EXHIBIT B

PRECISION
BALANCING & COMMISSIONING, INC.

Retro Commissioning Report

January 6, 2014

City of Naples

Police & Fire Department

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1. OVERVIEW

Overview of Retro-Commissioning (RCx)

Without verification of the correct interaction and operation of all systems and components, system performance as originally specified and intended is unlikely to occur.

Commissioning is a systematic process that addresses these issues. It facilitates and ensures that the required communication, coordination, testing and verification, and results, is the delivery of a building whose energy consuming systems (e.g., HVAC and controls) perform as intended. Effective commissioning is an intentional, visible, cooperative and proactive process.

The process of commissioning building related energy systems applies to existing buildings as well as new construction. Commissioning methodology is used to solve persistent problems in existing buildings, as a component of a comprehensive preventative maintenance program, or to commission post-occupancy facility modifications. The term “retro-commissioning” is used when commissioning is carried out in a building whose systems have never been commissioned.

The majority of existing buildings have not undergone any type of commissioning or quality assurance process. Additionally, over time the facility requirements often change and the operational efficiency of any building tends to degrade. Because of these factors many buildings are performing well below their original design intent, use more energy than necessary and cost more to operate than they should. Retro-commissioning responds to an Owner’s desire to improve building performance, solve comfort and operational problems and reduce the amount of energy the building consumes. The RCx process can include any, or all, of the energy consuming systems within a building.

Typical parties involved in the commissioning process of an existing building include the owner’s maintenance and operations staff, representatives of the energy management staff, building automation system (BAS) contractor or manager, the testing, adjusting and balancing contractor (TAB), contracted service personnel, and the Retro Commissioning Authority (RxC).

The primary performance objectives for retro-commissioning the selected buildings within this project were as follows:

- Document current system operation
- Reduce or eliminate complaints and break-down of equipment
- Reduce frequency of maintenance service requests and work orders
- Reduce overall energy usage and resulting costs
- Increase facility and equipment life
- Identify operational and maintenance enhancements that would result in improvements in energy efficiency, occupant comfort and indoor air quality

- Identify Operational and Maintenance (O&M) practices that should be implemented to reduce energy costs and O&M costs

This document identifies distinct and sequential phases to the Retro-Commissioning process of the existing buildings; however, it is important to recognize that the commissioning process is not a one-time event, but rather an on-going activity that continues throughout the life-cycle of a facility.

The basic phases and the goals of each phase of this retro-commissioning process were as follows:

- ***Investigation Phase:*** Field inspections, data gathering, testing and analysis to accurately assess system performance and identify improvement opportunities.

- ***Implementation Phase:*** Deficiencies found during the on-site evaluations are documented within a report. These are the items or issues that need to be addressed immediately in order for the systems to function properly. In addition to those items that must be repaired or replaced simply for the systems to function properly, other recommendations are made that would result in energy savings.

- These recommendations are referred to as Energy Conservation Measures (ECMs). The results and performance improvements to be achieved are to be calculated and modeled through an M&V process. Potential energy savings for the larger more capital intensive projects, such as major equipment replacement, are documented in the RCx report. Ultimate completion of these projects will depend upon available capital funding by the owner.

- ***Project Completion or Delivery Phase:*** The purpose of this RCx Report is to provide a systematic transition from a commissioning activity led by the Commissioning Team to the Owner. This formal report documents the RCx project's activities, findings, deficiencies and solutions, as well as recommendations for future Energy Conversation Measures (ECMs). This formal report accompanies a presentation to the Owner's Representative.

Scope of Project

Of specific relevancy to this project were the RCx Investigative Phase activities associated with the buildings listed below:

- City of Naples – Police and Fire Department

2. RETRO COMMISSIONED SYSTEMS

Mechanical Systems

The work included in this Retro Commission (RCx) process involved a thorough evaluation of the operation and performance of a representative sample of the HVAC components, systems and sub-systems of the HVAC. The following equipment components and systems were evaluated at the percentage shown as a minimum.

City of Naples – Police & Fire Department

HVAC System	Percentage Evaluated
Water Source Heat Pumps (22)	95.5%
D/X Air Handling Units (1)	100.0%
Ductless Split Systems (1)	100.0%
Variable Air Volume Boxes (3)	100.0%
Make Up Air Unit (1)	100.0%
Heat Exchange (1) and Pumps (4)	100.0%

3. ABBREVIATIONS AND DEFINITIONS

Abbreviations

The following are common abbreviations used throughout the Retro Commissioning Process:

A/E	Architect/Engineer	OPR	Operator's Project Requirement
BAS	Building Automation System	O&M	Operations & Maintenance
BOD	Basis of Design	PM	Project Manager
CC	Construction Checklist	RCx	Retro Commissioning
CM	Construction Manager	RxC	Retro Commissioning Authority
FTP	Functional Performance Test	SC	Subcontractor
GC	General Contractor	SI	Systems Integrator
MC	Mechanical Contractor	TAB	Test and Balance Contractor
NIC	Not In Contract	TCC	Temperature Control Contractor

Definitions

Basis of Design Document: A document that records the concepts, calculations, decisions and product selections used to meet the Owner's Project Requirements and to satisfy applicable regulatory requirements, standards and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

Construction Checklist: A form used by the Contractor to verify that appropriate components are on-site, correctly installed, functioning and ready for the Functional Performance Testing.

Construction Tests Procedures: Formal "Means and Methods" (including, but not limited to: insulation resistance checks, pipe flushes, motor rotation checks, duct pressurization tests, hydrostatic tests, circuit ring-outs, etc.), developed by the GC, to conduct/document specified field tests and verifications. These Procedures shall be submitted for Project team review, prior to utilization by the GC and Disciplined Subcontractors, to ensure consistency and accuracy in test performance and test results. These test/checks will be referenced on applicable Construction Checklists by the CxA and, once executed, shall be leveraged as Startup/Functional Test prerequisites. Work completion shall be recorded on Contractor Test Documents.

Corrective Issue Logs: A report generated by the Cx Authority during Functional Performance Testing documenting issues found during the testing procedures that require follow-up corrective action.

Final Commissioning Report: The Final Commissioning Report includes summary information from the entire Commissioning Process as defined throughout the Commissioning Plan and will include Training documentation and completed Functional Performance Test documentation and the resolved Corrective Issues Report. This report will be provided to the Owner at the completion of the project.

Functional Performance Testing: The process by which specific documents, components, equipment, assemblies, systems and interfaces among systems are confirmed to comply with the criteria described in

the OPR and BOD. These test documents are prepared by the Cx Authority and executed, under the CxA direction by the GC or appropriate SC.

Owners Project Requirements: A written document that details the functional requirements of the project and the expectations of how the building will be used and operated. This includes project and design goals, measurable performance criteria, budgets, schedules, success criteria and supporting information.

Retro Commissioning Authority: An entity identified by the Owner who plans, schedules and coordinates the Retro Commissioning Team to implement the Retro Commissioning Process.

Retro Commissioning Plan: A document that outlines the organization, allocation of resources and documentation requirements of the Retro Commissioning Process.

Retro Commissioning Process: A quality-focused process for enhancing the delivery of a project. The Process focuses on verifying and documenting that the facility and all of its systems and assemblies are planned, designed, installed, tested, operated and maintained to meet the Owner's Project Requirements.

Retro Commissioning Team: The individuals who through coordinated actions are responsible for implementing the Commissioning Process.

Systems Manuals: The Systems Manual include information related to the systems, assemblies and the Commissioning Process, incorporated into a usable information resource, with indexes and cross reference. Information included in the Systems Manuals: Owner's Project Requirements, Basis of Design Document, Commissioning Plan, Commissioning Process Progress Reports, Manufacturer Installation Manuals, Manufacturer Operation and Maintenance Manuals, Test Reports and Record Drawings.

4. FACILITY ASSESSMENT TEAM

Team Structure

The Facility Assessment Team shall consist of representatives from each of the following parties involved in the design and operation of the facility: 1) Owner, Facilities Operations & Users; 2) Owner's Representative; 3) Design Professionals; 4) Contractor and Subcontractors and 5) the Retro Commissioning Authority. The time at which individual members join the team and the level of their participation during different phases of the project will vary from member to member.

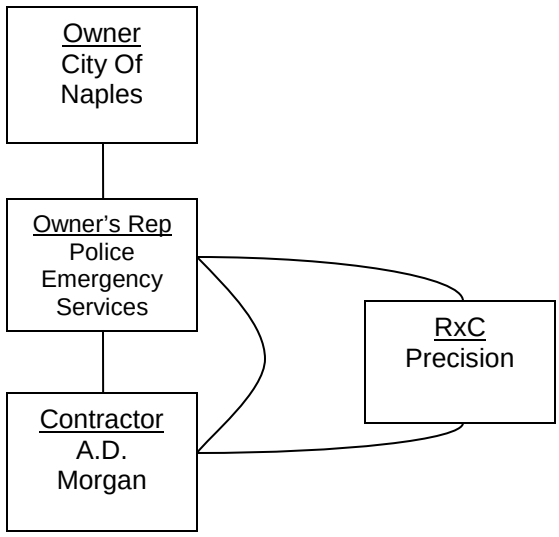


Figure 4-1: Facility Assessment Team Organization Chart

Roles and Responsibilities

Owner / Owner's Representative

The Owner Representatives of the City of Naples, Police & Fire Department play important roles in the Retro Commissioning Process throughout the duration of this Project. The Owner facilitates and supports the RxC Authority and is the party who provides final acceptance of the Commissioning Process. Following is an outlined summary of responsibilities for the Representatives of City of Naples, Police & Fire Department:

- Provide input and commitment to the Owner's Project Requirements documented for the project.

- Attend Design Phase meetings and provide input to design discussions.
- Review and approve the Retro Commissioning Plan.
- Assign operations and maintenance personnel and schedule them to participate in the various progress meetings, observations and inspections.
- Attend Retro Commissioning Team meetings as scheduled by the Retro Commissioning Authority.

Facility Operations & Maintenance Personnel

The Facility O&M personnel are important participants in the Retro Commissioning Process as they will assume responsibility for operations of the facility once the project is completed. Facility O&M personnel are encouraged to attend meetings in each phase relating to the Retro Commissioning Process as available. It is recommended that the facility O&M personnel be included in all phases of the Retro Commissioning Process as scheduled and approved by the Owner.

- Communicate with the Retro Commissioning Authority any concerns regarding system operation.
- Review the O&M with the Retro Commissioning Authority with respect to appropriateness to the systems functionality. Witness, to the greatest extent desired, the Functional Performance Tests executed by the contractors and overseen by the Retro Commissioning Authority.

Design Professional

The various disciplines of the Design Team will collaborate closely with the Retro Commissioning Authority to insure the design is clear and when complete meets the Project expectations. Following is an outlined summary of responsibilities for the Design Professionals:

- Participate and assist in the documentation of the Owner's Project Requirements.
- Attend Retro Commissioning Team Meetings.
- Participate in the initial operation and maintenance personnel as required to clarify system design intent.

Contractor and Subcontractors (AD Morgan & Precision)

All Contractors are responsible for integrating the Retro Commissioning Process into their operations. Primarily, this includes educating their workers on what is retro commissioning, the Project's Design, and the responsibility of each worker for a quality job. The forms provided by the RxC Authority shall be completed by the individual workers as appropriate and the Functional Performance Tests completed per the oversight of the RxC Authority. Following is an outlined summary of the Contractor's responsibilities:

- Attend Retro Commissioning Meetings.
- Include Retro Commissioning Process activities and milestones in the project schedule.

- Execute Functional Performance Test Procedures, or designate the execution to an appropriate Subcontractor, under the direction of the RxC.
- Correct deficiencies discovered through the Retro Commissioning Process.

Commissioning Authority

The Commissioning Authority will organize and lead the Commissioning Team.

- Review all available documentation of the building (e.g., building drawings, system specifications, O&M Manuals, etc.). The systems evaluated in this project were those specifically related to the HVAC Systems.
- Review current facility functions in an effort to identify any changes from the original design documents.
- Thoroughly evaluate the operating conditions of the existing HVAC systems.
- Conduct walk through site surveys in order to evaluate any issues found during the planned and documentation review.
- Develop functional testing procedures for the energy systems installed and operating in the subject buildings.
- Conduct interviews with building occupants and maintenance personnel to understand the current issues and needs related to the systems that were being evaluated.
- Conduct RCx Team review meetings as required.
- Implement and execute adjustments as determined during the planning and investigation phases in order to meet the current facility requirements.
- Where appropriate, make recommendations for potential Energy Conservation Measures or significant modifications that would enhance the existing systems' operation and efficiency. The capital improvements will include estimated implementation costs as well as estimated energy cost savings.

5. INVESTIGATION PHASE

Retro Commissioning Coordination

During the Investigation Phase (and throughout the entire RCx process) the Retro Commissioning Team met periodically to discuss Retro Commissioning status, system performance and issues identified.

Documentation Review

The Retro Commissioning Team reviewed building as-built drawings and all available documentation (when available) to better understand the buildings' energy usage, design and to evaluate the system integration. The review process included the evaluation of all available construction/renovation drawings, specifications, Control sequences of operations and Operation & Maintenance reference material found on site.

Below is a list of the documentation received (All documentation received will be included in Appendix A):

City of Naples – Police & Fire Department

Documentation	Condenser Water System	Water Source Heat Pumps	Air Handling Units	Variable Air Volume Boxes
As-Built Building Drawings (Mech, Controls)	Partial	No	No	No
All Manufacturer's Literature	No	No	No	No
O&M Manuals	No	No	No	No
Original Submittals	No	No	No	No
Pump Curves	No	No	No	No
Fan Curves	No	No	No	No
Sequence of Operations	No	No	No	No
Control Strategies	No	No	No	No
Time of Day Schedules	No	No	No	No
Occupant's Log of Complaints/Concerns	No	No	No	No

Building Descriptions

City of Naples – Police & Fire Department

Front of Building

Building Use:	Police & Fire Headquarters includes Atrium, Offices, Meeting Rooms, Call Center, Crime Lab, Kitchen, Bathrooms, Locker Rooms, Weight Room, Storage, Electrical Rooms and Mechanical Rooms
Square Footage:	32,455 sq/ft
Number of Stories:	3 Floors
Cooling System:	Ground Source Heat Pump
Heating System:	N/A
Hours of Operation:	24 Hours a Day / 7 Days a Week
Control System:	Johnson Controls

On-Site Evaluations

During the initial Investigation Phase of the Retro Commissioning Project, the team with the assistance of the facility occupants with special assistance from the Facility Equipment Manager conducted thorough and detailed on-site evaluations of energy consuming systems. The energy consuming systems studied were the HVAC systems. The most significant of the findings listed by buildings are as followed:

City of Naples – Police & Fire Department

- From a visual standpoint it is obvious that the Police & Fire Department are two (2) independent facilities built to form one. The original facility was built in the mid 1970's and has undergone several renovations. While the newer area was recently built in the late 1990's. Together they constitute the entire Police & Fire Department.
- Upon entering the Records Office the first thing that is noticeable is the presence of three (3) space dehumidifiers. The room had a musty odor and the air appeared to be stale.
- Exterior doors had a significant amount of rust and corrosion.
- Interior wall damage in a number of locations signifies that the building envelope has issues.
- In the old area, open air plenum was utilized for the return air.
- There was a leak coming from the Make Up Air Unit on the roof.
- The locker rooms were humid although no one had occupied them at the time of inspection.
- The Condenser Water System resides outside in the building yard. The equipment has limited coverage, that is to say the condenser water pumps reside under an overhang while the well water pumps and the heat exchanger are not protected from the weather.
- A review of the documentation provided showed two (2) five (5) horsepower submersible pumps in the wells however it was observed that the power connections that would lead to the pumps has no electrical feed. Without pulling the ground water supply or return line out of the ground we cannot confirm whether a submersible pump is being utilized. (Side note: It was later discovered that the wells had been relocated several times and they may have been eliminated the pumps during one of the moves)
- The Facility Equipment Manager has limited access to the Direct Digital Control System via the city LAN; however the system is set for monitoring only and no changes can be made from the front end.
- The facility lacks a dedicated HVAC Manager or Specialist whom is able to monitor and/or resolve any issues that arise.
- Finally it should be noted that the documentation received from the city (see Appendix A) was extremely limited.

Building Occupant Interviews

City of Naples – Police & Fire Department

Interviewed: In order to gain as much knowledge as possible we interviewed all building occupants as we performed our investigation so that all issues could be addressed.

6. IMPLEMENTATION PHASE

Implementation Phase Overview

The Implementation Phase begins with the Notice to Proceed and concludes on the date of Substantial Completion. During the Implementation Phase of the project delivery process, systems are inspected, tested and balanced in order to meet the Owner's Project Requirements.

Implementation Phase Retro Commissioning Activities

Develop Retro Commissioning Plan

The Retro Commissioning Plan identifies processes and procedures necessary for a successful Retro Commissioning Process. The Retro Commissioning Plan addresses the Owner's Project Requirements and reflects defined scope for the Retro Commissioning Process. Also included in the Retro Commissioning Plan is the Retro Commissioning Team structure along with a description of each Team Member's roles and responsibilities. This Plan can be used by all Project Team Members as a reference guide for the Retro Commissioning Process.

Retro Commissioning Kick-Off Meeting

The Retro Commissioning Authority will conduct a Retro Commissioning Kick-Off Meeting to introduce the Contractor and Subcontractors to the Retro Commissioning Process requirements for the project. The Owner's Project Requirements and Commissioning Plan are reviewed. In addition, the specific roles and responsibilities of the Contractor relative to the Retro Commissioning Process are reviewed.

Progress Meetings

The Retro Commissioning Authority may periodically attend the Job Progress Meetings. The Contractor will be given advance notice prior to a meeting date, if the RxC Authority wishes to have an agenda item for that particular meeting.

In addition to the regularly scheduled Job Progress Meetings, the RxC Authority will conduct separate Retro Commissioning Progress Meetings with an agenda focused solely on Retro Commissioning related issues. The frequency of these meetings is dependent on the progress of work and the quality of documentation being provided by the Retro Commissioning Team Members. If work is progressing on schedule and the documentation is complete and up to date, there will be fewer Retro Commissioning Progress Meetings required. The RxC Authority will notify all expected attendees well in advance of scheduling a Retro Commissioning Progress Meeting.

Project Schedule

Upon receipt of the project retro commissioning schedule, the RxC Authority will provide to the Contractor a detailed schedule of Retro Commissioning activities to be performed on the project.

The Contractor should incorporate the Commissioning activities into the Master Project Schedule. The RxC Authority will be available to assist the Contractor's scheduling person in this effort. Also, as the schedule is updated throughout the Implementation Phase, the RxC Authority will provide input information for the RCx activities and review the overall project progress.

A vital activity in the RCx Process is the Functional Performance Testing of the systems being retro commissioned.

Functional Performance Test Procedures

Functional Performance Testing is the dynamic testing of systems under full operation. Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outdoor temperatures, fire alarms and power failures. The systems are run through all of the control system's sequences of operation and components are verified to be responding as the sequence state.

The Contractor is responsible for performing all actions required to carry out the Functional Performance Tests, including providing all required meters, test equipment, laptops, software, radio communication, etc.

The RxC Authority will develop the Test Procedures and issue to the Retro Commissioning Team for review and comment. Once the Test Procedures are finalized, a meeting will be held to plan the sequencing and scheduling of the Functional Performance Testing.

The RxC Authority will be in attendance to oversee ALL testing and be responsible for documenting the actions, results and issues encountered.

Implementation Phase Acceptance Requirements

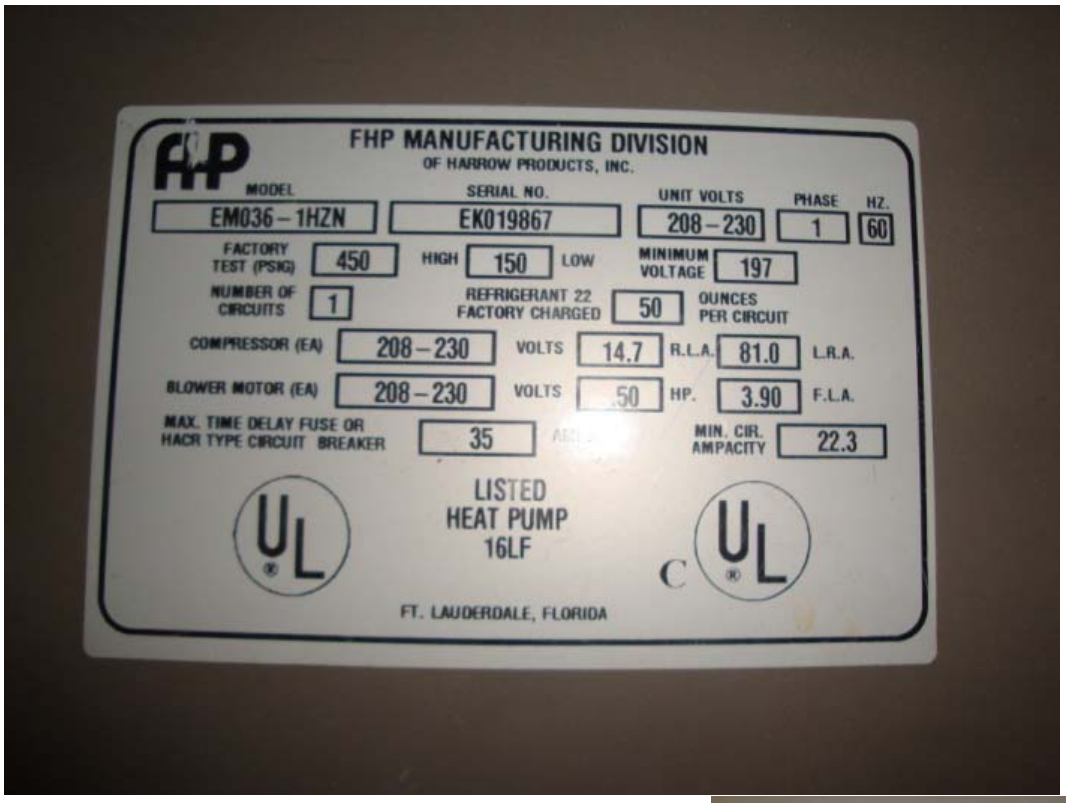
Acceptance of the Implementation Phase of the Retro Commissioning Process requires the Owner's acceptance of the verified test reports, consistent with recommendations of the Engineer and other appropriate Retro Commissioning Team Members.

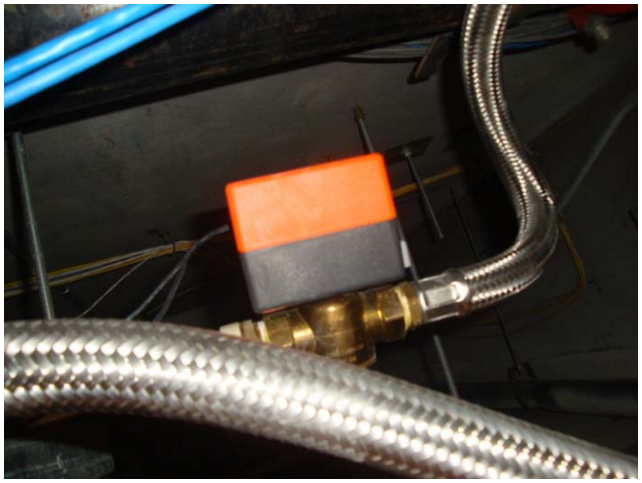
Implementation Phase Documentation

Documentation delivered at the conclusion of the Implementation Phase includes:

- Building Equipment List
- Functional Test Reports
- Control Functional Test Reports
- Actual vs Design Air / Water Flows
- Test and Balance Reports
- Issue Discovery Log
- Field Adjustments
- Recommendations

Heat Pump - 1 (FHP) **New Building**
Model No.: EM036-1HZN
Serial No.: EK019867





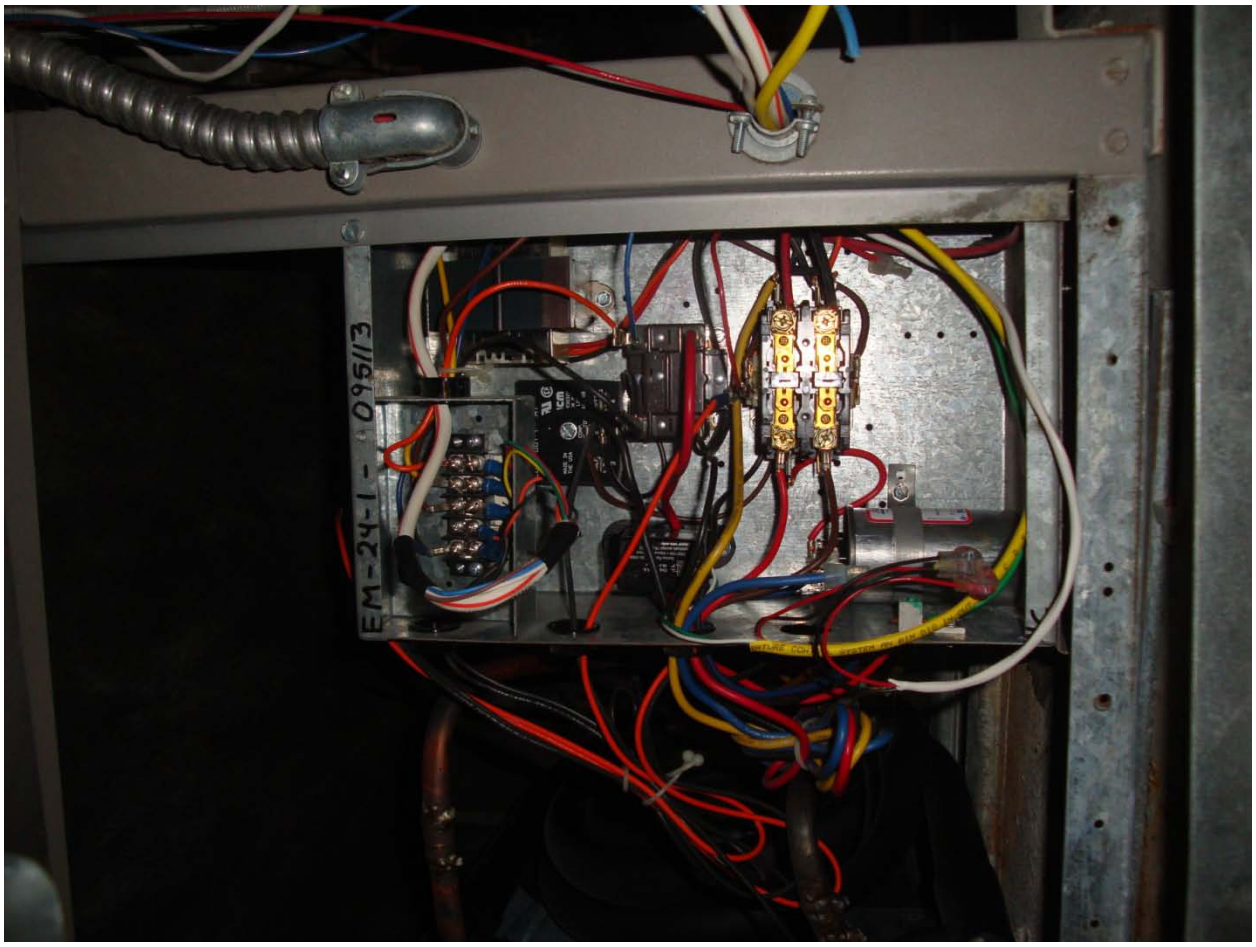
Heat Pump – 2A (FHP) **New Building**
Model No.: EM036-1HZN
Serial No.: EK019868

Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump – 2B (FHP) **New Building**
Model No.: EM024-1HZN
Serial No.: EK019930

Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump - 3 (FHP) **New Building**
Model No.: EM024-1HZN
Serial No.: EK019798



Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump - 5 (FHP) **New Building**
Model No.: EM036-1HZN
Serial No.: EK019932

Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump - 6 (FHP) **New Building**
Model No.: EM024-1HZN
Serial No.: EK019799

Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump - 7 (FHP) **New Building**
Model No.: EM036-1HZN
Serial No.: EK019378

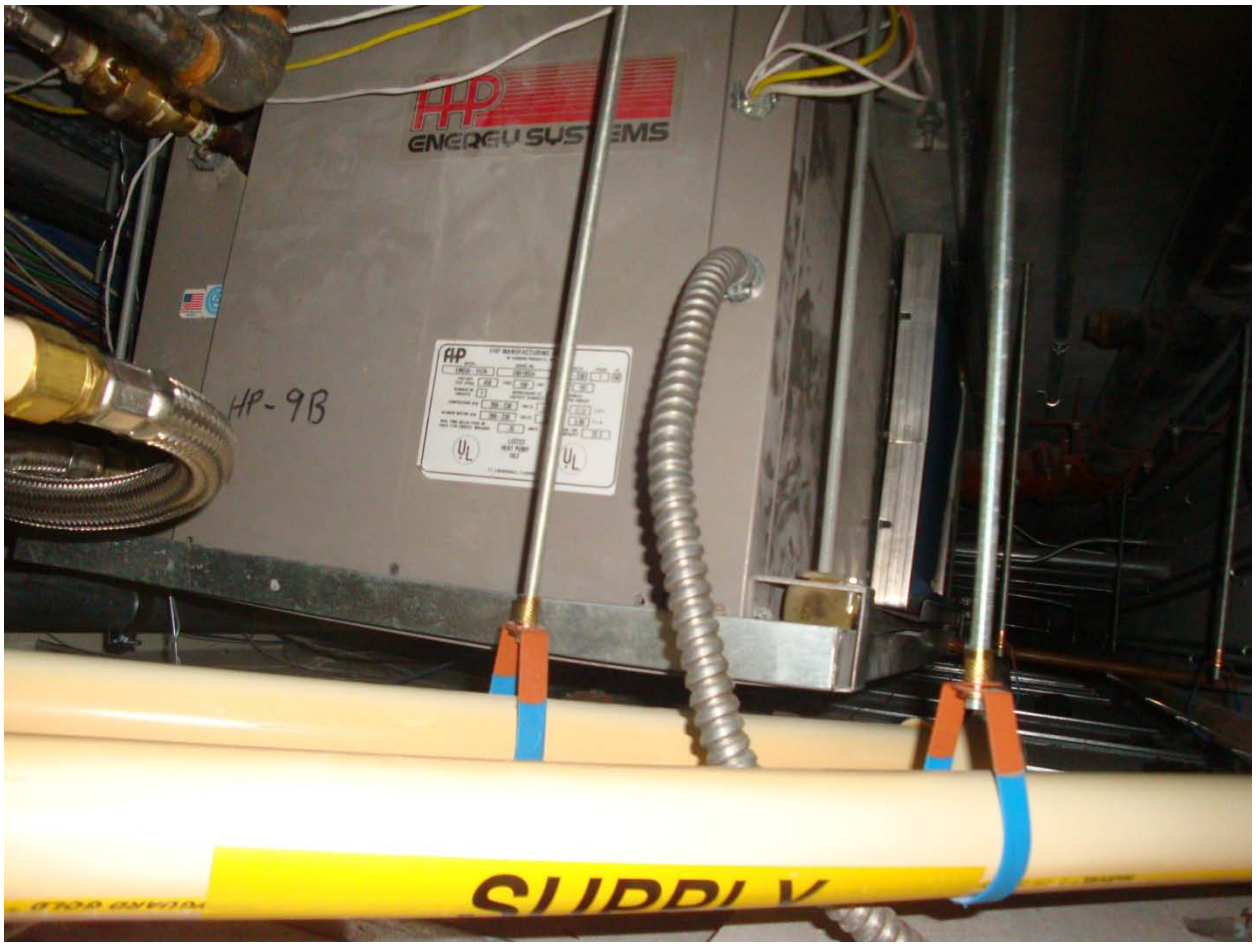
Heat Pump - 8 (FHP) **New Building**
Model No.: EM036-1HZN
Serial No.: EK019933

Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump – 9A (FHP) **New Building**
Model No.: EM036-1HZN
Serial No.: EK019856

Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump – 9B (FHP) **New Building**
Model No.: EC036-1HZN
Serial No.: EK019934



Building Equipment List **Project: City of Naples, Police & Fire Department**

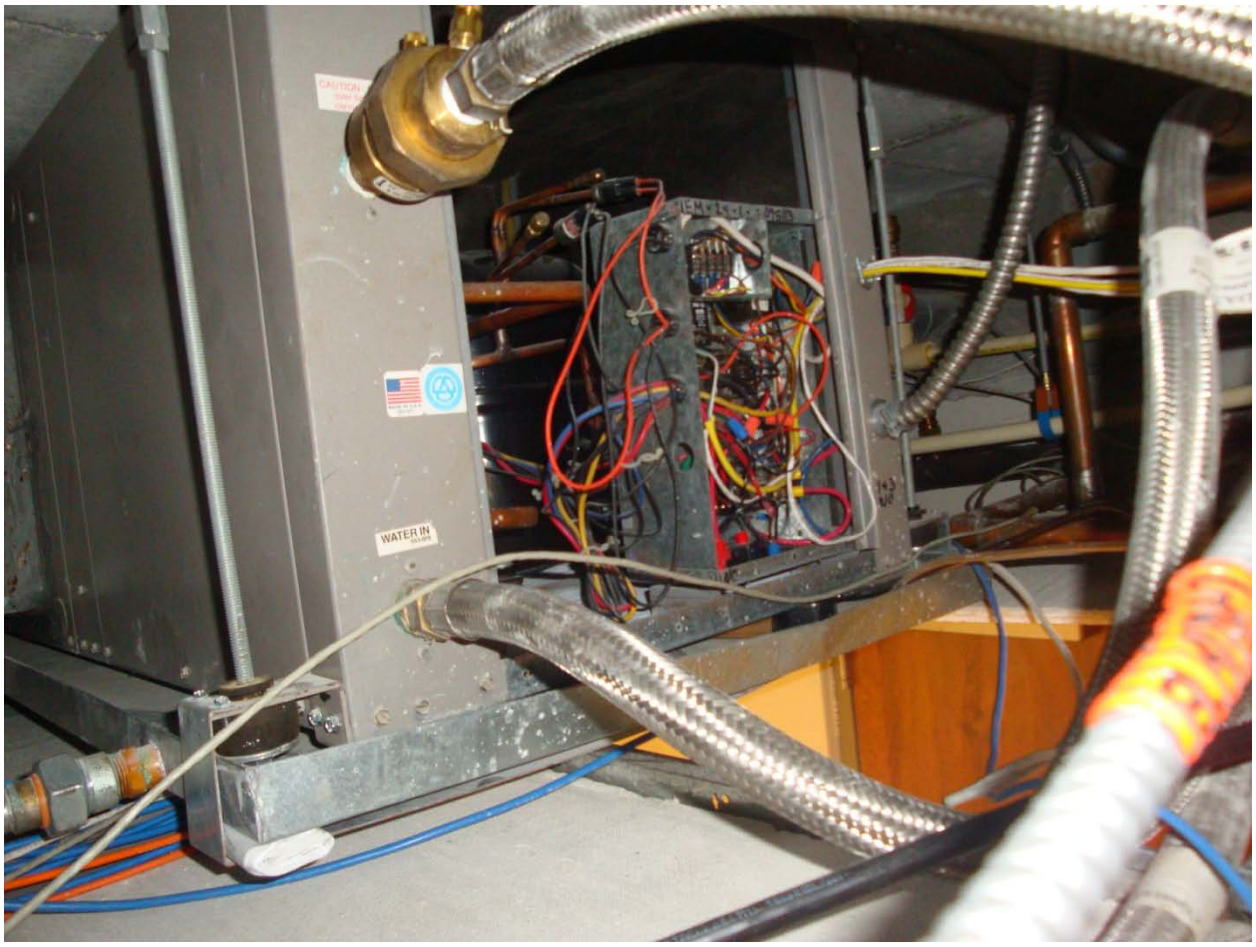
Heat Pump - 10 (FHP) **New Building**
Model No.: EM036-1HZN
Serial No.: SK126835

Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump - 11 (Climatemaster) **New Building**
Model No.: TCH036AG
Serial No.: N13035634

Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump - 12 (FHP) **New Building**
Model No.:
Serial No.:

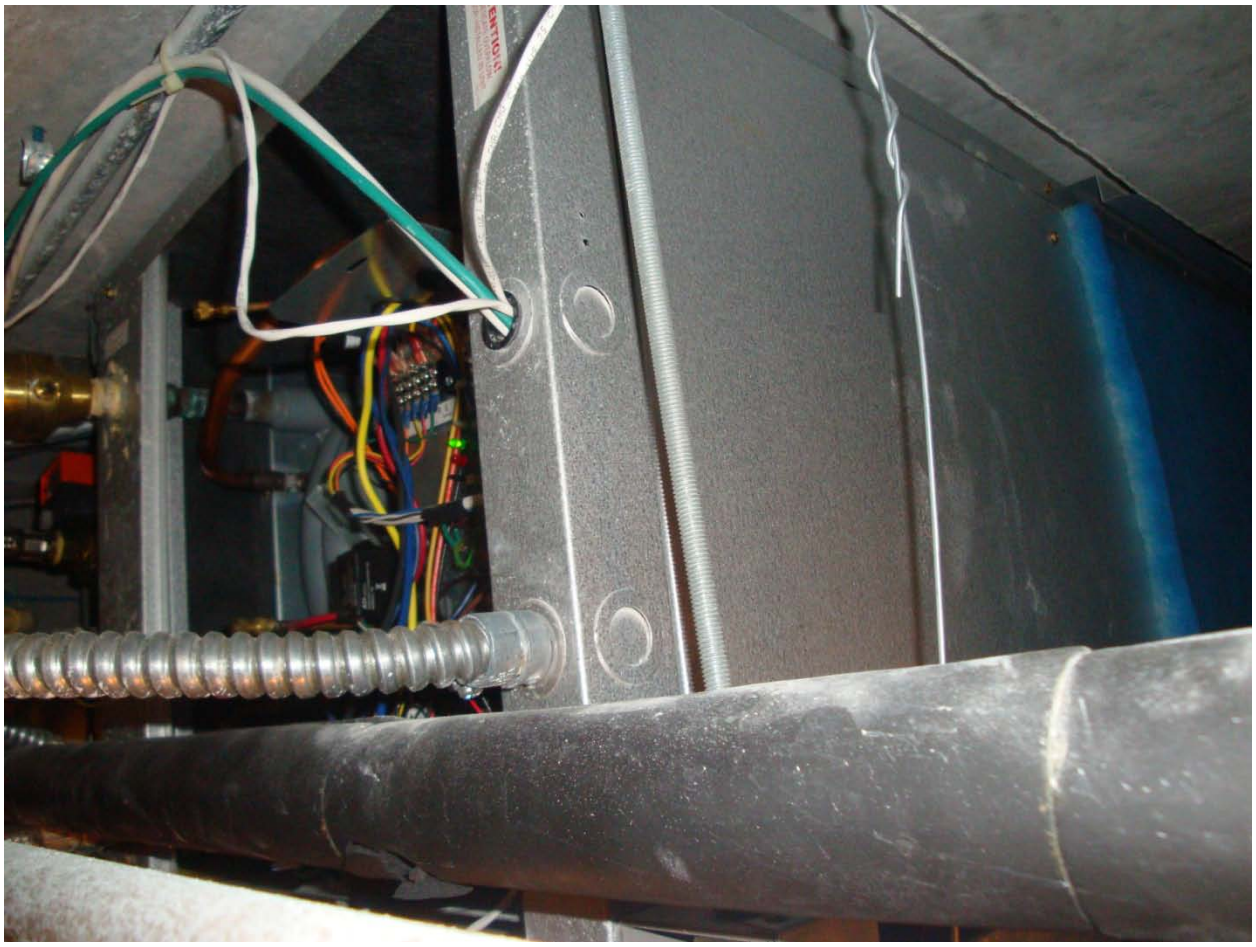


Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump - 13 (FHP) **New Building**
Model No.: EM036-1HZN
Serial No.: EK019865

Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump - 14 (FHP) **New Building**
Model No.:
Serial No.:



Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump - 15 (FHP) **New Building**
Model No.: EM036-1HZN
Serial No.: NH120366

Building Equipment List **Project: City of Naples, Police & Fire Department**

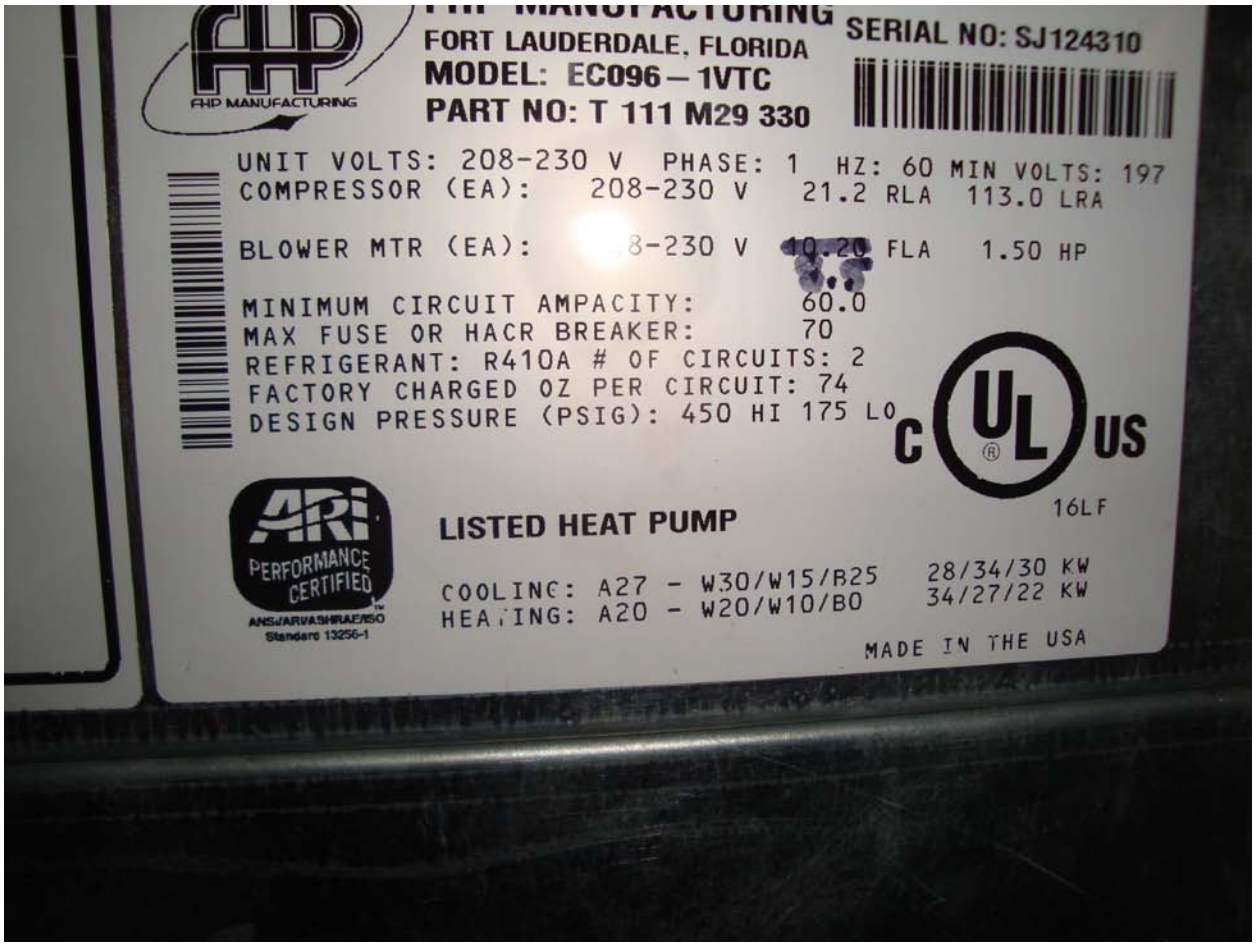
Air Handling Unit 21 (Trane) **New Building**
Model No.: TWE063P13FA0
Serial No.:

Building Equipment List **Project: City of Naples, Police & Fire Department**

Ductless Split System for Second Floor IT Room New Building (Comfort-Aire)
Model No.: B-VMH18SC-1
Serial No.: B2016561312C20120126

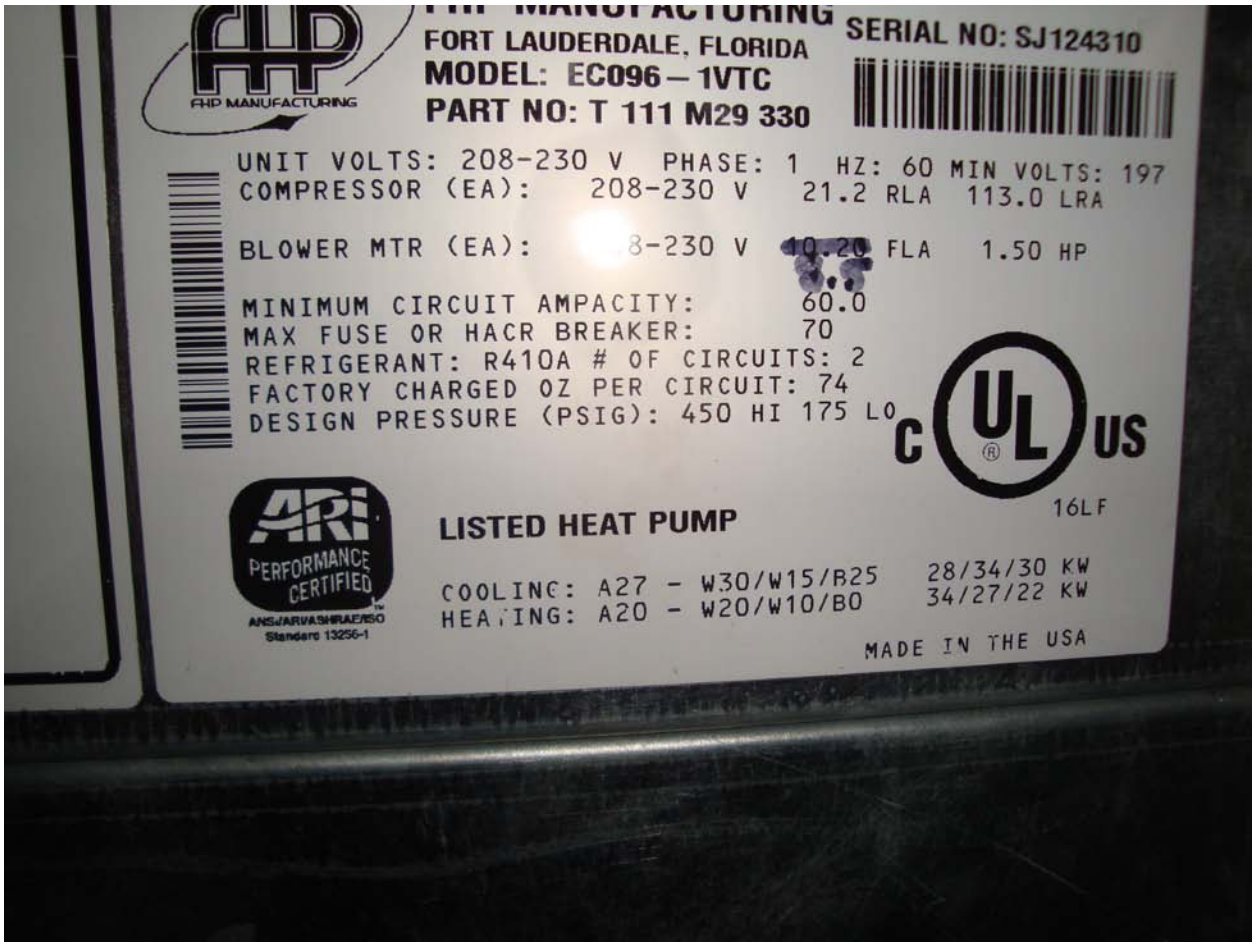
Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump - 1 (FHP) **Old Building**
Model No.: EV048-1VTC-FLT
Serial No.: SJ124202

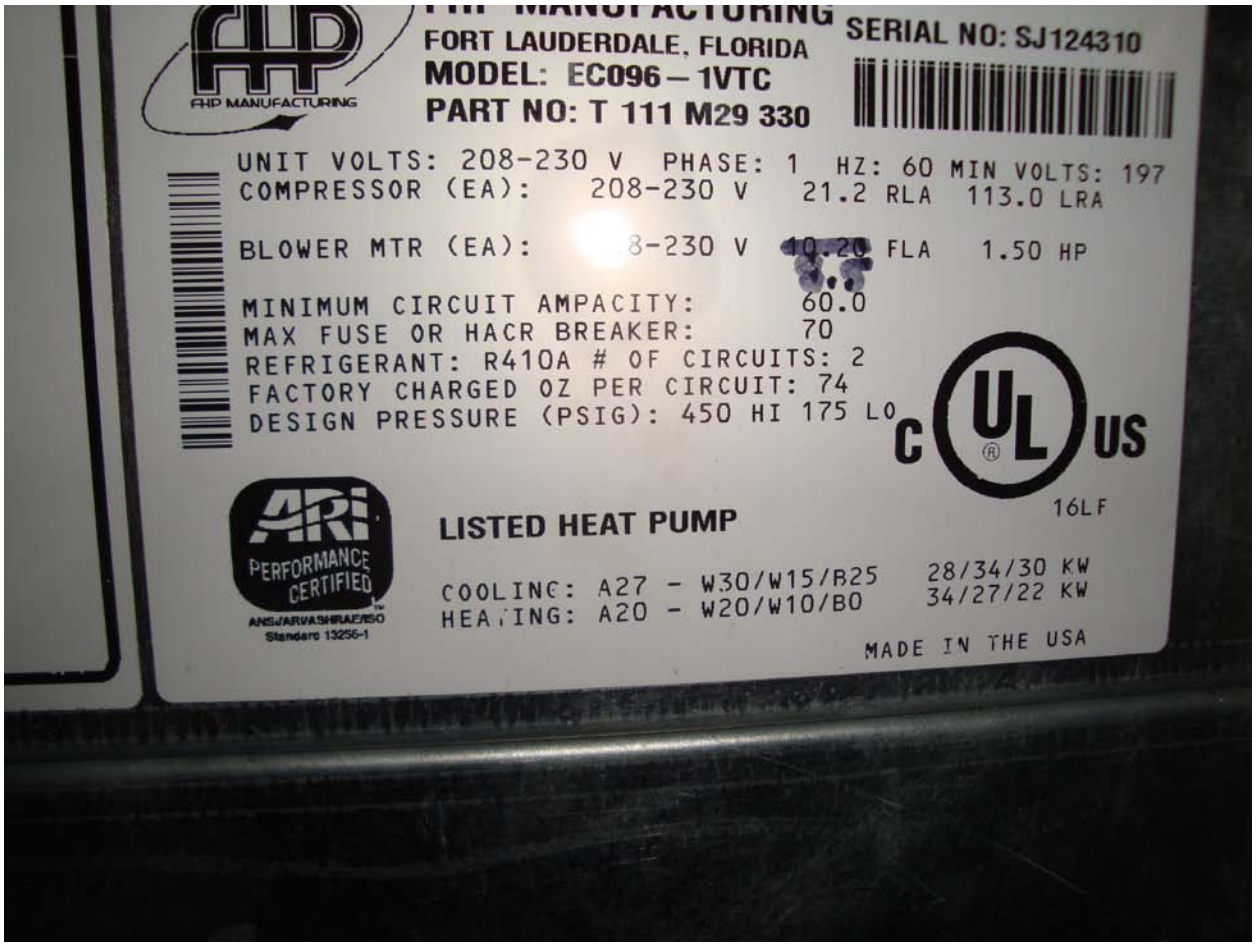


Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump - 2 (FHP) **Old Building**
Model No.: EC096-1VTC-FBT
Serial No.: SJ124273

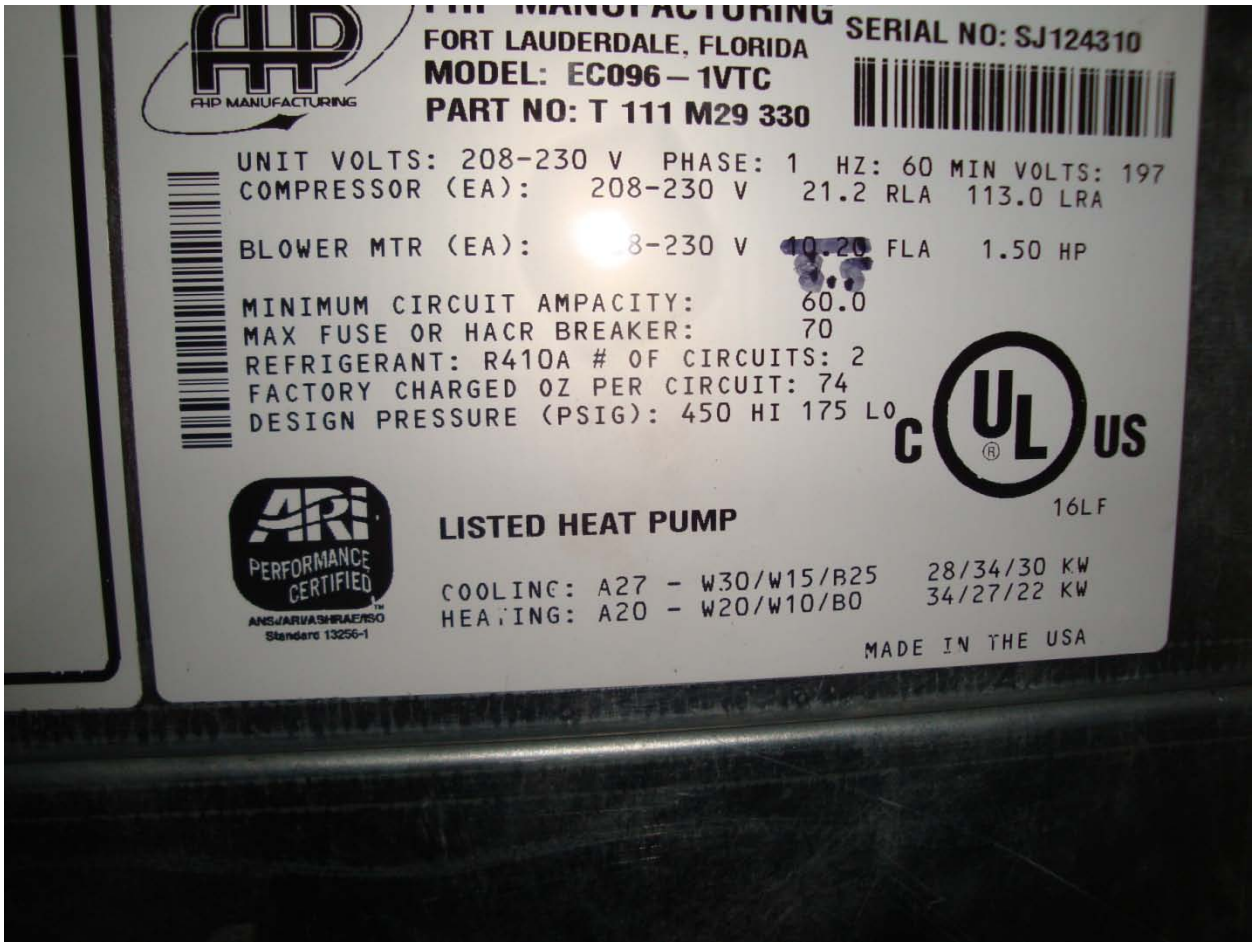


Heat Pump - 3 (FHP) **Old Building**
Model No.: EC096-1VTC-FBT
Serial No.: SJ124272

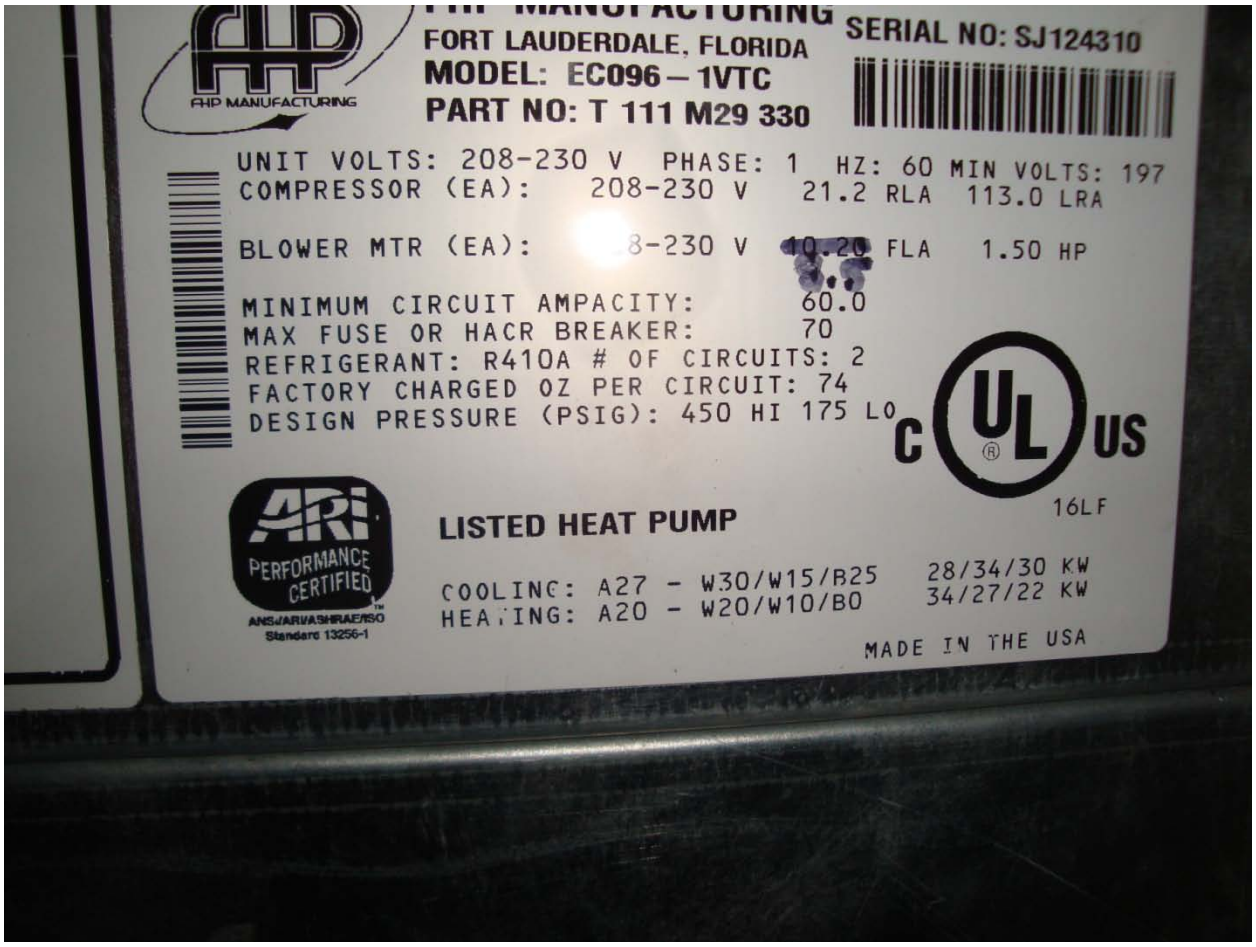


Building Equipment List **Project: City of Naples, Police & Fire Department**

Heat Pump - 4 (FHP) **Old Building**
Model No.: EV036-1VTC-FLT
Serial No.: SJ124203



Heat Pump - 5 (FHP) **Old Building**
Model No.: EC096-1VTC-FBT
Serial No.: SJ124275



Heat Pump - 6 (FHP) **Old Building**
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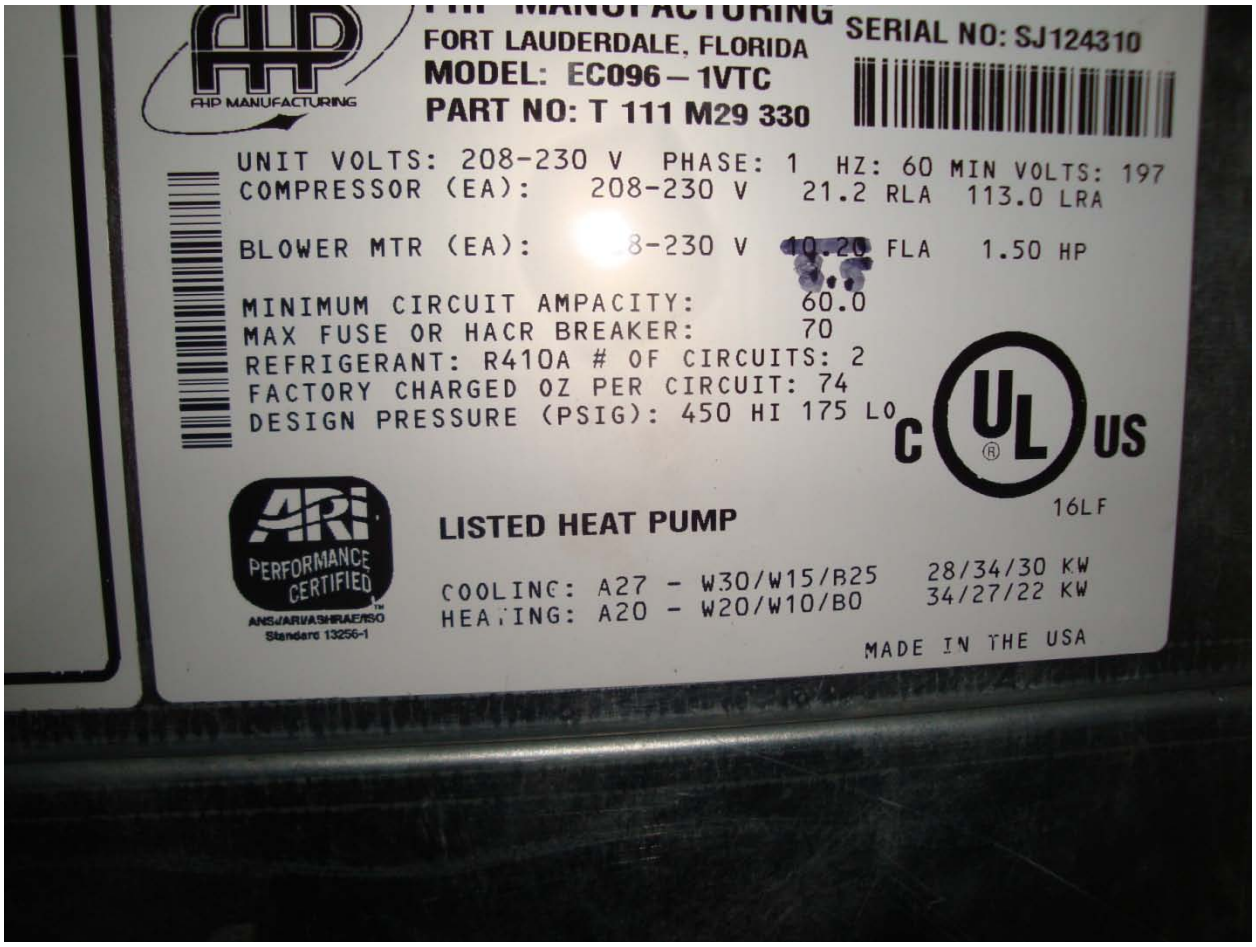
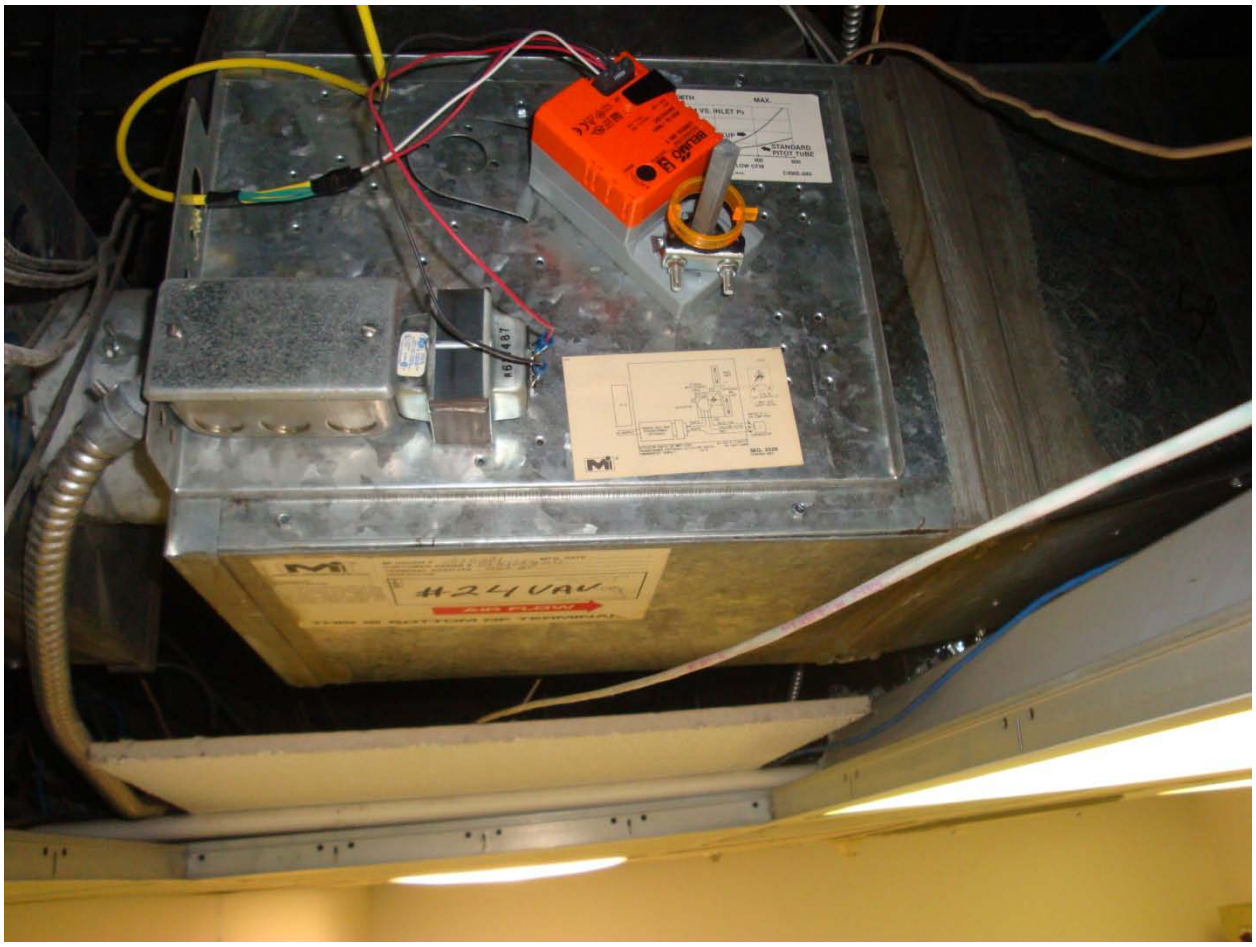
Serial No.: SJ124310



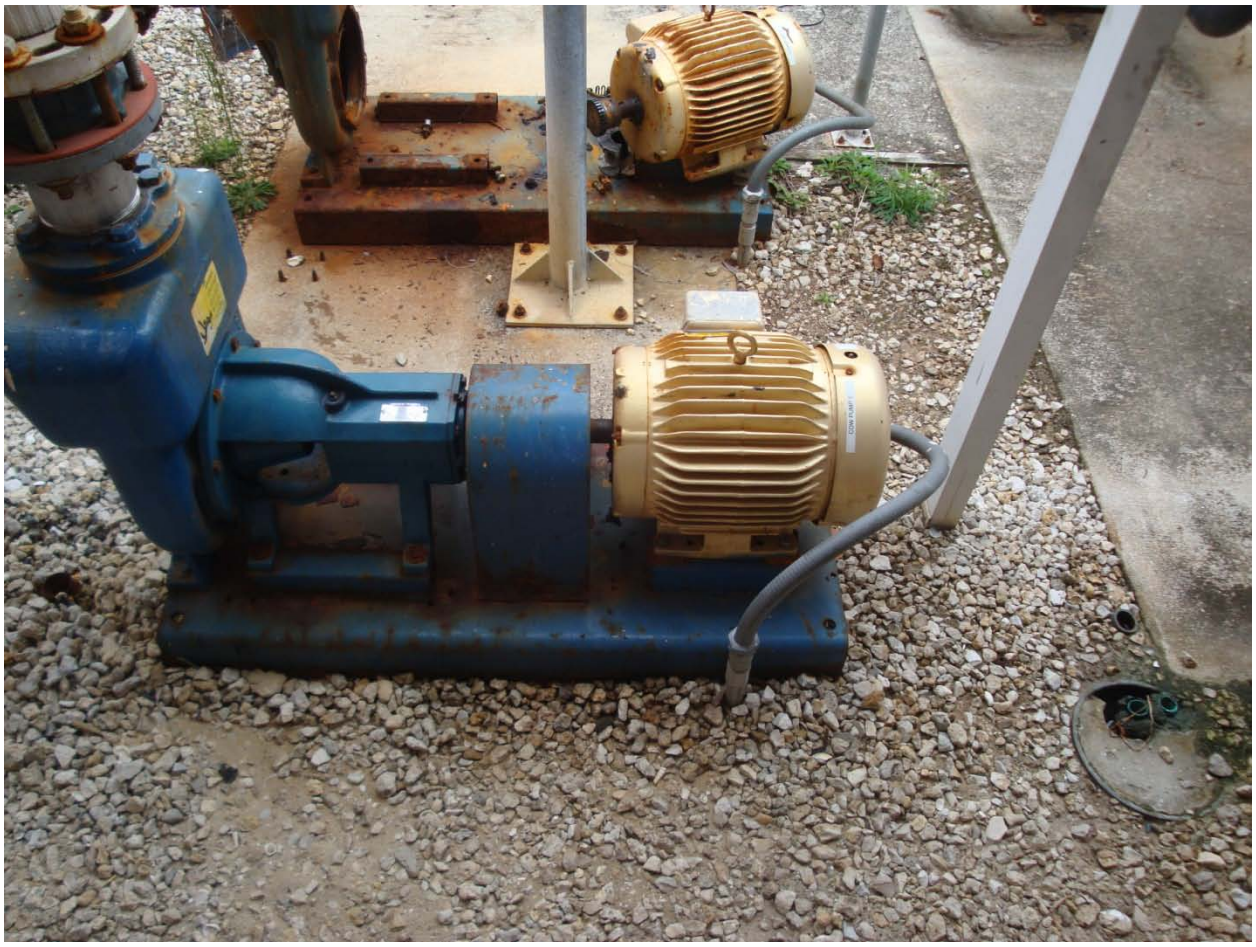
Building Equipment List **Project: City of Naples, Police & Fire Department**

Make Up Air Unit – 1 (Addison) **Old Building**
Model No.: TRSG210BJ1
Serial No.: 9.08014E+11

VAV 1, VAV 2 and VAV 3 (MetalAire) **Old Building**
Model No.:
Serial No.:

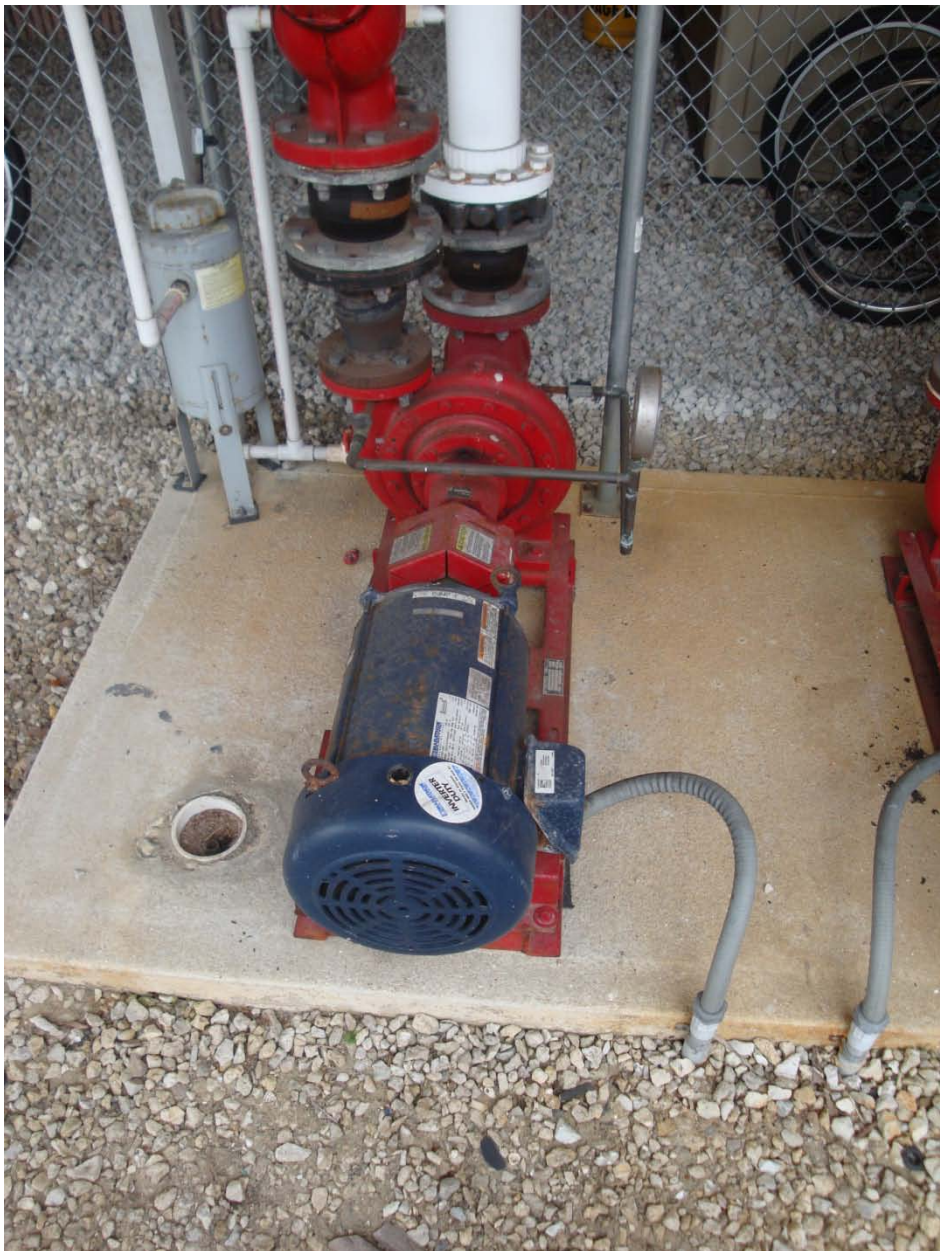


Geothermal Well Pump - 1
Model No.: B4ZRKS
Serial No.:



Geothermal Well Pump - 2
Model No.: B4ZRKS
Serial No.:

Condenser Water Pump – 1 (Bell & Gossett)
Model No.: 1510 BF
Serial No.:



Condenser Water Pump – 2 (Bell & Gossett)
Model No.: 1510BF
Serial No.:

Heat Exchanger (Graham)
Model No.: GP258
Serial No.: 10-77508-1

Project: City of Naples – Police & Fire Department

System Description: HP-1 (New Bldg)

Date of Test: December 19, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,300

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-1 New
Location: 1st Floor Hallway
Area Served: Records Office

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
		SEQUENCE OF OPERATIONS - FREEZE MODE	
	9	No Freeze Mode	
		Field Notes:	
		SEQUENCE OF OPERATIONS - SMOKE MODE	
	10	No Smoke Mode	
		Field Notes:	
		VERIFICATION OF GRAPHICS, TRENDS AND ALARMS	
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-2A (New Bldg)

Date of Test: December 19, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,300

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-2A New
Location: 1st Floor Hallway
Area Served: Rotunda

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
		SEQUENCE OF OPERATIONS - FREEZE MODE	
	9	No Freeze Mode	
		Field Notes:	
		SEQUENCE OF OPERATIONS - SMOKE MODE	
	10	No Smoke Mode	
		Field Notes:	
		VERIFICATION OF GRAPHICS, TRENDS AND ALARMS	
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-2B (New Bldg)

Date of Test: December 19, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,300

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-2B New
Location: 1st Floor Hallway
Area Served: Rotunda

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
		SEQUENCE OF OPERATIONS - FREEZE MODE	
	9	No Freeze Mode	
		Field Notes:	
		SEQUENCE OF OPERATIONS - SMOKE MODE	
	10	No Smoke Mode	
		Field Notes:	
		VERIFICATION OF GRAPHICS, TRENDS AND ALARMS	
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-3 (New Bldg)

Date of Test: December 19, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 850

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.0°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-3 New
Location: 1st Floor Hallway
Area Served: Volunteers

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
		SEQUENCE OF OPERATIONS - FREEZE MODE	
	9	No Freeze Mode	
		Field Notes:	
		SEQUENCE OF OPERATIONS - SMOKE MODE	
	10	No Smoke Mode	
		Field Notes:	
		VERIFICATION OF GRAPHICS, TRENDS AND ALARMS	
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-5 (New Bldg)

Date of Test: December 19, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,300

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-5 New
Location: 1st Floor Hallway
Area Served: Training

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
SEQUENCE OF OPERATIONS - FREEZE MODE			
	9	No Freeze Mode	
		Field Notes:	
SEQUENCE OF OPERATIONS - SMOKE MODE			
	10	No Smoke Mode	
		Field Notes:	
VERIFICATION OF GRAPHICS, TRENDS AND ALARMS			
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-6 (New Bldg)

Date of Test: December 19, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 850

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.0°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-6 New
Location: 1st Floor Hallway
Area Served: Finance

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
		SEQUENCE OF OPERATIONS - FREEZE MODE	
	9	No Freeze Mode	
		Field Notes:	
		SEQUENCE OF OPERATIONS - SMOKE MODE	
	10	No Smoke Mode	
		Field Notes:	
		VERIFICATION OF GRAPHICS, TRENDS AND ALARMS	
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-7 (New Bldg)

Date of Test: December 19, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 850

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.0°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-7 New
Location: 1st Floor Hallway
Area Served: Hallway

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
SEQUENCE OF OPERATIONS - FREEZE MODE			
	9	No Freeze Mode	
		Field Notes:	
SEQUENCE OF OPERATIONS - SMOKE MODE			
	10	No Smoke Mode	
		Field Notes:	
VERIFICATION OF GRAPHICS, TRENDS AND ALARMS			
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-8 (New Bldg)

Date of Test: December 19, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,300

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-8 New
Location: 2nd Floor Hallway
Area Served: Chief's Office

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
		SEQUENCE OF OPERATIONS - FREEZE MODE	
	9	No Freeze Mode	
		Field Notes:	
		SEQUENCE OF OPERATIONS - SMOKE MODE	
	10	No Smoke Mode	
		Field Notes:	
		VERIFICATION OF GRAPHICS, TRENDS AND ALARMS	
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-9A (New Bldg)

Date of Test: December 19, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,300

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-9A New
Location: 2nd Floor Hallway
Area Served: Call Center

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
		SEQUENCE OF OPERATIONS - FREEZE MODE	
	9	No Freeze Mode	
		Field Notes:	
		SEQUENCE OF OPERATIONS - SMOKE MODE	
	10	No Smoke Mode	
		Field Notes:	
		VERIFICATION OF GRAPHICS, TRENDS AND ALARMS	
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-9B (New Bldg)

Date of Test: December 19, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,300

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-9B New
Location: 2nd Floor Hallway
Area Served: Call Center

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
		SEQUENCE OF OPERATIONS - FREEZE MODE	
	9	No Freeze Mode	
		Field Notes:	
		SEQUENCE OF OPERATIONS - SMOKE MODE	
	10	No Smoke Mode	
		Field Notes:	
		VERIFICATION OF GRAPHICS, TRENDS AND ALARMS	
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-10 (New Bldg)

Date of Test: December 20, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,300

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-10 New
Location: 2nd Floor Hallway
Area Served: Meeting Room

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
		SEQUENCE OF OPERATIONS - FREEZE MODE	
	9	No Freeze Mode	
		Field Notes:	
		SEQUENCE OF OPERATIONS - SMOKE MODE	
	10	No Smoke Mode	
		Field Notes:	
		VERIFICATION OF GRAPHICS, TRENDS AND ALARMS	
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-11 (New Bldg)

Date of Test: December 20, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,300

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-11 New
Location: 2nd Floor Hallway
Area Served: Internal Affairs

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
SEQUENCE OF OPERATIONS - FREEZE MODE			
	9	No Freeze Mode	
		Field Notes:	
SEQUENCE OF OPERATIONS - SMOKE MODE			
	10	No Smoke Mode	
		Field Notes:	
VERIFICATION OF GRAPHICS, TRENDS AND ALARMS			
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-12 (New Bldg)

Date of Test: December 20, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 850

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.0°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-12 New
Location: 2nd Floor Hallway
Area Served: IT Room

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
SEQUENCE OF OPERATIONS - FREEZE MODE			
	9	No Freeze Mode	
		Field Notes:	
SEQUENCE OF OPERATIONS - SMOKE MODE			
	10	No Smoke Mode	
		Field Notes:	
VERIFICATION OF GRAPHICS, TRENDS AND ALARMS			
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-13 (New Bldg)

Date of Test: December 19, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,300

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-13 New
Location: 2nd Floor Hallway
Area Served: Captain's Office

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
		SEQUENCE OF OPERATIONS - FREEZE MODE	
	9	No Freeze Mode	
		Field Notes:	
		SEQUENCE OF OPERATIONS - SMOKE MODE	
	10	No Smoke Mode	
		Field Notes:	
		VERIFICATION OF GRAPHICS, TRENDS AND ALARMS	
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-14 (New Bldg)

Date of Test: December 20, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,300

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-14 New
Location: 2nd Floor Hallway
Area Served: Hallway

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
		SEQUENCE OF OPERATIONS - FREEZE MODE	
	9	No Freeze Mode	
		Field Notes:	
		SEQUENCE OF OPERATIONS - SMOKE MODE	
	10	No Smoke Mode	
		Field Notes:	
		VERIFICATION OF GRAPHICS, TRENDS AND ALARMS	
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-15 (New Bldg)

Date of Test: December 20, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,300

Outside Air CFM: N/A

Leaving Air Temperature: 73.0°F

Returning Air Temperature: 54.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. Upon power the heat pumps will sequence on in 30 second increments. System start-up will require a full 8.5 minutes before all systems are in operation. The staggered start-up time-delay may be modified on the main keypad/display.
B. Each individual heat pump will be controlled by the internal mounted SA651 Controller based on the thermostat setpoint and the system limits imposed by the main controller. Upon call for cooling the controller will activate the compressor until space temperature requirements are met and will cycle off. The supply fan may be system wide selected to run continuous or cycle the compressor.
C. The heating setpoint will be determined by the main system as a specific number of degrees below the cooling setpoint and will initially be set at 4° below cooling. Upon a call for heating the controller will activate the reversing valve and the compressor. Once space conditions are met the compressor and reversing valve shall de-energize.

PRECISION
BALANCING & COMMISSIONING, INC.

Functional Test Reports

Project: City of Naples - Police & Fire Department
System: HP-15 New
Location: 3rd Floor Telephone Room
Area Served: Telephone Room

Pass Y/N	No	TEST PROCEDURES	EXPECTED RESULTS
		INITIAL CONDITIONS	
	1	No Initial Condions	
		Field Notes:	
		SEQUENCE OF OPERATIONS - UNOCCUPIED MODE	
	2	No Unoccupied Mode - System operates 24/7	
		Field Notes:	
		SEQUENCE OF OPERATIONS - OCCUPIED MODE	
Pass Y/N	**No**	**TEST PROCEDURES**	**EXPECTED RESULTS**
Y	3	System in normal operations	Fan operates continuously
		Field Notes:	
Y	4	Decrease the space temperature setpoint by 5°F at the themostat.	1. Fan continues to operate 2. Heat pump compressor energizes
		Field Notes:	
Y	5	New space temperature achieved	1. Fan continues to operate 2. Heat pump compressor de-energizes
		Field Notes:	
Y	6	Reset the system to the original set point	1. Fan continues to operate 2. Heat pump compressor maintains
		Field Notes:	

Y	7	From the original value, increase the space temperature setpoint at the thermostat by 10°F *Ensure the space temperature setpoint is not locked out.	1. Fan continues to operate 2. Reversing valve energizes 3. Heat pump compressor energizes
		Field Notes:	
Y	8	Reset the space temperature setpoint to original valve at the space temperature sensor.	1. Fan continues to operate 2. Reversing valve de-energizes 3. Heat pump compressor de-energizes
		Field Notes:	
SEQUENCE OF OPERATIONS - FREEZE MODE			
	9	No Freeze Mode	
		Field Notes:	
SEQUENCE OF OPERATIONS - SMOKE MODE			
	10	No Smoke Mode	
		Field Notes:	
VERIFICATION OF GRAPHICS, TRENDS AND ALARMS			
	11	No Graphics, Trends and Alarms Required	
		Field Notes:	

Project: City of Naples – Police & Fire Department

System Description: HP-1 (Old Bldg)

Date of Test: December 12, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,502

Outside Air CFM: N/A

Leaving Air Temperature: 75.0°F

Returning Air Temperature: 55.5°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples.

Project: City of Naples – Police & Fire Department

System Description: HP-2 (Old Bldg)

Date of Test: December 12, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 2,804

Outside Air CFM: N/A

Leaving Air Temperature: 75.0°F

Returning Air Temperature: 52.1°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples.

Project: City of Naples – Police & Fire Department

System Description: HP-3 (Old Bldg)

Date of Test: December 12, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 2,507

Outside Air CFM: N/A

Leaving Air Temperature: 75.0°F

Returning Air Temperature: 51.1°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples.

Project: City of Naples – Police & Fire Department

System Description: HP-4 (Old Bldg)

Date of Test: December 12, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 1,201

Outside Air CFM: N/A

Leaving Air Temperature: 75.0°F

Returning Air Temperature: 57.3°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples.

Project: City of Naples – Police & Fire Department

System Description: HP-5 (Old Bldg)

Date of Test: December 12, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 2,507

Outside Air CFM: N/A

Leaving Air Temperature: 75.0°F

Returning Air Temperature: 51.1°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples.

Project: City of Naples – Police & Fire Department

System Description: HP-6 (Old Bldg)

Date of Test: December 12, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 2,804

Outside Air CFM: N/A

Leaving Air Temperature: 75.0°F

Returning Air Temperature: 52.1°F

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples.

Project: City of Naples – Police & Fire Department

System Description: MAU-1

Date of Test: December 20, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 2,400

Outside Air CFM: 2,400

Leaving Air Temperature: N/A

Returning Air Temperature: N/A

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. The system will allow for the start/stop of the make up air unit and monitor the supply and outside air temperatures. The make up air unit will operate under it's own factory internal controls.

Project: City of Naples – Police & Fire Department

System Description: AHU-21 (New Bldg)

Date of Test: December 20, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Total Air CFM: 2,000

Outside Air CFM: N/A

Leaving Air Temperature: N/A

Returning Air Temperature: N/A

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples; however we discovered a vague sequence of operations during our investigation:

A. The redundant 5 ton system for communication will be activated through a wall mounted switch that will disable the primary unit and allow the redundant system to function. The redundant unit will operate on a standard low voltage thermostat furnished by the Temperature Controls Contractor. Indication will be sent to the main controller and an alarm will be generated to indicate the redundant system is in operation.

Project: City of Naples – Police & Fire Department

System Description: Condenser Water System

Date of Test: December 20, 2013

Test Participant List:

List all test participants/witnesses. Each participant should initial each successful test step to confirm the successful completion of that step:

Participant	Company / Agency	Initials
Josh Kuethe	Precision / Commissioning Authority	JK
Dave Wade	A.D. Morgan / General Contractor	DW
Lou Theberge	Precision / TAB Contractor	LT
	JCI / Building Automation Contractor	
Jim Ingraham	City of Naples / Owner Representative	JI

Design Criteria:

Supply Condenser Water Temperature: N/A

Return Condenser Water Temperature: N/A

Capacity (Tons): N/A

Condenser Water Flow (GPM): N/A

Test Equipment Required:

Temperature/Humidity Sensor	Flashlight	Basic Tool Kit
Digital Multimeter	Laptop Computer	Water Flow Instruments
CO_2 Measuring Meter	Phones	

System Readiness Summary:

Items that **MUST BE COMPLETED** before starting FPT; copies of following items should be available for the test.

N/A Copy of as-built system schematics available

N/A Copy of manufacturer representative's start-up report

N/A Copy of test and balance report

N/A Copy of operation & maintenance manual

Sequence of Operations:

Sequence of operations could not be obtained from the City of Naples.

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-1 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	63.8°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	72.4°	73.2°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	43.70%			1
Space CO2					pass___/fail___	pass___/fail___	748ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

1. Three (3) space dehumidifiers are located in the space in order to keep the humidity level down.

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-2 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	73.6°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	72.9°	73.3°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	44.10%			
Space CO2					pass___/fail___	pass___/fail___	473ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-3 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	65.2°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	73.5°	73.4°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	43.50%			
Space CO2					pass___/fail___	pass___/fail___	444ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-5 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	68.8°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	69.7°	72.2°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	45.50%			
Space CO2					pass___/fail___	pass___/fail___	454ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-6 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	67.1°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	72.9°	75.9°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	40.40%			
Space CO2					pass___/fail___	pass___/fail___	790ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-7 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	77.3°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	73.5°	73.9°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	43.40%			
Space CO2					pass___/fail___	pass___/fail___	490ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-8 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	74.4°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	70.9°	68.4°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	52.10%			
Space CO2					pass___/fail___	pass___/fail___	608ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-9 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	55.8°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	74.6°	75.8°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	40.40%			
Space CO2					pass___/fail___	pass___/fail___	539ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-10 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	72.5°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	71.4°	73.0°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	53.10%			
Space CO2					pass___/fail___	pass___/fail___	518ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-11 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	68.5°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	71.8°	72.2°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	53.70%			
Space CO2					pass___/fail___	pass___/fail___	519ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

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Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-12 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	56.9°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	69.5°	65.2°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	56.40%			
Space CO2					pass___/fail___	pass___/fail___	715ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

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BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-13 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	65.3°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	71.3°	73.6°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	43.40%			
Space CO2					pass___/fail___	pass___/fail___	564ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-14 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	77.0°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	72.4°	72.7°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	53.10%			
Space CO2					pass___/fail___	pass___/fail___	495ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-15 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	56.9°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	71.3°	73.7°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	54.30%			
Space CO2					pass___/fail___	pass___/fail___	621ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

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BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-1 (Old)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	63.9°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	72.5°	73.1°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	48.20%			
Space CO2					pass___/fail___	pass___/fail___	495ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

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BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-2 (Old)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	67.2°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	72.1°	70.8°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	50.20%			
Space CO2					pass___/fail___	pass___/fail___	524ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-3 (Old)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	77.1°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	70.4°	72.0°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	53.40%			
Space CO2					pass___/fail___	pass___/fail___	482ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-4 (Old)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	68.0°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	71.1°	73.5°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	52.70%			
Space CO2					pass___/fail___	pass___/fail___	498ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-5 (Old)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	76.3°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	71.9°	72.4°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	51.40%			
Space CO2					pass___/fail___	pass___/fail___	527ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

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BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment HP-6 (Old)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	67.8°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	72.0°	71.4°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	50.70%			
Space CO2					pass___/fail___	pass___/fail___	513ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

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BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment VAV-1 (Old)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
Damper Actuator		√		√	pass___/fail_√_	pass___/fail_√_				1
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	76.3°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	72.4°	73.2°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	51.60%			
Space CO2					pass___/fail___	pass___/fail___	481ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

1. Damper shaft locked open, does not actuate

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Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment VAV-2 (Old)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
Damper Actuator		√		√	pass___/fail_√_	pass___/fail_√_				1
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	72.1°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	71.3°	71.2°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	49.60%			
Space CO2					pass___/fail___	pass___/fail___	501ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

1. Damper shaft locked open, does not actuate

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Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment VAV-3 (Old)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
Damper Actuator		√		√	pass___/fail_√_	pass___/fail_√_				1
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	74.2°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	72.8°	74.0°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	51.20%			
Space CO2					pass___/fail___	pass___/fail___	543ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

1. Damper shaft locked open, does not actuate

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Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment AHU-21 (New)

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
HP Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Discharge Air Temperature	√				pass_√_/fail___	pass_√_/fail___	74.2°			
Space Temperature	√				pass_√_/fail___	pass_√_/fail___	72.8°	73.7°		
					pass___/fail___	pass___/fail___				
Space Humidity					pass___/fail___	pass___/fail___	40.40%			
Space CO2					pass___/fail___	pass___/fail___	539ppm			
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

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Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment Condenser Water System

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
Outside Air Temperature	√				pass_√_/fail___	pass_√_/fail___	73.7°	75.1°		
Outside Air Humidity	√				pass___/fail_√_	pass_√_/fail___	100.40%	57.60%		
Bldg Supply Water Temp	√				pass_√_/fail___	pass_√_/fail___	90.6°	92.9°		
Bldg Return Water Temp	√				pass_√_/fail___	pass_√_/fail___	98.3°	98.8°		
Geo Supply Water Temp	√				pass_√_/fail___	pass_√_/fail___	79.0°	79.5°		
Geo Return Water Temp	√				pass_√_/fail___	pass_√_/fail___	98.3°	94.6°		
Entering Bldg Diff Press	√				pass___/fail___	pass___/fail___				
Leaving Bldg Diff Press	√				pass___/fail___	pass___/fail___				
Geo Pump 1 Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Geo Pump 1 Status			√		pass_√_/fail___	pass_√_/fail___				
Geo Pump 1 Speed		√			pass_√_/fail___	pass_√_/fail___				
Geo Pump 1 Alarm			√		pass_√_/fail___	pass_√_/fail___				
Geo Pump 2 Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
Geo Pump 2 Status			√		pass_√_/fail___	pass_√_/fail___				
Geo Pump 2 Speed		√			pass_√_/fail___	pass_√_/fail___				
Geo Pump 2 Alarm			√		pass_√_/fail___	pass_√_/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Control Component Inspection

Project City of Naples - Police & Fire Station

Equipment Condenser Water System

AI = Analog Input AO = Analog Output BI = Binary Input BO = Binary Output

Item Description	AI	AO	BI	BO	Operation	Point Check	DDC Value	Actual Value	Calibration Offset	Notes
CW Pump 1 Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
CW Pump 1 Status			√		pass_√_/fail___	pass_√_/fail___				
CW Pump 1 Speed		√			pass_√_/fail___	pass_√_/fail___				
CW Pump 1 Alarm			√		pass_√_/fail___	pass_√_/fail___				
CW Pump 2 Start/Stop				√	pass_√_/fail___	pass_√_/fail___				
CW Pump 2 Status			√		pass_√_/fail___	pass_√_/fail___				
CW Pump 2 Speed		√			pass_√_/fail___	pass_√_/fail___				
CW Pump 2 Alarm			√		pass_√_/fail___	pass_√_/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				
					pass___/fail___	pass___/fail___				

Notes:

PRECISION
BALANCING & COMMISSIONING, INC.

Air Flow and Water Flow Summary

Design-vs-Actual **Project:** City of Naples - Police & Fire Department

AIRSIDE				
Unit	**Grill Design**	**Schedule Design**	**Actual**	**% of Design**
HP-1 New		1300	1087	83.6%
HP-2A New		1300	888	68.3%
HP-2B New		1300	899	69.2%
HP-3 New		850	717	84.4%
HP-5 New		1300	1066	82.0%
HP-6 New		850	NA	NA
HP-7 New		850	652	76.7%
HP-8 New		1300	1213	93.3%
HP-9A New		1300	805	61.9%
HP-9B New		1300	1127	86.7%
HP-10 New		1300	1145	88.1%
HP-11 New		1300	824	63.4%
HP-12 New		850	792	93.2%
HP-13 New		1300	1094	84.2%
HP-14 New		1300	1015	78.1%
HP-15 New		1300	940	72.3%
HP-1 Old		1502	1514	100.8%
HP-2 Old		2804	2733	97.5%
HP-3 Old		2507	1400	55.8%
HP-4 Old		1201	1229	102.3%
HP-5 Old		2507	2972	118.5%
HP-6 Old		2804	3414	121.8%
AHU-21		2000	NA	NA
MAU-1		2400	3246	135.3%
WATERSIDE				
Unit		**Design**	**Actual**	**% of Design**
Geothermal Pump 1		300	NA	NA
Geothermal Pump 2		300	NA	NA
Condenser Water Pump 1		NA	NA	NA
Condenser Water Pump 2		NA	NA	NA

PRECISION
BALANCING & COMMISSIONING, INC.

Air Flow and Water Flow Summary
Design-vs-Actual

Project: City of Naples - Police & Fire Department

BUILDING PRESSURIZATION				
Unit	**Outside Air**	**Exhaust Air**	**Pos/Neg**	**Notes**
New Section	**1838**	**1634**	**204**	**1**
Old Section	**1408**	**0**	**1408**	**1**

Notes:

1. The Make Up Air Unit is not on a schedule and controls it's own schedule. It was noted there were several times when the unit was not operational. If this is the case this will adversely affect the building pressurization turning the new section negative and balancing the old.

TABLE OF CONTENTS

PROJECT: PES BUILDING **DATE:** 01/06/14

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

INSTRUMENT CALIBRATION REPORT

PROJECT: PES BUILDING **PROJECT NO:** WO#141137
NAPLES, FL

INSTRUMENT/SERIAL NO.	APPLICATION	DATES OF USE		VERIFICATION
		FROM	TO	DUE DATE
DIGITAL TACHOMETER / DT2236B - S806623	RPM	12-Dec-13	20-Dec-13	15-Feb-14
MULTIMETER FLUKE- 335 / 12570119	AMPERAGE/VOLTAGE	12-Dec-13	20-Dec-13	15-Feb-14
PITOT TUBE 18" / T&B 1	PITOT READINGS	12-Dec-13	20-Dec-13	N.A.
PITOT TUBE 36" / T&B 2	PITOT READINGS	12-Dec-13	20-Dec-13	N.A.
FLOW-HOOD / SHORTRIDGE AIRDATA METER / M12839	CFM READINGS	12-Dec-13	20-Dec-13	26-Dec-13
SHORTRIDGE AIRDATA METER / M12839	FPM READINGS	12-Dec-13	20-Dec-13	26-Dec-13
SHORTRIDGE AIRDATA METER / M12839	STATICS / VELOCITY	12-Dec-13	20-Dec-13	26-Dec-13
SHORTRIDGE AIRDATA METER / M12839	DIFF. PRESSURES	12-Dec-13	20-Dec-13	26-Dec-13
SHORTRIDGE AIRDATA METER / M12839	AIR TEMPERATURES	12-Dec-13	20-Dec-13	26-Dec-13
HYDRODATA MULTIMETER / W12174	GPM READINGS	12-Dec-13	20-Dec-13	18-Dec-13
HYDRODATA MULTIMETER / W12174	WATER PRESSURES	12-Dec-13	20-Dec-13	18-Dec-13
FLUKE 52 & 80PK PROBE / T&B 12, T&B - 44	TEMP. / WATER	12-Dec-13	20-Dec-13	15-Feb-14
FLUKE 52 & PROBE / T&B - 20	SURFACE TEMP.	12-Dec-13	20-Dec-13	15-Feb-14
EXTECH / RH390 / 09090037	HUMIDITY / TEMP.	12-Dec-13	20-Dec-13	15-Feb-14

REMARKS:

PRECISION BALANCING & COMMISSIONING

6360 118th Ave. North Largo, Fl 33773

Phone (727) 828-8264 Fax (727) 544-1924

COMMENT SHEET

PROJECT: PES BUILDING **DATE:** 01/08/14

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

PES WEST BUILDING FIRST FLOOR
GENERAL NOTE: There were no air quantities listed for the air distribution on the mechanical plan for this area.
The Heat Pumps appear to be in condition.
1. HP-1. This unit is scheduled to supply 1502 CFM. Our test indicates 1514 CFM. The outside air damper was
found closed
2. HP-2. This unit is scheduled to supply 2804 CFM. Our test indicates 2733 CFM. The belt was noticed to be
cracked and worn.
3. HP-3. This unit is scheduled to supply 2507 CFM. Our test indicated 1400 CFM. Further testing revealed the
drive belt slipping and the bottom coil frozen. The belt was tightened and the unit left off to thaw out.
The unit was restarted and checked for proper operation.
4. HP-4. This unit is scheduled to supply 1201 CFM. Our test indicates 1229 CFM.
5. HP-5. This unit is scheduled to supply 2507 CFM. Our test indicates 2972 CFM.
6. HP-6. This unit is scheduled to supply 2804 CFM. Our test indicates 3414 CFM.
7. MUA-1. This unit is scheduled to provide 3500 CFM of outside air to both buildings. Our test by velgrid of the
intake indicates 3246 CFM. There is added ductwork routed to the individual mechanical rooms for
outside air except for HP-1. There are no individual air quantities given for balancing purposes.
8. Exhaust Fans. All of the existing fans on the roof do not operate. The fan serving the Men's and Womens locker
rooms has been removed and the curb capped.
9. Geo Pumps. Only one pump was in operation at the time of testing. The other pump had been dismanteled. There
were no pressure taps installed in order to obtain any readings on the pump.

REMARKS:

PRECISION BALANCING & COMMISSIONING

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COMMENT SHEET

PROJECT: PES BUILDING **DATE:** 01/08/14

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

PES WEST BUILDING FIRST FLOOR
10. Condenser Pumps. The pump tags indicate the flow to be 300 GPM at 70 FT of Head. We could not perform block off pressure testing to determine impeller size and no pumps curves could be found. Pressures were obtained as found running and then with the pumps driven to 60 HZ. P-1 indicated 78 FT and P-2 was 79 FT. By these indications both pumps are low on water.
11. Heat Exchanger. The Heat Exchanger appears to be in good condition. Temperatures and pressures were taken on both Hot and Cold sides. The actual flow was calculated by pressure drop and the temperatures obtained were above the design data given.
12. Controls. Each unit has a programable thermostat and is linked to a central controls program. However, the program is limited on what can be displayed and controlled. We could not locate the main CPU during our time of testing.

REMARKS:

PRECISION BALANCING & COMMISSIONING

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COMMENT SHEET

PROJECT: PES BUILDING **DATE:** 01/08/14

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

PES EAST BUILDING FIRST FLOOR
GENERAL NOTES: 1. The majority of the HP's tested in this building would not obtain design CFM with the motors running on Hi speed.The units were found mostly wired on Lo speed. An attempt was made to rewire the motors to Hi but it had little affect on the airflow.
2. There is no transfer grill located above the ceiling in Hall 108 to supply outside air to HP-1 and HP-6.The walls are enclosed above the ceiling with a door separating the two areas. We recommend a transfer grill be installed.
1. HP-1. This unit is scheduled to supply 1300 CFM. Our test indicates 1087 CFM with the motor wired on Hi speed.
2. HP-2A. This unit is scheduled to supply 1300 CFM. Our test indicates 888 CFM with the motor wired on Hi speed.
3. HP-2B. This unit is scheduled to supply 1300 CFM. Our test indicates 899 CFM with the motor wired on Hi speed.
4. HP-3. This unit is scheduled to supply 850 CFM. Our test indicates 717 CFM with the motor wired on Hi speed.
5. HP-5. This unit is scheduled to supply 1300 CFM. Our test indicates 1066 CFM with the motor wired on Lo speed.
6. HP-7. This unit is scheduled to supply 850 CFM. Our test indicates 652 CFM with the motor wired on Lo speed.
7. HP-8. This unit is scheduled to supply 1300 CFM. Our test indicates 1213 CFM.
8. HP-13. This unit is scheduled to supply 1300 CFM. Our test indicates 1094 CFM with the motor wired on Lo speed.
9.HP-9A. This unit is scheduled to supply 1300 CFM. Our test indicates 805 CFM with the motor wired on Hi speed.

REMARKS:

PRECISION BALANCING & COMMISSIONING

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COMMENT SHEET

PROJECT: PES BUILDING **DATE:** 01/08/14

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

PES EAST BUILDING FIRST FLOOR
10. HP-9B. This unit is scheduled to supply 1300 CFM. Our test indicates 1127 CFM with the motor wired on Lo speed.
11. HP-10. This unit is scheduled to supply 1300 CFM. Our test indicates 1145 CFM with the motor wired on Lo speed.
12. HP-14. This unit is scheduled to supply 1300 CFM. Our test indicates 1016 CFM with the motor wired on Lo speed.
13. HP-11. This unit is scheduled to supply 1300 CFM. Our test indicates 824 CFM with the motor wired on Lo speed. Outlet #1 is not ducted to the main supply duct.
14. HP-12. This unit is scheduled to supply 850 CFM. Our test indicates 792 CFM with the motor wired on Hi speed.
15. HP-15. This unit is scheduled to supply 1300 CFM. Our test indicates 940 CFM with the motor wired on Med speed.
16. Emergency Unit for 911 call area will not operate. An attempt was made to simulate unit temperature and unit failure however the unit would not energize.
17. EF-1. This fan is scheduled to exhaust 1859 CFM. The inlet requirement is1694 CFM. Our test indicates 1634 CFM.

