

A

B

C

D

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F

A

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F

ELECTRICAL SYMBOLS LEGEND	
RECEPTACLES	LIGHTING
20A, 120V, 2P, 3W GROUNDING DUPLEX RECEPTACLE	TROFFER STYLE FIXTURE, TYPE AS NOTED
DUPLX RECEPTACLE ON EMERGENCY POWER	FIXTURE ON EMERGENCY POWER
GFCI DUPLEX RECEPTACLE ON EMERGENCY POWER	STRIP LIGHT
DUPLEX RECEPTACLE-CEILING MTD	SURFACE MTD FIXTURE
DUPLEX RECEPTACLE-FLOOR MTD	RECESSED/DOWNLIGHT FIXTURE
	EXIT SIGN (ARROWS INDICATED AS SHOWN) - (SHADING INDICATES # OF FACES)
QUADPLEX RECEPTACLE	LIGHTING CONTROL PANEL
QUADPLEX RECEPTACLE-CEILING MTD	
POKE-THRU FITTING	
GFCI DUPLEX RECEPTACLE	
COMMUNICATIONS	SWITCHING
ALL COMMUNICATION ARE ROUGH—IN ONLY. BOXES (UNO) ARE TO BE 4x4x4 11/16 DP. w/SINGLE BOX TRIM. MUST BE CAPABLE OF TERMINATING A 1 1/4" CONDUIT. CONDUIT TO EXTEND ABOVE ACCESSIBLE CEILING WITH 90° BEND TOWARD ROOM.	20A, 120/277V SPST SWITCH
	20A, 120/277V 3-WAY SWITCH
	20A, 120/277V 4-WAY SWITCH
	DIMMER SWITCH
	CEILING MTD OCC. SENSOR
	PHOTOCELL

three inches = one foot
0 6"

one and one half inches = one foot
0 6"

one inch = one foot
0 6"

three quarters inch = one foot
0 6"

one half inch = one foot
0 6"

one quarter inch = one foot
0 6"

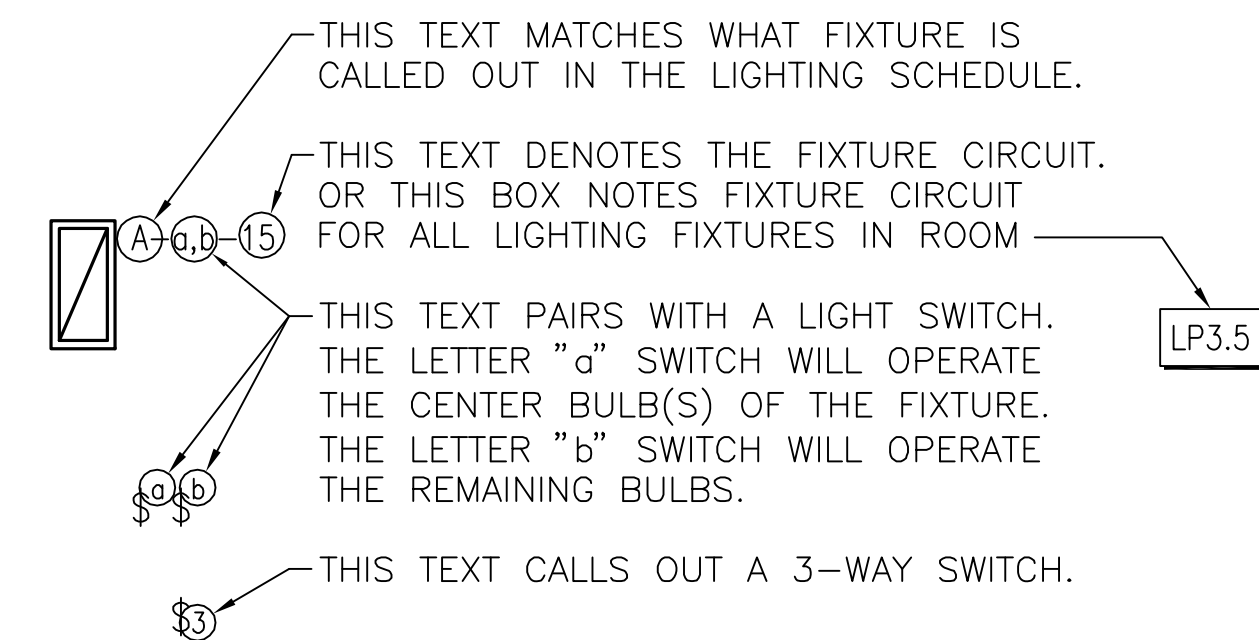
one eighth inch = one foot
0 6"

one eighth inch = one foot
0 6"

