ELLIMAN CLINICAL RESEARCH
# 629 BUILDING
421 EAST CANFIELD AVE
DETROIT, MI 48201

ELECTRICAL RELIABILITY UPGRADES

WSU Project Number 629-245283
MEP Project Number 1415-4

DETROIT, MICHIGAN

BID
NOVEMBER 03, 2014
ELECTRICAL SITE GRADING AND UTILITIES PLAN

NOTES:
1. All electrical drawings are subject to change.
2. Construct shall be responsible for testing and activation.
3. Contractor shall provide access for activation.

ELEVATION DEETS:

1. The aerial view shows the proposed layout and design of the electrical site.
2. The electrical infrastructure includes the distribution of power, lighting, and other utilities.
3. The proposed electrical system is designed to meet the specific needs of the project.
4. The installation of electrical systems shall comply with all relevant electrical codes and regulations.

LEGEND:

- Existing Conditions
- Proposed Conditions
- Electrical System
- Water System
- Sewer System
- Gas System

WAYNE STATE UNIVERSITY

ELLIOTT CLINICAL RESEARCH
A 403 BUILDINGS
ELECTRICAL RELIABILITY UPGRADES

435 West Grand Blvd, Detroit, MI 48207

Drawing No.: 6-148204
Scale: 1/1
1. Submit shop drawings for review as indicated in material section of general structural notes.

2. The Contractor shall be responsible for means, methods, sequences and procedures of construction.

3. Post installed anchors include all mechanical and adhesive anchors noted on Construction Manual, Allowable Strength Design ASD.

4. Contractor shall verify conditions covering or affecting the structural work; obtain and verify all drawings detailing proposed modifications for approval.

5. Structural steel bolting shall be ASTM A325 type N, 3/4" diameter snug tight except where other size, pattern.

6. Welding shall be done with appropriate E70 series electrodes compatible with the new and existing steel. Welds and welding procedures shall conform to the "Structural Welding Code - Steel" of the American Welding Society ANSI/AWS D1.1.

7. Anchors shall be installed with industry standard methods and procedures with reference to Anchorage System Manufacturer's written instructions. Use of industry standard methods and procedures does not negate the requirement for special inspections.

8. Contractor shall provide temporary protection of existing equipment during execution of work, prevent gaps between steel and concrete. Alternatively, provide non-shrink grout in all voids between steel and concrete.

9. The following anchors are approved. Submittals for alternative equal anchors will be reviewed by Structural Engineer and approved at their discretion.

10. Structural steel shall be designed and fabricated to comply with established shop drawings. Shop drawings may be modified because they are more stringent than the code requirements or because the equipment weight varies from that listed, consult with the Architect/Structural Engineer prior to return without review.

11. Beam connections shall be standard AISC approved connections. Extended shear plate connections allowed without prior approval by the Structural Engineer. Contractor shall submit sketches or shop drawings detailing proposed modifications for approval.

12. Contractor shall reference architectural drawings for miscellaneous shapes and plates not shown on construction drawings. Where noted Architecturally Exposed Structural Steel (AESS), contractor shall fabricate and install fire watch protection acceptable to the owner.

13. Beams shall be fabricated with the natural camber up. Provide cambers as indicated on the drawings. Special Inspections required by the Code, Special Inspectors and the Structural Engineer as may be necessary.

14. Contractor shall submit 5% and minimum 2 of each application of location and manufacturer's certified test reports of all welds and/or bolts. A minimum of 5% of shear reinforcement shall be tested by a qualified Special Inspector. Project site visits by the Engineer do not constitute or replace Special Inspections required by the Code, Special Inspectors and the Structural Engineer as may be necessary.

15. Beam connections shall be standard AISC approved connections. Extended shear plate connections allowed without prior approval by the Structural Engineer. Contractor shall submit sketches or shop drawings detailing proposed modifications for approval.

16. Inspect all expansion anchors and adhesive (epoxy) anchors according to manufacturer's instructions.

17. Inspect all welds for absence of slag, contamination and porosity.

18. Inspect all welds in accordance with ASME Section VIII D1/D2, as manufactured by Nelson Stud Welding, Div. of TRW, or approved substitute, and welded properly and the bolted joint is drawn into firm contact.

19. Project site visits by the Engineer do not constitute or replace Special Inspections required by the Code, Special Inspectors and the Structural Engineer as may be necessary.

20. All discrepancies shall be fully resolved prior to commencing work. Special Inspections required by the Code, Special Inspectors and the Structural Engineer as may be necessary.

21. Beams shall be fabricated with the natural camber up. Provide cambers as indicated on the drawings. Special Inspections required by the Code, Special Inspectors and the Structural Engineer as may be necessary.


23. Where noted Architecturally Exposed Structural Steel (AESS), contractor shall fabricate and install fire watch protection acceptable to the owner.

24. Beams shall be fabricated with the natural camber up. Provide cambers as indicated on the drawings. Special Inspections required by the Code, Special Inspectors and the Structural Engineer as may be necessary.