REMARKS:

Air Handler Test Report

PROJECT: PES BUILDING **TEST DATE:** 12/12/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM / UNIT DATA	HP-1				HP-2			
Location	MECH ROOM				MECH ROOM			
Manufacturer	FHP				FHP			
Model Number	EVO48-1VTC				EVO96-1VTC			
Serial Number	SJ124202				SJ124273			
FAN DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Fan CFM	1,502		1,514		2,804		2,733	
Outlet CFM	N/G		1,514		N/G		2,733	
Return Air CFM	N/G		1,513		N/G		2,603	
Outside Air CFM	N/G		1		N/G		130	
S.P. Total / External	N/G	0.54	N/A	N/A	N/G	0.74	N/A	N/A
Fan Inlet Pressure	N/G		N/A		N/G		N/A	
Fan Discharge Pressure	N/G		N/A		N/G		N/A	
Return Press. / Enter Coil	N/G	N/G	N/A	N/A	N/G	N/G	N/A	N/A
Fan RPM	N/G		HI		N/G		866	
Inlet Vanes / VFD Position	N/G		NONE		N/G		NONE	
MOTOR DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Manufacturer / Frame	N/G		A.O. SMITH		N/G		A.O. SMITH	
HP / BHP	N/G	N/G	1/2	0.42	N/G	N/G	1 1/2	1.23
Volts / Phase	208-230	1	211 / 1		115	1	122 / 1	
Motor RPM	1075/3SPD		1075		1725		1725	
Amperage	4.4		3.7		8.5		7.0	
Motor Service Factor	N/G		N/G		N/G		N/G	
Motor Efficiency	N/G		N/G		N/G		N/G	
Starter Heater Size	N/G		T.P		N/G		T.P	
Starter Heater Rating	N/G		T.P		N/G		T.P	
DRIVE DATA	ACTUAL				ACTUAL			
Motor Sheave / Open Turns	DIRECT DRIVE				VP50x5/8		3 1/2	
Fan Sheave Diam. / Bore	DIRECT DRIVE				AK74x1			
No. Belts / Center To Center	DIRECT DRIVE				A46		15.5"	
COIL DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
GPM	N/G		N/A		N/G		N/A	
E.W.T / L.W.T (F°)	75	84.2	N/A	N/A	75	85.9	N/A	N/A
Water ΔT	9.2		N/A		10.9		N/A	
Pressure Drop	9.8'		N/A		14.9'		N/A	
E.A.T DB / WB (F°)	75	63	N/A	N/A	75	63	N/A	N/A
L.A.T DB / WB (F°)	55.5	52.9	N/A	N/A	52.1	51.7	N/A	N/A
Air ΔTH	6.6		N/A		7.14		N/A	
Cooling BTH / Hr.	43,230		N/A		90,090		N/A	

REMARKS: **1. THE OUTSIDE AIR DAMPER WAS FOUND CLOSED.**

TECHNICIAN:Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/12/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-1

AREA	OUTLET				DESIGN		INITIAL		FINAL	
SERVED	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
SUPPLY										
CID	1	CD	22 x 22	1.0	N/G	NG	289	289	289	289
CID	2	CD	22 x 22	1.0	N/G	NG	213	213	213	213
STORAGE	3	CD	22 x 22	1.0	N/G	NG	148	148	148	148
CID	4	CD	22 x 22	1.0	N/G	NG	210	210	210	210
CID	5	CD	22 x 22	1.0	N/G	NG	220	220	220	220
HALLWAY	6	CD	22 x 22	1.0	N/G	NG	74	74	74	74
CLERICAL	7	CD	22 x 22	1.0	N/G	NG	179	179	179	179
SARGENT	8	CD	22 x 22	1.0	N/G	NG	93	93	93	93
COMMANDER	9	CD	22 x 22	1.0	N/G	NG	87	87	87	87
TOTAL					**TOTAL**	1502	**TOTAL**	1514	**TOTAL**	1514
RETURN										
SARGENT	1	RI	22 x 22	1.0	N/G	NG	250	250	250	250
COMMANDER	2	RI	22 x 22	1.0	N/G	NG	100	100	100	100
CLERICAL	3	RI	22 x 22	1.0	N/G	NG	210	210	210	210
CID	4	RI	22 x 24	1.0	N/G	NG	665	665	665	665
TOTAL					**TOTAL**	NG	**TOTAL**	1225	**TOTAL**	1225

REMARKS:

TECHNICIAN:

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/12/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-2

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
COPY/FAX	1	CD	22 x 22	1.0	NG	NG	116	116	116	116
CORRIDOR	2	CD	22 x 22	1.0	NG	NG	150	150	150	150
CORRIDOR	3	CD	22 x 22	1.0	NG	NG	287	287	287	287
CORRIDOR	4	CD	22 x 22	1.0	NG	NG	201	201	201	201
LIEUTENANT	5	CD	22 x 22	1.0	NG	NG	155	155	155	155
PATROL EQUIP	6	CD	22 x 22	1.0	NG	NG	90	90	90	90
CORRIDOR	7	CD	22 x 22	1.0	NG	NG	128	128	128	128
VIN	8	CD	22 x 22	1.0	NG	NG	245	245	245	245
VIN	9	CD	22 x 22	1.0	NG	NG	171	171	171	171
V-1 LIEUTENANT	10	CD	22 x 22	1.0	NG	NG	241	241	241	241
SARGENT	11	CD	22 x 22	1.0	NG	NG	114	114	114	114
PATROL OPS	12	CD	22 x 22	1.0	NG	NG	83	83	83	83
COMMANDER	13	CD	22 x 22	1.0	NG	NG	96	96	96	96
ROLL CALL	14	CD	22 x 22	1.0	NG	NG	189	189	189	189
ROLL CALL	15	CD	22 x 22	1.0	NG	NG	167	167	167	167
CORR-ADDED	16	CD	22 x 22	1.0	NG	NG	240	240	240	240
V2-VIN	17	CD	22 x 22	1.0	NG	NG	60	60	60	60
					TOTAL	2804	**TOTAL**	2733	**TOTAL**	2733

REMARKS:

TECHNICIAN:

Air Handler Test Report

PROJECT: PES BUILDING **TEST DATE:** 12/13/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM / UNIT DATA	HP-3				HP-4			
Location	OUTSIDE MECH ROOM				OUTSIDE MECH ROOM			
Manufacturer	FHP				FHP			
Model Number	EC096-IVTC				EV036-IVTC			
Serial Number	SJ124272				SJ124203			
FAN DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Fan CFM	2,507		1,400		1,201		1,229	
Outlet CFM	N/G		1,400		N/G		1,229	
Return Air CFM	N/G		1,400		N/G		1,229	
Outside Air CFM	N/G		N/A		N/G		N/A	
S.P. Total / External	N/G	0.47	N/A	N/A	N/G	0.51	N/A	N/A
Fan Inlet Pressure	N/G		N/A		N/G		N/A	
Fan Discharge Pressure	N/G		N/A		N/G		N/A	
Return Press. / Enter Coil	N/G	N/G	N/A	N/A	N/G	N/G	N/A	N/A
Fan RPM	N/G		962		N/G		HI	
Inlet Vanes / VFD Position	N/G		NONE		N/G		NONE	
MOTOR DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Manufacturer / Frame	N/G		A.O. SMITH		N/G		A.O. SMITH	
HP / BHP	N/G	N/G	1 1/2	1.25	N/G	N/G	1	0.81
Volts / Phase	115	1	118		208	1	208	
Motor RPM	1725		1725		1075/3SPD		HI	
Amperage	8.5		7.1		4.4		3.6	
Motor Service Factor	N/G		N/G		N/G		N/G	
Motor Efficiency	N/G		N/G		N/G		N/G	
Starter Heater Size	N/G		T.P		N/G		T.P	
Starter Heater Rating	N/G		T.P		N/G		T.P	
DRIVE DATA	ACTUAL				ACTUAL			
Motor Sheave / Open Turns	VP50x5/8		1 1/2		DIRECT DRIVE			
Fan Sheave Diam. / Bore	AK74x1				DIRECT DRIVE			
No. Belts / Center To Center	A46		15.5"		DIRECT DRIVE			
COIL DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
GPM	N/G		N/A		N/G		N/A	
E.W.T / L.W.T (F°)	75	85.7	N/A	N/A	75	83.6	N/A	N/A
Water ΔT	10.7		N/A		8.6		N/A	
Pressure Drop	14.9'		N/A		8.5'		N/A	
E.A.T DB / WB (F°)	75	63	N/A	N/A	75	63	N/A	N/A
L.A.T DB / WB (F°)	51.1	50.3	N/A	N/A	57.3	54.2	N/A	N/A
Air ΔTH	7.92		N/A		5.66		N/A	
Cooling BTH / Hr.	89,320		N/A		30,600		N/A	

REMARKS:

TECHNICIAN:Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/12/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-3

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
KITCHEN	1	CD	22 x 22	1.0	NG	NG	93	93	93	93
KITCHEN	2	CD	22 x 22	1.0	NG	NG	157	157	157	157
FIRE COMMANDER	3	CD	22 x 22	1.0	NG	NG	115	115	115	115
FIRE COMMANDER	4	CD	22 x 22	1.0	NG	NG	102	102	102	102
SECRETARY	5	CD	22 x 22	1.0	NG	NG	134	134	134	134
FIRE B.C	6	CD	22 x 22	1.0	NG	NG	123	123	123	123
CORRIDOR	7	CD	22 x 22	1.0	NG	NG	82	82	82	82
WOMENS TOILET	8	CD	22 x 22	1.0	NG	NG	71	71	71	71
FIRE INSPECTOR	9	CD	22 x 22	1.0	NG	NG	63	63	63	63
FIRE PREVENTION	10	CD	22 x 22	1.0	NG	NG	52	52	52	52
CORRIDOR	11	CD	22 x 22	1.0	NG	NG	45	45	45	45
FIRE PREVENTION	12	CD	22 x 22	1.0	NG	NG	56	56	56	56
FIRE PREVENTION	13	CD	22 x 22	1.0	NG	NG	50	50	50	50
CORRIDOR	14	CD	22 x 22	1.0	NG	NG	55	55	55	55
FIRE MARSHALL	15	CD	22 x 22	1.0	NG	NG	0	0	0	0
CORRIDOR	16	CD	22 x 22	1.0	NG	NG	0	0	0	0
MENS TOILET	17	CD	22 x 22	1.0	NG	NG	60	60	60	60
CORRIDOR	18	CD	22 x 22	1.0	NG	NG	36	36	36	36
CORRIDOR	19	CD	22 x 22	1.0	NG	NG	106	106	106	106
					TOTAL	2507	**TOTAL**	1400	**TOTAL**	1400

REMARKS:

TECHNICIAN:Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/12/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-4

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
EXERCISE ROOM	1	CD	22 x 22	1.0	NG	NG	168	168	168	168
EXERCISE ROOM	2	CD	22 x 22	1.0	NG	NG	142	142	142	142
EXERCISE ROOM	3	CD	22 x 22	1.0	NG	NG	153	153	153	153
EXERCISE ROOM	4	CD	22 x 22	1.0	NG	NG	162	162	162	162
EXERCISE ROOM	5	CD	22 x 22	1.0	NG	NG	205	205	205	205
EXERCISE ROOM	6	CD	22 x 22	1.0	NG	NG	138	138	138	138
EXERCISE ROOM	7	CD	22 x 22	1.0	NG	NG	145	145	145	145
EXERCISE ROOM	8	CD	22 x 22	1.0	NG	NG	116	116	116	116
					TOTAL	1201	**TOTAL**	1229	**TOTAL**	1229

REMARKS:

TECHNICIAN:Lou Theberge

Air Handler Test Report

PROJECT: PES BUILDING **TEST DATE:** 12/12/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM / UNIT DATA	HP-5				HP-6			
Location	MECH ROOM				MECH ROOM			
Manufacturer	FHP				FHP			
Model Number	EC096-IVTC				EC096-IVTC			
Serial Number	SJ124275				SJ124310			
FAN DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Fan CFM	2,507		2,972		2,804		3,414	
Outlet CFM	N/G		2,972		N/G		3,414	
Return Air CFM	N/G		N/A		N/G		3,396	
Outside Air CFM	N/G		N/A		N/G		19	
S.P. Total / External	N/G	0.47	N/A	N/A	N/G	0.74	N/A	N/A
Fan Inlet Pressure	N/G		N/A		N/G		N/A	
Fan Discharge Pressure	N/G		N/A		N/G		N/A	
Return Press. / Enter Coil	N/G	N/G	NA	NA	N/G	N/G	N/A	N/A
Fan RPM	N/G		1002		N/G		997	
Inlet Vanes / VFD Position	N/G		NONE		N/G		NONE	
MOTOR DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Manufacturer / Frame	N/G		A.O. SMITH		N/G		A.O. SMITH	
HP / BHP	N/G	N/G	1 1/2	0.63	N/G	N/G	1 1/2	0.88
Volts / Phase	115	1	121-1		115	1	121-1	
Motor RPM	1725		1725		1725		1725	
Amperage	17.0		7.2		17.0		10.0	
Motor Service Factor	N/G		N/G		N/G		1.15	
Motor Efficiency	N/G		N/G		N/G		N/G	
Starter Heater Size	N/G		T.P		N/G		T.P	
Starter Heater Rating	N/G		T.P		N/G		T.P	
DRIVE DATA	ACTUAL				ACTUAL			
Motor Sheave / Open Turns	VP50x5/8		1 1/2		VP50x5/8		1 1/2	
Fan Sheave Diam. / Bore	AK74x1				AK74x1			
No. Belts / Center To Center	A46		15.5"		A46		15.5"	
COIL DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
GPM	21.0		N/A		21		N/A	
E.W.T / L.W.T (F°)	75	85.7	N/A	N/A	75	85.9	85.1	105.2
Water ΔT	10.7		N/A		10.9		20.1	
Pressure Drop	14.9'		N/A		14.9'		N/A	
E.A.T DB / WB (F°)	75	63	N/A	N/A	75	63	N/A	N/A
L.A.T DB / WB (F°)	51.1	50.3	N/A	N/A	52.1	51.7	N/A	N/A
Air ΔTH	7.92		N/A		7.14		N/A	
Cooling BTH / Hr.	89,320		N/A		90,090		N/A	

REMARKS:

TECHNICIAN:Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/12/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-5

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
EQUIP ROOM	1	CD	22 x 22	1.0	N/G	N/G	154	154	154	154
FACILITIES OFF	2	CD	22 x 22	1.0	N/G	N/G	215	215	215	215
ARMORY	3	CD	22 x 22	1.0	N/G	N/G	117	117	117	117
CORRIDOR	4	CD	22 x 22	1.0	N/G	N/G	71	71	71	71
V-3 STORAGE	5	CD	22 x 22	1.0	N/G	N/G	138	138	138	138
V-3 STORAGE	6	CD	22 x 22	1.0	N/G	N/G	151	151	151	151
QUIET ROOM	7	CD	22 x 22	1.0	N/G	N/G	182	182	182	182
QUIET ROOM	8	CD	22 x 22	1.0	N/G	N/G	192	192	192	192
CORRIDOR	9	CD	22 x 22	1.0	N/G	N/G	156	156	156	156
CORRIDOR	10	CD	22 x 22	1.0	N/G	N/G	180	180	180	180
MEN'S LOCKER	11	CD	22 x 22	1.0	N/G	N/G	54	54	54	54
MEN'S LOCKER	12	CD	22 x 22	1.0	N/G	N/G	68	68	68	68
MEN'S LOCKER	13	CD	22 x 22	1.0	N/G	N/G	98	98	98	98
MEN'S LOCKER	14	CD	22 x 22	1.0	N/G	N/G	81	81	81	81
MEN'S LOCKER	15	CD	22 x 22	1.0	N/G	N/G	142	142	142	142
MEN'S LOCKER	16	CD	22 x 22	1.0	N/G	N/G	75	75	75	75
MEN'S SHOWER	17	CD	22 x 22	1.0	N/G	N/G	106	106	106	106
WOMEN'S LOUNGE	18	CD	22 x 22	1.0	N/G	N/G	213	213	213	213
SHOWER	19	CD	22 x 22	1.0	N/G	N/G	126	126	126	126
LOCKERS	20	CD	22 x 22	1.0	N/G	N/G	210	210	210	210
ADDED OUTLET	21	CD	22 x 22	1.0	N/G	N/G	243	243	243	243
					TOTAL	2507	**TOTAL**	2972	**TOTAL**	2972

REMARKS:

TECHNICIAN:Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/12/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-6

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
SURVELANCE	1	CD	12	1.0	N/G	N/G	75	75	75	75
SURVELANCE	2	CD	12 x 12	1.0	N/G	N/G	85	85	85	85
CONFERENCE ROOM	3	CD	22 x 22	1.0	N/G	N/G	215	215	215	215
PROPERTY	4	CD	22 x 22	1.0	N/G	N/G	0	0	0	0
SURVELANCE	5	CD	12 x 12	1.0	N/G	N/G	80	80	80	80
CORRIDOR	6	CD	22 x 22	1.0	N/G	N/G	114	114	114	114
CSI	7	CD	22 x 22	1.0	N/G	N/G	154	154	154	154
CSI	8	CD	22 x 22	1.0	N/G	N/G	166	166	166	166
CSI	9	CD	22 x 22	1.0	N/G	N/G	245	245	245	245
ARMORY	10	CD	22 x 22	1.0	N/G	N/G	244	244	244	244
ARMORY	11	CD	22 x 22	1.0	N/G	N/G	55	55	55	55
ARMORY	12	CD	22 x 22	1.0	N/G	N/G	61	61	61	61
ARMORY	13	CD	22 x 22	1.0	N/G	N/G	91	91	91	91
ARMORY	14	CD	22 x 22	1.0	N/G	N/G	119	119	119	119
CORRIDOR	15	CD	22 x 22	1.0	N/G	N/G	0	0	0	0
REPORT ROOM	16	CD	22 x 22	1.0	N/G	N/G	0	0	0	0
PROPERTY	17	CD	22 x 22	1.0	N/G	N/G	277	277	277	277
CORRIDOR	18	CD	22 x 22	1.0	N/G	N/G	122	122	122	122
CORRIDOR	19	CD	22 x 22	1.0	N/G	N/G	116	116	116	116
REPORT ROOM	20	CD	22 x 22	1.0	N/G	N/G	106	106	106	106
CORRIDOR	21	CD	22 x 22	1.0	N/G	N/G	117	117	117	117
LIEUTENANT	22	CD	22 x 22	1.0	N/G	N/G	212	212	212	212
SOD	23	CD	22 x 22	1.0	N/G	N/G	194	194	194	194
SARGENT	24	CD	22 x 22	1.0	N/G	N/G	160	160	160	160
SOD	25	CD	22 x 22	1.0	N/G	N/G	197	197	197	197
CONTINUED										

REMARKS:

TECHNICIAN:

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/12/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-6

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
CONTINUED										
CORRIDOR	26	CD	22 x 22	1.0	N/G	N/G	40	40	40	40
FIRE SLEEP RM	27	CD	22 x 22	1.0	N/G	N/G	46	46	46	46
CORRIDOR	28	CD	22 x 22	1.0	N/G	N/G	N/I	N/I	N/I	N/I
CORRIDOR	29	CD	22 x 22	1.0	N/G	N/G	123	123	123	123
					TOTAL	2804	**TOTAL**	3414	TOTAL	3414

REMARKS:

TECHNICIAN:Lou Theberge

Air Handler Test Report

PROJECT: PES BUILDING **TEST DATE:** 12/19/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM / UNIT DATA	FHP-1				FHP-2A			
Location	1st FL NEW BLDG				1ST FL NEW BLDG			
Manufacturer	FHP				FHP-2A			
Model Number	EM036-1HZN				EMO36-1HZN			
Serial Number	EK019867				EK019868			
FAN DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Fan CFM	1,300		1,087		1,300		888	
Outlet CFM	1,300		1,087		1,300		888	
Return Air CFM	1,300		1,087		1,300		888	
Outside Air CFM	N/G		N/A		N/G		N/A	
S.P. Total / External	N/G	0.39	N/A	N/A	N/G	0.39	N/A	N/A
Fan Inlet Pressure	N/G		N/A		N/G		N/A	
Fan Discharge Pressure	N/G		N/A		N/G		N/A	
Return Press. / Enter Coil	N/G	N/G	N/A	N/A	N/G	N/G	N/A	N/A
Fan RPM	900		HI		900		HI	
Inlet Vanes / VFD Position	N/G		NONE		N/G		NONE	
MOTOR DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Manufacturer / Frame	N/G		A.O. SMITH		N/G		A.O. SMITH	
HP / BHP	1/2	N/G	1/2	0.20	1/2	N/G	1/2	0.19
Volts / Phase	208-230	1	208		208-230	1	208	
Motor RPM	1075 / 3 SPD		HI		1075 / 3 SPD		HI	
Amperage	4.4		1.8		4.4		1.7	
Motor Service Factor	N/G		1		N/G		1	
Motor Efficiency	N/G		N/G		N/G		N/G	
Starter Heater Size	N/G		T.P		N/G		T.P	
Starter Heater Rating	N/G		T.P		N/G		T.P	
DRIVE DATA	ACTUAL				ACTUAL			
Motor Sheave / Open Turns	DIRECT DRIVE				DIRECT DRIVE			
Fan Sheave Diam. / Bore	DIRECT DRIVE				DIRECT DRIVE			
No. Belts / Center To Center	DIRECT DRIVE				DIRECT DRIVE			
COIL DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
GPM	9		N/A		9		N/A	
E.W.T / L.W.T (F°)	70	N/G	N/A	N/A	70	N/G	N/A	N/A
Water ΔT	N/G		N/A		N/G		N/A	
Pressure Drop	10.5		N/A		10.5		N/A	
E.A.T DB / WB (F°)	73	61	N/A	N/A	73	61	N/A	N/A
L.A.T DB / WB (F°)	54.3	51.6	N/A	N/A	54.3	51.6	N/A	N/A
Air ΔTH	5.86		N/A		5.86		N/A	
Cooling BTH / Hr.	34,300		N/A		34,300		N/A	

REMARKS:

TECHNICIAN:Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/19/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-1 & HP-2

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
HP-1										
RECORDS 116	1	CD	22 x 22	1.0	300	300	313	313	313	313
RECORDS 116	2	CD	22 x 22	1.0	300	300	251	251	251	251
RECORDS 116	3	CD	22 x 22	1.0	300	300	280	280	280	280
RECORDS 116	4	CD	22 x 22	1.0	300	300	136	136	136	136
STORAGE 115	5	CD	22 x 22	1.0	100	100	107	107	107	107
					TOTAL	1300	**TOTAL**	1087	**TOTAL**	1087
HP-2A										
ELEVATOR EQUIP	1	SW	10 x 6	0.2	1364	300	311	68	311	68
ROTUNDA	2	SW	22 x 12	1.0	1000	1000	820	820	820	820
					TOTAL	1300	**TOTAL**	888	**TOTAL**	888

REMARKS:

TECHNICIAN:Lou Theberge

Air Handler Test Report

PROJECT: PES BUILDING **TEST DATE:** 12/19/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM / UNIT DATA	HP-2B				HP-3			
Location	1ST FL NEW BLDG				1ST FL NEW BLDG			
Manufacturer	FHP				FHP			
Model Number	EM024-1HZN				EM024-1HZN			
Serial Number	EK019930				EK019798			
FAN DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Fan CFM	1,300		899		850		717	
Outlet CFM	1,300		899		850		717	
Return Air CFM	1,300		899		850		717	
Outside Air CFM	N/G		N/A		N/G		N/A	
S.P. Total / External	N/G	0.39	N/A	N/A	N/G	0.20	0.45	0.22
Fan Inlet Pressure	N/G		N/A		N/G		0.34	
Fan Discharge Pressure	N/G		N/A		N/G		0.11	
Return Press. / Enter Coil	N/G	N/G	N/A	N/A	N/G	N/G	0.11	N/A
Fan RPM	900		HI		1200		HI	
Inlet Vanes / VFD Position	N/G		NONE		N/G		NONE	
MOTOR DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Manufacturer / Frame	N/G		A.O SMITH		N/G		A.O SMITH	
HP / BHP	1/2	N/G	1/2	0.20	1/4	N/G	1/2	0.19
Volts / Phase	208	1	208		208	1	208	
Motor RPM	1075/3SPD		HI		1075/3SPD		HI	
Amperage	4.4		1.8		4.4		1.7	
Motor Service Factor	N/G		1		N/G		1	
Motor Efficiency	N/G		N/G		N/G		N/G	
Starter Heater Size	N/G		T.P		N/G		T.P	
Starter Heater Rating	N/G		T.P		N/G		T.P	
DRIVE DATA	ACTUAL				ACTUAL			
Motor Sheave / Open Turns	DIRECT DRIVE				DIRECT DRIVE			
Fan Sheave Diam. / Bore	DIRECT DRIVE				DIRECT DRIVE			
No. Belts / Center To Center	DIRECT DRIVE				DIRECT DRIVE			
COIL DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
GPM	9.0		N/A		5.8		N/A	
E.W.T / L.W.T (F°)	70	N/G	N/A	N/A	70	N/G	N/A	N/A
Water ΔT	N/G		N/A		N/G		N/A	
Pressure Drop	10.5'		N/A		10.3'		N/A	
E.A.T DB / WB (F°)	73	61	N/A	N/A	73	61	N/A	N/A
L.A.T DB / WB (F°)	54.3	51.6	N/A	N/A	54.0	53.8	N/A	N/A
Air ΔTH	5.86		N/A		6.04		N/A	
Cooling BTH / Hr.	34,300		N/A		23,100		N/A	

REMARKS:

TECHNICIAN:Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/19/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-2B & HP-3

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
HP-2B										
ROTUNDA	1	SW	22 x 12	1.0	1300	1300	899	899	899	899
					TOTAL	1300	**TOTAL**	899	**TOTAL**	899
HP-3										
VOLUNTEERS	1	CD	22 22	1.0	425	425	350	350	350	350
VOLUNTEERS	2	CD	22 22	1.0	425	425	367	367	350	367
					TOTAL	850	**TOTAL**	717	**TOTAL**	717

REMARKS:

TECHNICIAN:Lou Theberge

Air Handler Test Report

PROJECT: PES BUILDING **TEST DATE:** 12/19/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM / UNIT DATA	HP-5				HP-7			
Location	1ST FL NEW BLDG				1ST FL NEW BLDG			
Manufacturer	FHP				FHP			
Model Number	EM036-1HZN				EM024-1HZN			
Serial Number	EK019932				EK019378			
FAN DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Fan CFM	1,300		1,066		850		652	
Outlet CFM	1,325		1,066		850		652	
Return Air CFM	1,300		1,066		850		652	
Outside Air CFM	N/G		N/A		N/G		N/A	
S.P. Total / External	N/G	0.39	N/A	N/A	N/G	0.20	N/A	N/A
Fan Inlet Pressure	N/G		N/A		N/G		N/A	
Fan Discharge Pressure	N/G		N/A		N/G		N/A	
Return Press. / Enter Coil	N/G	N/G	N/A	N/A	N/G	N/G	N/A	N/A
Fan RPM	900		LO		1200		LO	
Inlet Vanes / VFD Position	N/A		NONE		N/G		NONE	
MOTOR DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Manufacturer / Frame	N/G		A.O. SMITH		N/G		A.O. SMITH	
HP / BHP	1/2	N/G	1/2	0.20	1/4	N/G	1/4	0.14
Volts / Phase	208-230	1	208-1		208	1	208-1	
Motor RPM	1075/3SPD		LO		1075/3SPD		LO	
Amperage	4.4		1.8		1.8		1.0	
Motor Service Factor	N/G		1		N/G		1	
Motor Efficiency	N/G		N/G		N/G		N/G	
Starter Heater Size	N/G		T.P		N/G		T.P	
Starter Heater Rating	N/G		T.P		N/G		T.P	
DRIVE DATA	ACTUAL				ACTUAL			
Motor Sheave / Open Turns	DIRECT DRIVE				DIRECT DRIVE			
Fan Sheave Diam. / Bore	DIRECT DRIVE				DIRECT DRIVE			
No. Belts / Center To Center	DIRECT DRIVE				DIRECT DRIVE			
COIL DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
GPM	9.0		N/A		N/A		N/A	
E.W.T / L.W.T (F°)	70	N/G	N/A	N/A	70	N/G	N/A	N/A
Water ΔT	N/G		N/A		N/G		N/A	
Pressure Drop	10.5'		N/A		10.3'		N/A	
E.A.T DB / WB (F°)	73	61	N/A	N/A	73	61	N/A	N/A
L.A.T DB / WB (F°)	54.3	51.6	N/A	N/A	54.0	53.8	N/A	N/A
Air ΔTH	5.86		N/A		6.04		N/A	
Cooling BTH / Hr.	34,300		N/A		23,100		N/A	

REMARKS:

TECHNICIAN:Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/19/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-5 & HP-7

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
HP-5										
HALLWAY	1	CD	22 x 22	1.0	425	425	328	328	328	328
TRAINING	2	CD	22 x 22	1.0	225	225	183	183	183	183
TRAINING	3	CD	22 x 22	1.0	225	225	161	161	161	161
TRAINING	4	CD	22 x 22	1.0	225	225	193	193	193	193
TRAINING	5	CD	22 x 22	1.0	225	225	201	201	201	201
					TOTAL	1325	**TOTAL**	1066	**TOTAL**	1066
HP-7										
BREAKROOM	1	CD	22 x 22	1.0	350	350	228	228	228	228
HALLWAY	2	CD	22 x 22	1.0	200	200	180	180	180	180
WOMEN'S TOILET	3	CD	22 x 22	1.0	150	150	126	126	126	126
MEN'S TOILET	4	CD	22 x 22	1.0	150	150	118	118	118	118
					TOTAL	850	**TOTAL**	652	**TOTAL**	652

REMARKS:

TECHNICIAN:Lou Theberge

Air Handler Test Report

PROJECT: PES BUILDING **TEST DATE:** 12/19/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM / UNIT DATA	HP-8				HP-13			
Location	2ND FL NEW BLDG				2ND FL NEW BLDG			
Manufacturer	FHP				FHP			
Model Number	EM036-1HZN				EM036-1HZN			
Serial Number	EK019933				EK019865			
FAN DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Fan CFM	1,300		1,213		1,300		1,094	
Outlet CFM	1,000		1,213		1,350		1,094	
Return Air CFM	1,300		1,213		1,300		1,094	
Outside Air CFM	N/G		N/A		N/G		N/A	
S.P. Total / External	N/G	0.39	N/A	N/A	N/G	0.39	N/A	N/A
Fan Inlet Pressure	N/G		N/A		N/G		N/A	
Fan Discharge Pressure	N/G		N/A		N/G		N/A	
Return Press. / Enter Coil	N/G	N/G	N/A	N/A	N/G	N/G	N/A	N/A
Fan RPM	900		HI		900		LO	
Inlet Vanes / VFD Position	N/G		NONE		N/G		NONE	
MOTOR DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Manufacturer / Frame	N/G		A.O SMITH		N/G		A.O SMITH	
HP / BHP	1/2	N/G	1/2	0.24	1/2	N/G	1/2	0.21
Volts / Phase	208	1	208-1		208	1	208-1	
Motor RPM	1075/3SPD		HI		1075/3SPD		LO	
Amperage	4.4		2.1		4.4		1.9	
Motor Service Factor	N/G		1		N/G		1	
Motor Efficiency	N/G		N/G		N/G		N/G	
Starter Heater Size	N/G		T.P		N/G		T.P	
Starter Heater Rating	N/G		T.P		N/G		T.P	
DRIVE DATA	ACTUAL				ACTUAL			
Motor Sheave / Open Turns	DIRECT DRIVE				DIRECT DRIVE			
Fan Sheave Diam. / Bore	DIRECT DRIVE				DIRECT DRIVE			
No. Belts / Center To Center	DIRECT DRIVE				DIRECT DRIVE			
COIL DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
GPM	9.0		N/A		N/A		N/A	
E.W.T / L.W.T (F°)	70	N/G	N/A	N/A	70	N/G	N/A	N/A
Water ΔT	N/G		N/A		N/G		N/A	
Pressure Drop	10.5'		N/A		10.5		N/A	
E.A.T DB / WB (F°)	73	61	N/A	N/A	73	61	N/A	N/A
L.A.T DB / WB (F°)	54.3	51.6	N/A	N/A	54.3	51.6	N/A	N/A
Air ΔTH	5.86		N/A		5.86		N/A	
Cooling BTH / Hr.	34,300		N/A		34,300		N/A	

REMARKS:

TECHNICIAN: Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/19/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-8 & HP-13

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
HP-8										
CHIEF	1	CD	22 x 22	1.0	200	200	249	249	249	249
CHIEF	2	CD	22 x 22	1.0	200	200	251	251	251	251
CONFERENCE	3	CD	22 x 22	1.0	300	300	371	371	371	371
CONFERENCE	4	CD	22 x 22	1.0	300	300	342	342	342	342
					TOTAL	1000	**TOTAL**	1213	**TOTAL**	1213
HP-13										
CORRIDOR	1	CD	22 x 22	1.0	250	250	234	234	234	234
CAPTAIN	2	CD	22 x 22	1.0	225	225	179	179	179	179
CAPTAIN	3	CD	22 x 22	1.0	225	225	167	167	167	167
ADMIN	4	CD	22 x 22	1.0	225	225	177	177	177	177
ADMIN	5	CD	22 x 22	1.0	225	225	160	160	160	160
ADMIN	6	CD	22 x 22	1.0	225	225	177	177	177	177
					TOTAL	1375	**TOTAL**	1094	**TOTAL**	1094

REMARKS:

TECHNICIAN:Lou Theberge

Air Handler Test Report

PROJECT: PES BUILDING **TEST DATE:** 12/19/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM / UNIT DATA	HP-9A				HP-9B			
Location	2ND FL NEW BLDG				2ND FL NEW BLDG			
Manufacturer	FHP				FHP			
Model Number	EM036-1HZN				EC036-1HZN			
Serial Number	EK019856				EK019934			
FAN DATA	**DESIGN**		**ACTUAL**		**DESIGN**		**ACTUAL**	
Fan CFM	1,300		805		1,300		1,127	
Outlet CFM	1,250		805		1,575		1,127	
Return Air CFM	1,300		805		1,300		1,127	
Outside Air CFM	N/G		N/A		N/G		N/A	
S.P. Total / External	N/G	0.39	N/A	N/A	N/G	0.39	N/A	N/A
Fan Inlet Pressure	N/G		N/A		N/G		N/A	
Fan Discharge Pressure	N/G		N/A		N/G		N/A	
Return Press. / Enter Coil	N/G	N/G	N/A	N/A	N/G	N/G	N/A	N/A
Fan RPM	900		HI		900		LO	
Inlet Vanes / VFD Position	N/G		NONE		N/G		NONE	
MOTOR DATA	**DESIGN**		**ACTUAL**		**DESIGN**		**ACTUAL**	
Manufacturer / Frame	N/G		A.O. SMITH		N/G		A.O. SMITH	
HP / BHP	1/2	N/G	1/2	0.22	1/2	N/G	1/2	0.16
Volts / Phase	208	1	208-1		208	1	208-1	
Motor RPM	1075/3SPD		HI		1075/3SPD		LO	
Amperage	4.4		2.0		4.4		1.4	
Motor Service Factor	N/G		1		N/G		1	
Motor Efficiency	N/G		N/G		N/G		N/G	
Starter Heater Size	N/G		T.P		N/G		T.P	
Starter Heater Rating	N/G		T.P		N/G		T.P	
DRIVE DATA	**ACTUAL**				**ACTUAL**			
Motor Sheave / Open Turns	DIRECT DRIVE				DIRECT DRIVE			
Fan Sheave Diam. / Bore	DIRECT DRIVE				DIRECT DRIVE			
No. Belts / Center To Center	DIRECT DRIVE				DIRECT DRIVE			
COIL DATA	**DESIGN**		**ACTUAL**		**DESIGN**		**ACTUAL**	
GPM	9.0		N/A		9.0		N/A	
E.W.T / L.W.T (F°)	70	N/G	N/A	N/A	70	N/G	N/A	N/A
Water ΔT	N/G		N/A		N/G		N/A	
Pressure Drop	10.5'		N/A		10.5'		N/A	
E.A.T DB / WB (F°)	73	61	N/A	N/A	73	61	N/A	N/A
L.A.T DB / WB (F°)	54.3	51.6	N/A	N/A	54.3	51.6	N/A	N/A
Air ΔTH	5.86		N/A		5.86		N/A	
Cooling BTH / Hr.	34,300		N/A		34,300		N/A	

REMARKS:

TECHNICIAN:Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/20/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-9A & HP-9B

AREA	OUTLET				DESIGN		INITIAL		FINAL	
SERVED	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
HP-9A										
COMM 911	1	CD	22 x 22	1.0	425	425	0	0	0	0
COMM 911	2	CD	22 x 22	1.0	275	275	280	280	280	280
COMM 911	3	CD	22 x 22	1.0	275	275	286	286	286	286
COMM 911	4	CD	22 x 22	1.0	275	275	239	239	239	239
					TOTAL	1250	**TOTAL**	805	**TOTAL**	805
HP-9B										
COMM 911	1	CD	22 22	1.0	425	425	313	313	313	313
COMM 911	2	CD	22 22	1.0	425	425	272	272	272	272
COMM 911	3	CD	22 22	1.0	425	425	281	281	281	281
LOCKERS	4	CD	22 22	1.0	250	250	166	166	166	166
TOILET	5	CD	6 6	1.0	50	50	95	95	95	95
					TOTAL	1575	**TOTAL**	1127	**TOTAL**	1127

