CONTRACT DOCUMENTS
FOR
WAYNE STATE UNIVERSITY

609 - CS MOTT BUILDING
WSU PROJECT NO. 609-248861
ELECTRICAL RELIABILITY UPGRADES - BID PACKAGE No. 6
FOR BID 1-21-2015

OWNER

WAYNE STATE UNIVERSITY
Facilities Planning & Management
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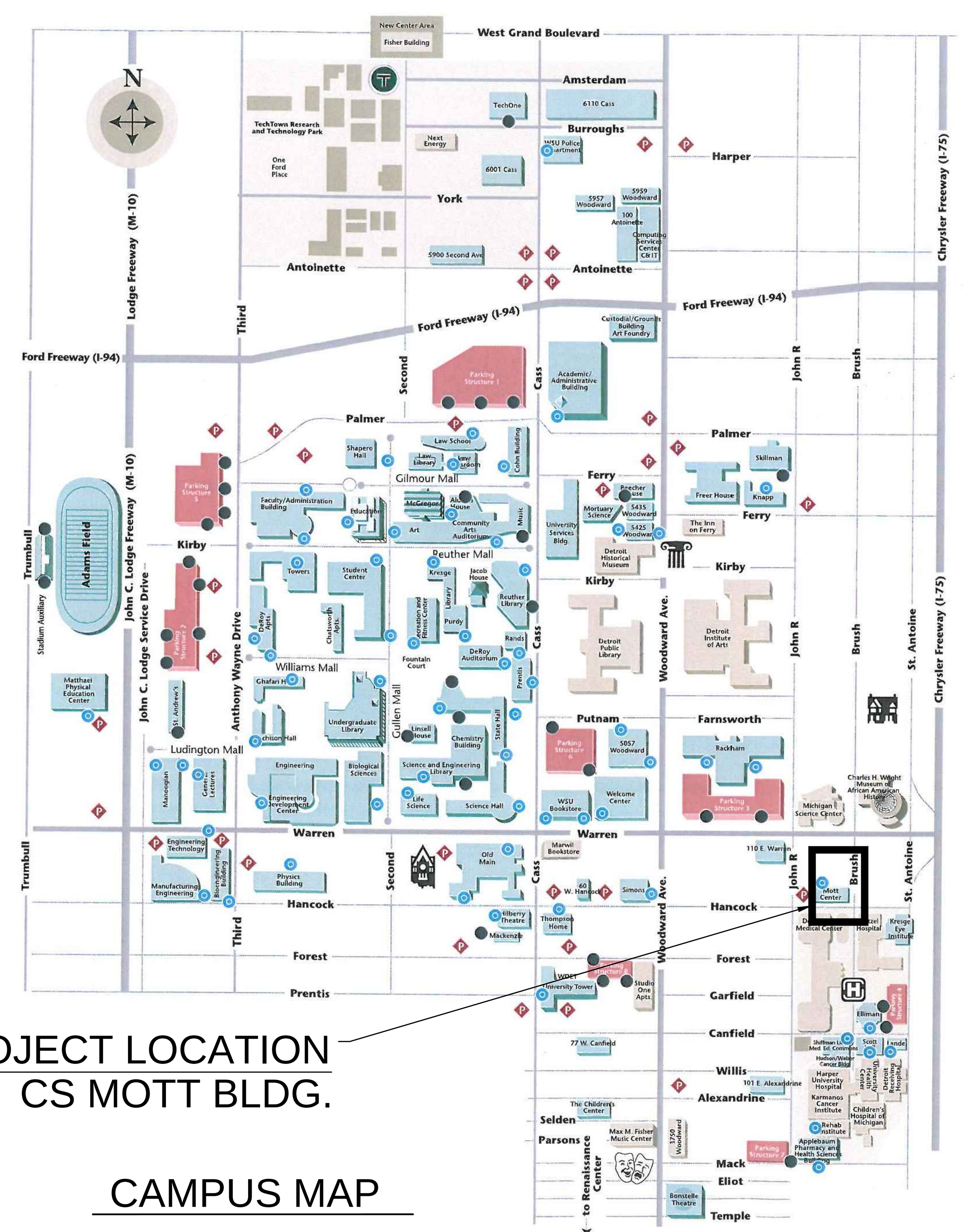

PROJECT LOCATION
CS MOTT BLDG.

CAMPUS MAP

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DESCRIPTION: OWNERS REVIEW / FOR BID

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WAYNE STATE UNIVERSITY

609 - CS MOTT BUILDING
275 E. HANCOCK DRIVE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 609-248861

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

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

MARK	ISSUED FOR/REVISIONS	DATE
A	OWNERS REVIEW	12-17-2014
B	FOR BID	1-21-2015

Engineers Seal

609-248861 — CLIENT PROJECT NO.
320006 — PROJECT NO.
AS SHOWN — SCALE:

SHEET TITLE: COVER SHEET

SHEET NO.: C-0

REV NO.: B

FILE NAME: C:\pw_work\pw_proj\dlmaier\d0448397\C-0.dwg PLOTTED DATE: 1/16/2015 12:24 PM PLOTTED BY: Daniel L. Maier

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	FLEXIBLE
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
PNLBRD	PANELBOARD
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	SWITCHBOARD
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

PLAN IDENTIFICATION

PLAN TITLE
SCALE: 1/8" = 1'-0"
NORTH

SECTION LOCATION IDENTIFICATION

2 / A3-05
SECTION IDENTIFICATION NUMBER (SAME NUMBER ON SHEET WHERE DRAWN)
SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER WHERE SECTION IS DRAWN)

SECTION IDENTIFICATION

4 / A1-30
SECTION IDENTIFICATION NUMBER (SAME NUMBER ON SHEET WHERE REFERENCED)
BUILDING SECTION TITLE
SCALE: 1/4" = 1'-0"
SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER TO REFER TO WHERE SECTION IS TYPICALLY REFERENCED - NOT ALL INCLUSIVE)

ELEVATION LOCATION IDENTIFICATION

2 / A2-32; 1, 2, 3, 4, A2-2
ELEVATION IDENTIFICATION NUMBER(S) INDICATES DIRECTION OF VIEW OR VIEWS (SAME NUMBER ON SHEET WHERE DRAWN)
SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER WHERE ELEVATION IS DRAWN)

ELEVATION IDENTIFICATION

4 / A1-30
ELEVATION IDENTIFICATION NUMBER (SAME NUMBER ON SHEET WHERE REFERENCED)
ELEVATION TITLE
SCALE: 1/4" = 1'-0"
SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER(S) TO REFER TO WHERE ELEVATION IS TYPICALLY REFERENCED - NOT ALL INCLUSIVE)

ELEVATION INDICATION

FINISHED FLOOR
EL = 100'-0"

DETAIL LOCATION IDENTIFICATION

2 / A3-31
PLAN OR SECTION DETAIL IDENTIFICATION NUMBER (SAME NUMBER ON SHEET WHERE DRAWN)
SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER WHERE PLAN OR SECTION DETAIL IS DRAWN)

DETAIL IDENTIFICATION

4 / A1-30
DETAIL IDENTIFICATION NUMBER (SAME NUMBER ON SHEET WHERE REFERENCED)
DETAIL TITLE
SCALE: 1" = 1'-0"
SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER TO REFER TO WHERE DETAIL IS TYPICALLY REFERENCED - NOT ALL INCLUSIVE)

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
	CURRENT TRANSFORMER
	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 BASEMENT AS FOLLOWS:
   - NEW 60KVA, 480 V, 3Ø UPS
   - NEW 75KVA, 480 V, 3Ø 4W TRANSFORMER
   - NEW UPS MAIN DISTRIBUTION PANEL
   - IN EXISTING 480V, PP-CT INSTALL NEW 100A FUSE IN EXISTING SPACE.
2. INSTALL THREE (3) NEW UPS DISTRIBUTION PANELS AT VARIOUS FLOORS/LOCATIONS AS SHOWN ON THE DRAWINGS.
3. INSTALL BRANCH CIRCUITS FROM NEW UPS DISTRIBUTION PANEL TO UPS RECEPTACLES. SHARED NEUTRALS FOR BRANCH UPS CIRCUITS ARE NOT ALLOWED.
4. ALL UPS RECEPTACLES SHALL BE A YELLOW DEVICE AND SHALL HAVE YELLOW WITH BLACK NAMEPLATES DESIGNATING RECEPTACLE USE AND CIRCUIT NUMBER.
5. CONVERT EXISTING RECEPTACLES TO UPS BY REFEEDING EXISTING RECEPTACLE BOXES AND REPLACING EXISTING RECEPTACLE WITH NEW YELLOW RECEPTACLE UNLESS OTHERWISE NOTED ON THE DRAWINGS.

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 N02, 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. 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.

Commonwealth associates, inc.
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WAYNE STATE UNIVERSITY

609 - CS MOTT BUILDING
275 E. HANCOCK DRIVE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 609-248861

