



CITY COUNCIL AGENDA REPORT

MEETING DATE: JANUARY 3, 2012

ITEM NUMBER:

SUBJECT: HEATING VENTILATION AND AIR CONDITIONING MAINTENANCE CONTRACT AWARD

DATE: DECEMBER 15, 2012

FROM: PUBLIC SERVICES DEPARTMENT / MAINTENANCE SERVICES DIVISION

PRESENTATION BY: ERNESTO MUNOZ, INTERIM DIRECTOR, PUBLIC SERVICES DEPARTMENT

FOR FURTHER INFORMATION CONTACT: BRUCE HARTLEY, MAINTENANCE SERVICES MANAGER (714) 754-5123

RECOMMENDATION

1. Award a five year contract in the amount of \$249,770 for the first year, for heating ventilation and air conditioning maintenance to Siemens Industry, Inc.
2. Authorize the Chief Executive Officer and City Clerk to execute the Agreement.

BACKGROUND

The City of Costa Mesa entered into a ten-year agreement with Siemens Industry, Inc. (Siemens) on August 14, 2001 for energy saving heating ventilation and air conditioning (HVAC) improvements and a maintenance program for fifteen City facilities. The initial contract expired August 31, 2011. The Chief Executive Officer approved a 90-day contract extension period, followed by a City Council approved extension of 90 days, to allow staff time to prepare and advertise a Request for Proposal (RFP) to competitively seek the most qualified and cost effective service provider possible. The term of the second extension expires January 31, 2012.

ANALYSIS

Siemens has provided HVAC maintenance, energy efficiency project construction services and other related services continuously to the City for over 15 years. During that period two self-funding energy efficiency projects were included in agreements; accomplishing a significant on-going reduction in energy usage at several City facilities. The projects saved over \$800,000 in electricity costs over 10 years, with an on-going annual savings of over \$70,000 per year. The quality of the technical and mechanical support provided by Siemens has been excellent, with customer service always being their top priority. Any complaints over the years have been remedied expeditiously and to the complete satisfaction of City staff. There are currently no outstanding issues or concerns with their performance.

With the current contract expiring, the Purchasing Division and the Public Services Department worked cooperatively to prepare a Scope of Services that could be incorporated into a Request for Proposal to identify an HVAC contractor that would

provide a high level of technical expertise in the energy management field and provide the highest quality customer service and mechanical support at a competitive price. The Request for Proposal was designed to provide a similar level of service as the existing contract, with some additional facilities added to the Scope of Services making the contract all inclusive of the City's buildings. The Costa Mesa Senior Center; Downtown Recreation Center and Old Corporation Yard facilities were added to the proposal as they were not maintained under the current contract. Typically, maintenance and repairs for these facilities was provided on an as-needed basis utilizing a combination of City staff and licensed HVAC contractors. There were no preventive maintenance contracts in place, nor were there any mechanical guaranties against equipment failure. Incorporating these facilities into the contract will insure all manufacturer required maintenance is performed in a timely manner and that the City is insured against costly repairs or equipment failures. This will likely result in a net cost savings to the City as compared to the current program.

The City's Purchasing Division managed the RFP process, which included advertising, posting the information on the City's website, responding to questions, and completing the evaluation of the proposals submitted.

Only two proposals were submitted for consideration. Three staff members; one from the Purchasing Division; one from Public Services Administration and one from Fleet and Facility Maintenance Section independently evaluated the proposals and scored them according to the guidelines stated in the RFP. The scoring system was designed to evaluate the proposer's understanding of: the City's HVAC systems, equipment and structure; the comprehensive scope of work; the proposer's ability to provide cost effective preventative HVAC maintenance and repair; detailed implementation plan, specific information on tasks; ability to interface with the City's existing climate control and energy management systems; qualifications of the firm; professional references and fee proposal.

F. M. Thomas Air Conditioning, Inc. of Brea, California and Siemens Industry, Inc. of Cypress, California, were the only proposers on the Request for Proposals.

The evaluation team all rated Siemens higher than F. M. Thomas. Siemens rated first with an 89.3% average, with F. M. Thomas rated second with a 57.3% average. The major factor in the significantly lower scores for F. M. Thomas, according to the evaluators, was lack of information addressing how the company would implement an effective interface with the City's existing HVAC control systems and lack of any pricing or cost estimate to install the necessary interface technology and components.

Request for Proposals - HVAC Maintenance

Scoring

Evaluations and Ratings	Eval #1	Eval #2	Eval #3	Total	Avg.
F. M. Thomas	61	55	56	172	57.3
Siemens Industry, Inc.	71	100	97	268	89.3

Ranking

Evaluations and

Ratings

	Eval #1	Eval #2	Eval #3	Total	Rank
F. M. Thomas	2	2	2	6	2
Siemens Industry, Inc.	1	1	1	3	1

Final Rank

1. Siemens
2. F. M. Thomas

Contract management of this service is currently provided by City staff. However, it is included in the scope of work for the upcoming RFP for Facility Maintenance Services, which may be considered by the City Council in January 2012.

ALTERNATIVES CONSIDERED

1. Council could choose not to award a contract for HVAC maintenance services to Siemens Industry, Inc. and direct staff to conduct another RFP to obtain additional proposals. However, staff does not anticipate that additional companies would propose or pricing would change significantly.
2. The Council could award the contract to Siemens Industry, Inc. at a price not to exceed \$249,770, for the first year and authorize Staff to negotiate with Siemens to gain better first year pricing and/or a reduced annual price increases to achieve additional savings.

FISCAL REVIEW

The annual price for the contract, based on the enhanced scope of work, is \$78,185 more than the existing contract. Staff has reviewed the pricing and attributes the increase primarily due to the additional maintenance and mechanical guarantee for the added City buildings and to the contractor recouping some of the annual price increases that they voluntarily waived for the past three years due to the City's serious financial shortfalls.

Funding for HVAC services is included in the FY 2011-12 Public Services Department budget.

CONCLUSION

The award of a five year contract to Siemens Industry, Inc. with three optional one-year extensions will provide high quality HVAC maintenance, mechanical guaranty and energy management solutions for the City. This contract will insure that the City's HVAC systems continue to be properly maintained, repaired and programmed to provide the most cost effective heating and cooling possible to City facilities and will include a continued partnership to integrate new technology and innovative solutions whenever possible.



ERNESTO MUNOZ, Interim Director
Public Services Department



BOBBY YOUNG
Finance/IT Director


BRUCE HARTLEY
Maintenance Services Manager

- Attachments:
1. Request for Proposal for HVAC Maintenance
 2. Siemens Industry, Inc. Proposal
 3. Professional Services Agreement

Distribution:

- Chief Executive Officer
- Interim Chief Executive Officer
- Interim Director, Public Services
- City Clerk



REQUEST FOR PROPOSAL
FOR
MUNICIPAL FACILITY HVAC MAINTENANCE

Public Services Department
CITY OF COSTA MESA

Proposal No. 1144

Released on October 28, 2011

**MUNICIPAL FACILITY HVAC MAINTENANCE
REQUEST FOR PROPOSAL (RFP)**

1. BACKGROUND

The City of Costa Mesa is seeking a well-qualified firm to provide a comprehensive heating-ventilation-air conditioning HVAC maintenance and repair program for a wide variety of municipal facilities. The work will include the provision of a total maintenance/management program including, but not limited to the inspection, preventive maintenance, repair, programming and other tasks and services necessary to insure safe, well maintained HVAC systems providing quality air for City employees and the public.

2. SCHEDULE OF EVENTS

This Request for Proposal will be governed by the following schedule:

Release of RFP.....	October 28, 2011
Pre-proposal Meeting.....	November 09, 2011
Deadline for Written Questions	November 14, 2011
Responses to Questions Posted on Web	November 18, 2011
Proposals are Due	November 28, 2011
Proposal Evaluation Completed.....	December 12, 2011
Approval of Contract	January 03, 2012

3. SCOPE OF WORK - STANDARDS AND SPECIFICATIONS

The Contractor shall retain professional personnel who have successfully and competently provided municipal facility HVAC maintenance and repair services on projects of similar scope and complexity. It shall be the Contractor's responsibility to develop and implement a routine maintenance program to effectively maintain, to the satisfaction of the City Representative, all aspects of HVAC systems in City defined facilities. For the purpose of this contract, routine preventative HVAC maintenance shall be defined as scheduled routine inspection and proactive servicing of HVAC systems so as to facilitate heating/cooling with a minimal downtime. The routine maintenance and all repairs shall be provided in accordance with the highest standards of the industry, skill, workmanship, applicable trade practices, meet warranties and in conformance to all applicable laws, codes and regulations. The successful Proposer's maintenance program and repairs shall, at a minimum, include but not be limited to the specifications outlined herein.

SERVICES TO BE PROVIDED

It is the Proposer's responsibility to provide an appropriate level of on-site staffing as needed, provide appropriate tools and vehicles necessary to support all facility HVAC maintenance functions during hours of maintenance and for response after normal working hours. Proposer's services are to be compliant with all Federal, State, CARB, AQMD, OSHA and all other applicable regulatory requirements.

ADDITIONAL COVERAGE

Contractor shall repair or replace failed or worn moving parts (such as; bearings, motor rotors, motor starters, seals, gears, burners, actuators, controls and switches). Prior to beginning any repair or replacement, Contractor will troubleshoot the system to diagnose the system's problems. The City shall not incur any extra charge for this service. Contractor shall itemize the equipment list covered under repair or replaceable.

Non-moving parts such as boiler tubes, shells, refrigerant/water tubes, non-manufactured or produced products, environmentally hazardous materials and/or refractory replacement are excluded.

PRICING TABULATION SHEETS

Prices as stated on the Building HVAC Maintenance Pricing Sheet (Exhibit B) shall be all inclusive for services as specified in this Proposal.

HVAC MAINTENANCE STAFFING LEVELS

The Contractor shall provide a staffing level that will provide the desired level of customer service, program support, HVAC maintenance and repair at designated City facilities:

Staffing levels should include staff that is certified and proficient in the complete maintenance and repair of Turbocore Chiller systems, air handlers, pneumatic systems, and a variety of package HVAC units. Additionally, service levels shall provide the ability to respond immediately to situations involving the health and safety of employees and/or the public; comfort and operational capability of any public meeting space. Routine repairs, service requests or other non-urgent tasks shall be completed by journey level staff within one (1) working day from the date of the automated request or assignment by the City Representative.

The journey-level worker(s) shall be proficient in the following trades:

- All mechanical, electronic and pneumatic aspects of chilled water systems
- Turbocore chiller systems
- ADD drives
- Air handling systems
- The interface and control of existing Siemens proprietary systems

BILLABLE WORK

All work beyond and in addition to the scope of the contract shall be considered billable hours and will require that an estimate for that proposed work be provided to the City Representative for consideration and approval prior to work being completed.

SECURITY BACKGROUND CHECK OF PERSONNEL

Contractor is required provide security checks for all personnel assigned to work under this contract. Security checks will be coordinated through Costa Mesa Police Department. CMPD will run security checks of all personnel assigned to work under this contract. The records check will include finger printing; Department of Justice wanted person system check, California Drivers License check, Orange County warrant check and review of any local record. The City will be responsible for the costs associated with this process. Additional checks will be required for all new employees during the lifetime of the contract and all expenses shall be borne exclusively by the contractor. The City reserves the right to approve/refuse any prospective employees of the contractor as a result of the background check.

The following information must be provided to the City Representative no less than 30 days prior to any employee's start of work:

- a. Full Legal Name
- b. Social Security Number
- c. California Drivers License or ID number
- d. Birth Date
- e. Current Valid Address

SUBCONTRACTING

No portion of the work covered by these specifications may be subcontracted or assigned without prior approval of the City Representative. Requests to subcontract all or any portion of services required by this contract will be submitted to the City' Representative, at least thirty (30) days in advance of the proposed effective date of the subcontract. Proposer shall include in this written request a detailed description of how the Contractor plans to oversee the services performed by the proposed subcontractor. Contractor shall be responsible for services provided by any subcontractor as if Contractor were providing the services with its own organization. Any subcontractor providing services shall have successfully passed a background check prior to commencing work and must meet the City's insurance requirements. *Contractor shall bear all expenses of any subcontractor background checks and any required insurance.*

The City may make reasonable investigations deemed necessary and proper to determine the ability of a contractor to perform the work, and the contractor shall furnish the City all information requested for this purpose.

Damages:

The Contractor will be responsible for all damages to the facility or contents caused by Contractor, their staff or subcontractors during the performance of their duties.

Tools & Equipment:

The contractor shall furnish and maintain all equipment necessary for properly maintaining HVAC systems in City buildings. The City of Costa Mesa reserves the right to inspect equipment to be used to perform services under this contract. Any equipment determined to be in poor condition must be replaced immediately, at the contractor's expense. Failure to provide suitable equipment for carrying out all requirements of this contract may be grounds for termination.

Inspections and Remedies:

So as to ensure consistent quality of the work being performed, the City Representative will perform periodic inspections of HVAC systems to ensure compliance with the contract specifications. A monthly inspection report will be communicated to the Contractor for review and corrective action for any deficiencies found. During the following month's inspection the City representative will re-inspect the deficient areas. A meeting shall be held monthly between Contractor and City Representative prior to invoices being submitted for payment, to confirm the work performed meets specifications; and/or to discuss any other pertinent issues. Any deficiencies not corrected will have a dollar value assigned, represented as a percentage of the billed amount, and that dollar amount will be deducted from the monthly payments until the reported deficiency has been corrected to the satisfaction of the City Representative.

EMERGENCY CALL OUT SERVICE

Contractor shall provide 24 hour emergency service as needed in all aspects of HVAC emergency repair for the City facilities included in this specification. Hours shall be Monday through Friday 5:00 pm to 6:00 am and 24 hours each day on weekends and Holidays. Contractor shall have working personnel on-site within 1 hour of the call-out, or respond by telephone to the City Representative within ½ hour if the problem is capable of being corrected through the use of a computer/modem to alleviate the source of complaint.

HEATING-VENTILATION-AIR CONDITIONING (HVAC) MAINTENANCE AND MONITORING

- Contractor shall respond to indoor temperature complaints and provide expeditious correction and record complaints and corrections at all City facilities.
- Contractor shall monitor computer control systems for Siemens control panel, contacting the Siemens customer service center if problems are observed.
- Contractor shall inspect all HVAC systems at least twice each year, with seasonal start-up and run inspections performed and documented.
- Contractor shall provide oversight and documentation of Seasonal Preventative Maintenance of chillers and boilers; with service to be provided by Proposer.
- Contractor shall review the Proposer contract and through monitoring and inspections verify that the following services are provided:
 - For cooling towers: disassemble screens and access panels for inspection; inspect the tower fill, support structure, sump and spray nozzles, fill valve, gear box, drive coupling, fan blades, and motor bearings; clean starter and cabinet; inspect wiring; check motor starter contacts for wear and proper operation; megger test the motor and log readings; and check the condition of the contactor, and log observations.
 - For pumps: lubricate bearings semi-annually. Inspect couplings and check for leaks. Investigate unusual noises.
- Contractor shall perform air-handling unit maintenance which includes but is not limited to; all services recommended by manufacturer; replacing air filters at least quarterly, at all City facilities not covered under Proposer contract.
- Contractor shall inspect, provide oversight and documentation that all City owned facilities under contract with Proposer are receiving required work.
- Contractor shall perform monthly walkthroughs of HVAC systems for preventative maintenance work requests to Proposer.

ADDITIONAL CONTRACTOR REQUIREMENTS

- Contractor shall show evidence of presently serving at least three municipal customers.
- Contractor shall hold current C10 and C20 licenses.
- Contractor shall provide HVAC employees that; possess a State of California Joint Journeyman Apprentice Training Center certification; Automation specialists that are continually factory trained on Siemens Apogee Building Automation System, and must be able to provide monthly operator coaching and on-site training of select personnel, certified in servicing Turbocore Chillers and ABB Drives.
- Contractor shall have in its employ at least 10 full-time journeymen-level mechanical personnel and factory-trained automation specialists.
- Service specialists and technicians shall normally be dispatched from a local headquarters or branch within a 15 miles radius from the City Boundary line of the City of Costa Mesa.
- Contractor shall provide HVAC data protection and recovery services, control loop tuning, and Siemens software updates for the Siemens automation system.
- Contractor shall maintain a minimum fleet of 50 vehicles within the area they serve.
- Contractor shall implement measures to remotely access the Siemens workstation for emergency service.
- Service Automation specialists shall demonstrate familiarity with Siemens Apogee revision 3.11.
- Contractor shall upgrade the Apogee system with the latest revisions, as they become available.
- Contractor shall provide emergency access 24 hours a day / 7 days a week, Monday-Sunday.
- Service specialists and technicians shall normally be dispatched from a local headquarters or branch within a 15 miles radius from the City Boundary line of the City of Costa Mesa as defined in the most current Thomas Guide Map.
- Contractor shall implement measures to remotely access the Siemens workstation for emergency service.
- Contractor shall supply their staff with their agency uniform and photo identification tags that will be worn at all times. Uniforms shall display the Contractor logo and employee first or last name shall be clearly visible.
- Contractor shall provide MSDS sheets to City in a complete "Right to Know" binder for all products used in City facilities. City will determine location of "Right to Know" books.

SPECIFIC SERVICES

Annual Maintenance

Proposer will perform scheduled annual preventive maintenance in accordance with a program of standard routines as determined by your experience, equipment application, and equipment operating hours that are recommended by each equipment manufacturer and location. This service is designed to optimize the reliability and efficiency of the equipment, extend the useful life of the City's equipment, and provide proactive indications of excessive wear and damage to HVAC systems before a catastrophic failure occurs during the next operating season. Proposer will also provide recommendations for additional service(s) that will better enhance equipment performance. The equipment included under this service is itemized in the List of Maintained Equipment Section beginning on Page 13 of this document.

HVAC Air Filter Changing Service

This service will maintain indoor air quality by changing filters quarterly and minimizing dust and particles from collecting on ductwork. This service will insure proper flow through cooling and heating coils, thus preventing restrictions in airflow, leading to higher system and energy efficiency. The equipment included under this service is itemized in the List of Maintained Equipment. In the event the air filter material or cleaning requires different frequencies than indicated (due to experience or changes in operating conditions), recommendations will be made for approval by the City Representative to adjust the frequencies and any associated price.

Air Cooled Condenser Coil Cleaning

This service will improve airflow across condenser coils, improve heat transfer and extend the life of the compressors. Coil cleaning consists of cleaning the outside surface of the condensing unit coils to remove any airborne particles, dirt build-up by using a brush, high pressure air, chemical with low pressure wash or chemical with high pressure wash based on the condition of outside environment and coil accessibility. The equipment included under this service is itemized in the List of Maintained Equipment (see Page 13).

Evaporator Coil Cleaning

Proposer will clean air handling unit evaporator coils that will help improve air circulation in the air distribution system, and reduce dust and dirt that is in the system. Coils will be cleaned at a time that is mutually agreeable between the proposer and the City Representative. Coil cleaning consists of cleaning the surface of the evaporator coil to remove dust and dirt particles that have collected on the evaporator coil. Coils will be cleaned using a vacuum cleaner and or other devices that allow the proper cleaning of the coil. The equipment included under this service is itemized in the List of Maintained Equipment (see Page 13).

Refrigerant Oil Analysis

Proposer will perform Spectro-chemical refrigerant oil analysis and trend oil condition that identifies contaminants and possible system malfunctions caused by wear of moving parts, such as bearings and shafts. This predictive wear analysis provides early identification of problems prior to them becoming unplanned and costly. Based on the oil analysis results, proposer will recommend when oil changes are needed, and may make other recommendations regarding the operation and maintenance of your chiller plant. This service reduces the amount of waste oil generated. The equipment included under this service is itemized in the List of Maintained Equipment in this service agreement (see Page 13).

Cooling Tower Drain & Refill

Proposer will remove the condenser water from HVAC systems after the cooling season to prevent possible damage and expensive repairs caused by water freezing during winter months, and refill the system prior to

spring start-up. The equipment included under this service is itemized in the List of Maintained Equipment (see Page 13).

Operating Inspection

Proposer will provide this service to assure that mechanical equipment continues to operate efficiently with little operating disruptions during the operating season. Proposer will provide routine operating inspection(s) to check system performance in accordance with a program of standard routines as determined by our experience, the equipment manufacturer's published recommendations, equipment application, and location. A detailed list of the tasks included with this service in the Equipment Tasking section of this service agreement. This service will focus on equipment operation, fluid levels, operating and safety controls, and safe equipment operation. The equipment included under this service is itemized in the provided List of Maintained Equipment (see Page 13).

Operating Inspection – Heating

Through this service we will help to assure mechanical equipment continues to operate efficiently, safely and with little operating disruptions during the operating season. We will provide routine operating inspection(s) to check system performance in accordance with a program of standard routines as determined by our experience, the equipment manufacturer's published recommendations, equipment application, and location. You will find a detailed list of the tasks included with this service in the Equipment Tasking Section of this service agreement (see Page 8). This service will focus on equipment operation, fluid levels, operating and safety controls, and safe equipment operation. The equipment included under this service is itemized in the List of Maintained Equipment (see Page 13).

Operating Inspection – Cooling

This service will help to assure mechanical equipment continues to operate efficiently, safely and with have minimal operating disruptions during the operating season. Proposer will provide routine operating inspection(s) to check system performance in accordance with a program of standard routines as recommended by the equipment manufacturer's published recommendations, equipment application, and location. A detailed list of the tasks required with this service is in the Equipment Tasking section. This service will focus on equipment operation, fluid levels, operating and safety controls, and safe equipment operation. The equipment included under this service is itemized in the List of Maintained Equipment (see Page 13).

Equipment Tasking

The following tasks listed herein for each equipment type will be performed at the intervals planned. These tasks are designed to place the equipment into prime operating condition so that the equipment will operate effectively, reliably, and efficiently.

Rooftop Packaged Units

1. Filters changed quarterly on a minimum basis or as required.
2. Preventive maintenance service to be performed quarterly.
3. Lock out and tag out equipment as required.
4. Check all electrical wiring, connections. Tighten as required.
5. Check all motor starter contactor surfaces for wear.
6. Clean electrical control enclosures.
7. Lubricate air handling unit motor bearings and fan bearings, if applicable.
8. Check air handling unit belts for wear.
9. Check belt tension and sheave alignment.
10. Change belt & change as required.
11. Check condition of evaporator coils. Chemically clean as required.
12. Check and clean condensate drains, drain line & pan annually.

13. Inspect air handling unit fan assembly.
14. Lubricate condenser motors as required.
15. Chemically clean condenser coil and fan blades annually.
16. Check structural integrity of unit.
17. Check all mounting hardware. Tighten as needed.
18. Check and calibrate controls.

Reciprocating Compressors

1. Preventive maintenance shall be performed quarterly.
2. Lock out and tag out equipment as required.
3. Check all electrical wiring and connections. Tighten as needed.
4. Check starter contactor surfaces for wear.
5. Visually leak check compressor and associated refrigerant piping annually.
6. Clean exterior of compressor.
7. Check operation of crankcase heater.
8. Meg-ohm motor from starter and record annually.
9. Check and calibrate all safety and cut-out devices.
10. Check and adjust compressor capacity controls.
11. Check, calibrate and adjust all operational controls.
12. Remove compressor oil sample, perform Spectro-chemical test on oil annually.

Exhaust Fans

1. Preventative Maintenance.
2. Lock out tag out equipment as required.
3. Check all electrical wiring and connections and tighten,
4. Check all motor starter contactor surfaces for wear.
5. Clean starter and electrical control enclosures.
6. Lubricate motor bearings and fan bearings.
7. Check exhaust fan belts for wear, replace as required.
8. Check belt tension and sheave alignment. Adjust as required.
9. Inspect exhaust fan unit assembly.
10. Check all mounting hardware. Tighten as required.

Pneumatic Air Compressor

1. Quarterly inspect unit, check for rust spots, oil leaks & general condition of unit.
2. Drain tank, check auto drain.
3. Check belt, adjust tension & sheave alignments. Replace if necessary.
4. Meg-ohm megor and record, annually.
5. Check starter wiring & contacts.
6. Check motor amperage & voltage.
7. Check intake air filter, replace as required.

Package, Gas Heat Electric Cool

1. Preventive maintenance.
2. Change filter quarterly on a minimum basis. Increase as necessary.
3. Check unit voltage and record.
4. Lubricate motors as required.

5. Check and adjust burners for proper flames.
6. Check for proper combustion and flue gas relief.
7. Record discharge temperature, heating & cooling modes.
8. Record return air temperature.
9. Check and adjust operating and safety controls.

Air Handler

1. Perform maintenance quarterly.
2. Lockout tag out equipment.
3. Check starter contacts for excessive wear.
4. Tighten all starter wire connections.
5. Check belts adjust or replace as needed.
6. Check belt tension and sheave alignment. Adjust as required.
7. Meg-Ohm motor and record annually.
8. Check fan motors amps.
9. Clean and lubricate unit motor bearings and fan bearings.
10. Check operation of economy dampers.
11. Lubricate all dampers and linkages as necessary.
12. Check operation of static vane (if applicable)
13. Visually check all coils for leaks (Annually)
14. Check and record all coil delta T (Annually)
15. Inspect all mounting hardware, tighten as needed.

Multi-zone Air Handler

1. Perform maintenance quarterly.
2. Lockout tag out equipment.
3. Check fan motor amps.
4. Clean and lubricate components.
5. Check operation of economy dampers.
6. Check operation of static vane or dampers.
7. Check operation of zone dampers.
8. Check and adjust operating and safety controls.

Package Chiller Annual

1. Lockout tag-out equipment.
2. Check condenser / Barrel tubes.
3. Check Chiller barrel tube.
4. Check and record unit amp draw.
5. Check unit Voltage and Record.
6. Check unit pressures and record.

Chiller with Reciprocating Compressors

1. Visually inspect equipment condition and operation.
2. Check for unusual vibration, noise, excessive temperatures & refrigerant leaks.
3. Check unit voltage and record.
4. Check unit operate and records.
5. Check unit operating hours and record.
6. Check condenser pressure and record.

7. Check evaporator pressure and record.
8. Check oil sump sight glass.
9. Record chilled water inlet temperature.
10. Record chilled water outlet temperature.
11. Check condenser water inlet.
12. Check condenser water outlet temperature.
13. Check compressor starter contacts for abnormal wear.

Variable Frequency Drive

1. Check unit operation quarterly.
2. Check fault history report.
3. Check operation of manual bypass.
4. Verify drive signal increase and decrease.
5. Check and tighten all electrical connections.
6. Check starter contacts for wear.

Computer Room Air Conditioning Units

1. Check all electrical wiring and connections. Maintenance is performed bi-monthly.
2. Check Filters quarterly as a minimum.
3. Check all electrical wiring and connections. Tighten as necessary.
4. Check starter contactor surfaces for wear.
5. Check compressor amps and record.
6. Check sight glass for moisture level.
7. Check operation of crankcase heater.
8. Lubricate condenser fan motor and fan bearings.
9. Check condition of condenser coil, clean as necessary.
10. Check belts for wear, replace as required.
11. Check and adjust compressor capacity controls.
12. Lubricate indoor fan motor and bearings.
13. Check humidifier for proper operation.

Boiler

1. Check boilers for proper operation. Discuss any problems with buildings operating engineering staff.
2. Check and use boiler viewport to check main burner flame.
3. Turn off and secure boiler.
4. Check boilers for any unusual noise or vibration.
5. Inspect gaskets for any signs of leaks.
6. Examine the venting system
7. Remove and/or inspect gas pilot assembly. Reinstall in accordance with recommended specifications and tolerances.
8. Check boiler circulating pumps for proper operation and lubricate.
9. Check flame safeguard control for pilot and main flame ignition.
10. Check operation of blower motor and circuitry.
11. Check operation of gas valves and vents.
12. Inspect and tighten all electrical connections
13. Check and adjust all boiler limit pressure controls and running interlocks.
14. Check operation and adjust low water controls.
15. Check burner, pilot and main flame ignition.
16. Check and oil combustion air fan.

17. Check expansion tank and site glass
18. Check and record all entering and leaving water temperatures and pressures.
19. The boiler room shall be left in the same condition as existed prior to start of the work.
20. Refer to equipment O&M manual for any maintenance clarifications.
21. Complete onsite service log and PM checklist

HVAC SERVICES – Pneumatic

Preventive Maintenance

Proposer will provide quarterly preventative maintenance on Pneumatic Air Compressors that responds to changes in mechanical component performance, building use, and climatic conditions. Service shall be in accordance with a program of standards as recommended by equipment manufacturers' recommendations.

HVAC SERVICES - Water Treatment

Water Treatment Services

Proposer will provide Industrial water treatment to manage four main problem areas: scaling, corrosion, microbiological activity and disposal of residual wastewater. Water treatment services will extend equipment life, provide operational efficiency, minimized downtime and control water born disease such as Legionnaires. Proposer will perform water treatment service for both hot water and chilled water loops at the Costa Mesa City Hall and Police Department Facilities. This service will be completed monthly.

HVAC SERVICES - Infrared Service

Infrared Electric Panel Inspection

The infrared inspection will be provided as it is an important form of non-destructive testing that has become an indispensable predictive maintenance tool for electrical service panels. It shall be performed with a portable infrared imaging system, this equipment detects infrared energy (heat) emitted from an object and displays it as a dynamic thermal image. Using the IEEE/ANSI Standard, this inspection aids in the evaluation of component temperatures. Proposer will perform a biennial Infrared scan of main electrical panels at City Hall and the Police Department. A detailed report will be provided upon completion of onsite scan.

ENERGY SERVICES

Energy Optimization Services

Proposer will perform a benchmark analysis that compares a building's energy performance against industry-recognized benchmarks and provides facility owners and operators with an objective assessment of facility performance and a valuable starting point to identify and quantify the value of energy conservation efforts. Through the Benchmark Report, Proposer will create an energy baseline and obtain, if applicable, an ENERGY STAR Performance Rating utilizing Energy Star Portfolio Manager to generate a Statement of Energy Performance. This rating compares our building's performance against buildings of similar type and operating characteristics in similar climate zones. This report will provide key data points in addition to an ENERGY STAR Performance Rating including Energy Usage Intensity (EUI), Energy Cost Intensity (ECI), and the facility's Greenhouse Gas Emissions.

If our facility is not eligible to receive an Energy Star Performance Rating due to the building type or usage, the benchmark will compare facility performance versus the Department of Energy's Commercial Buildings Energy Consumption Survey (CBECS) data or the best alternative industry benchmark that is available. Based on current performance, the benchmark will indicate if the facility meets existing LEED energy performance requirements, and the number of points that could be obtained if pursuing LEED certification through the U.S. Green Building Council.

In addition, Proposer will conduct a detailed analysis of facility interval meter data, when available from site metering and/or the utility provider. This enables us to gain further insight into facility performance, and provide a snapshot report to help understand performance and pinpoint areas for operational efficiency. Based on current energy consumption and prices, Proposer energy analysts will suggest potential improvement measures and quantify the impact on energy usage, cost savings and GHG reductions.

LEED Impact

An Energy Star Performance Rating of 69 is required to meet the LEED for Existing Buildings: Operations & Maintenance (LEED EB) prerequisite (Energy & Atmosphere Prerequisite 2: Minimum Energy Efficiency Performance), and a minimum score of 71 is required to obtain incremental points beyond the prerequisite (Energy & Atmosphere Credit 1: Optimize Energy Efficiency Performance). For buildings that are not eligible for and ENERGY STAR Performance Rating, the LEED EB prerequisite requires a building to be 19% above the National Average, and a minimum of 21% above the National Average in order to obtain incremental points. In each case, up to 18 LEED EB points are available by documenting superior facility performance versus an industry benchmark. For detailed LEED requirements, refer to the LEED for Existing Buildings: Operations & Maintenance Reference Guide, 2009 edition.

Energy Budgets and Forecasts

Proposer will collect historical energy data either from the Customer directly or through the utility company with authorization from the City Representative. The minimum historical data required for this service will be the data existing for the past 12 months but 3 years historical data will be requested and is preferred. Proposer will use this data to project energy consumption patterns based on the Customer’s operations. Future energy volumes will be priced according to the market per commodity. Proposer will use this pricing to produce a forecasted budget.

Technology and Energy Audits

Proposer will review the City’s HVAC system, evaluating the current use of our HVAC System and what may have been changed or been modified in our daily facility operation that impacts the effectiveness of the system. Proposer will review applicable building control technologies, suggest possible new strategies or technologies that could be implemented to enhance our current system, and consider what changes, enhancements and/or upgrades should be made to facilitate our future plans. In addition, recommendations should be made about adding and/or modifying applications, sensors, points panels and/or software where needed to improve building operation and performance. Proposer will interface with the local utilities to determine possible incentives and rebates. Once the review is completed, a written report of the findings and recommendations will be provided during a scheduled meeting annually.

HVAC EQUIPMENT LIST

POLICE DEPARTMENT – 99 FAIR DRIVE

Turbocore	Frictionless compressor
Turbocore	Frictionless compressor
Chiller BAC	FXT 160 Cooling Tower Worthington (Abandoned Chiller)
Carrier	50LJQ Package Unit
Data Air	CAW1034 Computer Room Unit
Baldor	(3) Condenser Water Pumps
Baldor	(3) Chilled Water Pumps
TBA	Boiler
Various	(14) Exhaust Fans
LAN	Pneumatic Tube System
	Control Air Compressor & Dryer
Various	(14) Air Handling Units
Various	Shooting range upgrade equipment included; excludes exhaust filters

Modular Equipment Controller (3)
Terminal Equipment Controllers (78)

CITY HALL – 77 FAIR DRIVE

BAC	VXT150C Cooling Tower
Turbocore	Frictionless compressor
Turbocore	Frictionless compressor
Turbocore	Frictionless compressor
Carrier	50HS-042 Package Unit
Worthington	LKS202942 Reciprocating
Worthington	LKS202942 Reciprocating Chiller
Lawson	Blower
Worthington	(18) Air Handlers
Various	(3) Chilled Water Pumps
Various	(3) Condenser Water Pumps

Control Air Compressor & Dryer

PXM Controller
Unitary Controllers (10)
Terminal Equipment Controllers (11)

POLICE SUB STATION – 567 W. EIGHTEENTH STREET

Rheem	RPNA-048A000 Package
Rheem	RPNA-06000 Package
Rheem	Package Unit

PRINT SHOP - 77 FAIR DRIVE

Carrier	50HS-042 Package Unit
Lennox	Package Unit

COMMUNICATIONS CENTER – 79 FAIR DRIVE

Carrier	48GL036620 Package Unit
Carrier	48GH0065 Package Unit
Carrier	50YH024 Package Unit
Carrier	48DP012 Package Unit
Loren Cook	(5) Exhaust Fans

NEIGHBORHOOD COMMUNITY CENTER – 1845 PARK AVENUE

Lennox	GCS8E Package Unit
Lennox	GCS8E Package Unit
Lennox	GCS8E Package Unit
Lennox	GCS8E Package
Lennox	GCS3 Kitchen Package Unit
Lennox	GCS3 Package Unit
Essick	Evaporative Cooler/Heater Kitchen
Twin City	Exhaust Fan
Automation	Field Level Network Controller (1)
	Terminal Equipment Controllers (6)

HISTORICAL SOCIETY – 1870 ANAHEIM STREET

Day Night	567C060 Package Unit
Day Night	5277C Package Unit

MESA VERDE LIBRARY – 2969 MESA VERDE DRIVE EAST

Climatrol URH08300 Package Unit
Climatrol URH103007 Package Unit

FIRE STATION #1 – 2803 ROYAL PALM DRIVE

Janitrol 440363 Condenser Unit
Janitrol 440363 Condenser Unit
Janitrol 24-100 New Heaters & Evaporative Coil
Janitrol 24-100 New Heaters & Evaporative Coil
Carrier 58ZAV075 Gas Heaters
Carrier 58ZAV075 Gas Heaters
Carrier 58ZAV075 Gas Heaters
Carrier 58ZVA075 Gas Heaters
Mitsubishi (4) Package Units = (2) Condenser Units & (2) Evaporative Units
Whirlpool AEF120 Package Unit
Various (3) Exhaust Fans
Misc. Wall Furnaces

FIRE STATION #2 – 800 BAKER STREET

BDP 569bb060 Split Condenser & Evaporative Unit
BDP 396GAW0 Split Condenser & Evaporative Unit
Misc. Wall Furnaces

FIRE STATION #3 – 1865 PARK AVENUE

Carrier 50NQ024 Package Unit
Carrier 50NQ024 Package Unit
BDP 542037 Package Unit
BDP 542D02 Package Unit
Greenheck Kitchen Exhaust Fan
Illegible Evaporative Cooler
Reznors (2) Unit Heaters

FIRE STATION #4 – 2300 PLACENTIA AVENUE

BDP 559EJ030 Package Unit
BDP 569BB060 Package Unit
BDP 396AW060 Package

FIRE STATION #5 – 2450 VANGUARD WAY

Trane FBYC200G Package Unit
Illegible EC
Illegible (2) Exhaust Fans

FIRE STATION #6 – 2350 SAKIOKA DRIVE

Carrier 48DJD006530 Package Unit
Carrier 48DJD004510 Package Unit
Carrier 48DJE004510 Package Unit
Carrier 48DJD00510 Package Unit
Various (5) Exhaust Fans

NEW CORP YARD – 2310 PLACENTIA AVENUE

Lennox HS16-651 Package Unit
Lennox GS15Q4/5X Split Unit
Lennox GS15Q3/4X Heating

Balearic Center – 1975 Balearic Dr.

Hayes 210SED-CF 2 ea 20X24X1 Filters
Hayes 210SED-CF 2 ea 20X24X1 Filters
Hayes 210SED-CF 4ea 20X24X1 Filters

OLD CORP YARD – 2300 PLACENTIA AVENUE

Carrier 48GSN060090301 Package Unit

Downtown Recreation Center - 1860 Anaheim Avenue

Carrier 48HJE012 Package Unit
Carrier 48HJE006 Package Unit
Carrier 48HJE008 Package Unit
Carrier 48HJE004 Package Unit
Cook 150 ACRU 5B Exhaust
Cook 150 ACE B 135 C3B Exhaust Fan
Cook 150 ACE B 135 C2B 3 ea Exhaust Fan
Cook GEM GN 340 2 ea Exhaust Fan
Cook LITTLE GEM II 2 ea Exhaust Fan
Modine 4 ea Make up air units

Senior Center

Carrier 40AQ018 Package Unit 2
Carrier 48DJD004 Package Unit 3
Carrier 48DJD005 Package Unit
Carrier 48DJD006 Package Unit
Carrier 48DJD007 Package Unit
Carrier 48DJD008 Package Unit
Carrier 48DJ009 Package Unit 2
Carrier 48DJ007 Package Unit
Carrier 48DJE012 Package Unit
Carrier 48DJE014 Package Unit
Cook Exhaust Fans 8 ea
Essick Tri-Temp 175 L Make up air unit

4. PROPOSAL FORMAT GUIDELINES

Interested Contractors are to provide the City of Costa Mesa with a thorough proposal using the following guidelines:

Proposal should be typed and should contain no more than 20 typed pages using a 12-point font size, including transmittal letter and resumes of key people, but excluding Index/Table of Contents, tables, charts, and graphic exhibits. Each proposal will adhere to the following order and content of sections. Proposal should be straightforward, concise and provide "layman" explanations of technical terms that are used. Emphasis should be concentrated on conforming to the RFP instructions, responding to the RFP requirements, and on providing a complete and clear description of the offer. Proposals which appear unrealistic in the terms of technical commitments, lack of technical competence, or are indicative of failure to

comprehend the complexity and risk of this contract, may be rejected. The following proposal sections are to be included in the bidder's response:

A. Vendor Cover Letter

A cover letter, not to exceed three pages in length, should summarize key elements of the proposal. An individual authorized to bind the consultant must sign the letter. The letter must stipulate that the proposal price will be valid for a period of at least 180 days. Indicate the address and telephone number of the Contractor's office located nearest to Costa Mesa, California and the office from which the project will be managed.

B. Background and Project Summary Section

The Background and Project Summary Section should describe your understanding of the City, the work to be done, and the objectives to be accomplished. Refer to Scope of Work of this RFP.

C. Methodology Section

Provide a detailed description of the approach and methodology to be used to accomplish the Scope of Work of this RFP. The Methodology Section should include:

- 1) An implementation plan that describes in detail (i) the methods, including controls by which your firm manages projects of the type sought by this RFP; (ii) methodology for soliciting and documenting views of internal and external stakeholders; (iii) and any other project management or implementation strategies or techniques that the respondent intends to employ in carrying out the work.
- 2) Detailed description of efforts your firm will undertake to achieve client satisfaction and to satisfy the requirements of the "Scope of Work" section.
- 3) Detailed project schedule, identifying all tasks and deliverables to be performed, durations for each task, and overall time of completion.
- 4) Detailed description of specific tasks you will require from City staff. Explain what the respective roles of City staff and your staff would be to complete the tasks specified in the Scope of Work.
- 5) Firms and individuals wishing to be considered shall include in their submissions the steps they will, if selected, implement and adhere to for the recruitment, hiring and retention of former employees of the City who have been displaced due to layoff or outsourcing of functions and services formerly provided by the City.
- 6) Proposers shall disclose any and all past or current business and personal relationships with any current Costa Mesa elected official, appointed official, City employee, or family member of any current Costa Mesa elected official, appointed official, or City employee. ***Any past or current business relationship does not disqualify the firm from consideration.***

D. Staffing

Provide a list of individual(s) who will be working on this project and indicate the functions that each will perform. Include a resume for each designated individual.

Upon award and during the contract period, if the Contractor chooses to assign different personnel to the project, the Contractor must submit their names and qualifications including information listed above to the City for approval before they begin work.

E. Qualifications

The information requested in this section should describe the qualifications of the firm, key staff and sub-Contractors performing projects within the past five years that are similar in size and scope to demonstrate competence to perform these services. Information shall include:

- 1) Names of key staff that participated on named projects and their specific responsibilities with respect to this scope of work.

- 2) A summary of the your firm's demonstrated capability, including length of time that your firm has provided the services being requested in this Request for Proposal.
- 3) Provide at least five local references that received similar services from your firm. The City of Costa Mesa reserves the right to contact any of the organizations or individuals listed. Information provided shall include:
 - ◆ Client Name
 - ◆ Project Description
 - ◆ Project start and end dates
 - ◆ Client project manager name, telephone number, and e-mail address

F. Fee Proposal

Proposer shall complete and submit pricing sheet (Exhibit B) and include such additional information as necessary to allow the City to complete an evaluation of the competitiveness of the proposal.

5. PROCESS FOR SUBMITTING PROPOSALS

- ◆ **Content of Proposal**
The proposal must be submitted using the format as indicated in the proposal format guidelines.
- ◆ **Preparation of Proposal**
Each proposal shall be prepared simply and economically, avoiding the use of elaborate promotional material beyond those sufficient to provide a complete, accurate and reliable presentation.
- ◆ **Number of Proposals**
Submit four (4) copies plus one disk copy of your proposal in sufficient detail to allow for thorough evaluation and comparative analysis.
- ◆ **Submission of Proposals**
Complete written proposals must be submitted in sealed envelopes marked and received no later than 4:00 p.m. (P.S.T) on November 28, 2011 to the address below. Proposals will not be accepted after this deadline. Faxed or e-mailed proposals will not be accepted.

