EMERGENCY GENERATOR AND DATA CENTER HVAC UPGRADES

RIO HONDO COLLEGE

EMERGENCY GENERATOR AND DATA CENTER HVAC UPGRADES

CAMPUS MAP

VICINITY MAP

SHEET TITLE INDEX

GENERAL PROJECT SCOPE

1. DEMOLITION OF EXISTING COOLING UNITS AND INSTALLATION OF NEW COOLING UNITS TO SERVE THE DATA CENTER AND ASSOCIATED OFFICES.
2. INSTALLATION OF NEW EMERGENCY PANELBOARDS AND AUTOMATIC TRANSFER SWITCHES ASSOCIATED WITH NEW EMERGENCY GENERATOR.
3. ADDITION OF ROOM DIVIDERS AND OPTIMIZATION OF CEILING/FLOOR AIR TERMINALS ARRANGEMENT IN DATA CENTER TO ENHANCE COOLING PERFORMANCE.
4. NEW CIRCUITING OF ELECTRICAL POWER IN THE ADMINISTRATION BUILDING BOARD ROOM.
5. DEMOLITION AND REMOVAL OF THE EXISTING GASOLINE GENERATOR FROM THE ADMINISTRATION BUILDING AND INSTALLATION OF NEW EMERGENCY GENERATOR IN THE PARKING LOT AREA NORTH EAST OF THE ADMINISTRATION BUILDING.
6. INSTALLATION OF NEW WORK FLOOR PLAN - DATA CENTER AND NEW GENERATOR LOCATION.
## Electrical Panel Schedules Data Center

### Project
REVISIONS

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>DESCRIPTION</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>12/04/2015</td>
</tr>
<tr>
<td>2</td>
<td>100% CD SET</td>
<td>04/06/2016</td>
</tr>
</tbody>
</table>

### Panel and Device Minimum AIC Rating

- **Main Breaker:** 200 A
- **Mounting:** Surface

### KILN/DOCK Control Panel

- **Location:** KILN 3
- **Voltage:** 277/480V 3Ø, 4W

### Existing to Remain

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
</table>

### Other Panel and Device Details

- **Location:** LTG REC MIS BKR CKT A B C A B C CKT BKR MIS REC LTG LOCATION

## Load Classification

### Total (Amps)

- **46 A**

### Total (VA)

- **38010 VA**

### Load Classification

#### Motor - Largest:
- 0 VA X 0.00% = 0 VA

#### Receptacle:
- 0 VA X 0.00% = 0 VA

#### L.C.L.:
- 0 VA X 0.00% = 0 VA

#### N.C.L.:
- 38010 VA X 100.00% = 38010 VA

### Demand (VA)

#### φc:
- 12670 VA

#### φb:
- 12670 VA

#### φa:
- 12670 VA

## Electrical Panel:

- **Location:** COMPUTER CENTER 10 VOLTAGE: 120/208
<table>
<thead>
<tr>
<th>Location</th>
<th>Component</th>
<th>Rating (VA)</th>
<th>Demand Factor</th>
<th>Demand (VA)</th>
</tr>
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<tbody>
<tr>
<td>100 A</td>
<td>Panel</td>
<td>1000 VA</td>
<td>0.00%</td>
<td>1000 VA</td>
</tr>
<tr>
<td>250 A</td>
<td>Panel</td>
<td>1500 VA</td>
<td>0.00%</td>
<td>1500 VA</td>
</tr>
<tr>
<td>500 A</td>
<td>Panel</td>
<td>2000 VA</td>
<td>0.00%</td>
<td>2000 VA</td>
</tr>
</tbody>
</table>

**PANEL AND DEVICE MINIMUM AIC RATING:**
- BUS RATING: 100 A
- PANEL: 100 A
- LOCATION: EMERGENCY POWER
- VOLTAGE: 120/208

**ELECTRICAL PANEL SCHEDULES: ADMINISTRATION BUILDING**
EMERGENCY GENERATOR AND DATA CENTER HVAC UPGRADES
RIO HONDO COLLEGE
3600 WORKMAN MILL RD., WHITTIER, CA 90601

ELECTRICAL DEMOLITION PLAN - DATA CENTER

1. HATCHED PATTERN INDICATES ITEMS TO BE DEMOLISHED.
2. CAMPUS SHALL HAVE FIRST RIGHT OF REFUSAL OF ALL EQUIPMENT REMOVED AND DEMOLISHED.

GENERAL NOTES THIS SHEET:
1. ALL MECHANICAL EQUIPMENT INCLUDING ALL CONDUCTORS AND CONDUITS BACK TO SOURCE.
2. CAMPUS SHALL HAVE FIRST RIGHT OF REFUSAL OF ALL EQUIPMENT REMOVED AND DEMOLISHED.

