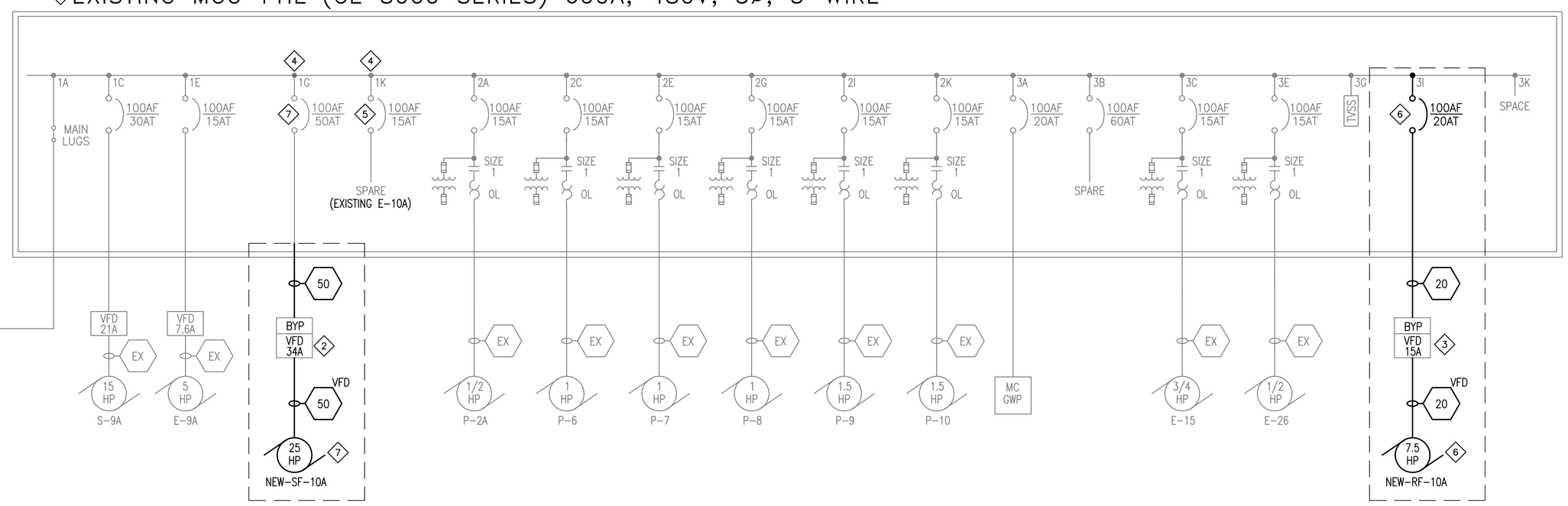
FED FROM EXISTING SUBSTATION 11 IN BUILDING 11B (12,973A RMS AVAILABLE FAULT CURRENT OBTAINED FROM EXISTING POWER DISTRIBUTION DRAWINGS)

①EXISTING MCC–PHL (GE 8000 SERIES) 600A, 480V, 3ø, 3–WIRE



A. AHU S–10A REFERS TO THE MECHANICAL AIR HANDLING SYSTEM WHICH INCLUDES NEW SUPPLY FAN "SF–10A" AND NEW EXHAUST FAN "RF–10A".

B. EXISTING FAN MOTORS E–10A AND S–10A SHALL BE REPLACED IN KIND WITH NEW MOTORS OF THE SAME HORSEPOWER AND ELECTRICAL REQUIREMENTS.

C. CONNECTED LOAD ON EXISTING MCC–PHL: 118.2A (BASED ON EXISTING SINGLE–LINE INFORMATION)

ELECTRICAL GENERAL NOTES

1. CODES

THE WORK SHALL COMPLY WITH ALL APPLICABLE LOCAL, MUNICIPAL, AND NATIONAL CODES. WHERE THE CONSTRUCTION DOCUMENTS INDICATE MORE RESTRICTIVE REQUIREMENTS THE CONSTRUCTION DOCUMENTS SHALL GOVERN. HOWEVER, THE CONSTRUCTION DOCUMENTS SHALL NOT BE INTERPRETED AS AUTHORITY TO VIOLATE ANY CODE OR REGULATION.

2. DRAWINGS AND SPECIFICATIONS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR READING AND COMPLYING WITH BOTH THE DRAWINGS AND SPECIFICATIONS. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN THE DRAWINGS, NOTES, SPECIFICATIONS, OR CODES, THE REFERENCE WHICH PROVIDES THE MORE COMPLETE OR HIGHER STANDARD SHALL PREVAIL.