City of Costa Mesa
City Clerk's Office
77 Fair Drive
Costa Mesa, CA 92628-1200
**RE: REQUEST FOR PROPOSAL FOR
MUNICIPAL FACILITY HVAC MAINTENANCE
Proposal No. 1144**

- ◆ **Inquiries**
Questions about this RFP must be directed in writing, via e-mail to:
John Aguilar, Facility & Equipment Supervisor
john.aguilar@costamesaca.gov

From the date that this RFP is issued until a firm is selected and the selection is announced, firms are not allowed to communicate for any reason with any City employee other than the contracting officer listed above regarding this RFP, except during the pre-proposal conference. Refer to the Schedule of Events of this RFP or the City webpage to determine if a pre-proposal conference has been scheduled. The City reserves the right to reject any proposal for violation of this provision. No questions other than written will be accepted, and no response other than written will be binding upon the City.

- ◆ **Conditions for Proposal Acceptance**
This RFP does not commit the City to award a contract or to pay any costs incurred for any services. The City, at its sole discretion, reserves the right to accept or reject any or all proposals received as a

result of this RFP, to negotiate with any qualified source, or to cancel this RFP in part or in its entirety. All proposals will become the property of the City of Costa Mesa, USA. If any proprietary information is contained in the proposal, it should be clearly identified.

6. EVALUATION CRITERIA

The City's consultant evaluation and selection process is based upon Qualifications Based Selection (QBS) for professional services. The City of Costa Mesa may use some or all of the following criteria in its evaluation and comparison of proposals submitted. The criteria listed are not necessarily an all-inclusive list. The order in which they appear is not intended to indicate their relative importance:

- A. Compliance with RFP requirements
- B. Understanding of the project
- C. Recent experience in conducting similar scope, complexity, and magnitude for other public agencies
- D. Educational background, work experience, and directly related consulting experiences
- E. Price
- F. References

The City may also contact and evaluate the bidder's and subContractor's references; contact any bidder to clarify any response; contact any current users of a bidder's services; solicit information from any available source concerning any aspect of a proposal; and seek and review any other information deemed pertinent to the evaluation process. The evaluation committee shall not be obligated to accept the lowest priced proposal, but shall make an award in the best interests of the City.

After written proposals have been reviewed, discussions with prospective firms may or may not be required. If scheduled, the oral interview will be a question/answer format for the purpose of clarifying the intent of any portions of the proposal. The individual from your firm that will be directly responsible for carrying out the contract, if awarded, should be present at the oral interview.

A Notification of Intent to Award may be sent to the vendor selected. Award is contingent upon the successful negotiation of final contract terms. Negotiations shall be confidential and not subject to disclosure to competing vendors unless an agreement is reached. If contract negotiations cannot be concluded successfully, the City may negotiate a contract with the next highest scoring vendor or withdraw the RFP.

7. STANDARD TERMS AND CONDITIONS

- ◆ Amendments
The City reserves the right to amend this RFP prior to the proposal due date. All amendments and additional information will be posted to the Costa Mesa Procurement Registry, Costa Mesa - Official City Web Site - Business - Bids & RFP's; bidders should check this web page daily for new information.
- ◆ Cost for Preparing Proposal
The cost for developing the proposal is the sole responsibility of the bidder. All proposals submitted become the property of the City.
- ◆ Contract Discussions
Prior to award, the apparent successful firm may be required to enter into discussions with the City to resolve any contractual differences. These discussions are to be finalized and all exceptions resolved within one (1) week from notification. If no resolution is reached, the proposal may be rejected and discussions will be initiated with the second highest scoring firm.
- ◆ Confidentiality Requirements
The staff members assigned to this project may be required to sign a departmental non-disclosure statement. Proposals are subject to the Freedom of Information Act. The City cannot protect proprietary data submitted in proposals.

◆ Financial Information

The City is concerned about bidders' financial capability to perform, therefore, may ask you to provide sufficient data to allow for an evaluation of your firm's financial capabilities.

◆ Indemnification:

Proposer(s) shall protect and indemnify the City, the City Council, and all of its or their officers, agents and servants against any claim or liability arising from or based on bidder's violation of any existing or future State, Federal, and local laws, ordinances, regulations, orders or decrees pertaining to bidder's submittal.

Proposer(s) agree(s) to protect, defend, indemnify, save and hold harmless the City and its elected and appointed boards, officers, agents, and employees from any and all claims, liabilities, expenses, or damages of any nature, including attorney fees, for injury to or death of any person (proposer's employees included), and for injury to any property, including consequential damages of any nature resulting there from, arising out of or in any way connected with the performance of this contract, except that the indemnity obligation of proposer shall be reduced by an amount proportional to the active negligence of City, if any.

Proposer shall comply with all of the provisions of the Workers' Compensation insurance laws and Safety in Employment laws of the State of California, including the applicable provisions of Divisions 4 and 56 of the California Labor Code and all amendments thereto and regulations promulgated pursuant thereto, and all similar State, Federal, or local laws applicable; and contractor shall indemnify and hold harmless the City from and against all claims, liabilities, expenses, damages, suits, actions, proceedings and judgments, or every nature and description, including attorney fees, that may be presented, brought or recovered against the City for or on account of any liability under or failure to comply with any of said laws which may be incurred by reason of any work performed under this contract by proposer or any subcontractor or others performing on behalf of proposer.

The City does not, and shall not waive any rights against proposer(s) which it may have by reason of the above hold harmless agreements, because of the acceptance by the City or the deposit with the City by contractor of any or all of the required insurance policies.

The hold harmless agreements by proposer(s) shall apply to all liabilities, expenses, claims, and damages of every kind (including but not limited to attorney fees) incurred or alleged to have been incurred, by reason of the operations of proposer or any subcontractor or others performing on behalf of proposer, whether or not such insurance policies are applicable.

Proposer(s) shall require any and all subcontractors to afford the same degree of indemnification to the City of Costa Mesa and its elected and appointed boards, officers, agents, and employees that is required of proposer(s) and shall incorporate identical indemnity provisions in all contracts between proposer(s) and his/her subcontractors.

In the event that proposer(s) and City are sued by a third party for damages caused or allegedly caused by negligent or other wrongful conduct of proposer (s), or by a dangerous condition of City's property created by proposer (s) or existing while the property was under the control of proposer (s), proposer (s) shall not be relieved of its indemnity obligation to City by any settlement with any such third party unless that settlement includes a full release and dismissal of all claims by the third party against the City.

◆ Insurance Requirements

City requires that licensees, lessees, and vendors have an **approved** Certificate of Insurance (not a declaration or policy) on file with the City for the issuance of a permit or contract. Within ten (10) consecutive calendar days of award of contract, successful bidder must furnish the City with the Certificates of Insurance proving coverage as specified below. Failure to furnish the required certificates within the time allowed could result in forfeiture of the Proposal Security.

Proposer(s) shall not commence work under this contract until he/she has obtained all insurance required under this section and the insurance has been approved by City as to form, amount, and carrier, nor shall proposer(s) allow any subcontractor to commence any work until all similar insurance required of the subcontractor has been obtained and approved.

Neither the failure of proposer(s) to supply specified insurance policies and coverage, nor the failure of City to approve same shall alter or invalidate the provisions of this contract.

The Contractor agrees to:

A. Obtain insurance coverage of the types and amount required in this section and keep such insurance coverage in force throughout the life of this contract. All policies will contain an endorsement providing that written notice be given to the City at least ten (10) calendar days prior to termination, cancellation, or reduction in coverage in any policy.

B. The Comprehensive General Liability Insurance and Comprehensive Automobile Liability Insurance policies will include the City as an additional insured with respect to liability arising out of the performance of this contract. The Contractor agrees that the insurance hereunder will be primary and that any insurance carried by the City will be excess and not contributing.

C. Provide and maintain minimum insurance limits as applicable.

Contractor will present to the City written evidence (Certifications of Insurance) of compliance with Items A., B and C. above. Said evidence shall be to the City of Costa Mesa's Risk Management satisfaction.

WORKERS' COMPENSATION INSURANCE: Proposer(s) shall obtain and maintain during the life of this contract workers' compensation insurance and, if any work is sublet, proposer(s) shall require all subcontractors to obtain workers' compensation insurance.

All workers' compensation insurance policies shall provide that the insurance may not be canceled without thirty (30) days advance written notice of such cancellation to City.

Proposer(s) is aware of the provision of Section 3700 of the Labor Code, which requires every employer to be insured against liability for Workman's Compensation or undertake self-insurance in accordance with the provisions of that Code, and will comply, with such provisions before commencing the performance of the work of this contract.

LIABILITY INSURANCE COVERAGE: Proposer(s) shall obtain and maintain during the life of this contract the following insurance coverage:

Commercial General Liability, including coverage for premises-operations, products/completed operations hazard, blanket contractual, broad form property damage, and independent contractors, personal injury.

Automobile liability, including owned, hired, and non-owned vehicles.

The above insurance coverages shall have limits of not less than one million dollars (\$1,000,000.00) combined single limit, per occurrence and aggregate.

Endorsements to the policies providing the above insurance shall be obtained by proposer(s), adding the following three provisions:

Additional insureds: (For Commercial General Liability only)

"The City of Costa Mesa and its elected and appointed boards, officers, agents, and employees are additional insureds with respect to the subject project and agreement."

Notice:

"Said policy shall not terminate, nor shall it be cancelled nor the coverage reduced, until thirty (30) days after written notice is given to City."

Other Insurance:

"Any other insurance maintained by the City of Costa Mesa shall be excess and not contributing with the insurance provided by this policy."

All insurance carriers utilized by the proposer(s) or any subcontractor under this contract shall be approved by the California Department of Insurance to transact business in the State of California. The types of services provided under this contract may further require proposer's insurance carrier(s) to be admitted insurers in the State of California.

CONDITIONS. The following standard conditions are always applicable, and the following work order conditions are also applicable when this order provides for performance of any work.

STANDARD CONDITIONS

1. **Law:** This contract is governed by the laws of the State of California. The provisions of the Uniform Commercial Code shall apply except as otherwise set forth in this contract.
2. **Contract:** This order, when accepted by SELLER either in writing or by the shipment of any article or other commencement of performance hereunder, constitutes the entire contract between SELLER and the CITY, no exceptions, alternates, substitutes or revisions are valid or binding on the CITY unless authorized by the CITY in writing. The SELLER acknowledges that he has read and agrees to all terms and conditions of this contract/purchase order. The only terms and conditions that will be applicable to the interpretation of this contract are those issued by the City of Costa Mesa.
3. **Taxes:** Unless otherwise provided herein or by law, price quoted does not include California State sales or use tax. The City is exempt from Federal excise tax.
4. **Delivery:** Time of delivery is the essence of this contract. The CITY reserves the right to refuse any goods and to cancel all or any part of the goods not delivered by the due date and/or not conforming to applicable specifications, drawings, samples or descriptions. Acceptance of any part of the order shall not bind CITY to accept future shipments, nor deprive it the right to return goods already accepted, at SELLER'S expense. Overshipments and undershipments shall be only as agreed to by CITY.
5. **Risk of Loss:** Delivery shall not be deemed to be complete until goods have been actually received and accepted by CITY. Payment shall be made after satisfactory acceptance of shipments by the CITY.
6. **Warranty:** SELLER expressly warrants that the goods covered by this order are of merchantable quality, satisfactory and safe for consumer use, and are fit for the particular purpose as set forth in the CITY'S specification. Acceptance of this order shall constitute an agreement upon SELLER'S part to indemnify and hold harmless from liability, loss, damage and expense, including reasonable attorney fees, incurred or sustained by CITY, its officers, employees and agents, by reason of the failure of the goods to conform to such warranties, faulty work performance, negligent or unlawful acts, and noncompliance with any applicable local, State or Federal codes, ordinances, orders, or statutes, including the Occupational Safety and Health Act (OSHA) and the California Industrial Safety Act. Such remedies shall be in addition to any other remedies provided by law. Inspection by the City of Costa Mesa or its agents or employees and acceptance of the articles, materials and work covered by this contract shall not constitute release or waiver of the City of Costa Mesa's rights by reason of failure of Contractor to comply with any of the warranties contained herein. Warranties herein expressed or implied shall be construed as consistent with each other and as cumulative and, where in conflict, the specifications of the City of Costa Mesa shall be paramount.
7. **Infringement:** SELLER shall indemnify and defend CITY, at SELLER'S expense, against all claims, demands, suits, liability and expense on account of alleged infringement of any patent, copyright or trademark, resulting from or arising in connection with the manufacture, sale, normal use or other normal disposition of any article or material furnished hereunder.
8. **Assignment:** Neither this order nor any claim against CITY arising directly or indirectly out of or in connection with this order shall be assignable by SELLER or by operation or law, nor shall SELLER subcontract any obligations hereunder, without CITY'S prior written consent.
9. **Default:** If SELLER or any subcontractor breaches any provision hereof, or becomes insolvent, enters bankruptcy, receivership or other like proceeding (voluntarily or involuntarily) or makes assignment for the benefit of creditors, CITY shall have the right, in addition to any other rights it may have hereunder or by law, to terminate this order by giving SELLER written notice whereupon (a) CITY shall be relieved of all further obligation hereunder, except to pay the reasonable value of SELLER'S prior performance, but not more than the contracted price, and (b) CITY may procure the articles or services from other sources and may deduct from unpaid balance due the vendor or may collect against the bond or surety, or may invoice the vendor for excess cost so paid. The price paid by CITY shall be considered prevailing market price at the time such purchase is made.
10. **Labor Disputes:** Whenever any actual or potential labor dispute delays or threatens to delay the timely performance of this order, SELLER shall immediately give written notice thereof to CITY.
11. **Nondiscrimination:** In the performance of the terms of any contract resulting from this order, SELLER agrees that they will not engage nor permit such subcontractors, where applicable as he may employ, from engaging in discrimination in employment of persons because of the race, color, sex, national origin or ancestry, disability or religion of such person.
12. **Termination:** The CITY reserves the right to terminate this contract without penalty and without cause after 30 days' written notice unless otherwise specified.

WORK ORDER CONDITIONS

13. **Performance:** SELLER shall perform all work diligently, carefully, and in a good and workmanlike manner; shall furnish all labor, supervision, machinery, equipment, materials and supplies necessary therefor; shall obtain and maintain all building and other permits and licenses required by public authorities in connection with performance of the work; and, if permitted to subcontract, shall be fully responsible for all work performed by subcontractors. SELLER shall conduct all operations in SELLER'S own name and as independent contractor, and not in the name of, or as an agent for CITY.
14. **Indemnification:** The Contractor hereby agrees to defend at his own cost and to indemnify and hold harmless the City of Costa Mesa, its officers, agents and employees, from and against any and all liability, damages, costs, losses, claims and expenses, howsoever caused, resulting directly or indirectly from or connected with the performance of the contract (including but not limited to such liability, costs, damage, loss, claim, or expense arising from the death or injury to an agent or employee of the Contractor, subcontractor, or the City of Costa Mesa or loss of, damage to, or destruction of the property of Contractor, subcontractor, or of the City of Costa Mesa, or of any agent or employee of the Contractor, subcontractor, or of the City of Costa Mesa), except where such liability, damages, costs, losses, claims or expenses are caused solely by the negligent or wrongful acts of the City of Costa Mesa or any of its agents or employees other than negligent omission or commissions of the City of Costa Mesa, its agents or employees, in connection with the general supervision or direction of the work to be performed hereunder. The Contractor, in addition to the foregoing, specifically shall indemnify and save harmless the City of Costa Mesa, any and all of the City of Costa Mesa's officers, agents, and employees, from any liability by reason of California safe place statutes or similar provisions pertaining to the workplace or safety of materials or equipment supplied by the City of Costa Mesa or others at the direction of the City of Costa Mesa and used in the performance of the work hereunder.
15. **Insurance:** SELLER shall maintain in full force during the term of this contract the following insurances, in a form and with companies as approved by the CITY, with limits not less than those specified: (a) Worker's Compensation and Employer's Liability complying with any statutory requirements; (b) Commercial General Liability insurance including broad form property damage, products/completed operations and contractual liability coverage, with a \$1,000,000 combined single limit each occurrence; Endorsements to the Commercial General Liability insurance shall be obtained by contractor, adding the following three provisions; (1) Additional insureds: "The City of Costa Mesa and its elected and appointed boards, officers, agents, and employees are additional insureds with respect to the subject project and agreement." (2) Notice: "Said policy shall not terminate, nor shall it be cancelled nor the coverage reduced, until thirty (30) days after written notice is given to City." (3) Other insurance: "Any other insurance maintained by the City of Costa Mesa shall be excess and not contributing with the insurance provided by this policy." (c) Comprehensive Auto Liability (including the owned, nonowned and hired automobile hazards) with \$1,000,000 combined single limit each occurrence. If the CITY so desires, these limits may be increased or decreased.
16. **Bills and Liens:** SELLER shall pay promptly all indebtedness for labor, materials and equipment used in performance of the work. SELLER shall not permit any lien or charge to attach to the work or the premises, but if any does so attach, SELLER shall promptly procure its release and indemnify CITY against all damages and expense incident thereto.
17. **Bonds:** If the CITY so desires, SELLER shall provide payment and performance bonds as required.
18. **Changes:** SELLER shall make no change in the work or perform any additional work without the CITY'S specific written approval.

MISCELLANEOUS CONDITIONS

19. All plants and materials must be free of pests and disease. If any are found, the material will be rejected and refused. Vendor will pick up at no cost to the CITY.
20. Vendor is required to provide a completed MSDS (Material Safety Data Sheet) for hazardous substances as required by Labor Code Sections 6390; General Industrial Safety Order, Section 5194; and Title 8, California Admins. Code. MSDS sheet for each specified item shall be sent to place of shipment, and a copy sent to the Purchasing Division.

DEFINITION

Whenever used herein, "CITY" shall mean, City of Costa Mesa, a political subdivision of the State of California.

(5146-22)

EXHIBIT A

City of Costa Mesa

MUNICIPAL HVAC FACILITIES LOCATIONS

HVAC SYSTEMS TO BE MAINTAINED AT THESE LOCATIONS

BUILDING/FACILITY	ADDRESS	SQUARE FOOTAGE
Balearic Center	1975 Balearic Drive	8,035
City Hall	77 Fair Drive	73,341
Communications Center	79 Fair Drive	7,960
Corp Yard Rear (Old)	2300 Placentia Avenue	17,450
Corp Yard Front (New)	2310 Placentia Avenue	18,006
Downtown Community Center	1860 Anaheim Avenue	12,000
Fire Station #1	2803 Royal Palm Avenue	9,308
Fire Station #2	800 Baker Street	4,800
Fire Station #3	1865 Park Avenue	6,500
Fire Station #4	2300 Placentia Avenue	7,213
Fire Station #5	2450 Vanguard	6,500
Fire Station #6	2350 Sakioka Drive	9,200
Historical Society Building	1870 Anaheim	4,000
Mesa Verde Library	2969 Mesa Verde Dr. East	5,888
Neighborhood Community Center	1845 Park Avenue	24,000
Police Facility	99 Fair Drive	50,646
Police Substation	567 W. 18 th Street	8,966
Senior Center	695 W. 19 th Street	20,127

EXHIBIT B

BID PRICING SHEET

BUILDING HVAC MAINTENANCE BID PRICING

BUILDING	ADDRESS	MONTHLY LABOR HOURS	TOTAL MONTHLY COST	ANNUAL COST
Balearic Center	1975 Balearic Drive		\$	\$
City Hall	77 Fair Drive		\$	\$
Communications Center	79 Fair Drive		\$	\$
Corporation Yard (Old)	2300 Placentia Avenue		\$	\$
Corporation Yard (New)	2310 Placentia Avenue		\$	\$
Downtown Recreation Center	1860 Anaheim Avenue		\$	\$
Fire Station #1	2803 Royal Palm Avenue		\$	\$
Fire Station #2	800 Baker Street		\$	\$
Fire Station #3	1865 Park Avenue		\$	\$
Fire Station #4	2300 Placentia Avenue		\$	\$
Fire Station #5	2450 Vanguard		\$	\$
Fire Station #6	2350 Sakioka Drive		\$	\$
Historical Society Building	1870 Anaheim		\$	\$
Mesa Verde Library	2969 Mesa Verde Drive East		\$	\$
Neighborhood Community Center	1845 Park Avenue		\$	\$
Police Facility	99 Fair Drive		\$	\$
Police Substation	567 W. 18 th Street		\$	\$
Senior Center	695 W. 19 th Street		\$	\$



CITY OF COSTA MESA

77 FAIR DRIVE, P.O. BOX 1200, COSTA MESA, CA 92628-1200

PUBLIC SERVICES DEPARTMENT

Date: 11/07/11

Addendum #1 – RFP 1144

Request for Proposals for HVAC Maintenance Services

The following changes and/or updates are to be included in the request for proposals for RFP 1144.

Page 2 – PRE-PROPOSAL CONFERENCE:

The time and place of the Pre-Proposal Conference was inadvertently omitted from the solicitation. The Pre-Proposal Conference is scheduled for Wednesday, November 09, 2011 at 10:00am in Conference Room 1A at City Hall, located at 77 Fair Drive in Costa Mesa.

Attendance at the conference is not mandatory to submit a proposal. However, respondents are reminded it is their responsibility to check the City's website often for updates to the RFP.

Respondents are encouraged to submit written questions, via electronic mail as instructed on page 18 of the RFP, and are reminded the deadline to submit questions is close of business at 5:00pm on Monday, November 14, 2011. The City's responses to written questions received according to the terms of the RFP will be posted to the website on Friday, November 18, 2011.

As a reminder, proposals are due on November 28, 2011 at 4:00 p.m. in the City Clerk's Office.

John Aguilar
Facility & Equipment Supervisor
City of Costa Mesa

City of Costa Mesa
HVAC FILTER LIST

Neighborhood Comm Ctr

24x24x2 = 6
16x25x2 = 5
12x24x2 = 3
20x25x2 = 3
20x20x2 = 4

Fire Sta # 2

16x25x2 = 2

Fire Sta # 3

16x25x2 = 3
20x25x2 = 1

Fire Sta # 4

16x25x2 = 2
14x30x1 = 1

Fire Sta # 5

16x25x1 = 6

Fire Sta # 6

16x25x2 = 8

New Corp Yard

18x20x1 = 1

Police Dept Substation

18x18x1 = 6
20x30x2 = 2
20x25x2 = 1

Balaeric Rec Center

20x24x1 = 4
10x24x1 = 3

City Hall

16x20x2 = 10
16x25x2 = 16
20x25x2 = 16
20x20x2 = 10
18x25x2 = 6
20x20x1 = 4
20x25x1 = 1

Police Dept.

24x24x2 = 16
16x24x2 = 4
24x24x12 = 16
16x24x12 = 4
16x25x2 = 8
20x25x2 = 6



CITY OF COSTA MESA

FAIR DRIVE, P.O. BOX 1200, COSTA MESA, CA 92628-1200

PUBLIC SERVICES DEPARTMENT
FACILITIES MAINTENANCE

Date: 11/18/11

RFP 1144 - HVAC MAINTENANCE

Addendum #2 - Questions and Answers

The following questions have been submitted for response. The City's response to each question will appear in blue after the question.

This addendum is intended to be for informational purpose only and is NOT REQUIRED to be submitted as part of your proposal.

NOTE: AS OF 5:00PM ON FRIDAY, NOVEMBER 18, 2011 NO FURTHER QUESTIONS REGARDING THIS RFP WILL BE ACKNOWLEDGED OR ANSWERED.

1. What time will the pre-proposal conference on November 9, 2011 take place?
The Pre-Bid Conference is scheduled for Wednesday, Nov 09, 2011 in Conference Room 1A in City Hall located at 77 Fair Dr.
2. Will the City make the pre-proposal conference mandatory for all bidders to attend?
Attendance is not mandatory to submit a proposal.
3. Regarding page 3 entitled, "Additional Coverage", what is your intent for the automation system?
The automation system at City Hall, Police Dept and Neighborhood Community Center shall include updating current software to the latest available version and all associated interface is to be included as part of the coverage as a mechanical guaranty. (The sites for automation are City Hall, The Police Department and the Neighborhood Community Center).
4. What will be the total length of time for the service contract?
The contract term will be for five years with three one-year extensions at the City's discretion.
5. Is water treatment, maintaining of the chiller water to prevent metal attacks by corrosion, included in the contract?
Water treatment is included in the contract services.

RFP 1144 - HVAC MAINTENANCE

Addendum #2 - Questions and Answers - continued

6. What is the interval for eddy testing (the integrity testing of the chiller tubes)?
Eddy current testing to be performed at five year intervals.
7. Is there a list of the HVAC filter sizes for the various city facilities?
A list of the filter sizes is attached to this addendum. However, the attachment does not include the Downtown Recreation Center, Senior Center and Old Corporation Yard, whose numbers will be forthcoming.

End of questions and answers.

NOTE: There is a correction to the square footage of the Police Dept facility as listed in Exhibit A – Municipal HVAC Facilities Locations.
The square footage of that facility listed at 50,646 should be corrected to read 85,207.

SIEMENS

November 28, 2011

City of Costa Mesa
City Clerk's Office
77 Fair Drive
Costa Mesa, CA 92628-1200

Re: Request for Proposal for Municipal Facility HVAC Maintenance, Proposal No. 1144

Dear City Clerk:

Siemens Industry, Inc., Building Technologies Division represents the well-qualified firm you seek to provide the comprehensive heating-ventilation-air conditioning (HVAC) maintenance and repair program for the wide variety of City of Costa Mesa facilities. The work will include the provision of a total maintenance/management program including, but not limited to the inspection, preventive maintenance, repair, programming and other tasks and services necessary to insure safe, well maintained HVAC systems providing quality air for City employees and the public. This response to the above referenced RFP substantiates our company's capabilities to continue to deliver this outstanding service to the City of Costa Mesa.

Siemens has proudly served the City since April 1991. We wish to continue to provide the City with the following services we have provided for decades.

- Building Control through Automation
- HVAC Maintenance Services
- HVAC Products
- Energy Services

It is our desire to make it easy for the City to do business with Siemens. Siemens understands the nuances of the City and its operations. Over the years of service we have provided, we have stream-lined service and communications with City staff. This has worked to our respective benefit.

Siemens resources are the hallmark of our service capabilities. We employ 2,000 automation and mechanical specialists, 200 Service Engineers and 125 Energy Engineers, all of whom provide on-going service from over 100 locations in the U.S. Siemens Remote Operation Services Center serves our customers 24x7 with online and onsite support. Our response time to the City can be as short as 2 hours, in the event of an emergency. Additionally, we are quick to troubleshoot any problems the City has, as we are expertly familiar with the equipment after so many years of service.

Our Energy and Environmental Solutions have saved the City close to \$2 million in documented energy savings from 1991 – 2010. Siemens has helped more than 500 customers realize more than \$2 Billion in energy and operations savings over the past 10 years. Like the City, 26% of those customers have been governmental entities.

SIEMENS

Customer satisfaction is our #1 priority, evident in our most recent award, the "MarketTools CustomerSat™ Ace Award for Achievement in Customer Excellence, for the second straight year. We have led the competition in customer satisfaction since 2005. This is due in part to the broad spectrum of services we provide.

Siemens has been in the vanguard of integrating core infrastructure systems: HVAC, fire safety, security, lighting and more are managed via a single workstation. By providing an open platform (through BACnet, LonTalk, Modbus, OPC and XML), Siemens offers break-through facility performance and efficiency.

Siemens is leading the industry in technology, evident in the following facts:

- Currently, Siemens in the U.S. spends \$3 million dollars DAILY in research and development.
- Ranked in the top 15 for U.S. Patents
- Siemens created the world's first electric street lighting and formed the Osram Lightbulb Co., now Sylvania.
- Siemens invented the first commercially successful temperature control device.
- We offered the first wireless network for automated building controls in the industry.

Siemens technological impact on America is profound. Some of our contributions include:

- Building performance solutions for more than 20,000 locations in the U.S.
- Power generating systems that produce more than 1/3 of the nation's electricity.
- One of the largest suppliers of energy management control systems for the U.S. power grid.
- The leading supplier of automation controls and material handling systems.
- Siemens water treatment technology company purifies the water that fills 750,000 bottles of drinking water in the U.S. daily.
- Siemens produces 3.3 million energy saving lamps in the US every day.
- #1 on the Dow Jones Sustainability Index

Siemens proposed services will be managed from our North Orange County branch located at 10775 Business Center Drive, Cypress, CA 90630, 714-761-2200. The proposal price contained in the following proposal will be valid for a period of 180 days.

We respectfully present this proposal for continuing our service and look forward to serving the City for years to come

Sincerely,



Mitch Sager
Area Sales Manager

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- Appendix A. Discounted Labor & Material Pricing
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- Appendix G. Siemens Customer Voice
- Appendix H. Customer Report Card
- Appendix I. Maintained Equipment Table and Site Locations
- Appendix J. RFP Exhibit B: BUILDING HVAC MAINTENANCE BID PRICING

1 Background and Project Summary Section

1.1 Customer Objectives

The City strives to support its thriving business community and resident's needs through administrative functions carried out in a number of municipally-run facilities. The comfort and efficient operation of these facilities must be assured. This response to RFP #1144 will proactively serve to protect that substantial investment through a program of planned service tasks by our trained technical staff.

- The City seeks the automation and mechanical service expertise, familiarity with the City's existing equipment complement and warranty assurances Siemens Industry, Inc. (Siemens) can provide.
- As a Siemens service contract customer, the City would benefit from a discount in labor rates, which other non-contract customers do not receive. Siemens rate sheet is referenced in Appendix A and clearly indicates the discount afforded to contract customers.

Our objective is to facilitate the long-term success of the City by leveraging the combined power and capabilities of the entire Siemens Corporation. Our ability to provide abundant capabilities as a combined package sets us apart from other corporations. Our experience with energy strategy and management study and implementation in all sectors of the market, as well as our large integrated project experience, provides us with a solid foundation for delivering turnkey solutions and guaranteed results.

Siemens shall continue to retain professional personnel who have successfully and competently provided municipal facility HVAC maintenance and repair services on projects of similar scope and complexity. Siemens staff will make regular on-site visits, using the appropriate tools and vehicles necessary to support all facility HVAC maintenance functions during normal working hours (see Appendix A for normal working hours). Siemens is also available 24/7 to meet the emergency needs of the City, should that be necessary (see Emergency Services below). The City has indicated that it has been more than satisfied with Siemens personnel and availability and there are no plans to change personnel to date.

Siemens will be responsible for developing, implementing and executing a routine maintenance program to satisfactorily maintain all aspects of HVAC systems in municipal facilities. This routine preventative HVAC maintenance schedule can be found in Appendix B, and will include inspection and proactive servicing of the HVAC systems so as to facilitate minimal downtime heating and cooling, as necessary.

Siemens takes pride in providing our services in accordance with the highest standards of the industry, skill, workmanship, applicable trade practices, meeting warranties and conforming to all laws, codes and regulations, including Federal, State, CARB, AQMD, OSHA and other relevant regulatory requirements. Siemens presently holds both C-10 and C-20 State of California licenses.

At the request of the City, Siemens will repair or replace failed or worn moving parts, such as bearings, motor rotors, motor starters, seals, gears, burners, actuators, controls and switches. Prior to beginning any repair or replacement, Siemens will troubleshoot the system to diagnose the system's problem. The City will not incur any extra charge for this diagnostic time. Non-moving parts, such as boiler tubes, shells, refrigerant/water tubes, non-manufactured or produced products, environmentally hazardous materials and/or refractory replacement are excluded from this additional coverage.

1.2 Current Situation

With constrained manpower and financial resources, the City will increasingly rely upon Siemens' Building Automation System (BAS) to control and operate some of the facility's expensive capital-intensive equipment. Coupled with the mechanical service and maintenance of this equipment, the City desires to maintain the comfort of its staff and visitors that frequent the facilities, as well as extend the life of the building's equipment through preventative and predictive maintenance.

Additionally, the City has equipment scheduled for retirement coming close to the end of its useful life. Siemens will work with City representatives to plan an upgrade for this equipment to the latest versions in a phased and logical approach. A table depicting this equipment is referenced in Appendix C

1.3 Siemens Capabilities

Siemens Industry, Inc. is the leading single-source provider of cost-effective facility performance solutions for the comfort, life safety, security, energy efficiency and operation of some of the most technically advanced buildings in the world. Siemens is pleased to offer this proposal for technical support services to the City.

Company History

For over 150 years, Siemens has been a technology powerhouse in the area of electrical engineering and electronics. The factors driving success at the history-making company include innovative prowess, a clear portfolio policy, long-range financial planning, an international setup and strong employee orientation.

Formed in 1847, the company Telegraphenbauanstalt von Siemens & Halske grew within the space of a few decades from a small precision-engineering workshop into one of the world's largest companies in electrical engineering and electronics inventing:

- the first electric railway
- the first electric streetlights in Berlin
- the first electric elevator
- the electric streetcar

Today Siemens AG is a global corporation employing roughly 460,000 people in 195 countries world-wide, the 6th largest employer on Earth. Named by Fortune Magazine as the third most admired company in the electronics industry, Siemens holds 8,600 U.S. patents and 45,000

globally. Siemens produces 30 new inventions each business day, offering countless solutions for numerous industries, including energy services, transportation, manufacturing and processing, and healthcare, and offers a wide variety of government solutions.

2 Methodology

2.1 Technical Support Implementation Plan

2.1.1 HVAC CONTROL SERVICES – Automation

Preventive Maintenance

We will provide preventive maintenance on the Siemens Building Automation System (BAS) in accordance with a program of routines as determined by our experience, equipment application and location. The list of field panels and/or devices, included under this service, is identified in the List of Maintained Equipment in this proposal.

Automation controls can drift out of calibration with changes in HVAC component performance characteristics, building use, and climatic conditions. This service will extend equipment life, reduce energy consumption, and reduce the risk of costly and disruptive breakdowns. The City will receive twelve (12) visits per year to complete this work.

The following services are provided as part of preventive maintenance:

- **Network Maintenance**

Using Siemens Network Performance Diagnostic Technologies, our proactive calibration and tuning of the data network analyzes variables impacting network performance, including node tables, token passes, turn speed, change of values over the network, unresolved points, and overall operation. This will increase data network up-time and allow for faster problem resolution.

- **Data Protection & Data Recovery Services**

Siemens will perform scheduled database back-ups of your workstation database & graphics and / or field panel databases and provide safe storage of this critical business information. Should a catastrophic event occur, we will respond onsite (or online if such service is included in this service agreement) to reload the databases and system files from our stored backup copy, to restore your operation as soon as possible. The equipment to be included as part of this service, is itemized in the List of Maintained Equipment in this proposal.

- **Software Maintenance**

Siemens will address any programming errors, failed points, points in alarm, unresolved points or points in operator priority, both at the front end workstation and at the field panel. We will perform this service using onsite visits and / or remote services (if applicable).

- **Software Support and Updates**

Siemens will provide the City with software updates to your existing Siemens software as they become available (approximately annually). Included is onsite training to familiarize you with the new features and their associated benefits. These updates deliver the benefits of Siemens Industry, Inc. commitment to compatibility by design, a commitment unique in our industry. Workstations covered under this service include one server and one client. (Upgrades to PC's and related workstation hardware are excluded unless specified elsewhere.)

Onsite for training relevant personnel on the software upgrades will take place during normal preventive maintenance visits onsite.

2.1.2 BAS Equipment Tasking

Due to space constraints, tasking is referenced in Appendix D.

2.1.3 HVAC SERVICES – Facility Equipment

Annual Maintenance

Siemens will perform scheduled annual preventive maintenance in accordance with a program of standard routines as determined by our experience, equipment application, and equipment operating hours that are recommended by each equipment manufacturer and location. This service is designed to optimize the reliability and efficiency of the equipment, extend the useful life of your equipment, and provide proactive indications of excessive wear and damage to your HVAC systems before a catastrophic failure occurs during the next operating season. Depending on our findings we may also provide recommendations for additional service(s) that will better enhance equipment performance. The equipment included under this service is itemized in the List of Maintained Equipment section of this proposal.

HVAC Air Filter Changing Service

Through this service, Siemens will maintain indoor air quality by changing filters quarterly and minimizing dust and particles from collecting on ductwork. This service also helps insure proper flow through cooling and heating coils thus preventing restrictions in airflow, leading to higher system and energy efficiency. The equipment included under this service is itemized in the List of Maintained Equipment in this proposal. In the event the air filter material or cleaning requires different frequencies than indicated (due to experience or changes in operating conditions), recommendations will be made for your approval to adjust the frequencies and any associated price.

Air Cooled Condenser Coil Cleaning

Through this service we will improve airflow across condenser coils, improve heat transfer and extend the life of the compressors. Coil cleaning consists of cleaning the outside surface of the condensing unit coils to remove any airborne particles, dirt build-up by using a brush, high pressure air, chemical with low pressure wash or chemical with high pressure wash at our

discretion based on condition of outside environment and coil accessibility. The equipment included under this service is itemized in the List of Maintained Equipment in this proposal.

Evaporator Coil Cleaning

Siemens will clean your air handling unit evaporator coils to help to improve air circulation in the air distribution system, and reduce dust and dirt that is in the system. Coils will be cleaned at a time that is mutually agreeable between your staff and us. Coil cleaning consists of cleaning the surface of the evaporator coil to remove dust and dirt particles that have collected on the evaporator coil. Coils will be cleaned using a vacuum cleaner or other device that allows us to properly clean the coil. The equipment included under this service is itemized in the List of Maintained Equipment in this proposal.

Refrigerant Oil Analysis

Siemens will perform spectro-chemical refrigerant oil analysis and trend oil condition to identify contaminants and possible system malfunctions caused by wear of moving parts, such as bearings and shafts. This predictive wear analysis provides early identification of problems prior to them becoming unplanned and costly. Based on the oil analysis results, Siemens will recommend when oil changes are needed, and may make other recommendations regarding the operation and maintenance of your chiller plant. This service reduces the amount of waste oil generated. Oil changes are outside the scope of this service. The equipment included under this service is itemized in the List of Maintained Equipment in this proposal.

Cooling Tower Drain & Refill

Siemens will remove the condenser water from your system after the cooling season to prevent possible damage and refill the system prior to spring start-up. The equipment included under this service is itemized in the List of Maintained Equipment in this proposal.

Operating Inspection

Through this service, Siemens will help to assure mechanical equipment continues to operate efficiently, safely and with little operating disruptions during the operating season. We will provide routine operating inspection(s) to check system performance in accordance with a program of standard routines as determined by our experience, the equipment manufacturer's published recommendations, equipment application, and location. You will find a detailed list of the tasks included with this service in the Equipment Tasking section of this service agreement. This service will focus on equipment operation, fluid levels, operating and safety controls, and safe equipment operation. The equipment included under this service is itemized in the List of Maintained Equipment in this proposal.

Operating Inspection – Heating

Through this service, Siemens will help to assure mechanical equipment continues to operate efficiently, safely and with little operating disruptions during the operating season. We will provide routine operating inspection(s) to check system performance in accordance with a program of standard routines as determined by our experience, the equipment manufacturer's

published recommendations, equipment application, and location. You will find a detailed list of the tasks included with this service in the Equipment Tasking section of this service agreement. This service will focus on equipment operation, fluid levels, operating and safety controls, and safe equipment operation. The equipment included under this service is itemized in the List of Maintained Equipment in this proposal.

Operating Inspection – Cooling

Through this service, Siemens will help to assure mechanical equipment continues to operate efficiently, safely and with little operating disruptions during the operating season. We will provide routine operating inspection(s) to check system performance in accordance with a program of standard routines as determined by our experience, the equipment manufacturer's published recommendations, equipment application, and location. You will find a detailed list of the tasks included with this service in the Equipment Tasking section of this proposal. This service will focus on equipment operation, fluid levels, operating and safety controls, and safe equipment operation.

2.1.4 Equipment Tasking

As referenced by the City in RFP #1144 beginning on page 8, the equipment tasking will be strictly followed by Siemens for each equipment type at the intervals planned. These tasks are listed in the Appendix E and are designed to place the equipment into prime operating condition so that the equipment will operate effectively, reliably, and efficiently.

2.2 HVAC SERVICES – Pneumatic Preventive Maintenance

Pneumatic air compressor can change in response to mechanical component performance, building use, and climatic conditions. Siemens will provide quarterly preventative maintenance in accordance with a program of standards as determined by our experience, equipment application and location. The equipment included under this service is itemized in the List of Maintained Equipment in this proposal.

2.3 HVAC SERVICES – Water Treatment Water Treatment Services

Industrial water treatment seeks to manage four main problem areas: scaling, corrosion, microbiological activity and disposal of residual wastewater. Water treatment services will extend equipment life, provide operational efficiency, minimized downtime and control water born disease such as Legionnaires. Siemens will perform industrial water treatment service for both hot water and chilled water loops at the Costa Mesa City Hall and Police Department Facilities. This service will be completed monthly.

2.4 Electrical SERVICES – Infrared Service Infrared Electric Panel Inspection

The infrared inspection is an important form of non-destructive testing that has become an indispensable predictive maintenance tool for electrical service panels. Performed with a portable infrared imaging system, this equipment detects infrared energy (heat) emitted from an object and displays it as a dynamic thermal image. Using the IEEE/ANSI Standard, this inspection aids in the evaluation of component temperatures. Siemens will perform a biennial Infrared scan of main electrical panels at City Hall and the Police Department. A detailed report will be given upon completion of onsite scan.

2.5 ENERGY SERVICES

2.5.1 Energy Optimization Services

Benchmark Analysis

The City has referenced the requirements of Energy Optimization Services on page 12 of the RFP, and Siemens will meet the requirements of the City, as referenced. This will include:

- Benchmark Analysis
- LEED Impact Assessment
- Energy Budgets and Forecasts
- Technology and Energy Audit

The City's satisfaction with Siemens Energy Services is an important component of this proposal. To achieve this satisfaction, Siemens will implement a program of comprehensive services applied to your entire building portfolio, or selected sites, as directed by the City. This program will work to improve business results with customized solutions based on the City's goals and constraints. These goals might include:

- Reduced energy consumption
- Longer equipment life cycle
- Occupant Comfort
- Reduced service Calls
- Reduced labor costs
- Budget Management

The benefits of this program appear obvious, as the City can clearly gain from:

- Budget Management
- Accountability
- Energy Price Management
- Balanced Environmental Responsibility
- Risk Management

Siemens will begin to implement this program, upon award of this proposal, should the City choose to do so, and after a kickoff meeting to determine the goals and objectives of the energy services program. Facility Improvement Measures (FIMs) will be recommended to meet these objectives. Some FIMs may be included in this proposal, ie., BAS scheduling. Some FIMs

may entail extra costs to the City, ie., conversion to DDC controls, in which case, the City may decide whether or not to implement them based on financial criteria.

2.6 Customer Support Services

2.6.1 Emergency Response

Service to the City will include the ability to respond immediately to situations involving the health and safety of employees and/or the public. Siemens will also respond in instances when the comfort and operational capability of any public meeting space are in question. The first course of action will always be swift and responsive with Siemens remote capabilities. By contracting with Siemens, the City may contract our 24-hour customer service center and remote access to the City's Apogee® workstation. Should troubleshooting and diagnosis require an on-site visit, a specialist or technician, as needed, will be dispatched from our conveniently located Orange County branch of operations.

Emergency Online/Phone Response: Monday through Sunday, 24 Hours per Day

System and software troubleshooting and diagnostics will be provided remotely to enable faster response to emergency service requests and to reduce the costs and disruptions of downtime. Siemens will respond within 2 hours, Monday through Sunday, 24 hours per day, including Holidays, upon receiving notification of an emergency. Siemens will furnish and install the necessary online service technology to enable us to remotely dial into your system, through a dedicated telephone line that will be provided by the facility. Where remote access is not available to the system, Siemens will provide phone support to your staff to assist in their onsite troubleshooting and diagnosis. If remote diagnostics determine a site visit is required to resolve the problem, a technician can be dispatched. The on-site dispatch will be a billable service call.

Siemens shall provide up to sixteen (16) hours of remote support annually during the contract period (not to be carried over year-to-year). Remote support in excess of 16 hours annually will be billable.