ELECTRICAL ABBREVIATIONS			
AC	ABOVE COUNTERTOP	MCA	MINIMUM CIRCUIT AMPS
AFF	ABOVE FINISH FLOOR	MDP	MAIN DISTRIBUTION PANEL
AFG	ABOVE FINISH GRADE	MTD	MOUNTED
ANNC	ANNUNCIATOR	OCC	OCCUPANCY
CC	CONTROLS CONTRACTOR	PC	PLUMBING CONTRACTOR
DPST	DOUBLE POLE SINGLE THROW	PE	PHOTOELECTRIC CELL
EC	ELECTRICAL CONTRACTOR	PNL	PANEL
EM	EMERGENCY	SPST	SINGLE POLE SINGLE THROW
EX	EXISTING	TC	TIME CLOCK
EXR	EXISTING RELOCATED	TPC	TIME CLOCK - PHOTOCCELL
GC	GENERAL CONTRACTOR	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
GFI	GROUND FAULT INTERRUPT	UNO	UNLESS NOTED OTHERWISE
IBC	INTERNATIONAL BUILDING CODE	WP	WEATHER PROOF
HP	HORSEPOWER	20A	20 AMP
LV	LOW VOLTAGE	Ø	PHASE
MC	MECHANICAL CONTRACTOR	3W	3 WIRE
		20/1	20 AMP SINGLE PHASE

SPEAKER NOTES	
SPEAKERS SHALL BE CEILING CONE TYPE	
1. MINIMUM AXIAL SENSITIVITY: 91dB AT ONE METER WITH 1-W INPUT.	
2. FREQUENCY RESPONSE: WITHIN PLUS OR MINUS 3dB FROM 70 TO 15,000 Hz.	
3. MINIMUM DISPERSION ANGLE: 100 DEGREES	
4. LINE TRANSFORMER: MAXIMUM INSERTION LOSS OF 0.5dB, POWER RATING EQUAL TO SPEAKER'S AND AT LEAST FOUR LEVEL TAPS.	
5. ENCLOSURES: STEEL HOUSINGS OR BACK BOXES, ACOUSTICALLY DAMPENED WITH FRONT FACE OF AT LEAST 0.0478-INCH STEEL AND WHOLE ASSEMBLY RUST PROOFED AND FACTORY PRIMED; COMPLETE WITH MOUNTING ASSEMBLY AND SUITABLE FOR SURFACE CEILING, FLUSH CEILING, PENDANT OR WALL MOUNTING; WITH RELIEF OF BACK PRESSURE.	
6. BAFFLE: FOR FLUSH SPEAKERS; MINIMUM THICKNESS OF 0.032-INCH ALUMINUM WITH TEXTURED WHITE FINISH. COMPLETELY FILL THE BAFFLE WITH FIBERGLASS.	
7. VANDAL-PROOF, HIGH STRENGTH BAFFLE: FOR FLUSH-MOUNTED SPEAKERS, SELF-AGING CAST ALUMINUM WITH A TENSILE STRENGTH OF 44,000 PSI, 0.025-INCH MINIMUM THICKNESS, COUNTERSUNK HEAT-TREATED ALLOY MOUNTING SCREWS AND TEXTURED WHITE EPOXY FINISH.	
8. SIZE: 8 INCHES WITH 1-INCH VOICE COIL AN MINIMUM 5-OZ CERAMIC MAGNET.	
9. HAVE A MINIMUM OF TWO (2) SAFETY WIRES INSTALL TO A SOLID SURFACE OR USE A FLEXIBLE CONDUIT FROM CEILING / WALL BACK BOX TO THE SPEAKER BACK BOX.	
10. THE SPEAKERS AND MOUNTING SHALL BE SELF CONTAINED AND WALL MOUNTED WITH FLUSH BACK BOX AT A MINIMUM OF 10 METER INTERVALS AND SHALL MATCH (OR CONTRAST WITH, AT THE DIRECTION OF THE RE) THE COLOR OF THE ADJACENT SURFACE.	
11. PROVIDE ONE SPARE SPEAKER, MOUNT. AND BACK BOX FOR EACH 50 SPEAKERS OR PORTION THEREOF.	
12. SYMBOL IS A CIRCLE WITH "SP" IN CENTER.	