REVISIONS NUMBER DESCRIPTION DATE
1 50% SD SET 12/04/2015
2 100% CD SET 04/06/2016
1. HATCHED PATTERN INDICATES ITEMS TO BE DEMOLISHED. COMPLETELY REMOVE AND DEMOLISH <E> GENERATOR, INCLUDING EXISTING CIRCUIT BREAKER AND ASSOCIATED CONDUIT/WIRING BACK TO POINT OF DISTRIBUTION.

2. COMPLETELY REMOVE AND DEMOLISH <E> CONDUCTORS AND CONDUIT BACK TO SOURCE PANEL FOR ALL <E> TO REMAIN RECEPTACLES LOCATED IN THIS AREA. PREPARE <E> TO REMAIN RECEPTACLES FOR POWERING VIA <N> CONDUCTORS AND CONDUIT.

3. CAMPUS SHALL HAVE FIRST RIGHT OF REFUSAL OF ALL EQUIPMENT REMOVED AND DEMOLISHED.

4. TRANSFERRED CIRCUITS SHALL NOT BE REUTILIZED ON <E> PANELS AND SHALL BE BLOCKED OFF FROM <E> BREAKERS. SPARE PLATE SHALL BE INSTALLED TO CIRCUIT BREAKERS WITH THE LAMENATED AFFIXED LABEL: "DO NOT USE OR CONNECT".

GENERAL NOTES THIS SHEET:

1. USE ONLY BLACK, PURPLE, OR BROWN INK OR PENCIL TO MAKE ANY ALTERATIONS TO THE DRAWING.

2. CAMPUS SHALL HAVE FIRST RIGHT OF REFUSAL OF ALL EQUIPMENT REMOVED AND DEMOLISHED.

3. TRANSFERRED CIRCUITS SHALL NOT BE REUTILIZED ON <E> PANELS AND SHALL BE BLOCKED OFF FROM <E> BREAKERS. SPARE PLATE SHALL BE INSTALLED TO CIRCUIT BREAKERS WITH THE LAMENATED AFFIXED LABEL: "DO NOT USE OR CONNECT".

REVISIONS

<table>
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<th>DATE</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>50% SD SET</td>
<td>12/04/2015</td>
</tr>
<tr>
<td>2</td>
<td>100% CD SET</td>
<td>04/06/2016</td>
</tr>
</tbody>
</table>
1. Hatch pattern indicates items to be demolished.

2. Campus shall have first right of refusal of all equipment removed and demolished.

Luminous ceiling with existing normal and emergency lighting and circuits.

Revisions:
1. 50% SD set 12/04/2015
2. 100% CD set 04/06/2016
GENERAL NOTES:

1. ALL KEYED NOTES NOT USED THIS SHEET.
EMERGENCY GENERATOR AND DATA CENTER HVAC UPGRADES

RIO HONDO COLLEGE
3650 WORKMAN MILL RD.
WHITTIER, CA 90601

ELECTRICAL NEW WORK FLOOR PLAN - ADMINISTRATION BUILDING

E102.DWG
SM
11/19/15
PF

REVISIONS
NUMBER DESCRIPTION DATE
1 50% SD SET 12/04/2015
2 100% CD SET 04/06/2016

ALL <E> AND <N> CONDUIT WHICH PASSES THROUGH A FIRE RATED PARTITION SHALL BE PROVIDED WITH A FIRESTOP SYSTEM WHICH MAINTAINS THE FIRE RATING OF THE PARTITION. ALL <E> CONDUIT WHICH DO NOT CURRENTLY HAVE A CODE COMPLIANT FIRESTOP SYSTEM INSTALLED SHALL BE REPAIRED TO A CONDITION SUCH THAT THE FIRE RATING OF THE PARTITION IS MAINTAINED.
1. All <E> and <N> conduit which passes through a fire-rated partition shall be provided with a firestop system which maintains the fire rating of the partition. All <E> conduit which do not currently have a code compliant firestop system installed shall be repaired to a condition such that the fire rating of the partition is maintained.

2. See sheet E002 for electrical schedules.

3. Provide new removable traffic bollard with padlock. See detail 1 sheet E502 for further details. (Typ. 4)

4. Provide vault for generator conduit. See detail 5 sheet E502 for further details. (Typ. 4)

5. Provide new 2-1/2" C - 4 #4/0 + #4/0 GND & 2 2" C - 4 #2/0 + #6 GND.

6. Control signalling between <N> generator and generator control board shall be installed through 2" C within 21" concrete encasement. See detail 9 sheet E501 for further details.
1. All <E> and <N> conduit which passes through a fire rated partition shall be provided with a firestop system which maintains the fire rating of the partition. All <E> conduit which do not currently have a code compliant firestop system installed shall be repaired to a condition such that the fire rating of the partition is maintained.