Emergency Onsite Response: Monday through Sunday, 24 Hours per Day - BILLABLE

Emergency Onsite Response will be provided to reduce the costs and disruptions of downtime when an unexpected problem does occur. Siemens will provide this service between scheduled service calls and respond within 4 hours for critical emergencies, or within 24 hours for non-emergency conditions, Monday through Sunday, 24 hours per day, including Holidays, upon receiving notification of an emergency. Critical emergencies are failures at a system or panel level that would result in the loss of the operation of an entire section of a building or place the facility at high risk. Non-emergency conditions are failures at an individual component level resulting in minimal impact to the overall operation of the facility. Non-emergency conditions may be incorporated into the next scheduled service call, or sooner if personnel is available.

2.6.2 Customer Directed Support

With Customer Directed Support, Siemens will provide a trained and experienced automation specialist who will work under your direction during normal business days and hours. The intent of this service is to implement facility improvement measures recommended by Siemens energy engineer, offer you labor assistance in completing a special project, or to meet a facility objective. Specific job responsibilities, goals and other associated deliverables of this service are at the discretion of the City.

Siemens shall provide up to three (3) days of customer directed support annually to your facility.

2.6.3 Operator Coaching

Through our individual Operator Coaching, we will review and reinforce learned skills, leading to greater operator knowledge and productivity. This service will insure your operator's gain full utilization of the system implemented in your facility. During regularly scheduled preventive maintenance visits, Siemens will assist your staff in identifying, verifying and resolving problems found in executing daily tasks. During the coaching sessions, we can address log book and system issues, assist your operators in becoming more self-sufficient, and improve the skills of your operators to better meet the needs of your facility and their specific job responsibilities.

Under this agreement, we shall provide operating coaching, which will be conducted on normal business days and hours, during scheduled visits

2.6.4 Educational Services – Delivered at Siemens Local Office

Through Educational Services, one (1) member of your staff will attend one (1) four (4) day class during each year of the service agreement to learn how to take advantage of the latest Siemens technologies available for your HVAC control system. This training will provide your staff with the knowledge they need to perform their jobs and maintain the highest operating performance for your facility. This knowledge will enable your staff to improve their skills in the use of your systems' features and capabilities. Training will be provided at the local Siemens office, allowing the student to practice and demonstrate skills required to operate building controls systems in a risk-free environment while away from work pressures and interruptions.

Select staff will be responsible for scheduling their classes within each year of the service agreement. In the event the staff person cannot attend a scheduled course, the City must provide 45 days notice of cancellation. The price of classes not attended will be forfeited in their respective year.

Details of the courses are included in Appendix F of this proposal. Scheduled dates for training are updated annually and will be provided as they become available.

2.6.5 Account Management Customer Voice

Siemens survey rating system, Customer Voice, is an opportunity to build the relationship the City wants with the Siemens Building Technologies division. It allows you to best express your needs and allows us to pinpoint where we need to improve, relative to our business relationship, products or services. Appendix G features our brochure on this program.

Quality Assurance

To insure the satisfaction of internal and external stakeholders, Siemens utilizes a quality assurance program for soliciting and documenting customer feedback. We assign a dedicated account engineer (AE) who will facilitate on-going communication regarding your satisfaction with our technicians, specialists and program service. The AE will be responsible for coordinating monthly meetings with the City to discuss our performance and your satisfaction with the quality of service that is being provided under your agreement. We will discuss the performance of your systems, your facility, and make recommendations for improvement. We can discuss recommendations for changes in the service program to better meet your changing needs.

The AE will also garner your feedback through the implementation of a Customer Report Card. Siemens will ensure that our delivered services are of the highest quality. The criteria for the "Customer Report Card" are developed between your facility staff and Siemens, and will reflect the goals and objectives of the scope of this Service Agreement. A copy of the Customer Report Card has been provided in Appendix H of this proposal.

2.6.6 Collaboration with the City

Siemens will implement a methodology for soliciting and documenting views of internal and external stakeholders. To insure the success of the program, Siemens looks forward to collaborating with the City in the following ways:

- Select City staff will be available for a monthly meeting prior to the submission of invoices for payment to confirm the work performed and address other pertinent issues.
- It is the responsibility of relevant and select City staff to manage the day to day operation of the mechanical and automation system.
- City staff shall have the knowledge to perform day to day operations relative to the HVAC system.
- The City will be required to provide access to all areas affected by Siemens work at the time of maintenance and repair.

2.7 Former City Employees

As previously referenced, Siemens is a global corporation, employing roughly 460,000 people in 195 countries world-wide, and is the 6th largest employer on Earth. Siemens holds the highest standards in hiring and recruitment, valuing its employees and the contribution they make in keeping this company successful and growing. Siemens has a stringent policy and process in hiring procedures. As part of our recruitment policy, we openly and actively recruit all qualified personnel, including former employees of municipalities.

The City may submit a list of displaced or layoff individuals seeking employment. Siemens would encourage potential candidates to search Siemens job requisitions at http://www.buildingtechnologies.siemens.com/bt/sp/en/jobs_careers/Pages/jobs_careers.aspx

Our recruiters actively seek out all potential candidates, including those with relevant expertise in mechanical and automation systems and knowledge of municipal operations. If the individual(s) meet the qualifications, they could be selected from the applicant pool. The individual's resume would be reviewed and, they could be selected for an interview with select management and staff at Siemens. Hiring for full-time or part-time employment is at Siemens discretion.

2.8 Past or current business or personal relationships

Siemens has been serving the City of Costa Mesa with the highest level of professionalism since 1991. Through this long professional relationship, Siemens personnel have worked closely with select and relevant employees of the City.

3 Staffing

An important benefit of your Service Agreement derives from having the trained service personnel of Siemens Industry, Inc. familiar with your building systems. Our implementation team of local experts provides thorough, reliable service and scheduling for the support of your system.

The following list outlines the service team that will be assigned to the service agreement for your facility.

Kimberley Crawford, Sales Account Representative manages the overall strategic service plan based upon your current and future service requirements. Ms. Crawford has served Siemens customers since 2008.

Nick Thomas, Service Account Engineer is responsible for ensuring that our contractual obligations are delivered, your expectations are being met and you are satisfied with the delivery of our services. Mr. Thomas has served Siemens customers since 2007.

Dave Garza, Primary Service Specialist is responsible for performing the ongoing service of your automation system. Mr. Garza has served Siemens customers since 1986.

Matt Hansen, Primary Service Mechanic is responsible for performing the ongoing service of your mechanical system. Mr. Hansen has served Siemens customers since 2004.

Wes Goulding, Service Mechanic who will be familiarized with your building systems to provide in-depth backup coverage. Mr. Goulding has served Siemens customers since 1992.

Vishal Gupta, Service Operations Manager is responsible for managing the delivery of your entire support program and service requirements. Mr. Gupta has served Siemens customers since 1996.

Connie Hernandez and Maria Ignacio, Service Coordinators are responsible for scheduling your planned maintenance visits, and handling your emergency situations by taking the appropriate action. Ms. Hernandez and Ms. Ignacio have served Siemens customers since 2006 and 2005, respectively.

Our mechanical technicians work in tandem with the automation specialists to finely tune and schedule the components of the HVAC system. They are certified and proficient in the complete maintenance and repair of Turbocore Chiller systems, air handlers, pneumatic systems and the variety of package HVAC units owned by the City. All personnel assigned to work under the contract, should Siemens be awarded, will continue to qualify for security, warrant and record checks through the City's Police Department, the County of Orange and the Department of Justice, respectively.

We continue to feature mechanical support in the form of journey-level workers who possess a proficiency in the following trades:

- All mechanical, electronic and pneumatic aspects of chilled water systems
- Turbocore chiller systems
- ABB drives
- Air handling systems

Our automation service specialists are factory trained to provide monthly coaching to the City staffed operator of the system. S/he is also trained on the latest revision of the Apogee® hard and software, as well as the interface and control of existing Siemens systems.

Resumes for Key Mechanical personnel are as follows:

Matthew Hanson

Siemens Industry Inc.
Cypress, California
2004 – Present

Journeyman

- Perform service and troubleshooting on centrifugal and screw chiller
- Rebuild open drive and semi-hermetic reciprocating compressors
- Troubleshoot and install variable frequency drives
- Setup and calibrate pneumatic controls
- Install and service HVAC systems including large built-up systems 50-200 tons
- Performed large DX piping projects, cooling towers projects, chillers projects
- Service boilers and related controls

Previous Firm(s) Experience
Southern California
1998 – 2004

Central Plant Engineer

- Perform service and troubleshooting on Carrier 19DK centrifugal chillers
- Monitor and service high pressure steam boilers and central chiller plant
- Setup and calibrate pneumatic controls
- Troubleshoot electrical control systems
- Rebuild pumps and motors

Certificates and Training

Air Conditioning and Refrigeration Joint Journeyman
Apprenticeship Training Center, Local 250, Los Angeles, Ca

- JJATC Instructor Core 1 Journeyman Class
- UA STAR HVACR Mastery Certification # 12134300
- EPA Universal Certification – JJATC Local 250
- ABB Drive Certified
- Trane Scroll Chiller Training
- Danfoss Turbor Certified
- McQuay Chiller Training
- OSHA NFPA 70E Electrical Safety Certified

Wes Goulding

Siemens Industry Inc.
Cypress, California
1992 – Present

Certified Foreman

- Install and service HVAC systems including large built up systems 50 - 200 tons, package chillers, Centrifugal service and tear down 200-1500 tons.
- Rebuild open drive reciprocating compressors and semi hermetic compressors.
- Perform electrical and mechanical analysis on A/C and low and medium temp refrigeration systems.
- CPU micro processing analysis and programming.
- Setup and calibrate pneumatic controls.
- Perform all electrical troubleshooting.
- Service boilers and related controls.
- Interface with customers and offer solutions and upgrade options.
- Conduct surveys and estimates.

Previous Firm(s) Experience
Southern California
1978 – 1992

Service Mechanic

- Perform electrical and mechanical analysis on A/C and low and medium temp refrigeration systems
- Scheduled work and equipment. Coordinated with contractors and project managers.
- Installed, overhaul and serviced 10 - 100 HP Van Axial Joy fans.
- Installed and serviced piping for refrigeration systems, small split to large built up systems and cooling tower (condenser water) systems.
- Serviced walk-in boxes, freezer applications and medium temp applications.
- Installed DDC building management controls.

Certificates and Training

- Air Conditioning and Refrigeration Joint Journeyman
Apprenticeship Training Center, LOCAL 250, Los Angeles, California
- Graduated 1st in class
 - EPA Certified - JJATC Local 250, Los Angeles, CA
 - Entec Chiller Certifications Trane, Carrier, York, Turbocor
Manufacturer's Certificates:
 - Pneumatic Temperature Control
 - Reciprocal Compressors, Trane Tracer DDC certified

David Garza
Automation Service Specialist
Siemens Specialist Training Path

COR 102	HVAC Control Concepts
NET1010211	HVAC/ATC Control Strategies
NET1010212	HVAC and DDC Control Strategies
OTHR000111	HVAC and ATC Design
SPC 101	Beginning Specialist Task Training
SPC 200	Equipment Controllers - Design and Start-up
SPC 201	DDC Start-up
SPC 202	Service Methodologies
SPC 203	Service Methodologies - Advanced
SPC 204	Service Methodologies - Advanced
SPC 300	Equipment Controllers
NET3030531	DDC Start-up and Service
NET3040201	DDC Design and Start-up
NET3030511	Stand-alone Design and Start-up
NET3030521	DDC Design and Programming
ADOP030000	Modular Building Control
NET3030614	TEC Design and Start-up
ADOP030614	TCU Design and Start-up
INS 303	Insight for APOGEE
APG 200	APOGEE Training
NET3030513	Insight at Design and Start-up
APG 000100	APOGEE BETA Training
BSC 401	Advanced NT 4.0 Operating Systems
BSC 403	Windows NT Networking Essentials
BSC 404	APOGEE NT, Networking Troubleshooting
BSC 406	Networking and OS for Ethernet ALNs
BSC 407	Ethernet Networking and MLN Operating Sys Config
2 3-MCSE	MCSE CERTIFICATION
PGM 202	PPCL Programming for Building Automation
PGM 201	PPCL Programming 2
INS 404	Advanced APOGEE Troubleshooting

4 Qualifications

Siemens has been servicing the City-owned facilities since April 1991. This long-term familiarity has resulted in quick and efficient troubleshooting, diagnosing, maintaining and extending the useful life of its equipment.

Per the City's request, Siemens is proud to present the following five references:

Client Name	Project Description	Project Dates	Client Name	Phone Number	Email Address
City of Thousand Oaks	Automation, Mechanical, Fire	2008 - present	Tim Coates	805-469-3122	tcoates@toaks.org
VA Medical Center, West LA	Automation, Mechanical, Fire	2007 - present	Phil Neff	714-227-1588	Unavailable
City of Pomona	Automation	2001 - present	Mark Gluba	909-620-2448	mark_gluba@ci.pomona.ca.us
City of Camarillo	Automation, Mechanical	2004 - present	John Thomas	805-383-5667	jthomas@ci.camarillo.ca.us
City of Costa Mesa	Automation, Mechanical	2001 - present	John Aguilar	714-327-7483	jaquilar@ci.costa-mesa.ca.us

5 Fee Proposal

Services shall be provided at the site locations reference in Appendix I, all located within the City of Costa Mesa.

Duration: This agreement shall remain in effect for an initial term of five (5) years beginning 2/1/2012 with three one-year options, renewed at the City's discretion.

Year 1	2/01/2012 to 1/31/2013	\$249,770 annually	paid \$249,770 annually in advance
Year 2	2/01/2013 to 1/31/2014	\$262,258 annually	paid \$262,258 annually in advance
Year 3	2/01/2014 to 1/31/2015	\$275,371 annually	paid \$275,371 annually in advance
Year 4	2/01/2015 to 1/31/2016	\$289,140 annually	paid \$289,140 annually in advance
Year 5	2/01/2016 to 1/31/2017	\$303,597 annually	paid \$303,597 annually in advance

Should the City opt to renew each year of the option, a 5% escalation will apply to the previous year's price. Per the City's request, the completed table in Exhibit B is listed in Appendix J of this document.

APPENDICES

Appendix A. Discounted Labor & Material Pricing

For your convenience, we are providing a copy of our most recent published service rates. As an Advantage Service Agreement (ASA) customer, you will be entitled to your contracted discount for all labor in the event this service call is billable. All rates are current as of 01/01/2012 & are subject to change with or without notice. Please be advised that Portal to Portal labor charges may apply.

Service	ASA Customer Standard Time	ASA Customer Over Time	ASA Customer Double Time	Non-ASA Customer Standard Time	Non-ASA Customer Over Time	Non-ASA Customer Double Time
On-Line Support:	1 Hr Min	1 Hr Min	1 Hr Min	2 Hr Min	2 Hr Min	2 Hr Min
Modem or Phone	\$153.00/hr	\$199.00/hr	\$245.00/hr	\$198.00/hr	\$297.00/hr	\$396.00/hr
Automation	2 Hr Min	2 Hr Min	2 Hr Min	4 Hr Min	4 Hr Min	4 Hr Min
On-Site Service Call	\$153.00/hr	\$199.00/hr	\$245.00/hr	\$198.00/hr	\$297.00/hr	\$396.00/hr
Mechanical	2 Hr Min	2 Hr Min	2 Hr Min	4 Hr Min	4 Hr Min	4 Hr Min
On-Site Service Call	\$140.00/hr	\$182.00/hr	\$224.00/hr	\$182.00/hr	\$273.00/hr	\$364.00/hr
Electrical Services	2 Hr Min	2 Hr Min	2 Hr Min	4 Hr Min	4 Hr Min	4 Hr Min
On-Site Service Call	\$182.00/hr	\$237.00/hr	\$291.00/hr	\$236.00/hr	\$354.00/hr	\$472.00/hr
Security	2 Hr Min	2 Hr Min	2 Hr Min	4 Hr Min	4 Hr Min	4 Hr Min
On-Site Service Call	\$137.00/hr	\$178.00/hr	\$219.00/hr	\$178.00/hr	\$267.00/hr	\$356.00/hr
Fire	2 Hr Min	2 Hr Min	2 Hr Min	4 Hr Min	4 Hr Min	4 Hr Min
On-Site Service Call	\$142.00/hr	\$185.00/hr	\$227.00/hr	\$184.00/hr	\$276.00/hr	\$368.00/hr
Fee: On Site Trip	\$49.50 / Trip	\$49.50 / Trip	\$49.50 / Trip	\$75.00 / Trip	\$75.00 / Trip	\$75.00 / Trip

Overtime rates in the table apply for calls Monday through Friday 4:30 p.m. - 8:00 am excluding Holidays. Double time applies for Sundays and Holidays.

All invoices shall be due and payable by customer upon receipt. Further, seller reserves the right to invoice customer monthly as the work progresses, for all materials delivered to the job site or to an off-site facility and for all work performed on-site and off-site. If the customer becomes overdue in any progress payment, seller shall be entitled to stop work, shall be entitled to interest at the lesser of an annual rate of 18% or the maximum interest permitted by applicable law, and also to avail itself of any other legal and equitable remedies. Seller shall also be entitled to such interest on all amounts retained by customer from progress payments or otherwise. Customer agrees that he will pay and / or reimburse seller for any and all reasonable attorneys' fees, which are incurred by seller in the collection of amounts due and payable hereunder. Prices are subject to correction for error.

Appendix B. Maintenance Schedule for Automation and Mechanical Equipment

Equipment Category	Services (Times per year):
Apogee Workstation	Software Maintenance (1)
Controller	Preventative Maintenance (1)
Data Protection & Data Recovery	Data Protection & Recovery Services (2)
System Performance Updates	Software Update (1)
Insight Workstation Modem	Preventative Maintenance (1)
Air Compressors & Dryers	Preventative Maintenance (4)
Package / RTU's	Air Cooled Condenser Coil (2) - Evaporator/Cooling Coil Cleaning (1) - HVAC Air Filter Change (4) - Operating Inspection - Cool (1) - Operating Inspection - Heat (1)
Exhaust Fans	Operating Inspection - Heat (1)
Pumps	Operating Inspection (1)
Chillers – water and air cooled	Air Cooled Condenser Coil (1) - Annual Maintenance (1) - Operating Inspection (1) - Refrigerant Oil Analysis (1)
Cooling Towers	Cooling Tower Drain (1) - Cooling Tower Refill (1) - Operating Inspection (1)
Heat Pumps	Air Cooled Condenser Coil (2) - Evaporator/Cooling Coil Cleaning (1) - HVAC Air Filter Change (4) - Oil Acid Test (1) - Operating Inspection - Cool (1) - Operating Inspection - Heat (1)
HVAC Water Treatment	Hot water and chilled water loops (12)
Cabinet & Free Standing / Unit Heater / Fan Coils	Operating Inspection - Heat (1)

Siemens City of Costa Mesa Service Schedule

• **Automation Service**

Scheduled Preventive Maintenance: City Hall, Police Facility, NCC – Dave Garza

Jan	Mar	Apr	Jun	Jul	Sep	Oct	Dec
1	1	1	1	1	1	1	1

• **Mechanical Service**

Scheduled Preventive Maintenance: Comm. Bldg. – Matt Hansen

Feb	Mar	May	Jun	Aug	Sep	Nov	Dec

Scheduled Preventive Maintenance: Fire Station 1 – Matt Hansen

Jan	Mar	Apr	Jun	Jul	Sep	Oct	Dec

Scheduled Preventive Maintenance: Police Station – Matt Hansen

Jan	Mar	Apr	Jun	Jul	Sep	Oct	Dec

Scheduled Preventive Maintenance: Fire Station 4 – Matt Hansen

Jan	Mar	Apr	Jun	Jul	Sep	Oct	Dec

Scheduled Preventive Maintenance: Fire Station 5 – Matt Hansen

Jan	Mar	Apr	Jun	Jul	Sep	Oct	Dec

Scheduled Preventive Maintenance: Fire Station 2 – Matt Hansen

Jan	Mar	Apr	Jun	Jul	Sep	Oct	Dec

Scheduled Preventive Maintenance: Police Sub-Station – Matt Hansen

Jan	Mar	Apr	Jun	Jul	Sep	Oct	Dec

Scheduled Preventive Maintenance: New Corp Yard – Matt Hansen

Jan	Mar	Apr	Jun	Jul	Sep	Oct	Dec

Scheduled Preventive Maintenance: Neighbor Community – Matt Hansen

Jan	Feb	Apr	May	Jul	Aug	Oct	Nov

Scheduled Preventive Maintenance: Historical Society – Matt Hansen

Jan	Feb	Apr	May	Jul	Aug	Oct	Nov

Scheduled Preventive Maintenance: Mesa Verde Library – Matt Hansen

Jan	Mar	Apr	Jun	Jul	Sep	Oct	Dec

Scheduled Preventive Maintenance: Fire Station 3 – Matt Hansen

Jan	Mar	Apr	Jun	Jul	Sep	Oct	Dec

Scheduled Preventive Maintenance: Fire Station 6 – Matt Hansen

Jan		Mar	Apr		Jun	Jul		Sep	Oct		Dec

Scheduled Preventive Maintenance: Balearic Center – Matt Hansen

Jan		Mar	Apr		Jun	Jul		Sep	Oct		Dec

• Scheduled Preventive Maintenance: City Hall – Matt Hansen

	Feb	Mar		May	Jun		Aug	Sep		Nov	Dec

- Senior Center*
- Downtown Community Center*
- Old Corp Yard*

*Service schedule to be provided within 10 days of award

Appendix C. Building Automation System Equipment due for upgrades

Qty	Affected Life Cycle Equipment	Year Product was Introduced	Retirement Date	End of Useful Service*
3	Modular Equipment Controller	1998	2010	2017
1	Floor Level Network Controller	1997	2008	2015
9	Unitary Controller	1988	2002	2009

Appendix D. Automation System Tasking

Control Panel Maintenance

1. Perform Quarterly Inspections.
2. Check Incoming AC and power supply.
3. Check power supply voltages and adjust to +5 volts if necessary.
4. Check battery charging circuit and battery.
5. Check AOP modules between module and termination point.
6. Replace battery and reload database.
7. Check time, reset if required.
8. Perform integrity test and system wide function test through random point checks, command, selective disabling and standard reports.
9. Check wire terminations, tighten as necessary.
10. Back up database twice annually.

Insight Workstation

1. Review system history quarterly.
2. Run PC diagnostics to optimize performance.
3. Check for disk fragmentation; optimize, using authorized software.
4. Back up database quarterly.
5. Check fans to insure proper ventilation and airflow.
6. Run point log, check for point accuracy and integrity.
7. Run Alarm History Reports.
8. Evaluate application functions & system integrity through set point commanding & standard reports.
9. Check graphics and update changes as required (Customer defined).
10. Check TOD & PPCL Resident & Traced software.
11. Analyze memory dump & compare with previous reports.
12. Check cables and power connections.
13. Backup database twice annually.
14. Review system with customer. Perform user training as required.

Appendix E. Mechanical Equipment Tasking

Rooftop Packaged Units

1. Filters changed quarterly on a minimum basis or as required.
2. Preventive maintenance service to be performed quarterly.
3. Lock out and tag out equipment as required.
4. Check all electrical wiring, connections; tighten as required.
5. Check all motor starter contractor surfaces for wear.
6. Clean electrical control enclosures.
7. Lubricate air handling unit motor bearings and fan bearings, if applicable.
8. Check air handling unit belts for wear.
9. Check belt tension and sheave alignment.
10. Change belt & change as required.
11. Check condition of evaporator coils. Chemically clean as required.
12. Check and clean condensate drains, drain line & pan annually.
13. Inspect air handling unit fan assembly.
14. Lubricate condenser motors as required.
15. Chemically clean condenser coil and fan blades annually.
16. Check structural integrity of unit.
17. Check all mounting hardware. Tighten as needed.
18. Check and calibrate controls.

Reciprocating Compressors

1. Preventive maintenance shall be performed quarterly.
2. Lock out and tag out equipment as required.
3. Check all electrical wiring and connections, tighten as needed.
4. Check starter contractor surfaces for wear.
5. Visually leak check compressor and associated refrigerant piping annually.
6. Clean exterior of compressor.
7. Check operation of crankcase heater.
8. Meg-ohm motor from starter and record annually.
9. Check and calibrate all safety and cut-out devices.
10. Check and adjust compressor capacity controls.
11. Check, calibrate and adjust all operational controls.
12. Remove compressor oil sample, perform spectro-chemical test on oil annually.

Exhaust Fans

1. Preventive maintenance.

2. Lock out and tag out equipment as required.
3. Check all electrical wiring and connections, tighten as needed.
4. Check all motor starter contractor surfaces for wear.
5. Clean starter and electrical control enclosures.
6. Lubricate motor bearings and fan bearings.
7. Check exhaust fan belts for wear, replace as required.
8. Check belt tension and sheave alignment. Adjust as required.
9. Inspect exhaust fan unit assembly.
10. Check all mounting hardware. Tighten as required.

Pneumatic Air Compressor

1. Quarterly inspect unit, check for rust spots, oil leaks & general condition of unit.
2. Drain tank, check auto drain.
3. Check belt, adjust tension & sheave alignments. Replace if necessary.
4. Meg-ohm megor and record, annually.
5. Check starter wiring & contacts.
6. Check motor amperage & voltage.
7. Check intake air filter, replace as required.

Package, Gas Heat Electric Cool

1. Preventive maintenance.
2. Change filter quarterly on a minimum basis. Increase as necessary.
3. Check unit voltage and record.
4. Lubricate motors as required.
5. Check and adjust burners for proper flames.
6. Check for proper combustion and flue gas relief.
7. Record discharge temperature, heating & cooling modes.
8. Record return air temperature.
9. Check and adjust operating and safety controls.

Air Handler

1. Perform maintenance quarterly.
2. Lockout tag out equipment.
3. Check starter contacts for excessive wear.
4. Tighten all starter wire connections.
5. Check belts adjust or replace as needed.
6. Check belt tension and sheave alignment. Adjust as required.
7. Meg-Ohm motor and record annually.

8. Check fan motors amps.
9. Clean and lubricate unit motor bearings and fan bearings.
10. Check operation of economy dampers.
11. Lubricate all dampers and linkages as necessary.
12. Check operation of static vane (if applicable)
13. Visually check all coils for leaks (Annually)
14. Check and record all coil delta T (Annually)
15. Inspect all mounting hardware, tighten as needed.

Multizone Air Handler

1. Perform maintenance quarterly.
2. Lockout tag out equipment.
3. Check fan motor amps.
4. Clean and lubricate components.
5. Check operation of economy dampers.
6. Check operation of static vane or dampers.
7. Check operation of zone dampers.
8. Check and adjust operating and safety controls.

Package Chiller Annual

1. Lockout tagout equipment.
2. Check condenser. Barrel tubes.
3. Check Chiller barrel tube.
4. Check and record unit amp draw.
5. Check unit Voltage and Record.
6. Check unit pressures and record.

Chiller With Reciprocating Compressors

1. Visually inspect equipment condition and operation.
2. Check for unusual vibration, noise, excessive temperatures & refrigerant leaks.
3. Check unit voltage and record.
4. Check unit operate and records.
5. Check unit operating hours and record.
6. Check condenser pressure and record.
7. Check evaporator pressure and record.
8. Check oil sump sight glass.
9. Record chilled water inlet temperature.
10. Record chilled water outlet temperature.

11. Check condenser water inlet.
12. Check condenser water outlet temperature.
13. Check compressor starter contacts for abnormal wear.

Variable Frequency Drive

1. Check unit operation quarterly.
2. Check fault history report.
3. Check operation of manual bypass.
4. Verify drive signal increase and decrease.
5. Check and tighten all electrical connections.
6. Check starter contacts for wear.

Computer Room Air Conditioning Units

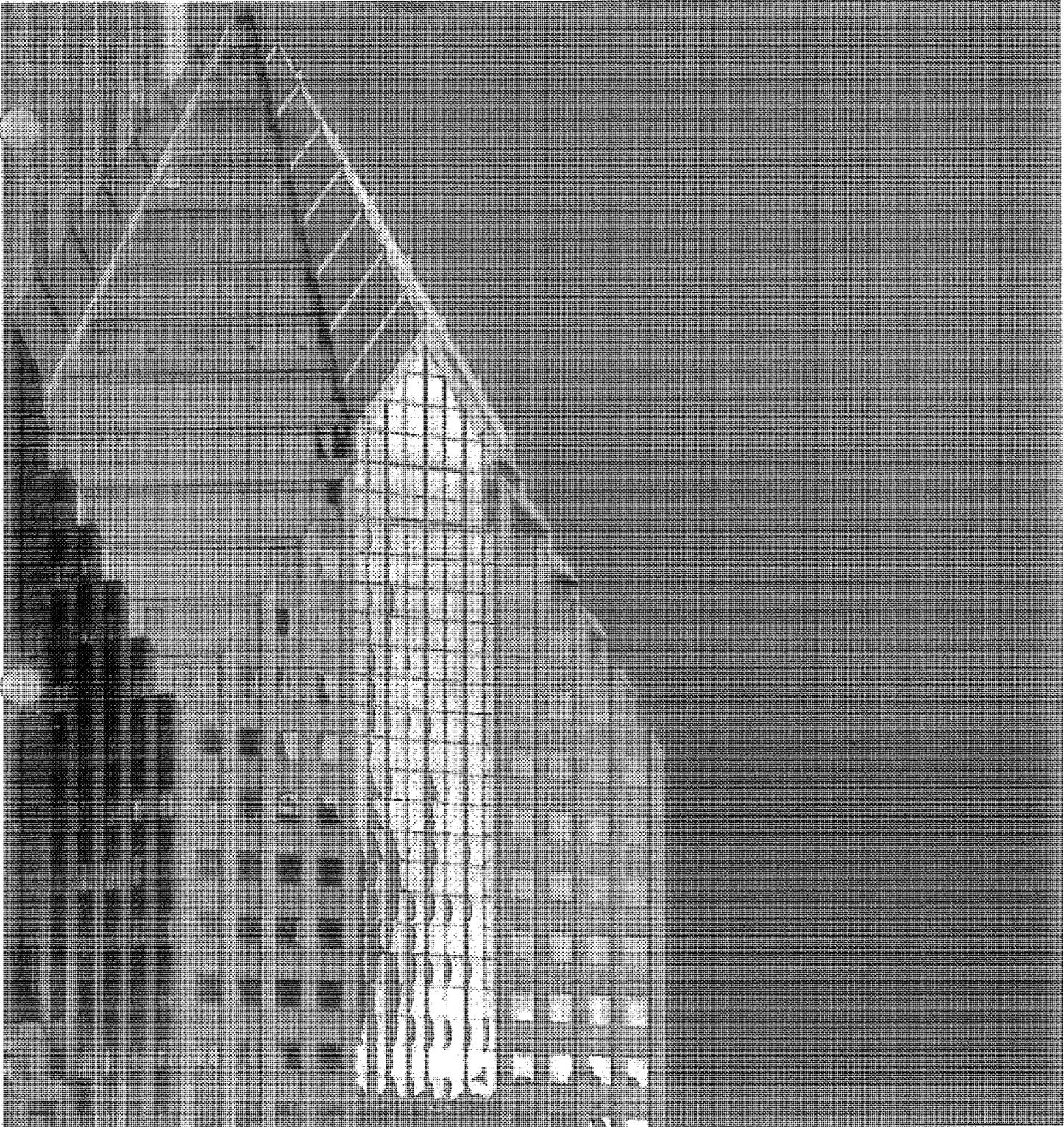
1. Check all electrical wiring and connections. Maintenance is performed bi-monthly.
2. Check Filters quarterly as a minimum.
3. Check all electrical wiring and connections. Tighten as necessary.
4. Check starter contractor surfaces for wear.
5. Check compressor amps and record.
6. Check sight glass for moisture level.
7. Check operation of crankcase heater.
8. Lubricate condenser fan motor and fan bearings.
9. Check condition of condenser coil, clean as necessary.
10. Check belts for wear, replace as required.
11. Check and adjust compressor capacity controls.
12. Lubricate indoor fan motor and bearings.
13. Check humidifier for proper operation.

Boiler

1. Check boilers for proper operation. Discuss any problems with buildings operating engineering staff.
2. Check and use boiler viewport to check main burner flame.
3. Turn off and secure boiler.
4. Check boilers for any unusual noise or vibration.
5. Inspect gaskets for any signs of leaks.
6. Examine the venting system
7. Remove and/or inspect gas pilot assembly. Reinstall in accordance with recommended specifications and tolerances.
8. Check boiler circulating pumps for proper operation and lubricate.
9. Check flame safeguard control for pilot and main flame ignition..

10. Check operation of blower motor and circuitry.
11. Check operation of gas valves and vents.
12. Inspect and tighten all electrical connections
13. Check and adjust all boiler limit pressure controls and running interlocks.
14. Check operation and adjust low water controls.
15. Check burner, pilot and main flame ignition.
16. Check and oil combustion air fan.
17. Check expansion tank and site glass
18. Check and record all entering and leaving water temperatures and pressures.
19. The boiler room shall be left in the same clean condition as existed prior to start of the work.
20. Refer to equipment O&M manual for any maintenance clarifications.
21. Complete onsite service log and PM checklist

Appendix F. Siemens Training Directory



2011 Training Directory

SIEMENS

A message to our students

Welcome to the 2011 Training Directory!

Inside you will find offerings for all of your training needs from basic HVAC information to Siemens systems and product training.

I invite you to look through the directory and review our offerings. If you don't see exactly what you need, we can develop custom training to meet your employees' specific needs. My team can work directly with you to create a customized development path for your employees.

If you need to get up to speed quickly on the APOGEE system, we now offer an Accelerated APOGEE Master Operator Program (5-690). This class presents the information in the 5-620, 5-625 and 5-615 classes in one 2-week intensive class. Students who successfully complete this training will receive a Master Operator Curriculum plaque. See page 10 for more information.

With all the changes in environmental legislation, I recommend you look into our 2-day class on Sustainability and Environmental Management (5-801) class. This class is updated for each delivery to ensure it incorporates the latest environmental regulations. A complete description of this class is on page 25.

We have updated our CD/DVD training to offer more titles at a lower cost. See page 41 for more information on our self-study offerings.

We look forward to working with you in the coming year. We value and appreciate your feedback and strive to continually improve our training offerings to meet your needs.

Best Regards,



Karen Petersen



Karen Petersen

MANAGER, EDUCATION SERVICES
CUSTOMER TRAINING

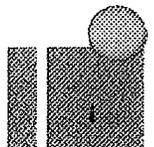


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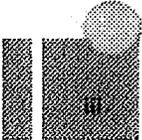
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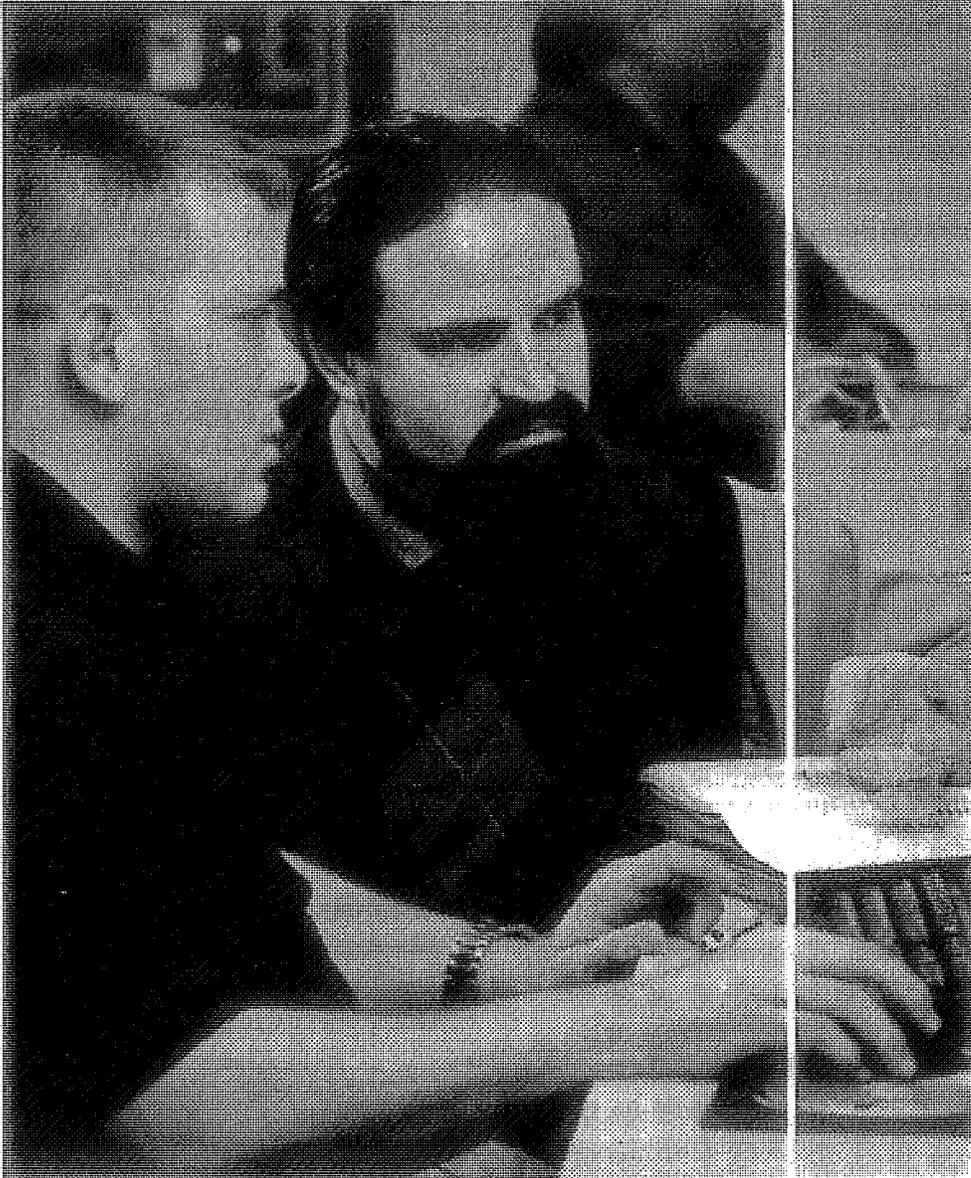
Note: Prices in this directory apply during the period from October 1, 2010 through September 30, 2011, but are subject to change. For more information about training, call 1-800-487-7771 or send an email to: educationservices.industry@siemens.com. Visit our website: www.TrainingLearningCenter.com.

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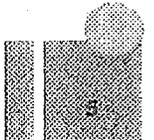


**BUILDING AUTOMATION,
MAINTENANCE & PLANNING**

CLASSROOM TRAINING

OVERVIEW COURSES

SELF-STUDY MATERIALS



CLASSROOM TRAINING

DATES AND LOCATIONS

See the list on page 28.

Training Options

We offer three types of building automation training:

1. CLASSROOM TRAINING WITH HANDS-ON LABS (3 TO 4 DAYS)

These courses are specifically designed to teach students to use Siemens Industry products to control facilities more efficiently, reduce energy costs and improve building occupants' comfort. Our classroom training provides objective-based learning and includes hands-on labs to allow students to practice with our building controls hardware and software. Enrollment is limited so that instructors may give individual attention to each student. Students work in pairs during the hands-on labs. These classes are scheduled at local Siemens Industry offices and can be taught at customers' facilities. See pages 28-31 for course descriptions and pages 32-35 for training dates and locations.

HOW TO ENROLL

Contact your local Siemens Industry office.

LODGING AND TRANSPORTATION

Students are responsible for their lodging and transportation when attending training at any location. Hotel and travel recommendations are included in the confirmation letters sent to students after enrolling.

CONFIRMATION

If a confirmation letter is not received three weeks before the class begins, call 1-800-487-7771.

CANCELLATION POLICY

Students who cancel less than four weeks prior to the first day of class are charged 25% of the tuition and less than two weeks prior to the first day of class are charged 50% of the tuition. The full tuition is charged if students do not cancel their enrollment and do not attend the class. The cancellation fee will be waived if a qualified student attends the class as a substitute.

Siemens reserves the right to cancel classes and assumes no liability for expenses incurred by students due to class cancellation. All students will be notified of class cancellations.

2. OVERVIEW TRAINING (4 TO 6 HOURS)

Overview courses are four to six hours in length. They are taught at customers' facilities or at local Siemens Industry offices by the personnel who install or service our systems. See page 36 for course descriptions. Contact your local Siemens Industry office for more information.

3. SELF-STUDY MATERIALS

Our website, www.TrainingLearningCenter.com, offers many web-based training modules about our building controls systems and general building information. This training can be used to introduce students to our systems or to review information learned in an earlier class or through job experience. New web-based training modules will be added throughout the year. See page 43 for web-based details.

If you have questions, call 1-800-487-7771 or send an email to: educationservices.industry@siemens.com.

Building Automation Training Team



Bill Barros
CERTIFIED INSTRUCTOR



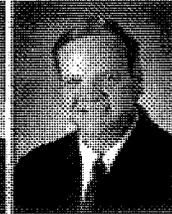
Mike Binkowski
CERTIFIED INSTRUCTOR



Ernie Glenn
CERTIFIED INSTRUCTOR



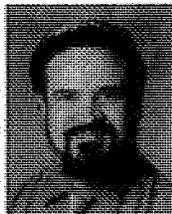
Bill Harris
CERTIFIED INSTRUCTOR



Roger Herrick
CERTIFIED INSTRUCTOR



Noel Hipolito
CERTIFIED INSTRUCTOR



Pat Kelly
CERTIFIED INSTRUCTOR



Tom Macaulay
CERTIFIED INSTRUCTOR



Curtis Oller
CERTIFIED INSTRUCTOR



Matthew Shauger
CERTIFIED INSTRUCTOR



Paul Rogalske
CERTIFIED INSTRUCTOR



Jim Rowe
CERTIFIED INSTRUCTOR



Ed Tambornino
CERTIFIED INSTRUCTOR



John Traber
CERTIFIED INSTRUCTOR



Dan Zadan
CERTIFIED INSTRUCTOR



Chris Kraszewski
MANAGER



Brenda Taylor
TRAINING COORDINATOR



Teresa Grace-Regan
NATIONAL REGISTRAR



OFFICE LOCATIONS



United States
Alabama
Birmingham
205-403-8388

Alaska
Anchorage
907-563-2242

Fairbanks
907-479-7034

Juneau
907-364-2543

Arizona
Phoenix
602-567-2200

Arkansas
Little Rock
501-374-5420

California
Los Angeles
714-761-2200

Sacramento
916-553-4444

San Diego
858-693-8711

San Francisco
510-783-6000

Colorado
Colorado Springs
719-266-6565

Denver
303-279-8500

**District of
Columbia**
Washington, DC
301-837-2600

Florida
Jacksonville
904-527-6000

Miami
954-364-6600

Orlando/Tampa
407-571-1900

Palm City
772-419-2800

Pensacola
850-433-5995

Tallahassee
850-504-0344

Georgia
Atlanta
770-935-2000

Savannah
912-239-9820

Idaho
Boise
208-658-9107

Moscow
208-883-8330

Illinois
Chicago
847-803-2700

Normal
309-664-2460

Indiana
Indianapolis
317-293-8880

Iowa
Des Moines
515-963-1400

Kansas
Kansas City
913-905-6700

Wichita
316-267-5814

Kentucky
Louisville
502-267-1571

Louisiana
Lafayette
337-233-7431

New Orleans
504-466-9300

Maine
Scarborough
207-885-4100

Maryland
Baltimore
301-837-2600

Beltsville
301-837-2600

Massachusetts
Boston
781-575-1900

Michigan
Detroit
734-456-3800

Grand Rapids
616-538-1611

Minnesota
Minneapolis
651-631-8533

Mississippi
Jackson
601-718-1310

Missouri
Kansas City
913-888-2646

St. Louis
314-567-5570

OFFICE LOCATIONS

Nebraska
Kearney
308-237-2200

Omaha
402-891-8174

Nevada
Las Vegas
702-855-5300

New Jersey
Pine Brook
973-575-6300

Florham Park
973-593-2600

New Mexico
Albuquerque
505-798-9644

New York
Albany
518-782-0131

Buffalo
716-568-0983

Falconer
716-664-9826

Long Island
631-218-1000

New York City
973-575-6300

Rochester
585-797-2300

Syracuse
315-437-2726

North Carolina
Charlotte
704-847-1680

Greensboro
336-691-0740

Raleigh-Durham
919-469-5095

North Dakota
Fargo
701-237-3763

Ohio
Cincinnati
513-742-5590

Cleveland
216-332-7360

Columbus
614-846-9540

Oklahoma
Oklahoma City
405-787-4390

Tulsa
918-615-1430

Oregon
Eugene
541-338-4096

Portland
503-207-1900

Pennsylvania
Harrisburg
717-697-4656

Philadelphia
215-654-8040

Pittsburgh
412-257-2111

Rhode Island
Warwick
401-732-4787

South Carolina
Columbia
803-765-9070

South Dakota
Rapid City
605-343-7037

Sioux Falls
605-336-3788

Tennessee
Memphis
901-377-6223

Nashville
615-832-0500

Texas
Austin
512-339-6991

Dallas
972-550-8488

Houston
281-949-3000

San Antonio
210-641-2921

Utah
Salt Lake City
801-316-2500

Vermont
Albany, NY
518-782-0131

Virginia
Richmond
804-222-6680

Roanoke
540-563-8877

Virginia Beach
757-490-6026

Washington
Mt. Vernon
360-336-3300

Seattle
425-507-4372

Spokane
509-891-9070

Wisconsin
Appleton
920-739-6885

Eau Claire
715-835-6696

Milwaukee
414-475-3700

Port Edwards
715-887-4400

Canada

Alberta
Calgary
403-259-3404

Edmonton
780-486-1234

British Columbia
Vancouver
604-273-7733

Manitoba
Winnipeg
204-774-3411

Nova Scotia
Halifax
902-835-8316

Ontario
Brampton
905-799-9937

Hamilton
905-643-2200

London
519-680-2380

Ottawa
613-733-9781

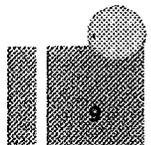
Toronto
905-799-9937

Quebec
Montreal
514-374-0044

Quebec City
418-622-2991

Puerto Rico
San Juan
787-622-9293

Headquarters
Education
Services
Buffalo Grove,
Illinois
1-800-487-7771



Master Training Paths

You will receive a plaque if you successfully complete one of these training paths (curricula) within three years.

