

I'm in Control
530 Brannan Street, Suite 405
San Francisco, CA 94107
415-970-0200



July 1, 2015

Via email per RFP instructions:

John Waite
Owner's Representative, WaiteWorks, Inc.
johnngwaite@gmail.com

Robert Porter
Chief Operating Officer – San Carlos School District
porter@scsdk8.org

Gentlemen:

I'm in Control is pleased to submit this response to your "Request for Proposal for Building Management Systems Services" dated June 12, 2015. The last page is signed as required.

We look forward to continuing to provide services to San Carlos School District to reduce energy cost and impact, streamline facilities services, increase occupant comfort, and provide opportunities for classroom sustainability learning.

Yours very truly,

A handwritten signature in black ink that reads 'Kirk Oatman'.

Kirk Oatman
CEO and Founder

PROPOSAL FOR BUILDING MANAGEMENT SYSTEMS SERVICES, San Carlos School District

2. Description of I'm in Control

a. Business history

I'm in Control (IIC) is in the business of reducing energy, improving comfort, assisting facilities and engaging occupants in small and mid-sized buildings of all types. We accomplish this with our advanced software which monitors, controls, analyzes, and presents data for HVAC, lighting and other wasteful loads in those buildings. An easy to use user interface is key, enabling facilities and administrative personnel to visualize building behavior and control it without significant training. It should not be necessary to call vendor personnel for normal operations or reporting.

IIC developed the core platform and emphasis on easy, transparent use for an earlier residential product and have maintained that perspective for commercial buildings. We also retained a dedication to using publicly-available hardware for all installations, eliminating any lock-in to the hardware from a particular vendor. Customers are welcome to buy that hardware directly from suppliers, though many projects include that hardware as turnkey from IIC, as does this response.

Since extending the platform, analytics, devices, and control to the equipment and usage in small and mid-sized commercial buildings, IIC has achieved savings, improvement in maintenance and reduction of truck rolls, and engaged both occupants and owner personnel in energy reduction. Identifying equipment faults and waste, some of them existing for years, has been of great value to customers. Examples of these accomplishments are called out in Section 3 below.

The company and personnel have extensive experience in all aspects of this project:

- Electrical and HVAC construction and control
- Complex fault diagnosis systems for large commercial buildings, applied to small buildings
- Artificial Intelligence and analytics, applied to building control
- Specifying, designing, programming and communicating reliably with control devices
- User interfaces and use case analysis
- Complex control schemes, scheduling, and integration into human activity
- Lighting control
- "Big data", cloud computing, and complex analytics

Section 3 describes the IIC installation at Arundel Elementary School and its accomplishments. That school is a directly comparable project to each of the other schools defined in this RFP.

b. Key personnel

Primary Owner Contact – Kirk Oatman, Founder and CEO
Project Manager – Patrick Winnicker

Lead Technician – Haresh Dadlani
Technical Support Contact – Eoin O’Halloran

c. **Contact information for key personnel**

Kirk Oatman: Kirk.Oatman@imincontrol.com 415-970-9707 Direct, 415-601-6161 Mobile
Patrick Winnicker: Patrick.Winnicker@imincontrol.com 415.970.9700, (415)710.3616 Mobile
Haresh Dadlani: Haresh.Dadlani@imincontrol.com 415.970.9700, (510) 984-2789 Mobile
Eoin O’Halloran: Eoin.Ohalloran@imincontrol.com 415.970.9700, (415) 504-0484 Mobile

d. **Location of installing office:** 530 Brannan Street, Suite 405, San Francisco, CA 94107

e. **Location of nearest qualified service technician:**

Patrick Winnicker:

Patrick.Winnicker@imincontrol.com 415.970.9700, (415)710.3616 Mobile

10 years of experience with developing software and hardware solutions for control, installation of control equipment, analysis of building energy consumption, and recommendations for energy efficiency via retrofits, controls and human involvement.

f. **BMS services to be provided by I’m in Control:**

Project overview: The objective of this project is to optimize energy usage and facilities operations in each campus. There are three components: Electric monitoring to provide instantaneous and retrospective analysis to identify corrective measures; Automated and remote control with monitoring of HVAC, using simple interfaces for office and classroom personnel; and Control and monitoring of selected lighting .

HVAC functionality: One thermostat shall be provided under this contract for each applicable HVAC unit plus one spare thermostat per campus. They shall provide control of the installed equipment utilizing industry-standard 24 volt cable, two-stage heat and two-stage cool capabilities, and separate fan control. Thermostats shall be generally available from multiple vendors, have a publicly-available and accessible Application Programming Interface, and require no wires to communicate with the control system. Control shall support optimizations such as dynamically calculated ramp-up, ramp-down, and pre-cooling. Control shall be resistant to tampering with the thermostats as installed and verify correct operation every minute. To support varied schedules, each HVAC zone shall support unlimited schedule periods each day of the week and multi-day holiday periods, taking into account seasonality and weather. Manual override and after-hours operation shall be allowed locally at the thermostat and via any standard browser with configurable limits and authorizations for each zone.

Electric monitoring functionality: The electric usage of monitored circuits shall be measured at intervals of thirty seconds or less. Data shall be stored permanently and be immediately available graphically and digitally for analysis. Aggregates of circuits such as type of usage, building location, and equipment shall similarly be available. The proposal includes individual monitoring of all service panel circuits fed directly

from the main distribution panel for each campus and will separately monitor each HVAC unit and individually each building, type of usage, major equipment and individual circuits which may contribute to energy reduction.

