNECTED LTG LOAD
RECEPTS (R)	6528	7144	6944	+	600	1200	600	= 23 00 KVA CONNECTED RECP LOAD
EQUIP (E)	0	500	1000	+	2000	1000	2000	= 6 50 KVA CONNECTED EQUIP LOAD
SPARE (S)	1000	1000	1000	+	0	0	1000	= 4 00 KVA SPARE LOAD
TOTAL (less spare)	6528	7644	7944	+	3100	2200	2600	= 30 00 KVA TOTAL CONNECTED LOAD (less spare)

REMARKS		=	22 21 KVA TOTAL DEMAND LOAD
DEMAND LOAD EQUAL TO 125 % OF LTG	PLUS	=	0 13 KVA 25% OF LIGHTING LOAD
PLUS 60 % EQUIPMENT PLUS FIRST 10KVA			SPARE LOAD + CONNECTED LOAD EQUAL
OF RECP AND 50% OF REMAINDER PER 2005 NEC ART 220	TOTAL	=	34 14 KVA FOR MIN FEEDER DESIGN LOAD

NOTES
1 PANEL SHALL HAVE GROUND BUS
2 PANEL SHALL HAVE SHUNT TRIP MAIN BREAKER
3
4

RP – 3SJ

KEYED NOTES

① REMOVE EXISTING CABLE/CONDUIT FOR EXISTING DISCONNECT/RECPTACLE IN ROOM 380. DISCONNECTS TO BE RE-FED FROM NEW UPS-RP-3SE.

② DISCONNECT AND REMOVE EXISTING SHUNT TRIP MODULE FROM MAIN BREAKER IN PANEL RP-3SK. TEST MAIN BREAKER TO ENSURE RELIABILITY OF USE.

NEW WORK

Panel Schedule

VOLTAGE	PHASE	WIRE	MAINS	NEUTRAL RATING	PANEL DESIGNATION
208 / 120V	3	4	150A MCB	100%	RP-3SK
MOUNTING	MAX POLE CAPACITY			PANEL A I.C. RATING	LOCATION
FLUSH	42			22000	VESTIBULE 380 2

NO	DESCRIPTION	BRANCH POLES	BKR	VA PHA	VA PHB	VA PHC	L S R	L S R	VA PHA	VA PHB	VA PHC	BKR	BRANCH POLES	DESCRIPTION	NO
1	4 RECEPT - INSTRUMENTATION O S C	1	20 A	800			R	R	800			20 A	1	4 RECEPT - INSTRUMENTATION O S C	2
3	3 RECEPT - INSTRUMENTATION O S C	1	20 A		600		R	R		600		20 A	1	3 RECEPT - INSTRUMENTATION O S C	4
5	3 RECEPT - INSTRUMENTATION O S C	1	20 A			600	R	R			600	20 A	1	3 RECEPT - INSTRUMENTATION O S C	6
7	INSTRUMENTATION 380 O S C.	2	20 A	1664			R	R	1664			20 A	2	INSTRUMENTATION 380 O S C.	8
9					1664		R	R		1664					10
11	INSTRUMENTATION 380 O S C	1	30 A			2880	R	R			2880	30 A	1	INSTRUMENTATION 380 O S C	12
13	4 RECEPT - INSTRUMENTATION O S C	1	20 A	800			R	R	800			20 A	1	4 RECEPT - INSTRUMENTATION O S C	14
15	3 RECEPT - INSTRUMENTATION O S C	1	20 A		600		R	R		600		20 A	1	3 RECEPT - INSTRUMENTATION O S C	16
17	3 RECEPT - INSTRUMENTATION O S C	1	20 A			600	R	R			600	20 A	1	3 RECEPT - INSTRUMENTATION 380 O S C	18
19	INSTRUMENTATION 380 O S C	1	30 A	2880			R	R	1664			20 A	2	INSTRUMENTATION 380 O S C.	20
21	INSTRUMENTATION 380 O S C	2	20 A		1664		R	R		1664					22
23						1664	R	R			2880	30 A	1	INSTRUMENTATION 380 O S C.	24
25	SPARE	1	20 A	1000			S	R	800			20 A	1	4 RECEPT - LASER LAB 380 1 O S C	26
27	SPARE	1	20 A		1000		S	R		600		20 A	1	4 RECEPT - LASER LAB 380 1 O S C	28
29	3 RECEPT - INSTRUMENTATION 380	1	20 A	800			R	R	600			20 A	1	4 RECEPT - LASER LAB 380 1 O S C	30
31	4 RECEPT - INSTRUMENTATION 380	1	20 A		800		R	R		2880		30 A	1	LASER LAB 380 1 O S C	32
33	4 RECEPT - INSTRUMENTATION 380	1	20 A			800	R	R			1664	20 A	2	LASER LAB 380 1 O S C	34
35	4 RECEPT - INSTRUMENTATION 380	1	20 A	800			R	R	1664						36
37	4 RECEPT - INSTRUMENTATION 380	1	20 A		800		R	R		1664		30 A	1	LASER LAB 380 1 O S C	38
39	3 RECEPT - LASER LAB 380 1	1	20 A			600	R	R	1664			20 A	2	LASER LAB 380 1 O S C	40
41	3 RECEPT - LASER LAB 380 1	1	20 A			600	R	R		1664					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)	7744	5928	6144	+	11488	8656	11088	= 53 05 KVA CONNECTED RECP LOAD
EQUIP (E)	0	0	0	+	0	0	0	= 0 00 KVA CONNECTED EQUIP LOAD
SPARE (S)	1000	1000	0	+	0	0	0	= 2 00 KVA SPARE LOAD
TOTAL (less spare)	7744	5928	6144	+	11488	8656	11088	= 53 05 KVA TOTAL CONNECTED LOAD (less spare)