MASTER OPERATOR CURRICULUM

APOGEE Systems	APOGEE Systems with BACnet
5-620*	5-720
5-615	5-615
5-625	5-725

MASTER PROGRAMMER CURRICULUM

APOGEE Systems	APOGEE with BACnet Systems
5-620*	5-720
5-625	5-725
5-630	5-630
5-635	5-635

Training Recommendations

Depending on job responsibilities, we recommend these courses:

	5-620*	5-615	5-618	5-625	5-630	5-635	5-645	5-652	5-670	5-600	5-601
For APOGEE Building Automation Systems											
For APOGEE with BACnet Building Automation Systems	5-720	5-615	5-618	5-725	5-630	5-635	5-645	5-652	5-670	5-600	5-601
Operate a building automation system.	1	2/3		2/3							
Create or edit programs for building automation system using FXCL.	1				2	3					
Operate field panel(s) or TECs.	1	2									
Manage your facility's energy consumption using your building automation system.	1						2				3
Administer the data from your building automation system using InfoCenter Suite Software.	1							2			
Monitor and control laboratory rooms using Siemens devices.	1								2		
Troubleshoot technical systems (generic electrical systems are used in the training).											1
Communicate with LonWorks® devices on your building automation system using Network Management Tool (NMT).	1			2							
Prerequisites	None	5-620 or 5-710 or 5-720	5-630 or 5-690	5-620 or 5-718 or 5-725	5-620 or 5-690 or 5-718 or 5-725	5-620 or 5-710 or 5-630	5-620 or 5-690 or 5-718	5-620 or 5-690 or 5-718 or 5-720	5-620 or 5-690 or 5-718	None	None

For experienced APOGEE system operators who have attended 5-620 or passed the online test for this class, we recommend that you attend 5-710 to learn our APOGEE with BACnet system. This class is fast-paced and contains the same topics taught in 5-720 and 5-725.

*For experienced operators, we offer a web-based tool to test your knowledge of the information taught in the APOGEE Workstation Operations course (5-620). If you successfully complete the test, then you may attend any class that requires 5-620 as a prerequisite and you have met the 5-620 requirement for a plaque. Log on to our training website: www.TrainingLearningCenter.com, if you want more information or would like to take the test.

NEW
5-690 Accelerated APOGEE Master Operator Program (9 days)

Learn to use the APOGEE workstation, field panels and FLN devices to control a building. This course includes both the Insight and Datamate Base software. This is an accelerated training program that contains all information presented in the 5-620, 5-625 and 5-615 courses taught on two consecutive weeks. Classes include extensive hands-on labs.

Note: This class is taught at a rapid pace with large amounts of new information presented each day. Students who complete every day of this class will receive the Master Operator Curriculum plaque.

The topics from the three classes will be taught in the following order.

Topic:	See course description for details:
Distributed Digital Control (DDC)	5-620
Navigation (Windows and Insight)	5-620
Reports (Report Builder and Report Viewer)	5-620
System Architecture and Hardware	5-615, 5-620, 5-625
System Profile	5-620, 5-625
Point Editor and Attribute Duplicator	5-620, 5-625
Alarm Management and Enhanced Alarming	5-620, 5-625
Commander and Global Commander	5-620
Micrografx Designer and Graphics	5-620, 5-625
Event Builder	5-625
Trending	5-620
Reports, Trend Collections and Equipment Scheduling	5-620, 5-625
Dynamic Plotter	5-620
User Accounts	5-625
Program Editor	5-625
Database Utilities	5-625
Datamate Base	5-615
Point Operations	5-615
FLN Device Applications	5-615
FLN Device Operations	5-615
TEC Communications and Startup	5-615
Building Level Network	5-615

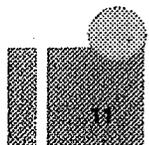
Course Length: Nine days ending by noon on the ninth day. The schedule is Tuesday through Friday (8:00 a.m. – 4:30 p.m.) of week one and Monday through Thursday (8:00 a.m. – 4:30 p.m.) and Friday (8:00 a.m. – noon) of week two.

Participants: Experienced computer and HVAC system operators who need to control and/or monitor building systems from the Insight computer workstation, field panels or FLN devices.

Prerequisite: It is strongly recommended that the participants have several years of computer experience and a strong knowledge of HVAC systems before attending this class.

CEUs: 6.4 CEUs

Price: \$4,130 (U.S.)



CLASSROOM TRAINING

"I had previously been generating trend reports 'the long way'...with my new tools I will be able to save time and I feel that I can help my colleagues as well. Extremely worthwhile."

Jennifer Albinson
Cephalon

5-620 APOGEE Workstation Operations (4 days)

Learn to monitor and control your building automation system using your APOGEE workstation.

Topic:	You will learn to:
Distributed Digital Control (DDC)	<ul style="list-style-type: none">• Define DDC and explain how it is used to control building systems.
Navigation	<ul style="list-style-type: none">• Navigate through Windows and Insight.• Use the Object Selector to retrieve objects from the database.• Customize the Insight main menu.
Reports	<ul style="list-style-type: none">• Define and generate APOGEE reports.
Report Scheduler	<ul style="list-style-type: none">• Schedule reports to run automatically.• Describe the Scheduler application.
System Profile	<ul style="list-style-type: none">• Identify the DDC hardware used to control and monitor building equipment.• Describe APOGEE system architecture.• Explain the system profile and its functions.• Unbundle subpoints in a TEC.
Point Editor	<ul style="list-style-type: none">• Address points for the Modular Building Controller (MBC), the Modular Equipment Controller (MEC), the PXC Compact (PXC-C) and the PXC Modular (PXC-M) Field Panels.• Discuss slope and intercept.
Alarm Management	<ul style="list-style-type: none">• Manage system alarms and alarm messages.
Commander	<ul style="list-style-type: none">• Monitor and command system points to control building equipment.
Graphics	<ul style="list-style-type: none">• Manage alarms from Graphics.• Utilize dynamic information in the Graphics application.
Trend	<ul style="list-style-type: none">• Create trend definitions.• Collect trend data.
Equipment Scheduler	<ul style="list-style-type: none">• Schedule events and zones.• Override scheduled events and zones.
Dynamic Plotter	<ul style="list-style-type: none">• Generate a dynamic plot to monitor system information.

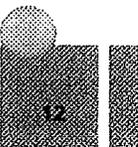
Course Length: Four days ending by noon on the fourth day.

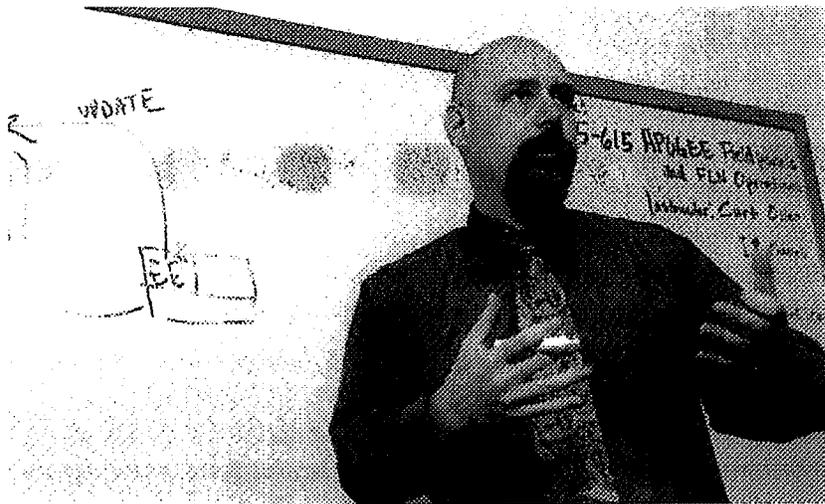
Participants: Building operators, maintenance personnel or others who need skills for day-to-day operation of an APOGEE system.

Prerequisite: It is strongly recommended that participants have some PC experience in order to receive maximum benefit from the training.

CEUs: 2.7 CEUs

Price: \$1,995 (U.S.)





**BUILDING AUTOMATION,
MAINTENANCE & PLANNING**

CLASSROOM TRAINING

"This is the best investment any company or self motivated person should invest in."

Manny Soto
Smithsonian Institution

5-615 APOGEE Field Panel and FLN Operations (4 days)

Learn to monitor and control building systems locally from field panels and FLN devices using Datamate Base. Insight workstations are used to monitor and command FLN devices.

Topic:	You will learn to:
Hardware	<ul style="list-style-type: none"> Identify and network Automation Level Network (ALN) Building Level Network (BLN) and Field Level Network (FLN) devices.
Datamate Base	<ul style="list-style-type: none"> Perform database backup and restoration for BLN and FLN devices. Communicate with ALN/BLN and FLN devices.
Point Operations	<ul style="list-style-type: none"> Use Point Monitor, Point Log and Subpoint Log to display point information. Command points at the ALN/BLN and FLN levels. Describe point addressing schemes for ALN/BLN and FLN devices.
FLN Device Applications	<ul style="list-style-type: none"> Analyze the sequence of operations for VAV, Constant Volume, Heat Pump and Unit Ventilator applications.
FLN Device Operations	<ul style="list-style-type: none"> Command and monitor subpoints at TECs and field panels. Display FLN information at the field panel. Use an Insight workstation to command and reverse subpoints. Run reports at the Insight workstation to view subpoints.
TEC Communications and Startup	<ul style="list-style-type: none"> Identify and describe the function of and interaction between the different memory types in TECs. Identify the three types of subpoints in TECs.
Automation Level Network/ Building Level Network	<ul style="list-style-type: none"> Describe BAC networking concepts. Interpret LED indicator action.

Note: This course includes Insight FLN operations and additional FLN device applications. The training uses both Insight and Datamate Base software.

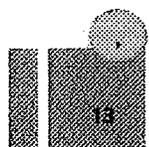
Course Length: Four days ending by noon on the fourth day.

Participants: System users who need skills to control and monitor building control systems from field panels and terminal equipment controllers.

Prerequisite: APOGEE Workstation Operations (5-620) or Accelerated APOGEE Master Operator Program (5-690) or APOGEE with BACnet for Experienced Insight Users (5-710) or APOGEE with BACnet Advanced Operations (5-720).

CEUs: 2.7 CEUs

Price: \$1,995 (U.S.)



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5-618 LONWORKS® Communications for APOGEE Field Panel and FLN Operations (4 days)

Learn to communicate with LMECs (L model Mechanical Equipment Controllers) and LTECs (LONMARK® compliant Terminal Equipment Controllers) using Network Management Tool (NMT).

Topic	You will learn to:
Navigating the Network Management Tool (NMT)	<ul style="list-style-type: none">• Use the network browser to monitor network variables and configuration properties.• Use the network browser to customize reports.• Command network variables and configuration properties to different values.• Verify device status.
System Architecture	<ul style="list-style-type: none">• Describe where LMECs and LTECs reside in the APOGEE system architecture.• Describe how LONWORKS® Networks interact with the APOGEE system.
LTEC Functionality	<ul style="list-style-type: none">• Use reports to verify the controlling setpoint.• Use reports to verify the mode and status of the LTEC.
Point Lists	<ul style="list-style-type: none">• Cross-reference network variable and configuration property values in NMT to APOGEE point values using Terminal Emulation.
PEAK Database	<ul style="list-style-type: none">• Access and store the PEAK Database.• Transfer the PEAK Database.
Insight Workstation	<ul style="list-style-type: none">• Use Insight to run reports on an LTEC.• Describe how to interact with the PEAK Database using Insight.• Use Graphics to monitor and command LTEC subpoints.

Note: This course teaches Network Management Tool (NMT) and Insight software.

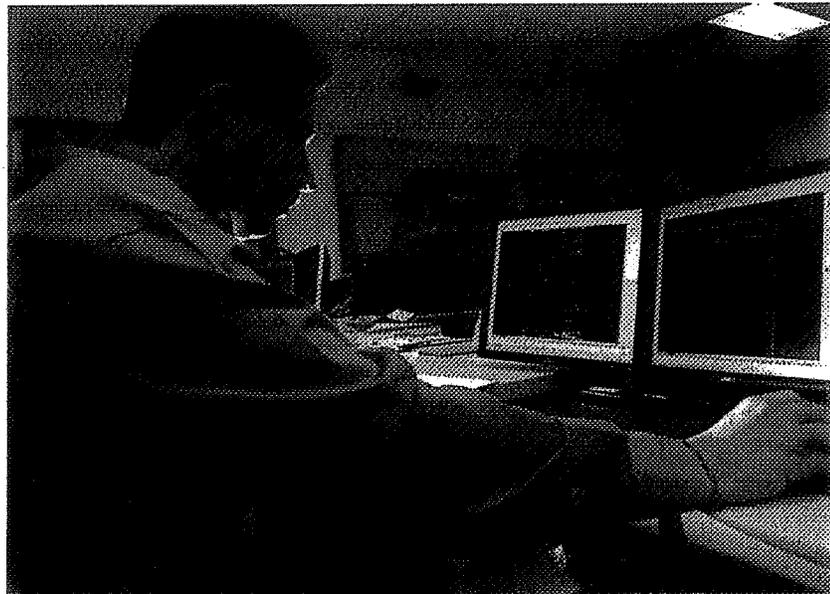
Course Length: Four days ending by noon on the fourth day.

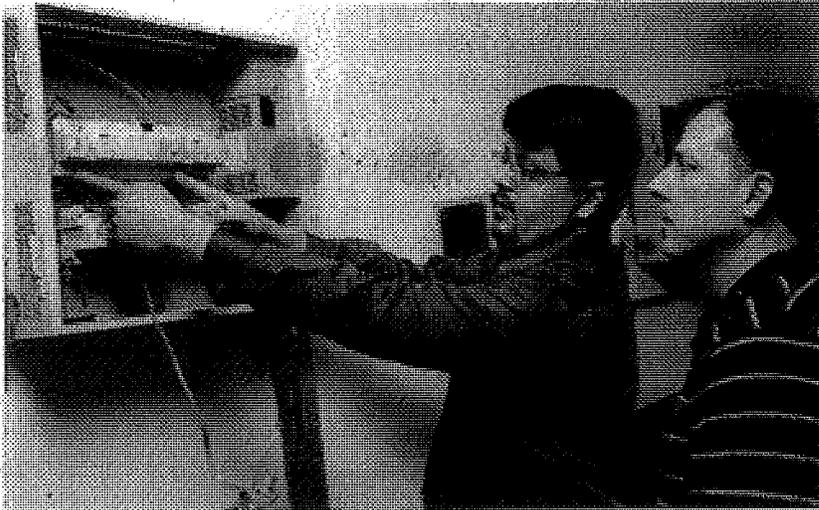
Participants: System users who need skills to communicate with an APOGEE system supporting LONWORKS® Networks.

Prerequisite: APOGEE Workstation Operations (5-620) or Accelerated APOGEE Master Operator Program (5-690).

CEUs: 2.7 CEUs

Price: \$1,995 (U.S.)





"This class will be a tremendous benefit to my company and myself."

James M Jones
UNC Hospitals

5-625 APOGEE Advanced Operations (4 days)

Learn to use the advanced features of the APOGEE workstation.

Topic:	You will learn to:
System Architecture	<ul style="list-style-type: none"> • Describe the networks used in APOGEE communication. • Use System Profile to edit the system architecture.
Points	<ul style="list-style-type: none"> • Create and modify points. • Copy existing points using Attribute Duplicator. • Put points into trend.
User Accounts	<ul style="list-style-type: none"> • Create Insight and ALM/BLN user accounts. • Assign privilege levels to user accounts. • Add objects to Access Groups.
Enhanced Alarming	<ul style="list-style-type: none"> • Explain the use of Enhanced Alarm Management. • Define destinations and alarm messages. • Modify a point to use Enhanced Alarming.
Graphics	<ul style="list-style-type: none"> • Use Micrograph Designer to create background graphics. • Use the Graphics application of Insight to create dynamic graphics. • Create a logical series of links between dynamic graphics.
Event Builder	<ul style="list-style-type: none"> • Create a new Zone. • Create a new Event. • Describe Start/Stop Time Optimization (SSTO).
Program Editor	<ul style="list-style-type: none"> • Describe features of Program Editor. • Import and save a program. • Describe key features of a program. • Generate reports used in troubleshooting programs.
Scheduler	<ul style="list-style-type: none"> • Describe how Scheduler works. • Explain how Scheduler ties zones, events and programs together to automate building controls systems.
Database Utilities	<ul style="list-style-type: none"> • Backup and restore the system database. • Use the Database Transfer application. • Utilize the System Activity log to track system activity.

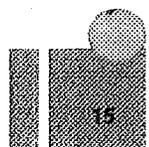
Course Length: Four days ending by noon on the fourth day.

Participants: Advanced users, managers and APOGEE system administrators who need to create and modify points, graphics, user accounts and zones and events.

Prerequisite: APOGEE Workstation Operations (5-620) or Accelerated APOGEE Master Operator Program (5-690) or APOGEE with BACnet for Experienced Insight Users (5-710) or APOGEE with BACnet Advanced Operations (5-720).

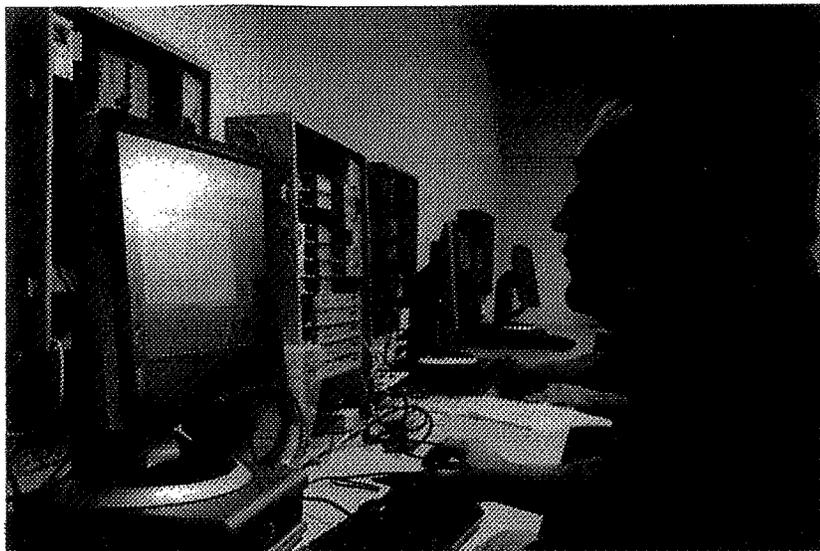
CEUs: 2.7 CEUs

Price: \$1,995 (U.S.)



"I have a better understanding of the programs after seeing it this way."

Mario Long
Boston University Medical



5-630 APOGEE PPCL Programming (4 days)

Learn to interpret and troubleshoot existing Powers Process Control Language (PPCL) programs from your APOGEE workstation.

Topic:

PPCL Syntax

Program Planning and Flowcharts

Program Editor

Troubleshooting

Point Control

FLN Devices

You will learn to:

- Describe the functions of the various programming statements.
- Use PPCL rules and guidelines.
- Use the five-step problem-solving process to write PPCL programs.
- Create flowcharts for new and existing programs.
- Describe and use the features of the Program Editor.
- Use various navigational tools in Program Editor.
- Use Report Builder to test and troubleshoot programs.
- Use conditional and emergency control statements.
- Write a control LOOP to modulate equipment.
- Use a TABLE statement to reset values.
- Use a dead band for cycling equipment on and off.
- Write PPCL code to command FLN devices.

Course Length: Four days ending by noon on the fourth day.

Participants: Advanced users who need skills to interpret, modify and troubleshoot existing programs.

Prerequisite: APOGEE Workstation Operations (5-620) or Accelerated APOGEE Master Operator Program (5-690) or APOGEE with BACnet for Experienced Insight Users (5-710) or APOGEE with BACnet Advanced Operations (5-720).

CEUs: 2.7 CEUs

Price: \$1,995 (U.S.)

5-635 APOGEE Programming for Efficient Building Operations (4 days)

Explore multiple high-level strategies designed to optimize building performance and reduce energy costs.

Topic:	You will learn to:
Equipment Ramping	• Change programs to minimize overshoot during startup.
Equipment Rotation	• Modify programs to automatically rotate equipment based on a schedule or run time.
Equipment Staging	• Alter programs to ensure the proper number of devices is operating at any given time.
Cascading Loops	• Use the output of a loop statement to modify the setpoint in another loop.
Loop Tuning	• Adjust loop gains to ensure efficient equipment performance.
Adaptive Control	• Modify an existing program to use the Adaptive Loop Control.
Enthalpy Optimization	• Add programming code to determine the optimum position of the outside air dampers based on a given set of conditions.
Peak Demand Limiting (PDL)	• Change programs to prevent exceeding peak energy consumption limits by properly cycling equipment.
Start/Stop Time Optimization (SSTO)	• Build an optimized zone.
VAV Control	• Design a program to control a variable volume air handler.

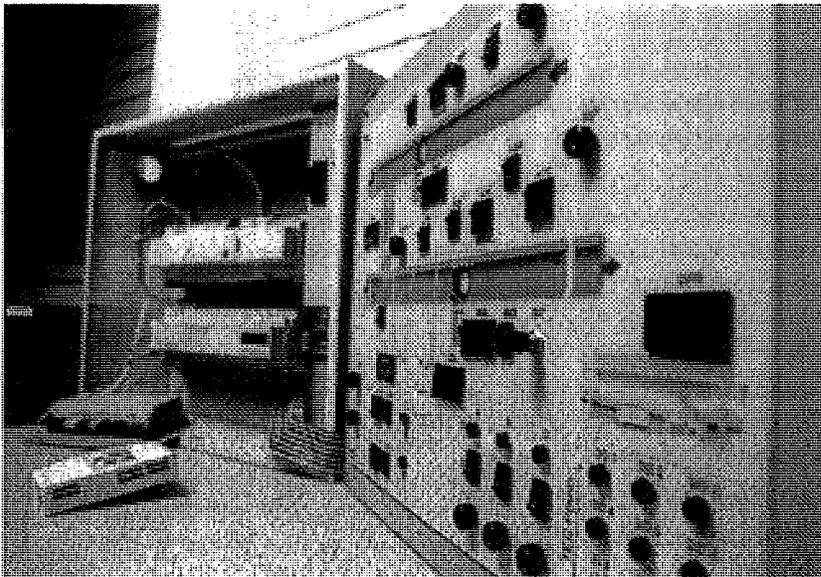
Course Length: Four days ending by noon on the fourth day.

Participants: Advanced users who need skills to create or modify programs using advanced program control strategies for energy efficiency.

Prerequisites: APOGEE Workstation Operations (5-620) or Accelerated APOGEE Master Operator Program (5-690) or APOGEE with BACnet for Experienced Insight Users (5-710), APOGEE with BACnet Advanced Operations (5-720) or and APOGEE PPCL Programming (5-630).

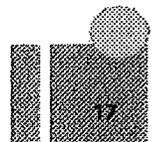
CEUs: 2.7 CEUs

Price: \$1,995 (U.S.)



"I especially liked how organized the course is—everything was explained very well and in great detail. The labs helped a lot."

Mark Pasion
Georgetown University Hospital



CLASSROOM TRAINING

"It gave me a better understanding of what Siemens has to offer in the area of energy management."

Darwell Bell
Smithsonian Institution

5-645 APOGEE for Energy Management (4 days)

Learn how an APOGEE system can manage and conserve energy.

Topic:

Energy Usage and Conservation

Energy Monitoring and Reporting with Utility Cost Manager

Energy Management through Scheduling

Variable Frequency Drives (VFDs)

Resets

Economizer

Demand Control Ventilation (DCV)

Direct Digital Control (DDC)

You will learn to:

- Identify variable costs on different types of utility bills.
- Understand energy measurement methods and units of measure.
- Understand energy conversion factors.
- Identify regulations and requirements for Energy Star rating, LEED (Leadership in Energy and Environmental Design), Green Building Rating System™ and ASHRAE recommendations.
- Review your current energy usage and identify potential improvements using the ENERGY STAR website's Portfolio Manager tool.
- Calculate energy cost savings potential.
- Use APOGEE trending data to evaluate energy usage.
- Describe system layout hierarchy.
- Use sub-metering information to monitor and manage energy costs.
- Run various load profile reports.
- Monitor energy use and costs.
- Use the Scheduling function to conserve energy.
- Identify SSTD parameters for implementation.
- Verify proper execution of your building's schedule.
- Identify applications for VFDs.
- Use APOGEE to evaluate the performance of existing VFDs.
- Identify opportunities for improving VFD implementation.
- Evaluate various reset programs to save energy and improve occupant comfort.
- Verify that the reset program is working properly.
- Apply appropriate economizer programs in different situations.
- Verify economizer operation and use proper techniques for troubleshooting.
- Use DCV to reduce energy consumption in large spaces with partial and variable occupancy loads.
- Control CO₂ levels with minimum energy usage using DCV.
- Explore the benefits of using accurate energy data collected by DDC equipment and improved control accuracy of BDC systems.

Notes: Students are encouraged to bring the following to class: 12 months of utility bills for their facility, information about the type of facility and square footage. This class teaches energy management strategies, but does not teach PPCL programming.

Course Length: Four days ending by noon on the fourth day.

Participants: APOGEE users who manage energy consumption and utility costs.

Prerequisite: APOGEE Workstation Operations (5-620) or Accelerated APOGEE Master Operator Program (5-690) or APOGEE with BACnet for Experienced Insight Users (5-710) or APOGEE with BACnet Advanced Operations (5-720).

CEUs: 2.7 CEUs

Price: \$1,995 (U.S.)

5-652 InfoCenter Suite (3 days)

Learn to archive, manage and retrieve large amounts of building automation system data for validation compliance and management reporting.

Topic:

System Architecture

InfoCenter
Administrator

InfoCenter Points
InfoCenter Data

InfoCenter Report
Manager

You will learn to:

- Explain how InfoCenter data is generated by an APOGEE system.
- Explain data flow in InfoCenter.
- Describe the different volume types and their functions.
- Mount and dismount volumes.
- Create new volumes.
- Create point groups.
- Setup point group security.
- Annotate and modify point values.
- Identify the different point types and their properties.
- Import and export system data.
- Dynamically import data from Insight: Trend, Alarm, System Activity Log, Alarm Issue Management (AIM) and Compliance Support Option (CSO).
- Archive and purge system data.
- Create customized reports from report templates.
- Run reports manually or by schedule.

Course Length: Three days ending by 4:30 p.m. on the third day.

Participants: Individuals who will administer the data collected by an APOGEE system using InfoCenter Suite software.

Prerequisite: It is strongly recommended that participants take APOGEE Workstation Operations (5-620) or Accelerated APOGEE Master Operator Program (5-690) or APOGEE with BACnet for Experienced Insight Users (5-710) or APOGEE with BACnet Workstation Operations (5-720) and have some PC experience in order to receive maximum benefit from the training.

CEUs: 2.3 CEUs

Price: \$1,995 (U.S.)



5-670 APOGEE Laboratory Controls (4 Days)

Learn to monitor and control laboratory spaces using the APOGEE building automation system. This class includes hands-on exercises using full-size fume hoods in a laboratory set-up.

Topic:	You will learn to:
Overview	<ul style="list-style-type: none">• Define the purpose of a Fume Hood.• Identify components of a Fume Hood.• Identify Siemens Industry Fume Hood Controls.
Fume Hood Control Strategy	<ul style="list-style-type: none">• Describe the function of the Fume Hood Controller (FHC).• Identify components of the Fume Hood Exhaust Terminal.• Interpret the readings on an Operator Display Panel.• Learn the sequence of operation for various FHCs.
Lab Room Control Strategy	<ul style="list-style-type: none">• Describe the operation of a Lab Controller Module (LRC).• Describe how a LRC controls room pressurization, ventilation and temperature.• Monitor and command subpoints of a LRC.
Room Pressurization Control and Monitoring	<ul style="list-style-type: none">• Describe the sequence of operation for Room Pressurization Control.• Describe the sequence of operation of the Differential Pressure Monitor.
Accessing Information	<ul style="list-style-type: none">• Use the Insight workstation to monitor and command subpoints.• Use Datamate Base to access controller information locally.• Setup points for trend.
Compliance Support Option (CSO)	<ul style="list-style-type: none">• Setup points as supervised points.• Identify which points are supervised.

Course Length: Four days ending by noon on the fourth day.

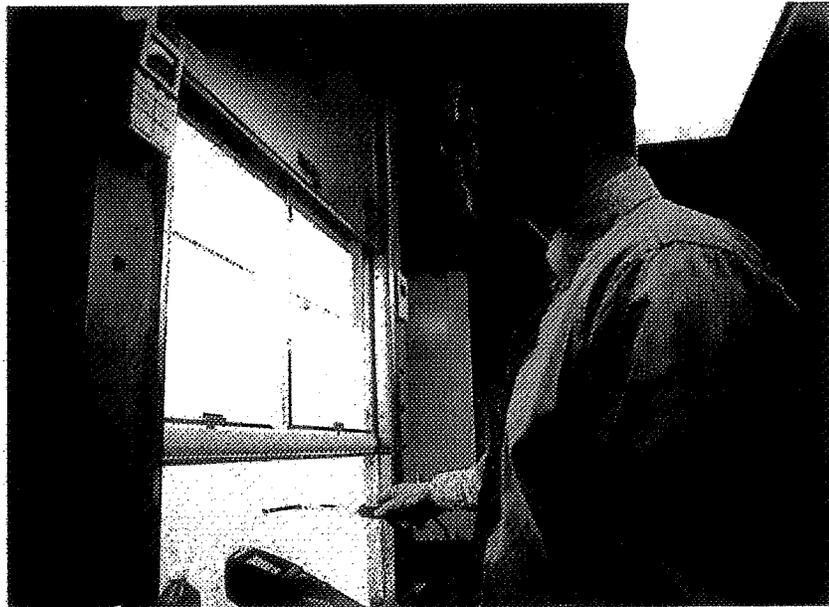
Participants: Advanced users who need skills to monitor laboratory controls.

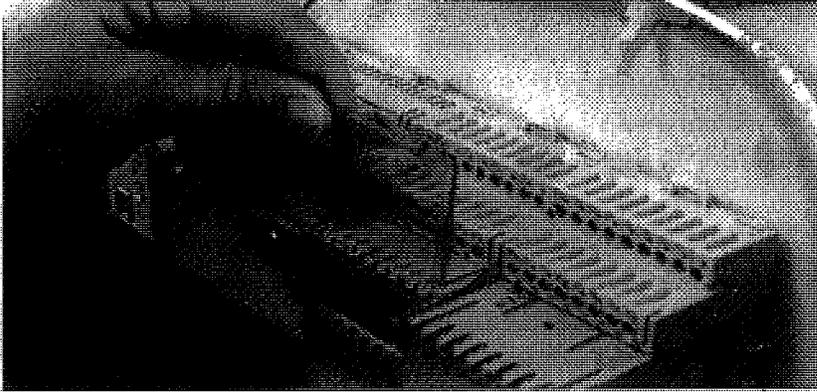
Prerequisite: APOGEE Workstation Operations (5-620) or Accelerated APOGEE Master Operator Program (5-690) or APOGEE with BACnet for Experienced Insight Users (5-710) or APOGEE with BACnet Advanced Operations (5-720).

Location: This class is only offered at our training center located in Buffalo Grove, Illinois.

CEUs: 2.7 CEUs

Price: \$1,995 (U.S.)





5-710 APOGEE with BACnet® for Experienced Insight Users (4 days)

Learn to monitor and control your building with an APOGEE with BACnet workstation.

Topic:	You will learn to:
BACnet Overview	<ul style="list-style-type: none"> • Describe how BACnet stores information in Objects and Priorities. • Describe how BACnet uses the Who-Is-An and Who-Has-I-Have services. • Explain how BACnet services are used to request and write information between devices.
System Architecture	<ul style="list-style-type: none"> • Identify components of a BACnet network. • Identify different network technologies used in BACnet.
BACnet Field Panel	<ul style="list-style-type: none"> • Explain the differences between proprietary and BACnet systems. • Describe BACnet field panel configuration settings. • Describe a BACnet Broadcast Management Device (BBMD).
System Profile	<ul style="list-style-type: none"> • Build a BACnet BLN. • Configure a Siemens BACnet field panel. • Discuss the BACnet-related functions of the System Profile application.
BACnet TECs	<ul style="list-style-type: none"> • Add a BACnet TEC to an MS/TP FLN. • Discuss the requirements of a BACnet MS/TP FLN.
BACnet Database Operations	<ul style="list-style-type: none"> • Create BACnet points. • Set and refresh BACnet points. • Configure User Accounts for BACnet accessibility. • Use the BACnet Object Browser (BOB) to view and modify properties in BACnet devices.
BACnet Alarms	<ul style="list-style-type: none"> • Define alarm properties for BACnet points. • Create BACnet alarm messages. • Build BACnet notification classes.
BACnet Trending	<ul style="list-style-type: none"> • Trend BACnet points. • Collect BACnet trend data.
BACnet Scheduling	<ul style="list-style-type: none"> • Explain BACnet Calendars and Schedules. • Create BACnet Command Objects. • Build BACnet schedules using BACnet calendars and command objects.

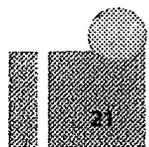
Course Length: Four days ending by noon on the fourth day.

Participants: It is strongly recommended that students have advanced APOGEE skills before taking this fast-paced BACnet course. For those with moderate skills or who are new to APOGEE systems, it is recommended that they attend 5-720 to receive maximum benefit from the training.

Prerequisite: APOGEE Workstation Operations (5-620)

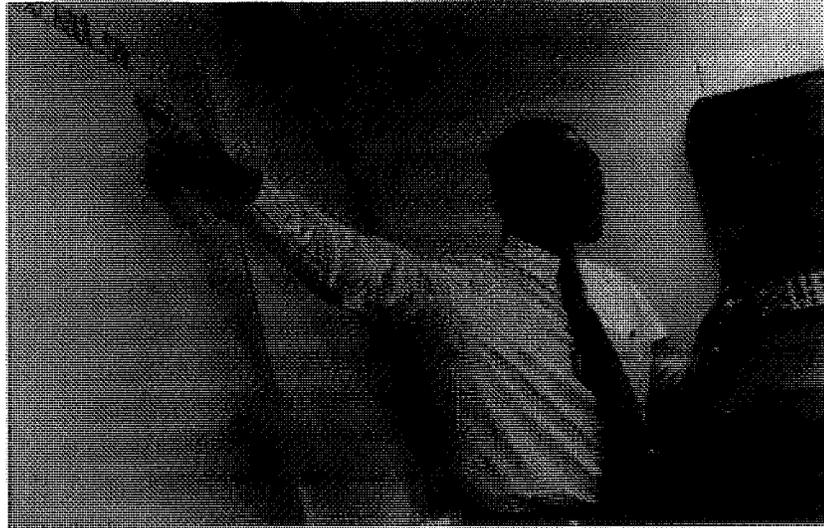
CEUs: 2.7 CEUs

Price: \$1,995 (U.S.)



"The course met my expectations and my knowledge of the system is far greater than before."

Greg Edwards
Advocate Lutheran General
Hospital



5-720 APOGEE with BACnet® Workstation Operations (4 Days)

Learn to monitor and control building automation systems using an APOGEE with BACnet system.

Topic:	You will learn to:
Distributed Digital Control (DDC)	<ul style="list-style-type: none">• Define DDC and explain how it is used to control building systems.• Identify the DDC hardware used to control and monitor building equipment.• Describe APOGEE system architecture.
Navigation	<ul style="list-style-type: none">• Navigate through Windows and Insight.• Use the Object Selector to retrieve objects from the database.• Customize the Insight main menu.
Reports Scheduler	<ul style="list-style-type: none">• Define and generate APOGEE reports.• Schedule reports to run automatically.• Describe the Scheduler application.• Add BACnet Calendars and Schedules.• Add an Exception to a BACnet Schedule.
System Profile	<ul style="list-style-type: none">• Explain the system tree and its functions.• Unbundle subpoints in a TEC.
Point Editor	<ul style="list-style-type: none">• Modify point definitions.• Address points for the Modular Building Controller (MBC) and the Modular Equipment Controller (MEC).
Alarm Management Commander	<ul style="list-style-type: none">• Manage system alarms.• Monitor and command system points to control building equipment.
Graphics	<ul style="list-style-type: none">• Manage alarms from graphics.• Utilize dynamic information in the Graphics application.
Trend	<ul style="list-style-type: none">• Create trend definitions.• Collect trend data.
Dynamic Plotter	<ul style="list-style-type: none">• Generate a dynamic plot to monitor system information.

Course Length: Four days ending by noon on the fourth day.

Participants: Building operators, maintenance personnel or others who need skills for day-to-day operation of an APOGEE with BACnet system.

Prerequisite: It is strongly recommended that participants have previous PC experience in order to receive maximum benefit from the training.

CEUs: 2.7 CEUs

Price: \$1,995 (U.S.)

5-725 APOGEE with BACnet® Advanced Operations (4 Days)

Learn to use the advanced features of the APOGEE with BACnet workstation.

Topic:	You will learn to:
System Architecture	<ul style="list-style-type: none"> Describe the networks used in APOGEE communication. Use System Profile to edit the system architecture. Describe the default BACnet Command Priority Array.
Points	<ul style="list-style-type: none"> Create and modify points. Copy existing points using Attribute Duplicator. Put points into trend.
User Accounts	<ul style="list-style-type: none"> Create Insight and ALNIRLN user accounts. Assign privilege levels to user accounts. Add objects to Access Groups. Setup the Command Settings for BACnet Command Priorities.
Graphics	<ul style="list-style-type: none"> Use Micrograph Designer to create background graphics. Use the Graphics application of Insight to create dynamic graphics. Create a logical series of links between dynamic graphics.
Event Builder	<ul style="list-style-type: none"> Create a BACnet Command object.
Program Editor	<ul style="list-style-type: none"> Describe features of Program Editor. Import and save a program. Describe key features of a program. Generate reports used in troubleshooting programs.
Scheduler	<ul style="list-style-type: none"> Describe how Scheduler works. Use BACnet scheduling to add a new Calendar and Schedule.
Database Utilities	<ul style="list-style-type: none"> Backup and restore the system database. Use the Database Transfer application. Utilize the System Activity Log to track system activity.

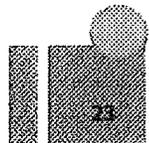
Course Length: Four days ending by noon on the fourth day.

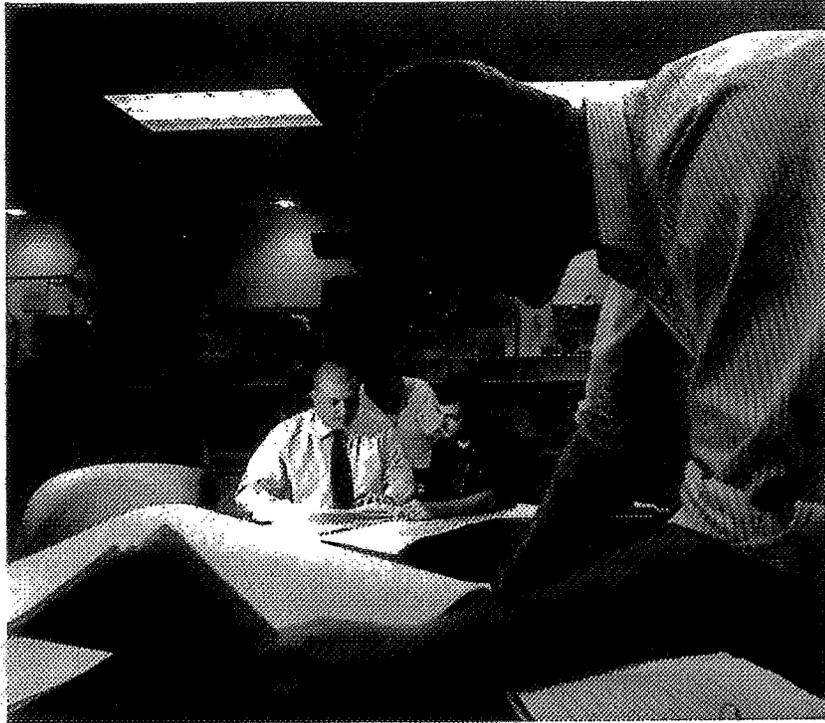
Participants: Advanced users, managers and APOGEE with BACnet system administrators who need to create and modify points, graphics, user accounts, schedules and calendars.

Prerequisite: APOGEE with BACnet Workstation Operations (5-720)

CEUs: 2.7 CEUs

Price: \$1,995 (U.S.)





5-800 Principles of Troubleshooting (3 days)

Learn general troubleshooting skills using a sophisticated software simulation program developed by Flight Safety International. During the class, each student will be provided with a PC and simulation software to practice troubleshooting skills. This course teaches an analytical process which can be used to understand any system better. It does not teach how to troubleshoot a specific system.

