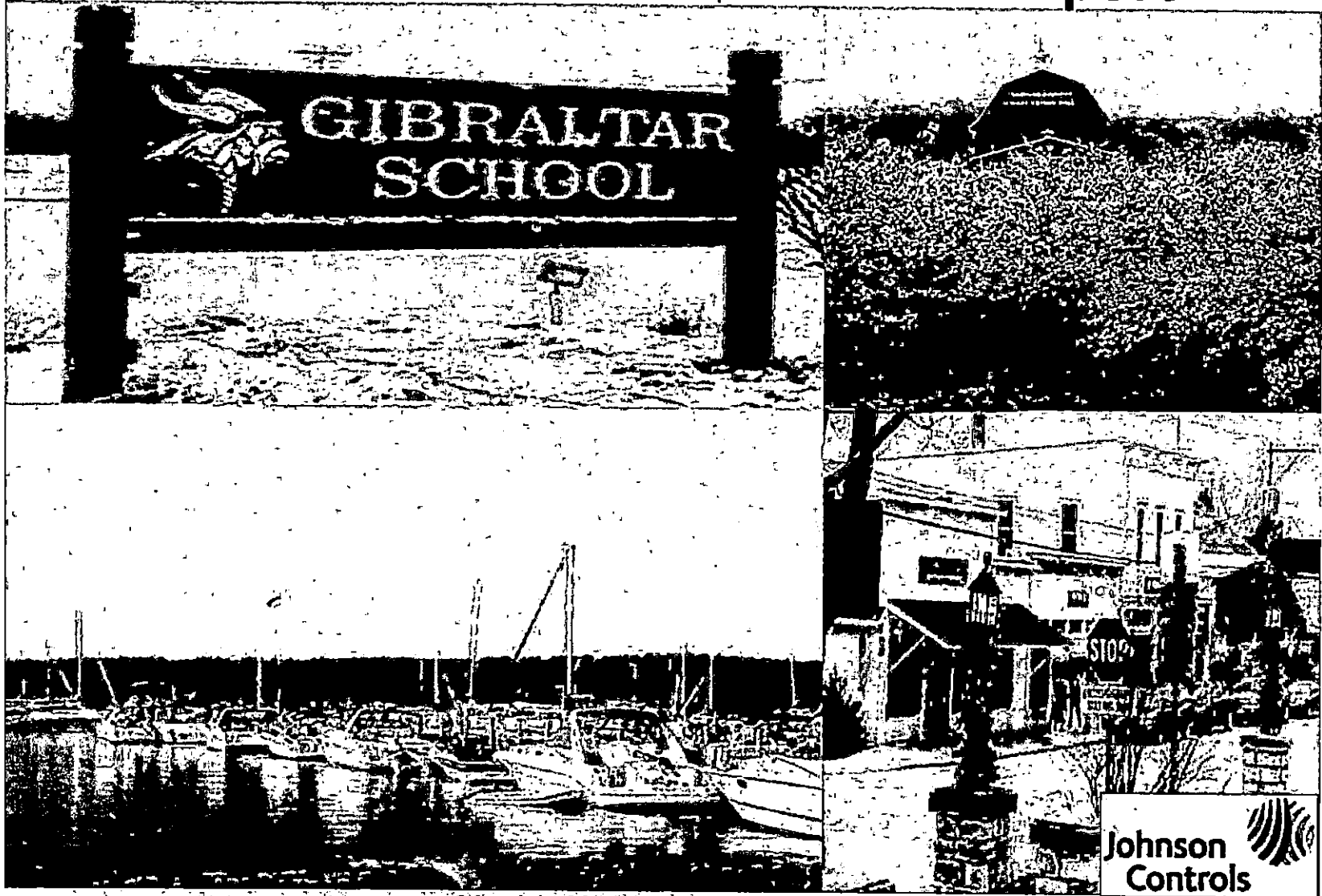


Gibraltar Area Schools Performance Contract Year 2 Report



Copyright 2014 Johnson Controls, Inc.
Proprietary and Confidential

Overview

Johnson Controls (JCI) and Gibraltar Area Schools entered into a Performance Contract (PC) agreement Developing facility improvement measures (FIM's) throughout the district.

The following is a financial summary of the agreement signed on March 24th, 2014.