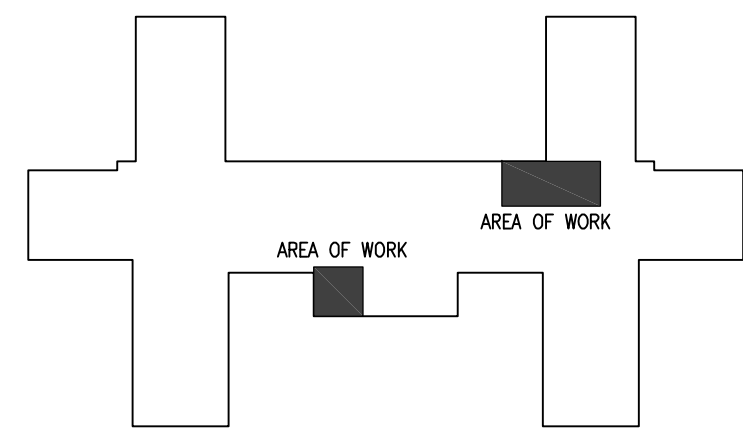
SYMBOL LINEWEIGHT LEGEND	
LIGHT SOLID LINES	= EXISTING DEVICE(S) TO REMAIN
HEAVY, DASHED LINES	= EXISTING DEVICE(S) TO BE REMOVED
HEAVY, SOLID LINES	= NEW DEVICE(S) TO BE INSTALLED



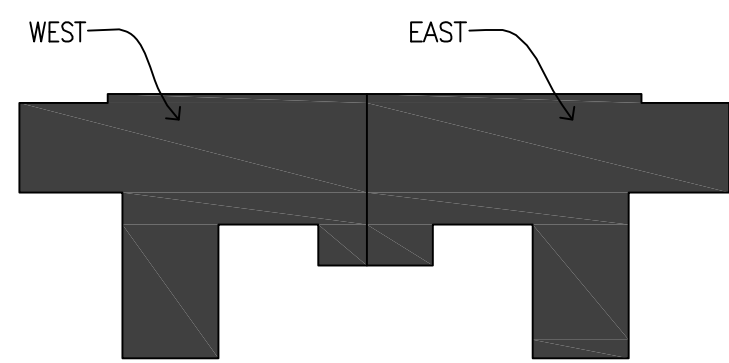
1 FUTURE SWITCHING/CIRCUIT DETAIL
NO SCALE

GENERAL ELECTRICAL NOTES	
1. ALL WORK SHALL BE IN CONFORMANCE WITH NATIONAL, STATE, AND LOCAL CODES AND/OR ORDINANCES.	
2. ELECTRICAL CONTRACTOR SHALL COORDINATE WORK WITH ALL OTHER CONTRACTORS.	
3. SEE ARCHITECTURAL, MECHANICAL, & PLUMBING DRAWINGS FOR ADDITIONAL REQUIREMENTS.	
4. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY. THEY ARE INTENDED TO GIVE APPROXIMATE LOCATIONS AND OVERALL DESIGN INTENT. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PRODUCTS, MATERIALS, AND ELECTRICAL METHODS WHICH HAVE NOT BEEN SHOWN OR INDICATED BUT ARE REQUIRED FOR A COMPLETE SYSTEM TO THE STANDARDS OF THE INDUSTRY.	
5. INSTALL LIGHTING FIXTURES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE SUPPORTING DEVICES FOR ADEQUATE SUPPORT OF FIXTURES FROM STRUCTURE.	
6. UPON COMPLETION OF THE ELECTRICAL WORK, THE INSTALLATION SHALL BE TESTED FOR CONTINUITY, GROUNDS, AND SHORT CIRCUITS. THE ELECTRICAL CONTRACTOR SHALL DEMONSTRATE PROPER PERFORMANCE OF ALL SYSTEMS. ALL DEFECTIVE WORK OR MATERIALS SHALL BE REPLACED OR REPAIRED AS NECESSARY AND RETESTED.	
7. ELECTRICAL RACEWAYS THAT PENETRATE FIRE RATED ASSEMBLIES SHALL BE SLEEVED AND SEALED AS PER THE LOCAL BUILDING CODE & VA REQUIREMENTS.	
8. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A TEMPORARY ELECTRICAL SYSTEM FOR THE PROJECT. AT LEAST ONE 120 VOLT SINGLE PHASE RECEPTACLE SHALL BE PROVIDED FOR EACH 500 SQUARE FEET OF FLOOR SPACE. SUFFICIENT TEMPORARY LIGHTING SHALL BE PROVIDED TO ALLOW ALL CONTRACTORS TO COMPLETE THEIR WORK. TEMPORARY ELECTRICAL CIRCUITS SHALL BE EQUIPPED WITH COMBINATION GROUND FAULT INTERRUPTER AND CIRCUIT BREAKER PER NEC. TEMPORARY ELECTRICAL SYSTEM SHALL BE INCLUDED IN THIS BID.	
9. ELECTRICAL DEVICES/EQUIPMENT SHOWN AS DASHED AND BOLD ARE EXISTING TO BE REMOVED, ELECTRICAL DEVICES/EQUIPMENT SHOWN AS LIGHT AND SOLID ARE EXISTING TO REMAIN, AND ELECTRICAL DEVICES/EQUIPMENT SHOWN AS BOLD AND SOLID SHALL BE NEW.	
10. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONDUIT, WIRING & JACKS FOR COMMUNICATIONS DEVICES, INCLUDING 4" SQUARE, 4 11/16" DEEP BACKBOX WITH SINGLE GANG MUD RING AND ABLE TO TERMINATE A 1 1/4" CONDUIT STUBBED INTO ACCESSIBLE CEILING WITH 90 DEGREE BEND INTO THE ROOM AND PLASTIC BUSHING. SEE SPECIFICATIONS & DETAILS.	
11. PROTECT VOICE/DATA AND OTHER LOW VOLTAGE CABLE THAT PASSES THROUGH DEMO'D SPACES FROM DEMOLITION OPERATIONS. DO NOT DISRUPT WITHOUT WRITTEN OWNER APPROVAL UPON 5 DAY MINIMUM NOTICE.	
12. THE TERM "PROVIDE" IS DEFINED AS "FURNISH AND INSTALL".	
13. ALL ELECTRICAL PANEL COVERS FOR PANELS IN EXISTING WALLS THAT ARE RECEIVING NEW WALL FINISHES SHALL BE INSTALLED OVER THE NEW WALL FINISHES.	