Topic:

Introduction

Logical Approach

Paths of Influence

Four-Step Process

Practical Application

You will learn to:

- Define troubleshooting.
- Explain how logical thought and communication can improve troubleshooting effectiveness.
- Recognize logical relationships.
- Identify eight logic symbols.
- Determine the output of logic symbols and logical systems with various input combinations.
- Explain the path-of-influence concept.
- List the functions involved on a simplified diagram of a system.
- Identify the paths-of-influence in a malfunctioning system.
- Identify the critical path in a malfunctioning system.
- List and describe the four steps of troubleshooting.
- Explain how a critical path is identified and followed to determine the source of a problem.
- Verify the existence of a malfunction.
- Distinguish between indications and malfunctions.
- Troubleshoot simulated malfunctions.

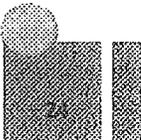
Course Length: Three days ending by noon on the third day.

Participants: Individuals who need to develop general troubleshooting skills.

Prerequisite: It is strongly recommended that participants have some PC experience in order to receive maximum benefit from the training.

CEUs: 1.9 CEUs

Price: \$2,125 (U.S.)



5-801. Sustainability and Environmental Management (2 days)

Learn to improve the sustainability and environmental management of facilities.
This class is taught with lectures and case studies.

Topic:

Sustainability

Environmental
Regulatory
Requirements

Green Standards

Business Implications

Sustainability
Performance
Improvements

Sustainability
Performance
Measurement

You will learn to:

- Define the term "sustainability".
- Identify and understand sustainability issues, such as:
 - Climate Change and the links to energy management.
 - Resource conservation and the links to waste minimization.
 - Safe delivery and storage of hazardous liquids.
 - Waste management.
 - Protection of surface water management.
- Understand Life Cycle Assessment and Carbon Footprinting.
- Understand the basic environmental regulatory requirements for managing facilities.
- Establish a compliance assurance management system.
- Understand the various options for voluntary schemes such as ENERGY STAR® and LEED®.
- Understand the registration process and partnership opportunities.
- Understand how to capitalize on the value of voluntary schemes.
- Quantify the true sustainability costs and savings for projects.
- Present a business case.
- Identify opportunities to reduce facility costs through improved energy management practices.
- Identify what constitutes a green building.
- Identify opportunities for improved sustainability performance, such as reduction of energy consumption and waste.
- Apply Lean Six Sigma methodologies to improve sustainability performance.
- Establish a green office/transport program.
- Establish a performance measurement system with goals and track performance.

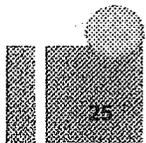
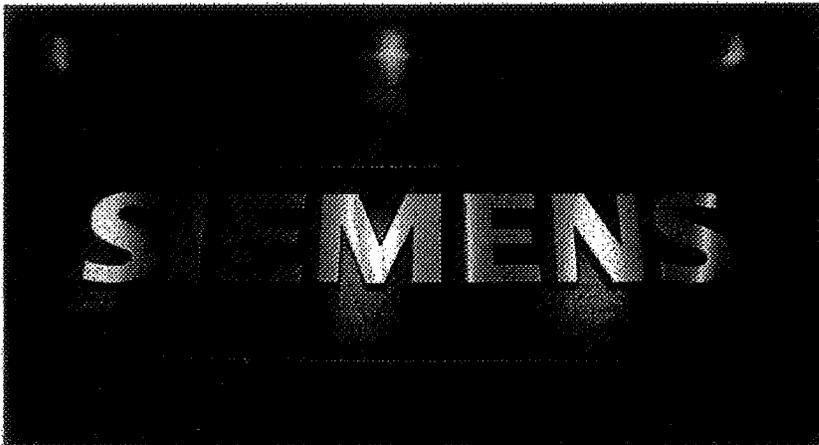
Course Length: Two days ending by 4:30 p.m. on the last day.

Participants: Facility managers and other personnel who are responsible for energy management.

Prerequisite: None

CEUs: 1.4 CEUs

Price: \$1,350 (U.S.)



5-802 Maintenance Planning for Mechanical and Electrical Systems (3 Days)

Learn to apply planning and scheduling best practices to efficiently and effectively perform maintenance work and to execute successful shutdowns and outages.

Topic:

Making Improvements and Sustaining Gains

Management Principles

Identification of Work

Planning

Workplace Organization

Scheduling

Shutdowns and Outages

Planning and Scheduling Simulation

You will learn to:

- Describe the application of Plan-Do-Check-Act (PDCA) and Standardize-Do-Check-Act (SDCA).
- Describe how to institute, sustain and improve standards.
- List the key management principles for making and sustaining improvements in maintenance planning and scheduling.
- State the importance of work requests.
- Explain how to institute and manage a work request system.
- Explain how planning impacts efficiency and effectiveness of maintenance.
- Discuss how to analyze and manage maintenance backlog.
- State the importance of workplace organization to maintenance work efficiency.
- List the five steps for workplace organization and describe each step.
- State how scheduling impacts maintenance productivity.
- Describe how weekly work schedules are created.
- List the five phases of a shutdown or outage.
- Define and describe scope control.
- Define and explain critical path and critical path management.
- State how risks are assessed and managed.
- Experience the losses involved in non-planned maintenance work.
- Apply skills and knowledge to plan maintenance work, schedule maintenance work and make effective use of fleet time.
- Apply communication and teamwork skills to plan, schedule and execute work during a shutdown.

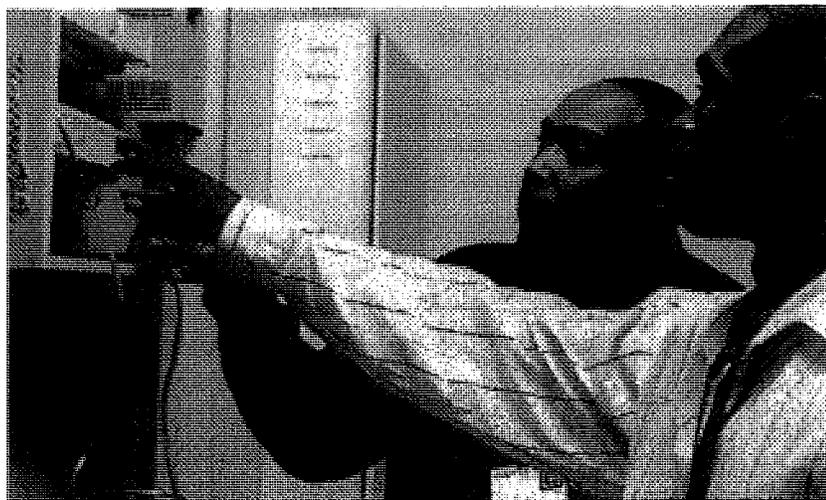
Course Length: Three days ending by 4:30 p.m. on the third day.

Participants: Individuals involved in planning, scheduling and executing maintenance work.

Prerequisite: None

CEUs: 2.3 CEUs

Price: \$1,900 (U.S.)





5-803 Pneumatic Controls for HVAC (3 days)

Learn to select and manage pneumatic control elements to improve efficiency in pneumatic Constant Volume, Variable Air Volume systems and terminal units.

Topic:	You will learn to:
Basic Pneumatic Control Theory	<ul style="list-style-type: none"> • Explain the different types of pneumatic controllers, bi-metal and bulb. • Explain the switchover process used in a day/night room thermostat.
Room Thermostats	<ul style="list-style-type: none"> • Explain the operation of a day/night pneumatic room thermostat. • Calibrate a signal pressure room thermostat. • Calibrate a dual pressure room thermostat.
Remote Bulb Thermostats	<ul style="list-style-type: none"> • Explain the difference between a bleed and non-bleed type controller. • Explain the operation of a remote bulb thermostat. • Calibrate a signal pressure remote bulb thermostat.
Receiver Controller	<ul style="list-style-type: none"> • Explain the concept of direct and reverse reset application of a receiver controller. • Explain the differences between the types of control modes of two position, proportional and proportional plus integral controllers. • Calculate the proportional band and authority for a receiver controller. • Calibrate a single and dual input receiver controller.
Pneumatic Transmission	<ul style="list-style-type: none"> • Describe the operation and sensitivity of a pneumatic transmitter. • Calculate a control variable to a corresponding pressure equivalent.
Valves and Damper Actuators	<ul style="list-style-type: none"> • Explain the procedure to adjust a valve with spring range shift with and without a pilot positioner. • Explain the procedure for calibrating a damper pilot positioner.
Pneumatic Auxiliary Devices	<ul style="list-style-type: none"> • Identify the operational differences and calibration between a reversing selector switch, air switching valve, multi-purpose relay, ampity and retard relay, minimum position relay, reversing relay, high signal select, low signal select and a high/low signal selector.

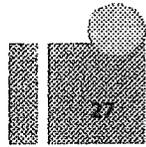
Course Length: Three days ending by noon on the third day.

Participants: This course is designed primarily for operating engineers and building operators, maintenance supervisors and building superintendents requiring more in-depth pneumatic controls training.

Prerequisite: Basic knowledge of pneumatic components and mechanical systems

CEUs: 1.9 CEUs

Price: \$1,600 (U.S.)



**BUILDING AUTOMATION,
MAINTENANCE & PLANNING**

CLASS SCHEDULE BY COURSE

START DATE	LOCATION	CONTACT	PHONE
5-615 APOGEE Field Panel and FLN Operations 4-day Course—Starts on Tuesday			
10/19/10	Raleigh, NC	Erik Fisher	919-465-5216
10/19/10	Seattle, WA	Brenda Taylor	425-507-4372
10/19/10	Washington, DC	Patricia Boone	301-837-2527
10/26/10	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
11/02/10	Washington, DC	Patricia Boone	301-837-2527
11/16/10	Washington, DC	Patricia Boone	301-837-2527
11/30/10	Washington, DC	Patricia Boone	301-837-2527
12/07/10	Anchorage, AK	Brenda Taylor	425-507-4372
12/07/10	Los Angeles, CA	Crystal Wells	714-252-1315
12/07/10	Miami, FL	María Balbuena	954-364-6690
01/11/11	Philadelphia, PA	Robin May	215-654-8040
01/18/11	Rochester, NY	Rochelle Marshall	585-797-2300
01/18/11	Washington, DC	Patricia Boone	301-837-2527
01/25/11	Cincinnati, OH	Cheri Lotz	513-742-5590
01/25/11	Washington, DC	Patricia Boone	301-837-2527
02/01/11	Denver, CO	Brenda Taylor	425-507-4372
02/01/11	Washington, DC	Patricia Boone	301-837-2527
02/08/11	Washington, DC	Patricia Boone	301-837-2527
02/08/11	Washington, DC	Patricia Boone	301-837-2527
02/22/11	Boston, MA	Amanda Pena	781-774-8343
02/22/11	Los Angeles, CA	Crystal Wells	714-252-1315
03/01/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
03/15/11	Washington, DC	Patricia Boone	301-837-2527
03/22/11	Pinebrook, NJ	Teresa Grace-Regan	847-941-5920
03/22/11	Washington, DC	Patricia Boone	301-837-2527
03/29/11	San Diego, CA	Lapeachtriss Turner	858-880-2090
03/29/11	Washington, DC	Patricia Boone	301-837-2527
03/29/11	Washington, DC	Patricia Boone	301-837-2527
04/05/11	Washington, DC	Patricia Boone	301-837-2527
04/19/11	Washington, DC	Patricia Boone	301-837-2527
05/10/11	Atlanta, GA	Karen Nolan	770-935-2000
05/10/11	Boston, MA	Amanda Pena	781-774-8343
05/17/11	Minneapolis, MN	Mark Pieper	651-604-1861
06/07/11	Seattle, WA	Brenda Taylor	425-507-4372
06/14/11	Washington, DC	Patricia Boone	301-837-2527
06/21/11	Los Angeles, CA	Crystal Wells	714-252-1315
07/12/11	Miami, FL	María Balbuena	954-364-6690
08/16/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
08/16/11	Washington, DC	Patricia Boone	301-837-2527
08/23/11	Atlanta, GA	Karen Nolan	770-935-2000
10/11/11	Boston, MA	Amanda Pena	781-774-8343
10/11/11	San Diego, CA	Lapeachtriss Turner	858-880-2090
10/18/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
10/18/11	Washington, DC	Patricia Boone	301-837-2527
10/25/11	Orlando, FL	Tiia Fraebel	407-571-1900
11/01/11	Philadelphia, PA	Robin May	215-654-8040

5-618 LONWorks for APOGEE Field Panel and FLN Operations
4-day Course—Starts on Tuesday

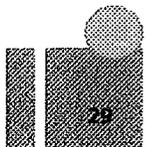
04/19/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
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START DATE	LOCATION	CONTACT	PHONE
5-620 APOGEE Workstation Operations 4-day Course—Starts on Tuesday			
10/05/10	Anchorage, AK	Brenda Taylor	425-507-4372
10/05/10	Philadelphia, PA	Robin May	215-654-8040
10/05/10	Port Edwards, WI	Elizabeth Stormoen	715-887-4400
10/05/10	San Francisco, CA	Rhonda England	510-723-7742
10/05/10	Washington, DC	Patricia Boone	301-837-2527
10/05/10	Washington, DC	Patricia Boone	301-837-2527
10/12/10	Boston, MA	Amanda Pena	781-774-8343
10/12/10	Des Moines, IA	Rachael Waggoner	515-447-0935
10/19/10	Portland, OR	Brenda Taylor	425-507-4372
10/19/10	Rochester, NY	Rochelle Marshall	585-797-2300
10/26/10	Fairbanks, AK	Brenda Taylor	425-507-4372
10/26/10	Los Angeles, CA	Crystal Wells	714-252-1315
10/26/10	Miami, FL	María Balbuena	954-364-6690
10/26/10	Washington, DC	Patricia Boone	301-837-2527
11/09/10	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
11/09/10	Denver, CO	Brenda Taylor	425-507-4372
11/09/10	Pine Brook, NJ	Teresa Grace-Regan	847-941-5920
11/16/10	Dallas, TX	Mary Hutchinson	972-465-1591
11/16/10	Seattle, WA	Brenda Taylor	425-507-4372
11/16/10	St. Louis, MO	Shellie Johnson	314-817-1073
11/16/10	Washington, DC	Patricia Boone	301-837-2527
11/30/10	Orlando, FL	Tiia Fraebel	407-571-1900
12/07/10	Philadelphia, PA	Robin May	215-654-8040
12/07/10	Washington, DC	Patricia Boone	301-837-2527
12/14/10	Washington, DC	Patricia Boone	301-837-2527
01/04/11	Washington, DC	Patricia Boone	301-837-2527
01/11/11	Anchorage, AK	Brenda Taylor	425-507-4372
01/11/11	Los Angeles, CA	Crystal Wells	714-252-1315
01/11/11	Washington, DC	Patricia Boone	301-837-2527
01/18/11	Seattle, WA	Brenda Taylor	425-507-4372
01/18/11	Washington, DC	Patricia Boone	301-837-2527
01/25/11	Boston, MA	Amanda Pena	781-774-8343
01/25/11	San Diego, CA	Lapeachtriss Turner	858-880-2090
02/01/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
02/01/11	Miami, FL	María Balbuena	954-364-6690
02/01/11	Phoenix, AZ	Lynn Stickler	702-855-5300
02/01/11	San Francisco, CA	Rhonda England	510-723-7742
02/08/11	Philadelphia, PA	Robin May	215-654-8040
02/15/11	Detroit, MI	Tonya Silver	734-456-3800
02/15/11	Pinebrook, NJ	Teresa Grace-Regan	847-941-5920
02/15/11	Washington, DC	Patricia Boone	301-837-2527
02/15/11	Washington, DC	Patricia Boone	301-837-2527
02/22/11	Austin, TX	Terry McMullen	210-253-2708
02/22/11	Salt Lake City, UT	Brenda Taylor	425-507-4372
03/01/11	Washington, DC	Patricia Boone	301-837-2527
03/01/11	Washington, DC	Patricia Boone	301-837-2527
03/08/11	Las Vegas, NV	Lynn Stickler	702-855-5300
03/08/11	Philadelphia, PA	Robin May	215-654-8040
03/08/11	Washington, DC	Patricia Boone	301-837-2527
03/15/11	Atlanta, GA	Karen Nolan	770-935-2000
03/15/11	Los Angeles, CA	Crystal Wells	714-252-1315
03/15/11	Minneapolis, MN	Mark Pieper	651-604-1861
03/15/11	St. Louis, MO	Shellie Johnson	314-817-1073
03/22/11	Seattle, WA	Brenda Taylor	425-507-4372

START DATE	LOCATION	CONTACT	PHONE
04/05/11	Philadelphia, PA	Robin May	215-654-8040
04/05/11	San Francisco, CA	Rhonda England	510-723-7742
04/05/11	Washington, DC	Patricia Boone	301-837-2527
04/12/11	Des Moines, IA	Rachael Waggoner	515-447-0935
04/12/11	Rochester, NY	Rochelle Marshall	585-797-2300
04/12/11	San Diego, CA	Lapeachtriss Turner	858-880-2090
04/12/11	Washington, DC	Patricia Boone	301-837-2527
04/19/11	Omaha, NE	Cindy Randall	402-827-4104
04/19/11	Raleigh, NC	Erik Fisher	919-465-5216
04/26/11	Boston, MA	Amanda Pena	781-774-8343
04/26/11	Dallas, TX	Mary Hutchinson	972-465-1591
04/26/11	Portland, OR	Brenda Taylor	425-507-4372
05/03/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
05/03/11	Houston, TX	Laurie Kerekes	281-949-3078
05/03/11	Washington, DC	Patricia Boone	301-837-2527
05/17/11	Cincinnati, OH	Cheri Lotz	513-742-5590
05/17/11	Seattle, WA	Brenda Taylor	425-507-4372
06/07/11	Boston, MA	Amanda Pena	781-774-8343
06/07/11	Philadelphia, PA	Robin May	215-654-8040
06/07/11	San Francisco, CA	Rhonda England	510-723-7742
06/07/11	Washington, DC	Patricia Boone	301-837-2527
06/21/11	Salt Lake City, UT	Brenda Taylor	425-507-4372
07/12/11	Atlanta, GA	Karen Nolan	770-935-2000
07/12/11	Washington, DC	Patricia Boone	301-837-2527
07/19/11	Seattle, WA	Brenda Taylor	425-507-4372
08/02/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
08/02/11	San Diego, CA	Lapeachtriss Turner	858-880-2090
08/02/11	Washington, DC	Patricia Boone	301-837-2527
08/09/11	Denver, CO	Brenda Taylor	425-507-4372
08/16/11	San Antonio, TX	Terry McMullen	210-253-2708
08/16/11	St. Louis, MO	Shelli Johnson	314-817-1073
08/23/11	Philadelphia, PA	Robin May	215-654-8040
09/13/11	Los Angeles, CA	Crystal Wells	714-252-1315
09/13/11	Orlando, FL	Tia Fraebel	407-571-1900
09/13/11	San Francisco, CA	Rhonda England	510-723-7742
09/13/11	Washington, DC	Patricia Boone	301-837-2527
09/20/11	Seattle, WA	Brenda Taylor	425-507-4372
09/27/11	Florham Park, NJ	Teresa Grace-Regan	847-941-5920
10/04/11	Boston, MA	Amanda Pena	781-774-8343
10/04/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
10/04/11	Philadelphia, PA	Robin May	215-654-8040
10/04/11	San Francisco, CA	Rhonda England	510-723-7742
10/04/11	Washington, DC	Patricia Boone	301-837-2527
10/18/11	Atlanta, GA	Karen Nolan	770-935-2000
10/18/11	Omaha, NE	Cindy Randall	402-827-4104
10/25/11	Raleigh, NC	Erik Fisher	919-465-5216
11/01/11	Washington, DC	Patricia Boone	301-837-2527
11/14/11	Seattle, WA	Brenda Taylor	425-507-4372
11/15/11	San Diego, CA	Lapeachtriss Turner	858-880-2090
11/29/11	Boston, MA	Amanda Pena	781-774-8343
12/06/11	Philadelphia, PA	Robin May	215-654-8040
12/13/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920

5-625 APOGEE Advanced Operations
4-day Course—Starts on Tuesday

START DATE	LOCATION	CONTACT	PHONE
10/12/10	Atlanta, GA	Karen Nolan	770-935-2000
10/19/10	Cincinnati, OH	Cheri Lotz	513-742-5590
10/26/10	Philadelphia, PA	Robin May	215-654-8040
11/02/10	Minneapolis, MN	Mark Pieper	651-604-1861
11/02/10	San Diego, CA	Lapeachtriss Turner	858-880-2090
11/09/10	Boston, MA	Amanda Pena	781-774-8343
11/16/10	Los Angeles, CA	Crystal Wells	714-252-1315
12/07/10	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
01/18/11	Washington, DC	Patricia Boone	301-837-2527
01/25/11	Port Edwards, WI	Elizabeth Stormoen	715-887-4400
02/01/11	Los Angeles, CA	Crystal Wells	714-252-1315
02/08/11	Raleigh, NC	Erik Fisher	919-465-5216
02/08/11	Seattle, WA	Brenda Taylor	425-507-4372
02/15/11	Anchorage, AK	Brenda Taylor	425-507-4372
02/22/11	San Diego, CA	Lapeachtriss Turner	858-880-2090
03/01/11	Orlando, FL	Tia Fraebel	407-571-1900
03/08/11	Boston, MA	Amanda Pena	781-774-8343
03/08/11	Detroit, MI	Tonya Silver	734-456-3800
03/15/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
03/22/11	Philadelphia, PA	Robin May	215-654-8040
03/22/11	Washington, DC	Patricia Boone	301-837-2527
04/05/11	Fairbanks, AK	Brenda Taylor	425-507-4372
04/05/11	Miami, FL	Maria Balbuena	954-364-6690
04/12/11	Florham Park, NJ	Teresa Grace-Regan	847-941-5920
05/03/11	Austin, TX	Terry McMullen	210-253-2708
05/03/11	Denver, CO	Brenda Taylor	425-507-4372
05/10/11	Dallas, TX	Mary Hutchinson	972-465-1591
05/17/11	Phoenix, AZ	Lynn Stickler	702-855-5300
05/17/11	Washington, DC	Patricia Boone	301-837-2527
06/07/11	Los Angeles, CA	Crystal Wells	714-252-1315
06/07/11	Portland, OR	Brenda Taylor	425-507-4372
06/14/11	Las Vegas, NV	Lynn Stickler	702-855-5300
06/21/11	Atlanta, GA	Karen Nolan	770-935-2000
07/12/11	Philadelphia, PA	Robin May	215-654-8040
08/02/11	San Francisco, CA	Rhonda England	510-723-7742
08/09/11	Seattle, WA	Brenda Taylor	425-507-4372
08/23/11	Washington, DC	Patricia Boone	301-837-2527
09/13/11	Atlanta, GA	Karen Nolan	770-935-2000
09/13/11	Boston, MA	Amanda Pena	781-774-8343
09/13/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
09/13/11	Raleigh, NC	Erik Fisher	919-465-5216
09/20/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
09/27/11	San Diego, CA	Lapeachtriss Turner	858-880-2090
10/11/11	Philadelphia, PA	Robin May	215-654-8040
10/25/11	Florham Park, NJ	Teresa Grace-Regan	847-941-5920
11/01/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
11/15/11	Boston, MA	Amanda Pena	781-774-8343
11/15/11	San Antonio, TX	Terry McMullen	210-253-2708



CLASS SCHEDULE BY COURSE

START DATE	LOCATION	CONTACT	PHONE
5-630 APOGEE PPCL Programming 4-day Course—Starts on Tuesday			
10/12/10	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
10/12/10	Pine Brook, NJ	Teresa Grace-Regan	847-941-5920
10/26/10	Seattle, WA	Brenda Taylor	425-507-4372
11/02/10	Boston, MA	Amanda Pena	781-774-8343
11/02/10	Washington, DC	Patricia Boone	301-837-2527

START DATE	LOCATION	CONTACT	PHONE
5-630 APOGEE PPCL Programming 4-day Course—Starts on Tuesday			
11/09/10	Philadelphia, PA	Robin May	215-654-8040
03/08/11	Cincinnati, OH	Cheri Lotz	513-742-5590
03/15/11	Anchorage, AK	Brenda Taylor	425-507-4372
04/05/11	Boston, MA	Amanda Pena	781-774-8343
04/12/11	Los Angeles, CA	Crystal Wells	714-252-1315
04/26/11	Washington, DC	Patricia Boone	301-837-2527
05/03/11	Washington, DC	Patricia Boone	301-837-2527
05/10/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
05/10/11	San Diego, CA	Lapeachtriss Turner	858-880-2090
05/10/11	Washington, DC	Patricia Boone	301-837-2527
05/17/11	Raleigh, NC	Erik Fisher	919-465-5216
05/17/11	Washington, DC	Patricia Boone	301-837-2527
05/24/11	Florham Park, NJ	Teresa Grace-Regan	847-941-5920
05/24/11	Washington, DC	Patricia Boone	301-837-2527
06/07/11	Miami, FL	Maria Balbuena	954-364-6690
06/07/11	Washington, DC	Patricia Boone	301-837-2527
06/14/11	Washington, DC	Patricia Boone	301-837-2527
06/21/11	Washington, DC	Patricia Boone	301-837-2527
06/28/11	Washington, DC	Patricia Boone	301-837-2527
07/12/11	Washington, DC	Patricia Boone	301-837-2527
07/19/11	Washington, DC	Patricia Boone	301-837-2527
07/26/11	Washington, DC	Patricia Boone	301-837-2527
08/02/11	Washington, DC	Patricia Boone	301-837-2527
08/09/11	Philadelphia, PA	Robin May	215-654-8040
08/09/11	Washington, DC	Patricia Boone	301-837-2527
08/16/11	Washington, DC	Patricia Boone	301-837-2527
08/23/11	Dallas, TX	Mary Hutchinson	972-465-1591
08/23/11	Washington, DC	Patricia Boone	301-837-2527
08/30/11	Washington, DC	Patricia Boone	301-837-2527
10/11/11	Seattle, WA	Brenda Taylor	425-507-4372
10/25/11	Atlanta, GA	Karen Nolan	770-935-2000
11/01/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
11/08/11	Los Angeles, CA	Crystal Wells	714-252-1315

START DATE	LOCATION	CONTACT	PHONE
5-635 APOGEE Programming for Efficient Building Operations 4-day Course—Starts on Tuesday			
10/26/10	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
11/16/10	Miami, FL	Maria Balbuena	954-364-6690
12/07/10	Seattle, WA	Brenda Taylor	425-507-4372
01/18/11	Dallas, TX	Mary Hutchinson	972-465-1591
03/08/11	Washington, DC	Patricia Boone	301-837-2527
05/03/11	Anchorage, AK	Brenda Taylor	425-507-4372
05/10/11	Los Angeles, CA	Crystal Wells	714-252-1315
05/17/11	Boston, MA	Amanda Pena	781-774-8343

START DATE	LOCATION	CONTACT	PHONE
06/07/11	Florham Park, NJ	Teresa Grace-Regan	847-941-5920
06/14/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
06/21/11	Detroit, MI	Tonya Silver	734-456-3800
08/23/11	Raleigh, NC	Erik Fisher	919-465-5216
09/27/11	Philadelphia, PA	Robin May	215-654-8040
11/08/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
12/06/11	Seattle, WA	Brenda Taylor	425-507-4372

START DATE	LOCATION	CONTACT	PHONE
5-645 APOGEE for Energy Management 4-day Course—Starts on Tuesday			
11/02/10	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
12/13/10	Miami, FL	Maria Balbuena	954-364-6690
02/08/11	Dallas, TX	Mary Hutchinson	972-465-1591
02/22/11	Philadelphia, PA	Robin May	215-654-8040
06/14/11	Boston, MA	Amanda Pena	781-774-8343
07/26/11	San Diego, CA	Lapeachtriss Turner	858-880-2090
08/16/11	Los Angeles, CA	Crystal Wells	714-252-1315
09/20/11	Detroit, MI	Tonya Silver	734-456-3800
10/25/11	Philadelphia, PA	Robin May	215-654-8040
11/29/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920

START DATE	LOCATION	CONTACT	PHONE
5-652 InfoCenter Suite 3-day Course—Starts on a Monday or Tuesday			
11/30/10	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
03/29/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
11/08/11	Raleigh, NC	Erik Fisher	919-465-5216
11/15/11	Philadelphia, PA	Robin May	215-654-8040

START DATE	LOCATION	CONTACT	PHONE
5-670 APOGEE Laboratory Controls 4-day Course—Starts on Tuesday			
12/07/10	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
12/06/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920

START DATE	LOCATION	CONTACT	PHONE
5-690 Accelerated APOGEE Master Operator Program 9-day Course—Starts on Tuesday			
11/09/10	Philadelphia, PA	Robin May	215-654-8040
07/12/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920

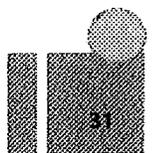
START DATE	LOCATION	CONTACT	PHONE
5-710 APOGEE with BACnet for Experienced Insight Users 4-day Course—Starts on Tuesday			
02/08/11	Los Angeles, CA	Crystal Wells	714-252-1315
09/20/11	Dallas, TX	Mary Hutchinson	972-465-1591
09/27/11	Los Angeles, CA	Crystal Wells	714-252-1315
11/29/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920

START DATE	LOCATION	CONTACT	PHONE
5-720 APOGEE with BACnet Workstation Operations 4-day Course—Starts on Tuesday			
11/30/10	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
03/01/11	Los Angeles, CA	Crystal Wells	714-252-1315
06/28/11	San Diego, CA	Lapeachtriss Turner	858-880-2090
09/13/11	Philadelphia, PA	Robin May	215-654-8040
11/01/11	Los Angeles, CA	Crystal Wells	714-252-1315
12/13/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920

**BUILDING AUTOMATION,
MAINTENANCE & PLANNING**

CLASS SCHEDULE BY COURSE

START DATE	LOCATION	CONTACT	PHONE
5-725 APOGEE with BACnet Advanced Operations 4-day Course—Starts on Tuesday			
12/14/10	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
04/26/11	Los Angeles, CA	Crystal Wells	714-252-1315
12/06/11	Los Angeles, CA	Crystal Wells	714-252-1315
5-800 Principles of Troubleshooting 3-day Course—Ending by noon on the third day			
11/30/10	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
05/03/11	Philadelphia, PA	Robin May	215-654-8040
05/25/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
11/08/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
5-801 Sustainability and Environmental Management 2-day Course—Starts on Monday or Tuesday			
04/26/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
06/21/11	Philadelphia, PA	Robin May	215-654-8040
10/18/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
5-802 Maintenance Planning for Mechanical and Electrical Systems 3-day Course—Starts on Tuesday			
10/19/10	Philadelphia, PA	Robin May	215-654-8040
12/07/10	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
03/22/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
05/10/11	Philadelphia, PA	Robin May	215-654-8040
09/13/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
5-803 Pneumatic Controls for HVAC 3-day Course—Starts on Tuesday			
10/26/10	Washington, DC	Patricia Boone	301-837-2527
01/18/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
06/07/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920
11/15/11	Buffalo Grove, IL	Teresa Grace-Regan	847-941-5920



**BUILDING AUTOMATION,
MAINTENANCE & PLANNING**

CLASS SCHEDULE BY LOCATION

START DATE	COURSE	TITLE	START DATE	COURSE	TITLE
Anchorage, AK			12/07/10	5-670	APOGEE Laboratory Controls
Contact Brenda Taylor at 425-507-4372.			12/07/10	5-625	APOGEE Advanced Operations
10/05/10	5-620	APOGEE Workstation Operations	12/14/10	5-725	APOGEE with BACnet Advanced Operations
12/07/10	5-615	APOGEE Field Panel and FLN Operations	01/18/11	5-803	Pneumatic Controls for HVAC
01/11/11	5-620	APOGEE Workstation Operations	02/01/11	5-620	APOGEE Workstation Operations
02/15/11	5-625	APOGEE Advanced Operations	03/01/11	5-615	APOGEE Field Panel and FLN Operations
03/15/11	5-630	APOGEE PPCL Programming	03/15/11	5-625	APOGEE Advanced Operations
05/03/11	5-635	APOGEE Programming for Efficient Bldg. Operations	03/22/11	5-802	Maintenance Planning for Mechanical and Elec. Sys.
Atlanta, GA			03/29/11	5-652	InfoCenter Suite
Contact Karen Nolan at 770-935-2000.			04/19/11	5-618	LonWorks Comm. for APOGEE Field Panel and FLN Operations
10/12/10	5-625	APOGEE Advanced Operations	04/26/11	5-801	Sustainability and Environmental Management
03/15/11	5-620	APOGEE Workstation Operations	05/03/11	5-620	APOGEE Workstation Operations
05/10/11	5-615	APOGEE Field Panel and FLN Operations	05/10/11	5-630	APOGEE PPCL Programming
06/21/11	5-625	APOGEE Advanced Operations	05/25/11	5-800	Principles of Troubleshooting
07/12/11	5-620	APOGEE Workstation Operations	06/07/11	5-803	Pneumatic Controls for HVAC
08/23/11	5-615	APOGEE Field Panel and FLN Operations	06/14/11	5-635	APOGEE Programming for Efficient Bldg. Operations
09/13/11	5-625	APOGEE Advanced Operations	07/12/11	5-690	Accelerated APOGEE Master Operator Program
10/18/11	5-620	APOGEE Workstation Operations	08/02/11	5-620	APOGEE Workstation Operations
10/25/11	5-630	APOGEE PPCL Programming	08/16/11	5-615	APOGEE Field Panel and FLN Operations
Austin, TX			09/13/11	5-625	APOGEE Advanced Operations
Contact Terry McMullen at 210-253-2708.			09/13/11	5-802	Maintenance Planning for Mechanical and Elec. Sys.
02/22/11	5-620	APOGEE Workstation Operations	09/20/11	5-625	APOGEE Advanced Operations
05/03/11	5-625	APOGEE Advanced Operations	10/04/11	5-620	APOGEE Workstation Operations
Boston, MA			10/18/11	5-615	APOGEE Field Panel and FLN Operations
Contact Amanda Pena at 781-774-8343.			10/18/11	5-801	Sustainability and Environmental Management
10/12/10	5-620	APOGEE Workstation Operations	11/01/11	5-630	APOGEE PPCL Programming
11/02/10	5-630	APOGEE PPCL Programming	11/01/11	5-625	APOGEE Advanced Operations
11/09/10	5-625	APOGEE Advanced Operations	11/08/11	5-800	Principles of Troubleshooting
01/25/11	5-620	APOGEE Workstation Operations	11/08/11	5-635	APOGEE Programming for Efficient Bldg. Operations
02/22/11	5-615	APOGEE Field Panel and FLN Operations	11/15/11	5-803	Pneumatic Controls for HVAC
03/08/11	5-625	APOGEE Advanced Operations	11/29/11	5-710	APOGEE with BACnet for Experienced Insight Users
04/05/11	5-630	APOGEE PPCL Programming	11/29/11	5-645	APOGEE for Energy Management
04/26/11	5-620	APOGEE Workstation Operations	12/06/11	5-670	APOGEE Laboratory Controls
05/10/11	5-615	APOGEE Field Panel and FLN Operations	12/13/11	5-720	APOGEE with BACnet Workstation Operations
05/17/11	5-635	APOGEE Programming for Efficient Bldg. Operations	12/13/11	5-620	APOGEE Workstation Operations
06/07/11	5-620	APOGEE Workstation Operations	Cincinnati, OH		
06/14/11	5-645	APOGEE for Energy Management	Contact Cheryl Lotz at 513-742-5590.		
09/13/11	5-625	APOGEE Advanced Operations	10/19/10	5-625	APOGEE Advanced Operations
10/04/11	5-620	APOGEE Workstation Operations	01/25/11	5-615	APOGEE Field Panel and FLN Operations
10/11/11	5-615	APOGEE Field Panel and FLN Operations	03/08/11	5-630	APOGEE PPCL Programming
11/15/11	5-625	APOGEE Advanced Operations	05/17/11	5-620	APOGEE Workstation Operations
11/29/11	5-620	APOGEE Workstation Operations	Dallas, TX		
Buffalo Grove (Chicago, IL)			Contact Mary Hutchinson at 972-465-1591.		
Contact Teresa Grace-Regan at 847-941-5920.			11/16/10	5-620	APOGEE Workstation Operations
10/12/10	5-630	APOGEE PPCL Programming	01/18/11	5-635	APOGEE Programming for Efficient Bldg. Operations
10/26/10	5-635	APOGEE Programming for Efficient Bldg. Operations	02/08/11	5-645	APOGEE for Energy Management
10/26/10	5-615	APOGEE Field Panel and FLN Operations	04/26/11	5-620	APOGEE Workstation Operations
11/02/10	5-645	APOGEE for Energy Management	05/10/11	5-625	APOGEE Advanced Operations
11/09/10	5-620	APOGEE Workstation Operations	08/23/11	5-630	APOGEE PPCL Programming
11/30/10	5-720	APOGEE with BACnet Workstation Operations	09/20/11	5-710	APOGEE with BACnet for Experienced Insight Users
11/30/10	5-800	Principles of Troubleshooting			
11/30/10	5-652	InfoCenter Suite			
12/07/10	5-802	Maintenance Planning for Mechanical and Elec. Sys.			

CLASS SCHEDULE BY LOCATION

START DATE COURSE TITLE

Denver, CO

Contact Brenda Taylor at 425-507-4372.

11/09/10 5-620 APOGEE Workstation Operations
02/01/11 5-615 APOGEE Field Panel and FLN Operations
05/03/11 5-625 APOGEE Advanced Operations
08/09/11 5-620 APOGEE Workstation Operations

Des Moines, IA

Contact Rachael Waggoner at 515-447-0935.

10/12/10 5-620 APOGEE Workstation Operations
04/12/11 5-620 APOGEE Workstation Operations

Detroit, MI

Contact Tonya Silver at 734-456-3800.

02/15/11 5-620 APOGEE Workstation Operations
03/08/11 5-625 APOGEE Advanced Operations
06/21/11 5-635 APOGEE Programming for Efficient Bldg. Operations
09/20/11 5-645 APOGEE for Energy Management

Fairbanks, AK

Contact Brenda Taylor at 425-507-4372.

10/26/10 5-620 APOGEE Workstation Operations
04/05/11 5-625 APOGEE Advanced Operations

Houston, TX

Contact Laurie Kerekes at 281-949-3078.

05/03/11 5-620 APOGEE Workstation Operations

Las Vegas, NV

Contact Lynn Stickler at 702-855-5300 or
Brenda Taylor at 425-507-4372.

03/08/11 5-620 APOGEE Workstation Operations
06/14/11 5-625 APOGEE Advanced Operations

Los Angeles, CA

Contact Crystal Wells at 714-252-1315.

10/26/10 5-620 APOGEE Workstation Operations
11/16/10 5-625 APOGEE Advanced Operations
12/07/10 5-615 APOGEE Field Panel and FLN Operations
01/11/11 5-620 APOGEE Workstation Operations
02/01/11 5-625 APOGEE Advanced Operations
02/08/11 5-710 APOGEE with BACnet for Experienced Insight Users
02/22/11 5-615 APOGEE Field Panel and FLN Operations
03/01/11 5-720 APOGEE with BACnet Workstation Operations
03/15/11 5-620 APOGEE Workstation Operations
04/12/11 5-630 APOGEE PPCL Programming
04/26/11 5-725 APOGEE with BACnet Advanced Operations
05/10/11 5-635 APOGEE Programming for Efficient Bldg. Operations
06/07/11 5-625 APOGEE Advanced Operations
06/21/11 5-615 APOGEE Field Panel and FLN Operations
08/16/11 5-645 APOGEE for Energy Management
09/13/11 5-620 APOGEE Workstation Operations
09/27/11 5-710 APOGEE with BACnet for Experienced Insight Users
11/01/11 5-720 APOGEE with BACnet Workstation Operations
11/08/11 5-630 APOGEE PPCL Programming
12/06/11 5-725 APOGEE with BACnet Advanced Operations

START DATE COURSE TITLE

Miami, FL

Contact Maria Balbuena at 954-364-6690.

10/26/10 5-620 APOGEE Workstation Operations
11/16/10 5-635 APOGEE Programming for Efficient Bldg. Operations
12/07/10 5-615 APOGEE Field Panel and FLN Operations
12/13/10 5-645 APOGEE for Energy Management
02/01/11 5-620 APOGEE Workstation Operations
04/05/11 5-625 APOGEE Advanced Operations
06/07/11 5-630 APOGEE PPCL Programming
07/12/11 5-615 APOGEE Field Panel and FLN Operations

Minneapolis, MN

Contact Mark Pieper at 651-604-1861.

11/02/10 5-625 APOGEE Advanced Operations
03/15/11 5-620 APOGEE Workstation Operations
05/17/11 5-615 APOGEE Field Panel and FLN Operations

New York City Metro Area

Contact Teresa Grace-Regan at 847-941-5920.

10/12/10 5-630 APOGEE PPCL Programming
11/09/10 5-620 APOGEE Workstation Operations
02/15/11 5-620 APOGEE Workstation Operations
03/22/11 5-615 APOGEE Field Panel and FLN Operations
04/12/11 5-625 APOGEE Advanced Operations
05/24/11 5-630 APOGEE PPCL Programming
06/07/11 5-635 APOGEE Programming for Efficient Bldg. Operations
09/27/11 5-620 APOGEE Workstation Operations
10/25/11 5-625 APOGEE Advanced Operations

Omaha, NE

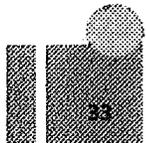
Contact Cindy Randall at 402-827-4104.

04/19/11 5-620 APOGEE Workstation Operations
10/18/11 5-620 APOGEE Workstation Operations

Orlando, FL

Contact Tila Fraebel at 407-571-1900.

