

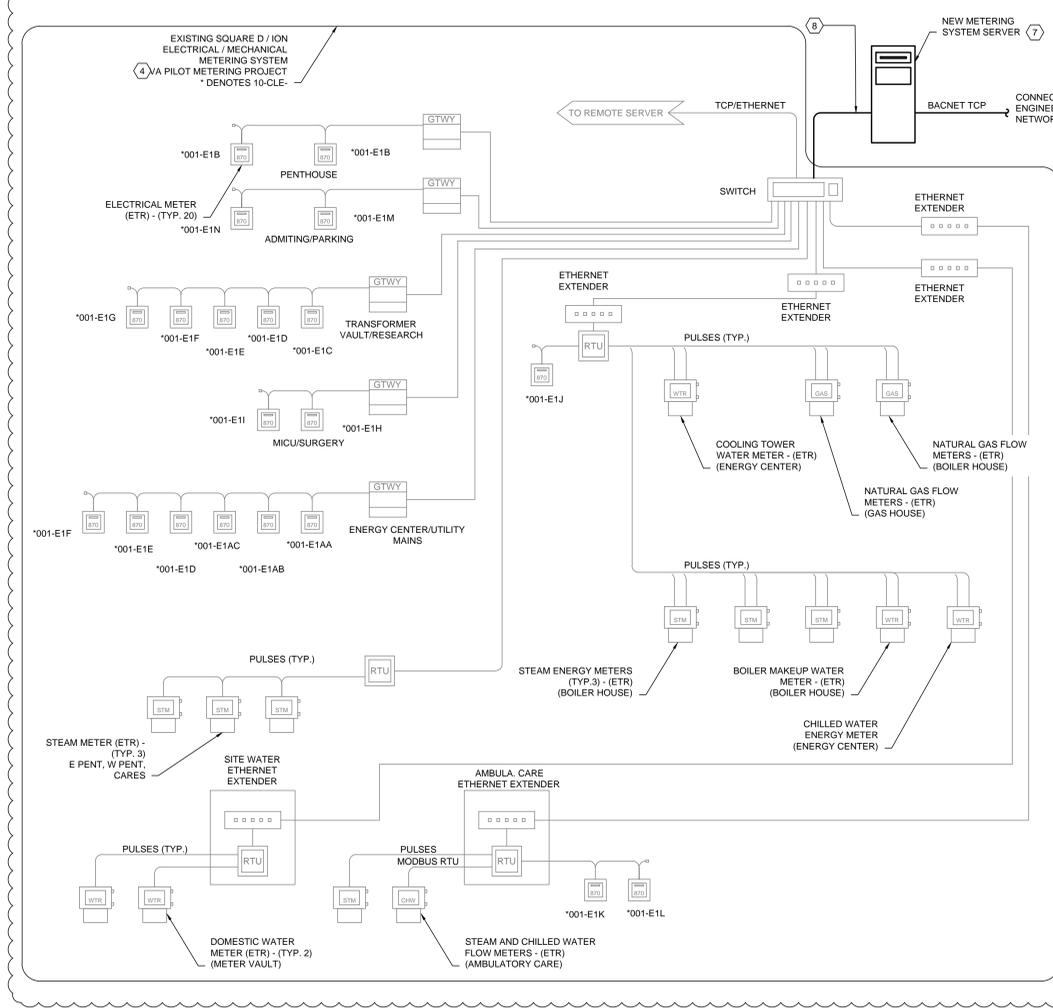




| SUBSTATION | BREAKER             | AMPS | ROOM NO.       |
|------------|---------------------|------|----------------|
| SUB 'A'    | DPD-1               | 1600 | D21            |
| SUB 'A'    | DPD-4               | 1600 | D21            |
| SUB 'A'    | SBHEB1              | 1600 | D21            |
| SUB 'A'    | SBMW1               | 1600 | SBMH1          |
| SUB 'A'    | BOILER PLANT        | 1600 | BOILER PLANT   |
| SUB 'B'    | PENTHOUSE SVBD      | 3000 | PNTHS          |
| SUB 'B'    | SBHEB2              | 1600 |                |
| SUB 'B'    | DPD2A               | 1600 | 2D-103         |
| SUB 'B'    | DPD2B               | 1600 | 2C-126         |
| SUB 'B'    | DPD2C               | 1600 | 2B-125         |
| SUB 'B'    | DIETETICS           | 1600 |                |
| SUB 'B'    | EAST HVAC PNTHS     | 1600 | EAST PNTHS     |
| EM GEAR    | EM GEAR POWER LOGIC | -    | D21            |
| SURGERY    | HDP5                | 800  | 2509           |
| SURGERY    | TS-1                | 800  | 105            |
| SURGERY    | TS-2                | 800  | 105            |
| SURGERY    | B1PNH1              | 800  | 105            |
| SURGERY    | MCCN1               | 800  | 107            |
| SURGERY    | N-MDP               | 800  | C21S           |
| RESEARCH   | PPBH                | 600  | K03            |
| RESEARCH   | PPBC                | 600  | K03            |
| RESEARCH   | PP3B                | 1600 | RESEARCH PNTHS |
| PENTHOUSE  | CCU1                | 800  | PNTHS          |
| PENTHOUSE  | CCU2                | 800  | PNTHS          |
| PENTHOUSE  | CCU3                | 800  | PNTHS          |
| PENTHOUSE  | HA-71               | 600  | PNTHS          |
| PENTHOUSE  | MCC73A              | 800  | PNTHS          |
| PENTHOUSE  | ACRU-1A             | 800  | PNTHS          |
| PENTHOUSE  | ACRU-1B             | 800  | PNTHS          |
| N1         | HN-B1               | 300  | B-E261         |
| N1         | HN-B2               | 300  | B-E261         |
| N1         | T-DPNB1             | 400  | B-E261         |
| N1         | T-DPNB2             | 400  | B-E261         |
| N1         | TEMP TRAILERS       | 400  | B-E261         |
| N1         | TEMP CRANE          | 400  | B-E261         |
| N1         | ATS-CR              | 800  | B-E261         |
| N1         | ATS-LS              | 400  | B-E261         |