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

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

MARK	ISSUED FOR/REVISIONS	DATE
A	OWNERS REVIEW	12-17-2014
B	FOR BID	1-21-2015

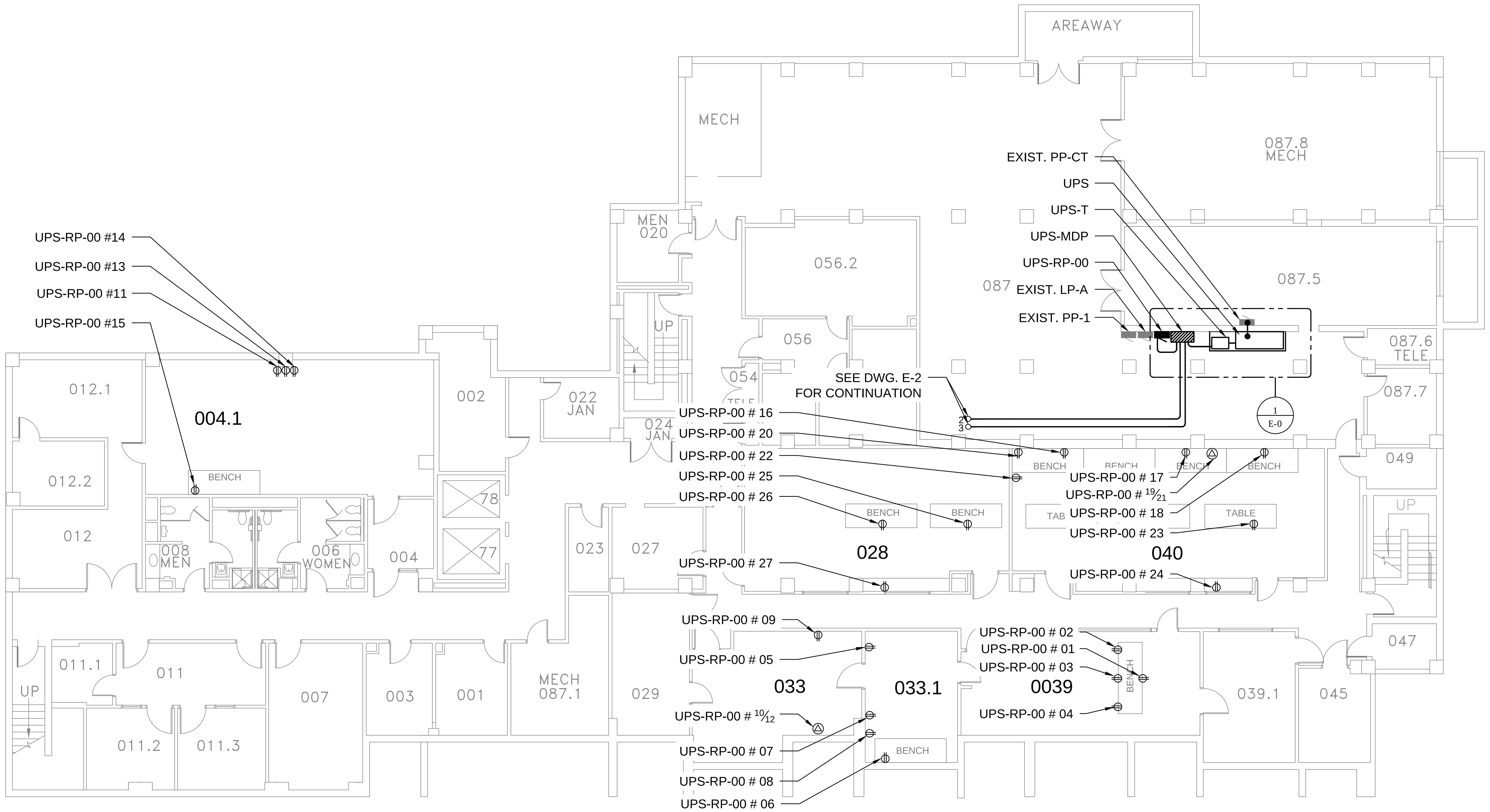
Engineers Seal

609-248861
CLIENT PROJECT NO.
320004
PROJECT NO.
N/A
SCALE:

SHEET TITLE
GENERAL NOTES AND DESIGN CRITERIA

SHEET NO.
G-1
REV NO.
B

FILE NAME: C:\pw_work\pw_proj\dlmaier\d0448397\G-1.dwg PLOTTED DATE: 1/14/2015 2:22 PM PLOTTED BY: Daniel L. Maier



NORTH

BASEMENT FLOOR LEVEL

SCALE: 3/32" = 1'-0"

PANEL NUMBER: UPS-RP-00

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: CS MOTT Building
PANEL LOCATION: Basement Rm 087.2
PANEL MOUNTIMG: SURFACE
GRD. BUS: NON-ISOLATED

CKT #	120/208 DESCRIPTION	LOAD VA	WIRE LENGTH	HOT	NEUT	GRD	CONDUIT	% DROP	CIRCUIT BREAKER	# POLES	PH	CIRCUIT BREAKER	# POLES	HOT	NEUT	GRD	CONDUIT	% DROP	WIRE LENGTH	LOAD VA	DESCRIPTION	CKT NO
1	039 Bicanalyzer & PC	80	70	12	12	12	3/4	0.1%	20	1	A	20	1	12	12	12	3/4	1.4%	70	850	039 Thermalcycler	2
3	039 Thermalcycler	850	70	12	12	12	3/4	1.4%	20	1	B	20	1	12	12	12	3/4	1.4%	70	850	039 Thermalcycler	4
5	0331. Array Scanner	480	110	12	12	12	3/4	1.2%	20	1	C	20	1	12	12	12	3/4	1.1%	130	360	033.1 Array Scanner	6
7	033.1 Hybridization Oven	300	130	12	12	12	3/4	0.9%	20	1	A	20	1	12	12	12	3/4	0.9%	130	300	033.1 Hybridization Oven	8
9	033 Sample Processing Sys & PC	1000	140	10	10	12	3/4	2.1%	20	1	B	20	2	10	---	12	3/4	2.0%	150	2600	033 Real Time PCR System	10
11	004.1 Microarray Scanner	250	160	12	12	12	3/4	0.9%	20	1	C											12
13	004.1 Hybridization Oven	69	160	12	12	12	3/4	0.3%	20	1	A	20	1	12	12	12	3/4	0.9%	160	250	004.1 Microplate Reader	14
15	004.1 Electrophoresis System	80	160	12	12	12	3/4	0.3%	20	1	B	20	1	12	12	12	3/4	0.9%	50	750	040 Thermocyclers (3)	16
17	040 Thermolcyclers (4)	750	40	12	12	12	3/4	0.7%	20	1	C	20	1	12	12	12	3/4	0.9%	50	750	040 Thermocyclers (3)	18
19	040 DNA Analyzer	2330	40	12	---	12	3/4	0.7%	20	2	A	20	1	12	12	12	3/4	0.5%	60	360	040 Mass Array	20
21											B	20	1	12	12	12	3/4	0.0%	60	20	040 Nanodispenser	22
23	040 Qiagen Pryomark	1000	60	12	12	12	3/4	1.4%	20	1	C	20	1	12	12	12	3/4	0.2%	80	100	040 Eppendorf Emotion	24
25	028 Qiafen EZI Advance	240	100	12	12	12	3/4	0.6%	20	1	A	20	1	12	12	12	3/4	0.6%	100	240	028 Qiagen EZI Advance	26
27	028 Eppendorf Epmotion	1000	100	12	12	12	3/4	2.4%	20	1	B										Space	28
29	Space										C										Space	30
31	Space										A										Space	32
33	Space										B										Space	34
35	Space										C										Space	36
37	Space										A										Space	38
39	Space										B										Space	40
41	Space										C										Space	42

SUBTOTALS (VA)	8429		
CONNECTED LOADS (KVA)	15.9		
DESIGN FACTORS	1.25		
DESIGN LOADS (KVA)	19.8238		
DEMAND FACTORS	1		
DEMAND LOADS (KVA)	19.8238		
TOTAL CONNECTED LOAD	16	44.3	AMPS
TOTAL DESIGN LOAD	20	55.1	AMPS
TOTAL DEMAND LOAD	19.8	55.1	AMPS

	HOT	NEUT	GRD	CND
FDR SIZE:	2	2	8	1 1/2
FDR LENGTH:	20			
% VOLT DROP:	0.2%			
MIN FDR/OCPD SIZE:	100	AMP	3	POLE

7430 SUBTOTALS (VA)

PANEL NUMBER **UPS-RP-00**

UPS-RP-00

PANEL NUMBER: UPS-MDP

MAINS: 400 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: CS MOTT Building
PANEL LOCATION: Ground Flr Mech Rm 087.2
PANEL MOUNTIMG: SURFACE
GRD. BUS: NON-ISOLATED

CKT #	120/208 DESCRIPTION	LOAD VA	WIRE LENGTH	HOT	NEUT	GRD	CONDUIT	% DROP	CIRCUIT BREAKER	# POLES	PH	CIRCUIT BREAKER	# POLES	HOT	NEUT	GRD	CONDUIT	% DROP	WIRE LENGTH	LOAD VA	DESCRIPTION	CKT NO
1	UPS-RP-00	27000	20	2	2	8	1 1/2	0.6%	100	3	A	100	3	2	2	8	1 1/2	0.2%	80	10900	UPS-RP-02	2
3											B											4
5											C											6
7	UPS-RP-03	20260	100	2	2	8	1 1/2	0.7%	100	3	A											8
9											B											10
11											C											12

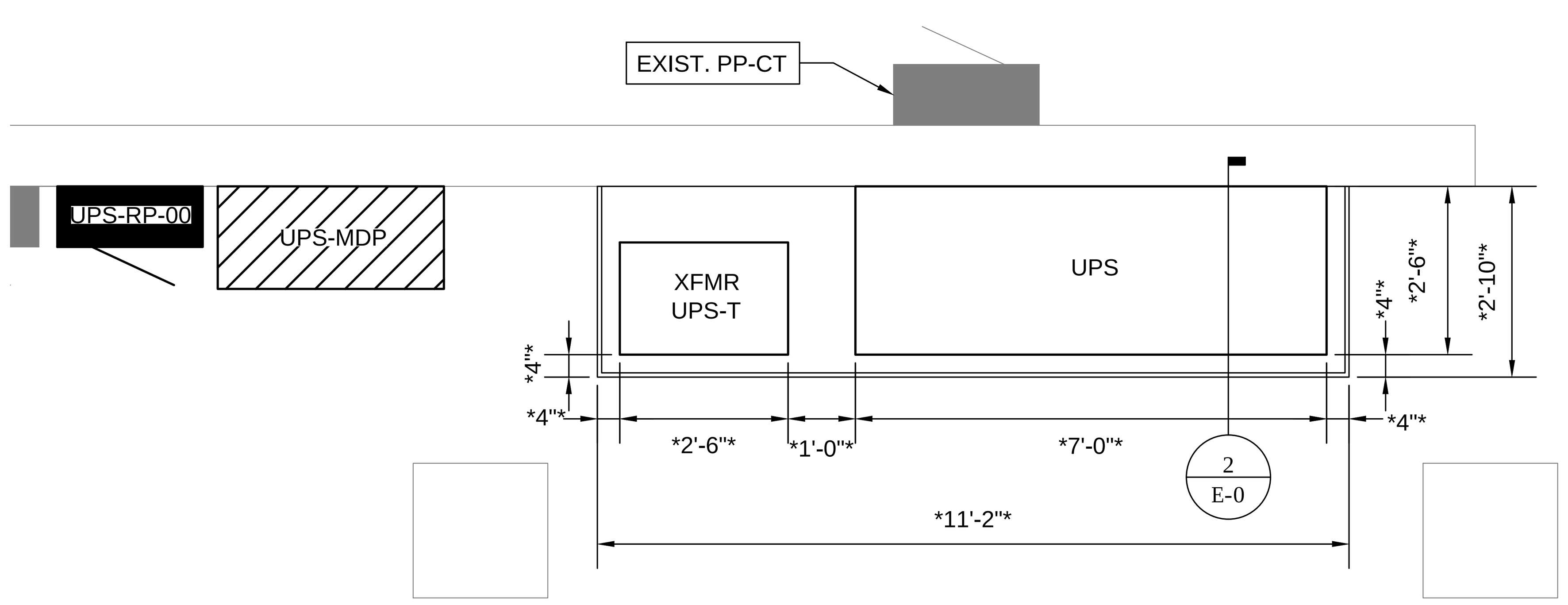
SUBTOTALS (VA)	47260		
CONNECTED LOADS (KVA)	58.2		
DESIGN FACTORS	1.25		
DESIGN LOADS (KVA)	72.7		
DEMAND FACTORS	1		
DEMAND LOADS (KVA)	72.7		
TOTAL CONNECTED LOAD	58	162.6	AMPS
TOTAL DESIGN LOAD	73	202.0	AMPS
TOTAL DEMAND LOAD	72.7	202.0	AMPS

