



**CONNECTICUT  
CLEAN ENERGY FUND**

October 21<sup>st</sup>, 2009

**RE: WEB-BASED FUEL CELL REMOTE MONITORING PROJECT**

Potential RFP Bidders:

**REQUEST FOR PROPOSALS  
PLEASE READ THIS DOCUMENT CAREFULLY**

This solicitation is being conducted under procedures for competitive contracts established by the Connecticut Clean Energy Fund (CCEF).

CCEF will award contracts based on the following:

- All Statement of Work (SOW) requirements being met
- The best combination of:
  - Technical factors (based on qualitative merit criteria) and
  - Evaluated price (or cost)

This request for proposals (RFP) invites qualified electrical contractors to install data collection, instrumentation and communication equipment at several locations in Connecticut for the purpose of establishing a web-based fuel cell remote monitoring system.

Power Management Concepts, LLC (PMC), acting as an agent of CCEF, is managing this overall effort. The next phase of this project involves the installation of remote monitoring equipment at two (2) different locations in central Connecticut. On behalf of CCEF, PMC seeks to identify qualified contractors to perform this work. The following pages and attached drawings and documents describe the scope of work. Contractors can submit quotes for individual scopes, or a single quote for both locations. PMC intends to make qualified contractor recommendations to CCEF based on the quotes received. CCEF will then execute an agreement between the contractor(s) of choice and CCEF.

Attached you will find RFP #CCEF-FCMPGM-004.

Proposals are due by 4:00 p.m. on Friday, October 30<sup>th</sup>, 2009.  
Tentative Installation Date is Tuesday November 17<sup>th</sup>, 2009.

# CCEF WEB-BASED FUEL CELL REMOTE MONITORING PROJECT

If you have questions regarding this RFP, please send an e-mail to Charles Berry at [cberry@powermanage.com](mailto:cberry@powermanage.com). All questions, and subsequent responses, will be posted on CCEF's Web site at <http://www.ctcleanenergy.com/YourBusinessorInstitution/FuelCellPerformanceMonitoringProgram/tabid/400/Default.aspx>

We look forward to answering any questions you might have and reviewing your proposals.

Sincerely,

A handwritten signature in black ink, appearing to read "Keith Frame", with a long horizontal flourish extending to the right.

Keith Frame  
Associate Director, New Technologies and Project Management



**CONNECTICUT  
CLEAN ENERGY FUND**

# **WEB-BASED FUEL CELL REMOTE MONITORING PROJECT**

## **REQUEST FOR PROPOSALS**

**RFP #CCEF-FCMPGM-004**

**Administered By:**

**Power Management Concepts, LLC**

**On Behalf Of:**

**The Connecticut Clean Energy Fund**

RFP Manager	Charles Berry, PMC
RFP Issued:	October 21 <sup>st</sup> , 2009
Deadline for submitting questions:	October 26 <sup>th</sup> , 2009 at 4:00 pm EST
Bidders' Teleconference (Optional):	October 28 <sup>th</sup> , 2009 from 3:30-4:30 pm EST
Response to Questions Posted on CCEF Website:	October 29 <sup>th</sup> , 2009
Deadline for Submission of Proposals:	October 30 <sup>th</sup> , 2009 at 4:00 pm EST

### ***Important Dates:***

***Wednesday, October 21<sup>st</sup>, 2009***

***Friday, October 30<sup>th</sup>, 2009, 4:00 p.m.***

***Announcement  
Proposals Due***

# CCEF WEB-BASED FUEL CELL REMOTE MONITORING PROJECT

Questions or clarifications about this request for proposals (RFP) should be directed to:

Power Management Concepts, LLC  
20 Crossways Park North Suite 400  
Woodbury, NY 11797  
Telephone: 516-465-0188  
FAX: 516-465-0180  
E-mail: [cberry@powermanage.com](mailto:cberry@powermanage.com)

This RFP is available on the following Web site:

Connecticut Clean Energy Fund  
<http://www.ctcleanenergy.com/YourBusinessorInstitution/FuelCellPerformanceMonitoringProgram/tabid/400/Default.aspx>

Copies may be obtained by writing or calling:

Power Management Concepts, LLC  
20 Crossways Park North Suite 400  
Woodbury, NY 11797  
Telephone: 516-465-0188  
FAX: 516-465-0180  
E-mail: [cberry@powermanage.com](mailto:cberry@powermanage.com)

Please request RFP: #CCEF-FCMPGM-004

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## **Executive Summary**

The Connecticut Renewable Energy Investment Fund also known as the Connecticut Clean Energy Fund (CCEF) was created under 16-245n of the Connecticut General Statutes to promote investment in and growth of renewable energy sources. Expenditures of the funds may include, but are not limited to, grants, direct or equity investments, contracts or other actions that support renewable energy technologies such as wind energy, solar energy, fuel cells, wave power and biomass.

The CCEF seeks to engage qualified electrical contractors to install data collection, instrumentation and communication equipment at several locations in Connecticut for the purpose of establishing a web-based fuel cell remote monitoring system

## Section 1 – REQUEST FOR PROPOSAL

### 1.1 *Description*

This RFP seeks bids from experienced electrical contractors to install data collection and instrumentation equipment at the Connecticut Science Center at 250 Columbus Boulevard in Hartford, CT 06103 and Middletown High School at 200 La Rosa Way in Middletown, CT 06457.

**The Scope of Work is separated according to location. Contractors may bid on individual scopes or provide a combined electrical bid for both sites using the attached Bid Forms.**

Work at both sites is anticipated to be completed by November 30, 2009.

### 1.2 *Overview of Electrical Work*

- 1.2.1.** This phase of work at the two (2) central Connecticut sites will involve the installation of all data gathering equipment including but not limited to data loggers, datacom translators, uninterruptible power supplies, and all associated electrical power and communication wiring required to implement a fully-functioning remote monitoring system.

### 1.3 *References*

- 1.3.1.** Any engineering drawings shall identify the issuing company, date and revision of drawing.

- 1.3.2.** The scope of work identified in this document shall be performed in accordance with the following Standards:

- National Electric Code (NFPA 70)
- NEMA WC 55-1992 (Instrumentation and Thermocouple Wire)
- NEMA ICS 6-1993 (Enclosures)
- UL 508, Industrial Control Equipment

- 1.3.3.** Local and national electrical code compliance shall take precedence under this scope of work.

### 1.4 *Definitions*

Approved Equal: an alternate component or practice proposed by the Contractor that has received written approval from the Owner.

Contractor: company contracted to install the System and associated equipment.