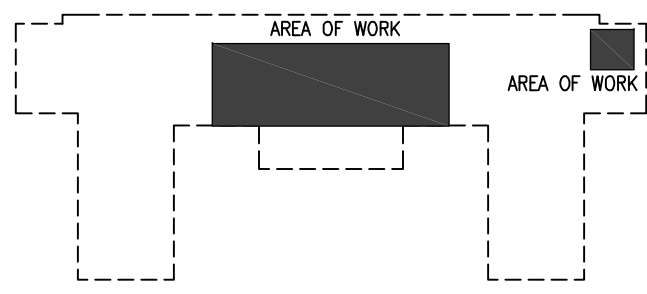
ELECTRICAL SHEET INDEX	
E.001	ELECTRICAL - NOTES, SYMBOLS, LEGENDS AND ABBREVIATIONS
E.002	ELECTRICAL - SCHEDULES
ED.101	ELECTRICAL - DEMOLITION PLAN 6th FLOOR WEST
ED.102	ELECTRICAL - DEMOLITION PLAN 6th FLOOR EAST
E.101	ELECTRICAL - LIGHTING PLAN 6th FLOOR WEST
E.102	ELECTRICAL - LIGHTING PLAN 6th FLOOR EAST
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E.104	ELECTRICAL - POWER PLAN 6th FLOOR EAST
E.105	ELECTRICAL - POKE-THRU LOCATIONS AND BENCH SCHEDULES
E.106	ELECTRICAL - CORE PLANS 5TH AND 6TH FLOOR EAST
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E.108	ELECTRICAL - SYSTEMS PLAN 6th FLOOR EAST
E.109	ELECTRICAL - DEMOLITION AND POWER PLAN 7TH FLOOR
E.601	ELECTRICAL - RISER DIAGRAM AND DETAILS
E.602	ELECTRICAL - PANELBOARDS
E.603	ELECTRICAL - EGRESS LIGHTING LEVELS 6th FLOOR