	HOT	NEUT	GRD	CND
FDR SIZE:	500	500	1/0	4
FDR LENGTH:				
% VOLT DROP:	0.0%			
MIN FDR/OCPD SIZE:	400	AMP	3	POLE

10900 SUBTOTALS (VA)

PANEL NUMBER **UPS-MDP**

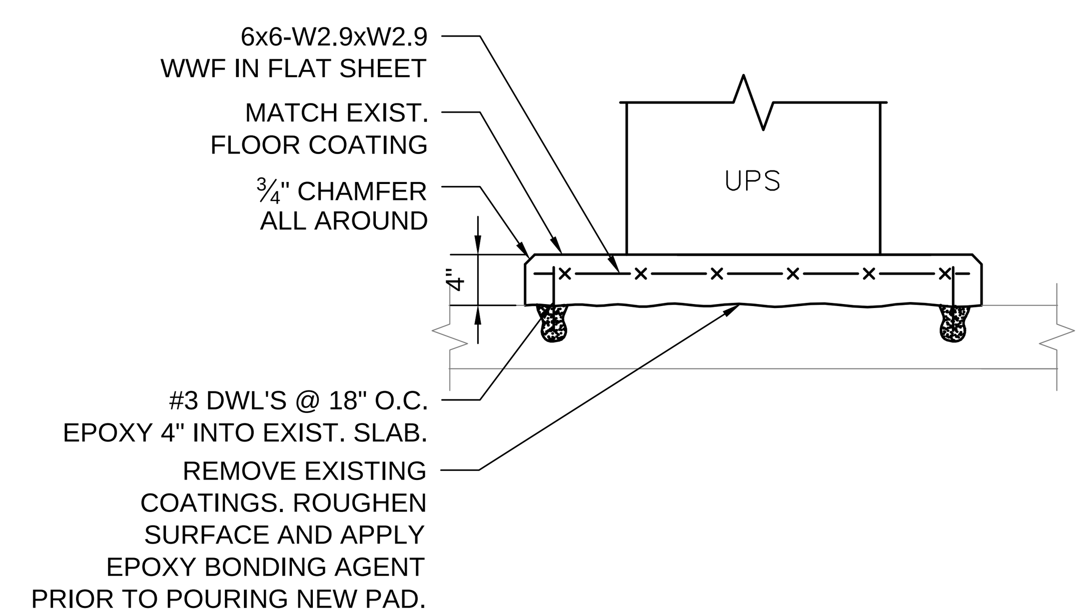
UPS-RP-MDP



1 E-0 HOUSEKEEPING PAD PLAN

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

* - ASTERISK DENOTES DIMENSIONS THAT MUST BE COORDINATED WITH APPROVED EQUIPMENT SHOP DRAWINGS PRIOR TO POURING HOUSEKEEPING PAD.



2 E-0 SECTION

SCALE: 1" = 1'-0"

NOTES:

1. SEE DRAWING G-1 FOR GENERAL NOTES AND LEGEND
2. IN FINISHED AREAS, CEILINGS ARE LAY-IN CEILING TILE.
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.
4. NOT USED
5. NOT USED
6. NOT USED
7. CORE DRILLING SHALL BE COORDINATED WITH WSU REP AND ADJACENT CORED HOLES TO BE NO CLOSER THAN 2 TIMES DIAMETER SPACING.
8. SEE UPS 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 PER SHT. G-1.
10. INSTALL CONDUIT RISER IN A LOCATION AND MANNER THAT DOES NOT CAUSE INTERFERENCE WITH EXISTING ACCESS, EQUIPMENT, DEVICES, ETC. COORDINATE WITH WSU REP.
11. COORDINATE WITH WSU REP FOR ENTRY INTO RESTRICTED AREAS.

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WAYNE STATE UNIVERSITY

609 - CS MOTT BUILDING
275 E. HANCOCK DRIVE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 609-248861

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

DLM (DRAWN BY)	DA (PROJECT LEAD)
DHP (DESIGNED BY)	JDM (REVIEWED BY)
APPROVED BY	DATE

MARK	ISSUED FOR/REVISIONS	DATE
A	OWNERS REVIEW	12-17-2014
B	FOR BID	1-21-2015

Engineers Seal

609-248861
CLIENT PROJECT NO.
320006
PROJECT NO.
AS SHOWN
SCALE:

SHEET TITLE
BASEMENT FLOOR PLAN

SHEET NO.
E-0

REV NO.
B

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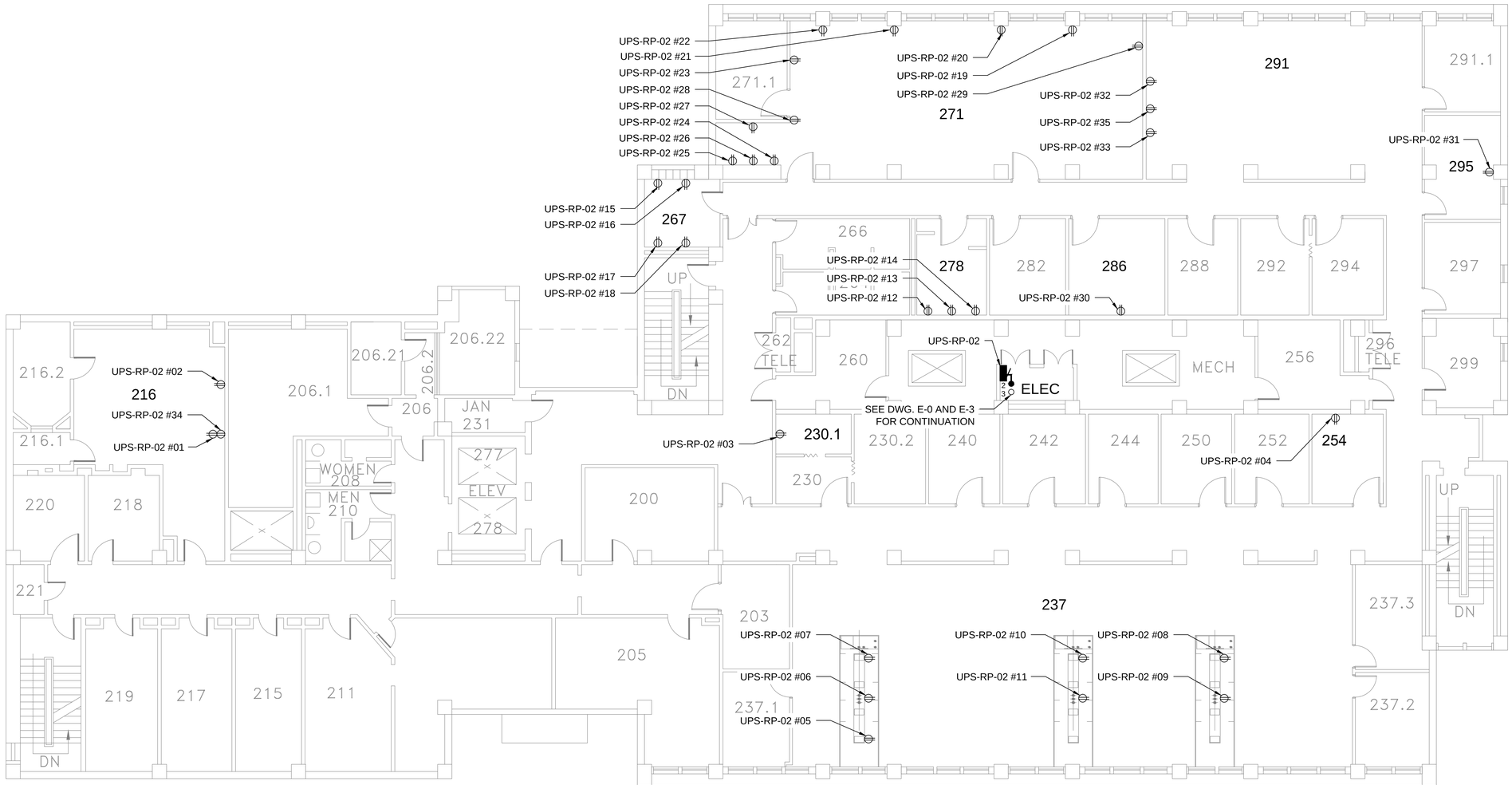

NORTH

SECOND FLOOR LEVEL

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

0 5' 10' 15' 20'

PANEL NUMBER: **UPS-RP-02**

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: CS MOTT Building
PANEL LOCATION: 2nd Flr Mech Rm
PANEL MOUNTING: SURFACE
GRD. BUS: NON-ISOLATED

CKT #	120/208 DESCRIPTION	LOAD VA	WIRE LENGTH	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP	CIRCUIT BREAKER	# POLES	P H	CIRCUIT BREAKER	# POLES	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP	WIRE LENGTH	LOAD VA	DESCRIPTION	CKT NO
1	216 Ultrasound Machine	1200	150	10	10	12	3/4	2.8%	20	1	A	20	1	10	10	12	3/4	2.8%	150	1200	216 Imaging Machine	2
3	230.1 Time Lapse Image Acquisition	450	60	12	12	12	3/4	0.6%	20	1	B	20	1	12	12	12	3/4	0.9%	60	600	254 HPLC	4
5	237 Bio Rad Pwr Pac	75	100	12	12	12	3/4	0.2%	20	1	C	20	1	12	12	12	3/4	0.2%	100	75	237 Bio Rad Power Pac	6
7	237 Bio Rad Pwr Pac	75	100	12	12	12	3/4	0.2%	20	1	A	20	1	12	12	12	3/4	1.4%	100	600	237 Plate Reader	8
9	237 Hi Tech & Stopped Flow	600	100	12	12	12	3/4	1.4%	20	1	B	20	1	12	12	12	3/4	1.3%	90	600	237 Apollo 4000	10
11	237 ESA 542 & Coulamay	600	90	12	12	12	3/4	1.3%	20	1	C	20	1	12	12	12	3/4	1.0%	50	850	278 (2) Critical PC's	12
13	278 (2) Critical PC's	850	50	12	12	12	3/4	1.0%	20	1	A	20	1	12	12	12	3/4	1.0%	50	850	278 Analisis PC	14
15	278 (2) Critical PC's	850	100	12	12	12	3/4	2.0%	20	1	B	20	1	12	12	12	3/4	2.0%	100	850	267 Critical PC's	16
17	267 Typhoon Scanner	600	100	12	12	12	3/4	1.4%	20	1	C	20	1	12	12	12	3/4	1.4%	100	600	267 Microscope	18
19	271 Critical PC's	850	100	12	12	12	3/4	2.0%	20	1	A	20	1	12	12	12	3/4	2.0%	100	850	271 Critical PC's	20
21	271 Critical PC's	850	100	12	12	12	3/4	2.0%	20	1	B	20	1	12	12	12	3/4	1.8%	90	850	271 Critical PC's	22
23	271 Critical PC's	850	100	12	12	12	3/4	2.0%	20	1	C	20	1	12	12	12	3/4	1.8%	90	850	271 Critical PC's	24
25	271 Real Time Thermocycler	400	80	12	12	12	3/4	0.8%	20	1	A	20	1	12	12	12	3/4	0.8%	80	400	271 Real Time Thermocycler	26
27	271 Bioanalyzer	600	80	12	12	12	3/4	1.1%	20	1	B	20	1	12	12	12	3/4	1.3%	90	600	271 Kodak System	28
29	271 Qiacube	600	80	12	12	12	3/4	1.1%	20	1	C	20	1	12	12	12	3/4	0.4%	30	600	286 Flow Hood	30
31	295 Real Time PCR Machine	600	100	12	12	12	3/4	1.4%	20	1	A	20	1	12	12	12	3/4	0.9%	60	600	291 (2) Computers	32
33	291 Pipetting Machine	600	70	12	12	12	3/4	1.0%	20	1	B	20	1	10	10	12	3/4	2.8%	150	1200	216 Ultrasound Machine	34
35	291 Real Time PCR Machine										C										Space	36
37	Space										A										Space	38
39	Space										B										Space	40
41	Space										C										Space	42
	SUBTOTALS (VA)	10650																		12175	SUBTOTALS (VA)	