3. INTERPRETATION OF THE DOCUMENTS

CAREFULLY COMPARE THE DRAWINGS AND SPECIFICATIONS, CHECKING MEASUREMENTS AND CONDITIONS UNDER WHICH THIS INSTALLATION IS TO BE MADE, FOR CLARIFICATION BETWEEN VARIOUS DRAWINGS, BETWEEN DRAWINGS OR SPECIFICATION, OR BETWEEN SECTIONS OF THE SPECIFICATION. THE MATTER SHALL BE REFERRED TO THE ENGINEER BEFORE ANY WORK IS EXECUTED. THE CONTRACTOR SHALL STATE IN THEIR PROPOSAL ANY EXCEPTIONS NECESSARY TO MAKE THIS A COMPLETE, READY TO USE INSTALLATION, IF NOT STATED IN THE PROPOSAL, IT WILL NOT BE CONSIDERED EXTRA.

4. ELECTRICAL DRAWINGS

THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL DOORS, WALLS, FURNITURE, EQUIPMENT, ETC., THE LOCATION OF RACEWAY SYSTEM COMPONENTS IS SCHEMATIC. THE EXACT LOCATION OF RACEWAY SYSTEM COMPONENTS SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD. THE CONTRACTOR SHALL CONFIRM THE DIMENSIONS OF THE ACTUAL EQUIPMENT TO BE SUPPLIED FOR THIS PROJECT, AND VERIFY CLEARANCES AND ROUGH-INS PRIOR TO STARTING WORK.

5. COORDINATION WITH OTHER TRADES

THE ELECTRICAL CONTRACTOR SHALL OBTAIN A COMPLETE SET OF ENGINEERING DOCUMENTS AND COORDINATE WITH MECHANICAL, PLUMBING, ARCHITECTURAL, AND OTHER TRADES FOR EXACT DIMENSIONS, CLEARANCES, ROUGH-IN LOCATIONS, AND OTHER ADDITIONAL SCOPES OF WORK THAT MAY NOT BE SHOWN ON THE ELECTRICAL PLANS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL 120 VOLT (AND HIGHER) AC POWER TO OTHER TRADES EQUIPMENT AND HARDWARE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, HVAC CONTROLS AND FIRE ALARM SYSTEMS. UNLESS SPECIFICALLY NOTED OTHERWISE ON THE ELECTRICAL PLANS, THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL SAFETY DISCONNECT SWITCHES TO MECHANICAL EQUIPMENT.

6. PERMITS, APPLICATIONS AND RELEASES

THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS INSPECTIONS, APPLICATIONS, RELEASES AND FEES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES FOR THE EXECUTION OF THIS WORK. SCHEDULING OF ALL REQUIRED INSPECTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

7. FIRE STOPPING

ALL PENETRATIONS IN WALL, FLOOR OR CEILINGS SHALL BE SUITABLY CLOSED UP AND SEALED WITH AN INTUMESCENT FIRE STOPPING COMPOUND LISTED IN THE MOST RECENT FACTORY MUTUAL RESEARCH CORPORATION (FMRC) APPROVAL GUIDE. FIRE STOPPING PRODUCTS SHALL BE MANUFACTURED BY 3M CO.

8. LOW VOLTAGE SYSTEM (FIRE ALARM & COMMUNICATIONS SYSTEMS)

A. LOW VOLTAGE SYSTEMS INCLUDE ALL REQUIRED INTERFACE WIRING BETWEEN EXISTING HEAD-END EQUIPMENT, AND NEW PERIPHERAL COMPONENTS;

B. FIRE ALARM SYSTEM - ELECTRICAL CONTRACTOR SHALL PROVIDE COMPLETE INSTALLED SYSTEM APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION. SYSTEM DEVICES SHOWN ARE TO BE USED FOR PROJECT SCOPE OF WORK FOR COMPLETE COVERAGE. ACTUAL DEVICE PLACEMENT SHALL MEET MANUFACTURER'S DESIGN STANDARDS IN ACCORDANCE WITH NFPA 72. SYSTEM PROVIDER SHALL CREATE INSTALLATION DRAWINGS. FIRE ALARM SYSTEM WIRING SHALL BE INDEPENDENT OF BUILDING WIRING, CONDUIT AND/OR J. BOX SHALL BE COLOR CODE AS REQUIRED BY THE AHJ.

C. ALL WORK INVOLVING THE FIRE ALARM SYSTEM SHALL NOT RESULT IN INTERRUPTION OF FIRE ALARM COVERAGE IN ANY AREA OUTSIDE THE SCOPE OF THIS PROJECT. IF SUCH INTERRUPTION IS REQUIRED FOR THE WORK TO PROCEED ANY INTERRUPTION SHALL BE COORDINATED WITH THE OWNER AND THE AHJ.