2. <N> receptacle and lighting shall be rewired to the new emergency power distribution room in the EOC remodel project.
PRIOR TO GENERATION OF SHOP DRAWINGS AND SUBMITTALS.

PLACEMENT OF SYSTEMS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE MEP SYSTEMS BASED ON

2015 International Fire Code and 2013 California Amendments

2015 Uniform Plumbing Code and 2013 California Amendments

2015 Uniform Mechanical Code and 2013 California Amendments

2013 Building Standards Administrative Code, Part 1, Title 24 C.C.R.

2013 California Green Building Standards Code (CALGreen), Part 11, Title 24 C.C.R.

BE DEMOLISHED AND PROPERLY RE-INSTALLED AT NO ADDITIONAL COST TO THE PROJECT.

PRODUCED USING A 3D SOFTWARE SHOWING FINAL AND DETAILED MEP, STRUCTURAL, AND ARCHITECTURAL TRADES.
**UPF MODE CONTROL UNIT SCHEDULE**

<table>
<thead>
<tr>
<th>No.</th>
<th>MFR</th>
<th>Model</th>
<th>TON</th>
<th>CAPACITY</th>
<th>CFM</th>
<th>ENERGY SAVING</th>
<th>EFFICIENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TRANE</td>
<td>4TVB0009B100NB</td>
<td>3/4</td>
<td>9500 BTU/h</td>
<td>25</td>
<td>350 R410A</td>
<td>.17</td>
</tr>
<tr>
<td>2</td>
<td>TRANE</td>
<td>4TVB0009B100NB</td>
<td>3/4</td>
<td>9500 BTU/h</td>
<td>25</td>
<td>350 R410A</td>
<td>.17</td>
</tr>
<tr>
<td>3</td>
<td>TRANE</td>
<td>4TVB0009B100NB</td>
<td>3/4</td>
<td>9500 BTU/h</td>
<td>25</td>
<td>350 R410A</td>
<td>.17</td>
</tr>
<tr>
<td>4</td>
<td>TRANE</td>
<td>4TVB0009B100NB</td>
<td>3/4</td>
<td>9500 BTU/h</td>
<td>25</td>
<td>350 R410A</td>
<td>.17</td>
</tr>
</tbody>
</table>

**COMPUTER ROOM (CRAC) CONDENSING UNIT SCHEDULE**

<table>
<thead>
<tr>
<th>No.</th>
<th>MFR</th>
<th>Model</th>
<th>TON</th>
<th>CAPACITY</th>
<th>CFM</th>
<th>ENERGY SAVING</th>
<th>EFFICIENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LIEBERT</td>
<td>MCM040 CAC-1</td>
<td>2,700</td>
<td>105°F R-410A</td>
<td>1.4</td>
<td>1.9</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>LIEBERT</td>
<td>MCM040 CAC-2</td>
<td>2,700</td>
<td>105°F R-410A</td>
<td>1.4</td>
<td>1.9</td>
<td>15</td>
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</table>

**REFRIGERANT ELECTRICAL OPERATING WEIGHT REMARKS**

<table>
<thead>
<tr>
<th>CCU 1</th>
<th>CCU 2</th>
<th>CCU 3</th>
<th>CCU 4</th>
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<tbody>
<tr>
<td>MFR MODEL</td>
<td>SERVICE</td>
<td>CAPACITY</td>
<td>CFM</td>
</tr>
<tr>
<td>LIEBERT MCM040 CAC-1</td>
<td>2,700</td>
<td>105°F R-410A</td>
<td>1.4</td>
</tr>
<tr>
<td>LIEBERT MCM040 CAC-2</td>
<td>2,700</td>
<td>105°F R-410A</td>
<td>1.4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>MCU 1</th>
<th>MCU 2</th>
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</thead>
<tbody>
<tr>
<td>MFR MODEL</td>
<td>SERVICE</td>
</tr>
<tr>
<td>TRANE 4MCUCUY6NCE000 TC-4, TC-5, TC-6, TC-7, TC-8</td>
<td>R410A</td>
</tr>
<tr>
<td>TRANE 4MCUCUY4NCE000 WC-1, TC-1, TC-2, TC-3</td>
<td>R410A</td>
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**MAKE-UP AIR SUPPLY FAN SCHEDULE**