SUBTOTALS (VA)	10650		
CONNECTED LOADS (KVA)	22.8		
DESIGN FACTORS	1.25		
DESIGN LOADS (KVA)	28.5313		
DEMAND FACTORS	1		
DEMAND LOADS (KVA)	28.5313		
TOTAL CONNECTED LOAD	23	63.8	AMPS
TOTAL DESIGN LOAD	29	79.3	AMPS
TOTAL DEMAND LOAD	28.5	**79.3**	AMPS

	HOT	NEUT	GRD	CND
FDR SIZE:	2	2	8	1 1/2
FDR LENGTH:	80			
% VOLT DROP:	0.6%			
/IN FDR/OCPD SIZE:	100 AMP		3	POLE

PANEL NUMBER
UPS-RP-02

UPS-RP-02

NOTES:

1. SEE DRAWING G-1 FOR GENERAL NOTES AND LEGEND
2. IN FINISHED AREAS, CEILINGS ARE LAY-IN CEILING TILE.
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.
4. NOT USED
5. NOT USED
6. NOT USED
7. CORE DRILLING SHALL BE COORDINATED WITH WSU REP AND ADJACENT CORED HOLES TO BE NO CLOSER THAN 2 TIMES DIAMETER SPACING.
8. SEE UPS 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 PER SHT. G-1
10. INSTALL CONDUIT RISER IN A LOCATION AND MANNER THAT DOES NOT CAUSE INTERFERENCE WITH EXISTING ACCESS, EQUIPMENT, DEVICES, ETC. COORDINATE WITH WSU REP.
11. COORDINATE WITH WSU REP FOR ENTRY INTO RESTRICTED AREAS.

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275 E. HANCOCK DRIVE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 609-248861

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

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

MARK	ISSUED FOR/REVISIONS	DATE
A	OWNERS REVIEW	12-17-2014
B	FOR BID	1-21-2015

Engineers Seal

609-248861
CLIENT PROJECT NO.
320006
PROJECT NO.
AS SHOWN
SCALE

SHEET TITLE
SECOND FLOOR PLAN

SHEET NO.
E-2

REV NO.
B

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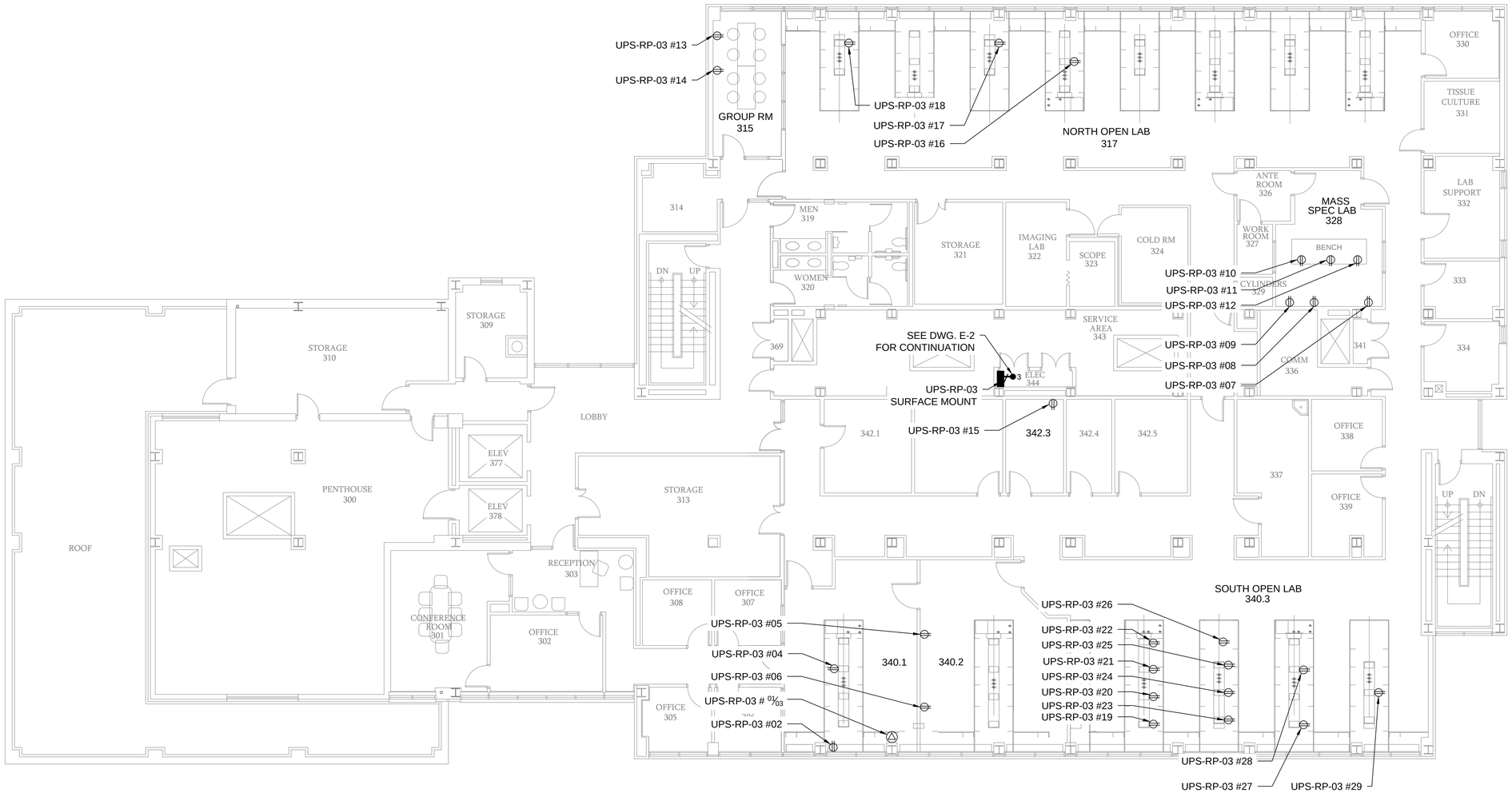

NORTH

THIRD FLOOR LEVEL

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

0 5' 10' 15' 20'

PANEL NUMBER: **UPS-RP-03**

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: CS MOTT Building
PANEL LOCATION: 3rd Flr Mech Rm
PANEL MOUNTING: SURFACE
GRD. BUS: NON-ISOLATED

CKT #	120/208 DESCRIPTION	LOAD VA	WIRE LENGTH	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP	CIRCUIT BREAKER	# POLES	P H	CIRCUIT BREAKER	# POLES	WIRE & CONDUIT SIZE HOT	NEUT	GRD	CONDUIT	% DROP	WIRE LENGTH	LOAD VA	DESCRIPTION	CKT NO
1	340.1 Sequencing System	1400	100	12	—	12	3/4	1.1%	20	2	A	20	1	12	12	12	3/4	2.1%	100	900	340.1 Sequencing System	2
3											B	20	1	12	12	12	3/4	0.3%	100	144	340.1 Electrophoresis System	4
5	340.2 Purification System	800	100	12	12	12	3/4	1.9%	20	1	C	20	1	12	12	12	3/4	2.4%	100	1000	340.2 Liquid Handling System	6
7	328 Fluidgm Biomark	1320	80	12	12	12	3/4	2.5%	20	1	A	20	1	12	12	12	3/4	2.3%	80	1230	328 Autodelfia #2	8
9	328 Autodelfia #1	1230	80	12	12	12	3/4	2.3%	20	1	B	20	1	12	12	12	3/4	0.6%	80	324	328 Fluidigm Control HX	10
11	328 Fluidigm Control MX	324	80	12	12	12	3/4	0.6%	20	1	C	20	1	12	12	12	3/4	0.6%	80	324	328 Fluidigm Control AX	12
13	315 Luminex 100	720	100	12	12	12	3/4	1.7%	20	1	A	20	1	12	12	12	3/4	2.6%	100	1080	315 Fast Realtime PCR	14
15	342.3 Flow Cytometer	690	30	12	12	12	3/4	0.5%	20	1	B	20	1	12	12	12	3/4	0.8%	80	420	317 M5 Plate Reader	16
17	317 Roche Cobas E411	996	70	12	12	12	3/4	1.6%	20	1	C	20	1	12	12	12	3/4	0.9%	90	444	317 MSD Specor Imager	18
19	340.3 Spectramax M2	125	60	12	12	12	3/4	0.2%	20	1	A	20	1	12	12	12	3/4	0.4%	60	280	340.3 Dell Optiplex GR620	20
21	340.3 Eppendorf Eprnotion	80	60	12	12	12	3/4	0.1%	20	1	B	20	1	12	12	12	3/4	0.1%	60	80	340.3 Fujitsu Siemens Monitor	22
23	340.3 Bio Sys Luminometer	48	75	12	12	12	3/4	0.1%	20	1	C	20	1	12	12	12	3/4	0.4%	75	250	340.3 Dell Optiplex GX240	24
25	340.3 Bio-Rad Drive Module	150	75	12	12	12	3/4	0.3%	20	1	A	20	1	12	12	12	3/4	0.4%	75	250	340.3 Bio-Rad Control Module	26
27	340.3 Bio-Rad Variable Speed Pump	300	90	12	12	12	3/4	0.6%	20	1	B	20	1	12	12	12	3/4	0.6%	90	300	340.3 Bio-Rad Cooling Module	28
29	340.3 PCR Machine	1000	100	12	12	12	3/4	2.4%	20	1	C										Space	30
31	Space										A										Space	32
33	Space										B										Space	34
35	Space										C										Space	36
37	Space										A										Space	38
39	Space										B										Space	40
41	Space										C										Space	42
																				7026	SUBTOTALS (VA)	

SUBTOTALS (VA)	9183		
CONNECTED LOADS (KVA)	16.2		
DESIGN FACTORS	1.25		
DESIGN LOADS (KVA)	20.2613		
DEMAND FACTORS	1		
DEMAND LOADS (KVA)	20.2613		
TOTAL CONNECTED LOAD	16	45.3	AMPS
TOTAL DESIGN LOAD	20	56.3	AMPS
TOTAL DEMAND LOAD	20.3	**56.3**	AMPS

	HOT	NEUT	GRD	CND
FDR SIZE:	2	2	8	1 1/2
FDR LENGTH:	100			
% VOLT DROP:	0.8%			
MIN FDR/OCPD SIZE:	100 AMP		3	POLE

PANEL NUMBER
UPS-RP-03

UPS-RP-03

NOTES:

1. SEE DRAWING G-1 FOR GENERAL NOTES AND LEGEND
2. IN FINISHED AREAS, CEILINGS ARE LAY-IN CEILING TILE.
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.
4. NOT USED
5. NOT USED
6. NOT USED
7. CORE DRILLING SHALL BE COORDINATED WITH WSU REP AND ADJACENT CORED HOLES TO BE NO CLOSER THAN 2 TIMES DIAMETER SPACING.
8. SEE CONDUIT 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 PER SHT. G-1
10. INSTALL UPS RISER IN A LOCATION AND MANNER THAT DOES NOT CAUSE INTERFERENCE WITH EXISTING ACCESS, EQUIPMENT, DEVICES, ETC. COORDINATE WITH WSU REP.
11. COORDINATE WITH WSU REP FOR ENTRY INTO RESTRICTED AREAS.