11/30/10 5-620 APOGEE Workstation Operations
03/01/11 5-625 APOGEE Advanced Operations
09/13/11 5-620 APOGEE Workstation Operations
10/25/11 5-615 APOGEE Field Panel and FLN Operations



**BUILDING AUTOMATION,
MAINTENANCE & PLANNING**

CLASSROOM TRAINING

START DATE	COURSE	TITLE
Philadelphia, PA Contact Robin May at 215-654-8040.		
10/05/10	5-620	APOGEE Workstation Operations
10/19/10	5-802	Maintenance Planning for Mechanical and Elec. Sys.
10/26/10	5-625	APOGEE Advanced Operations
11/09/10	5-630	APOGEE PPCL Programming
11/09/10	5-690	Accelerated APOGEE Master Operator Program
12/07/10	5-620	APOGEE Workstation Operations
01/11/11	5-615	APOGEE Field Panel and FLN Operations
02/08/11	5-620	APOGEE Workstation Operations
02/22/11	5-645	APOGEE for Energy Management
03/08/11	5-620	APOGEE Workstation Operations
03/22/11	5-625	APOGEE Advanced Operations
04/05/11	5-620	APOGEE Workstation Operations
05/03/11	5-800	Principles of Troubleshooting
05/10/11	5-802	Maintenance Planning for Mechanical and Elec. Sys.
06/07/11	5-620	APOGEE Workstation Operations
06/21/11	5-801	Sustainability and Environmental Management
07/12/11	5-625	APOGEE Advanced Operations
08/09/11	5-630	APOGEE PPCL Programming
08/23/11	5-620	APOGEE Workstation Operations
09/13/11	5-720	APOGEE with BACnet Workstation Operations
09/27/11	5-635	APOGEE Programming for Efficient Bldg. Operations
10/04/11	5-620	APOGEE Workstation Operations
10/11/11	5-625	APOGEE Advanced Operations
10/25/11	5-645	APOGEE for Energy Management
11/01/11	5-615	APOGEE Field Panel and FLN Operations
11/15/11	5-652	InfoCenter Suite
12/06/11	5-620	APOGEE Workstation Operations

Phoenix, AZ Contact Lynn Stickler at 702-855-5300 or Brenda Taylor at 425-507-4372.		
02/01/11	5-620	APOGEE Workstation Operations
05/17/11	5-625	APOGEE Advanced Operations

Port Edwards, WI Contact Elizabeth Stormoen at 715-887-4400.		
10/05/10	5-620	APOGEE Workstation Operations
01/25/11	5-625	APOGEE Advanced Operations

Portland, OR Contact Brenda Taylor at 425-507-4372.		
10/19/10	5-620	APOGEE Workstation Operations
04/26/11	5-620	APOGEE Workstation Operations
06/07/11	5-625	APOGEE Advanced Operations

Raleigh, NC Contact Erik Fisher at 919-465-5216.		
10/19/10	5-615	APOGEE Field Panel and FLN Operations
02/08/11	5-625	APOGEE Advanced Operations
04/19/11	5-620	APOGEE Workstation Operations
05/17/11	5-630	APOGEE PPCL Programming
08/23/11	5-635	APOGEE Programming for Efficient Bldg. Operations
09/13/11	5-625	APOGEE Advanced Operations
10/25/11	5-620	APOGEE Workstation Operations
11/08/11	5-652	InfoCenter Suite

START DATE	COURSE	TITLE
Rochester, NY Contact Rochelle Marshall at 585-797-2300.		
10/19/10	5-620	APOGEE Workstation Operations
01/18/11	5-615	APOGEE Field Panel and FLN Operations
04/12/11	5-620	APOGEE Workstation Operations

Salt Lake City, UT Contact Brenda Taylor at 425-507-4372.		
02/22/11	5-620	APOGEE Workstation Operations
06/21/11	5-620	APOGEE Workstation Operations

San Antonio, TX Contact Terry McMullen at 210-253-2708.		
08/16/11	5-620	APOGEE Workstation Operations
11/15/11	5-625	APOGEE Advanced Operations

San Diego, CA Contact Lapeachtriss Turner at 858-880-2090.		
11/02/10	5-625	APOGEE Advanced Operations
01/25/11	5-620	APOGEE Workstation Operations
02/22/11	5-625	APOGEE Advanced Operations
03/29/11	5-615	APOGEE Field Panel and FLN Operations
04/12/11	5-620	APOGEE Workstation Operations
05/10/11	5-630	APOGEE PPCL Programming
06/28/11	5-720	APOGEE with BACnet Workstation Operations
07/26/11	5-645	APOGEE for Energy Management
08/02/11	5-620	APOGEE Workstation Operations
09/27/11	5-625	APOGEE Advanced Operations
10/11/11	5-615	APOGEE Field Panel and FLN Operations
11/15/11	5-620	APOGEE Workstation Operations

San Francisco, CA Contact Rhonda England at 510-723-7742.		
10/05/10	5-620	APOGEE Workstation Operations
02/01/11	5-620	APOGEE Workstation Operations
04/05/11	5-620	APOGEE Workstation Operations
06/07/11	5-620	APOGEE Workstation Operations
08/02/11	5-625	APOGEE Advanced Operations
09/13/11	5-620	APOGEE Workstation Operations
10/04/11	5-620	APOGEE Workstation Operations

Seattle, WA Contact Brenda Taylor at 425-507-4372.		
10/19/10	5-615	APOGEE Field Panel and FLN Operations
10/26/10	5-630	APOGEE PPCL Programming
11/16/10	5-620	APOGEE Workstation Operations
12/07/10	5-635	APOGEE Programming for Efficient Bldg Operations
01/18/11	5-620	APOGEE Workstation Operations
02/08/11	5-625	APOGEE Advanced Operations
03/22/11	5-620	APOGEE Workstation Operations
05/17/11	5-620	APOGEE Workstation Operations

START DATE COURSE TITLE

Seattle, WA

Contact Brenda Taylor at 425-507-4372.

START DATE	COURSE	TITLE
06/07/11	5-615	APOGEE Field Panel and FLN Operations
07/19/11	5-620	APOGEE Workstation Operations
08/09/11	5-625	APOGEE Advanced Operations
09/20/11	5-620	APOGEE Workstation Operations
10/11/11	5-630	APOGEE PPCL Programming
11/14/11	5-620	APOGEE Workstation Operations
12/06/11	5-635	APOGEE Programming for Efficient Bldg. Operations

St. Louis, MO

Contact Shelli Johnson at 314-817-1073.

START DATE	COURSE	TITLE
11/16/10	5-620	APOGEE Workstation Operations
03/15/11	5-620	APOGEE Workstation Operations
08/16/11	5-620	APOGEE Workstation Operations

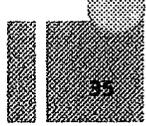
Washington, DC

Contact Patricia Boone at 301-837-2527.

START DATE	COURSE	TITLE
10/05/10	5-620	APOGEE Workstation Operations
10/05/10	5-620	APOGEE Workstation Operations
10/19/10	5-615	APOGEE Field Panel and FLN Operations
10/26/10	5-803	Pneumatic Controls for HVAC
10/26/10	5-620	APOGEE Workstation Operations
11/02/10	5-615	APOGEE Field Panel and FLN Operations
11/02/10	5-630	APOGEE PPCL Programming
11/16/10	5-620	APOGEE Workstation Operations
11/16/10	5-615	APOGEE Field Panel and FLN Operations
11/30/10	5-615	APOGEE Field Panel and FLN Operations
12/07/10	5-620	APOGEE Workstation Operations
12/14/10	5-620	APOGEE Workstation Operations
01/04/11	5-620	APOGEE Workstation Operations
01/11/11	5-620	APOGEE Workstation Operations
01/18/11	5-615	APOGEE Field Panel and FLN Operations
01/18/11	5-620	APOGEE Workstation Operations
01/18/11	5-625	APOGEE Advanced Operations
01/25/11	5-615	APOGEE Field Panel and FLN Operations
02/01/11	5-615	APOGEE Field Panel and FLN Operations
02/08/11	5-615	APOGEE Field Panel and FLN Operations
02/08/11	5-615	APOGEE Field Panel and FLN Operations
02/15/11	5-620	APOGEE Workstation Operations
02/15/11	5-620	APOGEE Workstation Operations
03/01/11	5-620	APOGEE Workstation Operations
03/01/11	5-620	APOGEE Workstation Operations
03/08/11	5-635	APOGEE Programming for Efficient Bldg. Operations
03/08/11	5-620	APOGEE Workstation Operations
03/15/11	5-615	APOGEE Field Panel and FLN Operations
03/22/11	5-625	APOGEE Advanced Operations
03/22/11	5-615	APOGEE Field Panel and FLN Operations
03/29/11	5-615	APOGEE Field Panel and FLN Operations
03/29/11	5-615	APOGEE Field Panel and FLN Operations
04/05/11	5-615	APOGEE Field Panel and FLN Operations
04/05/11	5-620	APOGEE Workstation Operations
04/12/11	5-620	APOGEE Workstation Operations
04/19/11	5-615	APOGEE Field Panel and FLN Operations
04/26/11	5-630	APOGEE PPCL Programming
05/03/11	5-630	APOGEE PPCL Programming

START DATE COURSE TITLE

START DATE	COURSE	TITLE
05/03/11	5-620	APOGEE Workstation Operations
05/10/11	5-630	APOGEE PPCL Programming
05/17/11	5-625	APOGEE Advanced Operations
05/17/11	5-630	APOGEE PPCL Programming
05/24/11	5-630	APOGEE PPCL Programming
06/07/11	5-630	APOGEE PPCL Programming
06/07/11	5-620	APOGEE Workstation Operations
06/14/11	5-615	APOGEE Field Panel and FLN Operations
06/14/11	5-630	APOGEE PPCL Programming
06/21/11	5-630	APOGEE PPCL Programming
06/28/11	5-630	APOGEE PPCL Programming
07/12/11	5-630	APOGEE PPCL Programming
07/12/11	5-620	APOGEE Workstation Operations
07/19/11	5-630	APOGEE PPCL Programming
07/26/11	5-630	APOGEE PPCL Programming
08/02/11	5-630	APOGEE PPCL Programming
08/02/11	5-620	APOGEE Workstation Operations
08/09/11	5-630	APOGEE PPCL Programming
08/16/11	5-630	APOGEE PPCL Programming
08/16/11	5-615	APOGEE Field Panel and FLN Operations
08/23/11	5-630	APOGEE PPCL Programming
08/23/11	5-625	APOGEE Advanced Operations
08/30/11	5-630	APOGEE PPCL Programming
09/13/11	5-620	APOGEE Workstation Operations
10/04/11	5-620	APOGEE Workstation Operations
10/18/11	5-615	APOGEE Field Panel and FLN Operations
11/01/11	5-620	APOGEE Workstation Operations



OVERVIEW COURSES

As revisions to Insight software are released, training for new users and existing users will be offered. Please contact your local Siemens office for more information.

Insight 3.10 for New Users (4-6 hours)

159-152 (Student Guide); 159-151 (Instructor Guide)

Learn how to use Insight 3.10 to monitor and control a facility.

Topic:

Reports

Commander

Alarm Management

Scheduler

Point Group Editor

Trending

Graphics

You will learn to:

- Identify the components of a Point Log.
- Run various Point Log reports.
- Command points and return them to system control.
- Acknowledge and erase alarms.
- View messages for points in alarm.
- Define zones and events.
- Discuss scheduling events and overriding schedules.
- Organize points into groups.
- Determine when to trend a point by time and when to trend a point by Change-of-Value (COV).
- Display and navigate dynamic graphics.

Participants: Building personnel who need operating skills with Insight systems.

Prerequisite: None

New Features of Insight 3.10 for Existing 3.9 or 3.9.1 Users (4-6 hours)

159-154 (Student Guide); 159-153 (Instructor Guide)

Learn about the new features and capabilities of Insight 3.10.

Topic:

Enhancements

Main Menu Icons

Hardware Support

Event Enrollment

SMTP Enhancements

Graphics

User Accounts

You will learn to:

- List the new features of Insight 3.0.1 and 3.10.
- Identify the new Main Menu Icons.
- Use Insight to control the PXC36.
- Add a PXC compact on P1 to the FLN trunk.
- Configure an NOA on a PXC16 or 24.
- Configure and work with the BACnet Event Enrollment object.
- Build Event Enrollment objects.
- Receive Event Enrollment notifications.
- Provide additional information when configuring SMTP server settings for reports and RENO.
- Display priority information for graphical elements.
- Configure and use enhanced graphics objects such as 3D charts and graphs.
- Apply default command priorities to user accounts.

Participants: Existing Insight 3.9 or 3.9.1 users who are upgrading to Insight 3.10.

Prerequisite: Information is presented in a manner that assumes students are familiar with the day-to-day operation of an Insight 3.9 or 3.9.1 system.

Field Panel GO (4-6 hours)

159-135 (Student Guide); 159-136 (Instructor Guide)

Learn about the new features and capabilities of Field Panel GO.

Topic:	You will learn to:
Alarms	<ul style="list-style-type: none"> Acknowledge alarm states.
Graphics	<ul style="list-style-type: none"> Configure the default graphic. View a list of available graphics. Command analog points from a graphic.
Point Commander	<ul style="list-style-type: none"> Command point values and priorities. Command a point to alarm.
Scheduler	<ul style="list-style-type: none"> View and modify properties of a mode schedule. Override a mode schedule on a selected date.
Trend Data Report	<ul style="list-style-type: none"> Generate and print a Trend Data report.
Point Log Report	<ul style="list-style-type: none"> Generate and print a Point Log report.

Participants: Building personnel who need operating skills with Field Panel GO systems.

Prerequisite: None

Communicating with Your APOGEE Field Panel (4-6 hours)

159-074 (Student Guide); 159-075 (Instructor Guide)

Learn how to use an operator interface terminal to communicate with an APOGEE Field Panel.

Topic:	You will learn to:
Operating	<ul style="list-style-type: none"> Log on and off a system.
Monitoring	<ul style="list-style-type: none"> Define the components of a point log. Run a point log for one point or a group of points using wildcards. Pause, resume and cancel the scrolling of reports. Add points to Point Monitor and remove points from Point Monitor. Run a Point Initialization Report.
Performing Diagnostics	<ul style="list-style-type: none"> Determine when to trend a point by time and when to trend a point by Change-of-Value (COV).
Troubleshooting	<ul style="list-style-type: none"> Add points to trend and remove points from trend.
Points	<ul style="list-style-type: none"> Command points. Return commanded points to system control.

Participants: Building personnel who need to communicate with an APOGEE Field Panel.

Prerequisite: None

APOGEE Terminal Equipment Controllers (4-6 hours)

159-103 (Student Guide); 159-104 (Instructor Guide)

Learn how to use APOGEE Terminal Equipment Controllers (TECs) for effective building equipment management.

Topic:

Identifying TECs

TECs on the FLN

Controller Subpoints

Unbundling Subpoints

Communicating

You will learn to:

- Make a sketch of some or all of the Field Level Networks (FLNs) at your facility.
- Explain the purpose of TECs.
- Describe how TECs control building equipment.
- Explain the difference between logical points and subpoints.
- Explain why TEC subpoints are unbundled in a network.
- Communicate with a TEC from a room thermostat and through a field panel or freight.

Participants: Building personnel who need basic operating skills with APOGEE TECs.

Prerequisite: None

Introduction to Pneumatic Controls (4-6 hours)

159-175 (Student Guide); 159-176 (Instructor Guide)

Learn about pneumatic components and how they work together in a system.

Topic:

Components

Simple Control
Strategies

You will learn to:

- Define pneumatic control.
- Identify the major components of a pneumatic system from air compressor to controlled devices.
- Describe how pneumatic devices can interact with DDC control.
- Identify pneumatic components and explain their function.
- Explain direct acting and reverse acting and normally open and normally closed.
- Describe the differences in the response of a direct acting and reverse acting thermostat.
- Describe a closed control loop.
- Describe the operation and function of components in a simple control strategy that uses pneumatic controls.

Participants: Building personnel who work with pneumatic systems and components.

Prerequisite: None

Fume Hood Hardware and Controls (4-6 hours)

159-045 (Student Guide); 159-046 (Instructor Guide)

Learn how to identify types of chemical fume hoods, their components and their purpose.

Topic:	You will learn to:
Fume Hood Identification	<ul style="list-style-type: none"> • Define the purpose of a fume hood. • Identify the components of a fume hood and the different sash types.
Fume Hood Exhaust Terminal (FHET)	<ul style="list-style-type: none"> • Describe the function of the FHET. • Identify the components of the FHET.
Fume Hood Controller (FHC)	<ul style="list-style-type: none"> • Describe the function of the FHC.
Operator Display Panel (ODP)	<ul style="list-style-type: none"> • Describe the function of the ODP. • Identify the components of the ODP. • Interpret the LEDs, display and alarms of the ODP.
Fume Hood Monitor (FHM)	<ul style="list-style-type: none"> • Describe the function of the FHM. • Interpret the LEDs, display and alarms of the FHM.
Laboratory Room Controller (LRC)	<ul style="list-style-type: none"> • Describe the function of the LRC. • Identify the components of the LRC. • Describe the function of the fume hood flow module.
Differential Pressure Monitor (DPM)	<ul style="list-style-type: none"> • Describe the function of the DPM.
Datamate Base Software	<ul style="list-style-type: none"> • Log on to Datamate Base. • Run reports using Datamate Base. • Override point values.

Participants: Building engineers, building administrators or anyone responsible for maintaining and troubleshooting fume hoods.

Prerequisite: None

Fume Hood Safety (4-6 hours)

159-047 (Student Guide); 159-048 (Instructor Guide)

Learn how fume hoods function and basic safety guidelines.

Topic:	You will learn to:
Fume Hood Components	<ul style="list-style-type: none"> • Describe the purpose of a fume hood. • Identify fume hood components.
Safety Guidelines	<ul style="list-style-type: none"> • Identify procedures for safe fume hood operation.
Operator Display Panel and Monitor Components	<ul style="list-style-type: none"> • Interpret information from the Operator Display Panel and the Fume Hood Monitor.

Participants: Intended for laboratory personnel who operate fume hoods.

Prerequisite: None

Introduction to Heating, Ventilation and Air Conditioning (HVAC) Basics (4-6 hours)

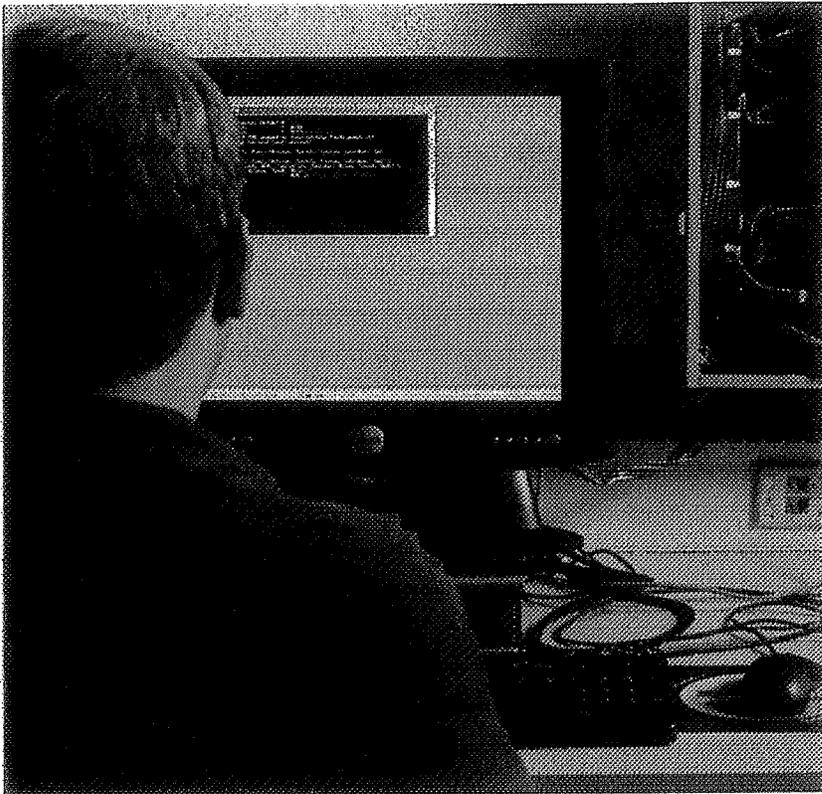
159-091 (Student Guide); 159-092 (Instructor Guide)

Learn basic HVAC concepts and how they apply to buildings.

Topic:	You will learn to:
Thermodynamic Calculations	<ul style="list-style-type: none">• Calculate basic CFM/STU requirements.
Heating and Cooling Systems	<ul style="list-style-type: none">• Identify and describe major systems at your site for heating and cooling.
Warm and Cold Air Production and Distribution	<ul style="list-style-type: none">• Trace the path of warm and cold air from its source to its final distribution into rooms and other spaces.• Describe the specific equipment at your site for heating and cooling.• Describe the type of terminal equipment at your site if any, for the distribution of warm and cold air.
Room and Building Pressurization	<ul style="list-style-type: none">• Discuss why pressurization in an entire building and in specific spaces is important.• Identify any special needs areas you have, such as labs, computer rooms, process areas, etc.
Filtration	<ul style="list-style-type: none">• Explain how air is filtered at your facility.
Mechanical Equipment Terminal Equipment	<ul style="list-style-type: none">• Identify mechanical and terminal equipment at your facility.

Participants: Building personnel who need a basic introduction to HVAC concepts as applied to their building.

Prerequisite: None



BUILDING AUTOMATION, MAINTENANCE & PLANNING

SELF-STUDY MATERIALS

Key



CD/DVD



WEB



WORKBOOK

Web-based and CD/DVD Training

Log on to: www.TrainingLearningCenter.com for more information or to take a web-based course. To purchase the training CDs, fax your order to 847-215-4792 or email teresa.grace-regan@siemens.com. The order form is on page 72.

To benefit fully from the web and CD training, students should have basic computer skills before beginning the training.

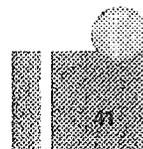
System Requirements for Web-Based and CD Training

Minimum

Windows 98/NT/XP or 2000, Pentium III or higher, 400 MHz clock speed with 256 MB RAM, 8x CD-ROM, color monitor that is capable of displaying thousands of colors at 800 x 600 pixels, 16-bit sound card, Windows Media Player.

Recommended

Windows 98/NT/XP or 2000, Pentium IV or higher, 1 GHz clock speed with 512 MB RAM, 16x CD-ROM, color monitor that is capable of displaying thousands of colors at 1,024 x 768 pixels, 16-bit sound card, Windows Media Player.



SELF-STUDY MATERIALS

**WEB-BASED AND
CD TRAINING**

Interactive CD/DVD Training

Learn how to use APOGEE Insight applications and hardware components at your own pace through these convenient interactive CD/DVD self-study training modules. Detailed descriptions of each of the self-study modules are available on the next several pages.

Topic:	Available CD/DVD modules for \$299 each:
Insight Applications	<ul style="list-style-type: none"> • APOGEE Insight Basics • APOGEE Reports • APOGEE Scheduler • APOGEE Trending
Automated Systems	<ul style="list-style-type: none"> • Interpreting Sequences of Operation • Introduction to Distributed Digital Concepts • Introduction to Open Protocols, BACnet® and LONWORKS® Networks
Hardware Devices	<ul style="list-style-type: none"> • Introduction to Terminal Box Terminal Equipment Controllers (TECs) • APOGEE Field Panel Operations • Introduction to the Modular Equipment Controller • Introduction to the Modular Building Controller • Introduction to the FXC-Modular Field Panel and TX-IO
Notification Software	<ul style="list-style-type: none"> • Remote Notification (RENO)
APOGEE Programming	<ul style="list-style-type: none"> • Introduction to FPCL Programming
Lab Room Controls	<ul style="list-style-type: none"> • Introduction to the Fume Hood and Laboratory Room Controllers

Module Length: The training modules can be either one or two CD/DVDs depending upon the amount of material covered for that topic. For this reason the computer may require a DVD player to run the module.

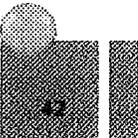
Participants: Each training module description has listed the recommended participants it was designed for to enhance the effectiveness of the training for those individuals.

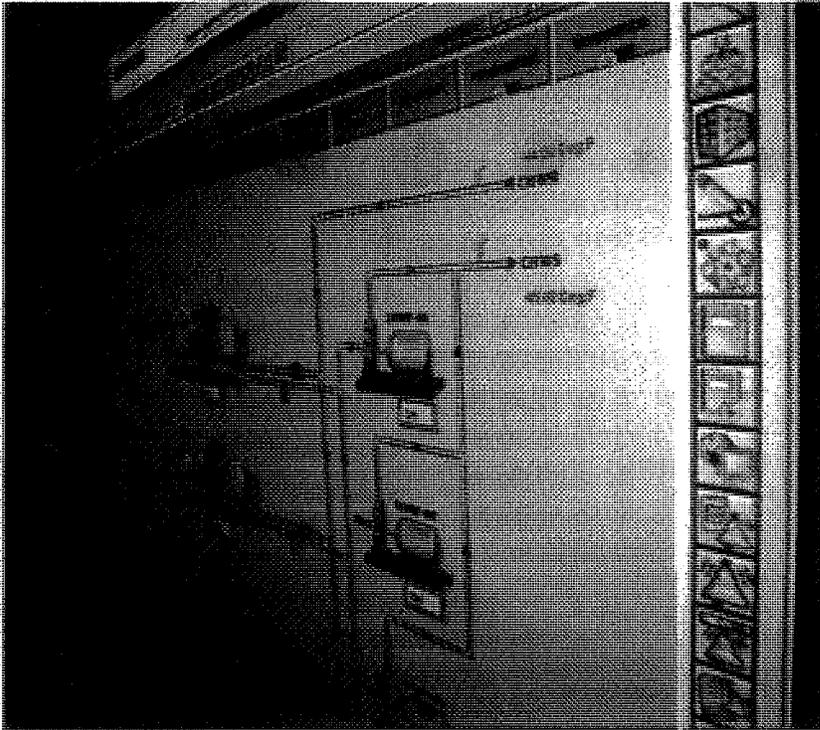
Save 25% on two or more CD/DVD training modules when purchased at the same time.

Interactive CD/DVD Training Packages

Packages:	Module Combinations:	
Basic Operator Package	<ul style="list-style-type: none"> • APOGEE Insight Basics • APOGEE Reports 	\$445
Trending Package	<ul style="list-style-type: none"> • APOGEE Reports • APOGEE Scheduler • APOGEE Trending 	\$670
Hardware Package	<ul style="list-style-type: none"> • Introduction to Terminal Box TECs • APOGEE Field Panel Operations • Introduction to the FXC-Modular Field Panel and TX-IO 	\$670

See page 72 for CD/DVD order form.





APOGEE Insight Basics

This module includes an introduction to the five most commonly-used APOGEE Insight applications.

Topic:	You will learn to:
Graphics	<ul style="list-style-type: none"> • Navigate through graphic links. • Display informational text and alarm messages from a graphic. • Command points from a graphic. • Identify types of dynamic information that are displayed on graphic screens.
Alarm Status	<ul style="list-style-type: none"> • Acknowledge point alarms. • Add a point memo. • View the alarm history of a point.
Main Menu	<ul style="list-style-type: none"> • Start Insight from Windows. • Find online documentation and help. • Customize the Insight main menu.
Report Viewer	<ul style="list-style-type: none"> • Start the Report Viewer application. • Run a report from Insight. • Command a point from the Report Viewer.
Panel Point Log Screen	<ul style="list-style-type: none"> • Run a Panel Point Log Report from the Insight main menu. • Use a Panel Point Log Report to view point details and status.

Participants: This interactive training module is recommended for building operators who: (1) are new users of Insight and need basic operator skills to control buildings, (2) are upgrading their version of Insight software, (3) need to refresh basic operator skills on Insight or (4) need to perform operations in a simulated environment. This module is excellent for personnel who are scheduled for an APOGEE Workstation Operations (5-620) class, but want to begin training as soon as possible.

Price: See website for cost of web-based training.

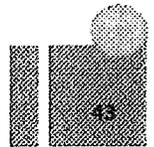
Insight version 3.5-3.7

Insight version 3.4

Insight version 3.1 to 3.3

Insight version 3.10

CD version \$299 (U.S.)





APOGEE Scheduler



Module One teaches the terms and concepts of the Scheduler application, how to navigate through the application and how to schedule an event. Module Two explains how to schedule a zone, populate and schedule a replacement day, perform a day shift, override an event schedule and schedule trend collections and reports.

Module One

Topic:

Applications

Concepts

Navigation

Events

You will learn to:

- Define terms associated with the Scheduler application.
- Setup Zone and Event definitions and replacement days.
- Navigate through the application.
- View daily and weekly schedules.
- View replacement days.
- Set the duration and repetition of Events.
- Use a day span.
- Select the scheduled date.

Module Two

Topic:

Trend Collections
and Reports

Scheduled

Operations

Events and
Zones

You will learn to:

- Schedule trend collections and reports.
- Populate and use replacement days.
- Use day shifts.
- Override scheduled operations.
- Schedule events and zones.
- Repeat event and zone schedules.
- Use the day span and scheduled date features.

Participants: Module One is for APOGEE operators who need to control buildings using the APOGEE Scheduler application. Module Two is for APOGEE operators and administrators who need to control buildings using advanced features of the APOGEE Scheduler application. This module is helpful to building operators who want to refresh their skills with the Event Builder or Scheduler applications.

Price: See website for cost of web-based training.
CD version (includes modules 1 and 2) \$299 (U.S.)

APOGEE Field Panel Operations

This module is an operation and maintenance course for the APOGEE Modular Building Controller (MBC). It includes an overview of MBC hardware and includes exercises in maintaining the MBC with terminal emulation software.

Topic:	You will learn to:
Network and Point Databases	<ul style="list-style-type: none"> • Set-up Destinations. • Set-up State Text Tables. • Use point naming conventions. • Define point types. • Address, modify and command points in the MBC.
Reports	<ul style="list-style-type: none"> • Run the following: Point Log Report, TEC Subpoints Report and Point Monitor.
Components Interface	<ul style="list-style-type: none"> • Identify the components of a MBC. • Establish a terminal connection. • Log on to a MBC. • Use Accelerator Keys.
Configuration	<ul style="list-style-type: none"> • Configure a MBC. • Configure and set-up the network.

Participants: This module is recommended for building operators who: (1) communicate with APOGEE MBCs using terminal emulation software, (2) want to practice using terminal emulation software in a simulated environment or (3) need to refresh their skills with terminal emulation software.

Price: See website for cost of web-based training. CD version \$299 (U.S.)

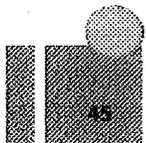
Remote Notification (RENO)

This module addresses all aspects of the RENO feature in APOGEE, from configuring system settings to setting up a point for remote notification.

Topic:	You will learn to:
System Requirements	<ul style="list-style-type: none"> • Identify the requirements for the different remote notification features.
System Settings	<ul style="list-style-type: none"> • Configure all of the system settings for remote notification.
Creating Users	<ul style="list-style-type: none"> • Define users and devices. • Create Groups for users and devices.
Escalation Lists	<ul style="list-style-type: none"> • Create an escalation list. • Add devices and groups to escalation lists.
Scheduling	<ul style="list-style-type: none"> • Schedule devices, groups and escalation lists.
Point Setup	<ul style="list-style-type: none"> • Configure a point for remote notification.
Heartbeat	<ul style="list-style-type: none"> • Setup the heartbeat function. • Add devices to the heartbeat.

Participants: Building personnel who setup, configure or work with the RENO feature.

Price: See website for cost of web-based training. CD version \$299 (U.S.)





APOGEE Trending



Module One presents the terms and definitions most commonly-used in the APOGEE Trend Definition Editor and explains how to define trend definitions at the APOGEE workstation. Module Two presents the terms and definitions most commonly-used to collect and interpret trend data and explains how to collect, view and analyze trend data at the APOGEE workstation.

Module One

Topic:

Definitions

Concepts

Trending

You will learn to:

- Define Interval and Change-of-Value (COV) trending.
- State the purposes of trending.
- Explain how field panel memory is affected by trending operations.
- Decide which method of trending should be used based on your objectives.
- Add, delete and modify Point Trend Definitions.

Module Two

Topic:

Collecting Data

Viewing Data

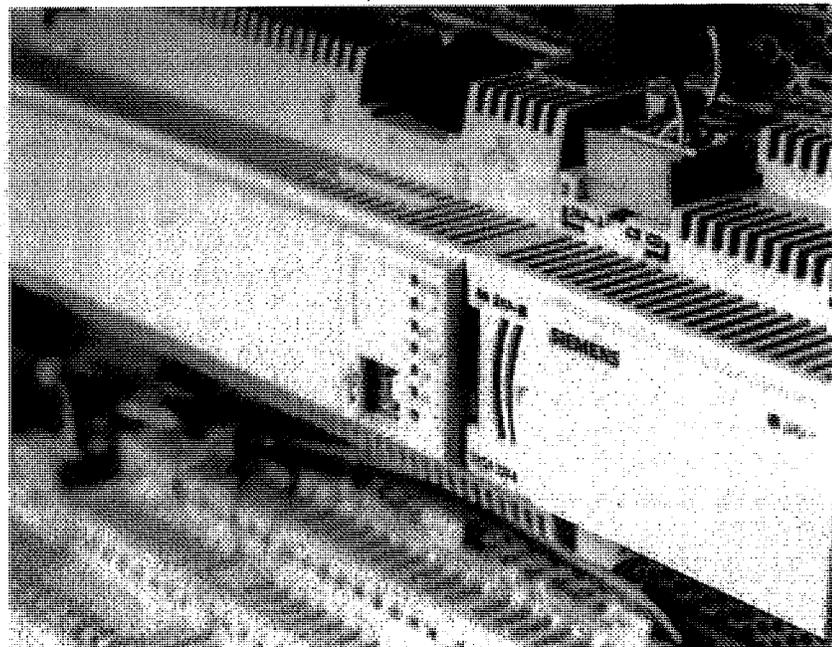
Interpreting and
Analyzing Data

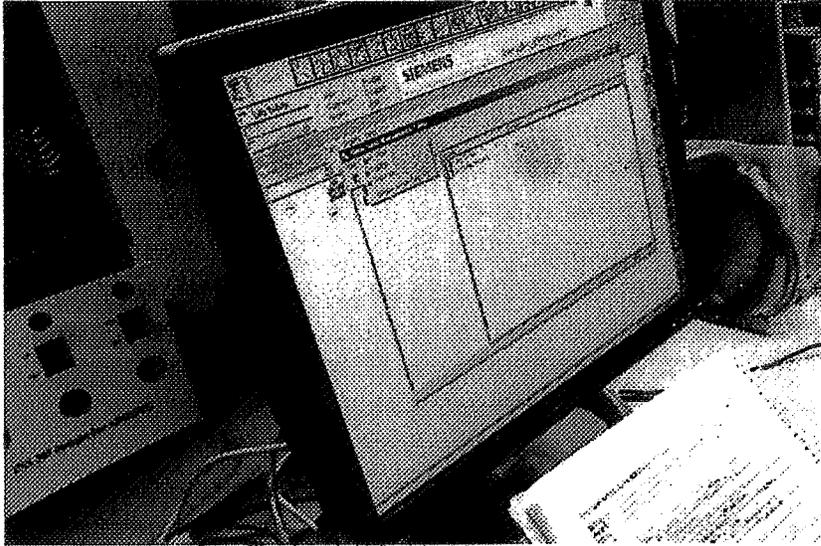
You will learn to:

- Setup a Trend Collection Report to retrieve data from the field panel.
- Perform Trend Collections.
- Build and save a Trend Data Detail Report definition.
- Save the data from a Trend Data Detail Report to a file.
- View data from Trend Interval Reports, Trend Sample Reports and Trend Summary Reports.
- Verify proper system operation.

Participants: Module One is for operators who need to use the APOGEE System to place points into trend. Module Two is for operators who need to use the APOGEE System to view and interpret trend information. These modules are helpful for building operators who want to refresh their skills with the Trend application.

Price: See website for cost of web-based training. CD version (includes modules 1 and 2) \$299 (U.S.)





APOGEE Reports

This module explains how to use the Report Builder and Report Viewer applications with the Insight software.



Topic:	You will learn to:
Report Builder	<ul style="list-style-type: none"> • Navigate through the Report Builder application. • Setup a Report Definition to create a file. • Configure report header information. • Configure a Panel Point Log report for points in operator priority.
Report Viewer	<ul style="list-style-type: none"> • Use the Object Selector to choose a report to view. • Run reports. • Refresh report data.

Participants: APOGEE operators who need to build and view reports that display system information. This module is helpful for building operators who need to refresh their skills with the Report Builder and Report Viewer applications.

Price: CD version \$299 (U.S.)

Introduction to Terminal Box TECs

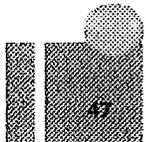
This module explains the basic operation and function of a Terminal Box Terminal Equipment Controller (TEC).



Topic:	You will learn to:
General	<ul style="list-style-type: none"> • State the purpose of TECs. • Describe physical components of TECs.
Interfacing	<ul style="list-style-type: none"> • Describe how to communicate with a TEC locally using Datamate Base.
Points	<ul style="list-style-type: none"> • Describe the different types of subpoints. • List the function of selected subpoints.
Operation	<ul style="list-style-type: none"> • Do basic operations. • Set a minimum and maximum room temperature setpoint. • Trace the generation of the temperature control setpoint. • List the requirements for a TEC to switch between heating and cooling modes.

Participants: Building personnel who communicate directly with TECs using Datamate Base.

Price: CD version \$299 (U.S.)





Introduction to PPCL Programming

This module teaches the basic flow and functionality of the Powers Process Control Language (PPCL) and it enhances troubleshooting abilities.

Topic:

Programming
Concepts

Basic PPCL Structure

Navigating Program
Editor

Panel PPCL Reports

You will learn to:

- Describe how PPCL is used.
- Understand the relationship between a PPCL program and Insight.
- Describe how a PPCL program controls your building.
- List the benefits of Mode Programming.
- Identify common PPCL statements and their syntax.
- Identify Local Variables and Resident Points.
- Use key editing tools.
- Compile and save programs.
- Download programs to APOGEE field panels.
- Create a Panel PPCL Report definition.
- Generate a Panel PPCL report.
- Interpret common report flags to identify program execution.

Participants: Building personnel who need a better understanding of PPCL programming to troubleshoot their system.

Price: CD version \$299 (U.S.)



Introduction to Distributed Digital Controls

This module explains what Distributed Digital Control (DDC) is and how it works. After you complete this course, you should understand the design principles of DDC systems. The course does not teach you to operate a specific manufacturer's product, but it teaches information that is common to most building controls systems.



Topic:

Distributed Digital
Control (DDC)

System Operations

Points

You will learn to:

- Define Distributed Digital Control.
- Explain how DDC operates buildings and its advantages.
- Describe how databases work together to control a building.
- Define points and the difference between physical and virtual points.

Participants: This module is for personnel who understand mechanical concepts, but need an overall understanding of how DDC systems function and control equipment in their building.

Price: See website for cost of web-based training. CD version \$299 (U.S.)

Introduction to the PXC-Modular Field Panel and TX-I/O

This module explains the operation and features of the PXC-Modular field panel.

Topic:	You will learn to:
Physical Layout	<ul style="list-style-type: none"> Identify hardware components.
Point Number Ranges	<ul style="list-style-type: none"> Describe how to expand the point count of the PXC-Modular field panel.
Power Requirements	<ul style="list-style-type: none"> Describe the power requirements of the PXC-Modular field panel.
Series Operations	<ul style="list-style-type: none"> Identify the available options.
Network Architecture	<ul style="list-style-type: none"> Identify the features that the PXC-Modular field panel supports on the system architecture.
TX-I/O	<ul style="list-style-type: none"> Describe the TX-I/O point modules and their use.

Participants: Building personnel who work with the PXC-Modular field panel.

Price: See website for cost of web-based training. CD version \$299 (U.S.)

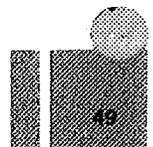
New Introduction to Fume Hood and Laboratory Room Controls

This module explains the basic components of a fume hood and the operations of the controllers. After you complete this training, you should understand the different readings on the Operator Display Panel and values on different reports.

Topic:	You will learn to:
Fume Hood Components	<ul style="list-style-type: none"> Identify the hardware components of a Fume Hood.
Operator Display Panel (ODP)	<ul style="list-style-type: none"> Interpret the information displayed on the ODP.
Fume Hood Controller	<ul style="list-style-type: none"> Describe VAV Fume Hood Controller operations. Define face velocity.
Room Control	<ul style="list-style-type: none"> Describe volumetric flow tracking of a laboratory room. Describe the TX-I/O point modules and their use.

Participants: Personnel who work or control fume hoods in a laboratory using APOGEE Automation System controls.

Price: See website for cost of web-based training. CD version \$299 (U.S.)





Introduction to the Modular Equipment Controller



This module explains the operation and features of the Modular Equipment Controller (MEC).

Topic:

Physical Layout
Point Number Ranges
Power Requirements
Series Options
Network Architecture

You will learn to:

- Identify hardware components.
- Describe how the point count of the base MEC can be expanded.
- Describe the power requirements of the MEC.
- Identify options available with different MEC models.
- Identify the features that the MEC supports on the system architecture.

Participants: Building personnel who need an overview of the MEC.

Price: CD version \$299 (U.S.)



Introduction to the Modular Building Controller



This module explains the operation and features of the Modular Building Controller (MBC).

Topic:

Physical Layout
Point Number Ranges
Power Requirements
Series Options
Network Architecture

You will learn to:

- Identify hardware components.
- Describe how the point count of the base MBC can be expanded.
- Describe the power requirements of the MBC.
- Identify options available with different MBC models.
- Identify the features that the MBC supports on the system architecture.

Participants: Building personnel who need an overview of the MBC.

Price: CD version \$299 (U.S.)



Interpreting Sequences of Operation

This module teaches how to interpret sequences of operation, identify key equipment for a sequence and summarize the impact of setpoint and load changes on an HVAC system. This training uses a simulation to view how sequences of operation affect building equipment.

Topic:

Sequences of Operation

You will learn to:

- Read and analyze sequences of operation for various systems, including:
 - Steam-to-hot-water heat exchanger with outside air reset.
 - Chiller with a three-way tower bypass valve.
 - 100% outside air handling unit.
 - Constant-air-volume mixed air unit for a single zone.
 - Variable-air-volume mixed air unit with terminal boxes.
 - Constant-air-volume rooftop unit with electric heat and direct expansion cooling.
 - Multi-zone unit.

Equipment

- Select the required equipment for the building system based on the sequence of operation.

Load Changes

- Predict what events will occur when loads change.

Participants: Building personnel who need to interpret sequences of operation that were written for their building systems.

Price: CD version \$299 (U.S.)

Introduction to Open Protocols, BACnet® and LONWORKS® Networks

This module teaches open standards protocols, including BACnet and LONWORKS® networks.

Topic:

Open Standards

You will learn to:

- State the advantages of Open Standards systems.
- Identify the differences between BACnet and LONWORKS® networks.

BACnet

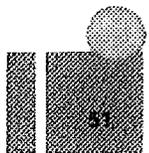
- Understand how the BACnet standard was developed.
- Describe the system architecture of BACnet.

LONWORKS® Networks

- Understand how the LONWORKS® standard was developed.
- Describe the architecture of LONWORKS® networks.

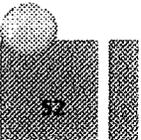
Participants: Building operators who need an overview of open standards protocols.

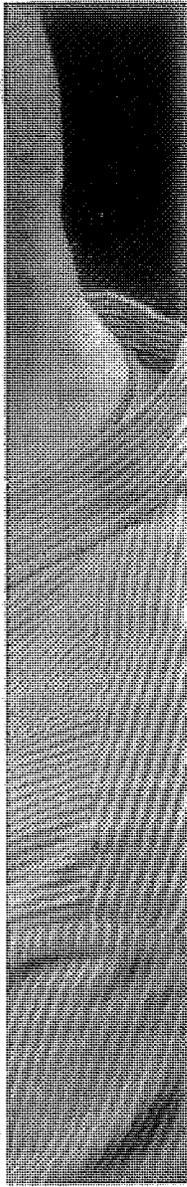
Price: CD version \$299 (U.S.)



**BUILDING AUTOMATION,
MAINTENANCE & PLANNING**

NOTES

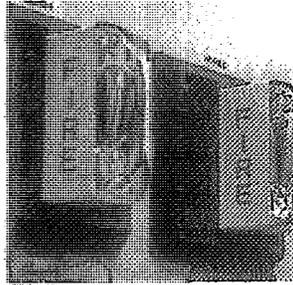
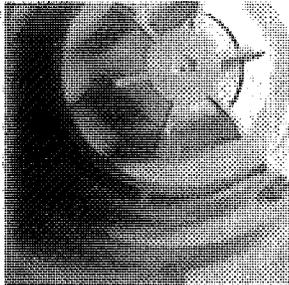
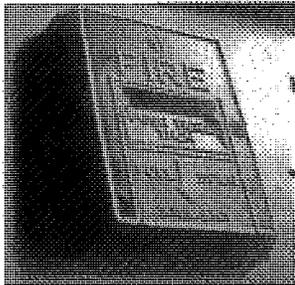




FIRE SAFETY

CLASSROOM TRAINING

SELF-STUDY MATERIALS



FIRE SAFETY

CLASSROOM TRAINING

EQUIPMENT REQUIRED

Siemens Industry provides fire safety equipment and simulators for training classes.