KEY PLAN - FIFTH FLOOR
NOT TO SCALE



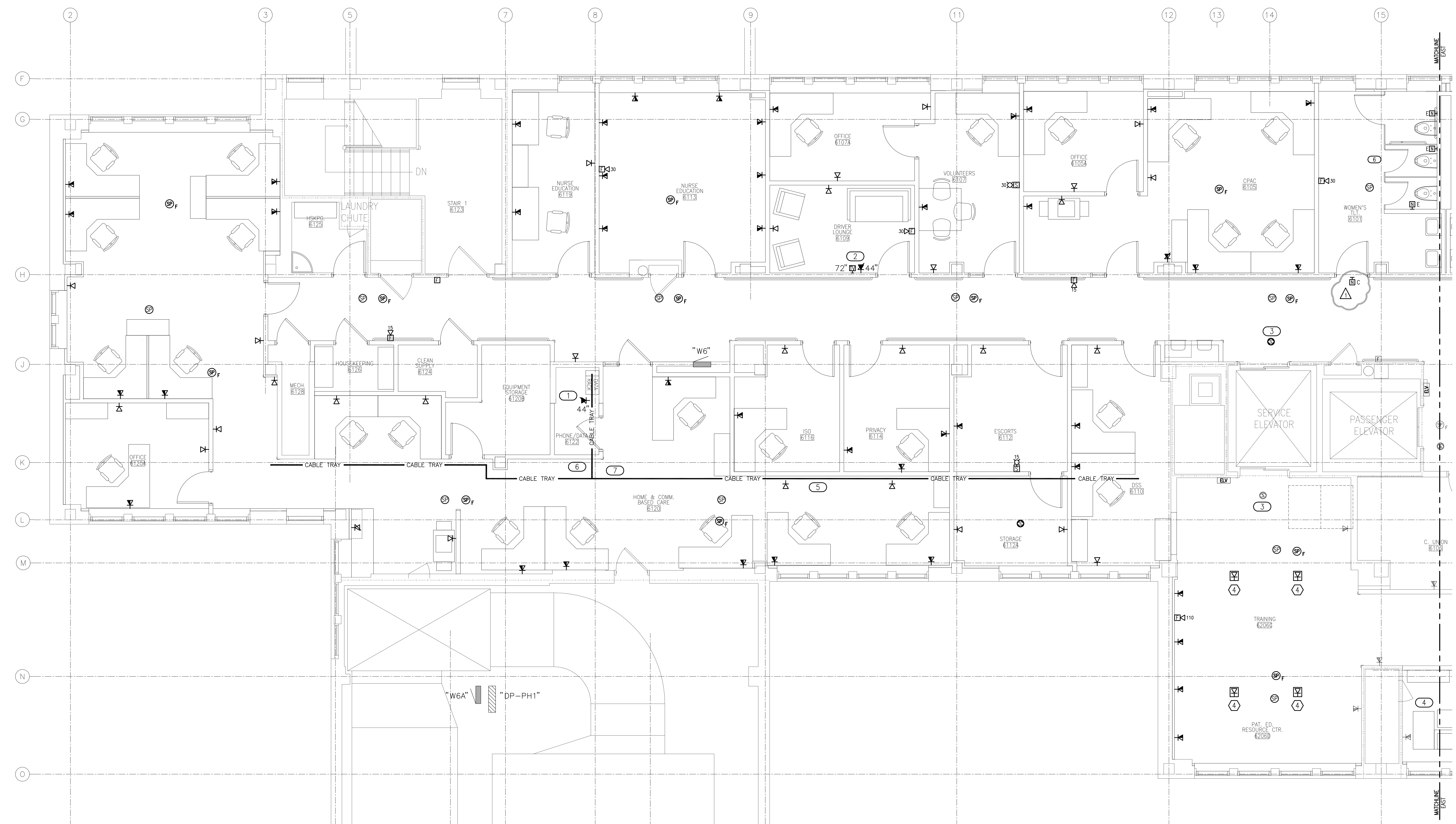
KEY PLAN - SIXTH FLOOR
NOT TO SCALE



KEY PLAN - SEVENTH FLOOR
NOT TO SCALE

		CONSULTANTS:				ARCHITECT/ENGINEERS:		Drawing Title		Project Title		Project Number		Office of Construction and Facilities Management	
		 engineers consultants commissioning MEP Associates, LLC 2750 Arbor Court Eau Claire, WI 54701 Phone: 715.832.5589 Fax: 715.832.5648 www.mepassociates.com MEP PROJECT NO.: N08.11.03				 420 RAIL STREET NEGAUNEE, MI 49866 PHONE: 906-475-6616 FAX: 906-475-6954 NDW PROJECT NUMBER:1111		ELECTRICAL - NOTES, SYMBOLS, SCHEDULES AND ABBREVIATIONS		Renovate 6th Floor Lab		585-11-114			
ADDENDUM #1		5/7/2012						Approved Project Director		Location		Building Number			
FOR BIDS		4/11/2012								IRON MOUNTAIN, MICHIGAN		1			
CONSTRUCTION DOCUMENTS		2/15/2012								Date		Checked		Drawn	
Revisions:		Date								2-15-2012		ASR		LA	
												E.001		Dwg. 67 of 82	
														 Department of Veterans Affairs	