Separately Priced Lighting Control functionality: The installation shall include central control for large lighting loads and loads which are likely to exhibit waste. Refer to the assumptions section of this response for detail on the selection of those loads. Analysis of the detailed monitoring of lighting at the existing I'm in Control installation at Arundel Elementary School provides clear guidance: (a) For those classrooms that have local occupancy sensors, they are effective and do not require integration with a central system, and (b) Lights with manual switches are very seldom left on by school personnel, indicating that a combination of alerts and possible social engagement or reminders will be sufficient to reduce waste. This response is fully conformant with the RFP in that control of all permanently-installed lighting shall be possible to integrate with the centralized control, monitoring and HVAC system with add-ons in the future. The controlled lighting zones shall, as appropriate, respond automatically and independently to occupancy, lack of occupancy and optionally changes in sunlight in that area. Local control shall be enabled. Parameters for all centrally-controlled zones shall be independently settable by area via a simple interface in the central system for at least the shut-off interval on vacancy, response to sunlight changes and local/central overrides. Timed schedules and overrides shall be at least as flexible as those for HVAC. Dimmable switches shall be used for lighting which is currently continuously dimmable. The system shall control those areas which currently have alternate luminaires or bulbs wired to dual switches as two-step dimmable.

Central control and access: There shall be a local physical controller or equivalent to ensure reliability and continued operation in the case of loss of Internet connectivity. All HVAC and lighting shall be manually controllable at the switch or thermostat in case of loss of central control. The system shall generate configurable email alerts for failure or unexpected scenarios for HVAC, lighting and types of electrical usage. The destination of alerts shall be configurable by alert type, severity, and time and day of alert. The interface shall be accessible via browser on the district and public network to maintenance, administrative and optionally occupant personnel with configurable rights to easily and securely view data and modify control settings. It shall be simple enough to use that no more than thirty minutes of training is required. Digital data of all measured values shall be accessible from permanent storage for export in standard, documented formats to assemble custom reports in commonly-used programs and to perform additional analysis. Graphs of status and history for HVAC, lighting and electric usage shall be available with intervals no greater than five minutes, with presentations appropriate for troubleshooting and retro-commissioning. Students and teachers shall have read-only access to graphical and exported data for classroom purposes.

Equipment: All installed equipment meets the two requirements in the RFP:

- Non-proprietary; equipment is available on the open market
- Publicly available Application Programming Interface; the API or user interface is accessible and usable by the general public (for some, registration is required)

The applicable equipment is as follows. Other equipment provided for the installation does not have data which is required to be accessible:

	Vendor (preferred)	Device URL	API URL
Energy monitor	Brultech	www.greeneyemonitor.com/	www.brultech.com/home/software/index.php/software/getsoft/1/1
Relay control	Global Cache	www.globalcache.com/products/itachflex/	www.globalcache.com/downloads/
Thermostat	Radio Thermostat	www.radiothermostat.com/wifi/	https://radiothermostat.desk.com/
Light switches, occupancy & light sensors	Many Zigbee vendors	www.zigbee.org/zigbee-products-2/ (sample of products)	www.zigbee.org/zigbee-for-developers/applicationstandards/

Installation Services: Physical installation of line-voltage electrical monitoring and control devices will be performed by a licensed electrician or contractor. Physical installation, connection and configuration of HVAC control devices (thermostats) will be performed by a licensed HVAC engineer or contractor. There will be an initial monitor-only phase of 4 to 8 weeks, at the choice of the District, in order to establish baseline data, with a transition to control mode performed by a licensed HVAC engineer, with initial control parameters supplied by the District.

Training: I'm in Control will provide up to 2 hours of system training at each site for teachers and administration, plus up to an additional 2 hours of training for district facilities personnel for control, troubleshooting, analysis and device replacement. A similar follow-up training session will be provided at District request.

Technical Support: I'm in Control will provide a 4 hour response to a phone or email report of critical failure of software or IIC hardware and 24 hour responses to non-critical email questions or requests. District and I'm in Control will each designate a single point of contact for support.

Services:

The IIC BMS system will be designed, installed, commissioned and serviced by authorized personnel. An experienced Project Manager will be responsible for direct supervision of the design, installation, start up and commissioning of the BMS system and will be on-site to supervise all installation, start up and commissioning.

I'm in Control has its Customer Support call-in center located at the corporate headquarters in San Francisco, and is staffed by fully trained and certified technicians.

Materials and equipment are catalogued products of manufacturers regularly engaged in production and installation of automatic temperature control systems and are the manufacturers' latest standard design that complies with the specification requirements.

All peer-to-peer network controllers and the central system controller are UL Listed under Standard UL 916, category PAZX.

All electronic equipment conforms to the requirements of FCC Regulation, Part 15, governing Radio Frequency Electromagnetic interference and will be so labeled.

The IIC control system will be engineered, programmed and supported completely by IIC's local office located within 50 miles from the project sites.

Maintenance:

IIC will provide Quarterly Preventative Maintenance Inspections, consisting of an on-site quarterly inspection of the installed BMS system which will include:

- Checking software schedules against occupancy schedules;
- Inspecting hardware operator – machine interface and field panels for proper operation;
- Review false alarm activity;
- Review trend logs;
- Random sampling of 10% of temperature sensors to identify any recalibration needs;
- Review of owner generated alarm reports;
- Written report of deficiencies and corrective actions;
- Coordination and Question and Answer support with Owner's designated staff.

IIC will respond with a technician site visit for routine maintenance requests generated by owner.

"Routine" is defined a problem areas that are not critical in nature, requiring on-site attention between 48 hours and 3 weeks after report.

IIC will also respond with a technician site visit for emergency maintenance requests generated by owner. "Emergency" is defined as problems that are critical in nature and require on-site attention within 48 hours.