# CCEF WEB-BASED FUEL CELL REMOTE MONITORING PROJECT

Deliverable Document: a document that is required to be presented to the Owner as part of the contractual obligation of the Contractor.

External Wiring: any wiring that is not wholly within a control enclosure.

Field Device: any device not inside a control enclosure such as a temperature or pressure transmitter, limit switch or valve position indicator.

Furnished by Others (FBO): equipment purchased by Owner but installed by Contractor.

I/O (input/output): used when describing analog or digital signals to or from a control system or data acquisition system.

Owner: Connecticut Innovations.

P&ID: Piping and Instrumentation Diagram

Project Manager: Power Management Concepts, LLC

Remote Monitoring System: the instruments, devices, control wiring, programming and documentation that comprise the system for monitoring fuel cell performance.

“Shall” and “Should”: the word “shall” is understood as a requirement; the word “should” is understood as a recommendation.

Site Owner: Middletown High School, Middletown, CT/Connecticut Science Center, Hartford, CT.

Terminal Block: a grouping of one or more terminal blocks.

## **1.5 Electrical Requirements**

- 1.5.1. Overcurrent Protection**: Branch circuits feeding individual loads shall have overcurrent protection in accordance with National Electrical Code. The preferred method for control power distribution overcurrent protection is a circuit breaker. If Contractor provides fuses for overcurrent protection, Contractor shall supply three (3) spare fuses.
- 1.5.2. Enclosures**: Enclosures shall be suitable for the intended location. NEMA 1 and NEMA 3R enclosures shall be used where appropriate.
- 1.5.3. Wire Markers**: The preference of wire markers used on signal and control wiring is permanent, heat-shrink type. Wire numbers shall be clearly and permanently identified and correspond to identification shown on drawings supplied by Owner.
- 1.5.4. Grounding**: Grounding of all equipment shall be per National Electrical Code.

## **1.6 Instructions to Electrical Contractors**

- 1.6.1** Responsibilities: The Contractor shall be responsible for installing a system defined in this Scope of Work document that is operational, meets local and National Electric Code requirements and meets local electric utility requirements. Contractor and all of its subcontractors shall perform the work safely and without disruption to the operation of the Site Owner's facility. Contractor shall be responsible for obtaining any required permits to perform the work requested. Contractor shall provide Owners with all documentation including permit drawings and equipment cutsheets. Contractor shall be licensed and authorized to perform electrical work per local and state regulations.
- 1.6.2** Insurance: Contractor shall obtain General Liability Insurance per Site Owner's requirements and agrees to hold Connecticut Innovations, the Site Owner and Power Management Concepts, LLC harmless from any and all liabilities.
- 1.6.3** Extras: Contractor agrees to provide quotes for any additional work or changes in Scope of Work as directed by Owner.
- 1.6.4** Delays: Contractor is not responsible for delays in work schedule due to late deliveries of equipment, material or information supplied by Owner.
- 1.6.5** Conflicts: conflict resolution terms mutually beneficial to the Owner and the Contractor will be identified in the Purchase Order.
- 1.6.6** Alternates: if applicable, issues related to the provision of alternate equipment by Vendor will be addressed in the Purchase Order.
- 1.6.7** Approvals: terms related to approvals by Owner will be addressed in the Purchase Order, typically a written request for variance is submitted by Contractor and a written response will be sent to Contractor from Owner.
- 1.6.8** Interface with Site Owner's Facility: the Scope of Work defined in this document requires some degree of interface with Site Owner's facility. Contractor will need to coordinate any necessary equipment shutdowns with the Site Owner and the fuel cell manufacturer through the PMC Project Manager.

## **1.7 Connecticut Science Center – Electrical Scope of Work**

### **1.7.1. Description**

This RFP seeks bids from experienced electrical contractors who are qualified to install data collection and instrumentation equipment at the Connecticut Science Center at 250 Columbus Boulevard in Hartford, CT 06103.

### **1.7.2. Overview of Electrical Work**

This work at the Science Center involves the installation of a data gathering system, associated electrical power and communication wiring required to transmit data between the data gathering panel and the Internet.

### **1.7.3. Electrical Scope of Work**

#### **Remote Monitoring System Equipment and Wiring**

##### **Data Gathering Panel (DGP)**

Contractor will fabricate one (1) DGP using the Bill of Materials and Data Gathering Panel Wiring Dwg. No. 2442-HSC-E02 provided as attachments.

Contractor will install the DGP at the customer's site, on the inside wall of the Tel/Data Room (G130) at the approximate location shown on Electrical Site Plan Dwg. No. 2442-HSC-E01 (see Attachment).

##### **Power Wiring**

Contractor will provide a 120 VAC supply for the DGP, run from the nearest existing load center. Contractor will supply and install a new 15 A. circuit breaker in this panel and run new conduit and wiring to the DGP.

##### **Communication Wiring**

Contractor will supply and install new telephone 'house' wiring (1 Quad) from the Telco demark inside the Tel/Data Room (G130) to the DGP. Contractor will also supply and install an RJ-11 wall jack inside the DGP for terminating the telephone quad.

##### **Instrumentation**

Contractor will supply and install four (4) Omega Model PRTF RTDs with Connection Head, Thermowell and Transmitter

## **1.8 Middletown High School – Electrical Scope of Work**

### **1.8.1. Description**

This RFQ seeks bids from experienced electrical contractors who are qualified to install data collection equipment at Middletown High School at 200 La Rosa Way in Middletown, CT 06457.

### **1.8.2. Overview of Electrical Work**

This work at Middletown High School involves the installation of a data gathering system and all associated electrical power, data and communication wiring required to gather and transmit data over the Internet.

### **1.8.3. Electrical Scope of Work**

#### **Remote Monitoring System Equipment and Wiring**

##### **Data Gathering Panel (DGP)**

Contractor will fabricate one DGP using the Bill of Materials and Data Gathering Panel Wiring Dwg. No. 2442-MHS-E02 provided as attachments. Contractor to fabricate a 1/8 in. thick plexiglass protective cover to be installed above Translator printed circuit board which shall be mounted on stand-offs attached to the DGP back panel.

Contractor will install the DGP at the customer's site, on the inside wall of the Storage Room (G103) as near to the existing UTCP Carrier Monitoring Panel as possible, at the approximate location shown on Electrical Site Plan Dwg. No. 2442-MHS-E01.

##### **Power Wiring**

Contractor will provide a 120 VAC supply for the DGP, run from the nearest existing load center. Contractor will supply and install a new 15 A. circuit breaker in this panel and run new conduit and wiring to the DGP.

