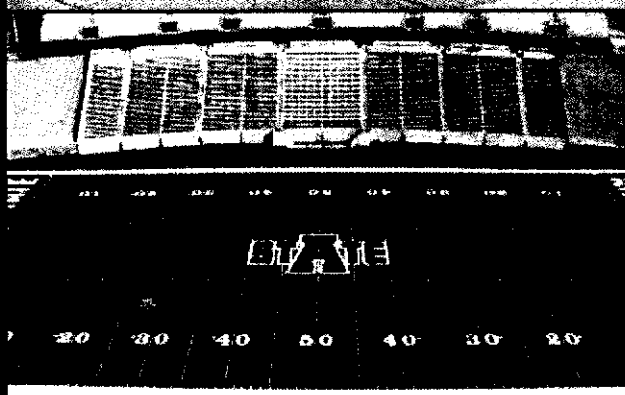




The City of Jonesboro, Arkansas

RFP 2008:30 Tornado Siren System

August 27th, 2008



*contractor's qualifications
presented by:*

Contractor's License No.

69910409

Bid Limit \$750,000

*Specialty Class Signal or Burglar Alarms, Fire
Detection & Monitoring Systems*

Expires: April 30th, 2009

SafetyCom

Inc.

ENGINEERING COMPANY, INC.
6300 E. CEDAR STREET, SUITE 100
JONESBORO, AR 72403

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Ref. 3.2

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**PRIOR EXPERIENCE
SECTION 5**

Letters of Reference



BUSINESS ORGANIZATION



*City of Little Rock
1000 North
Foothills Drive, Suite
1000, Little Rock, Arkansas 72211*

SPECIFICATIONS AND ADDITIONAL QUESTIONS

5.2.1 Vendor shall be a firm with at least 5 years experience in system planning, integration and installation of Outdoor Warning Systems of similar size and scope.



SafetyCom, Inc., North Little Rock, AR

Established in 1995, SafetyCom, Inc. is incorporated under the laws of the State of Arkansas and licensed to perform work in Arizona, Arkansas, Kentucky, North Carolina, Oklahoma, and Tennessee. We specialize in system design, equipment specifications, installation, service, maintenance, training and technical support of outdoor siren warning systems as we have since our inception.

5.2.2. Vendor will have similar contracts with at least 5 municipalities or their equivalent.

As for prior experience, our past clients are one of our most prized achievements. We strongly encourage you to contact Owners we have installed warning systems for in the past ten years and are currently under contract with or providing maintenance services.

Type of System: Citywide Warning System

Location: City of Little Rock, Arkansas

Number of Units: 56 WPS 2800-10

Approximate Coverage Area: 80 square miles

How System Is Activated: DTMF Encoding

Client Contact: Laura Martin, Dir. Police Communications

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PRIOR EXPERIENCE

Safety Com
inc.

*City of Princeton
1997-2000
Princeton, Missouri
Telephone: 417-735-2000*

Telephone: 501-371-4540

Type of System: Countywide Warning System

Location: Baxter County, AR

Number of Units: 32- VORTEX Series Sirens

Approximate Coverage Area: 128 Sq. Miles

How System Is Activated: DTMF Encoding

Client Contact: Safety Coordinator &
Assistant Fire Services, Jim Sierzchula

Telephone: 870-481-6252

Type of System: Citywide Warning System

Location: Oklahoma City, Oklahoma

Number of Units: 181 - Whelen Electronic Sirens

Approximate Coverage Area: 620 Sq. Miles

How System Is Activated: DTMF Encoding

Client Contact: Kerry Wagnon, Program Director, OCMFA

Telephone: 405-297-1924

Type of System: Citywide Warning System

Location: Collierville, Tennessee

Number of Units: 15 - WPS-2800-10

Approximate Coverage Area: 50 square miles

How System Is Activated: DTMF Encoding

Client Contact: Mark King, Emergency Manager

Telephone: 901-854-6233

Type of System: Countywide Warning System

Location: Jackson County, Arkansas

Number of Units: 17 - Vortex (currently)

Approximate Coverage Area: 150 square miles

How System Is Activated: DTMF Encoding

Client: Don Ivie, Director Emergency Management

Telephone: (870) 523-6011

Type of System: Countywide Warning System

Location: Stone County, AR

Number of Units: 7 - VORTEX Series Sirens

Approximate Coverage Area: 60 Sq. Miles

How System Is Activated: DTMF Encoding

Client Contact: County Judge, Stacey Avey

Telephone: 870-269-3351

*The National Emergency Management Institute
has the honor of recognizing your contribution.*