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<th>No.</th>
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<th>TON</th>
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<th>CFM</th>
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<tbody>
<tr>
<td>1</td>
<td>GREENHECK</td>
<td>SQ-90-D</td>
<td>350</td>
<td>CFM</td>
<td>DIRECT</td>
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**DIFFUSER & GRILLE SCHEDULE**

<table>
<thead>
<tr>
<th>No.</th>
<th>MFR</th>
<th>Model</th>
<th>TON</th>
<th>CAPACITY</th>
<th>CFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TITUS</td>
<td>24x24TITUS</td>
<td>1/10 HP</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ANCHORAGE**

- 24x24 PERFORATED RAISED FLOOR TILES/PANELS TO MATCH EXISTING RAISED FLOOR

**MERV 8 FOR OUTSIDE AIR VENTILATION REQUIREMENTS**
1. REMOVE <E> MECHANICAL EQUIPMENT AND DEMOLISH ALL ASSOCIATED DUCTWORK, DUCT ACCESSORIES, PIPING, AND PIPING ACCESSORIES UP TO THEIR SOURCE EQUIPMENT.

2. DEMOLISH ALL EXISTING DUCTWORK, DUCT SUPPORTS, DUCT ACCESSORIES, DUCT FITTINGS, DIFFUSERS, HYDRONIC PIPING AND ACCESSORIES, AND ALL OTHER ASSOCIATED MECHANICAL ITEMS SERVING THIS AREA AND REMOVE BACK TO THEIR SOURCE EQUIPMENT.

CAMPUSShall have first right of refusal of all equipment removed and demolished.

HATCHED PATTERN INDICATES ITEMS TO BE DEMOLISHED, INCLUDING CEILING DIFFUSERS, GRILLES, AND ALL ASSOCIATED RIGID AND FLEXIBLE DUCTWORK.

3. BLANK OFF ALL UNDERFLOOR SYSTEM DIFFUSERS IN THIS AREA WITH PANELS TO MATCH EXISTING FLOOR SYSTEM. AREA WILL BE CONDITIONED FROM NEW CEILING VRF UNIT.

4. DEMOLISH CONDENSATE UP TO P.O.R. AS INDICATED. PREPARE FOR CONNECTION OF <N> CONDENSATE LINE.

REMOVE ALL DUCTWORK AND ACCESSORIES OF SUSPENDED AC UNITS. THIS SHALL INCLUDE DUCTWORK FROM AC UNITS AND ALL IN CEILING DUCTWORK.

REVISIONS

NUMBER DESCRIPTION DATE

1 50% SD SET 12/04/2015

2 100% CD SET 04/06/2016
EMERGENCY GENERATOR AND DATA CENTER HVAC UPGRADES

RIO HONDO COLLEGE
3650 WORKMAN MILL RD., WHITTIER, CA 90601

MECHANICAL DEMOLITION PLAN - GENERATOR ROOM 113C

1/4" = 1'-0"

HATCHED PATTERN INDICATES ITEMS TO BE DEMOLISHED.

1. **COMPLETELY REMOVE AND DEMOLISH ALL ASSOCIATED DUCTWORK, DUCT ACCESSORIES, PIPING, AND PIPING ACCESSORIES CONNECTED TO GASOLINE EMERGENCY GENERATOR BACK TO PENETRATION INTO ROOM. CAP AND ABANDONED DUCTWORK AND PIPING AT WALL/CEILING PENETRATION.**

2. **CAP OR INSTALL PLUG ON NATURAL GAS CONNECTION TO LOCATION OUTSIDE BUILDING. SEAL PENETRATION IN BUILDING.**

GENERAL NOTES THIS SHEET:

1. **CAP OR INSTALL PLUG ON NATURAL GAS CONNECTION TO LOCATION OUTSIDE BUILDING. SEAL PENETRATION IN BUILDING.**

2. **CAP OR INSTALL PLUG ON NATURAL GAS CONNECTION TO LOCATION OUTSIDE BUILDING. SEAL PENETRATION IN BUILDING.**

REVISIONS

1. 50% SD SET 12/04/2015
2. 100% CD SET 04/06/2016
EMERGENCY GENERATOR AND DATA CENTER HVAC UPGRADES

RIO HONDO COLLEGE
3650 WORKMAN MILL RD., WHITTLER, CA 90601

MECHANICAL SITE PLAN (FOR REFERENCE ONLY)

GENERAL NOTES THIS SHEET:
1. THIS SHEET INCLUDES APPROXIMATE LOCATION OF VCU-1, CCU-1 AND CCU-2 AT THE BUSINESS FACILITY AND LOADING DOCK