three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot



1 ELECTRICAL SYSTEMS PLAN - 6th FLOOR WEST
1/4" = 1'-0"

KEYED NOTES

1 PROVIDE NEW 110A PUNCH DOWN BLOCKS AND ONE NEW RJ45, CAT6, PATCH PANEL RACK (w/PATCH PANELS) FOR TERMINATION OF NEW VOICE/DATA HORIZONTAL CABLING. COORDINATE EXACT LOCATION WITH VA IT STAFF.

2 PROVIDE RJ6 COAX CABLE FROM NEW TV OUTLET BACK TO PHONE/DATA ROOM.

3 TYPICAL: TIE NEW SMOKE DETECTORS INTO EXISTING ELEVATOR CONTROLS.

4 NEW 1/2" COAX CABLE FROM CCTV ROOM TO 6206D. PRICE TO INCLUDE FURNISHING, INSTALLATION, ALL TERMINATIONS, TESTING AND LABELING. VERIFY LOCATION(S) AND START POINT WITH VA IT DEPARTMENT OR MIKE SEDA.

5 MOUNT 3x12 WIRE MESH CABLE TRAY 4" FROM CONCRETE JOISTS.

6 CONTRACTOR SHALL PROVIDE NEW NURSE CALL EMERGENCY PULL STATIONS AS SHOWN IN ROOMS 6101, 6201, & 6213. STATIONS SHALL BE CONNECTED TO EXISTING NURSE CALL MASTER CONTROL STAR HUB IN ROOM 4212. CONTRACTOR SHALL UTILIZE SIMPLEX-GRINNELL FOR PURCHASING OF EQUIPMENT, INSTALLATION, PROGRAMMING, TESTING & CERTIFICATION AND AS-BUILT DRAWINGS OF ALL LOCATIONS OF INSTALLED EQUIPMENT AND WIRING. ALL THIS WORK, EQUIPMENT & WIRING SHALL BE INCLUDED IN THIS CONTRACT. CONTRACTOR SHALL ALSO RESTORE ALL EXISTING FINISHES TO PRESENT CONDITION IF THEY ARE DISTURBED BY ANY OF THIS WORK.

7 PROVIDE A 1/2" COAXIAL CABLE FROM ROOM 6206A TO ROOM 3243 ON THE THIRD FLOOR. COORDINATE EXACT LOCATION AND ROUTE WITH OWNER COTR AND IT DEPARTMENT. CONTRACTOR SHALL INCLUDE THE CABLE, INSTALLATION, ALL TERMINATIONS, TESTING AND LABELING.