14. MAIN AND/OR BRANCH CIRCUIT POWER DISRUPTIONS

CONTRACTOR SHALL PROVIDE A WRITTEN NOTIFICATION TO THE OWNER WHEN IN NEED OF TEMPORARY ELECTRICAL CIRCUIT POWER INTERRUPTIONS. CONTRACTOR SHALL OUTLINE THE METHOD AND PROCEDURE FOR THE WORK. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 5 DAYS NOTICE TO THE OWNER BEFORE WORKING ON ANY ENERGIZED ELECTRICAL SYSTEM. ALL POWER DISRUPTION SHALL OCCUR AT TIMES AND OF DURATIONS ACCEPTABLE TO THE OWNER.

15. EQUIPMENT

ALL MATERIALS AND EQUIPMENT USED IN THIS INSTALLATION SHALL BE NEW UNLESS NOTED OTHERWISE, AND HAVE THE APPROPRIATE UL LISTING AND LABEL.

16. MISCELLANEOUS SUPPORTING MEMBERS

ALL ANGLES CHANNELS, AND OTHER MISCELLANEOUS STEEL, BOLTS, RODS, ETC, REQUIRED TO SUPPORT LIGHT FIXTURE, CONDUIT, RACEWAY, LADDER TRAY, OR OTHER ELECTRICAL EQUIPMENT OR DEVICES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

17. SWITCHBOARDS / PANEL BOARDS

ALL PANEL BOARDS SHALL BE PROVIDED WITH TYPEWRITTEN DIRECTORIES. PROVIDE SWITCHBOARD / PANEL BOARD IDENTIFICATION AND LABELLING IN COMPLIANCE WITH VA STANDARDS AND SPECIFICATIONS.

18. SAFETY

THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO ENSURE THE SAFETY OF THE OWNERS EMPLOYEES, BUILDING EMPLOYEES AND GUESTS, AS WELL AS THEIR OWN FORCES, BY ADEQUATELY PROTECTING ANY EXPOSED LIVE CONDUCTORS, OR DEVICES THROUGHOUT THE COURSE OF THIS WORK.

19. EQUIPMENT CONNECTIONS

PROVIDE FINAL CONNECTIONS FOR ALL EQUIPMENT FURNISHED UNDER OTHER DIVISIONS AND FOR ALL OWNER FURNISHED EQUIPMENT. PROVIDE A FLEXIBLE LIQUID TIGHT CONNECTION TO ALL VIBRATION PRODUCING EQUIPMENT.

20. TEMPORARY LIGHTING, POWER, FIRE, AND SAFETY

A. PROVIDE TEMPORARY LIGHTING AND POWER AS REQUIRED IN AREAS UNDERGOING WORK DURING CONSTRUCTION. FURNISH AND INSTALL ONE OSHA APPROVED PIGTAIL SOCKET WITH 150-WATT LAMP FOR EVERY 500 SQUARE FEET OF FLOOR SPACE AND A MINIMUM 1 PER ROOM. THE TEMPORARY LIGHTING SHALL BE LEFT IN PLACE UNTIL PERMANENT LIGHTING IS COMPLETELY OPERATIONAL.

B. COMPLY WITH NFPA 241 FOR SAFEGUARDING DURING CONSTRUCTION AND ALTERATION OPERATIONS. IN ADDITION, ANY OPENINGS IN FIRE RATED SEPARATIONS BETWEEN OCCUPIED AND UNOCCUPIED (OR OPERATIONAL AND NON-OPERATIONAL) AREAS SHALL BE SEALED AT THE END OF EACH WORK DAY WITH AN APPROPRIATE FIRE RATED ENCLOSURE OR SEALANT. DO NOT COMPROMISE EXISTING SECURITY OR FIRE ALARM SYSTEMS SERVING THE OCCUPIED OR OPERATIONAL AREAS.

22. CABLING

A. ALL WIRING SHALL BE THHN/THWN.

B. BRANCH CIRCUITS TO RECEPTACLES, LIGHTING AND MISC. SMALL LOADS (15 OR 20 AMP CIRCUITS), UNLESS SPECIFICALLY NOTED OTHERWISE, SHALL BE 2 - #12, 1 - #12 GRD., 3/4" C. A SEPARATE NEUTRAL AND GROUND SHALL BE RUN FOR EACH CIRCUIT. SEE TABLE THIS SHEET FOR ADDITIONAL REQUIREMENTS.