| N1         | HN-21               | 400  | 2D-191         |
| N1         | HN-11               | 400  | 1-E3261        |
| N1         | ATS-CATH            | 600  | B-E261         |
| N1         | ATS-EQ              | 800  | B-E261         |

| SUBSTATION | BREAKER        | AMPS | ROOM NO.      |
|------------|----------------|------|---------------|
| H1         | MBMCC-1        | 400  | BA-151        |
| H1         | DPAC-4         | 600  | BA-151        |
| H1         | ATS-1          | 400  | BA-151        |
| H1         | ATS-4          | 600  | BA-151        |
| H1         | AC-T1 / DPAC-1 | 400  | BA-151        |
| H2         | AST-2          | 400  | BA-151        |
| H2         | ATS-3          | 800  | BA-151        |
| H2         | MBMCC-2        | 400  | BA-151        |
| H2         | N4SD2          | 800  | C21           |
| H2         | DPAC-2         | 800  | BA-151        |
| H2         | N4SD2          | 800  | C21           |
| H2         | DPAC-2         | 800  | BA-151        |
| EC-1       | 4SD-1          | 1200 | ENERGY CENTER |
| EC-1       | 4SD-2          | 1200 | ENERGY CENTER |
| EC-2       | CH-1           | 3000 | MED VOLT BKRS |
| EC-2       | CH-2           | 3000 | MED VOLT BKRS |
| EC-2       | CH-3           | 3000 | MED VOLT BKRS |
| EC-3       | DPE2           | 800  | CHLR SWGR     |
| EC-3       | CHILLER 4      | 2000 | CHLR SWGR     |
| EC-3       | CHILLER 5      | -    | CHLR SWGR     |
| EC-3       | DPE4           | -    | CHLR SWGR     |
| EC-3       | DPE3           | -    | CHLR SWGR     |
| EC-3       | EC2 TIE        | -    | CHLR SWGR     |
| ADMITTING  | DPL            | 800  | H167          |
| ADMITTING  | A1H            | 600  | H167          |
| ADMITTING  | AC DENTAL      | 600  | ROOF          |
| ADMITTING  | X-RAY          | 600  | 1B-194        |
| ADMITTING  | ASH            | 600  | SUB BSMNT     |
| ADMITTING  | TD-ATS         | 600  | 1B-194        |
| ADMITTING  | ELEVATOR       | 600  | SUB BSMNT     |
| GARAGE     | ELEVATOR 1     | 200  | 203           |
| GARAGE     | ELEVATOR 2     | 200  | 203           |
| GARAGE     | 1HA            | 200  | 103           |
| GARAGE     | 1HC            | 200  | 103           |
| GARAGE     | T-1            | 125  | 103           |
| GARAGE     | 1HB            | 400  | 103           |
| TRAILERS   | MDP            | 1200 | 4B-775        |