REVISED: M100

MECHANICAL SITE PLAN

EXP. 9-30-16

SCALESUBMITTAL DATE

SHEET TITLE

SHEET NUMBER

CAD FILE

PROJECT NUMBER

APPROVED BY

CHECKED BY

DESIGNED BY

DRAWN BY

FILE NAME

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

REVISIONS

NUMBER DESCRIPTION DATE

1 50% SD SET 12/04/2015

2 100% CD SET 04/06/2016

This page contains a mechanical site plan for Rio Hondo College, indicating the approximate location of VCU-1, CCU-1, and CCU-2 at the business facility and loading dock. The site plan includes revisions for 50% SD set on 12/04/2015 and 100% CD set on 04/06/2016.
SHEET FOR ADDITIONAL INFORMATION.

THREADED ROD TO STRUCTURAL

NOTES:

1. PROVIDE AND INSTALL SUPPORT HANGERS AT ALL FITTINGS. SPACE HANGERS AT A MAXIMUM OF 6'-0" ON CENTER.

2. PROVIDE ALL SUPPORT HANGERS IN ACCORDANCE WITH SMACNA GUIDELINES. REFER TO "SMACNA DUCT CONSTRUCTION STANDARDS," LATEST EDITION.

3. PROVIDE AND INSTALL SEISMIC BRACING SECURE TO STRUCTURE. NON-SEISMIC BRACING & SWAY BRACING SECURE TO STRUCTURE.

4. PROVIDE ALL SUPPORT HANGERS IN ACCORDANCE WITH SMACNA GUIDELINES. REFER TO "SMACNA DUCT CONSTRUCTION STANDARDS," LATEST EDITION.

5. PROVIDE ALL SUPPORT HANGERS IN ACCORDANCE WITH SMACNA GUIDELINES. REFER TO "SMACNA DUCT CONSTRUCTION STANDARDS," LATEST EDITION.

REQUIREMENTS, SEISMIC RESTRAINT MANUAL FOR MECHANICAL SYSTEMS, MOST RECENT EDITION.

INSTALL ALL DUCTWORK PER SMACNA GUIDELINES. REFER TO "SMACNA DUCT CONSTRUCTION STANDARDS," LATEST EDITION.

TABLE 5-2 MINIMUM HANGER SIZES FOR ROUND DUCT

<table>
<thead>
<tr>
<th>Duct Size</th>
<th>Strap (Min.)</th>
<th>Sheet Metal</th>
<th>Nut (TYP.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-18&quot; DN.</td>
<td>1&quot; X 18 GA.</td>
<td>2-1/2&quot; x 12 GA.</td>
<td>5/8&quot;</td>
</tr>
<tr>
<td>19&quot;-24&quot; DN.</td>
<td>1&quot; X 18 GA.</td>
<td>2-1/2&quot; x 12 GA.</td>
<td>5/8&quot;</td>
</tr>
<tr>
<td>25-36&quot; DN.</td>
<td>2-1/2&quot; x 12 GA.</td>
<td>3&quot; X 22 GA MIN.</td>
<td>7&quot;</td>
</tr>
<tr>
<td>37&quot;-49&quot; DN.</td>
<td>3&quot; X 22 GA MIN.</td>
<td>3&quot; X 22 GA MIN.</td>
<td>7&quot;</td>
</tr>
<tr>
<td>50&quot;-60&quot; DN.</td>
<td>3&quot; X 22 GA MIN.</td>
<td>3&quot; X 22 GA MIN.</td>
<td>7&quot;</td>
</tr>
<tr>
<td>61-84&quot; DN.</td>
<td>4&quot; X 22 GA MIN.</td>
<td>3&quot; X 22 GA MIN.</td>
<td>7&quot;</td>
</tr>
</tbody>
</table>

BOLT SIZE

1. "TOLCO" 1F OR EQUAL APPROVED "WEDGE NUT"
2. "EPIC WEDGE NUT"
3. "EPIC WEDGE NUT"
4. "EPIC WEDGE NUT"

ANCHORS DIFFER DUE TO DECK CONSTRUCTION.
N.T.S. 1. DATA CENTER HVAC DDC DIAGRAM

1. TAPE MOISTURE DETECTORS TO SLAB IN DATA ROOM UNDERFLOOR SYSTEM. MOISTURE DETECTORS SHALL FORM A 2X3 GRID WITH EXTREMITIES AT 10' FROM PERIMITER OF DATA CENTER FLOOR.

2. 200-1,000 PPM (TRANSMITTED AS 0-10V SIGNAL).