REMARKS		=	31 52 KVA TOTAL DEMAND LOAD
DEMAND LOAD EQUAL TO 125 % OF LTG	PLUS	=	0 00 KVA 25% OF LIGHTING LOAD
PLUS 60 % EQUIPMENT PLUS FIRST 10KVA			SPARE LOAD + CONNECTED LOAD EQUAL
OF RECP AND 50% OF REMAINDER PER 2005 NEC ART 220	TOTAL	=	55 69 KVA FOR MIN FEEDER DESIGN LOAD

NOTES
1 PANEL SHALL HAVE GROUND BUS
2 ②
3
4

NEW WORK

RP – 3SK

WAYNE STATE UNIVERSITY

Chemistry Building Expansion & Renovation

WSU Project Number
007-157746
007-157561

Detroit, Michigan

Date	Issue
06/12/09	D.D
10/26/09	C.I 5 O.R.
12/02/09	C.I. 5
02/12/10	C.I. 6
05/07/10	C.I 7
08/16/10	C.I 10
10/20/10	C.I 12
12/17/10	C.I. 14
02/07/11	C.I 15 O.R.
03/01/11	C.I. 15

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Planning
Architecture
Engineering
Interior Architecture
Landscape Architecture
Construction Services

AS BUILT

Project No 2008-10071-000
Drawn K. Chow
Checked B Nergeson
Approved P Grantz

Title: Schedule For New Panels, 3rd Floor South

Sheet No E6-18

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WAYNE STATE UNIVERSITY

007-CHEMISTRY BUILDING
5101 CASS AVENUE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 007-248857