Every student must bring a laptop computer to training with the following minimum requirements. (This requirement does not apply to the FIS 3113 and FIS 4134 classes.) Microsoft Windows version 2000 (with Service Pack 1 or greater), ME or XP; Pentium-class CPU with 200 MHz minimum speed; 64 MBRAM minimum (128 MB or more recommended); CD-ROM drive or USB memory card; 800 x 600 screen resolution; 250 MB available hard disk space; two-button mouse; Microsoft Internet Explorer version 4 or later; and a serial port (USB to serial port adapter operating at COM1 or COM2 may also be used). The student must have Administrator access to the laptop computer.

Note: A laptop computer running Windows Vista operating system CANNOT be used in any class.

Training Options

We offer training classes at locations throughout the U.S. and Canada. We provide fire safety equipment for each student to practice with during the classes. If you have several students to train, you may want to schedule a class at your facility to save on student travel expenses.

DATES, LOCATIONS AND FEES

Call 1-800-487-7771 for the dates, locations and cost of training classes.

HOW TO ENROLL

Pre-enrollment is required. You are registered for a class when we receive your completed Enrollment Form and you receive a confirmation letter from us. Please complete the Enrollment Form on page iv of this directory and fax or mail it to:

Ms. Sarah Meyer
Siemens Industry, Inc.
Education Services Department
950 Deerfield Parkway
Buffalo Grove, IL 60089

Phone 1-800-487-7771
Fax (847) 215-4792
Email Sarah.Meyer@siemens.com

LODGING AND TRANSPORTATION

Students are responsible for their lodging and transportation when attending training at any location. Hotel and travel recommendations are included in the confirmation letters sent to students after enrolling.

CONFIRMATION

If a confirmation letter is not received three weeks before the class begins, call 1-800-487-7771.

CANCELLATION POLICY

Students who cancel less than four weeks prior to the first day of class are charged 25% of the tuition and less than two weeks prior to the first day of class are charged 50% of the tuition. The full tuition is charged if students do not cancel their enrollment and do not attend the class. The cancellation fee will be waived if a qualified student attends the class as a substitute.

Note: Siemens reserves the right to cancel classes and assumes no liability for expenses incurred by students due to class cancellation. All students will be notified of class cancellations.

TRAINING SOFTWARE

Programming software is provided for use during classes. The software is for training use only and will not operate in customer installations. Contact your Siemens Industry representative to purchase a software license and software.

Note: No audio/visual recording equipment is allowed in the classes.

Fire Systems Training Team



Mike Binkowski
CERTIFIED INSTRUCTOR



Charles Hamby
CERTIFIED INSTRUCTOR



Chris Hanson
CERTIFIED INSTRUCTOR



Steve Kuehn
CERTIFIED INSTRUCTOR



Jean Orphee
CERTIFIED INSTRUCTOR



Ed Sanjek
CERTIFIED INSTRUCTOR



John Traber
CERTIFIED INSTRUCTOR



Dan Zedan
CERTIFIED INSTRUCTOR



Sarah Meyer
NATIONAL REGISTRAR

FIS 1114 MXL Installation, Operation and Maintenance (4 days)

Learn to install, operate, maintain, test, troubleshoot and wire an MXL advanced microprocessor-based fire alarm system. The custom software, Acculink (CSG-M), will be used to transfer customer programs to the MXL Fire Alarm System. Simple changes will be made to installed software.

Topic:	You will learn to:
Basic Control Unit	<ul style="list-style-type: none"> Acknowledge Alarms, Supervisories, Troubles and Securities at the panel. Silence the panel. Reset the panel.
Devices	<ul style="list-style-type: none"> Install field devices. Use the Device Programming Unit (DPU). Add devices to the database using Acculink (CSG-M) software. Perform electrical installation and checkout.
Menu Functions	<ul style="list-style-type: none"> Use panel menu functions. Configure and print reports. View and change detector sensitivities. Enable and disable points.
MXL Programming Tool (Acculink)	<ul style="list-style-type: none"> Create an MXL configuration. Transfer configurations to MXL Systems.
Workshop Exercises	<ul style="list-style-type: none"> Construct an MXL-IQ System from discrete components. Operate and test the MXL System. Test and inspect an MXL System per NFPA 72 standards. Troubleshoot an MXL System.

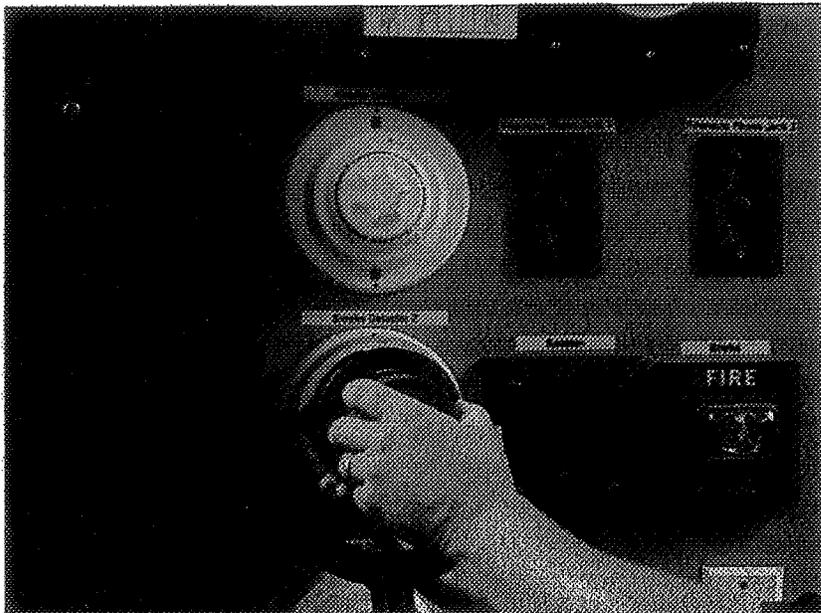
Course Length: Four days ending by noon on the last day.

Participants: Persons responsible for engineering, installing or maintaining an MXL system.

Prerequisite: Working knowledge of addressable fire alarm systems and IBM computers is assumed. Students must complete web-based training before attending this class: FIS 100 (Fire Detection and Alarm System Basics) and FIS 150 (MXL/MXLV Fire Panels and Components).

Required Equipment: Students must bring a laptop computer to training. Please refer to page 54 for more information.

CEUs: 2.7 CEUs

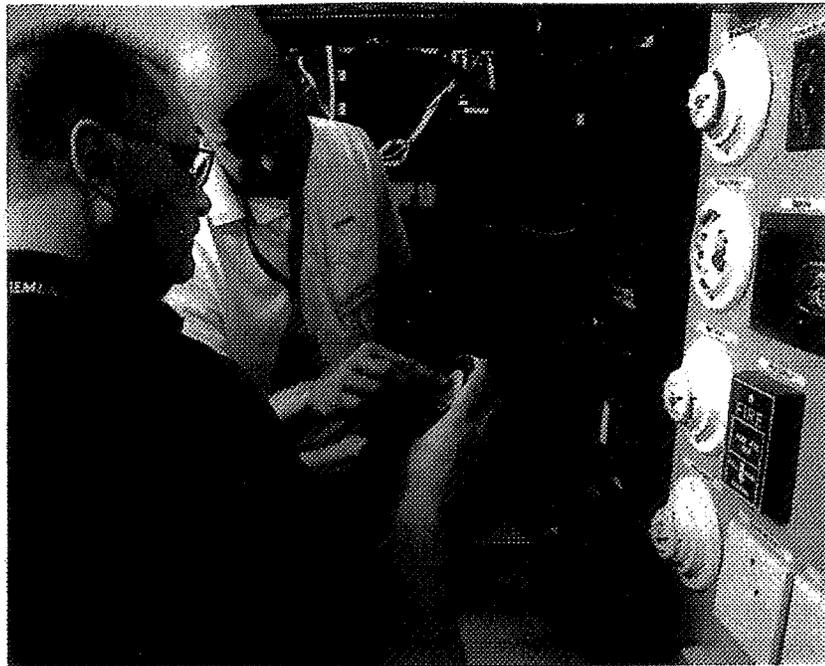


"The flexibility offered in activities is based on student proficiency."

Jon Gott
BSGI

"I especially liked how real world experiences were brought into the classroom."

Robert Genovese
Koorsen



FIS 1124 MXL Voice Installation, Operation and Maintenance (4 days)

Learn to install, operate and maintain an MXLV integrated voice evacuation system. A functional description of the system and modules, including single and multiple channel configurations and the various system architectures, will be taught. Hands-on labs allow students to work with the hardware as well as the Acculink Software (CSG-M) of the MXLV System.

Topic:

Voice System Basics

You will learn to:

- Understand the basic principles of an analog voice system.
- Identify voice hardware.
- Understand the difference between Distributed and Bulk Amplification.
- Install proper shielding.

3-Channel Voice

- Understand the concept of a 1-, 2- and 3-channel voice system.
- Explain the concepts of various Zone cards used for audio distribution.
- Understand Bulk Amplifiers and Supervision.

Transponders

- Install networks for voice systems including master/remote and peer-to-peer networks.

Shielding

- Install proper shielding for low-level and high-level audio.

Workshop Exercises

- Operate an MXL voice panel in emergency and maintenance situations.

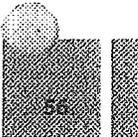
Course Length: Four days ending by noon on the last day.

Participants: Persons responsible for engineering, installing, maintaining or operating an MXL Voice System.

Prerequisites: Successful completion of FIS 1114. Knowledge of Acculink software is helpful.

Required Equipment: Students must bring a laptop computer to training. Please refer to page 54 for more information.

CEUs: 2.7 CEUs



FIS 1134 MXL Advanced and Networking (4 days)

Learn to setup, modify, test, troubleshoot and control an M-NET and X-NET System as well as use the global MKB monitor.

Topic:	You will learn to:
Basic System Operation	<ul style="list-style-type: none"> • Operate the MXL, MXL-IQ and X-NET Systems. • Use the test and maintenance menu. • Use the operational features of the MXL System. • Configure the M-NET.
Basic Option Modules	<ul style="list-style-type: none"> • Install basic option modules. • Use the Acculink program.
Special Option Modules	<ul style="list-style-type: none"> • Install special option modules. • Setup repeaters and Fiber Optic Module (daisy chain or star configuration).
MXL-IQ	<ul style="list-style-type: none"> • Operate the MXL-IQ System. • Use the operational features of the MXL-IQ. • Install basic modules and understand their application.
X-NET	<ul style="list-style-type: none"> • Setup and operate an X-NET System. • Recognize the difference between X-NET and M-NET. • Install new modules and understand their application.
Logic Functions	<ul style="list-style-type: none"> • Setup inter-panel logics.
Global MKB Monitors	<ul style="list-style-type: none"> • Install and operate Global MKB monitors.

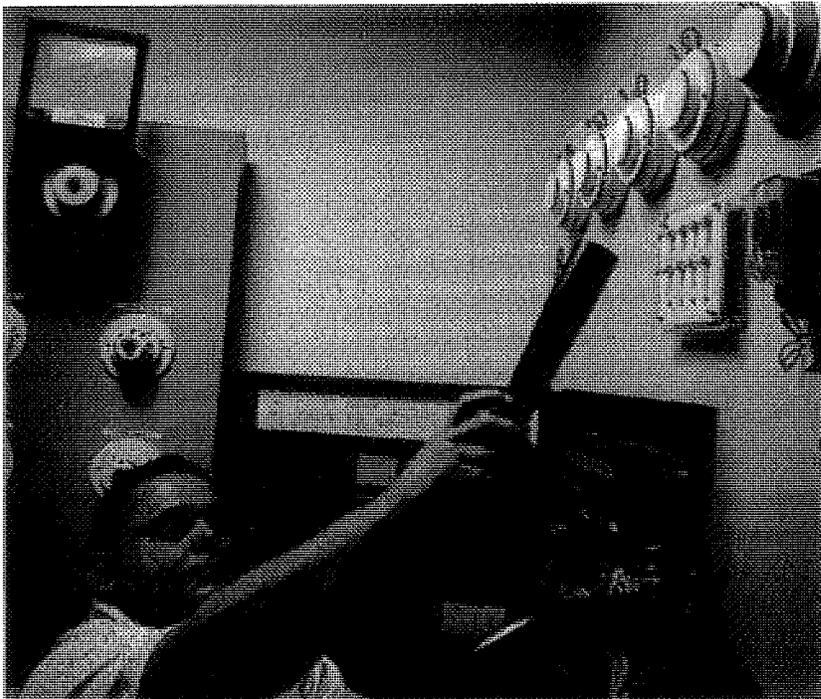
Course Length: Four days ending by noon on the last day.

Participants: Persons responsible for engineering, installing or maintaining an MXL networked system.

Prerequisite: Successful completion of FIS 1114. Knowledge of the Acculink software is strongly recommended.

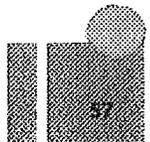
Required Equipment: Students must bring a laptop computer to training. Please refer to page 54 for more information.

CEUs: 2.7 CEUs



"This course was very informative and easy to follow."

David Adair
Hiller Companies



FIS 1144 Acculink MXL Programming Tool (4 days)

Learn to design, modify, test and use the MXL Fire System software, Acculink (CSG-M), and how to use the software logic to design an MXL Fire System. Every CSG-M function used for fire systems will be discussed as well as each different type of input and output.

Topic:	You will learn to:
Basic System Operation	<ul style="list-style-type: none"> • Install and navigate through the Acculink (CSG-M) software. • Apply CSG-M and MXL security.
Ten Steps to Programming	<ul style="list-style-type: none"> • Follow the steps from project specifications to compiling your configuration.
Logic Functions	<ul style="list-style-type: none"> • Use basic and complex logic including inputs and outputs. • Understand logic and timer functions.
Functional Block Diagrams	<ul style="list-style-type: none"> • Create functional block diagrams. • Use functional diagrams to de-bug your program.
Workshop Exercises	<ul style="list-style-type: none"> • Apply the ten steps to programming. • Design MXL Fire Alarm System configurations.

Note: This class does not teach voice programming functions. These are taught in the MXL Voice IOM (FIS 1124) class.

Course Length: Four days ending by noon on the last day.

Participants: Persons responsible for programming an MXL System.

Prerequisites: Successful completion of FIS 1114 and execution of a Software License Agreement.

Required Equipment: Students must bring a laptop computer to training. Please note that the laptop should not have the programming software installed. Please refer to page 54 for more information.

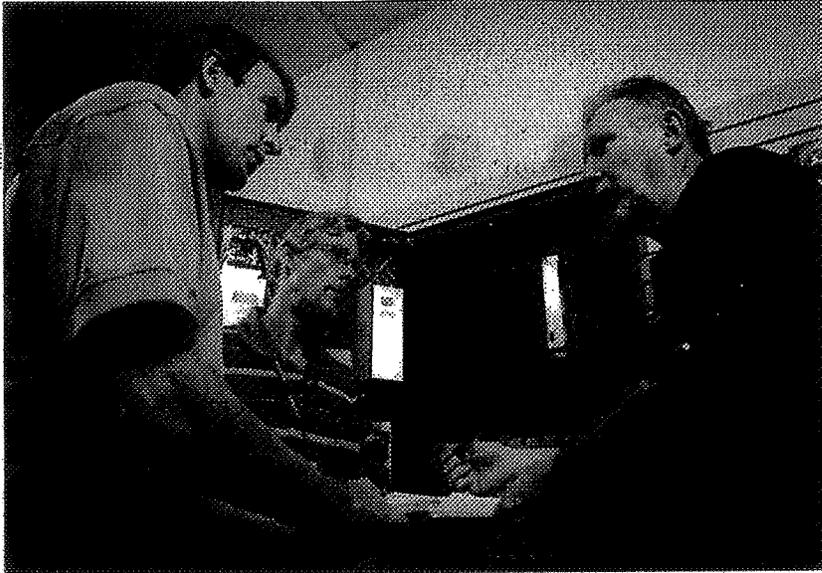
CEUs: 2.7 CEUs

"I especially liked that I came to the course with minimal knowledge of programming and now I feel comfortable enough to program any MXL panel."

Raymond Brooks
RFI Enterprises, Inc.



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FIRE SAFETY

CLASSROOM TRAINING

"I have tried to understand the XLS before...now I know it comfortably enough to work on it."

Scott Clary
Firehawk Safety Systems

FIS 2114 XLS Installation, Operation and Maintenance
(4 days)

Learn to install, operate, maintain, test, troubleshoot and wire an XLS FireFinder system. The custom software, ZEUS configuration tool, will be used to transfer customer programs to the XLS system. Changes will be made to installed software during the course.

Topic:	You will learn to:
Basic Control Unit	<ul style="list-style-type: none"> Acknowledge Alarms, Supervisories, Troubles and Securities at the panel. Silence the panel. Reset the panel.
Devices	<ul style="list-style-type: none"> Install field devices. Use the Device Programming Unit (DPU). Add devices to the database using ZEUS programming tool. Perform electrical installation and checkout.
Menu Functions	<ul style="list-style-type: none"> Use panel menu functions. Configure and print reports. View and change detector sensitivities. Enable and disable points.
XLS Programming Tool (ZEUS)	<ul style="list-style-type: none"> Create an XLS configuration. Transfer configurations to XLS System. Update panel and module firmware.
Workshop Exercises	<ul style="list-style-type: none"> Construct an XLS System from discrete components. Operate and test the XLS System. Test and inspect an XLS System per NFPA 72 standards. Troubleshoot an XLS System.

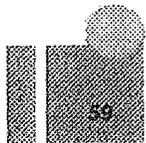
Course Length: Four days ending by noon on the last day.

Participants: Persons responsible for engineering, installing or maintaining an XLS system.

Prerequisite: Working knowledge of addressable fire alarm systems and IBM computers is assumed. Students must complete web-based training before attending this class: FIS 100 (Fire Detection and Alarm System Basics) and FIS 250 (XLS/XLSV Fire Panels and Components).

Required Equipment: Students must bring a laptop computer to training. Please refer to page 54 for more information.

CEUs: 2.7 CEUs



"The hands-on along with the troubleshooting made you think how the system operated."

John Anderson
Honeywell



FIS 2124 XLS Voice Installation, Operation and Maintenance (4 days)

Learn to install, operate, maintain and program the XLSV integrated voice-evacuation system. A functional description of the system and modules, including single and multiple channel configurations and the various system architectures, will be discussed. A hands-on lab will allow students to work with the hardware as well as the ZEUS configuration tool of the XLSV System.

Topic:	You will learn to:
Voice System Basics	<ul style="list-style-type: none">• Understand the basic principles of a digital voice system.• Identify voice hardware.• Understand the difference between Distributed and Bulk Amplification.
8-Channel Voice Operation	<ul style="list-style-type: none">• Understand the concept of 8-channel operation.
Transponders	<ul style="list-style-type: none">• Design a voice system with remote enclosures (transponders).
Software Design	<ul style="list-style-type: none">• Navigate through the ZEUS programming tool.• Apply the various configurations of the voice system.
Workshop Exercises	<ul style="list-style-type: none">• Operate an XLS voice panel in emergency and maintenance situations.

Course Length: Four days ending by noon on the last day.

Participants: Persons responsible for engineering, installing or maintaining an XLS System.

Prerequisite: Successful completion of FIS 2114 is required. Knowledge of the ZEUS programming tool is helpful.

Required Equipment: Students must bring a laptop computer to training. Please refer to page 54 for more information.

CEUs: 2.7 CEUs

FIS 2134 XLS Advanced and Networking (4 days)

Learn to setup, modify, test, troubleshoot and control an H-NET and X-NET System as well as using the global PMI monitor.

Topic:	You will learn to:
Basic System Operation	<ul style="list-style-type: none"> • Operate the XLS and X-NET Systems. • Use the test and maintenance menu. • Use the operational features of the XLS. • Configure the H-NET.
Basic Options Module	<ul style="list-style-type: none"> • Install basic option modules. • Use the ZEUS programming tool.
Special Options Modules	<ul style="list-style-type: none"> • Install special option modules. • Setup repeaters, Fiber Optic Module (daisy chain or star configuration).
X-NET	<ul style="list-style-type: none"> • Setup and operate an X-NET System. • Recognize the difference between X-NET and H-NET. • Install new modules and understand their application.
Global PMIs	<ul style="list-style-type: none"> • Install and operate Global PMI monitors.

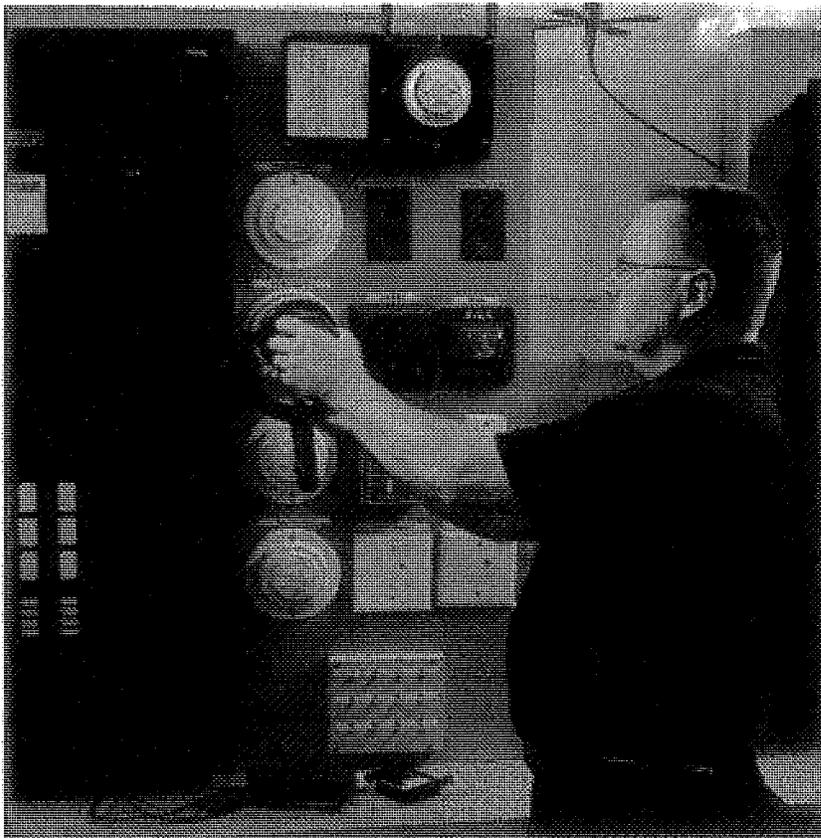
Course Length: Four days ending by noon on the last day.

Participants: Persons responsible for engineering, installing or maintaining an XLS networked system.

Prerequisites: Successful completion of FIS 2114. Knowledge of the ZEUS programming tool is strongly recommended.

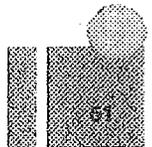
Required Equipment: Students must bring a laptop computer to training. Please refer to page 54 for more information.

CEUs: 2.7 CEUs



"It was a great learning experience."

Brandon McCain
Sylvan Special Systems



CLASSROOM TRAINING

"The instructor was personable and kept the mood in the class relaxed, but still got all the information across."

Dave Clark
Fire, Security & Sound Systems

FIS 2144 ZEUS XLS Programming Tool (4 days)

Learn how to design, modify, test or otherwise use the XLS custom system software logic configuration tool (ZEUS) and how to use the software logic to design an XLS Fire Alarm System. Every ZEUS function used for fire systems will be discussed as well as each different type of input and output.

Topic:	You will learn to:
Basic System Operation	<ul style="list-style-type: none"> Install and navigate through the ZEUS software. Apply ZEUS and XLS security.
Ten Steps to Programming	<ul style="list-style-type: none"> Use the steps from project specifications to compiling your configuration.
Logic Functions	<ul style="list-style-type: none"> Understand basic and complex logic including inputs and outputs. Understand logic and timer functions.
Functional Block Diagrams	<ul style="list-style-type: none"> Create functional block diagrams. Use functional diagrams to debug your program.
Workshop Exercises	<ul style="list-style-type: none"> Apply the ten steps to programming. Design XLS Fire System configurations.

Note: This class does not teach voice programming functions.

Course Length: Four days ending by noon on the last day.

Participants: Persons responsible for programming a FireFinder XLS system or for administering the ZEUS programming tool.

Prerequisites: Successful completion of FIS 2114 and execution of a Software License Agreement.

Required Equipment: Students must bring a laptop computer to training. Please note that the laptop should not have the programming software installed. Please refer to page 54 for more information.

CEUs: 2.7 CEUs

FIS 3113 System 3 Installation, Operation and Maintenance (3 days)

Learn to install, operate, maintain, test, troubleshoot and wire a System 3 conventional fire detection system. Each system module/device will be discussed and its operation analyzed.

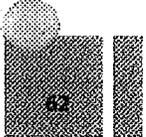
Topic:	You will learn to:
Basic Control Unit	<ul style="list-style-type: none"> Operate the system. Use the test and maintenance menu.
Basic Option Modules	<ul style="list-style-type: none"> Install basic option modules. Install field devices.
Special Option Modules	<ul style="list-style-type: none"> Install special option modules.
PAD 3	<ul style="list-style-type: none"> Install the PAD 3.
Workshop Exercises	<ul style="list-style-type: none"> Operate, test and troubleshoot the System 3 panel.

Course Length: Three days ending by 4:30 p.m. on the last day.

Participants: Persons responsible for engineering, installing, maintaining or operating a System 3 Fire Detection System.

Prerequisite: A working knowledge of fire alarm systems is assumed.

CEUs: 2.3 CEUs



FIRE SAFETY

CLASSROOM TRAINING

FIS 4134 NCC--Network Command Center (4 days)

Learn to monitor and control an MXL, XL-3 or XLS System using the Network Command Center (NCC).

Topic:	You will learn to:
NCC	<ul style="list-style-type: none">• Define the NCC and explain how it monitors and controls MXL, XL-3 and XLS Systems.
Hardware	<ul style="list-style-type: none">• Describe hardware interfaces with MXL, XL-3 and XLS systems.• Describe the hardware required to operate the NCC.
Software	<ul style="list-style-type: none">• Explain the NCCNT-GIGL and NCCNT WAN and how they are used.• Describe the NCCNT-G family of products.• Understand licensing requirements.
Workshop Exercises	<ul style="list-style-type: none">• Install the NCC.• Configure an NCC system.• Import and modify graphics.• Operate a network system using the NCC.• Configure macros and time events.

"This course is the hybrid between MXL and XLS overview."

Chuck Keating
Davis Ulmer

Course Length: Four days ending by noon on the last day.

Participants: Persons responsible for engineering, installing or maintaining an NCC System.

Prerequisites: Successful completion of FIS 1114 or FIS 2114.

CEUs: 2.7 CEUs

FIS 5512 FS-250 Installation, Operation and Maintenance (2 days)

Learn to install, operate, maintain, test, troubleshoot and wire an FS-250 addressable fire alarm control panel. Each system module/device will be discussed and its operation analyzed. How to use FS-CT custom software to transfer customer programs to the FS-250 and make simple changes to installed software will also be discussed.

Topic:	You will learn to:
Basic Control Unit	<ul style="list-style-type: none">• Operate the FS-250 panel.• Use the test and maintenance menu.
Basic Option Modules	<ul style="list-style-type: none">• Install basic option modules.• Use the FS-CT program.
Special Option Modules	<ul style="list-style-type: none">• Install special option modules.
Workshop Exercises	<ul style="list-style-type: none">• Operate, test and troubleshoot the FS-250 panel.

"I will be able to immediately apply things from this course."

David Adair
Hiller Companies

Course Length: Two days ending by 4:30 p.m. on the last day.

Participants: Persons responsible for engineering, installing, maintaining or operating FS-250 panels.

Prerequisites: Working knowledge of addressable fire alarm systems, IBM computers and DOS is assumed.

Required Equipment: Students must bring a laptop computer to training. Please refer to page 54 for computer hardware and software requirements.

CEUs: 1.5 CEUs



FIS 6213 Sinorix Engineering and Design (3 days)

Learn to design a Sinorix 227 System using Siemens Sinorix 227 FlowCalc software.

Topic:	You will learn to:
Sinorix	<ul style="list-style-type: none">• Understand flooding agents and how to protect a hazard.• Discuss safety procedures.• Discuss MXL, XLS and FS-250 releasing options.
Hardware	<ul style="list-style-type: none">• Describe hardware components including cylinders, valves and nozzles.• Discuss hardware maintenance procedures.
Software	<ul style="list-style-type: none">• Use Sinorix 227 FlowCalc software to predict flow.• Design and build an isometric pipe network.
Project Management	<ul style="list-style-type: none">• Overview of enclosure integrity testing.

Course Length: Three days ending by 4:30 p.m. on the last day.

Participants: Persons responsible for designing or managing a Sinorix 227 system installation. If you have already attended the FIS 6113 or FIS 6214, you do not need to take this course. The FIS 6213 is very similar to the FIS 6113 and the FIS 6214.

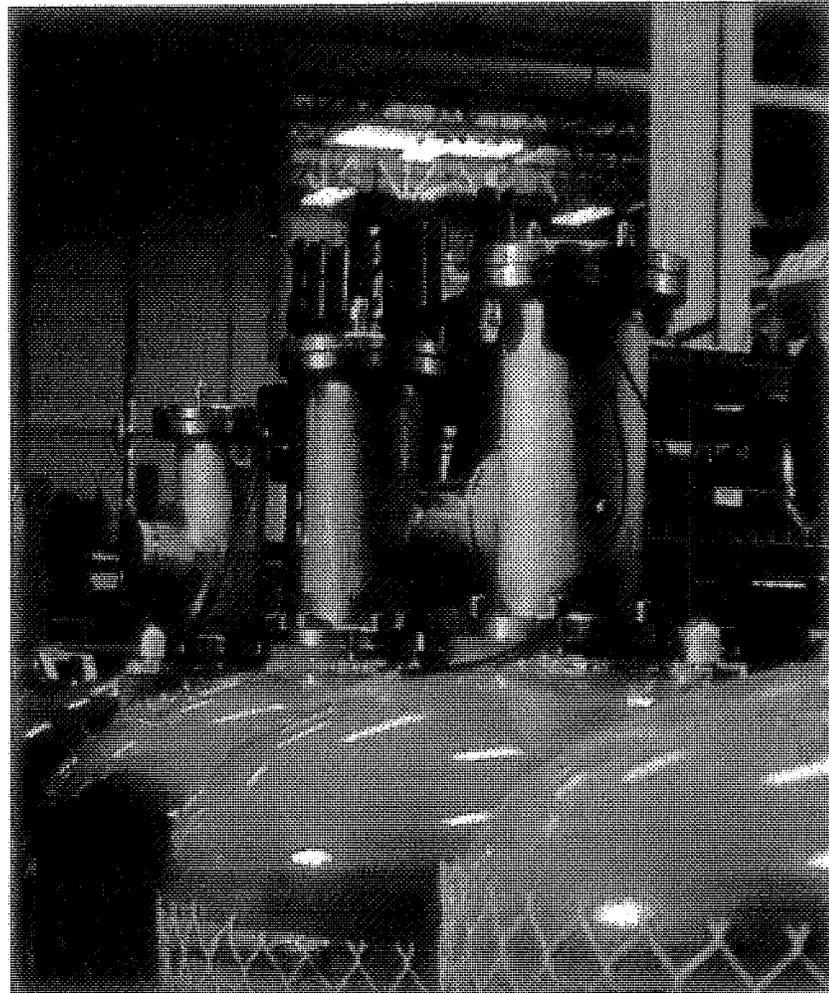
Prerequisite: None

Required Equipment: Students must bring a laptop computer to training. Please refer to page 54 for computer hardware and software requirements.

CEUs: 2.7 CEUs

"Being able to ask questions that go above and beyond the class to actual systems that I've worked on."

Eric Vincent
Koorsen Fire & Security





"Built on my previous hands-on experience."

Eric Vincent
Koorsen Fire & Security

FIS 7114 VESDA System Design and Maintenance (4 days)

Learn to engineer, design, install, maintain and troubleshoot the VESDA Air Sampling Smoke Detection (ASSD) system.

Topic:	You will learn to:
Applications	<ul style="list-style-type: none"> Understand various common applications for ASSD systems.
Codes and Standards	<ul style="list-style-type: none"> Identify the NFPA codes and standards for ASSD systems.
Operations	<ul style="list-style-type: none"> Design, install and commission VESDA systems. Recognize good and bad system designs. Understand how to apply ASSD equipment to the risk area. Test and maintain the systems. Operate the VESDA unit.
Hardware	<ul style="list-style-type: none"> Install VESDA hardware components. Understand how components work, including the "pipe" network.
Detectors	<ul style="list-style-type: none"> Install, maintain and operate the various detection models and units.
Programming	<ul style="list-style-type: none"> Program, test and troubleshoot the units. Install remote units.
Display	<ul style="list-style-type: none"> Use the operating display to control the air sampling unit.
Network	<ul style="list-style-type: none"> Set-up a VESDA-NET.
Pipe Design Programs	<ul style="list-style-type: none"> Use the pipe design program (Aspire) to validate the air sampling design.

Course Length: Four days ending by noon on the last day.

Participants: Persons responsible for engineering, installing or maintaining VESDA air sampling systems.

Prerequisite: None

Required Equipment: Students must bring a laptop computer to training. Please refer to page 54 for computer hardware and software requirements.

CEUs: 2.7 CEUs



FIRE SAFETY

SELF-STUDY MATERIALS

To access these online courses, log on to:
www.TrainingLearningCenter.com

These courses can also be ordered in CD format. Please see page 72 for more information.

FIS 100 Fire Detection and Alarm System Basics



This online training explains the basic concepts of fire detection and alarm systems and is presented in five modules: System Basics, System Inputs, System Outputs, System Configuration and Auxiliary Equipment and Systems.

Audience: New fire safety technicians and others who need to understand basic concepts of fire detection and alarm systems.

Duration: Approximately 2 hours

FIS 150 MXL and MXLV Fire Panels and Components



This online training introduces field devices and components of the MXL and MXLV fire safety systems. The topics include: Fire Alarm System Selection, MXL Fire Alarm System Operation, MXL Field Devices, including Detection Devices, Initiating and Signaling Devices and Accessories, MXL Core System Components, and MXL System Components and Options, including Voice and Network options.

Audience: Students must complete this online training before attending the FIS 1114 classroom training. This material is also helpful to anyone who needs to understand the MXL or MXLV Fire Safety Systems.

Duration: Approximately 3 hours

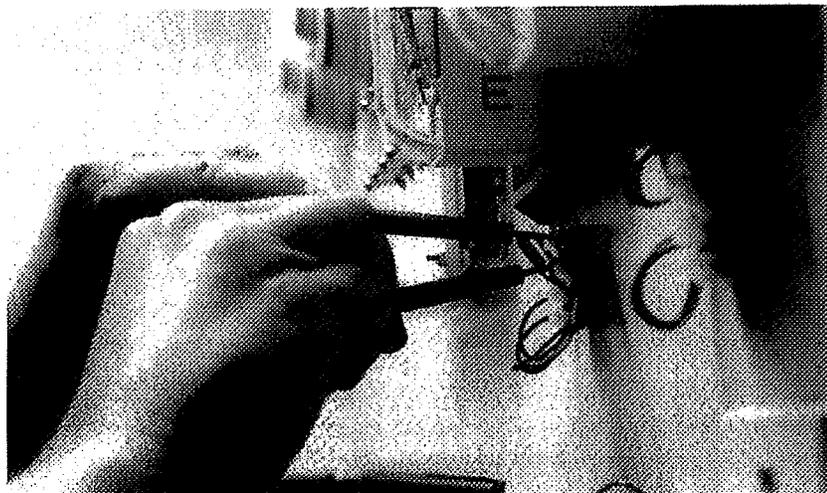
FIS 250 XLS and XLSV Fire Panels and Components



This online training introduces the field devices and components of the XLS and XLSV Fire Safety Systems. The topics include: Fire Alarm System Selection, XLS Fire Alarm System Operation, XLS Field Devices, including Detection Devices, Initiating and Signaling Devices and Accessories, XLS Core System Components, and XLS System Components and Options, including Voice and Network options.

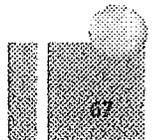
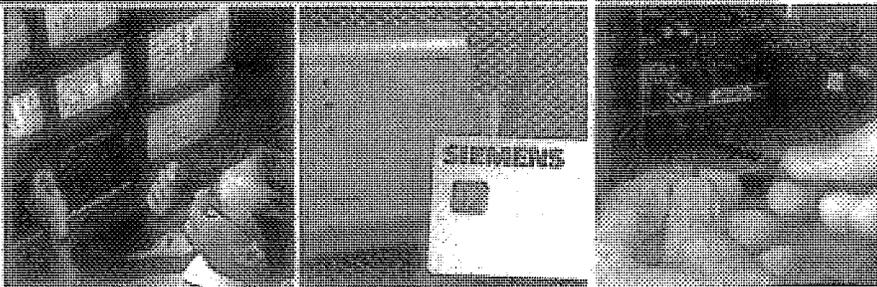
Audience: Students must complete this online training before attending the FIS 2114 classroom training. This material is also helpful to anyone who needs to understand the XLS or XLSV Fire Safety Systems.

Duration: Approximately 3 hours



SECURITY SYSTEMS

CLASSROOM TRAINING



CLASSROOM TRAINING

Contact your local Siemens Industry office to schedule training for SiPass access control systems. Refer to pages 8-9 for the phone numbers of local offices.

SiPass Administrator

Learn how to operate the SiPass access control system. Training duration varies depending on the design of the system.

Topic:

Access Control Basics

You will learn to:

- Understand the purpose of a security system and identify the major system components.
- Recognize hardware components.
- Log on and off the PC workstation.
- Log on and off the SiPass system.

Access Control Data

- Define types of data required for system operation.
- Describe how a SiPass database is structured.
- Understand how to back-up a SiPass database.
- List routine maintenance procedures for database records, including adding, deleting and changing database entries.

Quick Start SiPass Database Population

- Define options for SiPass database population.
- Describe the use of a Quick Start template.
- List the steps needed to manually populate the database.

Alarm Acknowledgement and Manual Control

- List the types and severity levels of SiPass alarms.
- Identify actions to handle alarms.
- Identify steps to manually acknowledge and respond to alarms.

Reports

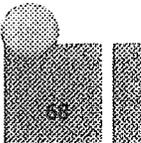
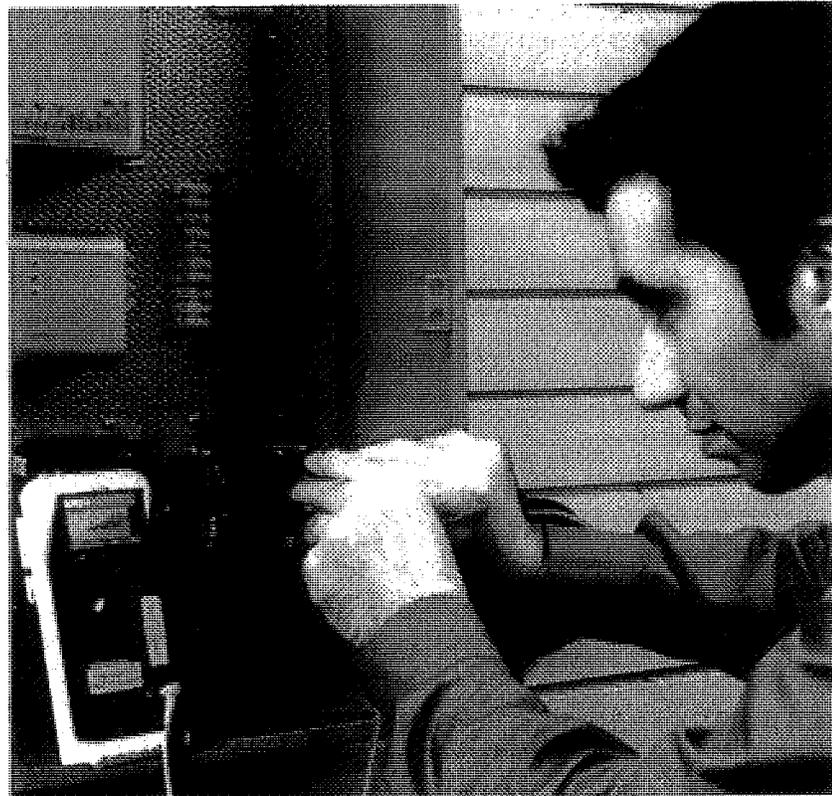
- Identify standard SiPass reports.
- List the steps to access standard SiPass reports.
- Correctly identify a custom SiPass report.

Operator Permissions

- Define operator permissions.
- List the steps to add, change or delete an operator permission.

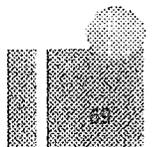
Participants: Security system administrators who need to understand the basic features of the SiPass access control system prior to system turnover.

Prerequisite: None



HVAC PRODUCTS

CLASSROOM TRAINING



HVAC PRODUCTS

CLASSROOM TRAINING

SELF-STUDY MATERIALS

Training Options

Our training course includes labs during which students receive hands-on practice with the Siemens SED2 VFD. If you successfully complete this training course, you will be certified to start up Siemens SED2 VFDs.

HOW TO ENROLL

We offer training classes at our Buffalo Grove training center (see page 71 for dates). If you have several individuals to train, we can schedule a class in your city. Please contact Teresa Grace-Regan if you want to schedule a class near your office or to enroll at a class at our Buffalo Grove training facility:

Ms. Teresa Grace-Regan
Siemens Industry, Inc.
Building Technologies Division
1000 Deerfield Parkway
Buffalo Grove, Illinois 60089

Phone 1-800-487-7771
Fax (847) 215-4792
Email Teresa.Grace-Regan@siemens.com

LODGING AND TRANSPORTATION

Students are responsible for their lodging and transportation when attending training at any location. Hotel and travel recommendations are included in the confirmation letters sent to students after enrolling.

CONFIRMATION

If a confirmation letter is not received three weeks before the class begins, call 1-800-487-7771.

CANCELLATION POLICY

Students who cancel less than four weeks prior to the first day of class are charged 25% of the tuition and less than two weeks prior to the first day of class are charged 50% of the tuition. The full tuition is charged if students do not cancel their enrollment and do not attend the class. The cancellation fee will be waived if a qualified student attends the class as a substitute.

Note: Siemens reserves the right to cancel classes and assumes no liability for expenses incurred by students due to class cancellation. All students will be notified of class cancellations.

HVAC Products Training Team



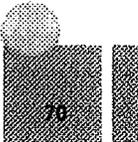
Noel Hipolito
CERTIFIED INSTRUCTOR



John Traber
CERTIFIED INSTRUCTOR



Teresa Grace-Regan
NATIONAL REGISTRAR



VFD 304 SED2 VFD Certification Program (4 days)

Learn the startup procedures for the SED2 as well as the requirements for proper installation. The operation of the VFD will be explored and both bypass options will be examined. This training includes an introduction to EasyComm software.

When certified graduates of this course commission an SED2, the warranty period is extended from 18 to 24 months.

Topic:

Installation

Startup

Configurations
and Applications

You will learn to:

- Inspect an installed SED2 to verify proper installation.
- Quick commission an SED2.
- Perform a factory reset.
- Configure the VFD for: auto restart, pump staging, flying restart, skip frequencies, hibernation, essential services and belt failure detection.
- Configure a drive with bypass for: essential services, interlock start and remote start.
- Configure, backup and restore drive parameter settings, using EasyComm software.
- Run scripts to configure the drive, using EasyComm software.
- Troubleshoot faults and warning codes for drive and drive-with-bypass operations.
- Apply appropriate optional linefeed reactor-type devices.

Course Length: Four days ending by noon on the fourth day.

Participants: Persons who install Siemens SED2 Variable Frequency Drives.