REMARKS: **HP-9A. OUTLET #1 IS BLANKED OFF WITH PLASTIC.**

TECHNICIAN:Lou Theberge

Air Handler Test Report

PROJECT: PES BUILDIONG **TEST DATE:** 12/20/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM / UNIT DATA	HP-10				HP-14			
Location	2ND FL NEW BLDG				2ND FL NEW BLDG			
Manufacturer	FHP				FHP			
Model Number	EM036-1HZN				EM036-1HZN			
Serial Number	SK126835				ACCESS PANEL MISSING			
FAN DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Fan CFM	1,300		1,145		1,300		1,015	
Outlet CFM	1,300		1,145		1,300		1,015	
Return Air CFM	1,300		1,145		1,300		1,015	
Outside Air CFM	N/G		N/A		N/G		N/A	
S.P. Total / External	N/G	0.39	N/A	N/A	N/G	0.39	N/A	N/A
Fan Inlet Pressure	N/G		N/A		N/G		N/A	
Fan Discharge Pressure	N/G		N/A		N/G		N/A	
Return Press. / Enter Coil	N/G	N/G	N/A	N/A	N/G	N/G	N/A	N/A
Fan RPM	900		LO		900		LO	
Inlet Vanes / VFD Position	N/G		NONE		N/G		NONE	
MOTOR DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Manufacturer / Frame	N/G		A.O SMITH		N/G		A.O SMITH	
HP / BHP	1/2	N/G	1/2	0.23	1/2	N/G	1/2	0.24
Volts / Phase	208	1	208-1		208	1	208-1	
Motor RPM	1075/3SPD		LO		1075/3SPD		LO	
Amperage	4.4		2.0		4.4		2.1	
Motor Service Factor	N/G		1		N/G		1	
Motor Efficiency	N/G		N/G		N/G		N/G	
Starter Heater Size	N/G		T.P		N/G		T.P	
Starter Heater Rating	N/G		T.P		N/G		T.P	
DRIVE DATA	ACTUAL				ACTUAL			
Motor Sheave / Open Turns	DIRECT DRIVE				DIRECT DRIVE			
Fan Sheave Diam. / Bore	DIRECT DRIVE				DIRECT DRIVE			
No. Belts / Center To Center	DIRECT DRIVE				DIRECT DRIVE			
COIL DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
GPM	9.0		N/A		9.0		N/A	
E.W.T / L.W.T (F°)	70	N/G	N/A	N/A	70	N/G	N/A	N/A
Water ΔT	N/G		N/A		N/G		N/A	
Pressure Drop	10.5'		N/A		10.5'		N/A	
E.A.T DB / WB (F°)	73	61	N/A	N/A	73	61	N/A	N/A
L.A.T DB / WB (F°)	54.3	51.6	N/A	N/A	54.3	51.6	N/A	N/A
Air ΔTH	5.86		N/A		5.86		N/A	
Cooling BTH / Hr.	34,300		N/A		34,300		N/A	

REMARKS:

TECHNICIAN:Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/20/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-10 & HP-14

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
HP-10										
MEET/TRAINING	1	CD	22 x 22	1.0	325	325	314	314	314	314
MEET/TRAINING	2	CD	22 x 22	1.0	325	325	180	180	180	180
MEET/TRAINING	3	CD	22 x 22	1.0	325	325	199	199	199	199
MEET/TRAINING	4	CD	22 x 22	1.0	325	325	241	241	241	241
ADDED STOR	5	CD	22 x 22	1.0	N/G	N/G	211	211	211	211
					TOTAL	1300	**TOTAL**	1145	**TOTAL**	1145
HP-14										
CORR	1	CD	22 22	1.0	475	475	467	467	467	467
WOMEN'S TOILET	2	CD	22 22	1.0	250	250	93	93	93	93
TECH SERVICES	3	CD	22 22	1.0	250	250	224	224	224	224
MEN'S TOILET	4	CD	22 22	1.0	250	250	141	141	141	141
LOCKER	5	CD	22 22	1.0	75	75	90	90	90	90
					TOTAL	1300	**TOTAL**	1015	**TOTAL**	1015

REMARKS:

TECHNICIAN:Lou Theberge

Air Handler Test Report

PROJECT: PES BUILDIONG **TEST DATE:** 12/20/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM / UNIT DATA	HP-11				HP-12			
Location	2ND FL NEW BLDG				2ND FL NEW BLDG			
Manufacturer	CLIMATEMASTER				FHP			
Model Number	TCH036AG				DATA PANEL MISSING			
Serial Number	N13035634				DATA PANEL MISSING			
FAN DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Fan CFM	1,300		824		850		792	
Outlet CFM	1,300		824		850		792	
Return Air CFM	1,300		824		850		792	
Outside Air CFM	N/G		N/A		N/G		N/A	
S.P. Total / External	N/G	0.39	N/A	N/A	N/G	0.20	N/A	N/A
Fan Inlet Pressure	N/G		N/A		N/G		N/A	
Fan Discharge Pressure	N/G		N/A		N/G		N/A	
Return Press. / Enter Coil	N/G	N/G	N/A	N/A	N/G	N/G	N/A	N/A
Fan RPM	900		LO		1200		HI	
Inlet Vanes / VFD Position	N/G		NONE		N/G		NONE	
MOTOR DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Manufacturer / Frame	N/G		A.O SMITH		N/G		A.O SMITH	
HP / BHP	1/2	N/G	1/2	0.42	1/4	N/G	1/4	0.19
Volts / Phase	208	1	208-1		208	1	208-1	
Motor RPM	1075/3SPD		LO		1075/3SPD		LO	
Amperage	1.8		1.5		1.8		1.4	
Motor Service Factor	N/G		N/G		N/G		N/G	
Motor Efficiency	N/G		N/G		N/G		N/G	
Starter Heater Size	N/G		T.P		N/G		T.P	
Starter Heater Rating	N/G		T.P		N/G		T.P	
DRIVE DATA	ACTUAL				ACTUAL			
Motor Sheave / Open Turns	DIRECT DRIVE				DIRECT DRIVE			
Fan Sheave Diam. / Bore	DIRECT DRIVE				DIRECT DRIVE			
No. Belts / Center To Center	DIRECT DRIVE				DIRECT DRIVE			
COIL DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
GPM	9.0		N/A		5.8		N/A	
E.W.T / L.W.T (F°)	70	N/G	N/A	N/A	70	N/G	N/A	N/A
Water ΔT	N/G		N/A		N/G		N/A	
Pressure Drop	10.5'		N/A		10.3'		N/A	
E.A.T DB / WB (F°)	73	61	N/A	N/A	73	61	N/A	N/A
L.A.T DB / WB (F°)	54.3	51.6	N/A	N/A	54	53.8	N/A	N/A
Air ΔTH	5.86		N/A		6.04		N/A	
Cooling BTH / Hr.	34,300		N/A		23,100		N/A	

REMARKS:

TECHNICIAN:Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/20/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: HP-11

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
CORR	1	CD	22 x 22	1.0	325	325	0	0	0	0
COMMANDER	2	CD	22 x 22	1.0	325	325	280	280	280	280
COMMANDER	3	CD	22 x 22	1.0	325	325	263	263	263	263
INTERNAL AFFAIRS	4	CD	22 x 22	1.0	325	325	281	281	281	281
					TOTAL	1300	**TOTAL**	824	**TOTAL**	824

REMARKS: **OUTLET #1 IS NOT DUCTED TO THE MAIN SUPPLY DUCT.**

TECHNICIAN:Lou Theberge

Air Handler Test Report

PROJECT: PES BUILDIONG **TEST DATE:** 12/20/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM / UNIT DATA	HP-15				EMERG UNIT			
Location	3RD FL ATTIC				3RD FL ATTIC			
Manufacturer	FHP				TRANE			
Model Number	EM036-1HZN				TWE063P13FA0			
Serial Number	NH120366				DATA PANEL MISSING			
FAN DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Fan CFM	1,300		940		2,000		NOT RUNNING	
Outlet CFM	1,300		940		2,000		NOT RUNNING	
Return Air CFM	1,300		940		2,000		NOT RUNNING	
Outside Air CFM	N/G		N/A		N/G		N/A	
S.P. Total / External	N/G	0.39	N/A	N/A	N/G	N/G	N/A	N/A
Fan Inlet Pressure	N/G		N/A		N/G		N/A	
Fan Discharge Pressure	N/G		N/A		N/G		N/A	
Return Press. / Enter Coil	N/G	N/G	N/A	N/A	N/G	N/G	N/A	N/A
Fan RPM	900		MED		N/G		HI	
Inlet Vanes / VFD Position	N/G		NONE		N/G		NONE	
MOTOR DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Manufacturer / Frame	N/G		A.O SMITH		N/G		N/A	
HP / BHP	1/2	N/G	1/2	0.42	3/4	N/G	3/4	N/A
Volts / Phase	208	1	208-1		208	1	NOT RUNNING	
Motor RPM	1075/3SPD		LO		1075/3SPD		LO	
Amperage	4.4		2.6		3.9		NOT RUNNING	
Motor Service Factor	N/G		N/G		N/G		N/G	
Motor Efficiency	N/G		N/G		N/G		N/G	
Starter Heater Size	N/G		T.P		N/G		T.P	
Starter Heater Rating	N/G		T.P		N/G		T.P	
DRIVE DATA	ACTUAL				ACTUAL			
Motor Sheave / Open Turns	DIRECT DRIVE				DIRECT DRIVE			
Fan Sheave Diam. / Bore	DIRECT DRIVE				DIRECT DRIVE			
No. Belts / Center To Center	DIRECT DRIVE				DIRECT DRIVE			
COIL DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
GPM	9.0		N/A		DX		N/A	
E.W.T / L.W.T (F°)	70	N/G	N/A	N/A	DX	DX	N/A	N/A
Water ΔT	N/G		N/A		DX		N/A	
Pressure Drop	10.5'		N/A		DX		N/A	
E.A.T DB / WB (F°)	73	61	N/A	N/A	N/G	N/G	N/A	N/A
L.A.T DB / WB (F°)	54.3	51.6	N/A	N/A	N/G	N/G	N/A	N/A
Air ΔTH	5.86		N/A		6.67		N/A	
Cooling BTH / Hr.	34,300		N/A		60,000		N/A	

REMARKS: **EMERGENCY UNIT WILL NOT OPERATE**

TECHNICIAN:Lou Theberge

Air Handler Test Report

PROJECT: PES BUILDING **TEST DATE:** 12/20/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM / UNIT DATA	MUA-1							
Location	OLD BLDG ROOF							
Manufacturer	ADDISON							
Model Number	TRSG210BJ1							
Serial Number	9.08014E+11							
FAN DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Fan CFM	3,500		3,246					
Outlet CFM	N/G		N/A					
Return Air CFM	0		0					
Outside Air CFM	3,500		3,246					
S.P. Total / External	N/G	N/G	N/A	N/A				
Fan Inlet Pressure	N/G		N/A					
Fan Discharge Pressure	N/G		N/A					
Return Press. / Enter Coil	N/G	N/G	N/A	N/A				
Fan RPM	N/G		1331					
Inlet Vanes / VFD Position	N/G		NONE					
MOTOR DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
Manufacturer / Frame	N/G		BALDOR					
HP / BHP	3	N/G	3	2.29				
Volts / Phase	200	3	206-3					
Motor RPM	1760		1760					
Amperage	9.3		7.1					
Motor Service Factor	N/G		1.15					
Motor Efficiency PF	N/G		89.5%/77					
Starter Heater Size	N/G		ADJ					
Starter Heater Rating	N/G		SET@12.0					
DRIVE DATA	ACTUAL				ACTUAL			
Motor Sheave / Open Turns	1VP50x1 1/2		5					
Fan Sheave Diam. / Bore	BK70x1 1/8							
No. Belts / Center To Center	BX62		24'					
COIL DATA	DESIGN		ACTUAL		DESIGN		ACTUAL	
GPM	9.0		N/A					
E.W.T / L.W.T (F°)	75	86	N/A	N/A				
Water ΔT	11		N/A					
Pressure Drop	18.1'		N/A					
E.A.T DB / WB (F°)	95	78	N/A	N/A				
L.A.T DB / WB (F°)	58.3	58.3	N/A	N/A				
Air ΔTH	16.26		N/A					
Cooling BTH / Hr.	253800		N/A					

REMARKS:

TECHNICIAN: Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/20/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: MUA-1

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
1ST FL NORTH CORR	1	SW	20 x 8	0.7	909	600	520	344	520	344
1ST FL SOUTH CORR	2	SW	20 x 8	0.7	909	600	865	571	865	571
2ND FL NORTH CORR	3	SW	20 x 8	0.7	909	600	706	466	706	466
2ND FL SOUTH CORR	4	SW	20 x 8	0.7	909	600	692	457	692	457
HP-2	5	RND	8	0.4	N/G	N/G	370	130	370	130
HP-3	6	N/A		N/A	N/G	N/G	N/A	N/A	N/A	N/A
HP-4	7	N/A		N/A	N/G	N/G	N/A	N/A	N/A	N/A
HP-5	8	N/A		N/A	N/G	N/G	N/A	N/A	N/A	N/A
HP-6	9	RND	8	0.4	N/G	N/G	53	18.5	53	18.5
					TOTAL	3500	**TOTAL**	1986	**TOTAL**	1986

REMARKS: **THE HP'S INSTALLED IN THE OLD BLDG HAVE OA DUCTED FROM MUA-1 THAT IS NOT SHOWN ON THE PRINT. AIR QUANTITIES ARE NOT GIVEN.**

TECHNICIAN:Lou Theberge

Pump Data Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/20/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

Design				
Pump Identification	**P-1**	**P-2**	**CDW-1**	**CDW-2**
Equipment Location	PUMP YARD	PUMP YARD	PUMP YARD	PUMP YARD
Service	CONDENSER	CONDENSER	GEO	GEO
GPM	300	300	N/G	N/G
Head Ft.	70	70	N/G	N/G
Horsepower	N/G	N/G	N/G	N/G
RPM	N/G	N/G	N/G	N/G
Actual				
Pump Manufacturer	B&G	B&G	N/G	N/G
Model Number	1510 BF	1510 BF	B4ZRKS	MISSING
Size	9.26	9.26	9.08	MISSING
Serial Number	C092892-01	C092892-01	3823375	MISSING
Motor Manufacturer	MARATHON	MARATHON	BALDOR	MISSING
Horsepower	10	10	10	MISSING
RPM	1755	1755	1760	MISSING
Voltage	208-230/460	208-230/460	230/460	MISSING
Amperage	28-26/13	28-26/13	25/12.5	MISSING
Service factor	1.15	1.15	1.15	MISSING
Actual Voltage	208	208	208	NOT RUNNING
Actual Amperage	16.9@60HZ	16.8@60HZ	18.0@60HZ	NOT RUNNING
Starter Heater Size	VFD	VFD	VFD	VFD
Starter Heater Rating	VFD	VFD	VFD	VFD
Block Off Discharge Press. PSI	N/A	N/A	NO TAPS	NO TAPS
Block Off Suction Press. PSI	N/A	N/A	NO TAPS	NO TAPS
Block Off Head Ft.	N/A	N/A	NO TAPS	NO TAPS
Impeller Diameter	FOUND/MAX	FOUND/MAX	NO TAPS	NO TAPS
Final Discharge Pressure	32.4/48.7	31.2/48.7	NO TAPS	NO TAPS
Final Suction Pressure	16.8/14.6	14.8/14.4	NO TAPS	NO TAPS
Final Head	36.0/78.8	37.0/79.0	NO TAPS	NO TAPS
Final GPM	N/A	N/A	NO TAPS	NO TAPS

REMARKS:

TECHNICIAN:Lou Theberge

Heat Exchanger Data Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/20/13

LOCATION: NAPLES,FL **PROJECT NO:** WO#141137

HX Data	HX No. 1	HX No.
Equipment Location	PUMP YARD	
Service	GEO	
Equipment Manufacturer	GRAHAM	
Model Number	GP258	
Serial Number	10-77508-1	

Hot Water Side	Design	Actual	Design	Actual
E.W.T. (F°)	95.0	98.8		
L.W.T. (F°)	85.0	92.9	#REF!	
ΔT	10.0	5.9		
GPM	300	**259**		
Pressure Drop PSI	5.0	3.5		
BTU / Hr.	1,469,457	n/a	#REF!	

Cold Water Side	Design	Actual	Design	Actual
E.W.T. (F°)	80.0	79.5		
L.W.T. (F°)	90.0	94.6		
ΔT	-10.0	15.1		
GPM	300	**256**		
Pressure Drop PSI	5.0	3.6		
BTU / Hr.	1,469,457	n/a		

REMARKS:

TECHNICIAN:Lou Theberge

Air Distribution Sheet

PROJECT: PES BUILDING **TEST DATE:** 12/20/13

LOCATION: NAPLES, FL **PROJECT NO:** WO#141137

SYSTEM: EF-1

AREA SERVED	OUTLET				DESIGN		INITIAL		FINAL	
	NO.	TYPE	SIZE	AK	VEL	CFM	VEL	CFM	VEL	CFM
EAST BLDG										
MEN'S TOILET	1	EG	22 x 22	1.0	334	334	264	264	264	264
WOMEN'S TOILET	2	EG	22 x 22	1.0	318	318	400	400	400	400
BREAK ROOM	3	EG	22 x 22	1.0	300	300	357	357	357	357
LOCKER	4	EG	6 x 6	1.0	94	94	137	137	137	137
MEN'S TOILET	5	EG	22 x 22	1.0	349	349	276	276	276	276
WOMEN'S TOILET	6	EG	22 x 22	1.0	299	299	200	200	200	200
					TOTAL	1694	**TOTAL**	1634	**TOTAL**	1634

REMARKS: **THE HP'S INSTALLED IN THE OLD BLDG HAVE OA DUCTED FROM MUA-1 THAT IS NOT SHOWN ON THE PRINT. AIR QUANTITIES ARE NOT GIVEN.**

TECHNICIAN:Lou Theberge

PRECISION
BALANCING & COMMISSIONING, INC.

Issue Discovery Project: City of Naples - Police & Fire Department

Location	New Facility	
Item:	*Issue Description*	*Picture*
1	*System:* All Water Source Heat Pumps The heat pumps in the facility do not meet the designed airflow required to satisfy the space. On average the actual airflow is 70% versus the engineer's design. The motors for the heat pumps were wired on low speed for the fan. In an attempt to increase the airflow the motors were rewired to the high speed with minimal change.	
	Solution: The units and/or motors need to be changed out to meet the required airflow.	
Remarks:		

Location	New Facility, Records Office and Purchasing Finance Office	
Item:	*Issue Description*	*Picture*
2	*System:* HP-1 and HP-6 The level of CO2 is significantly higher in these areas compared to the rest of the facility. Currently as designed these areas do not receive any outside air. The outside air is ducted and feeds the open plenum in the ceiling in the hallway. Due to the structure of the building the concrete wall extends to the second level with no transfer between the spaces. Additionally these areas have higher humidity as well as a stale smell throughout.	
	Solution: Transfer duct needs to be installed between the open plenum in the hallway and the hallway which serves the Records Office and the Purchasing/Finance Office.	
Remarks:		

PRECISION
BALANCING & COMMISSIONING, INC.

Issue Discovery Project: City of Naples - Police & Fire Department

Location	New Facility	
Item:	*Issue Description*	*Picture*
3	*System:* All Water Source Heat Pumps A number of the heat pumps within the facility have rust on the coil. Although it was not observed at the time of inspection, rust can lead to leakage within the coil causing significant damage.	
	Solution: The units and/or coils need to be changed out.	
Remarks:		

Location	New Facility, Records Office and 911 Call Center	
Item:	*Issue Description*	*Picture*
4	*System:* HP-1 and HP-9A and HP-9B The building envelope is allowing air to seep into the facility causing damage to the walls and allowing unwanted moisture to enter to building. Building envelope issues must be addressed in order to ensure no indoor air quality issues (biogrowth) arise.	
	Solution: Repair all areas visible envelope issues paying special attention to entryways and windows.	
Remarks:		

PRECISION BALANCING & COMMISSIONING, INC.

Issue Discovery Project: City of Naples - Police & Fire Department

Location	New Facility, Administration Offices, IT Closet and Second Floor Hallway

Item:	Issue Description	Picture
5	*System:* HP-8, HP-12, HP-13 and HP-14 The auxiliary drains for the above referenced heat pumps are piped through the drop ceiling with no additional piping. If any of these heat pumps malfunction or if a coil leaks, water will drain through these stubs and cause a mess in the facility. It should also be noted that one of these drains resides in the IT closet which can cause significant collateral damage.	
	Solution: Re-pipe the auxiliary drains to an appropriate area.	

Remarks:

Location	New Facility, 911 Call Center

Item:	Issue Description	Picture
6	*System:* AHU-21 Air handling unit 21 serves as a back-up unit for the 911 Call Center and the telephone room on the third floor. During our investigation we could not locate the sequence of operations. It was explained by the Communications Director that if the thermostats for HP-9 and HP-15 exceed 76° F, the unit energizes. During the testing, an attempt was made to simulate 85°F in both locations and the unit failed to energize.	
	Solution: A sequence of operations needs to be designed by an engineer and the unit should be programmed to perform this.	

Remarks:

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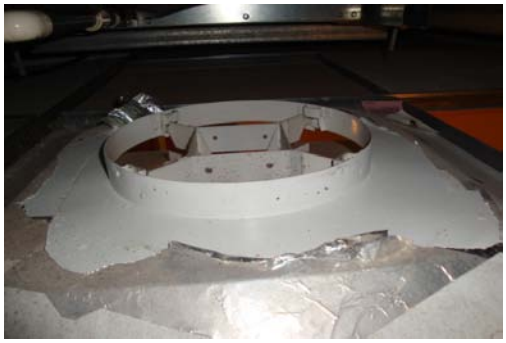
Issue Discovery Project: City of Naples - Police & Fire Department

Location	New Facility, Make Up Air Unit	
Item:	*Issue Description*	*Picture*
7	*System:* MAU-1 The make up air unit providing fresh air to the facility does not meet the design criteria. The unit design meets 66% of the required outside airflow.	
	Solution: The unit and/or motors need to be changed out to meet the required airflow.	
Remarks:		

Location	New Facility, Mechanical Room	
Item:	*Issue Description*	*Picture*
8	*System:* Exhaust Fan The exhaust fan fails to meet the scheduled airflow. The design of the exhaust is 1859 cfm while our tests indicate exhaust air at 1634 cfm. Exhaust air needs to be balanced correctly in order to avoid building pressurization issues.	
	Solution: The unit and/or motors need to be changed out to meet the required airflow.	
Remarks:		

PRECISION BALANCING & COMMISSIONING, INC.

Issue Discovery Project: City of Naples - Police & Fire Department

Location	New Facility, Make Up Air Unit	
Item:	*Issue Description*	*Picture*
9	*System:* HP-11 The diffuser is not connected to the supply air on the heat pump.	
	Solution: In order to provide proper airflow throughout the facility all designed ceiling drops should be connected.	
Remarks:		

Location	New Facility, 911 Call Center	
Item:	*Issue Description*	*Picture*
10	*System:* HP-9 The thermostat for the heat pump is located on an exterior wall.	
	Solution: Relocate thermostat to an interior wall.	
Remarks:		

PRECISION BALANCING & COMMISSIONING, INC.

Issue Discovery Project: City of Naples - Police & Fire Department

Location	Old Facility, Mechanical Room	
Item:	*Issue Description*	*Picture*
11	*System:* HP-1 The heat pump that serves the Criminal Investigation Division had a closed outside air damper. Outside air is essential in providing fresh air to the space.	
	Solution: Outside air damper needs to be opened and balanced to a specified airflow as designed by an engineer.	
Remarks:		

Location	Old Facility, Mechanical Room	
Item:	*Issue Description*	*Picture*
12	*System:* HP-2 The fan belt for the heat pump is cracked and worn.	
	Solution: Establish a maintenance schedule in which belts and filters are changed on a regularly scheduled basis.	
Remarks:		

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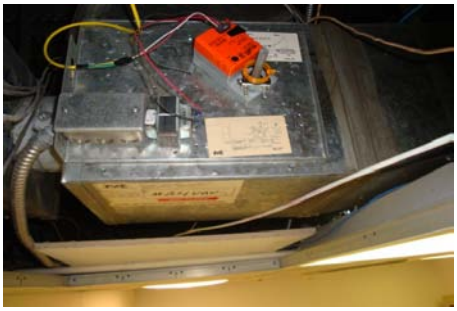
Issue Discovery Project: City of Naples - Police & Fire Department

Location	Old Facility, Mechanical Room	
Item:	*Issue Description*	*Picture*
13	*System:* HP-3 Testing showed the drive belt slipping causing the coil to freeze up. Besides losing efficiency, a frozen coil can also be a side effect of loose or worn belts.	
	Solution: Establish a maintenance schedule in which belts and filters are changed on a regularly scheduled basis.	
Remarks:	**This was resolved during our investigation.**	

Location	Throughout the Old Facility	
Item:	*Issue Description*	*Picture*
14	*System:* VAV-1, VAV-2 and VAV-3 VAV boxes are locked in the open position and failed to modulate based on temperature. VAV boxes generally modulate based on both temperature and airflow. The VAV boxes did not have the controls in order to modulate for airflow just temperature.	
	Solution: Install proper VAV controllers on the box and program to modulate based on temperature and airflow as designed by an engineer.	
Remarks:		

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Issue Discovery Project: City of Naples - Police & Fire Department

Location	Throughout Old Facility	
Item:	*Issue Description*	*Picture*
15	*System:* Ductwork Design The Fire Marshall's Office has two (2) ceiling diffusers feeding air to the space. The diffusers are from two (2) different heat pumps as the ductwork crosses over into a different zone. Being a relatively small office there is no reason why the space is fed by two (2) individual zones.	
	Solution: Change out ductwork so that it is not crossing over zones.	
Remarks:		

Location	Throughout Old Facility	
Item:	*Issue Description*	*Picture*
16	*System:* Ductwork During our investigation of the HVAC system we discovered several areas with significant supply air duct leakage. The supply air duct runs through the ceiling and all air lost within the space goes right back to the unit as return air since there is an open plenum.	
	Solution: Repair duct leakage ensuring the air gets to the designated area.	
Remarks:		

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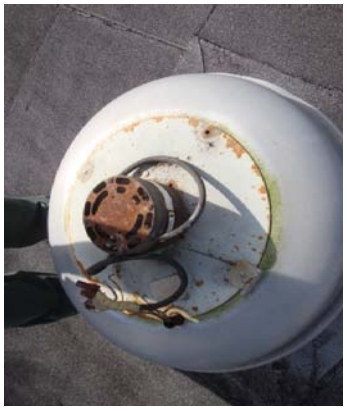
Issue Discovery Project: City of Naples - Police & Fire Department

Location	Throughout Old Facility	
Item:	*Issue Description*	*Picture*
17	*System:* Building Envelope & Open Plenum The building envelope is allowing air to seep into the facility causing damage to the walls and allowing unwanted moisture to enter to building. Building envelope issues must be addressed in order to ensure no indoor air quality issues (biogrowth) arise. Additionally since area is open plenum, the moisture is being introduced to the return air causing less efficiency with the HPs.	
	Solution: In order to provide proper airflow throughout the facility all designed ceiling drops should be connected. Install a ducted return air to replace the open plenum.	
Remarks:		

Location	Throughout Old Facility	
Item:	*Issue Description*	*Picture*
18	*System:* Exhaust Fans None of the exhaust fans serving the space operate. After careful review of each exhaust fan, I would conclude they have not been operating for some time. The facility has sizable locker rooms with toilets and showers and exhaust fans are necessary to ventilate these spaces.	
	Solution: Replace the all non functional exhaust fans.	
Remarks:		

PRECISION BALANCING & COMMISSIONING, INC.

Issue Discovery Project: City of Naples - Police & Fire Department

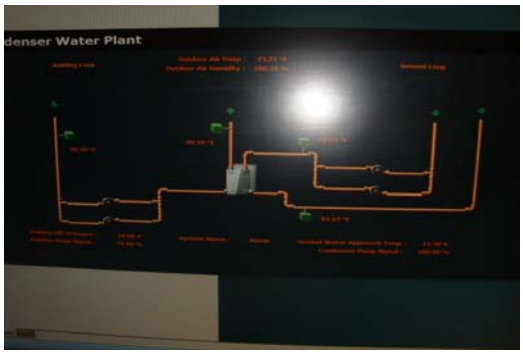
Location	Old Facility, Make Up Air Unit	
Item:	*Issue Description*	*Picture*
19	*System:* MAU-1 There is a leak coming through the make up air unit into the women's locker room below. The unit was being serviced while we were performing our investigation however I do not know if the issue has been resolved.	
	Solution: Ensure the issue is resolved.	
Remarks:		

Location	Mechanical Yard	
Item:	*Issue Description*	*Picture*
20	*System:* Geothermal Pump 2 Currently the pump is dismantled and non operational.	
	Solution: Repair/replace the pump.	
Remarks:		

PRECISION BALANCING & COMMISSIONING, INC.

Issue Discovery Project: City of Naples - Police & Fire Department

Location	Mechanical Yard	
Item:	*Issue Description*	*Picture*
21	*System:* Heat Exchanger The design guidelines specifies that the entering water temperatures for the heat pumps be at 70° F new and 75°F old. As tested, measured temperature leaving the heat exchanger is 93°F. This discrepancy of 23° and 18° respectively can be very hard on the equipment limiting it's efficiency and decreasing it's useful life. Additionally the condenser water system resides outside unprotected from the harsh Florida weather.	
	Solution: If the equipment is going to stay outside, consider replacing the heat exchanger with a cooling tower. If the equipment is relocated or a structure is built around the equipment, replace the heat exchanger.	
Remarks:		

Location	Entire Facility	
Item:	*Issue Description*	*Picture*
22	*System:* The Direct Digital Control System The functionality of the DDC system is limited to say the least. The schedules on the system do not function virtually leaving the HVAC system running 24/7. The system has the capability of changing the set points for the zones however the thermostats have those locked out. The condenser water system is for monitoring only not allowing the end user ability to change set points. Finally there was no trending data allowing the end user to monitor and change the system based on trends. It should be noted that there is no HVAC Manager/Specialist operating the system.	
	Solution: Update/upgrade the DDC system to allow the end user the ability to monitor and change as necessary. Put the system on a schedule for units that do not need to be running 24/7 in order to save energy. Have an HVAC Tech either on-site or remotely who has the ability to monitor and adjust the system as necessary.	
Remarks:		

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Issue Discovery Project: City of Naples - Police & Fire Department

Location	Engineering	
Item:	*Issue Description*	*Picture*
23	*System:* Documentation The documentation necessary to complete the review of this project was severely lacking. There was limited As-built Drawings, no O&M Manuals, no Manufacturer's Literature, no Submittals, no Pump Curves and most importantly no Sequence of Operations to explain how the HVAC System should operate.	
	Solution: At a minimum, have an engineer review the system providing a sequence and necessary airflows in order to support the facility.	
Remarks:		

Location		
Item:	*Issue Description*	*Picture*
	System:	
	Solution:	
Remarks:		

Project: City of Naples – Police & Fire Department

The following is a list of the field adjustments and calibrations that were performed during the Retro Commissioning:

- On occasion during our investigation we come across an issue and resolve that issue on the spot. The first item repaired was HP-3 in the old area. The fan belt was loose and slipping on both the motor and the blower. The result of this was the coil had frozen over and allowed no air to pass through it. Since the panels of the unit were off we tightened the belt and resolved the issue.
- The Heat Pumps in the new section continually were short on the amount of air provided to the area. All blower motors were wired for low speed. On HP-1, HP-2A, HP-2B, HP-3 and HP-5 the motors were rewired to high speed to provide additional air to help make-up the deficiency. It was determined after changing the first five (5) not to continue to do this as the airflow increase was minimal at best.

Project: City of Naples – Police & Fire Department

The following is a list of recommendations for the Police & Fire Department to better enhance the HVAC efficiency and/or reduce overall energy consumption. The recommendations consist of those made by the Engineer and other appropriate Retro Commissioning Team Members:

HVAC Equipment - Air

- Based on the tests that were performed, all sixteen (16) of the Water Source Heat Pumps in the new section of the facility lacked the required design airflow. On average the section receives 70% of the air necessary to satisfy the space. In addition a majority of the cooling coils in the heat pumps show significant signs of rust.

    - Approach 1 (Repair) – Replace the motors and the cooling coils on the sixteen (16) heat pumps.
    - Approach 2 (Replace) – Replace the sixteen (16) heat pumps with new ones.
    - Approach 3 (Option) – Replace all twenty one (21) heat pumps throughout the building with fan coil units. The units operate on chilled water and require a chiller and new chilled water piping all through the facility.

- Similar to the heat pumps, the Make-up Air Unit is failing to supply the required air to the facility. On average the new section receives 76% of the air necessary to satisfy the space. Also the unit needs to be inspected to ensure that there is no leak going through it and into the women's locker room.

    - Approach 1 (Repair) – Replace the motor on the unit
    - Approach 2 (Replace) – Replace the unit
    - Approach 3 (Option) – Replace the unit

- All of the exhaust fans in the old section of the facility are non-operational. This affects the air in the locker rooms as well as all bathroom exhaust. No exhaust in the locker rooms causes a buildup of moisture in that space.

    - Approach 1 (Repair) – Replace all of the units
    - Approach 2 (Replace) – Replace all of the units
    - Approach 3 (Option) – Replace all of the units

- Currently, there are three (3) VAVs in the old section. Since VAV boxes modulate the amount of airflow in a space, variable speed drives should be utilized to provide designed airflow throughout the zone.

- Approach 1 (Repair) – Install Variable Frequency Drives on the three (3) heat pumps that feed the zones with VAV boxes.
- Approach 2 (Replace) – Install Variable Frequency Drives on the three (3) heat pumps that feed the zones with VAV boxes.
- Approach 3 (Option) – Eliminate the VAV Boxes.

HVAC Equipment - Water

- The Heat Exchanger, installed in 2010, does not appear to be functioning properly. Per the design, the supply condenser water to the heat pumps should be 70°F and 75°F for the old and new sections respectively. During the testing it was observed that the supply temperature is exceeding 90°F. The increased temperature decreases the EER (Energy Efficiency Rating) of the heat pumps by 30% per unit, meaning more energy is being consumed in order to cool the space.

    - Approach 1 (Repair) – Replace the Heat Exchanger and associated pumps with a new ones, erect a shelter in the mechanical yard for the HVAC equipment to reside and drill a new deep well to ensure that the water provided meets the design criteria. As this has already been attempted and modified a number of times and has still not functioned properly, I would advise against this approach.
    - Approach 2 (Replace) – Replace the Heat Exchanger with a Cooling Tower and two (2) new pumps. This is the most viable option to provide condenser water to the heat pumps.
    - Approach 3 (Option) – Replace the current system with an Air Cooled Chiller and two (2) new pumps. This is the traditional approach to provide cooling in Florida and would be incorporated with the fan coil units.

- Auxiliary drains from the heat pumps need to be re-piped to an appropriate location.

    - Approach 1 (Repair) – Re-pipe the auxiliary drain so that water does not rain down from the ceiling.
    - Approach 2 (Replace) – Re-pipe the auxiliary drain so that water does not rain down from the ceiling.
    - Approach 3 (Option) – This option would eliminate the drain as the issue would be resolved with the fan coil unit.

Air Distribution – Ductwork

- A few of the heat pumps in the old section have open air return plenums, meaning the return air is pulled from the ceiling and is not ducted. The biggest issue with this strategy is the space above the ceiling is being conditioned thus increasing energy

usage. Also ducting the return air provides better control over the air distribution pulling the air equally from the space rather than pulling air closest to the unit.

  - Approach 1 (Repair) – Install return air duct in the old section of the building.
  - Approach 2 (Replace) – Install return air duct in the old section of the building.
  - Approach 3 (Option) – Install return air duct in the old section of the building.

- The Records and Finance Offices experience a higher level of CO_2 than the rest of the facility. Upon further inspection it was discovered there is no transfer between those spaces and where the outside air enters the first floor. The lack of fresh air makes the space feel stuffy and the air smell stale. Currently in the Records Office there are three (3) space dehumidifiers circulating the air and keeping the humidity level low.
  - Approach 1 (Repair) – Install a transfer duct through the concrete wall on the first floor. This will provide the space with much needed fresh air.
  - Approach 2 (Replace) - Install a transfer duct through the concrete wall on the first floor. This will provide the space with much needed fresh air.
  - Approach 3 (Option) – Install a transfer duct through the concrete wall on the first floor. This will provide the space with much needed fresh air.

- The supply air duct in the old section of the building has several leaks that were discovered while testing.
  - Approach 1 (Repair) – Repair and seal the ductwork where leaks are detected.
  - Approach 2 (Replace) – Replace the supply air ductwork with new ductwork.
  - Approach 3 (Option) – Replace the supply air ductwork with new ductwork.

- The air supplied to the Fire Marshall's Office is provided by two (2) different zones. This can sometimes cause the units to conflict with one another. The ductwork should be changed so that the office is fed by one (1) zone.
  - Approach 1 (Repair) – Cap one of the zone so that the office is properly ducted.
  - Approach 2 (Replace) – This would be resolved by the supply ductwork replacement.
  - Approach 3 (Option) – This would be resolved by the supply ductwork replacement.

Controls

- Although there are locations within the facility that operate on a 24/7 cycle, a large majority of the facility does not. Currently the entire facility operates on a 24/7 schedule. In order to better conserve energy, the building should be placed on a schedule based on the occupancy of the non 24/7 areas. This strategy will provide immediate savings.
  - Approach 1 (Repair) – Schedule all non 24/7 areas based on the occupants schedule.