| LINETYPE |          |
|----------|----------|
| ---      | EXISTING |
| ---      | NEW      |

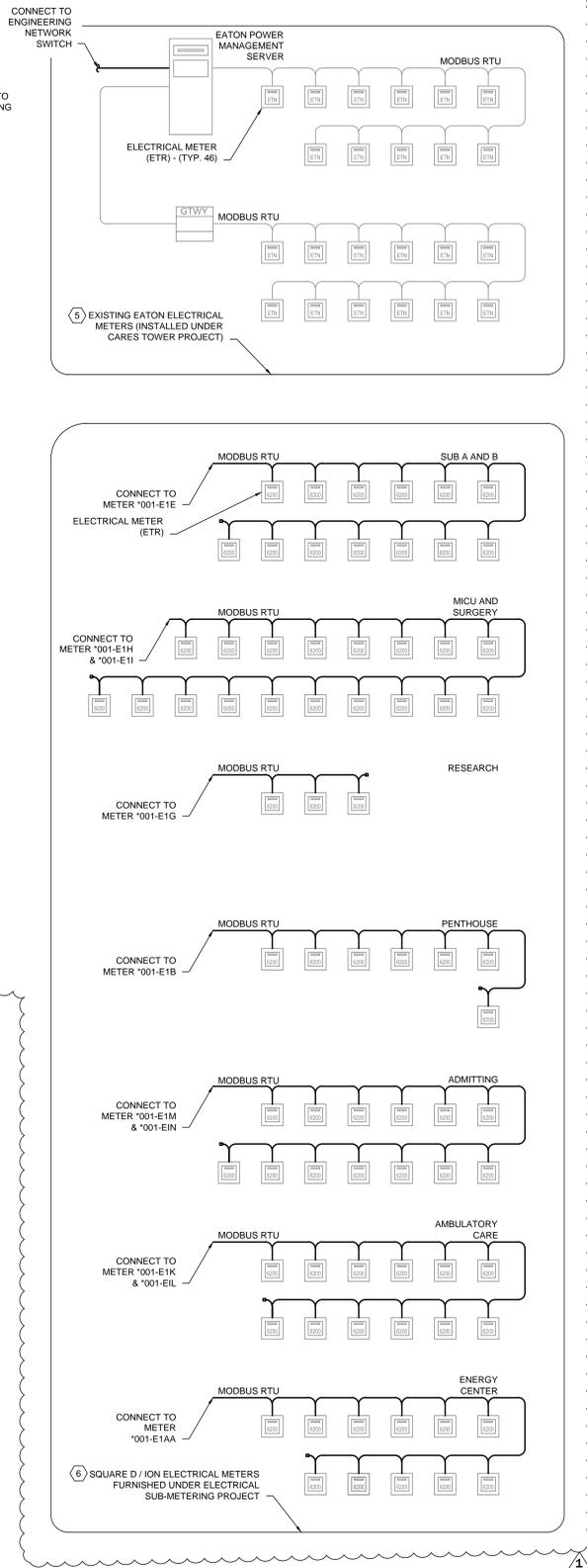


ENERGY / UTILITY METERING SYSTEM INTEGRATION DIAGRAM

| UNIT DESIGNATION | FLUID                           | PIPE SIZE | METER SIZE | MODEL      | MANUFACTURER |
|------------------|---------------------------------|-----------|------------|------------|--------------|
| 10-CLE-001-BW-1  | MAKE UP WATER FOR BOILERS       | 3"        | 3"         | ADM 7407   | FLEXIM       |
| 10-CLE-ENC-TW-1  | MAKE UP WATER FOR COOLING TOWER | 3"        | 3"         | ADM 7407   | FLEXIM       |
| 10-CLE-ENC-CH-1  | CHILLED WATER                   | 24"       | 24"        | ADM 7407   | FLEXIM       |
| 10-CLE-01A-CH-1  | CHILLED WATER                   | 12"       | 12"        | ADM 7407   | FLEXIM       |
| 10-CLE-SIT-DW-1  | DOMESTIC WATER                  | 8"        | 8"         | ADM 7407   | FLEXIM       |
| 10-CLE-SIT-DW-2  | DOMESTIC WATER                  | 10"       | 10"        | ADM 7407   | FLEXIM       |
| 10-CLE-01A-ST-1  | STEAM                           | 6"        | 6"         | PRO-V, M23 | VORTEK       |
| 10-CLE-001-ST-1  | STEAM                           | 6"        | 6"         | PRO-V, M23 | VORTEK       |
| 10-CLE-001-ST-2  | STEAM                           | 6"        | 6"         | PRO-V, M23 | VORTEK       |
| 10-CLE-001-ST-3  | STEAM                           | 6"        | 6"         | PRO-V, M23 | VORTEK       |
| 10-CLE-GSH-NG-1  | NATURAL GAS                     | 6"        | 6"         | TA1        | MAGNETROL    |
| 10-CLE-001-NG-1  | NATURAL GAS                     | 6"        | 6"         | TA1        | MAGNETROL    |