THREE PHASE FEEDER SCHEDULE

FEEDER TAG	CONDUCTOR SIZE
⑳	3#12, 1#12G – 3/4" RGS/IMC CONDUIT
㉚	3#8, 1#8G – 1" RGS/IMC CONDUIT
⑳ VFD	3#12, 1#12G (VFD CABLE) – 3/4" RGS/IMC CONDUIT
㉚ VFD	3#8, 1#8G (VFD CABLE) – 1" RGS/IMC CONDUIT

NOTES:
1) WIRE OF #8 AWG SIZE AND LARGER SHALL BE STRANDED. WIRE OF #10 AND SMALLER SHALL BE SOLID.
2) ALL CONDUCTORS SHALL BE RATED 90 DEG C FOR DRY/WET LOCATIONS.
3) INSULATION TYPES SHALL BE AS FOLLOWS:
   A) CONDUCTORS SIZED UP TO NO. 2 SHALL BE DUAL LISTED THHN/THWN-2
4) VFD CABLE SHALL BE USED TO CONNECT VFDS TO THEIR ASSOCIATED LOADS.

ELECTRICAL KEY NOTES

1. EC TO FIELD VERIFY EXISTING PANEL'S INTERNAL COMPONENTS, AIC RATING, AND NAMEPLATE AND TAG OF ASSOCIATED EQUIPMENT. NOTIFY ENGINEER AND/OR PROJECT MANAGER OF ANY DISCREPANCIES OBSERVED IN EXISTING CONDITIONS. PROVIDE ENGRAVED, LAMINATED NAME PLATE FOR NEW EQUIPMENT.
2. RELOCATED EXISTING VFD WITH INTEGRAL BYPASS (JOHNSON CONTROLS #VSD2541A-0000) FEEDING "SF-10A" AS INDICATED ON SHEET E-101. MAKE FINAL EQUIPMENT CONNECTIONS FROM POWER SOURCE USING NEW FIELD WIRING AND PROVIDE A LAMINATED NAME PLATE FOR "VFD SF-10A".
3. REUSE AND REWIRE THE EXISTING VFD WITH INTEGRAL BYPASS (JOHNSON CONTROLS #VSD1041A-0000) FEEDING "RF-10A" IN ITS EXISTING LOCATION AS INDICATED ON SHEET E-101. MAKE FINAL EQUIPMENT CONNECTIONS FROM POWER SOURCE USING NEW FIELD WIRING AND PROVIDE A LAMINATED NAME PLATE FOR "VFD RF-10A".
4. DISCONNECT EXISTING "S-10A" AND "E-10A" FROM EXISTING FAN MOTOR CIRCUITS.
5. RE-LABEL 15A/3P BREAKER IN MCC-PHL (1K) AS SPARE AFTER DISCONNECTION OF EXISTING EXHAUST FAN E-10A AND ITS ASSOCIATED VFD.
6. PROVIDE NEW 20A/3P BREAKER IN EMPTY SPACE IN MCC-PHL (3I). CONNECT NEW HVAC FAN MOTOR "RF-10A" AS INDICATED. NEW MOTOR SHALL BE WIRED USING ALL NEW FIELD WIRING. PROVIDE ENGRAVED, LAMINATED NAME PLATE FOR "RF-10A".
7. EXISTING 50A/3P CIRCUIT BREAKER IN MCC-PHL (1G) SHALL BE REUSED. CONNECT NEW HVAC FAN MOTOR "SF-10A" AS INDICATED. NEW MOTOR SHALL BE WIRED USING ALL NEW FIELD WIRING. PROVIDE ENGRAVED, LAMINATED NAME PLATE FOR "SF-10A".

FULLY SPRINKLERED

Scale: NONE

ISSUED FOR CONSTRUCTION DOCUMENTS (FINAL BID)	11/26/13
ISSUED FOR 100% DESIGN SUBMITTAL	10/28/13
ISSUED FOR 75% DESIGN DEVELOPMENT	08/22/13
Revisions:	Date

CONSULTANTS:

ARCHITECT/ENGINEERS:

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Drawing Title: ELECTRICAL SINGLE-LINE DIAGRAM

Approved: Project Director

Project Title: REPLACEMENT OF AHU S-10A IN BUILDING 30

Location: 820 S. DAMEN AVE. CHICAGO, IL 60612

Date: 11/26/2013 | Checked: PD | Drawn: JF

Project Number: 537-10-122

Building Number: BUILDING 30

Drawing Number: 30-E-002

Dwg. 09 of 10

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

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
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