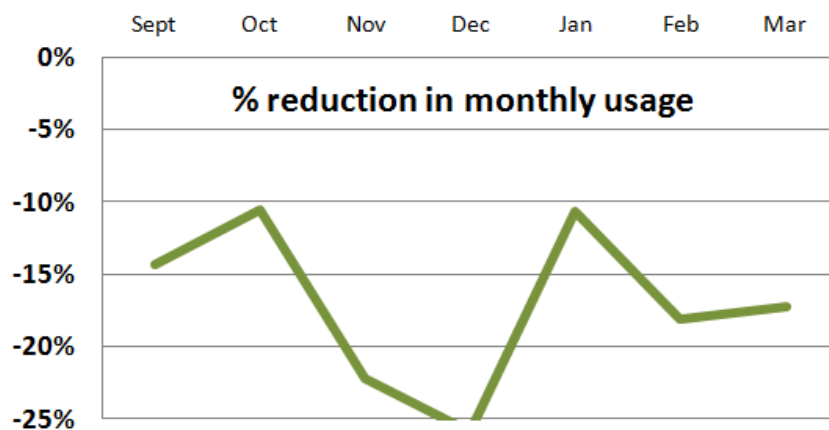
IIC will provide Hourly on-line or telephone support assistance to owner from remote location.

3. Relevant Experience and Qualifications

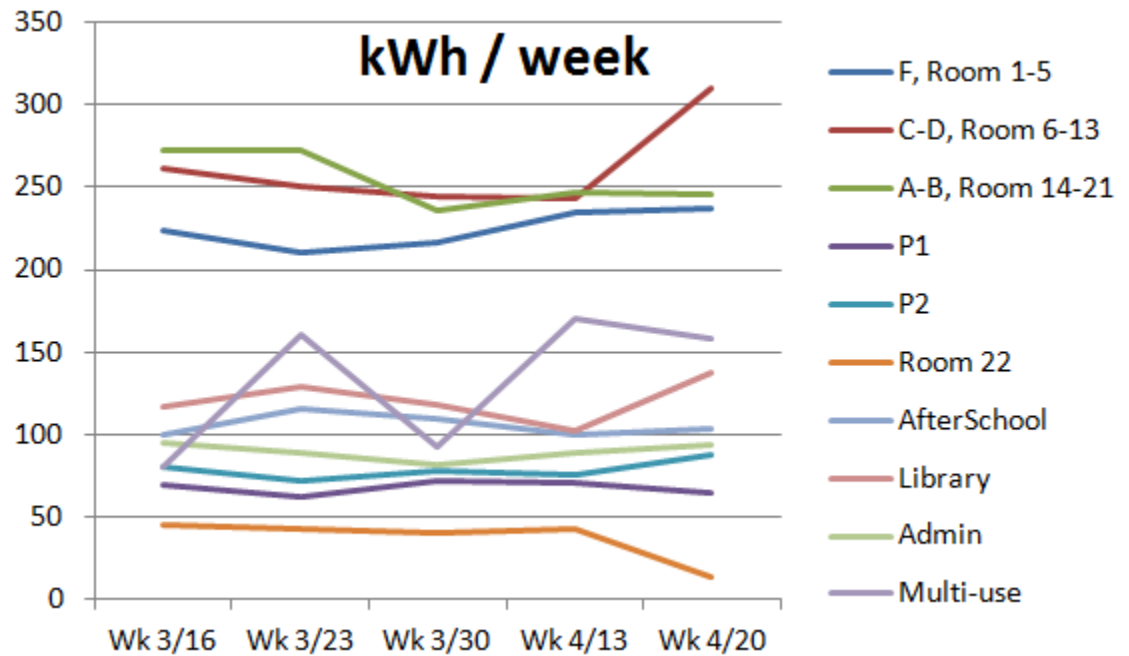
a and b. Experience with similar projects and details on five educational or institutional projects

1. Arundel Elementary School, San Carlos School District

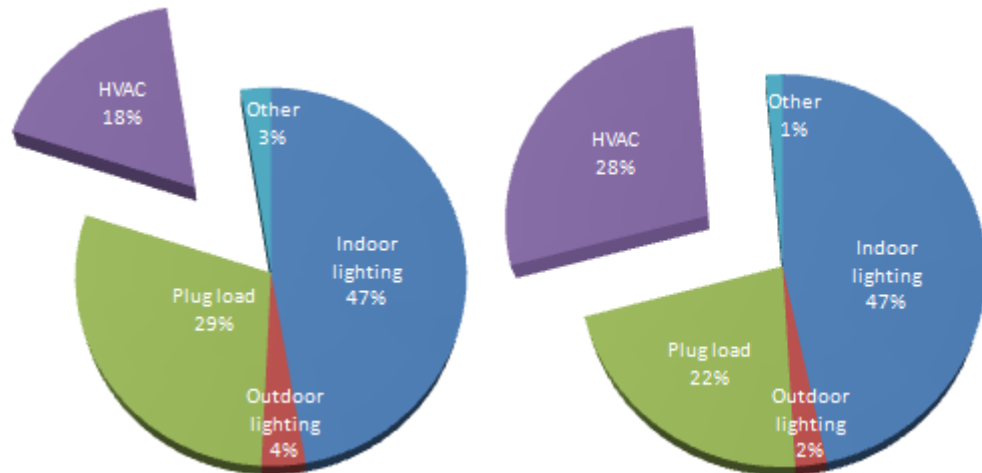
- Full HVAC control and detailed electric monitoring
- Using independent PG&E billing data, reduced monthly kWh by 10-25% over a seven month year to year comparison period.



- Proved that lighting usage is very consistent for most areas of the campus week to week, supporting monitoring and social pressure as effective energy reduction techniques for the exceptions.