- Approach 2 (Replace) – Schedule all non 24/7 areas based on the occupants schedule.
- Approach 3 (Option) – This strategy would be resolved with a new DDC System, later option.

- Air Handling Unit 21 (The Emergency Call Center Back-Up Unit) should have the parameters established for operation. The intent of the unit is to serve as a back-up for the call center and the telephone room if the temperatures exceed a limit. Since there is no documentation, we relied on staff to provide us with the sequence of operations. They informed us that if the temperature in both areas exceeds 76°F that the unit energizes to feed additional air to the space. During the testing process we fooled both thermostats into reading 86°F however the unit would not energize.

    - Approach 1 (Repair) – Program AHU 21 to operate per design.
    - Approach 2 (Replace) – Program AHU 21 to operate per design
    - Approach 3 (Option) – Program AHU 21 to operate per design.

- The thermostat for Air Handling Unit 21 is on an exterior wall. Although modern buildings are well insulated, thermostats mounted on exterior walls will always sense a greater temperature due to the heat load on the building.

    - Approach 1 (Repair) – Relocate thermostat for AHU 21 from an exterior wall to an interior wall.
    - Approach 2 (Replace) – Relocate thermostat for AHU 21 from an exterior wall to an interior wall.
    - Approach 3 (Option) – Relocate thermostat for AHU 21 from an exterior wall to an interior wall.

- The front end of the DDC system provides very little interaction with the HVAC system. The primary purpose of the DDC system is to monitor and adjust the system as required. Upon testing of the system, the current set-up allows limited monitoring with no adjusting. The front end needs graphical upgrades with adjustment capabilities. It should be networked so that a qualified HVAC technician can make changes both on-site and remotely.

    - Approach 1 (Repair) – Upgrade the DDC system to allow for full functionality of the system including remote operation.
    - Approach 2 (Replace) – Upgrade the DDC system to allow for full functionality of the system including remote operation.
    - Approach 3 (Option) – Upgrade the DDC system to allow for full functionality of the system including remote operation.

- VAV Boxes require pressure independent controllers which modulate the VAV box based on temperature and airflow. Currently the VAV boxes operate via modulating actuators that are locked in the open position. To better serve the area the boxes should modulate in order to satisfy the space they serve.

    - Approach 1 (Repair) – Install three (3) new VAV Controllers
    - Approach 2 (Replace) - Install three (3) new VAV Controllers
    - Approach 3 (Option) – Eliminate VAVs

- If the equipment in the facility is changed from a condenser water system to a chilled water system a new DDC Control System will need to be installed.

    - Approach 1 (Repair) – None
    - Approach 2 (Replace) - None
    - Approach 3 (Option) – New DDC System

PRECISION
BALANCING & COMMISSIONING, INC.

Cost Impact Estimate **Project:** City Of Naples - Police & Fire Department

HVAC Equipment - Air

Issues	Approach 1	Approach 2	Approach 3
Replace Motors and Coils in sixteen (16) Water Source Heat Pumps	$ 114,000.00		
Install sixteen (16) new Water Source Heat Pumps		$ 142,000.00	
Install twenty one (21) Fan Coil Units			$ 75,000.00
Replace Motor in Make-Up Air Unit	$ 1,500.00		
Install new Make-Up Air Unit (Ductwork modification is included)		$ 94,000.00	$ 94,000.00
Install six (6) new Exhaust Fans (Two (2) Large and four (4) Small)	$ 12,300.00	$ 12,300.00	$ 12,300.00
Install three (3) Variable Speed Drives on Heat Pumps with associated VAV Boxes	$ 35,000.00	$ 35,000.00	
Subtotal	$ 162,800.00	$ 283,300.00	$ 181,300.00

HVAC Equipment - Water

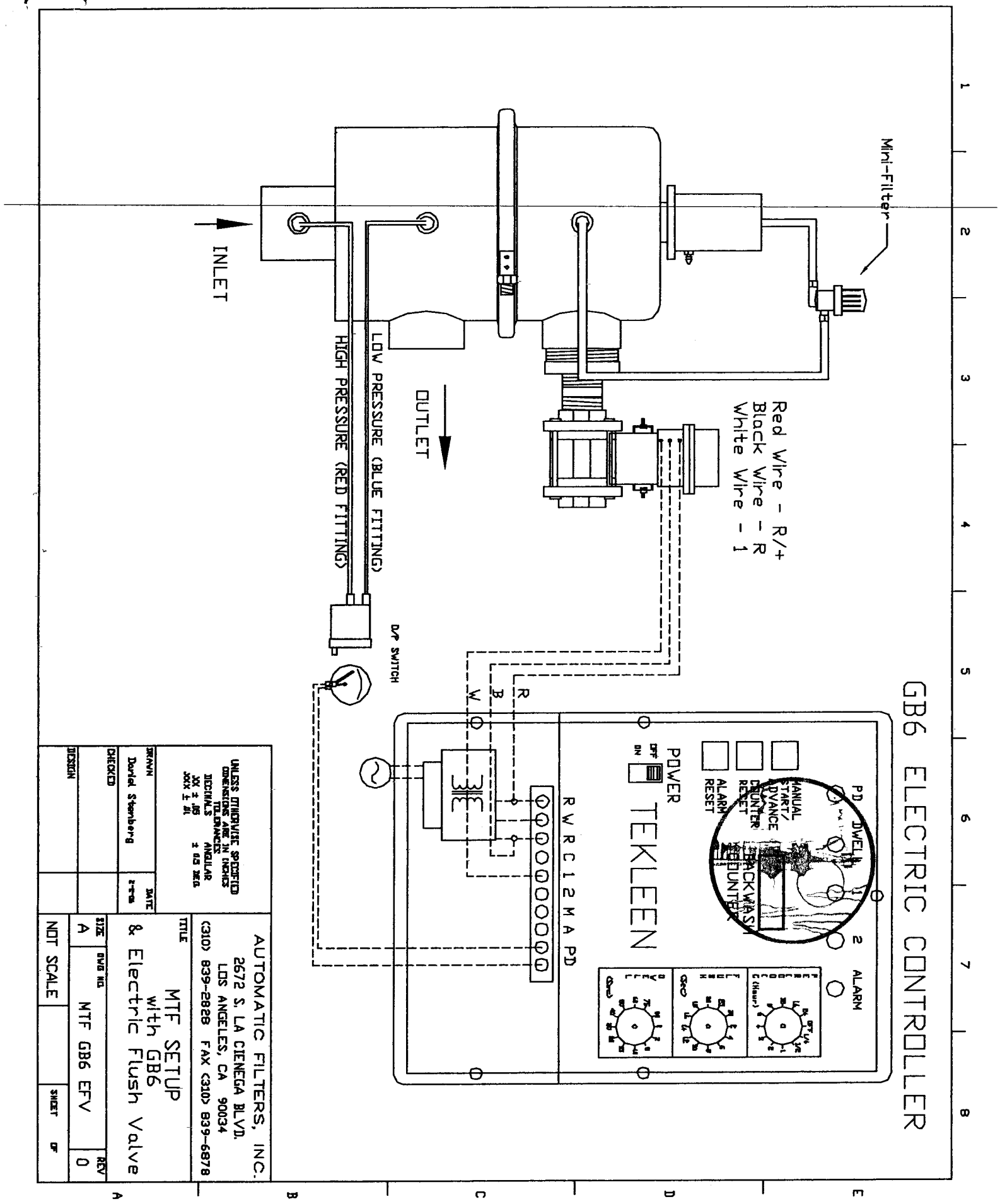
Issues	Approach 1	Approach 2	Approach 3
Install new Heat Exchanger with four (4) associated pumps (Structure not included)	$ 86,000.00		
Install new Cooling Tower with two (2) associated pumps		$ 135,000.00	
Install Air Cooled Chiller with two (2) associated pumps and new piping throughout facility			$ 235,000.00
Re-pipe the Auxiliary Drains on four (4) Heat Pumps	$ 3,500.00	$ 3,500.00	
Subtotal	$ 89,500.00	$ 138,500.00	$ 235,000.00

Air Distribution - Ductwork

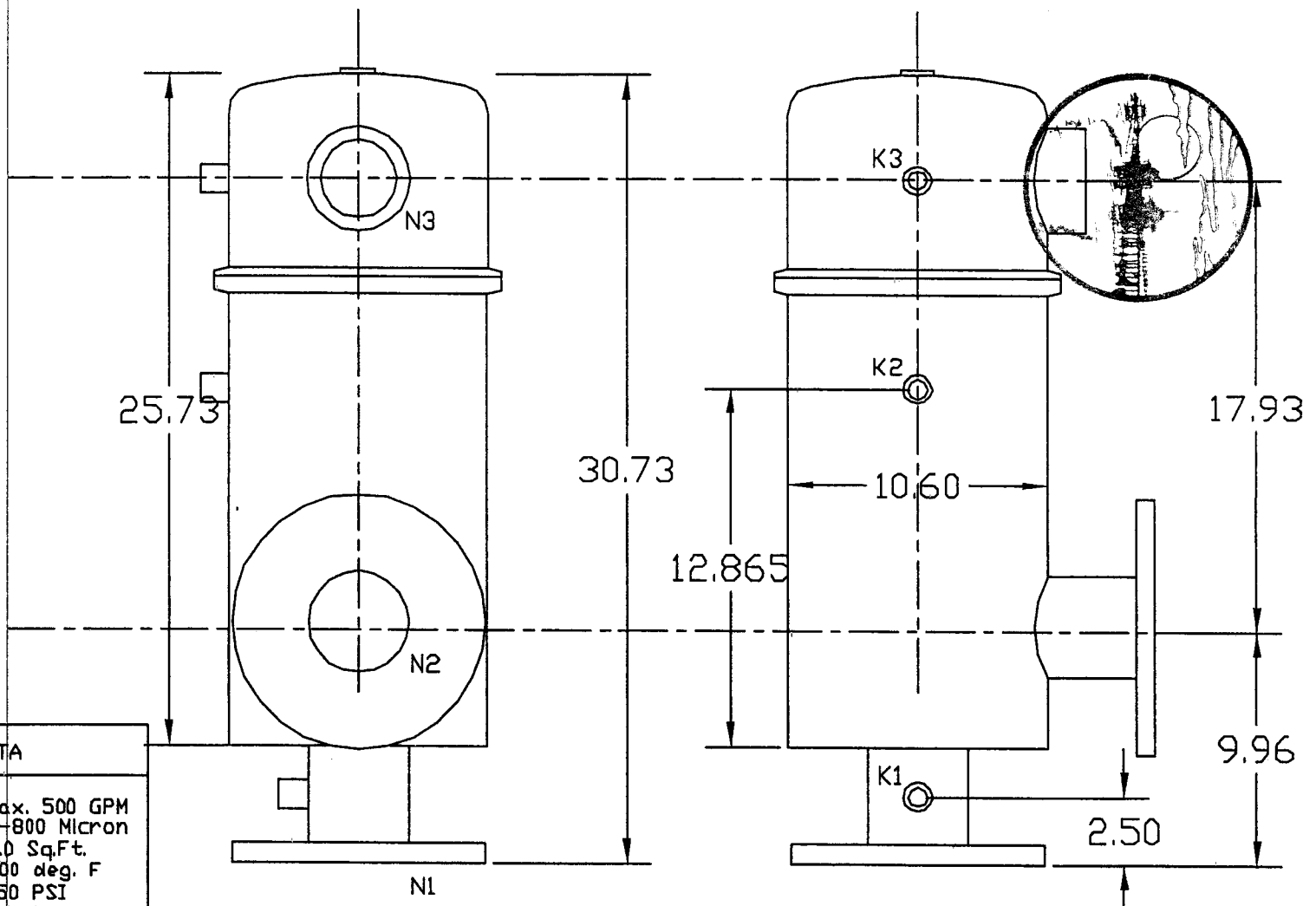
Issues	Approach 1	Approach 2	Approach 3
Install Return Air Duct in the Old Section of the Building	$ 26,000.00	$ 26,000.00	$ 26,000.00
Install Transfer Duct through concrete wall on first floor	$ 2,500.00	$ 2,500.00	$ 2,500.00
Repair the Supply Duct in the Old Section of the Building	$ 18,500.00		
Replace the Supply Duct in the Old Section of the Building		$ 56,000.00	$ 56,000.00
Re-duct the zones to eliminate 2 zones	$ 6,500.00		
Subtotal	$ 53,500.00	$ 84,500.00	$ 84,500.00

Controls

Issues	Approach 1	Approach 2	Approach 3
Install schedule for all non 24/7 areas based on building occupancy schedule	$ 2,500.00		
Program AHU-21 (Emergency Back-Up Unit) to operate per design	$ 1,500.00		
Relocate thermostat for AHU-21 from exterior wall to interior wall	$ 200.00		
Upgrade DDC System to allow full functionality of the system including remote operation	$ 38,500.00	$ 38,500.00	$ 38,500.00
Install three (3) new pressure dependent controllers on VAV Boxes	$ 2,800.00	$ 2,800.00	
Install new DDC System			$ 85,000.00
Subtotal	$ 45,500.00	$ 41,300.00	$ 123,500.00
Cost Impact Totals	$ 351,300.00	$ 547,600.00	$ 624,300.00


GB6 ELECTRIC CONTROLLER
Mini-Filter
INLET
OUTLET
HIGH PRESSURE (RED FITTING)
LOW PRESSURE (BLUE FITTING)
DIFF SWITCH
Red Wire - R/+
Black Wire - R
White Wire - 1
R
B
W
POWER
TEKLEEN
RWRC12MAPD
PD DWELL
ALARM
MANUAL START/ ADVANCE
COUNTER RESET
ALARM RESET
BACKWASH COUNTER
AUTOMATIC FILTERS, INC.
2672 S. LA CIENEGA BLVD.
LOS ANGELES, CA 90034
(310) 839-2828 FAX (310) 839-6878
MTF SETUP
with GB6
& Electric Flush Valve
NTF GB6 EFV
NOT SCALE
SIZE A
REV 0
SHEET OF
DRAWN Daniel Steinberg
CHECKED
DATE 2-7-08

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



TECHNICAL DATA	
Flow Rate	Max. 500 GPM
Screen Size	5-800 Micron
Screen Area	3.0 Sq.Ft.
Working Temp.	200 deg. F
Working Pressure	150 PSI
Weight	110 lbs.

NOZZLE	CONNECTION	TYPE OF CONNECTION	SIZE
K1	Hi. Press. Conn.	Threaded	1/4" NPT (x2)
K2	Low Press. Conn.	Threaded	1/4" NPT
K3	Low Press. Conn.	Threaded	1/4" NPT
N1	Inlet	Flanged	4" ASA
N2	Outlet	Flanged	4" ASA
N3	Flush Outlet	Threaded	2" NPT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS: XX ± .05, XXX ± .01
ANGULAR: ± 0.5 DEG

DRAWN: Daniel Stenberg — DATE: 6-8-06
CHECKED:
DESIGN:

AUTOMATIC FILTERS, INC.
2672 S. LA CIENEGA BLVD.
LOS ANGELES, CA 90034
(310) 839-2828 FAX (310) 839-6878

TITLE: MTF4-L

SIZE: A | DWG NO.: mtf4-L | REV: 0

SCALE 1/6 | SHEET 1 OF 1

GRAHAM
ENGINEERING ANSWERS

GRAHAM Commercial Heat Exchanger Specification

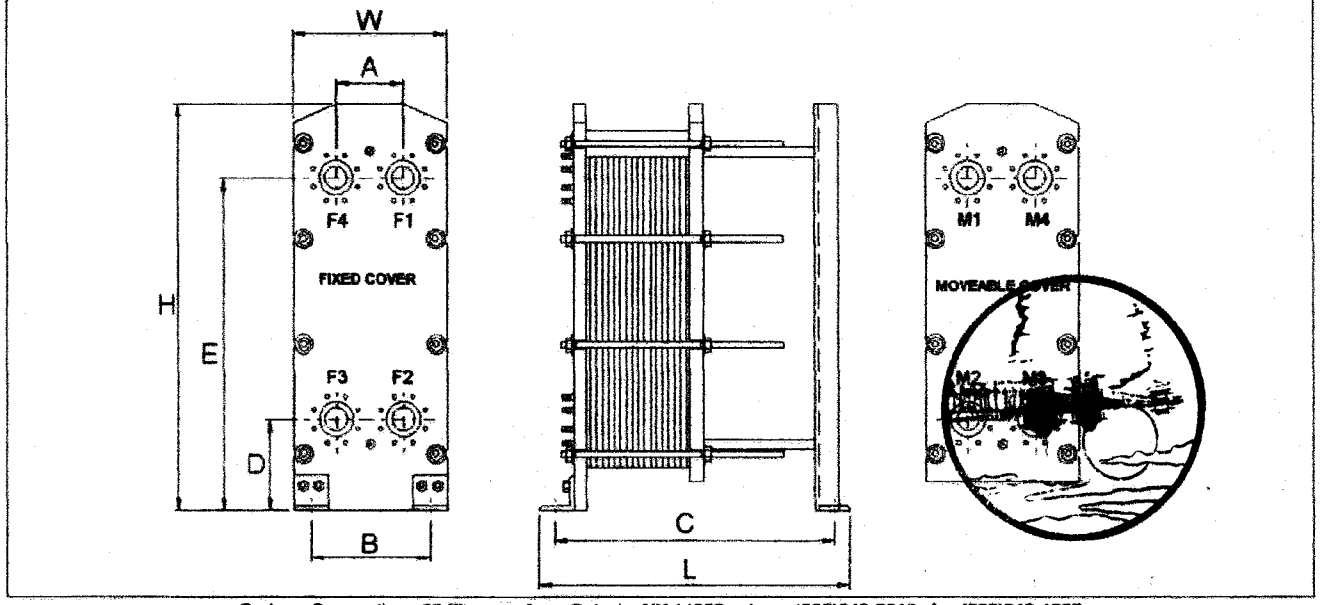
Naples Police-1 - PHE 1.5.0 SN3044

Customer:	B&I Contractors, Inc.	**Graham Ref:**	
Customer Ref:	City of Naples Police Bldg	**Date:**	Jun 18, 2010
Item:	HX-1	**Engineer:**	
Graham Model:	**GP258-1000L-117**		

Performance Data	**Units**	**Hot Side**		**Cold Side**	
Fluid Name		Water		Water	
Specific Gravity		0.99		0.99	
Specific Heat	(Btu/lb F)	1.00		1.00	
Thermal Conductivity	(Btu/hr ft F)	0.36		0.36	
Viscosity	(cP)	0.77		0.82	
Flow Rate volume	(gpm)	300.00		300.00	
mass	(pph)	149028.60		149175.90	
Temperature Inlet / Outlet	(°F)	95.00	85.00	80.00	89.99
LMTD	(°F)	5.0			
Total Heat Exchanged	(Btu)	1489457			
Operating Pressure	(psig)	150.00		150.00	
Pressure Drop	psi	4.98		4.95	
Construction					
Design / Test Pressure	(psig)	150.0 / 195.0			
Design Temperature	(°F)	230.0			
Certification		ASME Section VIII, Div. I			
Number of passes / Plate pattern		1 x (51H + 7M)		1 x (51H + 7M)	
Plate / Gasket Material		316SS / NBR			
Estimated Weight: empty / flooded	lbs	1185 / 1340			
Connections: Type / Material		Studded / 316SS		Studded / 316SS	
Inlet: Size / Location		4" / F1		4" / F3	
Outlet: Size / Location		4" / F2		4" / F4	

Dimensional Data (inches)

L: 47.0	**W:** 18.5	**H:** 44.0	**A:** 9.0
B: 16.0	**C:** 45.0	**D:** 8.5	**E:** 36.8



Graham Corporation 20 Florence Ave., Batavia, NY 14020; phone:(585)343-2216 fax:(585)343-1097

RECEIVED
JUN 2 9 2010
BLDG DEPT

REVISION FORM

CITY OF NAPLES
295 RIVERSIDE CIRCLE
NAPLES, FL. 34102
239-213-5020

PERMIT# 09-00002650

1. Only one revision at a time per permit may be submitted.
2. **This submittal must include 1 copy of the original approved design. Copies should only reflect the actual pages being revised from the original set.**
3. Submit two (2) copies of revision form with two (2) sets of revised drawings.
4. Revisions to drawings originally signed and sealed by a design professional must be signed and sealed by the original plan-signing design professional.
5. Approved, stamped revision must be on job site before scheduling inspections for work included in revision.
6. ***Detailed description defining the entire scope of revision(s) must be provided, and revised work areas clouded (or otherwise clearly shown) on revised plans***.
7. Supporting documents (Manufacturer info., Product approvals, NOAs, etc) must be included.

Job Address: 355 Riverside Cir

Contractor: B & I Contractors IN-CMC056245

Contractor phone # 239-332-4646 **Contractor Fax#** 239-332-5928

Changes clouded on plans (check): Yes X No (See # 6 above)

Additional work area square footage: N/A

Additional job cost incurred by revision: N/A

Additional Subcontractors: N/A

Detailed description of revised work (Include additional page(s) if needed):

The revised work includes the replacement of two GeoFree heat exchanger with one Graham GP258 plate frame heat exchanger. In addition one Automatic Filters, Inc. MTF4-L filter will be added prior to the heat exchanger on the ground water loop. Specifications for both new peaces of equipment are attached.

A NEW FEMA FORM IS REQUIRED WHEN REVISING ADDITION / ALTERATION PLANS FOR PROJECTS BELOW BASE FLOOD ELEVATION.
REVISION FEE IS $35.00 FOR EACH TRADE INVOLVED IN REVISION.

REV#1

Oct 38

REVISONS
PLAN REVIEW CHECKLIST

PERMIT # 10-25

TRACKING	EXAMINER	DATE	AP/REJ
FLOODPLAIN			
PLANNING			
FIRE ALARM (C & M)			
FIRE SPRINKLER (C & M)			
ELECTRICAL			
MECHANICAL		7/1	AP
PLUMBING		7/1	NA
BUILDING		NA	

2701 Prince Street
Fort Myers, FL 33916

Established 1960 Employee Owned
B&I Contractors, Inc.
Mechanical • Service Electrical • Plumbing

Phone: (239)332-4646
Fax: (239)332-5928

Permit Number: 09 2650
Project Address: 355 Riverside Dr.
Contractor: B & I Contractors
Attn: Paul Bollenback

Mechanical Plans Review

(1) Please provide MCA/MOCP information for RTU-1. Also provide MOCP for all H-P units to be installed.

- Please see attached 8 ½ x 11 with the requested information included on the schedule.

(2) Please provide detail of mounting to curb assembly of RTU-1 and include provision detailing compliance with Florida Mechanical Code (FMC) 2007, Section 301.12-Wind Resistance.

- Please see attached 8 ½ x 11 detail drawing for mounting to curb assembly of RTU.

(3) Please indicate if RTU-1 provides outside air to building. If yes, please indicate amount of air (in CFM) and compliance with FMC 2007, Section 403.3.

- RTU-1 is a 100% Outside Air Unit, which will provide 3500 CFM of Outside Air in compliance with FMC 2007, Section 403.3. See attached sheet for OA CFM calculations.

(4) Please provide detail indicating typical installation of new H-P's including structural attachment, duct connection, primary and secondary drainage provisions and emergency drain pans, if required.

- Please see attached 8 ½ x 11 detail drawing for typical installation of H-P.

(5) Please indicate type and size (in inches) of CWS&R piping material and include detail of pipe support indicating compliance as required by FMC 2007, Section 305.4.

- CWS&R piping from the Pits to the GeoFree tank will be 4" PVC SCH-80. CWS&R piping from the GeoFree tank to the WSHP's will be C-PVC SCH-40 with the sizes specified in the plans. Please see attached 8 ½ x 11 detail drawing for pipe support.

2701 Prince Street
Fort Myers, FL 33916

Established 1960 Employee Owned
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Mechanical • Service Electrical • Plumbing

Phone: (239)332-4646
Fax: (239)332-5928

(6) Equipment listed as H-P 2/H-P 3/ H-P 5/H-P 6 and RTU-1 all indicate airflow greater than 2000 CFM. Please provide detail indicating compliance with FMC 2007, Section 606.2.1 (Smoke Detectors) or indicate if a code based exception applies.

- For H-P 2/H-P 3/ H-P 5/H-P 6 and RTU-1 the existing Duct Smoke Detectors will be used as compliance with FMC 2007, Section 606.2.1. Please see attached 8 ½ x 11 Unit detail for reference.

(7) Please provide manufactures data on GeoFree fluid cooler/heat exchanger and indicate compliance with FMC 2007, Section 908.

- The GeoFree only contains pressure rated piping and fittings that consist of SCH-40 PVC with ASTM D1785. Please see attached 8 ½ x 11 detail drawing of GeoFree tank.

(7) Please indicate the applicable code(s) that the design professional has based the submitted plan upon and specifically address the design as being in compliance with Florida Building Code, Chapter 13 – Energy Efficiency.

- The submitted plans have been prepared in compliance with the 2007 Florida Building Code, including Florida Building Code, Chapter 13 – Energy Efficiency, and the 2007 Florida Mechanical Code. Equipment meets the Florida Energy Efficiency code for Building Construction, Florida Department of Community Affairs, FLA/COM 2004 v2.5, Effective December 8, 2006. The HVAC equipment and design is based on ASHRAE 90.1, 2004.

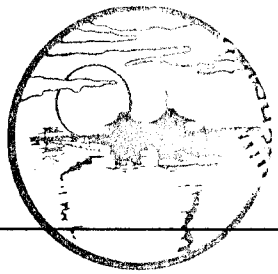
Electrical Plans Review

(1) Plan Sheet M-1 indicates 5 HP motors at 208/3/60. Electrical panels on E-0 indicate 240/3/60 panel service voltages.

- Note on Plan Sheet M-1 have been corrected and clouded as needed, see attached 8 ½ x 11 detail drawing.

MECHANICAL EQUIPMENT SCHEDULE

Tag	HP-1	HP-2	HP-3	HP-4	HP-5	HP-6	RTU-1
Model	EV048-1VTC-FLT	EC096-1VTC-FBT	EC096-1VTC-FBT	EV036-1VTC-FLT	EC096-1VTC-FBT	EC096-1VTC-FBT	TRS210W
Compressor	1	2	2	1	2	2	2
Voltage	208 / 1 / 60	208 / 1 / 60	208 / 1 / 60	208 / 1 / 60	208 / 1 / 60	208 / 1 / 60	208 / 3 / 60
MCA / MOCP	31.8 / 50	57.9 / 70	57.9 / 70	24.6 / 35	57.9 / 70	57.9 / 70	76.2 / 100
CFM	1,502	2,804	2,507	1,201	2,507	2,804	3,500
Static Pressure (in. H2O)	0.54	0.74	0.47	0.51	0.47	0.74	
GPM	12	21	21	9	21	21	54
Cooling							
EAT (DB / WB) °F	75 / 63	75 / 63	75 / 63	75 / 63	75 / 63	75 / 63	95 / 78
LAT (DB / WB) °F	55.5 / 52.9	52.1 / 51.7	51.1 / 50.3	57.3 / 54.2	51.1 / 50.3	52.1 / 51.7	58.3 / 58.3
EWT °F	75	75	75	75	75	75	75
LWT °F	84.2	85.9	85.7	83.6	85.7	85.9	86
H2O Pressure Drop (Ft.)	9.8	14.9	14.9	8.5	14.9	14.9	18.1
Total Capacity (MBTUH)	43.23	90.09	89.32	30.6	89.32	90.09	253.8
Sensible Capacity (MBTUH)	31.72	69.31	64.64	22.97	64.64	69.31	142.7
Latent Capacity (MBTUH)	11.51	20.78	24.68	7.63	24.68	20.78	111.1
KW Electric Heat	3.52	7.21	6.81	2.31	6.81	7.21	13.23
EER	12.3	12.5	13.1	13.2	13.1	12.5	19.19
Heating							
EAT (DB) °F	68	68	68	68	68	68	45
LAT (DB) °F	103.9	107	110.6	98.6	110.6	107	45
EWT °F	63	68	68	68	68	68	N/A
LWT °F	60.4	59.2	59.4	61	59.4	59.2	N/A
H2O Pressure Drop (Ft.)	10.2	15.5	15.5	8.8	15.5	15.5	N/A
Total Capacity (MBTUH)	58.19	118.21	115.21	39.74	115.21	118.21	0
KW Electric Heat	3.76	7.67	7.37	2.46	7.37	7.67	N/A
COP	4.5	4.5	4.6	4.7	4.6	4.5	N/A



2701 PRINCE STREET
FORT MYERS, FL 33916
Ph: (239) 332-4646
Fx: (239) 332-8888

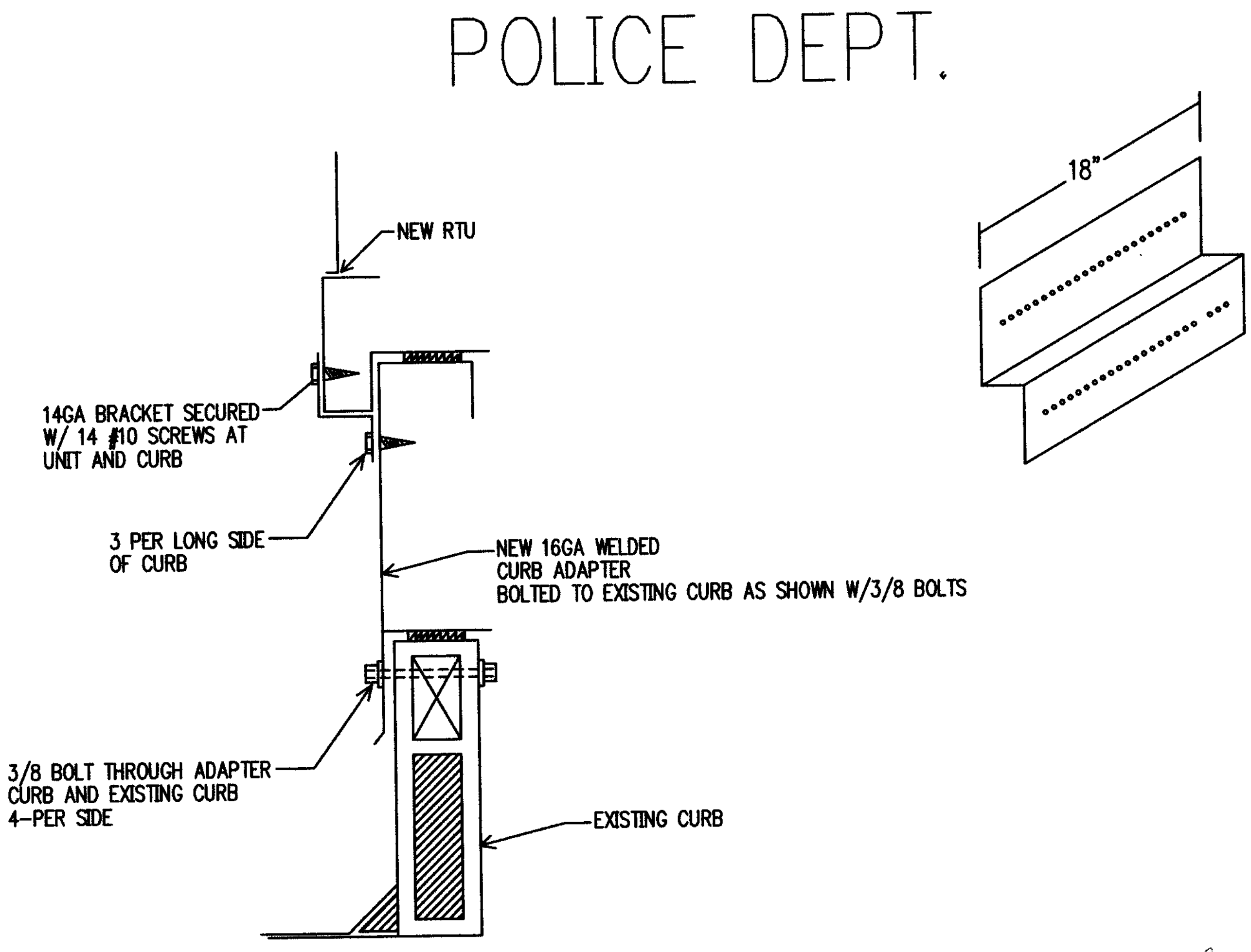
Established 1960 — Employee Owned
B&I Contractors, Inc.
Mechanical • Security — Electrical • Plumbing
www.BandIContractors.com
CMC 056245 CFC 054877 SPM 1460380013099 EC 0001109 GC C1507476

PROJECT NAME:
CITY OF NAPLES

DESCRIPTION:
DETAIL DRAWING

DWG. NO.
SC1

JOB NO.
1954



2701 PRINCE STREET
FORT MYERS, FL 33916

Established 1960 — Employee Owned
B&I Contractors, Inc.
Mechanical • Service — Electrical • Plumbing

PROJECT NAME: CITY OF NAPLES	DWG. NO. MC1
DESCRIPTION: CURB DETAIL DRAWING	JOB NO. 1954

IAQ - VENTILATION DESIGN CRITERIA

BASED ON ASHRAE 62.1-2004, TABLES 6-1 AND 6-4

BUILDING	ROOM TYPE	# PEOPLE	AREA	REQUIRED OA	REQUIRED EXHAUST
POLICE BUILDING (OLD)					
	LOCKER	-	1505		753
	RESTROOM	-	670		50
	OFFICE	25	9850	716	
	STORAGE	-	1620	194	
	WEIGHT ROOM	10	1100	266	
	CORRIDOR	15	2380	293	
TOTAL				**1469**	**803**
POLICE BUILDING (NEW)					
	LOCKER	-	180		90
	RESTROOM	-	750		50
	OFFICE	30	9550	723	
	STORAGE	-	180	22	
	CORRIDOR	15	1550	243	
	LOBBY	120	800	600	
TOTAL				**1588**	**140**
POLICE BUILDING					
TOTAL				**3057**	**943**

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FORT MYERS, FL 33916
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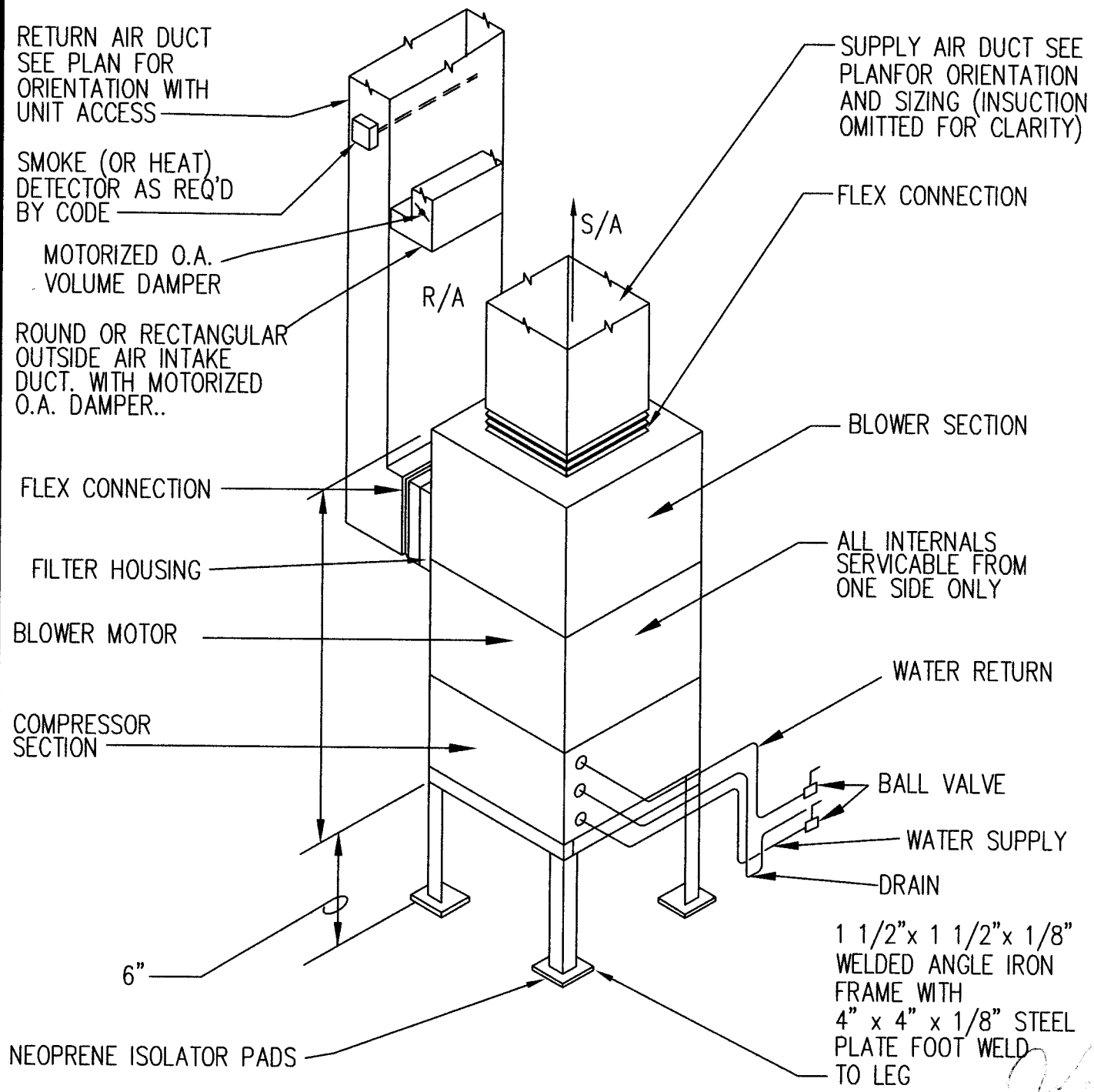
CMC 056845 CFC 054877 SPM 1460360013009 EC 0001109 GC 01507478