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WAYNE STATE UNIVERSITY

609 - CS MOTT BUILDING
275 E. HANCOCK DRIVE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 609-248861

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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	OWNERS REVIEW	12-17-2014
B	FOR BID	1-21-2015

Engineers Seal

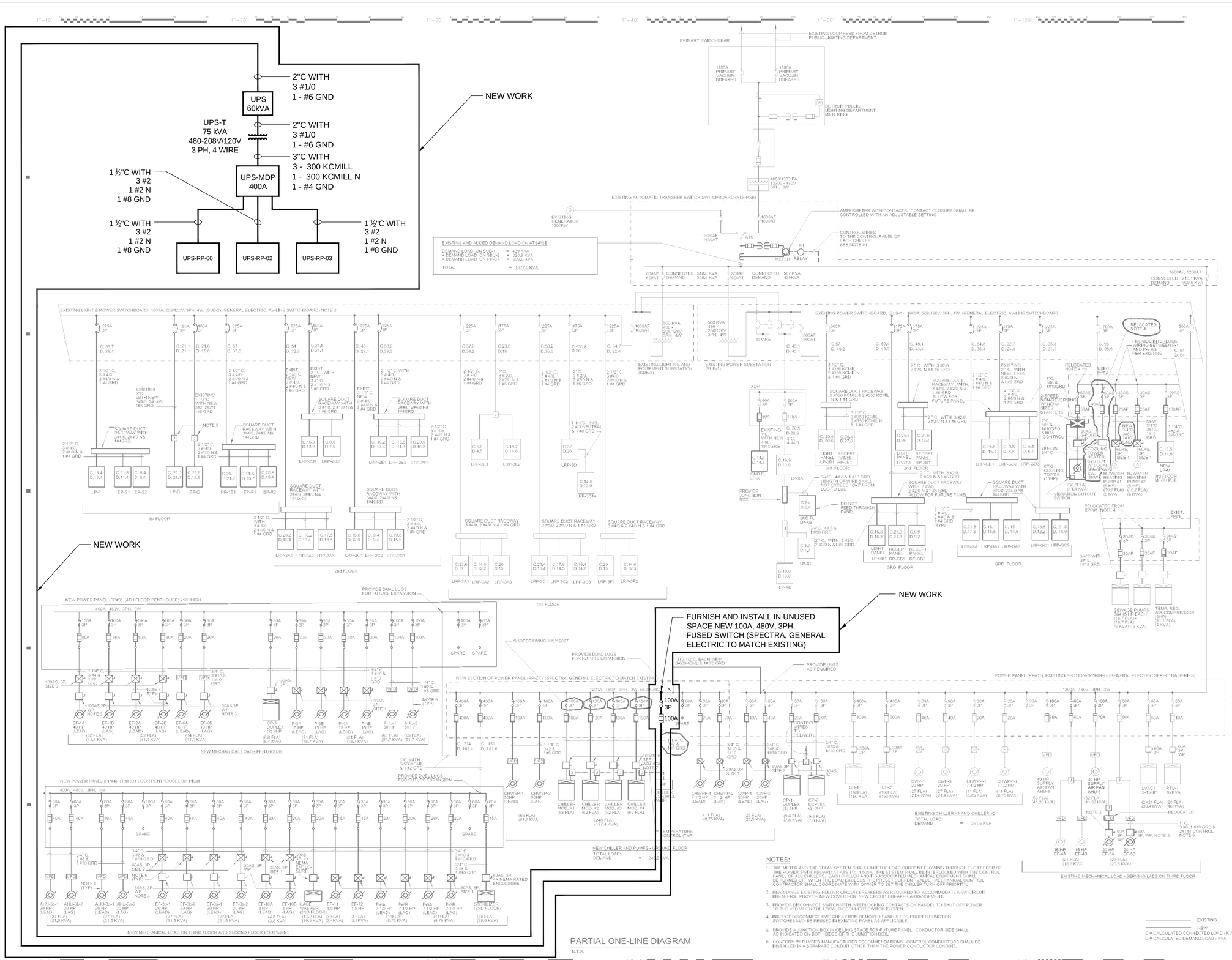
609-248861
CLIENT PROJECT NO.
320006
PROJECT NO.
AS SHOWN
SCALE:

SHEET TITLE
THIRD FLOOR PLAN

SHEET NO.
E-3

REV NO.
B

FILE NAME: C:\pw_work\pw_proj\dlmaier\d0448397\E-3.dwg PLOTTED DATE: 1/16/2015 10:26 AM PLOTTED BY: Daniel L. Maier



PARTIAL ONE-LINE DIAGRAM
N.T.S.

NOTES:

1. THE METER AND THE RELAY SYSTEM SHALL LIMIT THE LOAD CURRENT FLOWING THROUGH THE FEEDER OF THE POWER SWITCHBOARD AT ATS TO 1,500A. THE SYSTEM SHALL BE INTERLOCKED WITH THE CONTROL PANEL OF ALL CHILLERS. EACH CHILLER AND ITS ASSOCIATED MECHANICAL EQUIPMENT SHALL BE TURNED OFF WHEN THE LOAD EXCEEDS THE PRESET CURRENT VALUE. MECHANICAL CONTROL CONTRACTOR SHALL COORDINATE WITH OWNER TO SET THE CHILLER "TURN OFF PRIORITY".
2. REARRANGE EXISTING FEEDER CIRCUIT BREAKERS AS REQUIRED TO ACCOMMODATE NEW CIRCUIT BREAKERS. PROVIDE NEW COVER FOR NEW CIRCUIT BREAKER ARRANGEMENT.
3. PROVIDE DISCONNECT SWITCH WITH INTERLOCKING CONTACTS ON HANDLE TO SHUT OFF POWER TO THE VFD WHEN THE LOCAL DISCONNECT SWITCH IS OPEN.
4. INSPECT DISCONNECT SWITCHES FROM REMOVED PANELS FOR PROPER FUNCTION. SWITCHES MAY BE REUSED IN EXISTING PANELS AS APPLICABLE.
5. PROVIDE A JUNCTION BOX IN CEILING SPACE FOR FUTURE PANEL. CONDUCTOR SIZE SHALL AS INDICATED ON BOTH SIDES OF THE JUNCTION BOX.
6. CONFORM WITH VFD'S MANUFACTURER RECOMMENDATIONS. CONTROL CONDUCTORS SHALL BE INSTALLED IN A SEPARATE CONDUIT OTHER THAN THE POWER CONDUCTOR CONDUIT.

EXISTING
NEW
C = CALCULATED CONNECTED LOAD - KVA
D = CALCULATED DEMAND LOAD - KVA

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FOR

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DETROIT, MICHIGAN

VIVARIUM RENOVATION GRANT NO. 1G20RR 21574

C.S. MOTT RENOVATION GRANT NO. 1C06RR 17527

AREA 'B' AREA 'A'

KEY PLAN
NO SCALE

N

Date	Issued For
08/19/04	NIH SCHEMATIC DESIGN REVIEW
11/10/05	NIH CONSTR. DOC. REVIEW
04/03/06	NIH CONSTR. DOC. REVIEW
08/21/06	NIH APPROVAL
10/19/06	BIDS
xxx	ADDENDUM #1
03/23/07	SHOP DRAWING 15640

609 - CS MOTT BUILDING
275 E. HANCOCK DRIVE
ELECTRICAL RELIABILITY UPGRADES PROJ. No. 609-248861

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

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

MARK	ISSUED FOR/REVISIONS	DATE
A	OWNERS REVIEW	12-17-2014
B	FOR BID	1-21-2015

Engineers Seal

609-248861
CLIENT PROJECT NO.

320006
PROJECT NO.

AS SHOWN
SCALE

Project Number: 67923.00
Drawn By:
Checked By:
Approved By:

Sheet Title: Partial Electrical One-Line Diagram

Sheet Number: EG0.202

SHEET TITLE
ELECTRICAL ONE LINE DIAGRAM

SHEET NO.
E-101

REV NO.
B

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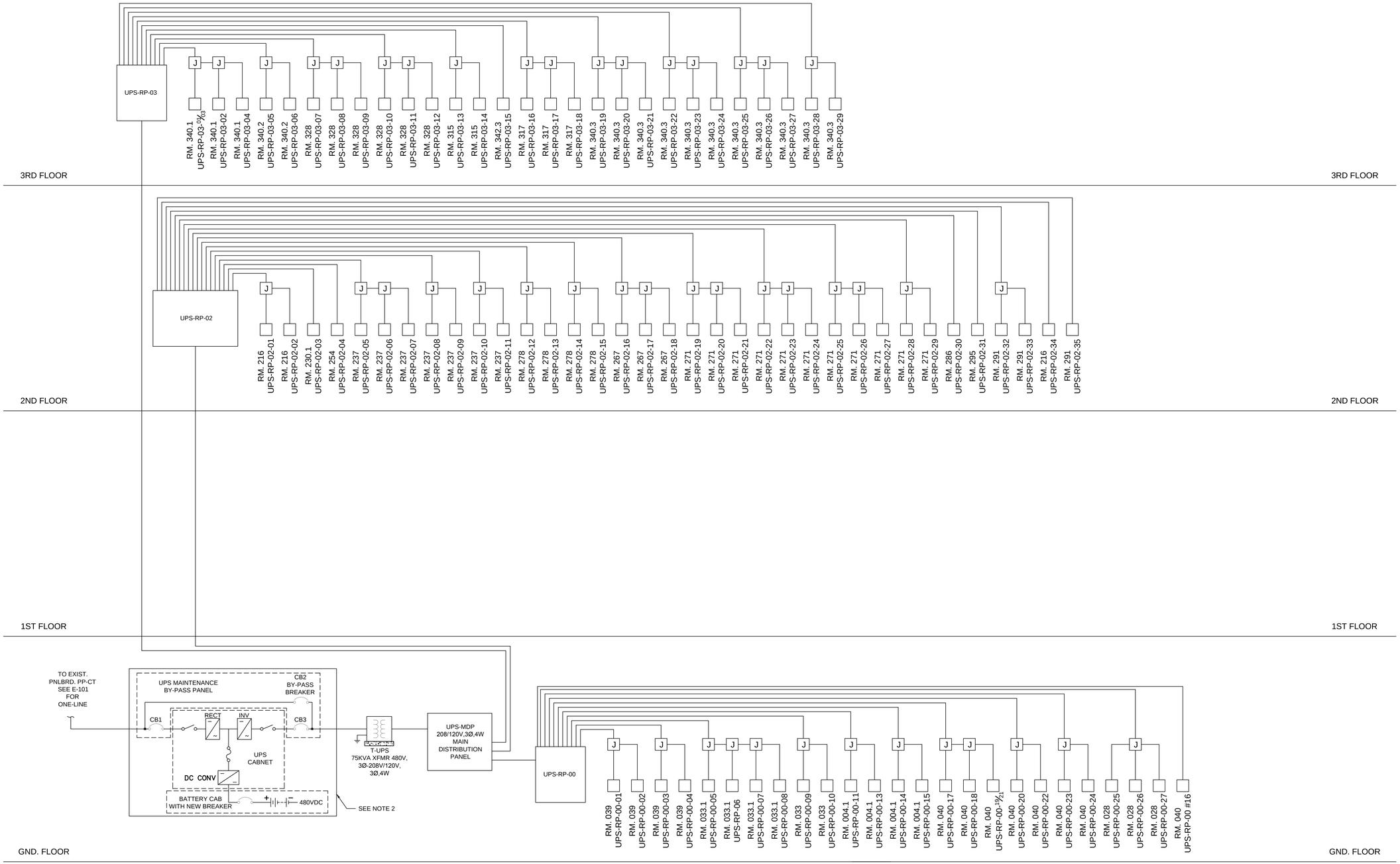