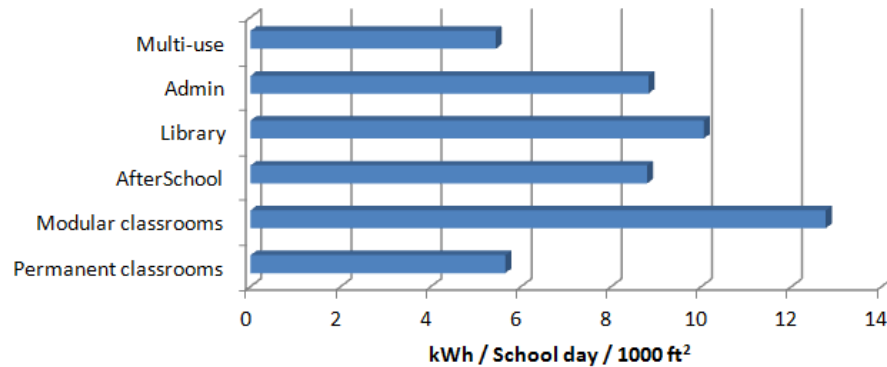


- Provided detailed breakdown of usage by category for the campus during moderate and hot weather, enabling analysis of further cost-effective measures.



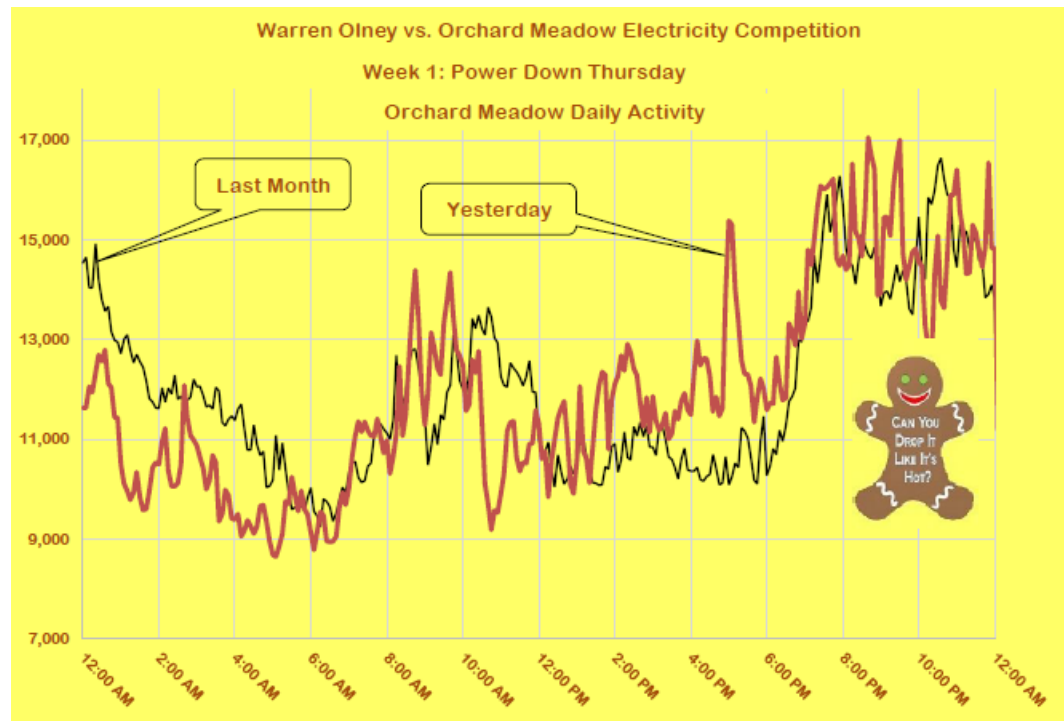
- Identified that the Energy Use Intensity of classrooms in modular buildings on the campus is over two times higher than classrooms with similar use in permanent buildings.

Lighting energy intensity by type of building



- Identified multiple equipment failures, during initial installation and during subsequent normal operation. One, identified with kW Engineering, was a component in an RTU that may have been stuck on for a number of years.
 - Implemented local control by teachers, within limits set by the District, to increase comfort and enable more aggressive HVAC scheduling with “out of hours bonus” use. One teacher needed to turn off a BARD unit during story time because the fan was so loud, so all teachers were given the ability to control fans and on/off status during school hours. Monitoring data shows teachers routinely use these capabilities.
2. James Kenney Recreation Center in the City of Berkeley
 - This is a recreation center with irregular hours, a large gym, and multiple outdoor sports fields
 - A formal report in January 2015 specified savings of \$3,600 annually with additional savings when certain equipment repairs are made.
 - The report states “The IIC system & data found multiple costly failures that would never have been known otherwise and longstanding equipment failures were identified and repaired”.
 - IIC is now implementing additional sophisticated lighting control for outside sports lighting and indoor gym lighting with complex scheduling, local control, dimming, and light intensity responsiveness.
 3. San Mateo County History Museum, Redwood City
 - This is a 90,000 sqft historical museum. It has nine large RTU’s. A key requirement is minimizing temperature fluctuations outside a defined range in the display areas for artifacts.
 - Very large events are held here. The event coordinator controls the HVAC before and during events with IIC’s user interface to minimize the effect of many bodies warming up enclosed spaces.

- County personnel confirmed 15% reduction in electrical use during a 4 month comparison period.
- 4. Santa Clara County Homeless Clinic, San Jose
 - This is a 17,000 sqft social services building. See the case study attached.
 - 15% reduction in energy usage was proved. 22% additional reduction could be achieved with low or no cost projects by the County.
- 5. Mills College, Oakland
 - This is a project to compare the usage of two residence halls.
 - Studies were also done to identify excessive load, utilizing comparisons between occupied and holiday periods.
 - A competition was carried out to increase awareness and maximize the reduction. Custom daily and weekly comparisons were supplied to all residents, using data extracted from the IIC system with its standard export.