PROJECT NAME:
CITY OF NAPLES

DESCRIPTION:
O.A. CFM CALCULATION

DWG. NO.
SC2

JOB NO.
1954



TYPICAL A/C MOUNTING DETAIL

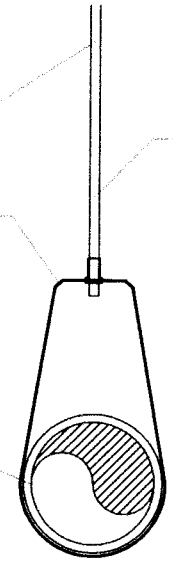
2701 PRINCE STREET
FORT MYERS, FL 33916
PH: (239) 332-4845
FX: (239) 332-0929
Established 1960 Employee Owned
B&I Contractors, Inc.
Mechanical • Service Electrical • Plumbing
www.BandIContractors.com
CMC 056245 CFC 054877 SFM 14003800013009 ID 0001109 QC 01507479

PROJECT NAME:
CITY OF NAPLES

DESCRIPTION:
HP DETAIL DRAWING

DWG. NO.
MU1

JOB NO.
1954



NOTES:

1. ALL BRACKETS, BOLTS, WASHERS, NUTS, RODS, AND ANCHORS SHALL BE GALVANIZED.

TEAR DROP PIPE HANGER DETAIL

NTS

2701 PRINCE STREET
FORT MYERS, FL 33916
PH: (239) 332-4646
FX: (239) 332-3626

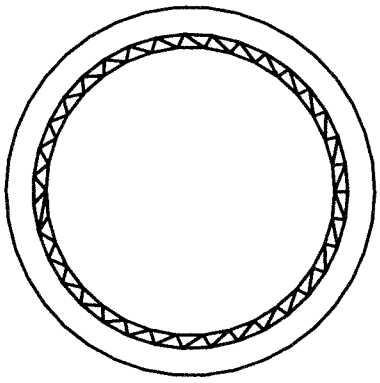
Established 1960 Employee Owned
B&I Contractors, Inc.
Mechanical • Service Electrical • Plumbing
www.BandIContractors.com
CMC 056245 CFC 054877 SPN 1460360012009 EC 0001108 QC C1507478

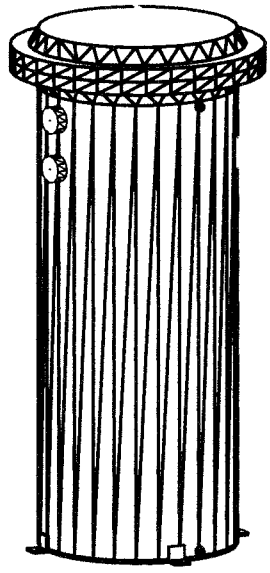
PROJECT NAME:
CITY OF NAPLES

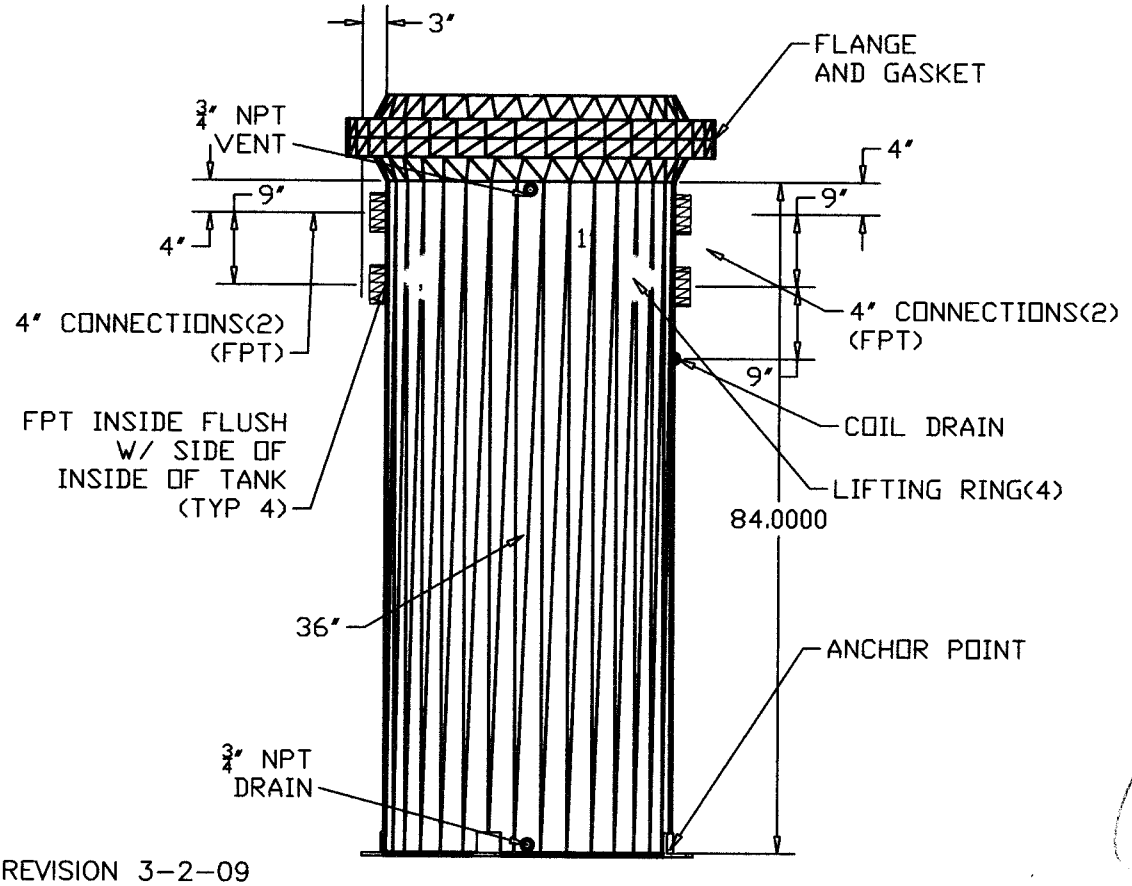
DESCRIPTION:
HANGER DETAIL DRAWING

DWG. NO.
MH1

JOB NO.
1954







REVISION 3-2-09

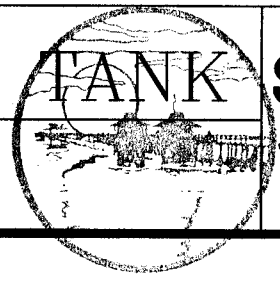
2701 PRINCE STREET
FORT MYERS, FL 33916
PH: (239) 332-4646
FX: (239) 332-8828

Established 1960 Employee Owned
B&I Contractors, Inc.
Mechanical • Service Electrical • Plumbing
www.BandIContractors.com

CMC 056345 CFC 054877 EC 0001109 CGC 1507476

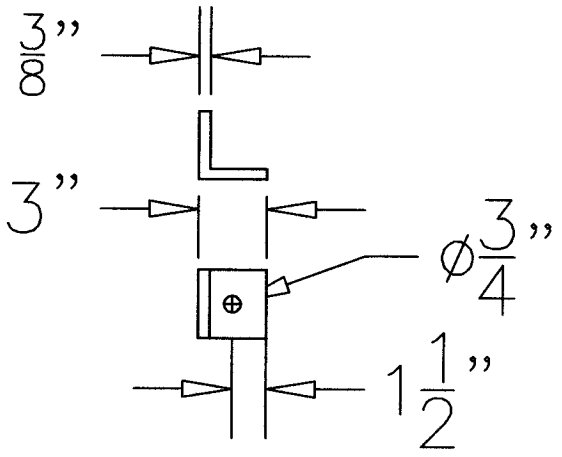
PROJECT NAME:
GEOFREE100P TANK

DESCRIPTION:
DETAIL DRAWING



DWG. NO.
SK1

JOB NO.
000



ANGLE IRON TANK FEET
QTY–4

2701 PRINCE STREET
FORT MYERS, FL 33916

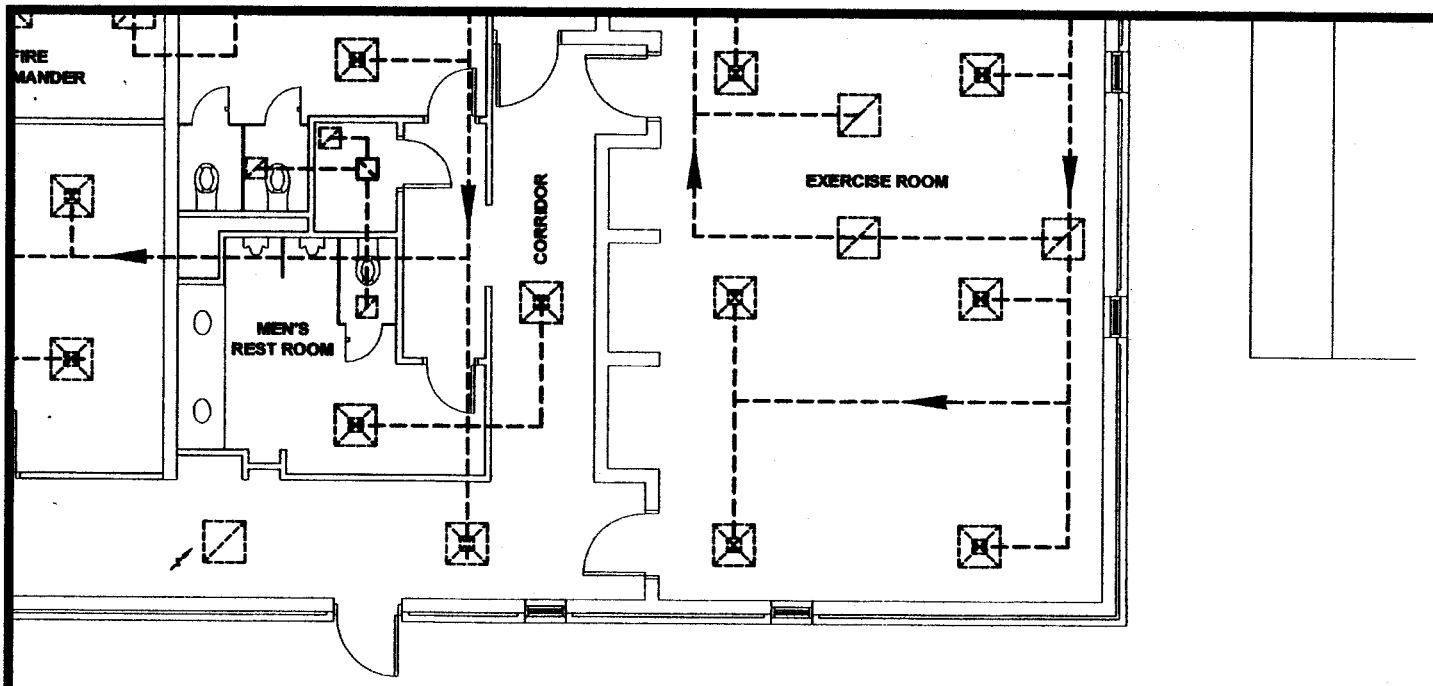
Established 1960 Employee Owned
B&I Contractors, Inc.
Mechanical • Service Electrical • Plumbing

PROJECT NAME:
CITY OF NAPLES

DESCRIPTION:
GEOFREE DETAIL DRAWING

DWG. NO.
SK3

JOB NO.
1954



1) 2 5HP inline Pumps, 240/3/60, 300 GPM EACH, 40' head.

2) 2 5HP submersible Pumps, 240/3/60

2701 PRINCE STREET
FORT MYERS, FL 33916
Ph: (239) 332-4848
Fx: (239) 332-4888

Established 1960 Employee Owned
B&I Contractors, Inc.
Mechanical • Service Electrical • Plumbing
www.BandIContractors.com
CMC 056245 CFC 054877 SFM 14803000012009 ID 0001169 SC 01557478

PROJECT NAME:
CITY OF NAPLES

DESCRIPTION:
DETAIL DRAWING

DWG. NO.
SR1

JOB NO.
1954

CITY OF NAPLES

BUILDING PERMIT

Application Number . . . . . 09-00002650 Date 3/01/10
Property Address . . . . . 355 RIVERSIDE CIR
FOLIO/PARCEL NUMBER: 20760920002
Section-Township-Range: 03-50-25
Tenant nbr, name . . . . . NAPLES POLICE DEPARTMENT
Application type description MECHANICAL/AC PERMIT
Subdivision Name . . . . . UNPLATTED LANDS NAPLES
Property Zoning . . . . . PS PUBLIC SERVICE
Application valuation 501000

EXTENSION

Owner	Contractor
CITY OF NAPLES	B & I CONTRACTORS IN-CMC056245
	2701 PRINCE ST
	FORT MYERS FL 339165529
	(239) 332-4646

--- Structure Information 000 000 REPLACE 7 UNITS/INSTALL NEW SYSTEM W/EL -----

Permit . . . . . MECHANICAL CHANGE OUT
Additional desc . . EXTEND 90 DAYS
Phone Access Code . 1269455
Permit Fee . . . . 600.00 Plan Check Fee . . 90.00
Issue Date . . . . 9/02/09 Valuation 0
Expiration Date . . 6/02/10

EXTENSION

Qty	Unit Charge	Per		Extension
			BASE FEE	600.00

Permit . . . . . ELECTRIC PERMIT COMM/MF/SF
Additional desc . . EXTEND 90 DAYS
Phone Access Code . 1265230
Sub Contractor . . B & I CONTRACTORS IN-EC0001109
Permit Fee . . . . 300.00 Plan Check Fee . . 45.00
Issue Date . . . . 9/10/09 Valuation 0
Expiration Date . . 6/02/10

Qty	Unit Charge	Per		Extension
			BASE FEE	300.00

Special Notes and Comments
NOC waived/government building. mjf

EXTENSION

CONTRACTOR SIGNATURE

APPROVED BY BUILDING OFFICIAL
ISSUED BY

SCANNED
MAR 0 3 2010

CITY OF NAPLES

BUILDING PERMIT

Page 2
Application Number . . . . . 09-00002650 Date 3/01/10

Fee summary	Charged	Paid	Credited	Due
Permit Fee Total	900.00	900.00	.00	.00
Plan Check Total	135.00	135.00	.00	.00
Grand Total	1035.00	1035.00	.00	.00

CONTRACTOR SIGNATURE_____

APPROVED BY BUILDING OFFICIAL
ISSUED BY

CITY OF NAPLES
BUILDING DEPT. – PERMITTING
FAX- 213-5025

DATE: 2/25/10

TO: PERMIT TECHNICIANS

FROM: B&T Contractors (CONTRACTOR NAME) 355 Riverside Dr. (JOB ADDRESS)

239-332-4646 (TEL. NO.) RE: 09-2650 (PERMIT NUMBER)

✓ EXTENSION REQUEST (Maximum time allowed for extension is 90 days)

_____ RE-ISSUE REQUEST (Must specify time) TIME NEEDED FOR REISSUE _____

Nancy Gallo (SIGNATURE)

(FOR BLDG. DEPT. USE ONLY)

DATE RECEIVED 2/26/10

EXP. DATE 3/2/10

PRIOR EXT. YES _____ NO ✓

REQUEST APPROVED BY

EXT. FEE: $ 35-

RE-ISSUE FEE: $ _____

RE-INSPEC FEES: $ _____

TOTAL AMOUNT DUE: $ 35-

2/26/10 LM

CITY OF NAPLES

BUILDING PERMIT

SCANNED
JUL 07 2010

Application Number . . . . . 09-00002650 Date 7/06/10
Property Address . . . . . 355 RIVERSIDE CIR
FOLIO/PARCEL NUMBER: 20760920002
Section-Township-Range: 03-50-25
Tenant nbr, name . . . . . NAPLES POLICE DEPARTMENT
Application type description MECHANICAL/AC PERMIT
Subdivision Name . . . . . UNPLATTED LANDS NAPLES
Property Zoning . . . . . PS PUBLIC SERVICE
Application valuation 501000

REVISION

Owner	Contractor
CITY OF NAPLES	B & I CONTRACTORS IN-CMC056245
	2701 PRINCE ST
	FORT MYERS FL 339165529
	(239) 332-4646

--- Structure Information 000 000 REPLACE 7 UNITS/INSTALL NEW SYSTEM W/EL -----

Permit . . . . . MECHANICAL CHANGE OUT
Additional desc . . RE-ISSUE PERMIT 90 DAYS
Phone Access Code . 1269455

REVISION

Permit Fee . . . . 600.00 Plan Check Fee . . 90.00
Issue Date . . . . 9/02/09 Valuation 0
Expiration Date . . 9/02/10

Qty	Unit Charge	Per		Extension
		BASE FEE		600.00

Special Notes and Comments
Permit re-issued per PMB by email and
fees to charged at C.O. time-skf
Re-issue fee of $100.00 due-skf

Fee summary	Charged	Paid	Credited	Due
Permit Fee Total	600.00	600.00	.00	.00
Plan Check Total	90.00	90.00	.00	.00
Grand Total	690.00	690.00	.00	.00

REVISION

CONTRACTOR SIGNATURE

APPROVED BY BUILDING OFFICIAL
ISSUED BY

CITY OF NAPLES

BUILDING PERMIT

Application Number . . . . . 09-00002650 Date 7/06/10

CONTRACTOR SIGNATURE_____

APPROVED BY BUILDING OFFICIAL
ISSUED BY

CITY OF NAPLES

BUILDING PERMIT

Application Number . . . . . 09-00002650 Date 9/02/09
Property Address . . . . . 355 RIVERSIDE CIR
FOLIO/PARCEL NUMBER: 20760920002
Section-Township-Range: 03-50-25
Tenant nbr, name . . . . . NAPLES POLICE DEPARTMENT
Application type description MECHANICAL/AC PERMIT
Subdivision Name . . . . . UNPLATTED LANDS NAPLES
Property Zoning . . . . . PS PUBLIC SERVICE
Application valuation 501000

Owner	Contractor
CITY OF NAPLES	B & I CONTRACTORS IN-CMC056245
	2701 PRINCE ST
	FORT MYERS FL 339165529
	(239) 332-4646

--- Structure Information 000 000 REPLACE 7 UNITS/INSTALL NEW SYSTEM W/EL -----

Permit . . . . . MECHANICAL CHANGE OUT
Additional desc . .
Phone Access Code . 1269455
Permit Fee . . . . 600.00 Plan Check Fee . . 90.00
Issue Date . . . . 9/02/09 Valuation 0
Expiration Date . . 3/02/10

Qty	Unit Charge	Per		Extension
			BASE FEE	600.00

Special Notes and Comments
NOC waived/government building. mjf

Fee summary	Charged	Paid	Credited	Due
Permit Fee Total	600.00	600.00	.00	.00
Plan Check Total	90.00	90.00	.00	.00
Grand Total	690.00	690.00	.00	.00

CONTRACTOR SIGNATURE

APPROVED BY BUILDING OFFICIAL
ISSUED BY

SCANNED
SEP 03 2009

*****

City of Naples

BUILDING DEPARTMENT

SCANNED
SEP 03 2010

C E R T I F I C A T E O F C O M P L E T I O N

P E R M A N E N T

Issue Date	9/02/10
Parcel Number	20760920002
Property Address . . .	355 RIVERSIDE CIR CI NAPLES FL 341021404
Subdivision Name . . .	UNPLATTED LANDS NAPLES
Legal Description . . .	UNPLATTED LANDS 3 50 25 N1/2 OF W1/2 OF NW1/4 OF NE1/4 LESS R/W + N 128.59FT OF S1/2 OF W1/2 OF NW1/4 OF NE1/4
Property Zoning	PS PUBLIC SERVICE
Owner	CITY OF NAPLES
Contractor	B & I CONTRACTORS IN-CMC056245 239 332-4646
Application number . .	09-00002650 000 000
Description of Work . .	MECHANICAL/AC PERMIT
Construction type . . .	
Occupancy type	
Flood Zone	
Special conditions . .	

REPLACE 7 UNITS/INSTALL NEW SYSTEM W/EL

Approved . . . . . Paul Bollenback
Building Official

VOID UNLESS SIGNED BY BUILDING OFFICIAL

TELEPHONE: 239-213-5020 • FACSIMILE: 239-213-5025
Community Development Building
295 Riverside Circle • Naples, Fl 34102
Visit us on the web at www.naplesgov.com

Ethics above all else... Service to others before self... Quality is all that we do

Susan Fabbrini #9-3650

From: Paul Bollenback
Sent: Friday, May 28, 2010 12:50 PM
To: Susan Fabbrini
Cc: Tony Vastola; Tom Szempruch
Subject: FW: Permit Extension

FYI - - copy this and scan for our records – if there is a cost just p/u the fee at the close-out of the permit. See me if any questions.

From: Brian Mumme [mailto:BMumme@bandicontractors.com]
Sent: Friday, May 28, 2010 12:46 PM
To: Paul Bollenback
Cc: Dave Johnson; Nancy Gallo; Tony Vastola
Subject: FW: Permit Extension

Paul,

Our permit for the Police Building is set to expire on June 3rd. We have extended the permit once before, and hence are not allowed to extend again. Since we are most likely going to make changes to the system, B&I requests that we extend the permit for another 90 days.

Please let me know if this is acceptable.

Thank you.

Brian F. Mumme, BSME, LEED® AP BD+C
Specialized Projects Department Manager
B&I Contractors, Inc.
(239) 332-4646
(239) 332-5928 fax

From: Tony Vastola [mailto:TVastola@naplesgov.com]
Sent: Friday, May 28, 2010 12:32 PM
To: Brian Mumme
Subject: Permit Extension

Brian,

I spoke with Paul Bollenback and he says to just send him an e-mail message requesting a 90 day permit extension and he will honor it.

Below is Paul's e-mail address.

Tony

Tony Vastola, Deputy Director
Administrative Services Bureau
Naples Police & Fire Department

BUILDING DEPARTMENT
295 RIVERSIDE CIRCLE
NAPLES, FL 34102
PHONE: 239-213-5059
FAX: 239-213-5025

Permit Number: 09-2650 **Review Date:** 8/13/09

Contractor: B & I Contractors

Project Address: 355 Riverside Circle

Review of the plans submitted for the above permit has revealed the following deficiencies:

1. Plan Sheet M-1 indicates 5 HP motors at 208/3/60. Electrical panels on E-0 indicate 240/3/60 panel service voltages.

The plans will be held for correction of the deficiencies as outlined above. When the above corrections have been made, indicate the corrections on the new drawings, cloud all corrections / revisions, and attach a copy of this Letter before resubmitting the corrected sheets for further review. *Thank you for your cooperation.*

Robert Bogart

Robert Bogart
Electrical Inspector
Cc: Scanning File, Bldg Dept

SCANNED
AUG 17 2009

BUILDING DEPARTMENT
PLAN REVIEW
295 RIVERSIDE CIRCLE
NAPLES, FL 34102
239-213-5037
FAX 239-213-5025

Permit Number: 09 2650

Review Date: 8/17/09

Project Address: 355 Riverside Dr.

Contractor: B & I Contractors

A review of the plans submitted for the above permit has revealed the following:

(1) Please provide MCA/MOCP information for RTU-1. Also provide MOCP for all H-P units to be installed.

(2) Please provide detail of mounting to curb assembly of RTU-1 and include provision detailing compliance with Florida Mechanical Code (FMC) 2007, Section 301.12-Wind Resistance.

(3) Please indicate if RTU-1 provides outside air to building. If yes, please indicate amount of air (in CFM) and compliance with FMC 2007, Section 403.3.

(4) Please provide detail indicating typical installation of new H-P's including structural attachment, duct connection, primary and secondary drainage provisions and emergency drain pans, if required.

(5) Please indicate type and size (in inches) of CWS&R piping material and include detail of pipe support indicating compliance as required by FMC 2007, Section 305.4.

(6) Equipment listed as H-P 2/H-P 3/ H-P 5/H-P 6 and RTU-1 all indicate airflow greater than 2000 CFM. Please provide detail indicating compliance with FMC 2007, Section 606.2.1 (Smoke Detectors)or indicate if a code based exception applies.

(7) Please provide manufactures data on GeoFree fluid cooler/heat exchanger and indicate compliance with FMC 2007, Section 908.

(8) Please indicate the applicable code(s) that the design professional has based the submitted plan upon and specifically address the design as being in compliance with Florida Building Code, Chapter 13-Energy Efficiency.

Note: these deficiencies can be addressed via 8 ½ x 11 attachments to the submitted plans (2 copies of each). Please feel free to contact Paul Bollenback at 213-5037 if you wish to discuss this review in person.

These plans are being held for correction of the issue(s) outlined above. When the corrections have been made, indicate the corrections on the appropriate drawings - cloud all corrections/revisions and attach a copy of this letter. A letter detailing the response to this deficiency letter is recommended. Thank you for your cooperation.

_____

Paul Bollenback
Plans Review

RECEIVED AUG 21 2009 BLDG DEPT

RECEIVED AUG 12 2009 BLDG DEPT

MECHANICAL PERMIT APPLICATION

FLORIDA BUILDING CODE 2007

9-1679 8-4420

PERMIT # 9-2650

COPY

[redacted]

Tax/Folio #: 20760920002 Legal Description: _____

Job Address: 355 Riverside Circle

Property Owner: City of Naples Mailing Address: 270 Riverside Circle

Tenant Name: Police Department

Est. cost:$ 501,000 Permit expiration date: _____

Number of units: 7 Square footage :(for duct work only) N/A

Work being performed:

✓ A/C replacement (tonnage: 100) (circle replacement) Condenser Air Handler

✓ Package Unit ____ Pool Heater ✓ Heat pump ____ Refrigeration

____ Replace duct work (SF) _____ New A/C to existing home (SF) _____

Description of work: Install new condensing water piping, replace AHU's with WSHP's and install new Geo Free system with Supply & Return Pits

[redacted]

Contractor: B & I Contractors State Cert/CC Comp Card #: CMC056245

Qualifier's name: Gary H. Griffin Phone #: 239-332-4646

Address: 2701 Prince Street Fax #: 239-332-5928 440

City: Fort Myers, FL 33916 State: FL Zip: 33916 499

Sub-Contractor information must be supplied if electrical work will be performed

[redacted]

Electrical: B & I Contractors State Cert/CC Comp Card #: EC0001109

Address: 2701 Prince Street, Fort Myers, FL 33916

[redacted]

Roofing: _____ State Cert/CC Comp Card #: _____

Address: _____

Regulations/Information

1. The City of Naples adopted the Florida Mechanical Code 2007.
2. Owner-builders must sign an affidavit.
3. Final inspection will require decibel readings of 60 db. or less as measured from adjacent property lines with all equipment running, per Naples Code Section 22-37.

City of Naples Code of Ordinances

Sec. 56-41. Mechanical equipment.

(a)In all zone districts except C3, C4 and I, heating, ventilating and air conditioning equipment and ductwork and the like located on building rooftops shall be shielded from ground level view within 1,000 feet of the building. If shielding cannot be accomplished by judicious placement of the equipment, ornamental screening visually compatible with the building is required.

(b) Mechanical equipment installed with new construction or with additions or alterations exceeding 50 percent of the assessed value of the existing structure may not be located in a required yard regardless of the height or projection of the equipment. Air conditioning and pool equipment permitted and installed prior to the effective date of this ordinance may be maintained and replaced provided the new equipment does not encroach more than 36 inches into any required yard. New generators may be installed adjacent to existing single family homes permitted and constructed prior to the effective date of this ordinance, provided that the new equipment does not encroach more than 36 inches into any required side yard. All new and replaced mechanical equipment must be screened from view to the full height of the equipment consistent with all applicable fencing and landscaping requirements and manufacturer's specifications. Screening walls and fences around replacement equipment may exceed the allowable height limitations provided the height is the minimum required to screen from view to the full height of the equipment and the projection into the required yard is the minimum encroachment necessary per manufacturers' specifications.

FEES

4. The fee for change out is $60.00 for the initial unit being changed out, and $20.00 for each additional unit changed out at permitted address.
5. The fee for adding duct work will be $0.10 per square foot of the gross square footage. The minimum fee shall be $100.00. A plan review fee, equal to 15% of permit fee, will be due at time of application. If plan review fee is less than $30.00, it will be collected at time permit is issued, or upon withdrawal. The plan review fee is not refundable, nor is it credited to any other fee.

RECORDED NOTICE OF COMMENCEMENT MUST BE POSTED IF THE PROJECT VALUATION EXCEEDS $7,500.00

WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT.

[redacted]

I certify that all the foregoing information is accurate and that all work must be done in compliance with all applicable laws regulating construction and zoning. I understand **THERE WILL BE A FINAL INSPECTION** of the work permitted herein. Compliance will be strictly enforced. **No work whatsoever will commence until the building permit has been issued.**

- The permit fee will be quadrupled if work is started without an approved permit.
- The permittee further understands that only licensed contractors may be employed and that the structure shall not be used or occupied until a Certificate of Occupancy/Completion is issued.
- Signature of qualifier affirms that installed equipment will comply with the Code of Ordinances Section 56.54.
- See Section 16-112:105 Permits, of the Code of Ordinances for information regarding the time limitations and conditions of a permit.
- Additional information can be found on our website: www.naplesgov.com

Gary H. Griffin
Print Name of Qualifier

Signature of Qualifier

State of Florida
County of Lee
The foregoing instrument was acknowledged before me this 11th day of August, 2009
by Gary H. Griffin, who is personally known to me or has produced
_____ as identification.

Signature, Notary Public – State of Florida

Nancy Anne Gallo
Printed, Typed or Stamped Name of Notary

(Seal)

NANCY ANNE GALLO
MY COMMISSION # DD825546
EXPIRES: October 29, 2012
Fl Notary Discount Assoc Co

CITY OF NAPLES-
POLICE BUILDING

SCOPE OF WORK

1- Installation of new CWS&R in both new and old police buildings.

2- Installation of new GeoFree system

3- Demolition of existing AHU's in old police building.

4- Installation of new WSHP's in old police building.

5- Demolition of existing RTU in old police building.

6- Installation of new RTU in old police building.

SEQUENCE OF WORK

1- Installation of new CWS&R piping in both new and old police buildings up to the existing units.

2- Installation of new GeoFree system.

3- System flush of new CWS&R piping.

4- Start-up of new GeoFree system.

5- Tie-in new GeoFree system to new CWS&R piping.

6- Tie-in new CWS&R to existing WSHP's in new police building.

7- Individual demolition of existing AHU's in old police building, along with the installation of new WSHP's, tie-in to new CWS&R piping and existing ductwork keeping AC in building at all times.

8- Demolition of existing RTU and CU's in old police building.

9- Installation of new RTU in old police building.

10- Tie-in new RTU to new CWS&R piping and existing ductwork.

THESE DWGS. MUST BE KEPT AT JOB SITE.

MECHANICAL EQUIPMENT SCHEDULE

Tag	HP-1	HP-2	HP-3	HP-4	HP-5	HP-6	RTU-1
Model	EV048-1VTC-FLT	EC096-1VTC-FBT	EC096-1VTC-FBT	EV036-1VTC-FLT	EC096-1VTC-FBT	EC096-1VTC-FBT	TRS210W
Compressor	1	2	2	1	2	2	2
Voltage	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/3/60
MCA / MOCP	31.8	57.9	57.9	24.6	57.9	57.9	
CFM	1,502	2,804	2,507	1,201	2,507	2,804	3,500
Static Pressure (in. H2O)	0.54	0.74	0.47	0.51	0.47	0.74	
GPM	12	21	21	9	21	21	43.8
Cooling							
EAT (DB / WB) °F	75 / 63	75 / 63	75 / 63	75 / 63	75 / 63	75 / 63	95 / 76
LAT (DB / WB) °F	55.5 / 52.9	52.1 / 51.7	51.1 / 50.3	57.3 / 54.2	51.1 / 50.3	52.1 / 51.7	
EWT °F	75	75	75	75	75	75	77
LWT °F	84.2	85.9	85.7	83.6	85.7	85.9	
H2O Pressure Drop (Ft.)	9.8	14.9	14.9	8.5	14.9	14.9	5.51
Total Capacity (MBTUH)	43.23	90.09	89.32	30.6	89.32	90.09	237.5
Sensible Capacity (MBTUH)	31.72	69.31	64.64	22.97	64.64	69.31	
Latent Capacity (MBTUH)	11.51	20.78	24.68	7.63	24.68	20.78	
KW Electric Heat	3.52	7.21	6.81	2.31	6.81	7.21	11.9
EER	12.3	12.5	13.1	13.2	13.1	12.5	17.1
Heating							
EAT (DB) °F	68	68	68	68	68	68	60
LAT (DB) °F	103.9	107	110.6	98.6	110.6	107	
EWT °F	63	68	68	68	68	68	60
LWT °F	60.4	59.2	59.4	61	59.4	59.2	
H2O Pressure Drop (Ft.)	10.2	15.5	15.5	8.8	15.5	15.5	5.62
Total Capacity (MBTUH)	58.19	118.21	115.21	39.74	115.21	118.21	229.8
KW Electric Heat	3.76	7.67	7.37	2.46	7.37	7.67	14.5
COP	4.5	4.5	4.6	4.7	4.6	4.5	

ALL MECHANICAL EQUIPMENT TO COMPLY WITH SECTION 56-41 OF THE NAPLES CODE OF ORDINANCES AND BE SCREENED FROM VIEW.

ENSURE FULL COMPLIANCE WITH 2007 FLORIDA PLUMBING CODE.
SECTION As Applies
8/31/09 PMB

ENSURE FULL COMPLIANCE WITH 2007 FLORIDA MECHANICAL CODE.
SECTION As Applies
8/31/09 PMB

ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2005 NEC.
ARTICLE As Applies
8/31/09

SCANNED
DEC 12 2013

2701 PRINCE STREET
FORT MYERS, FL 33916
PH: (239) 332-4646
FX: (239) 332-5928
Established 1980
Employee Owned
B+I Contractors, Inc.
Mechanical Division
www.BandIcontractors.com
CMC 056246 CFC 054877 SPA 1460300001209 EC 0001108 QC 0150178

POLICE BUILDING
CITY OF NAPLES
NAPLES, FLORIDA

REVISION	
NO.	DATE

DATE: 08-05-09
DRAWN BY: AF
JOB NO.: 1954

DWG. NO.
M-0
SHOP DRAWINGS

MATCHLINE A–A

EXISTING 6" FIRE SERVICE

EXISTING 6" STORM PIPING

PES WEST BUILDING HVAC FIRST FLOOR

PLAN

1/8" = 1'-0"

SCALE

1) 2 5HP Inline Pumps, 208/3/60, 3450 RPM, EACH, 40' Head.