NOTES:

1. SEE DRAWING G-1 FOR GENERAL NOTES AND LEGEND
2. 60 kVA TOSHIBA UPS, COMPLETE WITH INVERTER, BY-PASS AND BATTERY CABINET. CONTRACTOR MUST PURCHASE FROM PREFERRED WSU VENDOR, ANCONA CONTROLS, 28021 GRAND OAKES CT., WIXOM, MI. 48021. PHONE: 248-880-6351
3. NOT USED
4. NEW CIRCUITS AS INDICATED IN THE CABLE/CONDUIT/PANEL SCHEDULES EXTEND FROM LISTED PANELS TO THE DESIGNATED LOADS THROUGHOUT THE CS MOTT BUILDING.
5. NOT USED
6. NOT USED
7. NOT USED
8. CORE DRILLING SHALL BE COORDINATED WITH WSU AND ADJACENT CORED HOLES TO BE NO CLOSER THAN 2 TIME DIAMETER SPACING.
9. NOT USED
10. 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.
11. UPS PANEL BOARDS AND EQUIPMENT SHALL BE LABELED WITH A YELLOW WITH BLACK LETTERING NAMEPLATE.

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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	OWNERS REVIEW	12-17-2014
B	FOR BID	1-21-2015

Engineers Seal

609-248861
CLIENT PROJECT NO.
320006
PROJECT NO.
AS SHOWN
SCALE:

SHEET TITLE
UPS RISER DIAGRAM

SHEET NO.
E-102
REV NO.
B

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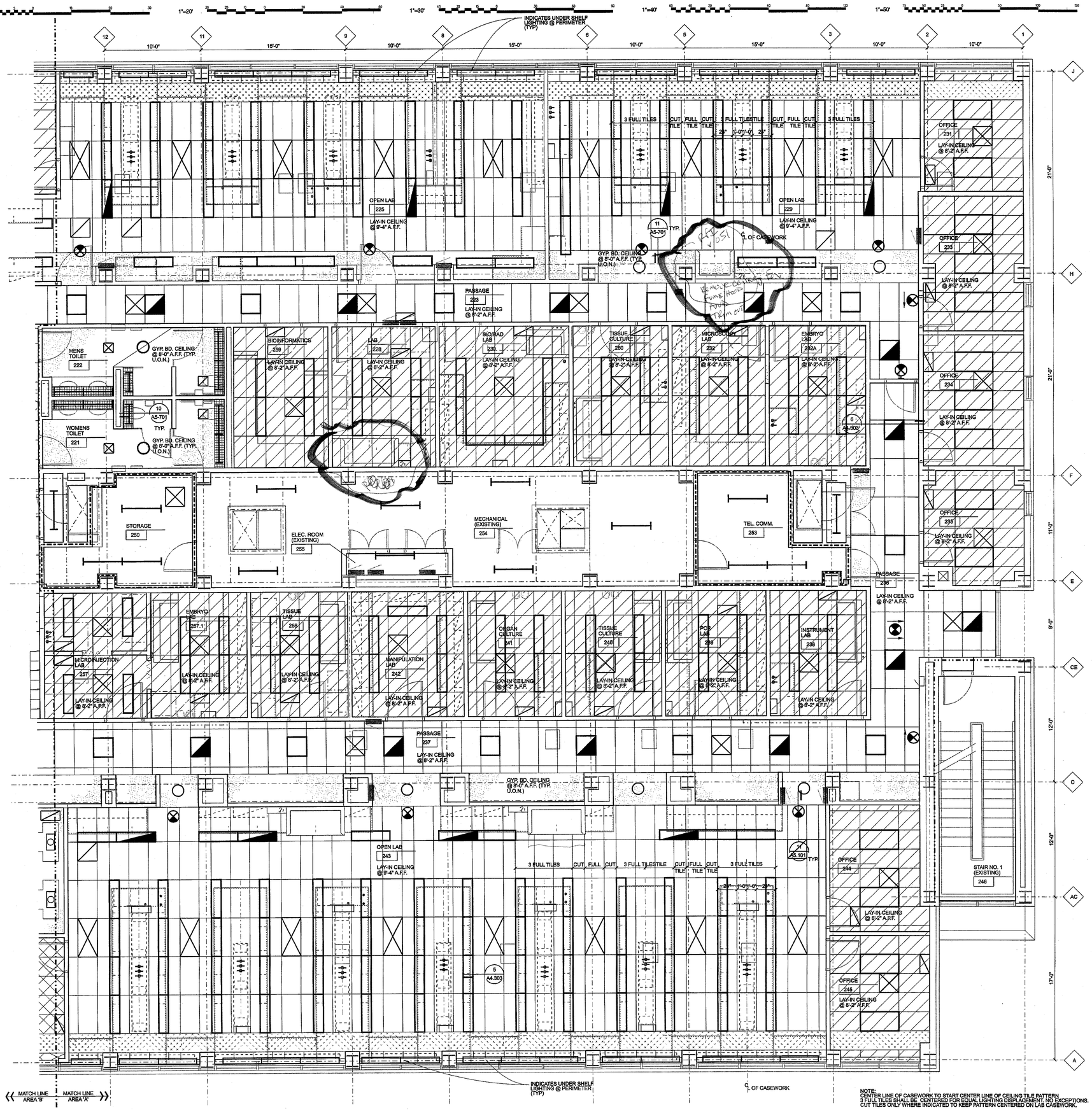

NOTE:
CENTER LINE OF CASEWORK TO START CENTER LINE OF CEILING TILE PATTERN.
3 FULL TILES SHALL BE CENTERED FOR EQUAL LIGHTING DISPLACEMENT. NO EXCEPTIONS.
CUT TILES ONLY WHERE INDICATED TO KEEP PATTERN CENTERED ON LAB CASEWORK.

NOTE:
REFER TO SHEET AR1-0GA FOR CEILING PLAN NOTES AND LEGEND

SECONDFLOOR REFLECTED CEILING PLAN AREA 'A'

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

REFERENCE ONLY

AS BUILT

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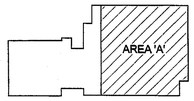
C.S. MOTT RENOVATION GRANT NO. 1C06RR 17527



KEY PLAN
NO SCALE

N

Date:	Issued For:
07/21/04	PROJECT REVIEW
08/19/04	NIH SCHEMATIC DESIGN REVIEW
11/10/05	NIH CONSTR. DOC. REVIEW
04/03/06	NIH CONSTR. DOC. REVIEW
08/21/06	NIH APPROVAL
10/19/06	BIDS

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Project Number:	67923.00
Drawn By:	DRT
Checked By:	EK
Approved By:	EGE
Sheet Title:	Second Floor Reflected Ceiling Plan Area 'A'

Effective January 1 2006 Harley Ellis and Fields Devereaux have merged as Harley Ellis Devereaux

Sheet Number: **AR1-02A**

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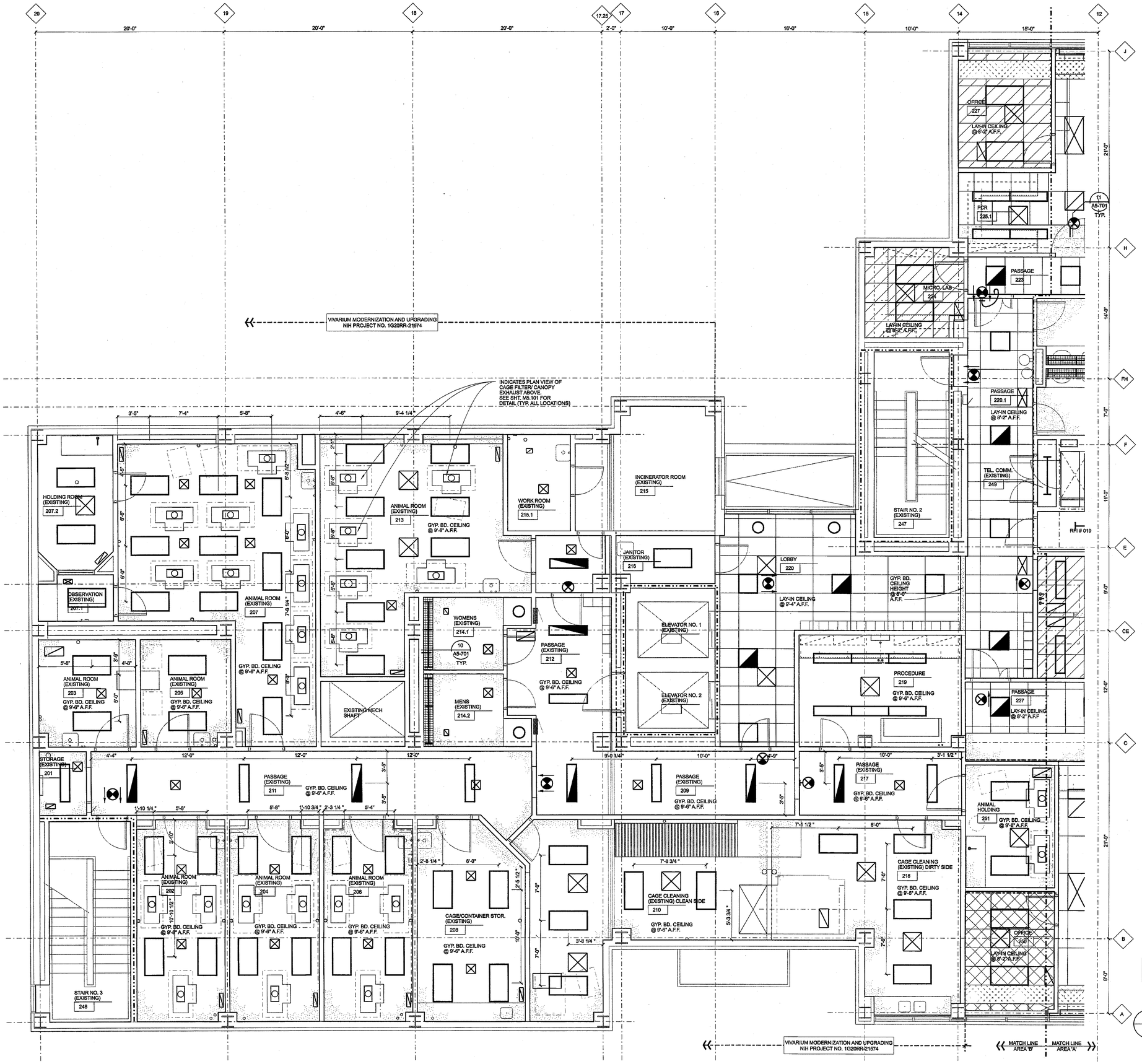