4. Costs

Task 1. Construction of Building Management Systems

BID AMOUNT –The undersigned hereby proposes and agrees to perform the foregoing for the Sum of:

BMS Design and Construction

PROJECT	Primary HVAC and monitoring device count	Amount
1 – Tierra Linda Middle School	>540 circuits monitored, 67 HVAC zones controlled	\$ 74,670
2 – Brittan Acres Elementary School	>340 circuits monitored, 38 HVAC zones controlled	\$ 43,000
3 – Heather Elementary School	>260 circuits monitored, 33 HVAC zones controlled	\$ 35,150
4 – White Oaks Elementary School	>225 circuits monitored, 33 HVAC zones controlled	\$ 28,700
5 – Arundel Elementary School	>200 circuits monitored, 34 HVAC zones controlled	\$ 0 existing BMS

Lighting Control Alternate

PROJECT	Lighting zone count (see notes on selection & functionality of zones)	Amount, includes BMS above
1 – Tierra Linda Middle School	17 zones, inside & outside	\$ 81,295
2 – Brittan Acres Elementary School	16 zones, inside & outside	\$ 51,100
3 – Heather Elementary School	10 zones, inside & outside	\$ 39,520
4 – White Oaks Elementary School	11 zones, inside & outside	\$ 33,470
5 – Arundel Elementary School	9 zones, inside & outside	\$ 4,450 as addition to existing BMS

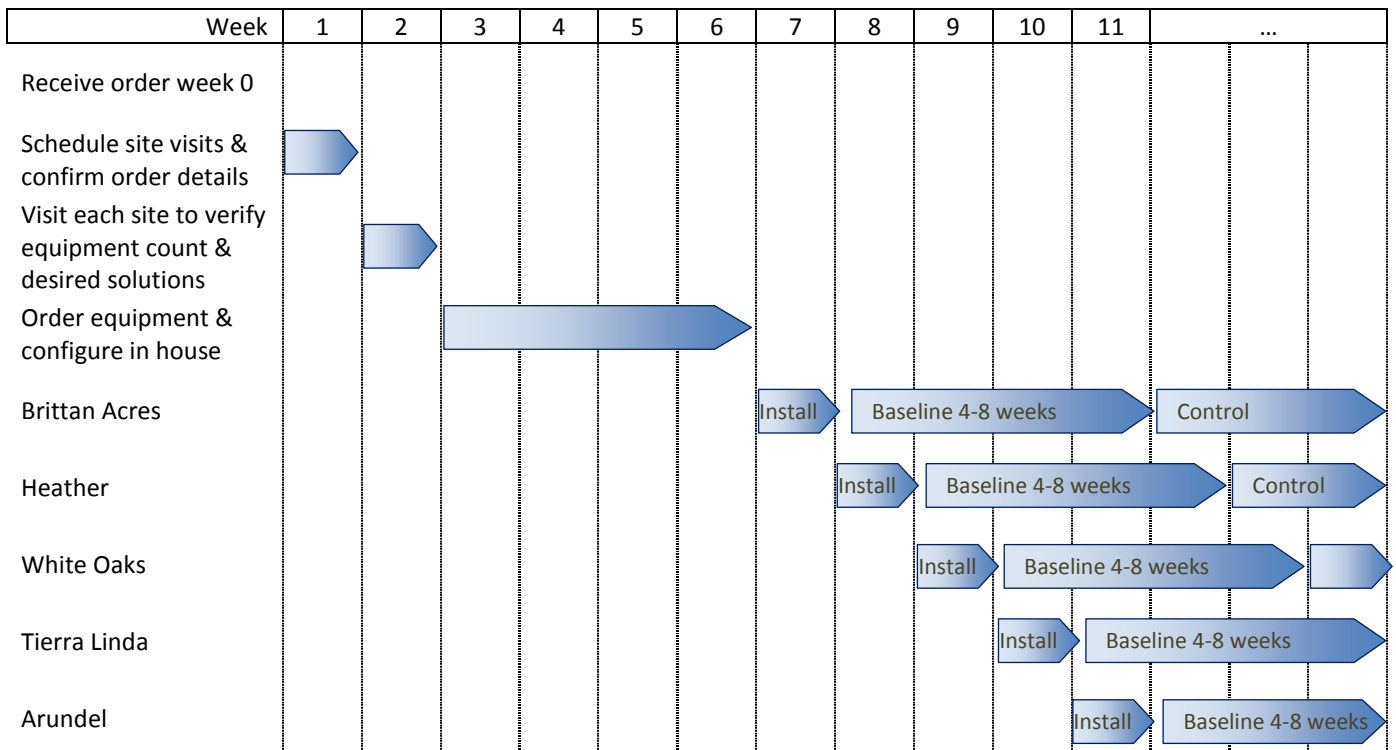
Task 2. Maintenance and Support

Task	1 – Tierra Linda	2 – Brittan Acres	3 – Heather	4 – White Oaks	5 – Arundel
1. Quarterly Preventative Maintenance Inspection per quarter	\$ 2,400	\$ 2,400	\$ 2,400	\$ 2,400	\$ 2,400
2. Routine Non---Scheduled Maintenance per day	Included in 5	Included in 5	Included in 5	Included in 5	Included in 5
3. Emergency Non--- Scheduled Maintenance per day	Included in 5	Included in 5	Included in 5	Included in 5	Included in 5
4. Hourly On--Line Support	Included in 5	Included in 5	Included in 5	Included in 5	Included in 5
5. Annual License Fee, updates, upgrades, maintenance	\$ 7,500	\$ 4,500	\$ 4,000	\$ 4,000	\$ 3,500

5. Schedule

IIC recommends a schedule similar to the following. Certain adjustments can be made at the request of the District.