26. Contractor shall provide temporary bracing as required to ensure stability of the structure under full load conditions.

27. Shop and Field Testing of welds and/or bolts shall be as follows:

   a. Ultrasonically test 100% of full penetration column splice welds.

   b. Ultrasonically test 100% of full penetration welds (ASTM E94 & E1032).

   c. Ultrasonically test 100% of partially penetration column splice welds.

   d. Ultrasonically test 100% of full penetration welds (ASTM E94 & E1032).

   e. Ultrasonically test for laminations in column flanges at moment connections to columns with moment resistant frames.

   f. Mechanical test all slip critical shear connections.

   g. Check by calibrated torque wrench 25% of bolts in each slip critical shear connection, but not less than 50 bolts per connection.

   h. Inspect all expansion anchors and adhesive (epoxy) anchors according to manufacturer's instructions.

   i. Ultrasonically test for laminations in column flanges at moment connections to columns with moment resistant frames.

   j. Mechanical test all slip critical shear connections.

   k. Check by calibrated torque wrench 25% of bolts in each slip critical shear connection, but not less than 50 bolts per connection.

   l. Inspect all expansion anchors and adhesive (epoxy) anchors according to manufacturer's instructions.

   m. Inspect all welds for absence of slag, contamination and porosity.

   n. Inspect all welds in accordance with ASME Section VIII D1/D2, as manufactured by Nelson Stud Welding, Div. of TRW, or approved substitute, and welded properly and the bolted joint is drawn into firm contact.

   o. All discrepancies shall be fully resolved prior to commencing work. Special Inspections required by the Code, Special Inspectors and the Structural Engineer as may be necessary.

   p. Special Inspections shall be performed in accordance with the 2009 Michigan (International) Building Code Chapter 17 as adopted herein.

   q. Special Inspections shall be performed in accordance with the 2009 Michigan (International) Building Code Chapter 17 as adopted herein.
### Electrical Legend & Symbols

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<tr>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
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<tr>
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<tr>
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### Feeder & Branch Circuit Using Schedule

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<th>FEEDER</th>
<th>PRECISION</th>
<th>LOCATION</th>
<th>VOLTAGE</th>
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<tr>
<td>11</td>
<td>K</td>
<td>20</td>
<td>220V</td>
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### Circuit Sizing Schedules: Notes

1. Choose the correct circuit size by referring to the schedule with the notes and select the appropriate cable size.
2. Carefully check the voltage ratings of the equipment to ensure compatibility with the circuit size selected.
3. Ensure that the circuit protection devices (e.g., fuses or circuit breakers) are adequately sized to prevent overloading.
4. Regular maintenance and inspections are necessary to ensure the reliability and longevity of the electrical system.

### General Notes

- Always consult local electrical codes and standards before making any electrical modifications.
- Consult a qualified electrician for complex or large-scale electrical projects.

### Exterior Lighting Fixtures Schedule

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FIXTURE DESCRIPTION</th>
<th>LAMP</th>
<th>VOLTAGE</th>
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<tr>
<td>S1</td>
<td>LED WALL PACK W/4 T12 R8 CLEAR ALUMINUM HOUSING, 13WATT R8 T12 LED, 4 1/8&quot; DIMMABLE LENS</td>
<td>12V 3400K</td>
<td>120V</td>
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<td>S2</td>
<td>POLE MOUNTED LED UPLIGHT W/4 T12 CLEAR ALUMINUM HOUSING, 15WATT R8 T12 LED, 4 1/8&quot; DIMMABLE LENS</td>
<td>12V 3400K</td>
<td>120V</td>
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### Control Device Specifications

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<tr>
<th>Control Device</th>
<th>Qty</th>
<th>Product Number</th>
<th>Manufacturer</th>
<th>Document Number</th>
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<td>Field Mounted Devices</td>
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<tr>
<td>TOP</td>
<td>14</td>
<td>567–352</td>
<td>SIEMENS</td>
<td>567–352</td>
<td>#1 FMEU PANEL 2424/49</td>
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<td>Fixed Mounted Devices</td>
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<tr>
<td>AC</td>
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<td>UNITED SECURITY</td>
<td>AO–2001</td>
<td>AUTO VOICE/PAGER DIALER</td>
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<tr>
<td>AC–20'</td>
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<td>UNITED SECURITY</td>
<td>AC/DC ADAPTER 12V W/PLUG</td>
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<td>R–1</td>
<td>1</td>
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<td>UNITED SECURITY</td>
<td>ISOLATION RELAY</td>
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<td>P–1</td>
<td>1</td>
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<td>UNITED SECURITY</td>
<td>POWER PACK FOR 150V</td>
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<tr>
<td>PS 1</td>
<td>1</td>
<td>5LS–12–07T</td>
<td>SIEMENS</td>
<td>POWER SUPPLY, 120V, 12–150V, DC, DIN RAIL</td>
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<td>PTE 1</td>
<td>3</td>
<td>8001/RU</td>
<td>SQUARE D</td>
<td>PUSH BUTTON, Momentary, 30mA, 7 COLOR</td>
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<td>8001/A2</td>
<td>SQUARE D</td>
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<tr>
<td>RE 1</td>
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<td>SAYTON</td>
<td>RELAY TOP 4PST, 120V, 3A W/LED</td>
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<td>RE 3</td>
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<tr>
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<td>1</td>
<td>SYR64</td>
<td>SAYTON</td>
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<td>MELLUS</td>
<td>DIPLEX RECEPTACLE 20A, 125VAC</td>
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<td>POWERWAVE</td>
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<td>PE93</td>
<td>CO</td>
<td>POWER SUPPLY CORDS 1/2, 6 FT</td>
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</table>