GENERAL NOTES

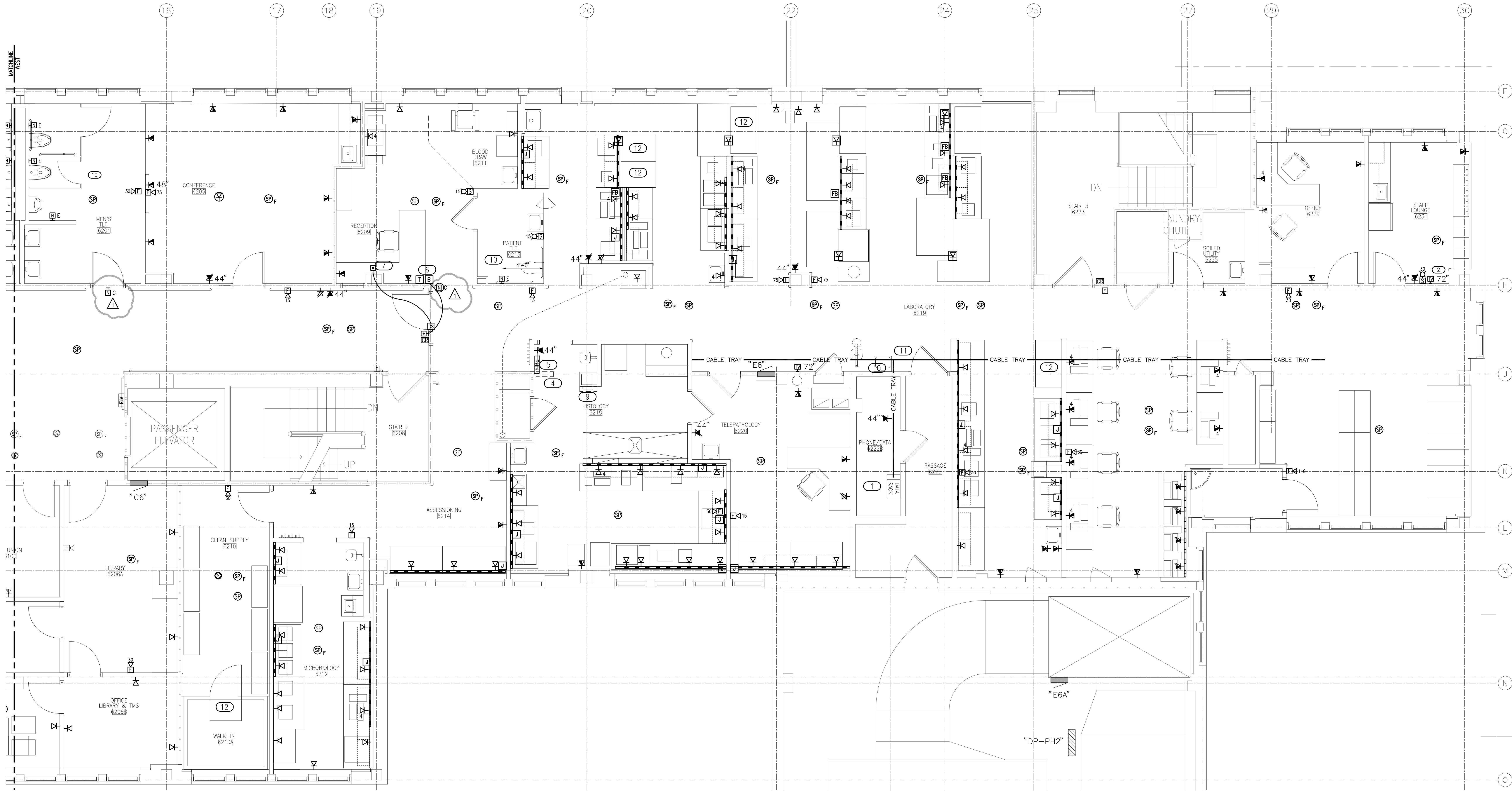
1. ALL FIRE ALARM DEVICES SHOWN SHALL BE NEW AND SHALL BE CONNECTED TO (AND COMPATIBLE WITH) THE EXISTING SIMPLEX FIRE ALARM SYSTEM. CONTACT SIMPLEX-GRINNELL AT 920-883-9309 FOR FIRE ALARM WORK. ALL FIRE ALARM WORK TO BE INCLUDED IN THIS CONTRACT.

2. CARD READERS/DOOR RELEASE SYSTEM SHALL BE COMPATIBLE WITH & TIED INTO THE EXISTING CARD ACCESS SYSTEM. CONTACT SIMPLEX-GRINNELL AT 920-883-9309 FOR ALL CARD READER SYSTEMS WORK. THIS WORK TO BE INCLUDED IN THIS CONTRACT.

3. CONTRACTOR SHALL INTEGRATE ALL NEW SMOKE DETECTORS AT ELEVATOR LANDING WITH EXISTING ELEVATOR CONTROLS. ELEVATOR & ELEVATOR CONTROL MODIFICATIONS SHALL BE DONE AS PART OF THIS CONTRACT.

<div>CONSULTANTS:</div> <div> engineers consultants commissioning MEP Associates, LLC 2750 Arbor Court Eau Claire, WI 54601 Phone: 715.832.5580 Fax: 715.832.5668 www.mepassociates.com MEP PROJECT NO.: N0811.03</div>		<div>ARCHITECT/ENGINEERS:</div> <div> 420 RAIL STREET NEGAUNEE, MI 49866 PHONE: 906-475-6616 FAX: 906-475-6954 NDW PROJECT NUMBER:1111</div>		<div>Drawing Title</div> <div>ELECTRICAL - SYSTEMS PLAN 6th FLOOR WEST</div> <div>Approved Project Director</div>		<div>Project Title</div> <div>Renovate 6th Floor Lab</div> <div>Location IRON MOUNTAIN, MICHIGAN</div> <div>Date 2-15-2012</div> <div>Checked ASR</div> <div>Drawn LA</div>		<div>Project Number</div> <div>585-11-114 Building Number 1</div> <div>Drawing Number</div> <div>E.107 Dwg. 77 of 82</div>		<div>Office of Construction and Facilities Management</div> <div> Department of Veterans Affairs</div>	
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three inches = one foot
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three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot
one eighth inch = one foot