- Some configuration and installation tasks can overlap, depending on availability of equipment.
- IIC recommends a full week be allocated to installation at each school sequentially, so as not to overload District facilities personnel and allow sufficient interaction with administration and teachers at each school.



6. Insurance certificates

a. Insurance companies

- Sentinel Insurance Company – Workers Compensation
- Travelers Insurance Company of America – Liability Insurance

b. Sample certificates

Two certificates are provided at the end of this submission, one for each insuring company.

7. References

- Mills College: Karen Fiene, Campus Architect
- City of Berkeley: Neal DeSnoo, Director of Office of Energy and Sustainable Development

8. Scope Requirements

- This response by IIC fully meets all requirements of the RFP and IIC has above agreed to implement each project as specified for the defined amount. IIC's software and hardware are highly modular; therefore, IIC is willing to discuss adjustments to implementation, number of devices, and zones or functionality encompassed which change the scope and may decrease or increase the amounts defined above.

N.B. This paragraph shall be considered null and void if deemed to be non-conformant with the RFP by law or the District.

- IIC reviewed hundreds of as-builts for all sites, which extended past the RFP deadline of June 19 for questions. Where conflicts were found among as-builts and differences were found to the summary document provided by the District, IIC configured the higher number of devices, zones or circuits, increasing the cost. If and only if it is conformant with the RFP and law, IIC will reduce the final invoice by the cost of hardware which was found to be unnecessary.
- IIC requires a physical site visit to each campus after receiving the confirmed order and before establishing detailed project plans due to questions raised by the as-builts. Input will also be required from the District and, if allowed, from local school personnel on usage patterns and appropriate potential reduction measures.
- Building coverage
 - At Tierra Linda, the old "gym, stage, locker rooms" is marked to be demolished. That building is not included in this response.
 - At Tierra Linda, the two buildings marked "district storage" buildings in the facilities yard area are not included. There were no as-builts.
 - At Tierra Linda, initial information did not list two modular buildings, which IIC does include in this response.
 - At Tierra Linda, an "After School" building is listed on initial information. No such building was found on the grounds or in the as-builts, so it is not included in this response.
 - Client provided spreadsheet notes 3 modulares to be transferred from Tierra Linda to Heather Summer 2015. These are included in Heather in this response.
 - One modular mentioned in client provided spreadsheet for Heather was not found in the as-builts or Google maps. This response includes a typical modular in Heather.

- Electric monitoring:
 - All circuits are monitored individually or by type to provide data for fault analysis, alerts, troubleshooting, social programs, and identification of additional energy reduction opportunities. Data and graphical access will be equivalent to that currently provided at Arundel Elementary School, exposing details of full-campus consumption of categories of usage and drill-down to specific portions of each campus.
 - As-builts were missing service panels and had conflicts on new and decommissioned panels. IIC will meet the RFP requirements for monitoring; see resolution above.
- HVAC
 - All 24 volt thermostats are replaced and integrated with the IIC system.
 - There are Honeywell T7300 thermostats specified in some zones on the as-builts, which optionally support Lonworks communication. If the District has utilized this capability, the new IIC thermostats will not communicate with any such Lonworks system.
 - Parts of three buildings are potentially controlled by relatively new and non-compatible HVAC control systems. Control of HVAC in these areas is not included in this response but IIC will discuss integration with the District if requested. These are in building A at Heather and building B and E at Tierra Linda. Note that the electrical usage of the HVAC equipment for those zones is included in this response, enabling analysis and alerts.
 - One spare thermostat is provided for each site.
- Lighting
 - Analysis of lighting on each campus was done carefully to conform with the RFP's requirement of "large lighting loads and those likely to be inefficient". Certain occupancy requirements and historical activity were taken into account. Tradeoffs were made to maximize savings while minimizing cost.
 - Outdoor lighting is controlled by IIC. As-builts are not always clear as to LCP's (Lighting Control Panels) and central control; IIC will define the type of control and equipment at the site visits. The outside lights on modular buildings, consisting of only one or two small bulbs, are excluded; see discussion below on monitoring and social features.
 - Large internal spaces such as gym, multi-use room and music room are controlled. Some have existing LCP's with which IIC will integrate. The exception is the Lithonia Litekeeper for the gym at Tierra Linda, which is deemed to be sufficient. Monitoring of the electric usage of those lights is included; see discussion below on monitoring and social features.
 - Libraries are not controlled. During the day, light levels for reading are paramount and luminaire placement and wiring seems not to enable effective dimming even in unused areas of the room. For out of hours waste, see discussion below on monitoring and social features.

- Classrooms do not have additional lighting control included in this response. A significant number already have standalone occupancy sensors and control. This text repeated from the section “BMS services to be provided by I’m in Control” describes the data supporting this decision.

“Analysis of the detailed monitoring of lighting at the existing I’m in Control installation at Arundel Elementary School provides clear guidance: (a) For those classrooms that have local occupancy sensors, they are effective and do not require integration with a central system, and (b) Lights with manual switches are very seldom left on by school personnel, indicating that a combination of alerts and possible social engagement or reminders will be sufficient to reduce waste. ”

The undersigned acknowledges receipt of Addenda No. N/A through N/A.

In submitting this Bid, it is understood that the Owner reserves the right to reject any and all bids and to waive irregularities in the Bidding and to Award the Contract to the Low bidder, as determined by the BMS Bid and any Alternates accepted.

Dated this 1ST day of JULY, 2015.

I'm IN CONTROL

Contractor Name

CALIFORNIA

If a corporation, indicate the state of incorporation.