| UNIT DESIGNATION | LOCATION BUILDING 1        | MODEL | MANUFACTURER |
|------------------|----------------------------|-------|--------------|
| 10-CLE-001-E1A   | PENTHOUSE                  | PM870 | SQUARE "D"   |
| 10-CLE-001-E1AA  | EC-1                       | PM870 | SQUARE "D"   |
| 10-CLE-001-E1AB  | EC-2                       | PM870 | SQUARE "D"   |
| 10-CLE-001-E1AC  | EC-3                       | PM870 | SQUARE "D"   |
| 10-CLE-001-E1AD  | MAIN-1                     | PM870 | SQUARE "D"   |
| 10-CLE-001-E1AE  | MAIN-2                     | PM870 | SQUARE "D"   |
| 10-CLE-001-E1AF  | MAIN-3                     | PM870 | SQUARE "D"   |
| 10-CLE-001-E1B   | PENTHOUSE                  | PM870 | SQUARE "D"   |
| 10-CLE-001-E1C   | SUB A LIGHTING TRANSFORMER | PM870 | SQUARE "D"   |
| 10-CLE-001-E1D   | SUB A POWER TRANSFORMER    | PM870 | SQUARE "D"   |
| 10-CLE-001-E1E   | SUB B POWER TRANSFORMER    | PM870 | SQUARE "D"   |
| 10-CLE-001-E1F   | SUB B LIGHTING TRANSFORMER | PM870 | SQUARE "D"   |
| 10-CLE-001-E1G   | RESEARCH                   | PM870 | SQUARE "D"   |
| 10-CLE-001-E1H   | MICU                       | PM870 | SQUARE "D"   |
| 10-CLE-001-E1I   | SURGERY                    | PM870 | SQUARE "D"   |
| 10-CLE-001-E1J   | BOILER HOUSE               | PM870 | SQUARE "D"   |
| 10-CLE-001-E1K   | AMBULATORY                 | PM870 | SQUARE "D"   |
| 10-CLE-001-E1L   | AMBULATORY                 | PM870 | SQUARE "D"   |
| 10-CLE-001-E1M   | ADMITTING                  | PM870 | SQUARE "D"   |
| 10-CLE-001-E1N   | PARKING                    | PM870 | SQUARE "D"   |

| LOCATION  | DESCRIPTION               | LOCATION | DESCRIPTION               |
|-----------|---------------------------|----------|---------------------------|
| USS F1    | CATS1                     | MSG      | SUB B PWR                 |
| USS F1    | CATS2                     | MSG      | ADMITTING                 |
| USS F1    | LATS1                     | MSG      | E1 PENT SUB               |
| USS F1    | MAIN                      | MSG      | MICU/SURGERY SUB          |
| USS F2    | EATS1                     | MSG      | SUB A LTG                 |
| USS F2    | BD-NS1                    | MSG      | AMBUL SUB/AMBUL SUB B LTG |
| USS F2    | BD-NN1                    | MSG      | SUB B LTG                 |
| GEN. SWGR | DPEG1                     | MSG      | SUB C RESEARCH SUB        |
| DPEG1     | MAIN                      | MSG      | E2 PENT SUB               |
| USS F3    | MAIN                      | MSG      | MICU/SURGERY SUB          |
| USS F3    | BD-NN2                    | MSG      | MAIN 1                    |
| USS F3    | BD-NS2                    | MSG      | MAIN 2                    |
| USS F3    | EATS3                     | MSG      | MAIN 3                    |
| USS F4    | EATS2                     | MSG      | EC1/EC2                   |
| USS F4    | MAIN                      | MSG      | EC3                       |
| USS F4    | FPLNH1                    | MSG      | EC1/EC2                   |
| USS EC3   | MAIN                      | MSG      | EC3                       |
| USS EC3   | DPE2                      | MSG      | M1 VOLT                   |
| USS EC3   | CH-4                      | MSG      | M2 VOLT                   |
| MSG       | PRK GARAGE/TRL CITY       | MSG      | M3 VOLT                   |
| MSG       | AMBUL SUB/AMBUL SUB B LTG | MSG      | BUS 1 VOLT                |
| MSG       | SUB A PWR                 | MSG      | BUS 2 VOLT                |