##### **Communication Wiring**

Contractor will supply and install new telephone 'house' wiring (1 Quad) from the Telco demark to the DGP. Contractor will supply and install an RJ-11 surface-mount jack inside the DGP for terminating the telephone quad.

## **1.9 List of Attachments**

### **1.9.1. Connecticut Science Center**

- Electrical Site Plan Dwg. No. 2442-HSC-E01
- Data Gathering Panel Wiring Diagram Dwg. No. 2442-HSC-E02
- Data Gathering Panel Bill Of Materials

### **1.9.2. Middletown High School**

- Electrical Site Plan Dwg. No. 2442-MHS-E01
- Data Gathering Panel Wiring Diagram Dwg. No. 2442-MHS-E02
- Data Gathering Panel Bill of Materials

## Schedule

Important dates for this solicitation include:

- October 21<sup>st</sup>, 2009 – RFP announcement date
- October 30<sup>th</sup>, 2009 – Proposals due

### **1.10 Contracting**

This RFP provides for a process of competitive bidding, pursuant to which a contract is awarded only when definitive contract documents between CCEF and a bidder are negotiated and executed. Neither designation as a Round 1 or Round 2 proposer or finalist, respectively, nor final selection for negotiation commits CCEF to award any such contract. CCEF reserves the right to discontinue such negotiations at any time for any reason, and to enter into negotiations with any other proposer at any time. No award of a contract shall be final and effective unless and until CCEF and the proposer have entered into definitive contract documents.

### **1.11 Deliverables**

It is expected that the contractor will be responsible for performing the aforementioned Scope of Work according to schedule and for the agreed upon contract price.

## Section 2 - RFP Requirements

### 2.1. Outline

This RFP is organized into the following sections:

1. Description of the organization(s)
2. Description of experience
3. Formal RFP response questions
4. Budget
5. References

### 2.2. Requirements

Proposals should be submitted on the enclosed bid forms (Appendix A & B), on standard 8.5 x 11" paper, accompanied by: (1) a cover letter from the submitting organization.

Proposals are due **October 30, 2009 by 4:00 p.m.**, addressed to:

**Power Management Concepts, LLC  
ATTN: RFP #CCEF-FCMPGM-004  
20 Crossways Park North Suite 400  
Woodbury, NY 11797**

Proposals must address the following sections:

#### 2.2.1. Description of the Organization(s)

In no more than 1 page, please include the following information:

- ✓ Lead organization – Name of the organization, name and title of the project leader, address, contact information, mission of the organization.
- ✓ Supporting organization(s) – Name(s) of the organization, name(s) and title(s) of the project participant(s), address(es), mission of the organization(s), and contact information.
- ✓ Organizational brochure(s) and collateral materials – limit 3 pieces.

#### 2.2.2. References

Please provide 3 references from prior projects that your organization has been involved with relating to: the installation of instrumentation and controls, or other relevant projects you deem appropriate to this RFP.

## **Section 3 - Funding**

### **3.1. *Funding***

The total funding available under this program will be based on a determination of the best program proposed for the most cost-effective price, subject to any CCEF budget constraints. It should be stressed that this is a competitive solicitation.

### **3.2. *Disbursements***

**Payment will be made by CCEF upon satisfactory completion of the work.**

## Section 4 - Proposal Evaluation Process

### 4.1. *Evaluation Committee*

CCEF may use CCEF staff, private consultants or other designated representatives to evaluate the proposals. This group will form the CCEF Evaluating Committee.

### 4.2 *Proposal Evaluation Criteria*

Proposals will first be screened for completeness. Proposals that are not complete will be returned promptly and can be resubmitted if done so before the original due date. Proposals that are complete shall be evaluated based on the following:

- a. Applicant Team
  - ✓ Does the team have sufficient experience?
  - ✓ Is there a history of good performance on other relevant projects?
  - ✓ Is the project's organizational structure and leadership appropriate enough to ensure success?
  
- b. Cost Evaluation
  - ✓ Is the budget reasonable given the funding available for this program?
  - ✓ How well does the budget of your proposal compare with that proposed by other RFP submitters?

## Section 5 - RFP Standard Conditions

### 5.1. *Communications and Questions*

All communications with respect to this RFP shall be directed to Charles Berry by means of [cberry@powermanage.com](mailto:cberry@powermanage.com). No other person is authorized to provide information with respect to this RFP, and contact with any other employee, officer or member of CI, CCEF or the CCEF Board of Directors with respect to this RFP is prohibited. Questions and requests for clarification with respect to this RFP must be submitted in writing via email in accordance with the communications protocol set forth above on or before 4:00 p.m. on October 26<sup>th</sup>, 2009. Responses will be posted on the CCEF Web site at <http://www.ctcleanenergy.com/YourBusinessorInstitution/FuelCellPerformanceMonitoringProgram/tabid/400/Default.aspx>.

### 5.2. *No Commitment – Reserved Rights*

This RFP is not an offer and neither this RFP nor any subsequent discussion shall give rise to any commitment on the part of CCEF or confer any rights on any proposer unless and until a binding written agreement is executed by CCEF and the proposer. CCEF reserves the right to reject any or all proposals, to waive defects or irregularities in any proposal, to enter into discussions with selected proposers, to discontinue discussions with any proposer at any time and for any reason, to correct inaccurate awards, to change the timing or sequence of activities related to this RFP, to modify, suspend or cancel this RFP, and to condition, modify or otherwise limit awards pursuant to this RFP.

### 5.3. *Proposer's Cost*

All costs associated with the preparation of a proposal, any related investigative or due diligence activities and any resulting discussions or negotiations shall be borne by the proposer.

### 5.4. *Proposer Representations*

By responding, the proposer shall be deemed to have represented and warranted: (1) that the proposal is not made in connection with any competing proposer submitting a separate response to this RFP and is in all respects fair and without collusion or fraud; (2) that the proposer did not participate in the RFP development process and had no knowledge of the specific contents of the RFP prior to its issuance; (3) that no employee of CI or CCEF participated directly or indirectly in the proposer's proposal preparation; (4) that the proposer has not been convicted of bribery or attempting to bribe a public official or employee of the state, has not been disqualified for contract awards by any agency of the state and is not in default under any contract with an agency of the state; and (5) that the information contained in the proposal is true, accurate and complete and includes all information necessary to ensure that the statements therein are not misleading.