530 BRANNAN ST, SUITE 405

SAN FRANCISCO, CA 94107

Contractor Address

R. KIRK OATMAN

Contractor Authorized Officer (Printed Name)

R. Kirk Oatman

Signature of Contractor Authorized Officer

415-970-0200

Area Code/Telephone Number

415-358-6965

Fax Number



CERTIFICATE OF LIABILITY INSURANCE

OP ID: CW

DATE (MM/DD/YYYY)

10/09/2014

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER BPIA Business Professional Insurance Associates 1519 South B Street San Mateo, CA 94402 Debbie Upland		CONTACT NAME: PHONE (A/C, No, Ext): E-MAIL ADDRESS: PRODUCER CUSTOMER ID #: IMNCO-1	
INSURED I'm in Control 530 Brannan Street #405 San Francisco, CA 94107		INSURER(S) AFFORDING COVERAGE INSURER A: Travelers Cas Ins Co America INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:	
		NAIC # 19046	

COVERAGES**CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC		680-8875R77A-14-42	10/11/2014	10/11/2015	EACH OCCURRENCE \$ 2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 4,000,000 PRODUCTS - COMP/OP AGG \$ 4,000,000
	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS		680-8875R77A-14-42	10/11/2014	10/11/2015	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (PER ACCIDENT) \$ \$ \$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DEDUCTIBLE RETENTION \$					EACH OCCURRENCE \$ AGGREGATE \$ \$ \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? <input type="checkbox"/> Y/N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A				WC STATU-TORY LIMITS <input type="checkbox"/> OTH-ER <input type="checkbox"/> E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
Re: 530 Brannan Street #405, San Francisco, CA.
PROOF OF COVERAGE ONLY.

CERTIFICATE HOLDER**CANCELLATION**

Proof of Coverage

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Debbie Upland

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IMNCO-1

OP ID: JL

DATE (MM/DD/YYYY)

06/11/2015

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	PHONE (A/C, No, Ext): 650-341-4484 FAX (A/C, No): 650-341-4465
INSURED I'm in Control 530 Brannan Street #405 San Francisco, CA 94107	E-MAIL ADDRESS:
	INSURER(S) AFFORDING COVERAGE
	INSURER A: Sentinel Insurance Co. NAIC # 11000
	INSURER B:
	INSURER C:
	INSURER D:
INSURER E:	
INSURER F:	

COVERAGES**CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSR	WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY						EACH OCCURRENCE \$
	<input type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$
	<input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR						MED EXP (Any one person) \$
							PERSONAL & ADV INJURY \$
							GENERAL AGGREGATE \$
							PRODUCTS - COMP/OP AGG \$
							\$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$
	<input type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS	<input type="checkbox"/> SCHEDULED AUTOS					BODILY INJURY (Per accident) \$
	<input type="checkbox"/> HIRED AUTOS	<input type="checkbox"/> NON-OWNED AUTOS					PROPERTY DAMAGE (PER ACCIDENT) \$
							\$
	UMBRELLA LIAB	<input type="checkbox"/> OCCUR					EACH OCCURRENCE \$
	EXCESS LIAB	<input type="checkbox"/> CLAIMS-MADE					AGGREGATE \$
	<input type="checkbox"/> DED <input type="checkbox"/> RETENTION \$						\$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	<input type="checkbox"/> Y/N	N/A	51 WEC ZX6831	06/15/2015	06/15/2016	<input checked="" type="checkbox"/> WC STATU- TORY LIMITS: <input type="checkbox"/> OTH- ER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						E L EACH ACCIDENT \$ 1,000,000
							E L DISEASE - EA EMPLOYEE \$ 1,000,000
							E L DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
PROOF OF COVERAGE.

CERTIFICATE HOLDER**CANCELLATION**

Insured's Copy	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE

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Case Study for Office Building

17,000 square feet
19 HVAC zones
T12 and T8 lighting
Few motion sensors
Tilt-up construction

Diverse usage
Varying schedules
Old equipment
Outdoor safety lights



Building Profile

This building in San Jose, California, represented a major challenge for an energy management system. Its tenants include a diverse population of medical, mental and administrative services, with equally diverse schedules -- some occupants arrive as early as 5:30 AM; scheduled and ad-hoc group sessions can extend well into the evening; and parts of the building are available for services on weekends and holidays. To add to this complexity, the building includes a combination of small offices, meeting rooms, and shared open spaces, and as in every building, some occupants prefer it warmer, and others cooler. As an additional challenge, regulations require that a percentage of outside air be circulated year-round, even on the coldest days of winter. Finally, much of the HVAC equipment is dated, with some economizers disabled; and due to multiple different tenants during the building's lifetime, some duct runs make little sense for the current configuration. In addition to these HVAC challenges, specified levels of outside lighting are required for safety purposes.

Installed Solution

The IIC solution began with 210 electric usage monitors that were placed on key circuits at seven service panels – these monitors communicate wirelessly with the IIC local controller device. Each circuit is read every 15 seconds and its consumption is stored permanently both on- and off-site. This provides a level of detail far superior to the 15 minute information interval available from utility smart meters.

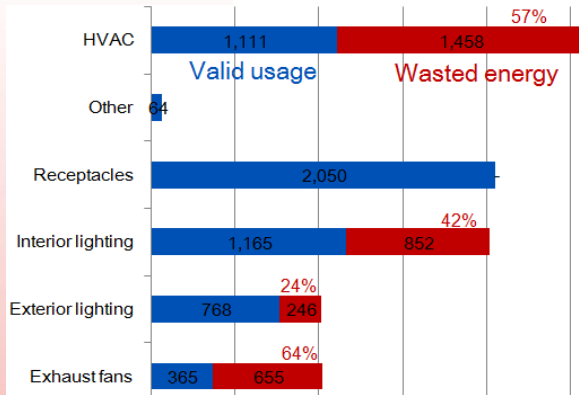
The thermostat for each zone then was replaced with a thermostat which also communicates wirelessly to the IIC controller. Each interaction informs the central system of the status for the room and equipment and allows enforcing rules and optimizations for that specific zone. Local control can be enabled (or disabled) as well.