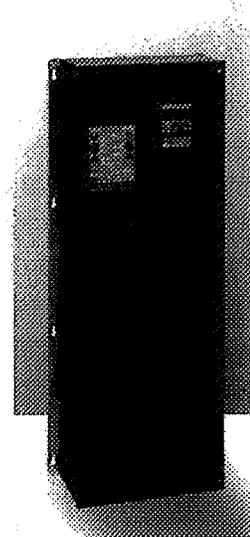
Prerequisites: Students must complete three online training modules before attending class:

- SED2 Prework Module
- Basics of AC Drives
- Basics of AC Motors

These online training modules are available at www.TrainingLearningCenter.com.

CEUs: 2.7 CEUs

Price: \$1,200 (U.S.)



CLASS SCHEDULE

START DATE LOCATION

VFD 304 SED2 VFD Certification Program

4-day Course—Starts on a Tuesday

11/30/10	Buffalo Grove, IL
02/15/11	Buffalo Grove, IL
05/24/11	Buffalo Grove, IL
08/23/11	Buffalo Grove, IL
11/15/11	Buffalo Grove, IL

VFD 100 Introduction to SED2 Variable Frequency Drives

This online training explains the features and functionality of the SED2 drive, applications for which it is suited and the principal safety and environmental considerations. The topics include: Features and Functions, Installation Environment Considerations, Extended Storage Conditions and Installation Safety.

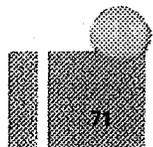
Audience: Students must complete this online training before attending the VFD 304 classroom training.

Duration: Approximately 3 hours



SELF-STUDY MATERIALS

To access this online course, log on to:
www.TrainingLearningCenter.com.



CD/DVD Order Form

Building Automation Training

\$299 each

Fax to 847-215-4792 or email to teresa.grace-regan@siemens.com.

- APOGEE Insight Basics Version 3.10
- APOGEE Insight Basics Version 3.1-3.3
- APOGEE Insight Basics Version 3.4
- APOGEE Insight Basics Version 3.5-3.7
- APOGEE Scheduler
- APOGEE Field Panel Operations
- Remote Notification (RENO)
- APOGEE Trending
- APOGEE Reports
- Introduction to Terminal Box TECs
- Introduction to PPCL Programming
- Introduction to Distributed Digital Controls
- Introduction to PXC-Modular Field Panel and TX-I/O
- Introduction to the Modular Equipment Controller (workbook included)
- Introduction to the Modular Building Controller (workbook included)
- Interpreting Sequences of Operation (workbook included)
- Introduction to Open Protocols, BACnet® and LonWorks® Networks
- Introduction of the Fume Hood & Laboratory Room Controllers

CD/DVD Training Packages

- Basic Operator Package (APOGEE Insight Basics and APOGEE Reports) **\$445**
- Trending Package (APOGEE Reports, APOGEE Scheduler and APOGEE Trending) **\$670**
- Hardware Package (Introduction to Terminal Box TECs, APOGEE Field Panel Operations and Introduction to the PXC-Modular Field Panel and TX-I/O) **\$670**

Fire Safety Training

Fax to 847-215-4792 or email to sarah.meyer@siemens.com.

- FIS 100** This training course explains the basic concepts of fire detection and alarm systems. Topics covered include: System Basics, System Inputs, System Outputs, System Configuration and Auxiliary Equipment and Systems. **\$199**
- FIS 150** This training course introduces the MXL and MXLV fire alarm systems, field devices and components. Topics covered include: Fire Alarm System Selection, MSL Fire Alarm System Operation, MXL Field Devices, MXL Core System Components and MXL System Operations. **\$399**
- FIS 250** This training course introduces the XLS and XLSV fire alarm systems, field devices and components. Topics covered include: Fire Alarm System Selection, XLS Fire Alarm System Operation, XLS Field Devices, XLS Core System Components and XLS System Operations. **\$399**

Purchase Order No. _____ Check #/Job # _____

VISA MC AMX

Card # _____ Security Code _____ Exp. Date _____

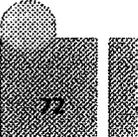
Cardholder Name (Please Print) _____

Signature _____

Cardholder's Billing Address _____

Ship to Address _____

Attention _____



Siemens Industry, Inc.
Building Technologies Division
1000 Deerfield Parkway
Buffalo Grove, IL 60089-4513
USA
1-800-487-7771

Siemens Building Technologies, Ltd.
2 Kenview Boulevard
Brampton, Ontario L6T 5E4
Canada
905-799-9937

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www.siemens.com
www.TrainingLearningCenter.com

Appendix G. Siemens Customer Voice

Building lasting customer relationships

While the scope of a project as a building system's infrastructure can look the same, our customers' unique needs and expectations may not. This is the reason we ask our customers to be a part of our Customer Voice commitment.

As a part of Customer Voice, we have developed a survey that will help Siemens Building Technologies in the future tailor business decisions about what we need to do to strengthen our relationship with our customers and continuously improve their experience.

Understanding what is valuable to our customers and what works best for their business will allow us to develop our new processes, based on our customers' actual needs.

Our survey's rating system allows for open-ended responses so our customers can tell us exactly how they feel about our business relationship, products or services. This helps them best express their needs and allows us to pinpoint where we need to improve.

Establishing and maintaining a proper focus on the customer

In line with our customer survey, we have also implemented a number of standard practices that allow us to establish and maintain a proper focus on the customer. At Siemens, we:

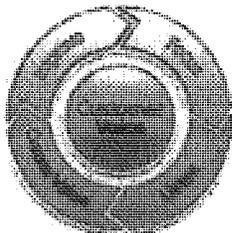
- Continuously gather, monitor and measure customer feedback and complaints through various channels to tailor our business closer to the customer's needs.
- Customers can submit their feedback at any time using the online form at www.us.siemens.com/customerfeedback. We also request feedback through our online surveys, as well as during on-site visits, phone calls, e-mails and in letters.
- Interact directly with customers through customer audits, customer visits, trade shows and joint planning sessions to ensure a proper focus to their unique needs and expectations.
- Provide customer data with access to product and service departments and points of contact within the organization.

We believe our Customer Voice is an opportunity for us to build the relationship our customers want with Siemens Building Technologies. We hope we get the opportunity to work with you.



Customer Voice

Focus, Listen, Create Value, Improve



SIEMENS

146

Appendix H. Customer Report Card

Reporting Criteria

Continuous Improvement Toward Outstanding Customer Satisfaction

You've previously identified those performance criteria most important to you. These are restated below. Now it's time to let us know how we're doing from your perspective.

A = Very Satisfied B = Satisfied C = Neutral D = Unsatisfied F = Very Unsatisfied

	A	B	C	D	F
HVAC Services	<input type="checkbox"/>				

	A	B	C	D	F
Automation Services	<input type="checkbox"/>				

	A	B	C	D	F
Energy Services	<input type="checkbox"/>				

Overall, how satisfied are you currently with Siemens in meeting your organizations needs for service and technical support.

A	B	C	D	F
<input type="checkbox"/>				

Comments:

Your Name	Facility Name	Date
_____	_____	_____

Your open and honest feedback on our performance is important. Please complete this Report Card at your earliest convenience and return it by simply folding the card so that the return Siemens Building Technologies, Inc. address is on the outside. The postage is already included for your convenience. Your confidential comments and evaluation will be used to ensure that we are providing the best possible service at your facility.

Appendix I. Maintained Equipment Table and Site Locations

POLICE DEPARTMENT – 99 FAIR DRIVE

Turbocore	Frictionless compressor (2)
BAC	FXT 160 Cooling Tower
Worthington	(abandoned chiller)
Carrier	50LJQ Package Unit
Data Air	CAW1034 Computer Room Unit
Baldor	(3) Condenser Water Pumps
Baldor	(3) Chilled Water Pumps
TBA	Boiler
Various	(14) Exhaust Fans
LAN	Pneumatic Tube System
	Control Air Compressor & Dryer
Various	(9) Fan Coil Units
	Air Handlers (2)
Automation	Modular Equipment Controller (3)
	Terminal Equipment Controllers (78)

CITY HALL – 77 FAIR DRIVE

BAC	VXT150C Cooling Tower
Turbocore	Frictionless compressor (3)
Carrier	50HS-042 Package Unit
Worthington	LKS202942 Reciprocating Chiller (2)
Lawson	Blower
Worthington	(18) Air Handlers
Various	(3) Chilled Water Pumps
Various	(3) Condenser Water Pumps
	Control Air Compressor & Dryer
Automation	PXM Controller (1)
	Unitary Controllers (10)
	Terminal Equipment Controllers (11)

POLICE SUB STATION – 567 W. EIGHTEENTH STREET

Rheem	RPNA-048A000 Package
Rheem	RPNA-06000 Package
Rheem	Package Unit

PRINT SHOP - 77 FAIR DRIVE

Carrier	50HS-042 Package Unit
Lennox	Package Unit

COMMUNICATIONS CENTER – 79 FAIR DRIVE

Carrier	48GL036620 Package Unit
Carrier	48GH0065 Package Unit
Carrier	50YH024 Package Unit
Carrier	48DP012 Package Unit
Loren Cook	(5) Exhaust Fans

NEIGHBORHOOD COMMUNITY CENTER – 1845 PARK AVENUE

Lennox	GCS8E Package Unit
Lennox	GCS3 Kitchen Package Unit
Lennox	GCS3 Package Unit
Essick	Evaporative Cooler/Heater Kitchen
Twin City	Exhaust Fan
Automation	Field Level Network Controller (1) Terminal Equipment Controllers (6)

HISTORICAL SOCIETY – 1870 ANAHEIM STREET

Day Night	567C060 Package Unit
Day Night	5277C Package Unit

MESA VERDE LIBRARY – 2969 MESA VERDE DRIVE EAST

Climatrol	URH08300 Package Unit
Climatrol	URH103007 Package Unit

FIRE STATION #1 – 2803 ROYAL PALM DRIVE

Janitrol	440363 Condenser Unit
Janitrol	440363 Condenser Unit
Janitrol	24-100 New Heaters & Evaporative Coil Units
Janitrol	24-100 New Heaters & Evaporative Coil Units
Carrier	58ZAV075 Gas Heaters
Carrier	58ZAV075 Gas Heaters
Carrier	58ZAV075 Gas Heaters
Carrier	58ZVA075 Gas Heaters
Mitsubishi	(4) Package Units = (2) Condenser Units & (2) Evaporative Units
Whirlpool	AEF120 Package Unit
Various	(3) Exhaust Fans
Misc.	Wall Furnaces

FIRE STATION #2 – 800 BAKER STREET

BDP	569bb060 Split Condenser & Evaporative Unit
-----	---

BDP 396GAW0 Split Condenser & Evaporative Unit
Misc. Wall Furnaces

FIRE STATION #3 – 1865 PARK AVENUE

Carrier 50NQ024 Package Unit
Carrier 50NQ024 Package Unit
BDP 542037 Package Unit
BDP 542D02 Package Unit
Greenheck Kitchen Exhaust Fan
Illegible Evaporative Cooler
Reznors (2) Unit Heaters

FIRE STATION #4 – 2300 PLACENTIA AVENUE

BDP 559EJ030 Package Unit
BDP 569BB060 Package Unit
BDP 396AW060 Package Unit

FIRE STATION #5 – 2450 VANGUARD WAY

Trane FBYC200G Package Unit
Illegible EC
Illegible (2) Exhaust Fans

FIRE STATION #6 – 2350 SAKIOKA DRIVE

Carrier 48DJD006530 Package Unit
Carrier 48DJD004510 Package Unit
Carrier 48DJE004510 Package Unit
Carrier 48DJD00510 Package Unit
Various (5) Exhaust Fans

NEW CORP YARD – 2310 PLACENTIA AVENUE

Lennox HS16-651 Package Unit
Lennox GS15Q4/5X Split Unit
Lennox GS15Q3/4X Heating Unit

Balearic Center – 1975 BALEARIC DRIVE

Hayes 210SED-CF 2 ea 20X24X1 Filters
Hayes 210SED-CF 2 ea 20X24X1 Filters
Hayes 210SED-CF 4ea 20X24X1 Filters

OLD CORP YARD – 2300 PLACENTIA AVENUE

Carrier 48GSN060090301 Package Unit

Downtown Recreation Center - 1860 ANAHEIM AVENUE

Carrier 48HJE012 Package Unit

Carrier	48HJE006 Package Unit
Carrier	48HJE008 Package Unit
Carrier	48HJE004 Package Unit
Cook	150 ACRU 5B Exhaust Fan
Cook	150 ACE B 135 C3B Exhaust Fan
Cook	150 ACE B 135 C2B 3 ea Exhaust Fan
Cook	GEM GN 340 2 ea Exhaust Fan
Cook	LITTLE GEM II 2 ea Exhaust Fan
Modine	4 ea Make up air units

Senior Center

Carrier	40AQ018 Package Unit 2 ea
Carrier	48DJD004 Package Unit 3 ea
Carrier	48DJD005 Package Unit
Carrier	48DJD006 Package Unit
Carrier	48DJD007 Package Unit
Carrier	48DJD008 Package Unit
Carrier	48DJ009 Package Unit 2 ea
Carrier	48DJ007 Package Unit
Carrier	48DJE012 Package Unit
Carrier	48DJE014 Package Unit
Cook	Exhaust Fans 8 ea
Essick Tri-Temp	175 L Make up air unit

Appendix J. **RFP Exhibit B: BUILDING HVAC MAINTENANCE BID PRICING**

BUILDING HVAC MAINTENANCE BID PRICING

BUILDING	ADDRESS	MONTHLY LABOR HOURS*	TOTAL MONTHLY COST *	ANNUAL COST *
Balearic Center	1975 Balearic Drive		\$82.54	\$ 990.46
City Hall	77 Fair Drive		\$ 7,284.96	\$ 87,419.50
Communications Center	79 Fair Drive		\$330.15	\$ 3,961.84
Corporation Yard (Old)	2300 Placentia Avenue		\$49.52	\$ 594.28
Corporation Yard (New)	2310 Placentia Avenue		\$115.55	\$ 1,386.64
Downtown Recreation Center	1860 Anaheim Avenue		\$82.54	\$ 990.46
Fire Station #1	2803 Royal Palm Avenue		\$495.23	\$ 5,942.76
Fire Station #2	800 Baker Street		\$99.05	\$ 1,188.55
Fire Station #3	1865 Park Avenue		\$198.09	\$ 2,377.10
Fire Station #4	2300 Placentia Avenue		\$131.91	\$ 1,582.90
Fire Station #5	2450 Vanguard		\$66.03	\$ 792.37
Fire Station #6	2350 Sakioka Drive		\$330.15	\$ 3,961.84
Historical Society Building	1870 Anaheim		\$165.08	\$ 1,980.92
Mesa Verde Library	2969 Mesa Verde Drive East		\$165.08	\$ 1,980.92
Neighborhood Community Center	1845 Park Avenue		\$ 2,691.48	\$ 32,297.70
Police Facility	99 Fair Drive		\$ 5,885.43	\$ 70,625.20
Police Substation	567 W. 18 th Street		\$165.08	\$ 1,980.92
Senior Center	695 W. 19 th Street		\$ 2,476.15	\$ 29,713.80

*Per the City's request in completing the above table, annual costs were derived by apportioning the totality of the contract by facility equipment complement. Monthly costs were derived by dividing annual costs by 12. Facilities are not all serviced monthly. As such, hourly derivations based on monthly costs would not be logical.

**PROFESSIONAL SERVICES AGREEMENT
CITY OF COSTA MESA**

THIS AGREEMENT is made and entered into this ___ day of _____, 20__ (“Effective Date”), by and between the CITY OF COSTA MESA, a municipal corporation (“City”), and _____, a California _____ (“Consultant”).

WITNESSETH:

- A. WHEREAS, City proposes to utilize the services of Consultant as an independent contract to _____ as more fully described in Consultant’s Proposal attached as Exhibit “A”; and
- B. WHEREAS, Consultant represents that it has that degree of specialized expertise contemplated within California Government Code, Section 37103, and holds all necessary licenses to practice and perform the services herein contemplated; and
- C. WHEREAS, City and Consultant desire to contract for the specific services described in Exhibit “A” (the “Project”) and desire to set forth their rights, duties and liabilities in connection with the services to be performed; and
- D. WHEREAS, no official or employee of City has a financial interest, within the provisions of California Government Code, Sections 1090-1092, in the subject matter of this Agreement.

NOW, THEREFORE, for and in consideration of the mutual covenants and conditions contained herein, the parties hereby agree as follows:

1.0. SERVICES PROVIDED BY CONSULTANT

1.1. Scope of Services. Consultant shall provide the professional services described in Consultant’s Proposal, a copy of which is attached hereto as Exhibit “A” and incorporated herein by this reference.

1.2. Professional Practices. All professional services to be provided by Consultant pursuant to this Agreement shall be provided by personnel experienced in their respective fields and in a manner consistent with the standards of care, diligence and skill ordinarily exercised by professional consultants in similar fields and circumstances in accordance with sound professional practices. It is understood that in the exercise of every aspect of its role, within the scope of work, consultant will be representing the City of Costa Mesa, and all of its actions, communications, or other work, during its employment, under this contract is under the direction of the department. Consultant also warrants that it is familiar with all laws that may affect its performance of this Agreement and shall advise City of any changes in any laws that may affect Consultant’s performance of this Agreement.

1.3. Performance to Satisfaction of City. Consultant agrees to perform all the work to the complete satisfaction of the City and within the hereinafter specified. Evaluations of the work will be done by the City Clerk or her designee. If the quality of work is not satisfactory, City in its discretion has the right to:

- (a) Meet with Consultant to review the quality of the work and resolve the matters of concern;
- (b) Require Consultant to repeat the work at no additional fee until it is satisfactory; and/or
- (c) Terminate the Agreement as hereinafter set forth.

1.4. Warranty. Consultant warrants that it shall perform the services required by this Agreement in compliance with all applicable Federal and California employment laws including, but not limited to, those laws related to minimum hours and wages; occupational health and safety; fair employment and employment practices; workers' compensation insurance and safety in employment; and all other Federal, State and local laws and ordinances applicable to the services required under this Agreement. Consultant shall indemnify and hold harmless City from and against all claims, demands, payments, suits, actions, proceedings, and judgments of every nature and description including attorneys' fees and costs, presented, brought, or recovered against City for, or on account of any liability under any of the above-mentioned laws, which may be incurred by reason of Consultant's performance under this Agreement.

1.5. Non-discrimination. In performing this Agreement, Consultant shall not engage in, nor permit its agents to engage in, discrimination in employment of persons because of their race, religion, color, national origin, ancestry, age, physical handicap, medical condition, marital status, sexual gender or sexual orientation, except as permitted pursuant to Section 12940 of the Government Code.

1.6. Non-Exclusive Agreement. Consultant acknowledges that City may enter into agreements with other consultants for services similar to the services that are subject to this Agreement or may have its own employees perform services similar to those services contemplated by this Agreement.

1.7. Delegation and Assignment. This is a personal service contract, and the duties set forth herein shall not be delegated or assigned to any person or entity without the prior written consent of City. Consultant may engage a subcontractor(s) as permitted by law and may employ other personnel to perform services contemplated by this Agreement at Consultant's sole cost and expense.

1.8. Confidentiality. Employees of Consultant in the course of their duties may have access to financial, accounting, statistical, and personnel data of private individuals and employees of City. Consultant covenants that all data, documents, discussion, or other information developed or received by Consultant or provided for performance of this Agreement are deemed confidential and shall not be disclosed by Consultant without written authorization by City. City shall grant such authorization if disclosure is required by law. All City data shall be returned to City upon the termination of this Agreement. Consultant's covenant under this Section shall survive the termination of this Agreement.

2.0. COMPENSATION AND BILLING

2.1. Compensation. As compensation for the provision of services outlined in Exhibit "A" and in accordance with this agreement, Consultant shall be paid in accordance with the fee schedule set forth in Exhibit "B," attached hereto and incorporated by reference. Consultant's total compensation shall not exceed _____ Dollars (\$ _____.00). Consultant shall devote xxx hours of staff time to complete the Project.

2.2. Additional Services. Consultant shall not receive compensation for any services provided outside the scope of services specified in the Consultant's Proposal or in an amount exceeding \$ _____.00 unless the City or the Project Manager for this Project, prior to Consultant performing the additional services, approves such additional services in writing. It is specifically understood that oral requests and/or approvals of such additional services or additional compensation shall be barred and are unenforceable.

2.3. Method of Billing. Consultant may submit invoices to City supervisor for approval on a progress basis, but no more often than two times a month. Said invoice shall be based on the total of all Consultant's services which have been completed to City's sole satisfaction as of the date the invoice is created. City shall pay Consultant's invoice within forty-five (45) days from the date City receives said invoice. Each invoice shall describe in detail, the services performed, the date of performance, and the associated time for completion. Any additional services approved and performed pursuant to this Agreement shall be designated as "Additional Services" and shall identify the number of the authorized change order, where applicable, on all invoices.

2.4. Records and Audits. Records of Consultant's services relating to this Agreement shall be maintained in accordance with generally recognized accounting principles and shall be made available to City or its Project Manager for inspection and/or audit at mutually convenient times for a period of three (3) years from the Effective Date.

3.0. TIME OF PERFORMANCE

3.1. Commencement and Completion of Work. The professional services to be performed pursuant to this Agreement shall commence within five (5) days from the Effective Date of this Agreement. Said services shall be performed in strict compliance with the Project Schedule approved by City as set forth in Exhibit "C," attached hereto and incorporated herein by this reference. The Project Schedule may be amended by mutual agreement of the parties. Failure to commence work in a timely manner and/or diligently pursue work to completion may be grounds for termination of this Agreement.

3.2. Excusable Delays. Neither party shall be responsible for delays or lack of performance resulting from acts beyond the reasonable control of the party or parties. Such acts shall include, but not be limited to, acts of God, fire, strikes, material shortages, compliance with laws or regulations, riots, acts of war, or any other conditions beyond the reasonable control of a party.

4.0. TERM AND TERMINATION

4.1. Term. This Agreement shall commence on the Effective Date and continue for a period of _____ months ending on _____, 20____, unless previously terminated as provided

herein or as otherwise agreed to in writing by the parties. Paragraph 4 can simply be modified to provide receiver will secure a separate certificate and funding for any fees awarded...prior to discharge of the receiver

for up to four (4) term periods of one (1) year each.

4.2. Notice of Termination. The City reserves and has the right and privilege of canceling, suspending or abandoning the execution of all or any part of the work contemplated by this Agreement, with or without cause, at any time, by providing written notice to Consultant. The termination of this Agreement shall be deemed effective upon receipt of the notice of termination. In the event of such termination, Consultant shall immediately stop rendering services under this Agreement unless directed otherwise by the City.

4.3. Compensation. In the event of termination, City shall pay Consultant for reasonable costs incurred and professional services satisfactorily performed up to and including the date of City's written notice of termination. Compensation for work in progress shall be prorated as to the percentage of work completed as of the effective date of termination in accordance with the fees set forth herein. In ascertaining the professional services actually rendered hereunder up to the effective date of termination of this Agreement, consideration shall be given to both completed work and work in progress, to complete and incomplete drawings, and to other documents pertaining to the services contemplated herein whether delivered to the City or in the possession of the Consultant.

4.4. Documents. In the event of termination of this Agreement, all documents prepared by Consultant in its performance of this Agreement including, but not limited to, finished or unfinished design, development and construction documents, data studies, drawings, maps and reports, shall be delivered to the City within ten (10) days of delivery of termination notice to Consultant, at no cost to City. Any use of uncompleted documents without specific written authorization from Consultant shall be at City's sole risk and without liability or legal expense to Consultant.

5.0. INSURANCE

5.1. Minimum Scope and Limits of Insurance. Consultant shall obtain, maintain, and keep in full force and effect during the life of this Agreement all of the following minimum scope of insurance coverages with an insurance company admitted to do business in California, rated "A," Class X, or better in the most recent Best's Key Insurance Rating Guide, and approved by City:

- (a) Commercial general liability, including premises-operations, products/completed operations, broad form property damage, blanket contractual liability, independent contractors, personal injury or bodily injury with a policy limit of not less than One Million Dollars (\$1,000,000.00), combined single limits, per occurrence. If such insurance contains a general aggregate limit, it shall apply separately to this Agreement or shall be twice the required occurrence limit.

- (b) Business automobile liability for owned vehicles, hired, and non-owned vehicles, with a policy limit of not less than One Million Dollars (\$1,000,000.00), combined single limits, per occurrence for bodily injury and property damage.
- (c) Workers' compensation insurance as required by the State of California. Consultant agrees to waive, and to obtain endorsements from its workers' compensation insurer waiving subrogation rights under its workers' compensation insurance policy against the City, its officers, agents, employees, and volunteers arising from work performed by Consultant for the City and to require each of its subcontractors, if any, to do likewise under their workers' compensation insurance policies.
- (d) Professional errors and omissions ("E&O") liability insurance with policy limits of not less than One Million Dollars (\$1,000,000.00), combined single limits, per occurrence and aggregate. Architects' and engineers' coverage shall be endorsed to include contractual liability. If the policy is written as a "claims made" policy, the retro date shall be prior to the start of the contract work. Consultant shall obtain and maintain, said E&O liability insurance during the life of this Agreement and for three years after completion of the work hereunder.

5.2. Endorsements. The commercial general liability insurance policy and business automobile liability policy shall contain or be endorsed to contain the following provisions:

- (a) Additional insureds: "The City of Costa Mesa and its elected and appointed boards, officers, officials, agents, employees, and volunteers are additional insureds with respect to: liability arising out of activities performed by or on behalf of the Consultant pursuant to its contract with the City; products and completed operations of the Consultant; premises owned, occupied or used by the Consultant; automobiles owned, leased, hired, or borrowed by the Consultant.."
- (b) Notice: "Said policy shall not terminate, be suspended, or voided, nor shall it be cancelled, nor the coverage or limits reduced, until thirty (30) days after written notice is given to City.
- (c) Other insurance: "The Consultant's insurance coverage shall be primary insurance as respects the City of Costa Mesa, its officers, officials, agents, employees, and volunteers. Any other insurance maintained by the City of Costa Mesa shall be excess and not contributing with the insurance provided by this policy."
- (d) Any failure to comply with the reporting provisions of the policies shall not affect coverage provided to the City of Costa Mesa, its officers, officials, agents, employees, and volunteers.
- (e) The Consultant's insurance shall apply separately to each insured against

whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

5.3. Deductible or Self Insured Retention. If any of such policies provide for a deductible or self-insured retention to provide such coverage, the amount of such deductible or self-insured retention shall be approved in advance by City. No policy of insurance issued as to which the City is an additional insured shall contain a provision which requires that no insured except the named insured can satisfy any such deductible or self-insured retention.

5.4. Certificates of Insurance: Consultant shall provide to City certificates of insurance showing the insurance coverages and required endorsements described above, in a form and content approved by City, prior to performing any services under this Agreement.

5.5. Non-limiting: Nothing in this Section shall be construed as limiting in any way, the indemnification provision contained in this Agreement, or the extent to which Consultant may be held responsible for payments of damages to persons or property.

6.0. GENERAL PROVISIONS

6.1. Entire Agreement: This Agreement constitutes the entire Agreement between the parties with respect to any matter referenced herein and supersedes any and all other prior writings and oral negotiations. This Agreement may be modified only in writing, and signed by the parties in interest at the time of such modification. The terms of this Agreement shall prevail over any inconsistent provision in any other contract document appurtenant hereto, including exhibits to this Agreement.

6.2. Representatives. The City Manager or his or her designee shall be the representative of City for purposes of this Agreement and may issue all consents, approvals, directives and agreements on behalf of the City, called for by this Agreement, except as otherwise expressly provided in this Agreement.

Consultant shall designate a representative for purposes of this Agreement who shall be authorized to issue all consents, approvals, directives and agreements on behalf of Consultant called for by this Agreement, except as otherwise expressly provided in this Agreement.

6.3. Project Managers. City shall designate a Project Manager to work directly with Consultant in the performance of this Agreement.

Consultant shall designate a Project Manager who shall represent it and be its agent in all consultations with City during the term of this Agreement. Consultant or its Project Manager shall attend and assist in all coordination meetings called by City.

6.4. Notices: Any notices, documents, correspondence or other communications concerning this Agreement or the work hereunder may be provided by personal delivery, facsimile or mail and shall be addressed as set forth below. Such communication shall be deemed served or delivered: a) at the time of delivery if such communication is sent by personal delivery; b) at the time of transmission if such communication is sent by facsimile; and c) 48

hours after deposit in the U.S. Mail as reflected by the official U.S. postmark if such communication is sent through regular United States mail.

IF TO CONSULTANT:

IF TO CITY:

City of Costa Mesa
77 Fair Drive
Costa Mesa, CA 92626

Tel: _____

Tel: 714-754-5156

Fax: _____

Fax: 714-754-5330

Attn: _____

Attn: _____

6.5. Drug-free Workplace Policy. Consultant shall provide a drug-free workplace by complying with all provisions set forth in City’s Council Policy 100-5, attached hereto as Exhibit “D” and incorporated herein by reference. Consultant’s failure to conform to the requirements set forth in Council Policy 100-5 shall constitute a material breach of this Agreement and shall be cause for immediate termination of this Agreement by City.

6.6. Attorneys’ Fees: In the event that litigation is brought by any party in connection with this Agreement, the prevailing party shall be entitled to recover from the opposing party all costs and expenses, including reasonable attorneys’ fees, incurred by the prevailing party in the exercise of any of its rights or remedies hereunder or the enforcement of any of the terms, conditions, or provisions hereof.

6.7. Governing Law: This Agreement shall be governed by and construed under the laws of the State of California without giving effect to that body of laws pertaining to conflict of laws. In the event of any legal action to enforce or interpret this Agreement, the parties hereto agree that the sole and exclusive venue shall be a court of competent jurisdiction located in Orange County, California.

6.8. Assignment: Consultant shall not voluntarily or by operation of law assign, transfer, sublet or encumber all or any part of Consultant's interest in this Agreement without City's prior written consent. Any attempted assignment, transfer, subletting or encumbrance shall be void and shall constitute a breach of this Agreement and cause for termination of this Agreement. Regardless of City's consent, no subletting or assignment shall release Consultant of Consultant's obligation to perform all other obligations to be performed by Consultant hereunder for the term of this Agreement.

6.9. Indemnification and Hold Harmless Consultant agrees to defend, indemnify, hold free and harmless the City, its elected officials, officers, agents and employees, at Consultant’s sole expense, from and against any and all claims, actions, suits or other legal proceedings brought against the City, its elected officials, officers, agents and employees arising out of the performance of the Consultant, its employees, and/or authorized subcontractors, of the work undertaken pursuant to this Agreement. The defense obligation provided for hereunder shall apply without any advance showing of negligence or wrongdoing by the Consultant, its employees, and/or authorized subcontractors, but shall be required whenever any claim, action, complaint, or suit asserts as its basis the negligence, errors, omissions or misconduct of the Consultant, its employees, and/or authorized subcontractors, and/or whenever any claim, action,

complaint or suit asserts liability against the City, its elected officials, officers, agents and employees based upon the work performed by the Consultant, its employees, and/or authorized subcontractors under this Agreement, whether or not the Consultant, its employees, and/or authorized subcontractors are specifically named or otherwise asserted to be liable. Notwithstanding the foregoing, the Consultant shall not be liable for the defense or indemnification of the City for claims, actions, complaints or suits arising out of the sole active negligence or willful misconduct of the City. This provision shall supersede and replace all other indemnity provisions contained either in the City's specifications or Consultant's Proposal, which shall be of no force and effect.

6.10. Independent Contractor. Consultant is and shall be acting at all times as an independent contractor and not as an employee of City. Consultant shall have no power to incur any debt, obligation, or liability on behalf of City or otherwise act on behalf of City as an agent. Neither City nor any of its agents shall have control over the conduct of Consultant or any of Consultant's employees, except as set forth in this Agreement. Consultant shall not, at any time, or in any manner, represent that it or any of its or employees are in any manner agents or employees of City. Consultant shall secure, at its sole expense, and be responsible for any and all payment of Income Tax, Social Security, State Disability Insurance Compensation, Unemployment Compensation, and other payroll deductions for Consultant and its officers, agents, and employees, and all business licenses, if any are required, in connection with the services to be performed hereunder. Consultant shall indemnify and hold City harmless from any and all taxes, assessments, penalties, and interest asserted against City by reason of the independent contractor relationship created by this Agreement. Consultant further agrees to indemnify and hold City harmless from any failure of Consultant to comply with the applicable worker's compensation laws. City shall have the right to offset against the amount of any fees due to Consultant under this Agreement any amount due to City from Consultant as a result of Consultant's failure to promptly pay to City any reimbursement or indemnification arising under this paragraph.

6.11. PERS Eligibility Indemnification. In the event that Consultant or any employee, agent, or subcontractor of Consultant providing services under this Agreement claims or is determined by a court of competent jurisdiction or the California Public Employees Retirement System (PERS) to be eligible for enrollment in PERS as an employee of the City, Consultant shall indemnify, defend, and hold harmless City for the payment of any employee and/or employer contributions for PERS benefits on behalf of Consultant or its employees, agents, or subcontractors, as well as for the payment of any penalties and interest on such contributions, which would otherwise be the responsibility of City.

Notwithstanding any other agency, state or federal policy, rule, regulation, law or ordinance to the contrary, Consultant and any of its employees, agents, and subcontractors providing service under this Agreement shall not qualify for or become entitled to, and hereby agree to waive any claims to, any compensation, benefit, or any incident of employment by City, including but not limited to eligibility to enroll in PERS as an employee of City and entitlement to any contribution to be paid by City for employer contribution and/or employee contributions for PERS benefits.

6.12. Cooperation. In the event any claim or action is brought against City relating to Consultant's performance or services rendered under this Agreement, Consultant shall render

any reasonable assistance and cooperation which City might require.

6.13. Ownership of Documents. All findings, reports, documents, information and data including, but not limited to, computer tapes or discs, files and tapes furnished or prepared by Consultant or any of its subcontractors in the course of performance of this Agreement, shall be and remain the sole property of City. Consultant agrees that any such documents or information shall not be made available to any individual or organization without the prior consent of City. Any use of such documents for other projects not contemplated by this Agreement, and any use of incomplete documents, shall be at the sole risk of City and without liability or legal exposure to Consultant. City shall indemnify and hold harmless Consultant from all claims, damages, losses, and expenses, including attorneys' fees, arising out of or resulting from City's use of such documents for other projects not contemplated by this Agreement or use of incomplete documents furnished by Consultant. Consultant shall deliver to City any findings, reports, documents, information, data, in any form, including but not limited to, computer tapes, discs, files audio tapes or any other Project related items as requested by City or its authorized representative, at no additional cost to the City.

6.14. Public Records Act Disclosure: Consultant has been advised and is aware that all reports, documents, information and data including, but not limited to, computer tapes, discs or files furnished or prepared by Consultant, or any of its subcontractors, and provided to City may be subject to public disclosure as required by the California Public Records Act (California Government Code Section 6250 et. seq.). Exceptions to public disclosure may be those documents or information that qualify as trade secrets, as that term is defined in the California Government Code Section 6254.7, and of which Consultant informs City of such trade secret. The City will endeavor to maintain as confidential all information obtained by it that is designated as a trade secret. The City shall not, in any way, be liable or responsible for the disclosure of any trade secret including, without limitation, those records so marked if disclosure is deemed to be required by law or by order of the Court.

6.15. Conflict of Interest. Consultant and its officers, employees, associates and subconsultants, if any, will comply with all conflict of interest statutes of the State of California applicable to Consultant's services under this agreement, including, but not limited to, the Political Reform Act (Government Code Sections 81000, et seq.) and Government Code Section 1090. During the term of this Agreement, Consultant and its officers, employees, associates and subconsultants shall not, without the prior written approval of the City Representative, perform work for another person or entity for whom Consultant is not currently performing work that would require Consultant or one of its officers, employees, associates or subconsultants to abstain from a decision under this Agreement pursuant to a conflict of interest statute.

6.16. Responsibility for Errors. Consultant shall be responsible for its work and results under this Agreement. Consultant, when requested, shall furnish clarification and/or explanation as may be required by the City's representative, regarding any services rendered under this Agreement at no additional cost to City. In the event that an error or omission attributable to Consultant occurs, then Consultant shall, at no cost to City, provide all necessary design drawings, estimates and other Consultant professional services necessary to rectify and correct the matter to the sole satisfaction of City and to participate in any meeting required with regard to the correction.

6.17. Prohibited Employment. Consultant will not employ any regular employee of City while this Agreement is in effect.

6.18. Order of Precedence. In the event of an inconsistency in this Agreement and any of the attached Exhibits, the terms set forth in this Agreement shall prevail. If, and to the extent this Agreement incorporates by reference any provision of any document, such provision shall be deemed a part of this Agreement. Nevertheless, if there is any conflict among the terms and conditions of this Agreement and those of any such provision or provisions so incorporated by reference, this Agreement shall govern over the document referenced.

6.19. Costs. Each party shall bear its own costs and fees incurred in the preparation and negotiation of this Agreement and in the performance of its obligations hereunder except as expressly provided herein.

6.20. No Third Party Beneficiary Rights. This Agreement is entered into for the sole benefit of City and Consultant and no other parties are intended to be direct or incidental beneficiaries of this Agreement and no third party shall have any right in, under or to this Agreement.

6.21. Headings. Paragraphs and subparagraph headings contained in this Agreement are included solely for convenience and are not intended to modify, explain or to be a full or accurate description of the content thereof and shall not in any way affect the meaning or interpretation of this Agreement.

6.22. Construction. The parties have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises with respect to this Agreement, this Agreement shall be construed as if drafted jointly by the parties and in accordance with its fair meaning. There shall be no presumption or burden of proof favoring or disfavoring any party by virtue of the authorship of any of the provisions of this Agreement.

6.23. Amendments. Only a writing executed by the parties hereto or their respective successors and assigns may amend this Agreement.

6.24. Waiver. The delay or failure of either party at any time to require performance or compliance by the other of any of its obligations or agreements shall in no way be deemed a waiver of those rights to require such performance or compliance. No waiver of any provision of this Agreement shall be effective unless in writing and signed by a duly authorized representative of the party against whom enforcement of a waiver is sought. The waiver of any right or remedy in respect to any occurrence or event shall not be deemed a waiver of any right or remedy in respect to any other occurrence or event, nor shall any waiver constitute a continuing waiver.

6.25. Severability. If any provision of this Agreement is determined by a court of competent jurisdiction to be unenforceable in any circumstance, such determination shall not affect the validity or enforceability of the remaining terms and provisions hereof or of the offending provision in any other circumstance. Notwithstanding the foregoing, if the value of this Agreement, based upon the substantial benefit of the bargain for any party, is materially impaired, which determination made by the presiding court or arbitrator of competent

jurisdiction shall be binding, then both parties agree to substitute such provision(s) through good faith negotiations.

6.26. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original. All counterparts shall be construed together and shall constitute one agreement.

6.27. Corporate Authority. The persons executing this Agreement on behalf of the parties hereto warrant that they are duly authorized to execute this Agreement on behalf of said parties and that by doing so the parties hereto are formally bound to the provisions of this Agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by and through their respective authorized officers, as of the date first above written.

CITY OF COSTA MESA,
A municipal corporation

City Manager of Costa Mesa

Date: _____

CONSULTANT

Signature

Date: _____

Name and Title

Social Security or Taxpayer ID Number

APPROVED AS TO FORM:

City Attorney

Date: _____

APPROVED AS TO INSURANCE:

Risk Management

Date: _____

APPROVED AS TO CONTENT:

Project Manager

Date: _____

EXHIBIT A
CONSULTANT'S PROPOSAL

EXHIBIT B
FEE SCHEDULE

EXHIBIT C
PROJECT SCHEDULE

EXHIBIT D

CITY COUNCIL POLICY 100-5

SUBJECT	POLICY NUMBER	EFFECTIVE DATE	PAGE
DRUG-FREE WORKPLACE	100-5	8-8-89	1 of 3

BACKGROUND

Under the Federal Drug-Free Workplace Act of 1988, passed as part of omnibus drug legislation enacted November 18, 1988, contractors and grantees of Federal funds must certify that they will provide drug-free workplaces. At the present time, the City of Costa Mesa, as a sub-grantee of Federal funds under a variety of programs, is required to abide by this Act. The City Council has expressed its support of the national effort to eradicate drug abuse through the creation of a Substance Abuse Committee, institution of a City-wide D.A.R.E. program in all local schools and other activities in support of a drug-free community. This policy is intended to extend that effort to contractors and grantees of the City of Costa Mesa in the elimination of dangerous drugs in the workplace.

PURPOSE

It is the purpose of this Policy to:

1. Clearly state the City of Costa Mesa's commitment to a drug-free society.
2. Set forth guidelines to ensure that public, private, and nonprofit organizations receiving funds from the City of Costa Mesa share the commitment to a drug-free workplace.

POLICY

The City Manager, under direction by the City Council, shall take the necessary steps to see that the following provisions are included in all contracts and agreements entered into by the City of Costa Mesa involving the disbursement of funds.

1. Contractor or Sub-grantee hereby certifies that it will provide a drug-free workplace by:
 - a. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in Contractor's and/or sub-grantee's workplace, specifically the job site or location included in this contract, and specifying the actions that will be taken against the employees for violation of such prohibition;

SUBJECT	POLICY NUMBER	EFFECTIVE DATE	PAGE
DRUG-FREE WORKPLACE	100-5	8-8-89	2 of 3

- b. Establishing a Drug-Free Awareness Program to inform employees about:
 - 1. The dangers of drug abuse in the workplace;
 - 2. Contractor's and/or sub-grantee's policy of maintaining a drug-free workplace;
 - 3. Any available drug counseling, rehabilitation and employee assistance programs; and
 - 4. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
- c. Making it a requirement that each employee to be engaged in the performance of the contract be given a copy of the statement required by subparagraph A;
- d. Notifying the employee in the statement required by subparagraph 1 A that, as a condition of employment under the contract, the employee will:
 - 1. Abide by the terms of the statement; and
 - 2. Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction;
- e. Notifying the City of Costa Mesa within ten (10) days after receiving notice under subparagraph 1 D 2 from an employee or otherwise receiving the actual notice of such conviction;
- f. Taking one of the following actions within thirty (30) days of receiving notice under subparagraph 1 D 2 with respect to an employee who is so convicted:
 - 1. Taking appropriate personnel action against such an employee, up to and including termination; or
 - 2. Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health agency, law enforcement, or other appropriate agency;

SUBJECT	POLICY NUMBER	EFFECTIVE DATE	PAGE
DRUG-FREE WORKPLACE	100-5	8-8-89	3 of 3

- g. Making a good faith effort to maintain a drug-free workplace through implementation of subparagraphs 1 A through 1 F, inclusive.
2. Contractor and/or sub-grantee shall be deemed to be in violation of this Policy if the City of Costa Mesa determines that:
 - a. Contractor and/or sub-grantee has made a false certification under paragraph 1 above;
 - b. Contractor and/or sub-grantee has violated the certification by failing to carry out the requirements of subparagraphs 1 A through 1 G above;
 - c. Such number of employees of Contractor and/or sub-grantee have been convicted of violations of criminal drug statutes for violations occurring in the workplace as to indicate that the contractor and/or sub-grantee has failed to make a good faith effort to provide a drug-free workplace.
 3. Should any contractor and/or sub-grantee be deemed to be in violation of this Policy pursuant to the provisions of 2 A, B, and C, a suspension, termination or debarment proceeding subject to applicable Federal, State, and local laws shall be conducted. Upon issuance of any final decision under this section requiring debarment of a contractor and/or sub-grantee, the contractor and/or sub-grantee shall be ineligible for award of any contract, agreement or grant from the City of Costa Mesa for a period specified in the decision, not to exceed five (5) years. Upon issuance of any final decision recommending against debarment of the contractor and/or sub-grantee, the contractor and/or sub-grantee shall be eligible for compensation as provided by law.