### Sequence of Operations for Testing Generator Conditions Monitored via the Siemens Access System

Testing will provide generator "RUN" alarm, "FAULT" alarm, fuel "RUN" alarm, fuel "STOP" alarm, fuel "STOP" alarm. Each alarm once triggered will provide a Siemens remote alarm alarm and graphical command center alarm.

Additionally, the fuel supplier system and phone line will also be tested and verified for proper operation.

### Revision History

**SIEMENS**

567-352

Siemens Industry, Inc.

Building Technologies Division

46420 Commerce Cn., Dr.

Plymouth, MI 48170

USA

Phone: 734-469-0000

Fax: 866.810.7440

WSU Eminem Generator

Detroit, MI

08/07/14

08/09/14

R: 7000F

V: 00

D: 0

S: 001

F: FOR REFERENCE ONLY

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Recorded by: Naiel Shaleen Generator

Last Edit Date: 08/07/14

001
BATTERY CHARGER FAULT DIGITAL INPUT VIA DRY CONTACT

DDC MONITORING POINTS FOR FUEL STORAGE TANK:

FUEL LEVEL 85% DIGITAL INPUT VIA DRY CONTACT
FUEL LEVEL 50% DIGITAL INPUT VIA DRY CONTACT
TANK Rupture ALARM DIGITAL INPUT VIA DRY CONTACT
LOW DETECTION ALARM DIGITAL INPUT VIA DRY CONTACT
TANK LEVEL ANALOG INPUT VIA 4–20MA SIGNAL

REN# – REMOTE ENUNCIATION THRU APOGEE

SET UP RENO GROUP FOR GENERATORS "RESPECTIVE BUILDING) GENERATOR"
1. SUPERVISOR PAGE (COMMAND CENTRAL)
2. OWNER DEFINED
3. OWNER DEFINED
4. OWNER DEFINED

DEFINE THE FOLLOWING POINTS FOR RENO

GENERATOR RUN — "GEN # IS RUNNING" (USE RUNNING AND OFF AS CHANGE OF STATES)
RETURN TO NORMAL — "GEN # IS OFF"

GENERATOR ALARM — "GEN # FAILED TO START"

LOW FUEL LEVEL (DAY TANK) — "GEN # (ARE DAY TANKS NUMBERED)
50% FUEL LEVEL — "FUEL TANK 50% ALARM"
80% FUEL LEVEL — "FUEL TANK 80% ALARM"

NO ATS POINTS DEFINED FOR RENO

ANALOG PHONE SHARED INFORMATION

THE FOLLOWING FOUR NUMBERS TO BE PROGRAMMED INTO THE "dealer" PANEL
1. ATLAS OIL COMPANY (FUEL DELIVERY) 800-878-2000
2. KATIE MELLWAN (ACCOUNT REPRESENTATIVE) (OFFICE) 313-932-1621
   (CELL) 313-932-6893
3. WSU SUPERVISOR (COMMAND CENTER) 313-577-4664
4. WSU PUBLIC SAFETY (NON-EMERGENCY) 313-577-2224

REVISION HISTORY
Panel Installation Notes:

- All contacts provided by equipment vendors are to dry.
- New 120 Vac power from emergency power panel provided by installing electrical contractors.
- New dedicated phone line to be provided by installing electrical contractor.
- Fuel oil storage tank to be provided with an analog level sensor to report to DGC system.
- All termination pending vendor equipment submissions.
- Ethernet drop by others.

Revision History

 Siemens Industry, Inc.
 Building Technologies Division

WSU EBman Generator
Detroit, MI

 FOR REFERENCE ONLY

 0

001B
Reference Only

This drawing is for reference only. This drawing must be used only to add additional detail to what is being provided by the engineer of record. Not all terminations, wire pulls or interlocks are shown in these diagrams as this will be dependent on the equipment purchased by others. Once equipment submittals are secured, the final drawings will reflect all work necessary to provide a full and functioning control system as outlined in the plans and specs. It is the bidders responsibility to review all contract documents provided by engineer of record to ensure that a complete scope is bid. Quantity of items and location of devices/panels that are not clearly spelled out in the drawings must be field verified to ensure that the project is properly bid. It is assumed that the bidder of the temperature control's electrical installation is knowledgeable in such work and requires minimal guidance. Siemens assumes no responsibility or risk for bidders not fully understanding the scope or extend of the work required.