- **\$1,167,095 Guaranteed Savings 20 Year Term**
- **\$67,898 Guaranteed Savings Year 2**
- **\$67,781 Energy Savings during Year 2**
- **\$(117) Excess Savings during Year 2**
- **\$8,840 Installation Savings**
- **\$8,723 Excess Savings to date**

This report summarizes the Year 2 Performance period spanning December 1, 2015 to November 30, 2016.

M&V Methodologies

Option "A" Partial Measured Retrofit Isolation

This measurement was chosen to verify the hallway and classroom lighting retrofit FIM's Ltg 1&2. Partial measurement means that some but not all parameters will be measured. Careful review of the design and installation of improvement measures is intended to demonstrate that the stipulated values represent the actual values. Engineered calculations using pre-defined measurements and actual post retrofits measurements are used to calculate the measured project benefits for the duration of the guarantee term. The post retrofit measurement was taken and compared to the pre-defined measurement shown below.

M&V Methodologies

Option "B" Retrofit Isolation

This measurement was chosen to verify savings for the following FIM's 2,3, & 3A. The measurement is determined by field measurements of the energy use of the systems to which an improvement measure was applied separate from the energy use of the rest of the facility. Continuous measurements are taken throughout the post retrofit periods. Engineering calculations were used to develop pre retrofit measurements. Post measurements are to be taken for the Metasys System within the facility. These measurements begin at the start of year 2 and are calculated using the data below.

FIM 2 - South Boiler Room Pumps: Pump or motor speed output % compared to constant speed pump

FIM 3 - High School Wing AHU's:

- Fan or Motor speed output % compared to constant speed motor.
- Discharge Air Reset compared to constant Discharge Temperature

FIM 3A - High School AHU-1 to VAV System: Fan or motor speed output % compared to constant speed motor

Project Scope

The Facility Improvement Measures (FIMs) implemented during this project include:

FIM MECH 1A - Unit Ventilators 1950's Wing: Replace the original 1950's wing hot water unit ventilators. Replace existing pneumatic controls with DDC controls and install 2 way heating valves on 14 units.

FIM MECH 1B - Replace 1950's Section Lower Level Ventilation Fan: Replace the existing unit with a new package unit and extend supply duct to Rm 130 Teachers Lounge.

FIM MECH 2 - Replace Heating Pumps and Convert to VFD: Replace the six hot water heating pumps with two pumps located in the South Section Boiler Rm.

FIM MECH 3 - Replace AHU-1,2,3: Replace the three original AHU's serving the 1971 High School Addition. Provide DDC controls and VFD's to AHU's and add VFD's to North Section Boiler Rm pumps.

Project Scope(cont.)

FIM MECH 3A - Convert AHU-1 to VAV AHU: Replace 34 constant volume boxes with new variable air volume boxes with re heat coils. Replace pneumatic room controls with DDC. Replace chemical storage relief fan with a new fan and fully duct return fan to AHU-1.

FIM MECH 3B - Convert AHU-2 High School Gym Multi-Zone AHU to a VAV AHU: Convert AHU-2 from a constant volume multi-zone unit to variable volume unit that will control the entire gym.

FIM MECH 3C - Convert AHU-3 from Multi-Zone AHU to a VAV AHU: Convert the multi-zone unit serving the shop to a VAV AHU. Replace pneumatic controls with DDC controls.

FIM MECH 3D - Duct Cleaning AHU-1,2,3: Perform duct cleaning on the return and supply ducts.

FIM MECH 4 - Replace Air Cooled Chillers: Replace the two existing R22 chillers in the north section with a new R410A chiller and provide controls integration.

Project Scope(cont.)

FIM MECH 7 - New AHU for Pupil Services: Install a new AHU provide a propane burner and VFD.

FIM MECH 8 - Replace Fume Hood: Replace the 1970's fume hood in the chemistry classroom.

FIM MECH 9 - Add Air Conditioning to the Middle School Gym: Install a new rooftop with gas fired heat and DX cooling.

FIM Controls 1 - Convert Pneumatic Unit Vents to DDC: 1984/1988/1995 section, convert the existing unit ventilators from pneumatic to DDC.

FIM Controls 2 - Integrate Siemens to Metasys: Metasys Extended Architecture Shall be installed to integrate with all new equipment and existing Siemens controls associated with the project.