REFERENCE ONLY

NOTE:
REFER TO SHEET AR1-0GA FOR CEILING PLAN NOTES AND LEGEND

SECOND FLOOR REFLECTED CEILING PLAN AREA 'B'

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

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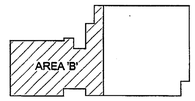
C.S. MOTT RENOVATION GRANT NO. 1C06RR 17527



KEY PLAN
NO SCALE

Date:	Issued For:
07/21/04	PROJECT REVIEW
08/19/04	NIH SCHEMATIC DESIGN REVIEW
11/10/05	NIH CONSTR. DOC. REVIEW
04/03/06	NIH CONSTR. DOC. REVIEW
08/21/06	NIH APPROVAL
10/19/06	BIDS

RFI # 004 min Ceiling Height 9'-3"

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Project Number:	67923.00
Drawn By:	DRT
Checked By:	EK
Approved By:	EGE
Sheet Title:	Second Floor Reflected Ceiling Plan Area 'B'

Effective January 1 2006 HarleyEllis and Fields Devereaux have merged as Harley Ellis Devereaux

Sheet Number: AR1.02B

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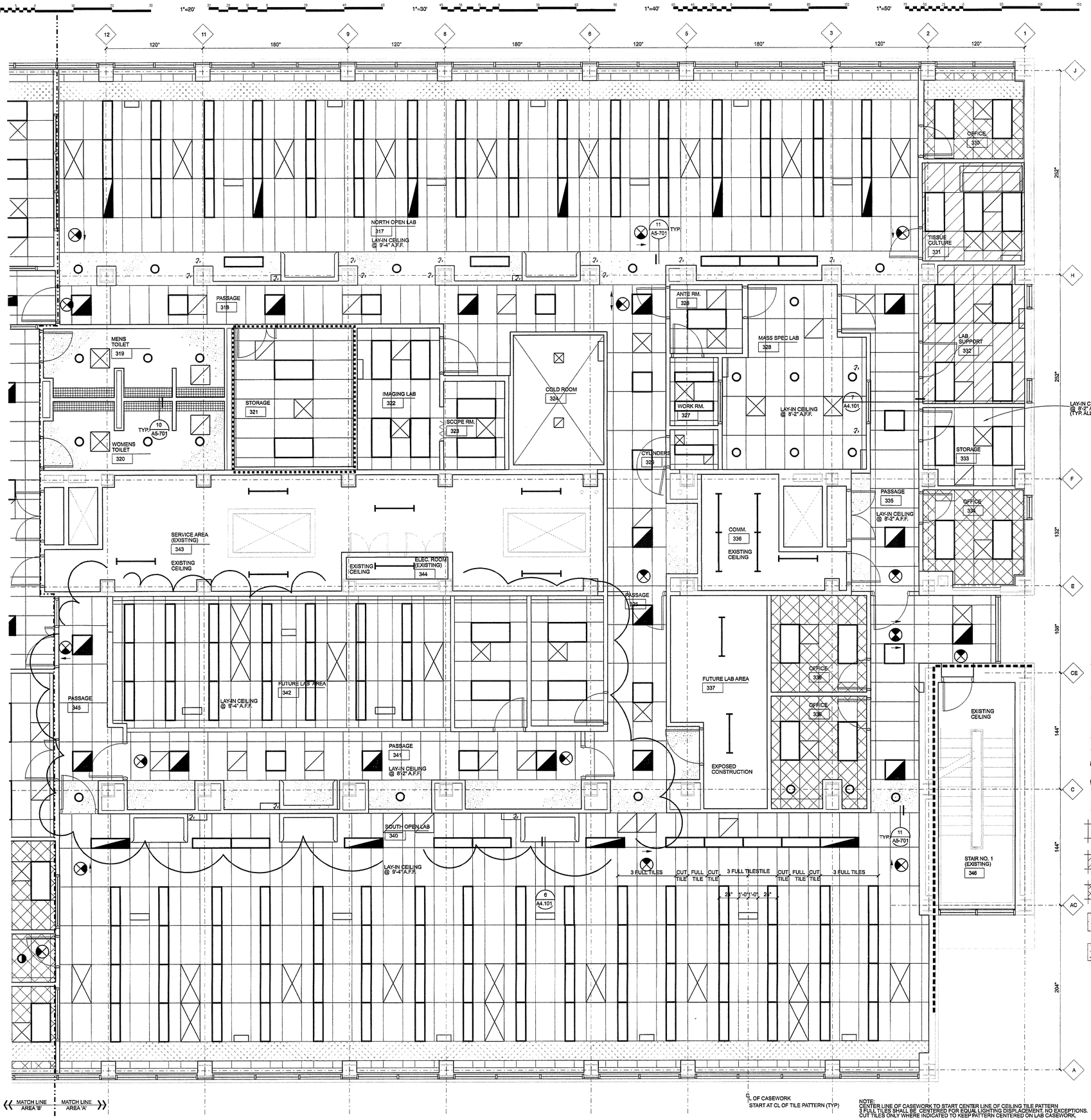

REFERENCE ONLY

REFLECTED CEILING PLAN GENERAL NOTES

1. COORDINATE SIZE AND LOCATION OF ALL ACCESS PANELS WITH TRADE REQUIRING SAME.
2. COORDINATE CEILING SUSPENSION SYSTEMS WITH OTHER CEILING SPACE EQUIPMENT SUPPORTING DEVICES.
3. ALL CORRIDOR PARTITIONS, SMOKE BARRIER PARTITIONS, HORIZONTAL EXIT ENCLOSURES AND FIRE RATED PARTITIONS WHICH EXTEND TO THE DECK ABOVE SHALL BE MARKED EVERY 20'-0" HORIZONTALLY WITHIN THE CEILING SPACE: "FIRE AND SMOKE BARRIER - PROTECT ALL OPENINGS".
4. VERIFY EXACT LOCATIONS OF SOFFIT AND CEILING CONTROL JOINTS WITH ARCHITECT'S REPRESENTATIVE IN THE FIELD.
5. REFER TO FLOOR PLANS AND WALL TYPES ON SHEET A5-701 FOR PARTITION CONSTRUCTION.
6. ACCOUSTICAL LAY-IN CEILING HEIGHT IS AS NOTED ON DWGS. GYP. BD. CEILING HEIGHT IS 8'-0" A.F.F. UNLESS OTHERWISE NOTED.

REFLECTED CEILING PLAN LEGEND

PARTITION FIRE RATINGS

- 1 HR FIRE RATED PARTITION
- 2 HR FIRE RATED PARTITION

GENERAL

- 2x4 SUSPENDED LAY-IN ACCOUSTICAL CEILING TILE TYPE 1
- 2x4 SUSPENDED LAY-IN ACCOUSTICAL CEILING TILE TYPE 2
- 2x4 SUSPENDED LAY-IN ACCOUSTICAL CEILING TILE TYPE 3
- PAINTED GYP. BD. CEILING
- EXISTING RADIANT CEILING PANELS

MECHANICAL / ELECTRICAL

- FLUORESCENT FIXTURE
- SERVICE DROP REFER TO LAB DETAILS SHT AQS-301
- NIGHT LIGHT
- STRIP FLUORESCENT FIXTURE
- PENDANT FIXTURE
- DOWN LIGHTS
- EXIT LIGHT (SURFACE MOUNTED)
- EXHAUST CONNECTION REFER TO LAB PLANS
- SUPPLY AIR DIFFUSER
- RETURN AIR DIFFUSER
- ACCESS PANELS
- CEILING MTD EQUIP (AS NOTED)

THIRD FLOOR REFLECTED CEILING PLAN AREA 'A'

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

℄ OF CASEWORK START AT CL OF TILE PATTERN (TYP)

NOTE:
CENTER LINE OF CASEWORK TO START CENTER LINE OF CEILING TILE PATTERN.
3 FULL TILES SHALL BE CENTERED FOR EQUAL LIGHTING DISPLACEMENT. NO EXCEPTIONS.
CUT TILES ONLY WHERE INDICATED TO KEEP PATTERN CENTERED ON LAB CASEWORK.

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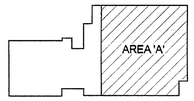

KEY PLAN
NO SCALE

Date:	Issued For:
12/23/02	50% OWNER REVIEW
1/27/03	95% PROGRESS REVIEW
2/03/03	C. I. #1- AGENCY REVIEW/ BIDS
2/12/03	C. I. #2- A/ M/ E/ REVISIONS
5/20/03	AGENCY REVIEW
12/17/03	C.I. #5- A/ M/ E/ REVISIONS

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Project Number:	67921.00
Drawn By:	BRP
Checked By:	EK
Approved By:	EGE
Sheet Title:	Third Floor Reflected Ceiling Plan Area 'A'
Sheet Number:	AR1-03A