2) 2 5HP submersible Pumps, 208/3/60

SCANNED
DEC 12 2013

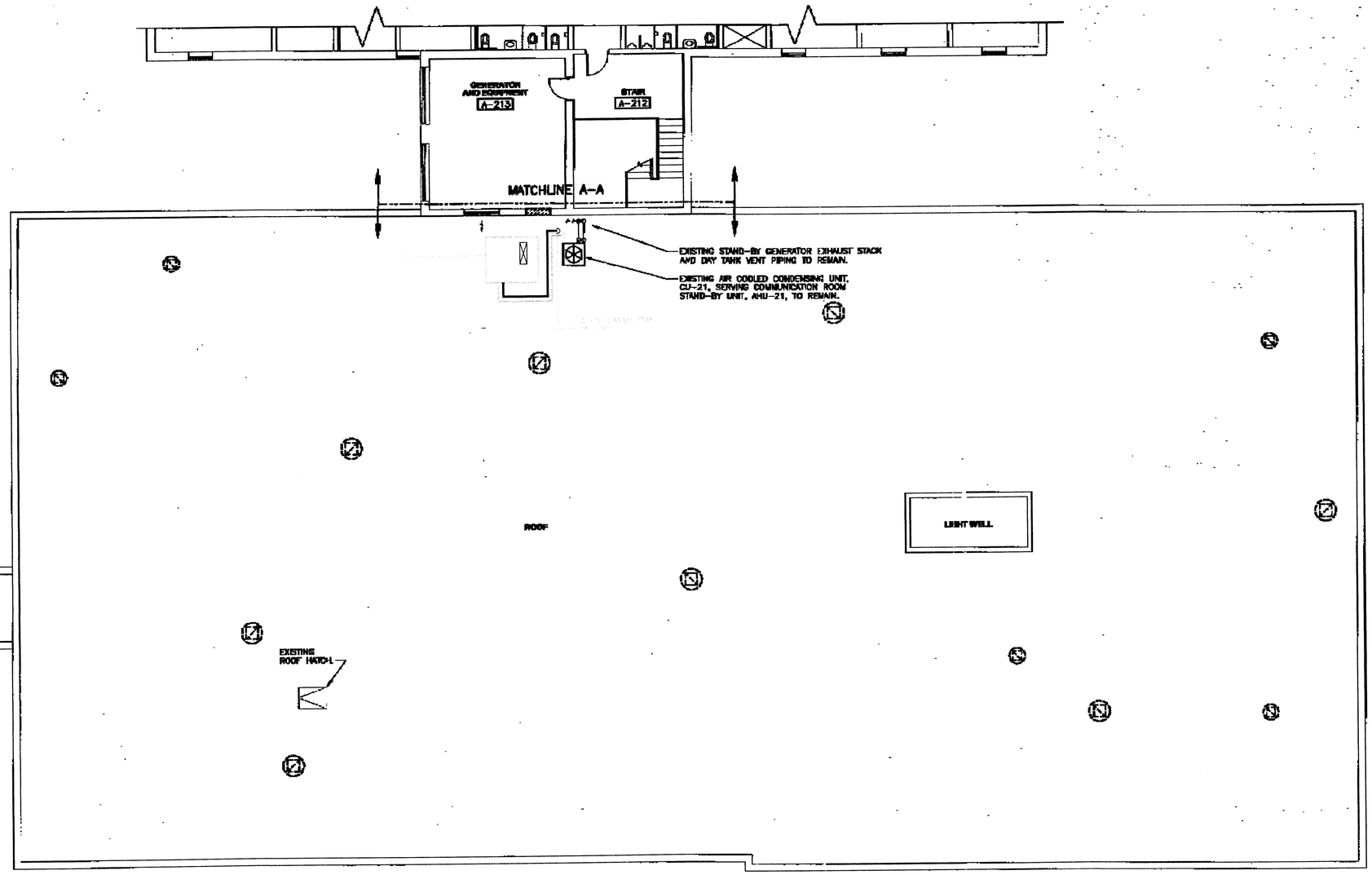
BUILDING O –
SCALE: 1/8" = 1'-0"

B&I Contractors, Inc.
Employee Owned
Established 1980
2701 PRINCE STREET
FORT MYERS, FL 33916
PH: (239) 332-4646
FX: (239) 332-5928
www.BandIContractors.com
CMC 056245 CFC 054877 SFM 1450350012009 EG 0001109 QC C1507478

POLICE BUILDING
CITY OF NAPLES
NAPLES, FLORIDA

REVISION	
NO.	DATE

DATE: 08-05-09
DRAWN BY: AF
JOB NO.: 1954
DWG. NO.
M-1
SHOP DRAWINGS



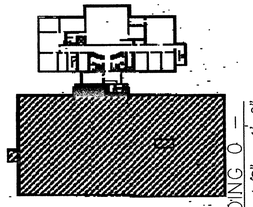
PBS WEST BUILDING HVAC ROOF PLAN

PLAN

1/8" = 1'-0"

N

SCALE



KEY PLAN

N.T.S.

BUILDING O

SCALE: 1/8" = 1'-0"

SCANNED DEC 12 2013

2701 PRICE STREET
FORT MYERS, FL 33916
PH: (239) 332-4646
FX: (239) 332-5585
Employee Owned
Established 1980
B&I Contractors, Inc.
Design-Build Specialists
www.BandIContractors.com
CMC 056245 CFC 054877 SFM 1490390001209 EC 0001109 QC C1507478

POLICE BUILDING
CITY OF NAPLES
NAPLES, FLORIDA

REVISION	
NO.	DATE

DATE: 08-05-09

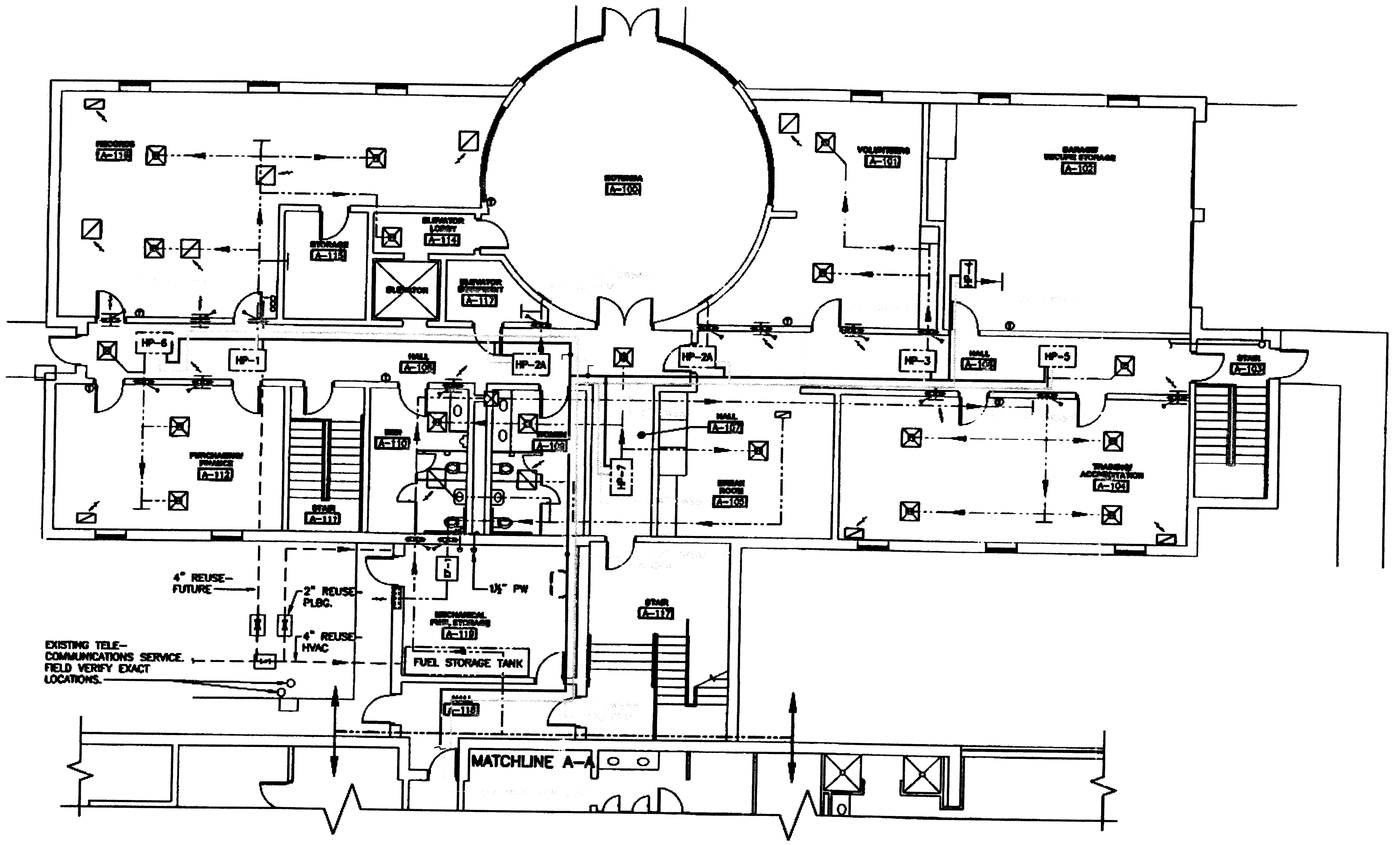
DRAWN BY: AF

JOB NO.: 1954

DWG. NO.

M-2

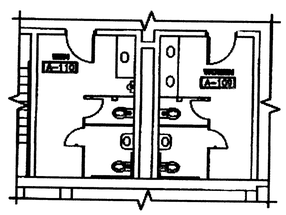
SHOP DRAWINGS



PES EAST BUILDING HVAC FIRST FLOOR

PLAN

1/8" = 1'-0"



ENLARGED TOILET ROOM

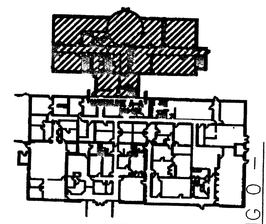
PLAN

1/8" = 1'-0"

N

TITLE

SCALE



KEY PLAN

N.T.S.

BUILDING 0 — SCALE: 1/8" = 1'-0"

B&I Contractors, Inc.
Employee Owned
Established 1980
2701 PRINCE STREET
FORT MYERS, FL 33916
PH: (239) 332-4646
FX: (239) 332-5928
www.BandIcontractors.com
CAC 052245 CFC 054077 SPN 14903900012009 EC 01507475

POLICE BUILDING
CITY OF NAPLES
NAPLES, FLORIDA

REVISION	
NO.	DATE

DATE: 08-05-09

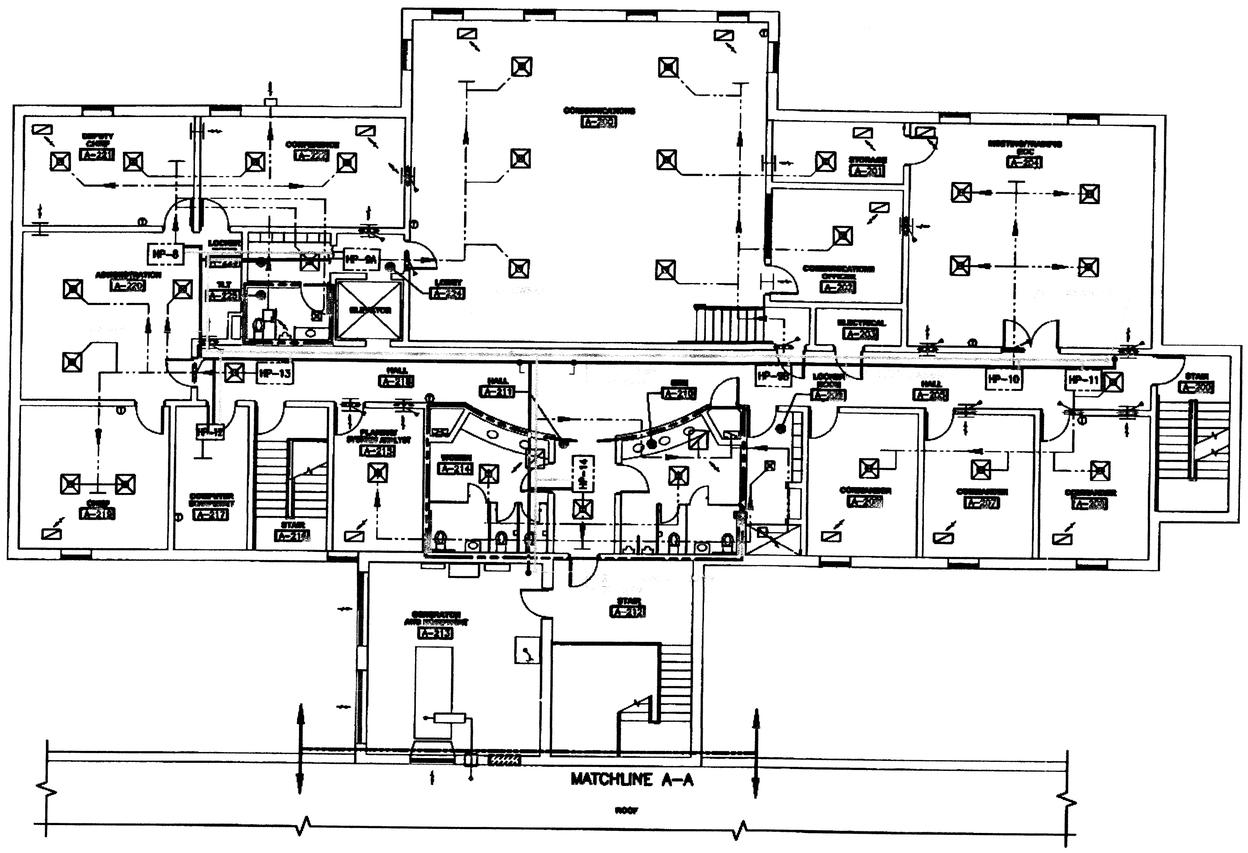
DRAWN BY: AF

JOB NO.: 1954

DWG. NO.

M-3

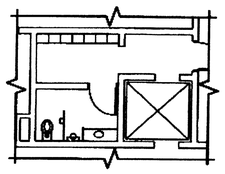
SHOP DRAWINGS



PES EAST BUILDING HVAC SECOND FLOOR

PLAN

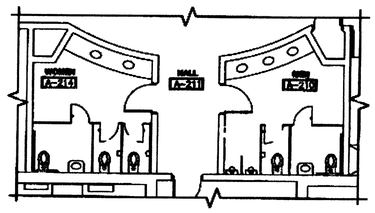
1/8" = 1'-0"



LOCKER ROOM PLUMBING

PLAN

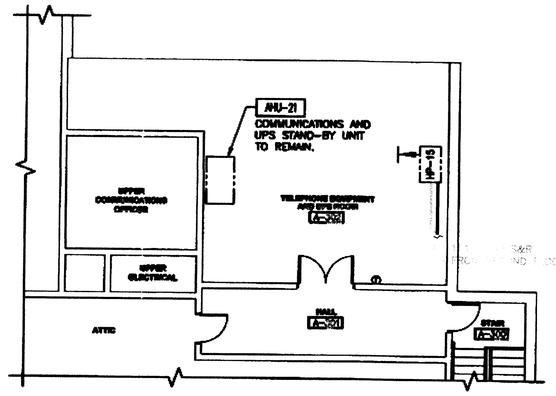
1/8" = 1'-0"



TOILET ROOM PLUMBING

PLAN

1/8" = 1'-0"



PES EAST BUILDING HVAC THIRD FLOOR

PLAN

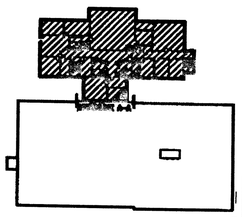
1/8" = 1'-0"

N

TITLE

SCALE

SCANNED
DEC 12 2013



KEY PLAN

N.T.S.

BUILDING O

SCALE: 1/8" = 1'-0"

2701 PRINCE STREET
FORT MYERS, FL 33916
PH: (239) 332-4646
FX: (239) 332-5928
Employee Owned
Established 1961
B&I Contractors, Inc.
Quality Service Integrity
www.BandIContractors.com
CMC 056145 CFC 054877 SFM 1490390001099 EC 0001109 QC 01507478

POLICE BUILDING
CITY OF NAPLES
NAPLES, FLORIDA

REVISION	
NO.	DATE

DATE: 08-05-09

DRAWN BY: AF

JOB NO.: 1954

DWG. NO.

M-4

SHOP DRAWINGS

PANEL AND LOAD SCHEDULE A
EXISTING

PANEL RATING: 225A
VOLTAGE: 240/120
NUMBER OF PHASES: 1
SERVICE ENTRANCE RATED: NO

MOUNTING: RECESSED
MAIN BREAKER RATING: 225A
GROUND STRAP REQUIRED: YES
BUS AND BREAKER RATING: 10 KAIC

CKT	LOAD	POLE	BKR	KW	Kwa	KWb	KW	BKR	POLE	LOAD	CKT
1	EXISTING LIGHTING(1)	1	20	0.54	1.08		0.54	20	1	EXISTING LIGHTING(1)	2
3	EXISTING LIGHTING(1)	1	20	0.54		1.08	0.54	20	1	EXISTING LIGHTING(1)	4
5	EXISTING LIGHTING(1)	1	20	0.54	1.08		0.54	20	1	EXISTING LIGHTING(1)	6
7	EXISTING LIGHTING(1)	1	20	0.54		1.08	0.54	20	1	EXISTING LIGHTING(1)	8
9	EXISTING LIGHTING(1)	1	20	0.54	1.08		0.54	20	1	EXISTING RECEP(1)	10
11	EXISTING LIGHTING(1)	1	20	0.54		1.08	0.54	20	1	EXISTING RECEP(1)	12
13	EXISTING RECEP(1)	1	20	0.54	1.08		0.54	20	1	EXISTING LIGHTING(1)	14
15	EXISTING RECEP(1)	1	20	0.54		1.08	0.54	20	1	EXISTING RECEP(1)	16
17	EXISTING RECEP(1)	1	20	0.54	1.08		0.54	20	1	EXISTING LIGHTING(1)	18
19	EXISTING LIGHTING(1)	1	20	0.54		1.08	0.54	20	1	EXISTING RECEP(1)	20
21	EXISTING RECEP(1)	1	20	0.54	1.08		0.54	20	1	EXISTING RECEP(1)	22
23	EXISTING LIGHTING(1)	1	20	0.54		0.54		20	1	SPARE	24
25	EXISTING RECEP(1)	1	20	0.54	0.54			20	1	SPARE	26
27	EXISTING RECEP(1)	1	20	0.54		0.54		20	1	SPARE	28
29	SPARE	1	20		0			20	1	SPARE	30
31	SPARE	1	20			0		20	1	SPARE	32
33	SPARE	1	20		0			20	1	SPARE	34
35	SPARE	1	20			0		20	1	SPARE	36
37	SPARE	1	20		0			20	1	SPARE	38
39	HP-2(2)	2	70	3.8		7.4	3.6	50	1	HP-1(2)	40
41				3.8	7.4		3.6				42
					14.42	13.88					

TOTAL CONNECTED LOAD= 28.30 KW
VOLTAGE = 240 1-PHASE

TOTAL PANEL AMPS = 117.92

NOTES:
(1) EXISTING CIRCUIT AND BREAKER TO REMAIN
(2) NEW CIRCUIT AND BREAKER
(3) EXISTING BREAKER TO BE ABANDONED AND MADE SAFE

ELECTRICAL SPECIFICATIONS

1. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW APPROXIMATE LOCATIONS. ELECTRICAL WORK SHALL NOT INTERFERE WITH CLEARANCES REQUIRED FOR GENERAL AND MECHANICAL CONSTRUCTION. ANY CORRECTIONS WILL BE MADE BY THE ELECTRICAL CONTRACTOR AT NO COST TO THE OWNER.
2. ALL WORK SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE FBC AND THE 2005 NATIONAL ELECTRICAL CODE AND ALL APPLICABLE STATE AND LOCAL CODES. ALL WORK SHALL BE ACCOMPLISHED IN A NEAT AND PROFESSIONAL MANNER.
3. ALL MATERIALS SHALL BE NEW AND SHALL BEAR THE U/L LABEL.
4. CONTRACTOR SHALL CONFIRM BRANCH CIRCUIT SIZING, LOCATIONS AND CONNECTION REQUIREMENTS FOR ALL MECHANICAL EQUIPMENT PRIOR TO INSTALLATION. REFERENCE MECHANICAL DRAWINGS FOR EQUIPMENT LOCATIONS AND VERIFICATION OF CIRCUIT SIZE. ANY ADJUSTMENTS REQUIRED SHALL BE MADE BY THE ELECTRICAL CONTRACTOR. SUBSTANTIAL CHANGES TO THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER.
5. ALL TERMINALS SHALL BE RATED FOR 90 DEGREES CELSIUS COPPER WIRE.
6. RECEPTACLES SHALL BE OF THE GROUNDING TYPE WITH GROUND CONNECTION MADE THROUGH AN EXTRA POLE WHICH SHALL BE PERMANENTLY CONNECTED TO THE RACEWAY AND GROUNDING SYSTEMS. COVERPLATES & COLOR FOR ALL WIRING DEVICES TO BE COORDINATED WITH ARCHITECT.
7. LIGHTING FIXTURES SHALL BE FURNISHED COMPLETE IN ALL RESPECTS PER FIXTURE SCHEDULE. VERIFY CEILING FINISHES AND SUSPENSION SYSTEMS FOR SELECTION OF PROPER TRIM AND SUPPORT ARRANGEMENTS. INSTALL ALL LIGHT FIXTURES WITH LAMPS AS REQUIRED.
8. ALL WIRING SHALL BE CONCEALED WHERE POSSIBLE AND INSTALLED IN SUITABLE RACEWAYS. EMT SHALL BE USED (1/2" MIN) FOR LIGHTING AND POWER BRANCH CIRCUITRY. EMT SHALL BE USED FOR EQUIPMENT FEEDERS. SCHEDULE 40 PVC SHALL BE USED UNDERGROUND.
9. OPENINGS AROUND ELECTRICAL PENETRATIONS THROUGH FIRE RATED WALLS, PARTITIONS, FLOORS OR CEILINGS SHALL BE SEALED USING APPROVED MATERIALS AND METHODS TO MAINTAIN THE ORIGINAL FIRE-RESISTANCE RATING.
10. RECEPTACLES INSTALLED BACK TO BACK IN FIRE RATED WALLS SHALL BE A MINIMUM OF 24" APART AND SHALL NOT OCCUPY THE SAME STUD CAVITY.
11. DISCONNECT SWITCHES SHALL BE FURNISHED AS SHOWN ON THE DRAWINGS WITH VOLTAGE RATING, AMPERAGE RATING AND NUMBER OF POLES AS INDICATED. PROVIDE NEMA 3R TYPE WHERE EXPOSED TO WEATHER. PROVIDE HEAVY DUTY TYPE SWITCHES.
12. FUSES FOR FUSIBLE SWITCHES SHALL BE OF THE DUAL ELEMENT, REJECTION TYPE.
13. DISCONNECT SWITCHES SHALL HAVE EXTERNAL SWITCH HANDLE, SWITCH AND DOOR SHALL BE INTERLOCKED SUCH THAT THE DOOR CAN NOT BE OPENED UNLESS THE SWITCH IS IN THE OPENED POSITION.
14. ALL WIRE SHALL BE SINGLE CONDUCTOR STRANDED, COPPER SIZED AS INDICATED ON THE DRAWINGS. MINIMUM SIZE SHALL BE #12 AWG.
15. SOLID WIRE MAY BE USED FOR #12 AND #10 AWG WIRE USED ON LIGHTING FIXTURES, RECEPTACLES AND SWITCHES ONLY.
16. INSULATION OF WIRE SHALL BE 75 DEGREES CELSIUS (THHN, THWN), 600 VOLT.
17. UNLESS INDICATED ON THE DRAWINGS, ALL WIRING SHALL BE MINIMUM #12 AWG. CONTRACTOR SHALL CONFIRM AND ROUTE THE PROPER QUANTITY OF WIRES AND SIZE OF CONDUIT TO FIT THE APPLICATION AND THE CIRCUITRY INDICATED.
18. CONTRACTOR SHALL PROVIDE A PROPERLY SIZED, GREEN COLORED INSULATED GROUNDING CONDUCTOR IN ALL CONDUITS. THIS CONDUCTOR IS NOT INDICATED IN THE HASH MARKS ON THE CONDUIT RUNS ON THE PLANS.
19. INSTALL A COMPLETE GROUNDING SYSTEM IN ACCORDANCE WITH NEC ARTICLE 250 AND THESE SPECIFICATIONS. GROUNDING SYSTEM SHALL BE ELECTRICALLY CONTINUOUS THOUGHOUT.
20. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE LOCAL POWER AND TELEPHONE UTILITY COMPANIES FOR ALL COST REQUIREMENTS AND METHODS FOR THE NEW SERVICES INDICATED. PROVIDE ALL MATERIALS AND LABOR AS DIRECTED BY THE LOCAL UTILITY SERVICES FOR A COMPLETE AND OPERABLE INSTALLATION.
21. PANELBOARDS SHALL BE PROVIDED WITH DISTRIBUTIVE PHASING AND RATINGS AND BREAKER REQUIREMENTS AS PER SCHEDULES. LABEL ALL PANELS AND PROVIDE TYPEWRITTEN CIRCUIT DIRECTORIES.
22. THE SHORT CIRCUIT RATING OF ALL SERVICE EQUIPMENT AND PANELBOARDS SHALL BE NO LESS THAN THAT INDICATED ON THE PANEL SCHEDULES UNLESS BEFORE PURCHASING EQUIPMENT, THE ELECTRICAL CONTRACTOR CONTACTS THE LOCAL UTILITY COMPANY PROVIDING SERVICE AND OBTAIN IN WRITING THE MAXIMUM SHORT CIRCUIT CURRENT SUPPLIED TO THE SERVICE EQUIPMENT. ALL EQUIPMENT SHALL BE RATED AND COORDINATED TO NO LESS THAN THAT SUPPLIED.
23. TRANSFORMERS SHALL BE FLOOR MOUNTED, GENERAL PURPOSE DRY TYPE AND OF THE KVA RATING AS INDICATED ON THE PLANS. ALL SHALL BE VENTILATED, 150°C TEMP RISE, CORE AND COIL ASSEMBLIES MOUNTED ON RUBBER ISOLATION PADS TO MINIMIZE THE SOUND LEVEL. SQUARE "D" CLASS 7410 SERIES OR EQUAL.
24. THE FOLLOWING WIRE SIZES ARE TO BE USED PER BREAKER AND DISCONNECT SIZE UNLESS OTHERWISE NOTED FOR VOLTAGE DROP:

20 AMP BREAKER = #12 THHN	30 AMP BREAKER = #10 THHN
40 AND 50 AMP BREAKER = #8 THHN	60 AMP BREAKER = #6 THHN
80 AMP BREAKER = #4 THHN	100 AMP BREAKER = #4 THHN
125 AMP BREAKER = #1 THHN	150 AMP BREAKER = 1/0 AWG
175 AMP BREAKER = 2/0 AWG	200 AMP BREAKER = 3/0 AWG

PANEL AND LOAD SCHEDULE C
EXISTING
ITE CDP-7 SERIES 8A

PANEL RATING: 100A
VOLTAGE: 240/120
NUMBER OF PHASES: 1
SERVICE ENTRANCE RATED: NO

MOUNTING: RECESSED
MAIN BREAKER RATING: 225A
GROUND STRAP REQUIRED: YES
BUS AND BREAKER RATING: 10 KAIC

CKT	LOAD	POLE	BKR	KW	Kwa	KWb	KW	BKR	POLE	LOAD	CKT
1	EXISTING RECEP(1)	1	20	0.54	1.08		0.54	20	1	EXISTING FIRE ALARM(1)	2
3	EXISTING RECEP(1)	1	20	0.54		1.08	0.54	20	1	EXISTING RECEP(1)	4
5	EXISTING RECEP(1)	1	20	0.54	1.08		0.54	20	1	EXISTING RECEP	6
7	EXISTING RECEP(1)	1	20	0.54		1.08	0.54	20	1	EXISTING RECEP	8
9	EXISTING RECEP(1)	1	20	0.54	1.08		0.54	20	1	EXISTING RECEP	10
11	EXISTING RECEP(1)	1	20	0.54		1.08	0.54	20	1	EXISTING RECEP	12
13	EXISTING RECEP(1)	1	20	0.54	1.08		0.54	20	1	EXISTING RECEP	14
15	EXISTING RECEP(1)	1	20	0.54		1.08	0.54	20	1	EXISTING RECEP	16
17	EXISTING RECEP(1)	1	20	0.54	1.08		0.54	20	1	EXISTING RECEP	18
19	EXISTING RECEP(1)	1	20	0.54		1.08	0.54	20	1	EXISTING RECEP	20
21	EXISTING RECEP(1)	1	20	0.54	1.08		0.54	20	1	EXISTING RECEP	22
23	EXISTING RECEP(1)	1	20	0.54		0.54		30	2	SPARE	24
25	EXISTING RECEP(1)	1	20	0.54	0.54						26
27	SPARE	1	20			0		30	2	SPARE	28
29	EXISTING LIGHTING(1)	1	20	0.54	0.54						30
31	EXISTING LIGHTING(1)	1	20	0.54		0.54		30	2	SPARE	32
33	EXISTING LIGHTING(1)	1	20	0.54	0.54						34
35	EXISTING CU (3)	2	30			0		30	2	SPARE	36
37					0						38
39	EXISTING CU (3)	2	30			3.8	3.8	70	2	HP-6(2)	40
41					3.8		3.8				42
					11.9	10.28					

TOTAL CONNECTED LOAD= 22.18 KW
VOLTAGE = 240 1-PHASE

TOTAL PANEL AMPS = 92.42

NOTES:
(1) EXISTING CIRCUIT AND BREAKER TO REMAIN
(2) NEW CIRCUIT AND BREAKER NOT EXCEEDING PREVIOUS LOAD
(3) EXISTING BREAKER TO BE ABANDONED AND MADE SAFE

PANEL AND LOAD SCHEDULE H
EXISTING
ITE CDP-7 SERIES 7A

PANEL RATING: 400A
VOLTAGE: 240/120
NUMBER OF PHASES: 3 OPEN DELTA
SERVICE ENTRANCE RATED: NO

MOUNTING: RECESSED
MAIN BREAKER RATING: 225A
GROUND STRAP REQUIRED: YES
BUS AND BREAKER RATING: 10 KAIC

CKT	LOAD	POLE	BKR	KW	Kwa	KWb	KWc	KW	BKR	POLE	LOAD	CKT
1				3.7	8.8			5.1				2
3	HP-5 (2)	2	70	3.7		8.8		5.1	60	3	EXISTING CU #1(3)	4
5	SPACE NOT USED FOR 120						5.1	5.1				6
7	HP-3 (2)	2	70	3.7	8.8			5.1				8
9				3.7		8.8		5.1	60	3	EXISTING CU #3(3)	10
11	SPACE NOT USED FOR 120						5.1	5.1				12
13				3.1	5.5			2.4	30	2	EXISTING CU #2(3)	14
15	EXISTING AHU #3(3)	3	70	3.1		5.5		2.4				16
17				3.1			3.1				SPACE NOT USED FOR 120	18
19	EXISTING EX.FAN(1)	1	20	0.6	1.2			0.6	20	1	EXISTING EX.FAN(1)	20
21	EXISTING CU #2(3)	2	30	2.4		3		0.6	20	1	EXISTING EX.FAN(1)	22
23				2.4			4.4	2				24
25	HP-4(2)	2	35	1.25	3.25			2	25	3	PUMP P1(4)	26
27				1.25		3.25		2				28
29	EXISTING PANEL F(1)	2	200	15.6			17.6	2				30
31				15.6	17.6			2	25	3	PUMP P2(4)	32
33						2		2				34
35							2	2				36
37				2	4			2	25	3	PUMP P3(4)	38
39	PUMP P4(4)	3	25	2		4		2				40
41				2			2					42
					49.15	35.35	39.3					

TOTAL CONNECTED LOAD= 123.80 KW
VOLTAGE = 240 3-PHASE

TOTAL PANEL AMPS = 297.83

NOTES:
(1) EXISTING CIRCUIT AND BREAKER TO REMAIN
(2) NEW CIRCUIT AND BREAKER NOT EXCEEDING PREVIOUS LOAD
(3) EXISTING BREAKER TO BE ABANDONED AND MADE SAFE
(4) NEW CIRCUIT AND BREAKER ADDING TO EXISTING LOAD

SCANNED
DEC 12 2013

BUILDING O
SCALE: 1/8" = 1'-0"

2701 PRINCE STREET
FORT MYERS, FL 33916
PH: (239) 332-4646
FX: (239) 332-5926
Employee Owned
Established 1980
B&I Contractors, Inc.
Electrical Professionals
Hurricane Specialists
www.BandIContractors.com
CMC 056245 CFC 054677 SCA 1460360013209 EC 0001109 QC 0100478

POLICE BUILDING
CITY OF NAPLES
NAPLES, FLORIDA

REVISION	
NO.	DATE

DATE: 08-25-09
DRAWN BY: WLN
JOB NO.: 1954
DWG. NO.
E-0
SHOP DRAWINGS

MECHANICAL FUEL STORAGE A-119
STAIR A-117
HALL A-118
MATCHLINE A-A
PREVENTION
STORAGE
PROPERTY
PROPERTY
TOILET
SHOWER
SHOWER
WOMEN'S LOUNGE
MEN'S LOCKER ROOM
CORRIDOR
QUIET ROOM
EXISTING PANEL C
CORRIDOR
INTERVIEW
MECH. ROOM
C-40,42
REPORT ROOM
REPORT ROOM
LIEUTENANT
S.O.D.
SARGENT
S.O.D.
CORRIDOR
STORAGE
ARMORY
EQUIPMENT ROOM
EXISTING PANEL H
REFER TO MECHANICAL PLAN FOR EXACT LOCATION
H-24,26,28
P1 5 N3R COMBO STARTER
H-30,32,34
P2 5 N3R COMBO STARTER
PHOTO
INTERVIEW
HP-6
HP-5
H1,3
H7,9
HP-3
H25,27
HP-4
EXISTING PANEL A
STORAGE
VIN.
ELECTRICAL
WOMEN'S REST ROOM
CORRIDOR
MEN'S REST ROOM
TOILET
FIRE B.C.
ATRIUM
MECH.
KITCHEN
MECH. ROOM
A-40,42
HP-1
HP-1
C.I.D.
VIN.
LIEUTENANT
SARGENT
PATROL OPS.
COMMANDER CONTROL OPS.
CORRIDOR
FIRE COMMANDER
WOMEN'S REST ROOM
EXISTING 6" FIRE SERVICE.
EXISTING 6" STORM PIPING.
6" FS
6" ST
A39,41
ROOF ACCESS
MECH. ROOM
SARGENT
CLERICAL
HP-2
COPY/FAX
LIEUTENANT
PATROL EQUIPMENT
ROLL CALL
FIRE MARSHALL
EXERCISE ROOM
CORRIDOR
MEN'S REST ROOM
COMMANDER
VESTIBULE
FIRE PREVENTION FIRE INSPECTOR
CORRIDOR

PES WEST BUILDING HVAC FIRST FLOOR

PLAN

1/8" = 1'-0"

H-36,38,41
P3 5 N3R COMBO STARTER
H-37,39,41
P4 5 N3R COMBO STARTER

REFER TO MECHANICAL PLAN FOR EXACT LOCATION

N
TITLE
SCALE

SCANNED
DEC 12 2013

BUILDING 0 —
SCALE: 1/8" = 1'-0"

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FORT MYERS, FL 33916
Ph: (239) 332-4646
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CAC 054245 CFC 054677 SPN 1446300001/2009 EC 0001169 QC C1507478

POLICE BUILDING
CITY OF NAPLES
NAPLES, FLORIDA

REVISION	
NO.	DATE

DATE: 08-05-09
DRAWN BY: WLN
JOB NO.: 1954
DWG. NO. E-1
SHOP DRAWINGS