FIM Controls 6 - Integrate Exterior lighting to Metasys: Metasys Extended Architecture Shall be installed to integrate with parking lot and canopy lighting

Project Scope(cont.)

FIM MECH 5 - Mural Gym System Modifications: Replace fan coil with Packaged Rooftop unit that provides cooling and heating.

FIM MECH 6 - Industrial Arts: Upgrade Dust Collector & Unit Heater: Replace dust collector system, install new unit heater and controls for the room.

FIM Lighting 1 - Classrooms: Replace lamps, ballasts, fixtures per contract.

FIM Lighting 2 - Hallways: Replace lamps and ballasts in hallways.

FIM Lighting 3 - LED Exit Lights: Upgrade exit lights to LED.

FIM Lighting 4 - Wall Packs: Upgrade exterior wall packs to LED.

FIM Plumbing 2 - VFD Installation & Expansion Tank: Replace expansion in North Boiler Room and add VFD to pump.

FIM Misc 2B - Communication and Bell System: Provide updates to bell system

FIM Misc 3 - Replace 25kW Generator: Provide and install generator

Project Scope(cont.)

FIM Misc 6 - Roofing (Gibraltar Holds Contract)

FIM Misc 7 - Seal Coating (Gibraltar Holds Contract)

FIM Misc 8 – Upgrade Gym lighting to LED, \$1,699 saving not shown into Year 1 savings total.

Year 2 Savings Summary Cont.

Gibraltar Schools Year 2 Savings

FIM ID	FIM Description	ENERGY SAVINGS/ Yr	OPERATIONAL SAVINGS/Yr
GIB 1A	Replace the original 1950 wing hot water unit ventilators (14) total.	\$ -	\$ 913
GIB 1B	Replace the ventilation air fan in the LL that serve 125, 127, 129, 124, 122 lounge	\$ -	\$ 1,365
GIB 2	Replace the six hot water heating pumps with two pumps for the south section of the	\$ 1,335	
GIB 3	Upgrade Air Distribution System and relief fan for AHU-1 HS Classroom/Library Area	\$ 4,317	\$ 28,800
GIB 3A	Replace the three original (3) AHU (AHU 1, 2, 3) for the high school wing and provide	\$ 4,318	
GIB 3B	With the replacement of the Gym fan convert the multi-zone fan for the HS GYM	\$ -	\$ 3,388
GIB 3C	Convert the (4) zone multizone for the shop to VAV and DDC controls.	\$ -	\$ 1,759
GIB 4	Replace the R22 chiller with a new R410a chiller, and provide controls integration.	\$ -	\$ 1,183
GIB 5	Multipurpose Gym (Mural). Replace fan coil with Packed Rooftop unit that provides	\$ -	\$ 4,435
GIB 8	Gib Mec 8 Replace the 1970's fume hood in	\$ -	
	Add air conditioning to the Middle school Gym.	\$ -	\$ 1,802
	The existing unit ventilators shall be pneumatic to DDC.		\$ 424
GIB C6	lighting	\$ -	\$ 537
GIB LTG 1	Upgrade Interior Room Fluorescents	\$ 5,749	\$ 1,124
GIB LTG 2	Upgrade Hallway lighting Fluorescents	\$ 974	\$ 1,191
GIB LTG 3	Upgrade Exit lights to LED	\$ -	\$ 228
GIB LTG 4	Upgrade Exterior Wall Packs to LED	\$ -	\$ 941
GIB P 2	Gib Plumbing 2 North Boiler Rm : Upgrade	\$ -	
GIB Misc 2a	Communication & bell system	\$ -	\$ 3,000
Savings Total		\$ 16,692	\$ 51,089

Benefits

- **Excess Savings** - \$8,723 of Installation Savings due to some systems being operational during the Installation Period
- **Improved Lighting** – Higher efficiency lighting throughout the facility
- **Expanded Building Automation** – New Metasys System
- **Operational Benefits** – Less labor and material due to new equipment
- **Building Comfort** – Additional air conditioning, new heating components

Please know that Johnson Controls, Inc. values its relationship with Gibraltar Area Schools. We welcome the opportunity to continue to be of service in helping you meet your goals throughout your district. Feel free to contact us with any questions and/or if further information is needed.

Thank You!

*Dan Hawk, Performance Engineer
dan.hawk@JCI.com, 217-674-3364*