This results in over one million data points being produced every day for this one building. This information is used to discover savings opportunities, learn operation of the building and optimize the controlled equipment. The data can be viewed graphically, and is automatically analyzed at various levels of grouping, such as type of usage, area of the building, and identifies specific equipment to identify activity, savings and ongoing operational faults.



IN CONTROL

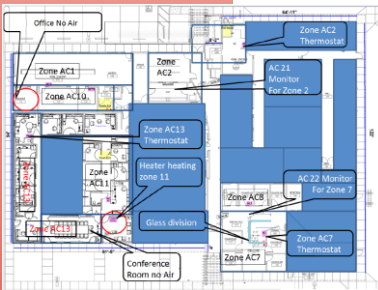
Identified Waste



The detail of the electric monitoring, generated both by frequency and number of circuits, identified multiple opportunities to reduce energy consumption, both electric and gas. Most would not have been otherwise found; and even if they were, it would have been difficult to identify the specific equipment causing the waste. Examples:

- All exterior safety lighting turned on and off at the same time year-round, wasting hours of energy during the summer. Egress lighting was needed only a few hours a day.
- Exhaust fans used 15% of total electricity; one large fan ran 24/7 for two small bathrooms.
- Thermostat schedules were set for the longest work day in the entire building; some weekend settings triggered during the week; many fans were on 24/7.
- HVAC units did not heat/cool zones properly. Multiple economizers were stuck open or closed.
- Multiple thermostats did not correctly control the zone -- in fact, the thermostat for one zone was on the opposite side of a hallway.
- Significant usage occurred nights and weekends for specific equipment and plug loads.

Maintenance Operations



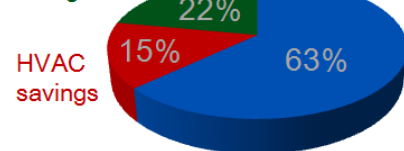
The integrated energy and equipment monitoring also produced notifications of equipment failures continuously and in real time. Examples of faults detected in this building, often within minutes, include failure of one stage of cooling, stuck economizers, a broken fan belt, and even a breaker left off after preventive maintenance.

Remote information, access, and control have eliminated uncounted truck rolls for comfort calls. After seeing the full status of the zone on a PC, tablet or phone during a “too hot” call, facilities personnel can make short-term changes to HVAC parameters or permanent changes to zone settings from anywhere.

Cost savings are recognized from fielding fewer complaint calls, reduced truck rolls, and lowered damage and wear and tear on equipment.

Results

Other projects potential savings



Once the IIC system “learned” the building, zone by zone, 15% energy savings were immediately realized by controlling the HVAC with the system’s advanced scheduling, calculated ramping and continuous monitoring capabilities. Recommendations produced from analyzing the baseline (pre-controlled) period identified an additional 22% of potential savings. The result was a payback of less than two years and a five-year ROI of over 200%.



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Lighting Zone Settings

This document describes the required and optional settings for each lighting zone that is connected to an I'm in Control (IIC) installation. It includes information typically provided by both electricians and by building operational personnel.

Setting	Type of value	Description
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Static zone and equipment characteristics

Zone - Short ID	Text, 4-5 characters	Typically "Lnn" where nn is a number
Zone - Descriptive name	Text, to 30 characters	Description of the zone for both occupants and facilities personnel
Zone - Other names	Word groups	Various ways a zone is referred to in conversation
Lighting type	Type	LED, Fluorescent, Incandescent
Number of fixtures	Number	
Control type	Type	Switch (accessible to humans) or Relay
Dim type	Type & Optional #	On/off, Continuous dim, Multi-switch dim & # levels
3-way switch	Number 0 – 3	The number of 3-way switches also controlling zone
Occupancy sensor	Short ID	If one exists, the ID for an occupancy sensor
Related control switch	Type & Short ID	2Position or Pushbutton & its ID (may have multiple)

Scheduling periods Multiple periods may be defined for each zone. Each period may have any combination of conditions and may override other periods.

Events and conditions for a schedule period to be in effect One or more may be specified		
Start & end time	2 times	The time of day this schedule period starts & ends
Days	Days of the week or types of days	The days during which this schedule period runs. Explicit days of the week may be listed, or types of days such as Work, Weekend, Holiday, or custom types
Event	Event ID	A momentary event, such as pressing a pushbutton
Modes	Lists of modes (see modes below)	<ul style="list-style-type: none">• A list of modes which must be true (All or Any)• A list of modes which must not be true (All or Any)
Web-based user interface	Multiple controls	This user input may be allowed to override other conditions, or may be limited by other conditions
Priority	Number 1 – 100	When schedule periods conflict, a higher priority period will override all lower priority periods.

Modes Many modes and types of modes are in effect in the system at any one time.

Time of day	ID	Daytime, Nighttime Dusk, Dawn (adjusted by minutes from sunset/sunrise)
Weather / brightness	ID	Sunny, Cloudy, Stormy
Device modes	ID, Value, Device	The state of any device, e.g. switch, light, sensor
Custom mode	ID, Value	A mode defined only for this site

Result of a schedule period When a schedule period is in effect, it causes something to happen

Set device modes	List: ID, Value, Device	Set the state of a device(s)
Set custom modes	List: ID, Value	Set the value of custom modes