1 ELECTRICAL SYSTEMS PLAN - 6th FLOOR EAST
1/4" = 1'-0"

KEYED NOTES

- 1 PROVIDE NEW 110A PUNCH DOWN BLOCKS AND ONE NEW RJ45, CAT6, PATCH PANEL RACK (w/PATCH PANELS) FOR TERMINATION OF NEW VOICE/DATA HORIZONTAL CABLING. COORDINATE EXACT LOCATION WITH VA IT STAFF.
- 2 PROVIDE RJ6 COAX CABLE FROM NEW TV OUTLET BACK TO PHONE/DATA ROOM.
- 3 TYPICAL: TIE NEW SMOKE DETECTORS INTO EXISTING ELEVATOR CONTROLS.
- 4 LOCATION OF FACP PANEL PRIOR TO DEMOLITION.
- 5 RELOCATED FIRE ALARM SYSTEM PANEL; EXTEND ALL WIRING TO THIS LOCATION. COORDINATE WITH OWNER & OWNERS FIRE ALARM SYSTEM PROVIDER.
- 6 DOOR BUZZER PUSHBUTTON & BUZZER. PROVIDE BUTTON & WIRING AS REQUIRED. USE CIRCUIT "10" FROM PANEL "E6".
- 7 DOOR RELEASE SWITCH. PROVIDE PUSH BUTTON & WIRING AS REQUIRED. COORDINATE WITH OWNER.
- 8 MOUNT 3x12 WIRE MESH CABLE TRAY 4" ABOVE SUSPENDED CEILING.
- 9 EXISTING FIBER OPTIC TERMINATION PANEL. PANEL AND CABLING TO BE PROTECTED DURING CONSTRUCTION.
- 10 CONTRACTOR SHALL PROVIDE NEW NURSE CALL EMERGENCY PULL STATIONS AS SHOWN IN ROOMS 6101, 6201, & 6213. STATIONS SHALL BE CONNECTED TO EXISTING NURSE CALL MASTER CONTROL STAR HUB IN ROOM 4212. CONTRACTOR SHALL UTILIZE SIMPLEX-GRINNELL FOR PURCHASING OF EQUIPMENT, INSTALLATION, PROGRAMMING, TESTING & CERTIFICATION AND AS-BUILT DRAWINGS OF ALL LOCATIONS OF INSTALLED EQUIPMENT AND WIRING. ALL THIS WORK, EQUIPMENT & WIRING SHALL BE INCLUDED IN THIS CONTRACT. CONTRACTOR SHALL ALSO RESTORE ALL EXISTING FINISHES TO PRESENT CONDITION IF THEY ARE DISTURBED BY ANY OF THIS WORK.

GENERAL NOTES

1. ALL FIRE ALARM DEVICES SHOWN SHALL BE NEW AND SHALL BE CONNECTED TO (AND COMPATIBLE WITH) THE EXISTING SIMPLEX FIRE ALARM SYSTEM. CONTACT SIMPLEX-GRINNELL AT 920-883-9309 FOR FIRE ALARM WORK. ALL FIRE ALARM WORK TO BE INCLUDED IN THIS CONTRACT.
2. CARD READERS/DOOR RELEASE SYSTEM SHALL BE COMPATIBLE WITH & TIED INTO THE EXISTING CARD ACCESS SYSTEM. CONTACT SIMPLEX-GRINNELL AT 920-883-9309 FOR ALL CARD READER SYSTEMS WORK. THIS WORK TO BE INCLUDED IN THIS CONTRACT.

ADDENDUM #1	5/7/2012
FOR BIDS	4/11/2012
CONSTRUCTION DOCUMENTS	2/15/2012
Revisions:	Date

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NDW PROJECT NUMBER:1111

Drawing Title
ELECTRICAL - SYSTEMS PLAN
6th FLOOR EAST

Approved Project Director

Project Title
Renovate 6th Floor Lab

Location
IRON MOUNTAIN, MICHIGAN

Date
2-15-2012

Checked
ASR

Drawn
LA

Project Number
585-11-114
Building Number
1

Drawing Number
E.108

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Office of
Construction
and Facilities
Management