WAYNE STATE UNIVERSITY
FACILITIES PLANNING & MANAGEMENT
5454 CASS AVENUE DETROIT, MICHIGAN

DLM	CJM
DRAWN BY	PROJECT LEAD
DHP	DA
DESIGNED BY	REVIEWED BY
APPROVED BY	DATE

MARK	ISSUED FOR/REVISIONS	DATE
A	90% CLIENT REVIEW	10-9-2014
B	FOR BID	1-21-2015

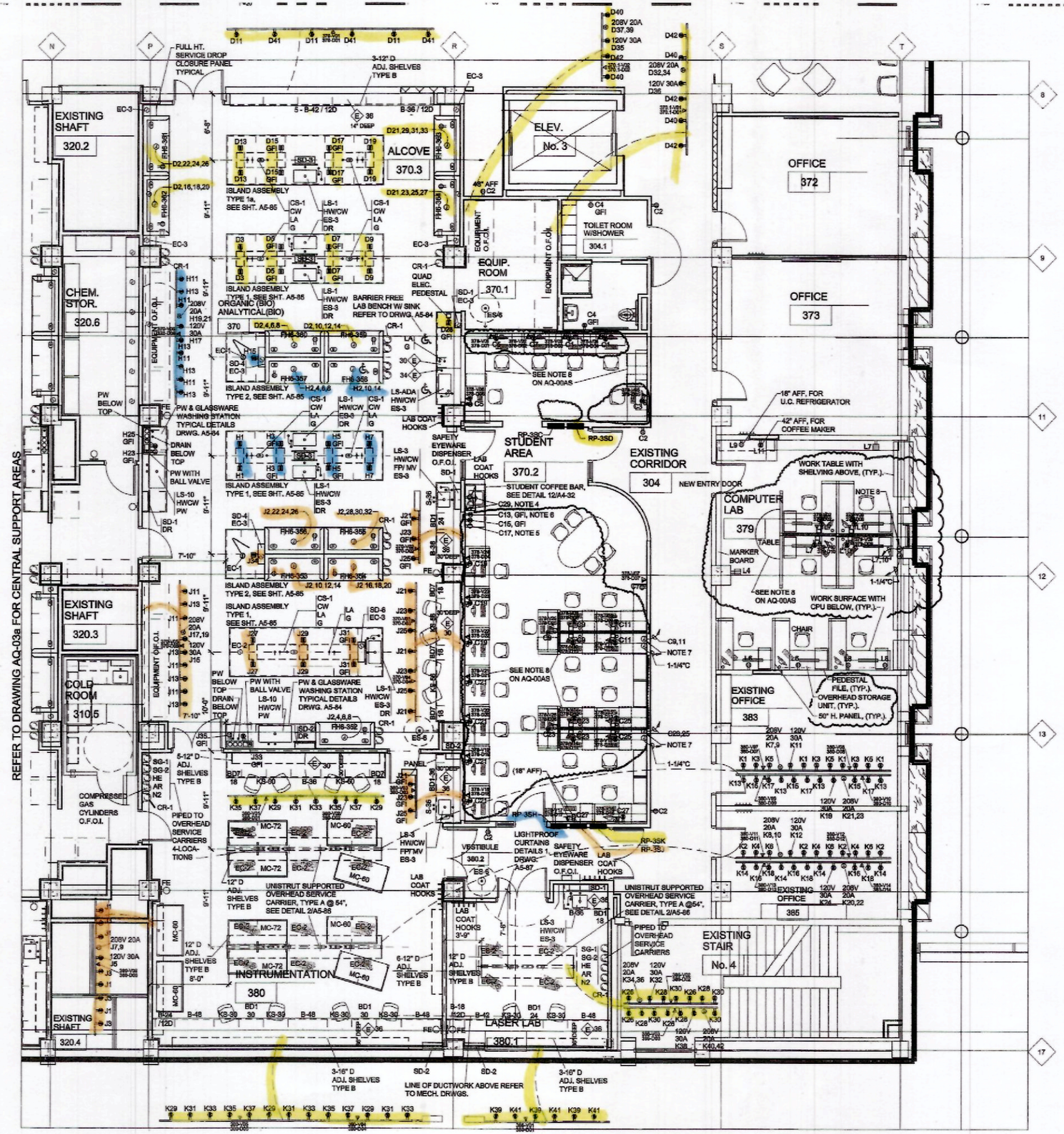
Engineers Seal

007-248857
CLIENT PROJECT NO.
310006
PROJECT NO.
AS SHOWN
SCALE:

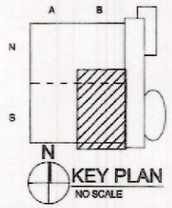
SHEET TITLE
EXISTING RP/LP PANELS

SHEET NO.
E-104
REV NO.
B

FILE NAME: C:\pw_workpw_proj\dlmaier\d0447957E-106.4.dwg ■ PLOTTED DATE: 1/14/2015 2:56 PM ■ PLOTTED BY: Daniel L. Maier



THIRD FLOOR
EQUIPMENT PLAN - AREA BS
SCALE:1/4" = 1'-0"



GENERAL NOTES:

1. PROVIDE SEPARATE GROUND FAULT INTERRUPTING TYPE RECEPTACLES AT EACH LOCATION WHERE "GFI" IS NOTED. DO NOT USE GFI OUTLETS TO PROTECT OTHER (DOWNSTREAM) OUTLETS. DO NOT INSTALL A GFI BREAKER IN LIEU OF INSTALLING GFI OUTLETS.
2. REFER TO PANEL SCHEDULES FOR DESIGNATION OF EACH RECEPTACLE OR BRANCH CIRCUIT LOAD.
3. IN GENERAL, EACH FUME HOOD WILL BE PRE-WIRED TO A JUNCTION BOX. FIELD VERIFY PROVISIONS OF EACH PRE-WIRED FUME HOOD AT ITS ASSOCIATED JUNCTION BOX, AND IN ACCORDANCE WITH FUME HOOD SHOP DRAWINGS. ALLOCATE BRANCH CIRCUIT FIELD WIRING FROM LAB PANEL BOARDS TO EACH FUME HOOD PRE-WIRED JUNCTION BOX AS DESIGNATED ON PANEL SCHEDULES.
4. WHERE NOTED IN THE STUDENT AREA, THE DESIGNATED RECEPTACLE SHALL BE MOUNTED BELOW THE SINK, APPROXIMATELY 18" AFF FOR GARBAGE DISPOSER, AND OPERATED FROM THE SWITCH SHOWN. MOUNT CENTER OF SWITCH APPROXIMATELY 36" AFF. NO OTHER RECEPTACLES SHALL BE OPERATED BY THIS SWITCH.
5. PROVIDE RECEPTACLE APPROXIMATELY 12" TO 18" AFF, FOR UNDER COUNTER REFRIGERATOR.
6. THE RECEPTACLE NOTED IS FOR MICROWAVE OVEN. COORDINATE EXACT LOCATION OF RECEPTACLE WITH CABINETRY SHOWN ON ARCHITECTURAL ELEVATIONS.
7. PROVIDE AN OUTLET BOX IN THE BUILDING WALL, WITH CIRCUITS DESIGNATED, FOR BRANCH POWER TO FURNITURE PANELS. EXTEND FLEXIBLE WHIP PROVIDED WITH FURNITURE, TO THE OUTLET BOX. CONNECT FLEXIBLE WHIP TO OUTLET BOX AND MAKE ALL REQUIRED BRANCH CIRCUIT & GROUNDING CONNECTIONS, IN ACCORDANCE WITH FURNITURE MANUFACTURER'S WRITTEN INSTRUCTIONS. THE ADJACENT OUTLET BOX SHALL BE 2-GANG, WITH A FACEPLATE HAVING A 1-1/2" GROMMETTED HOLE. EXTEND 1-1/4" CONDUIT WITH NYLON PULL STRING FROM THIS OUTLET BOX TO AN ACCESSIBLE SPACE ABOVE CEILING, FOR VOICE & DATA SERVICES. FLUSH MOUNT OUTLET BOXES AT SAME ELEVATION; EACH APPROXIMATELY 12" AFF.
8. PROVIDE AN OUTLET BOX IN OR ON THE BUILDING WALL, WITH CIRCUITS DESIGNATED, FOR BRANCH POWER TO FURNITURE PANELS. EXTEND FLEXIBLE WHIP PROVIDED WITH FURNITURE, TO THE OUTLET BOX. CONNECT FLEXIBLE WHIP TO OUTLET BOX AND MAKE ALL REQUIRED BRANCH CIRCUIT & GROUNDING CONNECTIONS, IN ACCORDANCE WITH FURNITURE MANUFACTURER'S WRITTEN INSTRUCTIONS. THE ADJACENT OUTLET BOX SHALL BE 2-GANG, WITH A FACEPLATE HAVING A 1-1/2" GROMMETTED HOLE. EXTEND 1-1/4" CONDUIT WITH NYLON PULL STRING FROM THIS OUTLET BOX TO AN ACCESSIBLE SPACE ABOVE CEILING, FOR VOICE & DATA SERVICES. MOUNT OUTLET BOXES AT SAME ELEVATION; EACH APPROXIMATELY 12" AFF. OUTLET BOXES SHALL BE FLUSH MOUNTED IF PRACTICABLE, OR WHERE THIS IS NOT POSSIBLE; SURFACE MOUNT WITHIN 5 FEET OF FURNITURE BASE IN A LOCATION COORDINATED WITH OWNERS REPRESENTATIVE, AND SURFACE MOUNT ASSOCIATED RACEWAY AT A NEARBY CORNER. COORDINATE PATH OF SURFACE MOUNT RACEWAYS WITH OWNER'S REPRESENTATIVE. PAINT SURFACE RACEWAYS TO MATCH ADJACENT SURFACES.

NOTE:
ADDRESS ASSIGNMENTS HAVE BEEN SHOWN AT VOICE/DATA OUTLETS, UNDER CONSTRUCTION ISSUE 10.

REFERENCE ONLY

WAYNE STATE UNIVERSITY

Chemistry Building Expansion & Renovation

WSU Project Number
007-155746
007-157561

Detroit, Michigan

Date	Issue
02/13/09	Renovation S.D.
06/12/09	D.D.
10/26/09	C.I. 5 O.R.
12/02/09	C.I. 5
08/16/10	C.I. 10
12/17/10	C.I. 14

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Planning
Architecture
Engineering
Interior Architecture
Landscape Architecture
Construction Services

Project No.	2008-10071-000
Drawn	A. Shirshun
Checked	A. Shirshun
Approved	H. Ewegloc

Title: Third Floor Equipment Plan - Area BS

Sheet No. AQ-03BS