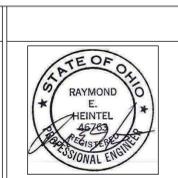


- NOTES:**
- GENERAL NOTES**
- REFER TO SHEET MI-600 FOR GENERAL NOTES, ABBREVIATIONS, DETAILS, AND SYMBOL LEGEND.
  - REFER TO M2-105, M2-101, AND M2-107 FOR LOCATION PLANS.
  - REFER TO MI-2-605 AND MI-2-604 FOR NETWORK RISER DIAGRAM.
- KEYED NOTES**
- CONTRACTOR SHALL INTEGRATE THE ION ELECTRICAL METERS AND CREATE NEW GRAPHIC DISPLAY SCREENS FOR THE SMART BUILDING SYSTEM.
  - CONTRACTOR SHALL PROVIDE ALL NECESSARY MATERIALS TO CONNECT EXISTING METERS TO SMART BUILDING SYSTEM, CABLE, CONDUIT, WIRE, AND FIBER CONNECTIONS.
  - CONTRACTOR SHALL INTEGRATE THE EXISTING MECHANICAL METERS AND CREATE NEW GRAPHIC DISPLAY SCREENS FOR THE SMART BUILDING SYSTEM.
  - EXISTING ION ELECTRICAL / MECHANICAL ENERGY METERING SYSTEM - INSTALLED UNDER SEPARATE PROJECT. METERS / NETWORK WIRING, SWITCHES, GATEWAYS, ROUTERS, AND OTHER EQUIPMENT ARE EXISTING TO REMAIN. INTEGRATE THIS SYSTEM WITH THE SMART BUILDING SYSTEM VIA OPEN-PROTOCOL COMMUNICATIONS GATEWAYS (AS REQUIRED). PROVIDE NEW BACNET / TCP SERVERS TO GATHER DATA AND COMMUNICATE WITH ENGINEERING NETWORK.
  - EATON INTELLIGENT ELECTRICAL METERS - INSTALLED UNDER PREVIOUS PROJECT. PROVIDE NEW NETWORK WIRING, SWITCHES, GATEWAYS, ROUTERS, AND OTHER EQUIPMENT (AS REQUIRED) TO INTEGRATE EXISTING EATON METERS WITH SMART BUILDING SYSTEM. FIELD VERIFY ALL COMMUNICATIONS PATHWAYS, AND SUBMIT SHOP DRAWING OF PROPOSED CONDUIT ROUTING. (METERS ARE NOT SCHEDULED.)
  - SQUARE D / ION INTELLIGENT ELECTRICAL METERS INSTALLED UNDER PREVIOUS PROJECT. PROVIDE NEW MODBUS WIRING, NETWORK WIRING, SWITCHES, GATEWAYS, ROUTERS, AND OTHER EQUIPMENT (AS REQUIRED) TO INTEGRATE EXISTING EATON AND SQUARE D METERS WITH SMART BUILDING SYSTEM. FIELD VERIFY ALL COMMUNICATIONS PATHWAYS, AND SUBMIT SHOP DRAWING OF PROPOSED CONDUIT ROUTING.
  - FOR EACH SERVER AND WORKSTATION PROVIDE ALL NECESSARY SOFTWARE (WITH LICENSE VALID FOR 5 YEARS). PROVIDE CONNECTIVITY TO DSL SERVICE FOR REMOTE ACCESS THROUGH EXISTING AND/OVER ECC. DSL SERVICE SHALL BE PROVIDED FOR 5 YEARS. PROVIDE CONDITIONED 120V/1PH POWER FROM DEDICATED CIRCUITS AS REQUIRED.
  - VERIFY "AUTHORIZATION" FOR CONNECTION TO SQUARE D ION METERING SYSTEM. IF AUTHORIZATION CAN NOT BE OBTAINED PROVIDE WEB INTERFACE TO AUTOMATICALLY COLLECT DATA FROM SQUARE D ION "CLOUD" SERVER.

| Revisions | Date |
|-----------|------|
|           |      |
|           |      |
|           |      |

**CONSULTANTS:**

AMENDMENT A00003 8/23/2012



**ARCHITECT/ENGINEERS:**

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 Phoenix, Washington, Cleveland  
 WRL Commission # 09099.00

**Drawing Title**  
**MECHANICAL CONTROLS**  
**EXISTING METER INTEGRATION**

Approved Project Director

**Project Title**  
 Energy Conservation  
 Measures For Cleveland  
 Local Project # 541-10-104

**Location**  
 Wade Park / Cleveland, Ohio

**Date**  
 August 6, 2012

**Checked**  
 SKW

**Drawn**  
 RL

**Project Number**  
 # 541-10-104

**Building Number**  
 -

**Drawing Number**  
**MI-2-605**

**100% CD**

**Office of Facilities Management**

**Department of Veterans Affairs**