## 5.5. *Freedom of Information Act*

CI is a “public agency” for purposes of the Connecticut Freedom of Information Act (“FOIA”). Accordingly, upon receipt at CI’s office, your proposal or request for financial assistance will be considered a public record and will be subject to disclosure under FOIA. Under General Statutes §1-210(b), FOIA includes exemptions for “trade secrets” and “commercial or financial information given in confidence, not required by statute.” In addition, under General Statutes § 32-40(c), all financial and credit information and all trade secrets contained in an application for financial assistance or obtained by CI concerning any applicant for financial assistance or any project, activity, technology, product or invention is exempt from disclosure under FOIA.

Only the particular information falling within one of these exemptions can be withheld by CI if CI receives a FOIA request that encompasses a particular proposal or request for financial assistance. Therefore, a proposer or applicant should specifically identify those particular sentences, paragraphs, pages, sections or exhibits that it claims to be exempt. The proposer or applicant should further provide a statement stating the basis for each claim of exemption. It will not be sufficient to state generally that the proposal is proprietary or confidential in nature and not, therefore, subject to release to third parties. A convincing explanation and rationale sufficient to justify each exemption consistent with General Statutes § 1-210(b) or General Statutes § 32-40(c) must be provided.

Proposers and applicants for financial assistance should be aware that:

- (i) CI has no obligation to notify any proposer or applicant of any FOIA request received by CI;
- (ii) CI may disclose materials claimed to be exempt if in its judgment such materials do not appear to fall within a statutory exemption;
- (iii) CI may in its discretion notify proposers of FOIA requests and/or of complaints made to the Freedom of Information Commission concerning items for which an exemption has been claimed, but CI has no obligation to initiate, prosecute or defend any legal proceeding or to seek to secure any protective order or other relief to prevent disclosure of any information pursuant to an FOIA request,
- (iv) the proposer will have the burden of establishing the availability of any FOIA exemption in any such legal proceeding, and
- (v) in no event shall CI or any of its officers, directors, or employees have any liability for the disclosure of documents or information in CI’s possession where CI, or such officer, director, or employee, in good faith believes the disclosure to be required under FOIA or other law.

In the event of a public records request for a proposal or application for financial assistance, CI may request a version of such proposal from which all information for which an FOIA exemption has been claimed has been redacted. By submitting such a proposal or application, the proposer or applicant agrees to provide such a redacted version upon request by CI.

Except for trade secret or other proprietary information identified as such pursuant to the section above dealing with the Freedom of Information Act, CI is not restricted in its right to

# CCEF WEB-BASED FUEL CELL REMOTE MONITORING PROJECT

use or disclose any or all of the information contained in any proposal or application and can do so without compensation to the proposer or applicant, notwithstanding any language in the proposal or application to the contrary. Except as otherwise expressly provided in an agreement with CI, all work products developed under a contract awarded as a result of this RFP shall be the sole property of CI.

## **5.6. *Use of Information and Ownership of Work Product***

Except for trade secret or other proprietary information identified as such pursuant to the section above dealing with the Freedom of Information Act, CCEF is not restricted in its right to use or disclose any or all of the information contained in any proposal and can do so without compensation to the proposer, notwithstanding any language in the proposal to the contrary. Except as otherwise expressly provided in an agreement with CCEF, all work product developed under a contract awarded as a result of this RFP shall be the sole property of CCEF.

## **5.7. *State Contracting Requirements***

This RFP and any contract awarded pursuant to this RFP shall be subject to and incorporate all applicable legal requirements arising under federal or state law, including applicable state statutes and Executive Orders relating to maintenance and examination of records, nondiscrimination, the Americans with Disabilities Act, violence in the workplace, and whistleblower protection. A more complete description of such state contracting requirements is available on request directed to CCEF in accordance with the communications protocol set forth above.

## Appendix A - Bid Form

The Contractor is responsible for conducting a site visit to become familiar with site conditions prior to submitting a proposal. The drawings should not be scaled for the purpose of estimating material requirements.

Site visits should be scheduled with the following site contacts:

### **Connecticut Science Center -**

Ron Katz  
(860) 520-2112

### **Middletown High School –**

Kendall Jackson  
(860) 638-1408

For all questions regarding this RFP, please send an e-mail to Charles Berry at [cberry@powermanage.com](mailto:cberry@powermanage.com). Bids should be submitted using the attached **Bid Form** for the bidder's use. This form should be completed by the bidder and signed.

The bidder shall submit their proposal and completed Bid Form to:

**Power Management Concepts, LLC**  
**20 Crossways Park North Suite 400**  
**Woodbury, NY 11797**  
**Telephone: 516-465-0188**  
**FAX: 516-465-0180**  
**E-mail: [cberry@powermanage.com](mailto:cberry@powermanage.com)**

# CCEF WEB-BASED FUEL CELL REMOTE MONITORING PROJECT

## BID FORM

To: Power Management Concepts, LLC

From: \_\_\_\_\_ Bidder's Name

\_\_\_\_\_ Bidder's Address

\_\_\_\_\_

The bidder, having familiarized themselves with the requirements of the bid package, proposes to furnish all the necessary labor, materials, equipment and services to meet the requirements of the attached document entitled REQUEST FOR PROPOSALS RFP # CCEF-FCMPGM-004 WEB-BASED FUEL CELL REMOTE MONITORING PROJECT

### PRICE BREAKDOWN

Lump Sum Bid Price – Connecticut Science Center Electrical:

\$ \_\_\_\_\_

15% contingency

\$ \_\_\_\_\_

Total Cost

\$ \_\_\_\_\_

Lump Sum Bid Price – Middletown High School Electrical:

\$ \_\_\_\_\_

15% contingency

\$ \_\_\_\_\_

Total Cost

\$ \_\_\_\_\_

Lump Sum Electrical Bid Price – Both Locations Combined:

\$ \_\_\_\_\_

Unit Price for supplying and installing CAT5 cable:

\$ \_\_\_\_\_ (\$/ft)

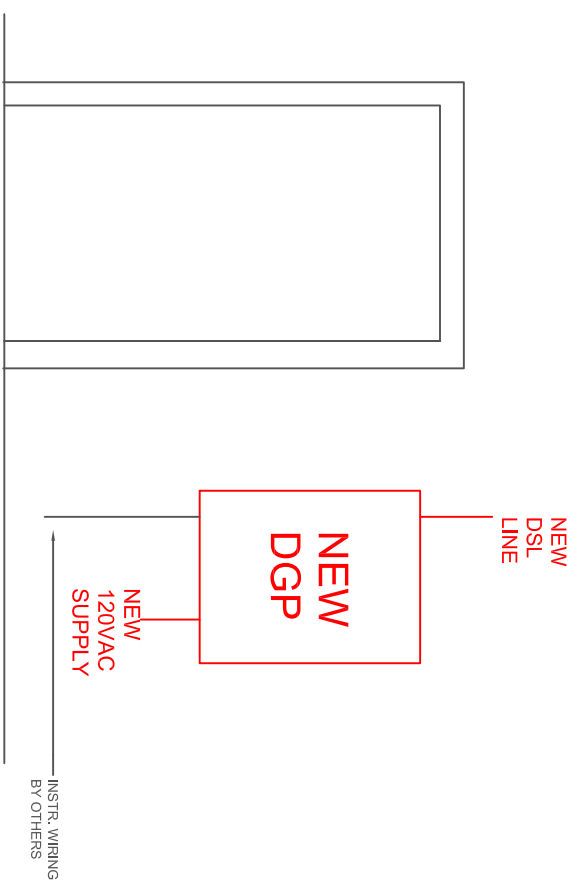
Unit Price for supplying and installing 1/2" EMT:

\$ \_\_\_\_\_ (\$/ft)

Authorized Signature \_\_\_\_\_

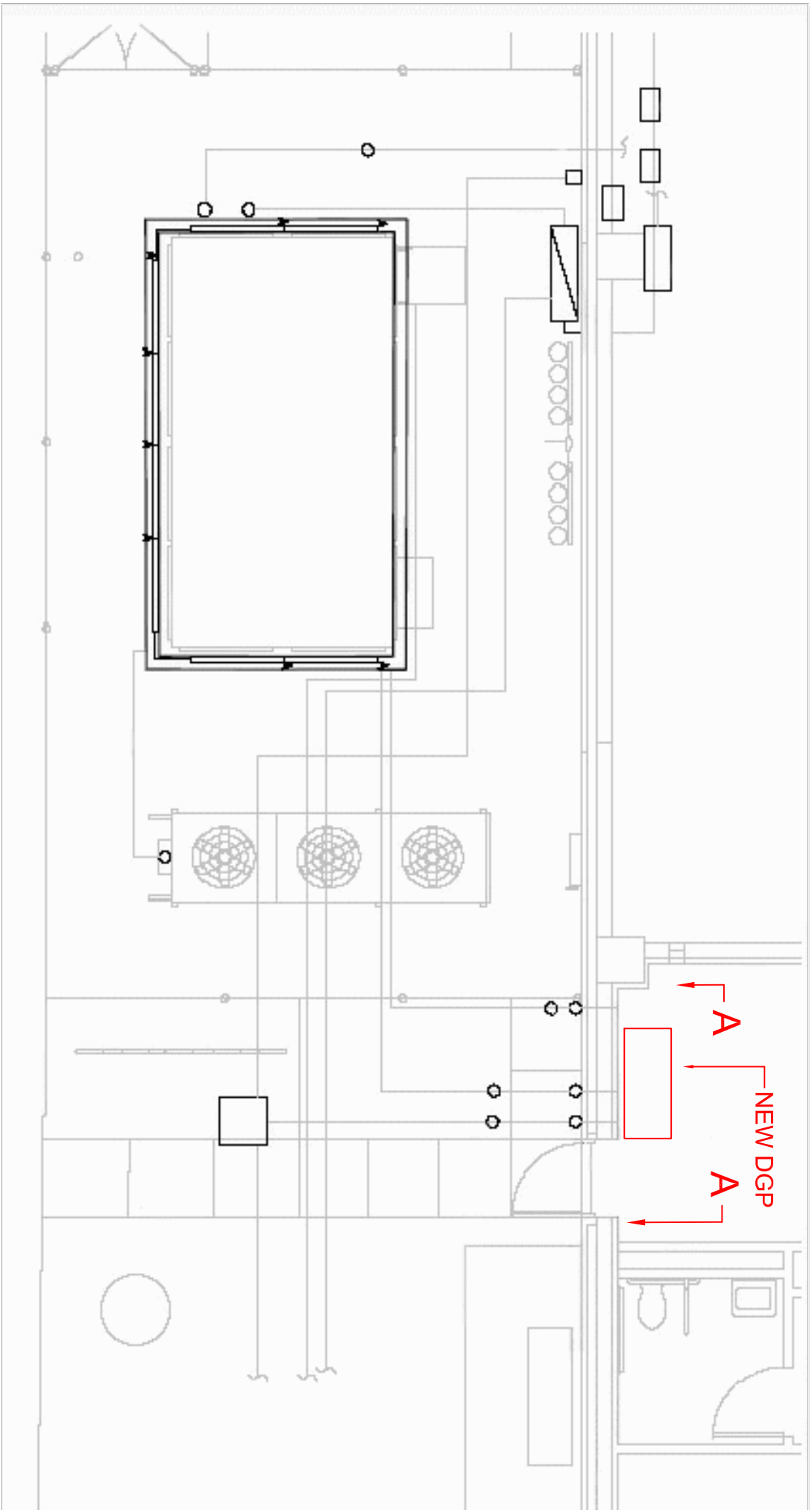
Date: \_\_\_\_\_

**Appendix B - Site Drawings and Data Sheets**



VIEW A-A

Tel/Data  
G130



Issue	Date	By	Revision Description
0	5/16/09	DRS	ORIGINAL TRACKING
1	5/26/09	AMR	CONNECTOR UPDATES
2			

CONSULTANT:



**PMC**  
POWER MANAGEMENT CONCEPTS

20 CROSSWAYS PARK DRIVE NORTH | SUITE 400  
WOODBURY, NY 11797  
PH: (516) 465-0188 | FX: (516) 465-0180  
WWW.POWERMANAGEMENT.COM

PROJECT NAME:

**CCEF**  
CONNECTICUT SCIENCE CENTER

DRAWING TITLE:

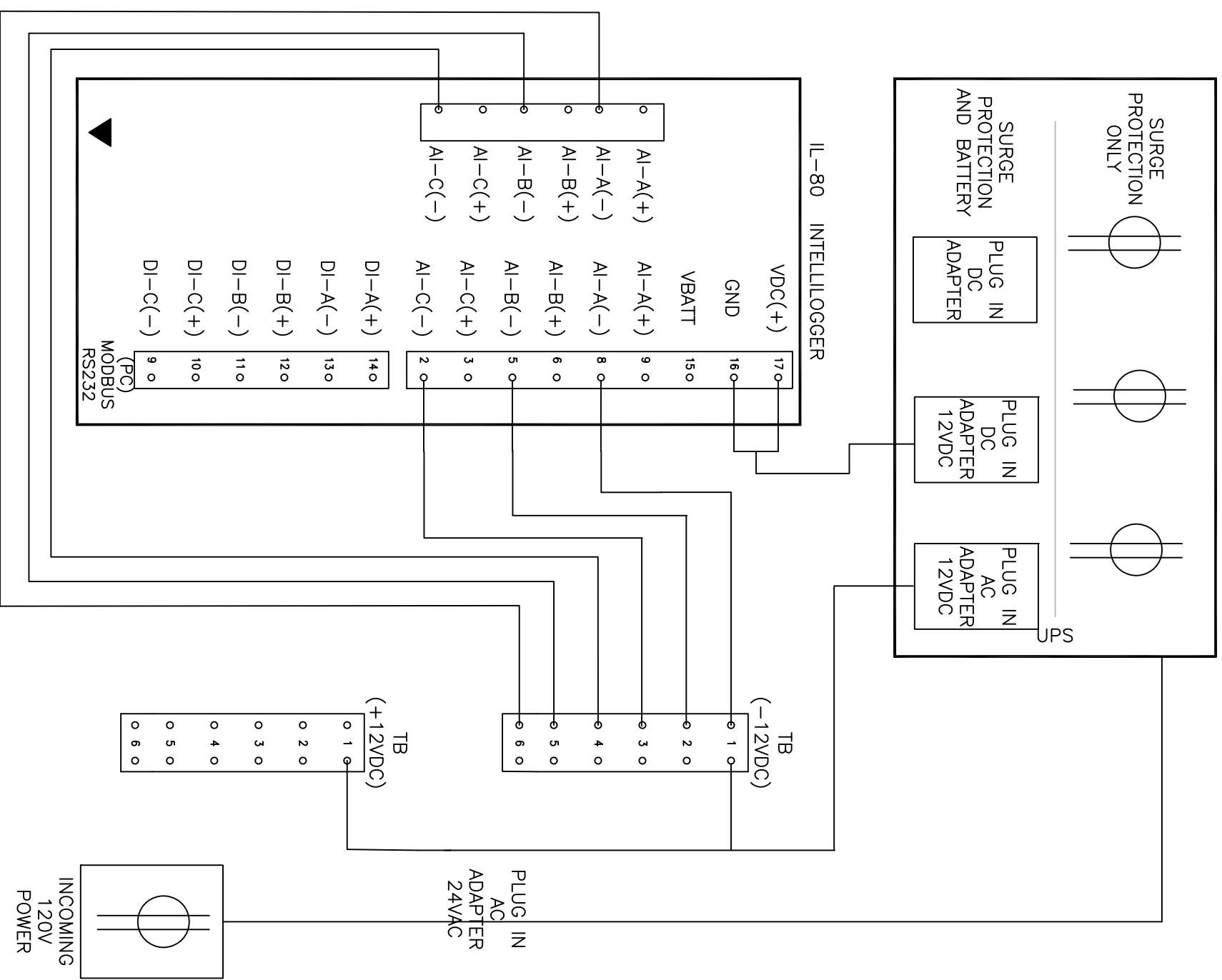
**ELECTRICAL PLAN & DETAILS**  
PROJECT #2442

DRAWING NUMBER: **ESC 2442-E01**

DRAWN BY: <b>DRS</b>	DATE: <b>9/25/09</b>
CHECKED BY: <b>CB</b>	SCALE: <b>NONE</b>

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APC UPS



Issue	Date	By	Revision Description
0	5/4/09	JMS	GENERAL TYPING
1	7/2/09	JML	CONNECTION UPDATES
2	9/4/09	NCC	CONNECTION UPDATES

CONSULTANT:

**PMC**  
POWER MANAGEMENT CONCEPTS

20 CROSSWAYS PARK DRIVE NORTH | SUITE 400  
WOODBURY, NY 11797  
PH: (516) 465-0188 | FX: (516) 465-0180  
WWW.POWERMANAGEMENT.COM

PROJECT NAME:

**CCEF**  
CONNECTICUT SCIENCE CENTER

DRAWING TITLE:

**DATA LOGGER WIRING**  
PROJECT #2442

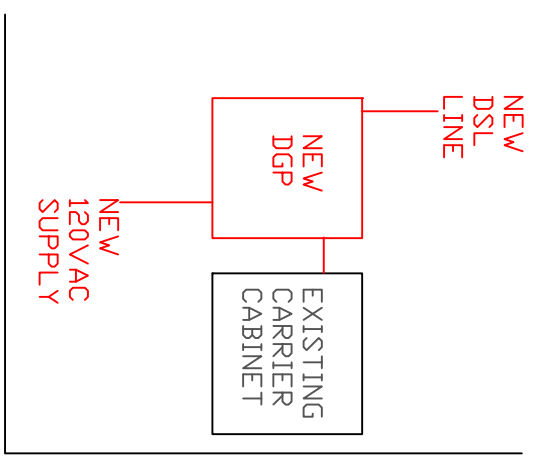
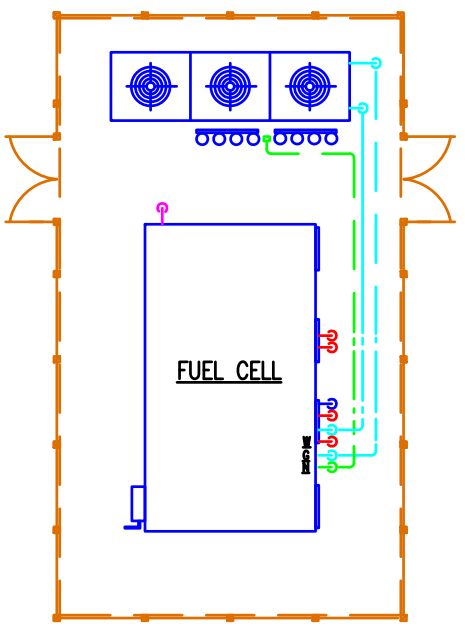
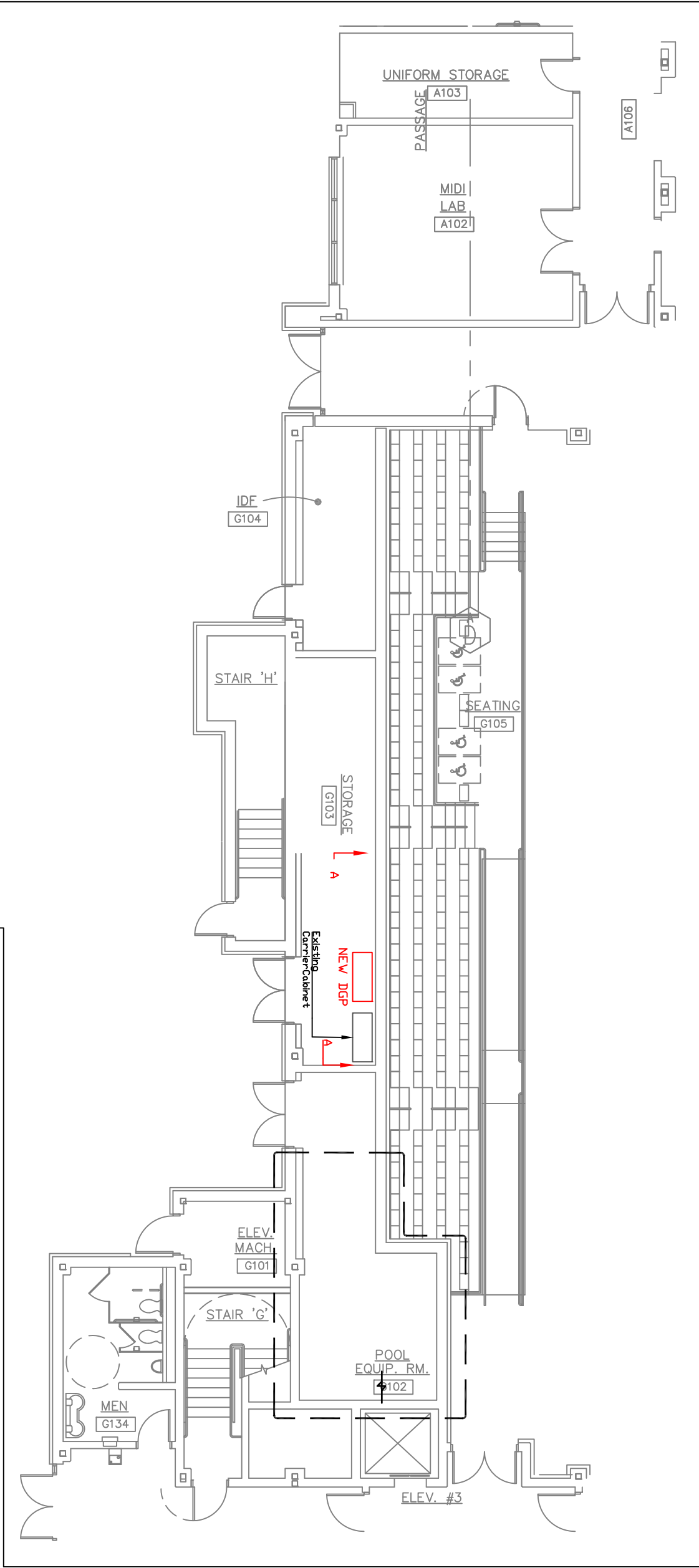
DRAWING NO: **SC 2442-E02**

DRAWN BY: **DRS** DATE: **9/21/09**  
CHECKED BY: **CB** SCALE: **NONE**

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## CSC Data Gathering Panel BOM

Description	Pt. No.	Vendor	Qty
Cabinet	Hammond <b>C3R20166HCLO</b>	Gross Automation	<b>1</b>
Cabinet Back Panel	Hammond <b>18P1713</b>	Gross Automation	<b>1</b>
Cabinet Mounting Kit	Hammond <b>C3RHCLOPK2</b>	Gross Automation	<b>1</b>
Cabinet Foot Kit	Hammond <b>C3RHCLOMFK2</b>	Gross Automation	<b>1</b>
Terminal Block, DOK	809-0464	Allied Electronics	<b>20</b>
Power Outlet, Single; 125Vac	909-0176	Allied Electronics	<b>1</b>
Power Supply; 24VAC, 300mA	928-9907	Allied Electronics	<b>1</b>
Back-UPS; 6 Outlets; 350VA	660-0390	Allied Electronics	<b>1</b>
DIN Rail, 35 mm	502-0156	Allied Electronics	<b>1</b>
Wire Duct	381-1156	Allied Electronics	<b>1</b>
Wire Duct Cover	381-0497	Allied Electronics	<b>1</b>



Elevation A-A

Issue	Date	By	Revision Description
0	5/1/09	JMS	GENERAL TAKINGS
1	9/2/09	NCC	CORRECTION UPDATES
2			

CONSULTANT:



**PMC**  
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PROJECT NAME:

**CCEF**  
Middletown H.S.

DRAWING TITLE:

**Site Plan**  
PROJECT #2442

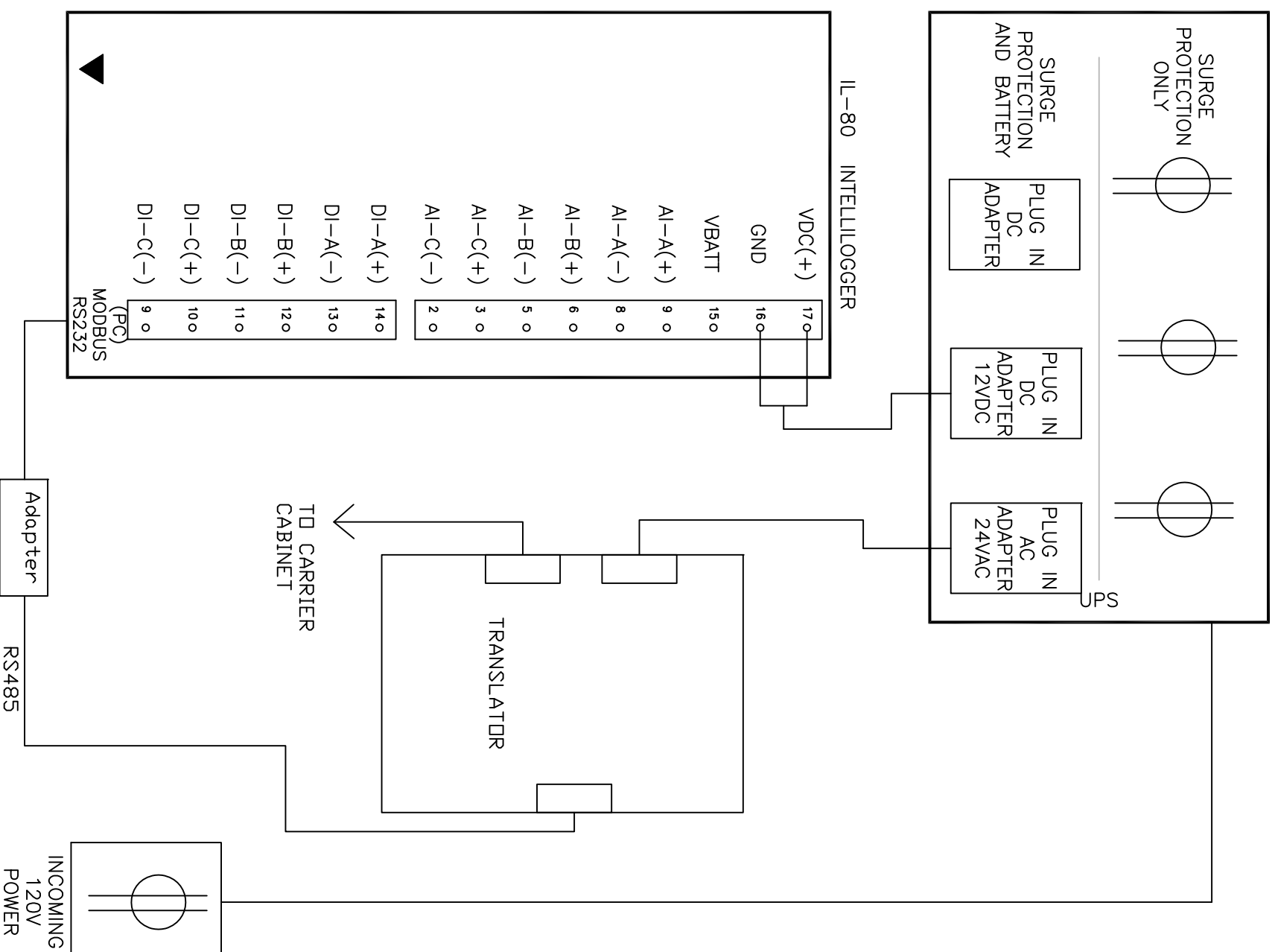
DRAWING: **MHS 2442-E01**

DRAWN BY: **DRS** DATE: **9/04/09**

CHECKED BY: **CB** SCALE: **NONE**

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APC UPS



Issue	Date	By	Revision Description
0	5/4/09	JMS	GENERAL TYPING
1	7/2/09	JML	CORRECTION ERRORS
2	9/4/09	MCC	CORRECTION ERRORS

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PROJECT NAME:

**CCEF**  
**Middletown H.S.**

DRAWING TITLE:

**DATA LOGGER WIRING**  
**PROJECT #2442**

DRAWING: **MHS 2442-E02**

DRAWN BY: **DRS** DATE: **9/04/09**

CHECKED BY: **CB** SCALE: **NONE**

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## MHS Data Gathering Panel BOM

Description	Pt. No.	Vendor	Qty
Cabinet	Hammond <b>C3R20166HCLO</b>	Gross Automation	1
Cabinet Back Panel	Hammond <b>18P1713</b>	Gross Automation	1
Cabinet Mounting Kit	Hammond <b>C3RHCLOPK2</b>	Gross Automation	1
Cabinet Foot Kit	Hammond <b>C3RHCLOMFK2</b>	Gross Automation	1
Datalogger	IL-10 w/ Modbus Master RTU	Logic Beach	1
Translator	33CNTRAN485	Carrier	1
Power Outlet, Single; 125Vac	909-0176	Allied Electronics	1
Power Supply; 24VAC, 300mA	928-9907	Allied Electronics	1
Back-UPS; 6 Outlets; 350VA	660-0390	Allied Electronics	1
DIN Rail, 35 mm	502-0156	Allied Electronics	1

# BACnet/Modbus Carrier Translator

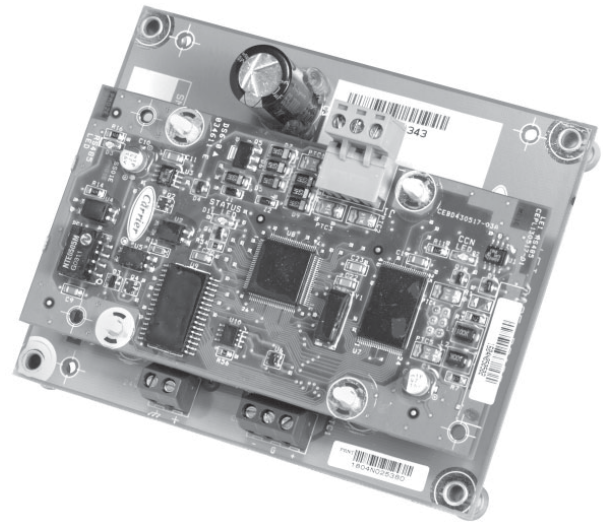
The BACnet/Modbus Carrier Translator is a micro controller-based module that provides the ability to integrate Carrier CCN-based controllers into Modbus and BACnet networks. The BACnet/Modbus Carrier Translator (33CNTRAN485) provides CCN to Modbus Remote Terminal Unit (RTU) and BACnet Master-Slave/Token-Passing (MS/TP) protocol conversion.

The Carrier Translator can be mounted in the controls section of any CCN equipment and converts CCN-based controller data to BACnet or Modbus. The Carrier Translator is outdoor duty rated and contains CCN RS-485 and BACnet/Modbus communications connectors.

When connected to a CCN controller, the BACnet/Modbus Carrier Translator allows a third party BACnet or Modbus device to read and write to the CCN controller's mapped status display, time schedule, and setpoint schedule data. Note that status display write access is subject to the CCN equipment controller's defined read/write access for each status display item.

## FEATURES

- 3-wire removable BACnet/Modbus connector
- 3-wire fixed screw terminal CCN connector
- 2-wire fixed screw terminal Power connector
- Red Processor Status LED
- Yellow CCN Communication Status LED
- Green BACnet/Modbus Communication Status LED



## SPECIFICATIONS

Power Requirements .....	3 VA @ 24 Vac + 25%
Dimensions .....	2.1 in H x 5 in W x 4 in D (53.3 mm x 127 mm x 101.6 mm)
Operating Temperature .....	-40°F to 158°F (-40°C to 70°C)
Storage Temperature .....	-40°F to 185°F (-40°C to 85°C)
Operating Humidity .....	0 to 95%, non-condensing
CCN Communications .....	9600, 19.2K, 38.4K baud
BACnet MS/TP Communications .....	EIA-485 at 9600, 19.2K, 38.4K baud
Modbus RTU Communications .....	EIA-485 at 9600, 19.2K, 38.4K baud
Data Bits .....	8
Parity .....	Odd, Even, None
Stop Bits .....	0, 1, 2
Flow Control .....	None, XON/XOFF

Conforms to guidelines for radiated and conducted emissions for a Class A device as stated in FCC Rules and Regulations Part 15, Subpart J.

UL 916 and CE MARK (industrial) listed.