$$$IEF0/$$$
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$$$IEF0/$$$
$$$IEF1/$$$
$$$IEF1/$$$
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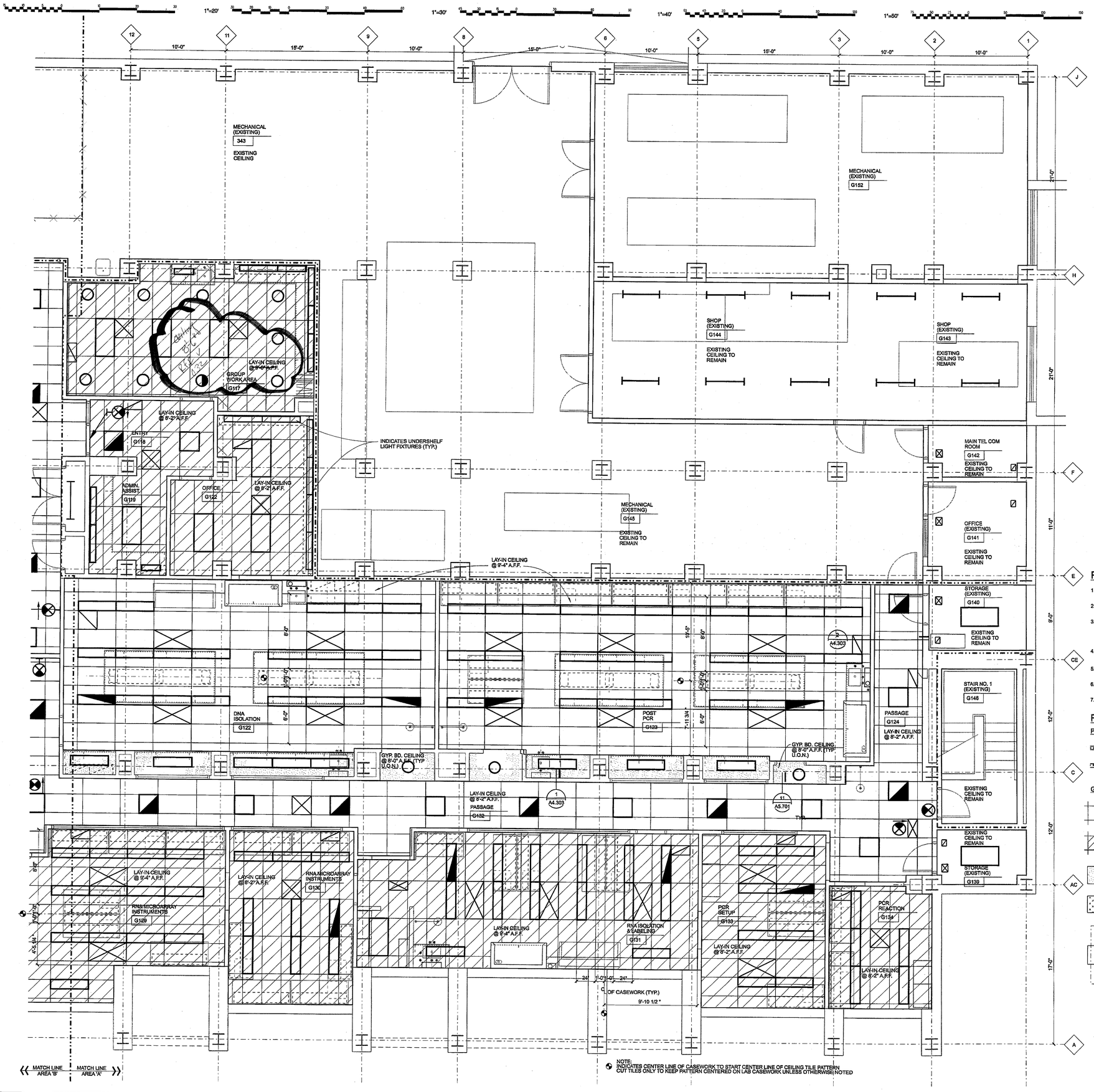

REFERENCE ONLY

GROUND FLOOR REFLECTED CEILING PLAN AREA 'A'

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

REFLECTED CEILING PLAN GENERAL NOTES

1. COORDINATE SIZE AND LOCATION OF ALL ACCESS PANELS WITH TRADE REQUIRING SAME.
2. COORDINATE CEILING SUSPENSION SYSTEMS WITH OTHER CEILING SPACE EQUIPMENT SUPPORTING DEVICES.
3. ALL CORRIDOR PARTITIONS, SMOKE BARRIER PARTITIONS, HORIZONTAL EXIT ENCLOSURES AND FIRE RATED PARTITIONS WHICH EXTEND TO THE DECK ABOVE SHALL BE MARKED EVERY 20'-0" HORIZONTALLY WITHIN THE CEILING SPACE: "FIRE AND SMOKE BARRIER - PROTECT ALL OPENINGS".
4. VERIFY EXACT LOCATIONS OF SOFFIT AND CEILING CONTROL JOINTS WITH ARCHITECT'S REPRESENTATIVE IN THE FIELD.
5. REFER TO FLOOR PLANS AND WALL TYPES ON SHEET A5-701 FOR PARTITION CONSTRUCTION.
6. ACCOUSTICAL LAY-IN CEILING HEIGHT IS AS NOTED ON DWGS. GYP. BD. CEILING HEIGHT IS 8'-0" A.F.F. UNLESS OTHERWISE NOTED.
7. REFER TO MECHANICAL DRAWINGS FOR SEQUENCE OF CONSTRUCTION.

REFLECTED CEILING PLAN LEGEND

PARTITION FIRE RATINGS

- 1 HR FIRE RATED PARTITION
- 2 HR FIRE RATED PARTITION

GENERAL

- 2x4 SUSPENDED LAY-IN ACCOUSTICAL CEILING TILE TYPE 1
- 2x4 SUSPENDED LAY-IN ACCOUSTICAL CEILING TILE TYPE 2
- PAINTED GYP. BD. CEILING
- EXISTING RADIANT CEILING PANELS
- EXHAUST PLENUM / DUCT CONNECTION FOR ANIMAL HOLDING CAGES (BELOW)

MECHANICAL / ELECTRICAL

- FLUORESCENT FIXTURE
- SERVICE DROP REFER TO LAB DETAILS SHT AQ5-301
- NIGHT LIGHT
- STRIP FLUORESCENT FIXTURE
- PENDANT FIXTURE
- DOWN LIGHTS
- EXIT LIGHT (SURFACE MOUNTED)
- EXHAUST CONNECTION REFER TO LAB PLANS
- SUPPLY AIR DIFFUSER
- RETURN AIR DIFFUSER
- ACCESS PANELS
- CEILING MTD EQUIP (AS NOTED)

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FOR

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NATIONAL CENTER RESEARCH RESOURCES

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VIVARIUM RENOVATION GRANT NO. 1G20RR 21574

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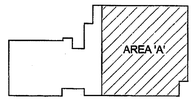

KEY PLAN
NO SCALE

Date:	Issued For:
07/21/04	PROJECT REVIEW
08/19/04	NIH SCHEMATIC DESIGN REVIEW
11/10/05	NIH CONSTR. DOC. REVIEW
04/03/06	NIH CONSTR. DOC. REVIEW
08/21/06	NIH APPROVAL
10/19/06	BIDS

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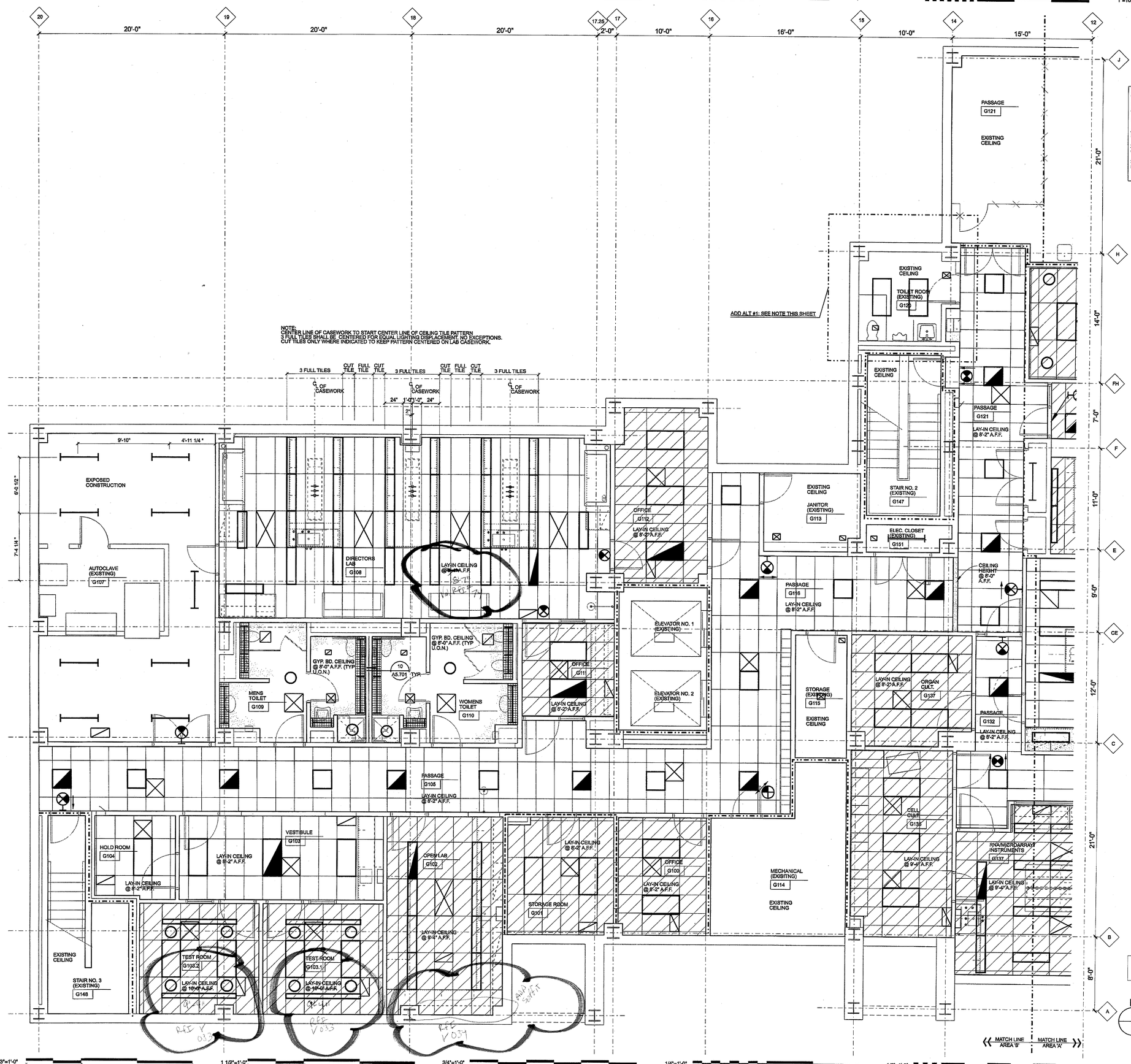
Project Number:	67923.00
Drawn By:	DRT
Checked By:	EK
Approved By:	EGE
Sheet Title:	Ground Floor Reflected Ceiling Plan Area 'A'

Effective January 1 2006 HarleyEllis and Fields Devereaux have merged as Harley Ellis Devereaux

Sheet Number: AR1-0GA



ADD ALTERNATE #1

PROVIDE A SEPARATE PRICE FOR THE FOLLOWING WORK AND IDENTIFY AS ADD ALTERNATE #1.

1. BASE BID SHALL BE EXISTING SPACES TO REMAIN IN PRESENT CONDITION .

ADD ALTERNATE SCOPE INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING ITEMS:

2. REMOVAL OF EXISTING PLUMBING FIXTURES, WALL FINISHES, DOORS, CEILING AND FLOOR FINISHES.

3. PROVIDE WALL FINISHES, FLOOR FINISHES, CEILING AND CEILING FINISHES, DOORS, AND DOOR HARDWARE TO MATCH TYPICAL OFFICE #120.

REFERENCE ONLY

NOTE:
REFER TO SHEET AR1-0GA FOR CEILING PLAN NOTES AND LEGEND

GROUND FLOOR REFLECTED CEILING PLAN AREA 'B'

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

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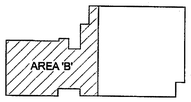

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Project Number:	67923.00
Drawn By:	DRT
Checked By:	EK
Approved By:	EGE
Sheet Title:	Ground Floor Reflected Ceiling Plan Area 'B'

Effective January 1 2006 Harley Ellis and Fields Devereaux have merged as Harley Ellis Devereaux

Sheet Number: AR1.0GB

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