SYSTEM CONCEPT AND SOLUTION



*11/17/13 10:00 AM
11/17/13 10:00 AM
11/17/13 10:00 AM
11/17/13 10:00 AM*

5.2.3 Installer must be certified by manufacturer to perform installation.

SafetyCom's assigned project personnel have over twenty years combined experience in outdoor siren system applications. All SafetyCom personnel are Whelen Factory Authorized Technicians in sales and service. SafetyCom has been awarded *The Whelen Authorized Distinguished Distributor of the Year* for the past five years and has directly supervised the successful installation of over 1,000 sirens during its thirteen year existence.



Whelen Engineering Co., Chester, Connecticut

5.2.4 Vendor is aware of, is fully informed about, and is in full compliance with all applicable federal, state and local laws, rules, regulations applicable to the installation of an outdoor warning system including the applicable guidelines and/or standards referenced in the following documents

5.2.4.1 United Facilities Criteria (UFC) Standard. Department of Defense Document UFC 4-2021-01. UFC 4-021-01 Design and O&M: Mass Notification Systems which outlines mass notification to be in compliance with the requirements of UFC 4-010-01, DOD Minimum Antiterrorism Standards for Buildings.

UFC standards require the use of voice broadcast and indoor notification. Our propose system does not have

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SCOPE OF WORK



*July 2, 2013
10:15 AM
10:15 AM
10:15 AM*

voice capability nor indoor warning. Therefore UFC applications would not apply.

5.2.4.2 NFPA — 72, Annex E Mass Notification Systems Standard. National Fire Protection Association (NFPA) 72, Appendix E, which names standards on providing information and instructions to people, in a building, area, site or other space using intelligible voice communications methods and possibly including visible signals, text, graphics, tactile or other communication methods.

Our proposed system is tone only and for outdoor use only.

5.2.4.3 FEMA document Ref. CPG117 entitled Outdoor Warning Systems Guide

See 5.4.2.1 for response.

5.3 ADDITIONAL QUESTIONS SPECIFIC TO THIS RFP

5.3.1 If Vendor takes exception to any terms or conditions set forth in Section 4 of this RFP, Vendor will submit a list of these exceptions.

SafetyCom makes no exceptions to any terms or conditions set forth in Section 4 of this RFP.

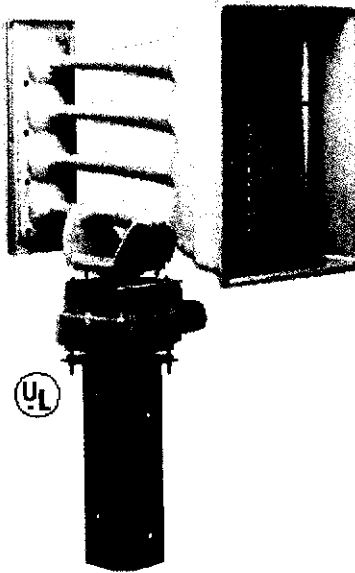
5.3.2. In its proposal, Vendor must indicate whether it will consent to include in the Agreement the "Accessibility by Persons with Disabilities" provision that is set forth in Appendix four. If Vendor objects to the inclusion of the "Accessibility by Persons with Disabilities" provision in the Agreement, Vendor must, as part of its proposal, specifically identify and describe in detail all of the reasons for Vendor's objection.

SafetyCom will include the "Accessibility by Persons with Disabilities" provision in the Agreement set forth in the Appendix Four.

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*City of Little Rock
 11-11-2009 10
 11-11-2009 10:11:11
 11-11-2009 10:11:11*



Type: Directional, Oscillating
 SPL Rating @ 100': 129 dBC
 Estimated 70 dBC warning perimeter: 6,000'
 System Voltage: 24 Volts DC
 System Current: 88 amps (approx.)
 Total Audio Power Output: 1,600 watts
 Operating Temperature: -35 to +60 degrees C

Speaker and Rotor Assembly Dimensions:
 Height in/cm Width in/cm Depth in/cm
 49.0/(124.5) 28.5/(72.4) 56.0/(142.2)

Weight lbs/kg
 234/(106)

5.4 SCOPE OF WORK

5.4.1. The system will provide for an outdoor siren warning system to include a minimum of three unique tones, controllers to provide continuous monitoring, and fixed site activation.

The Whelen VORTEXR(4) siren incorporates six (6) standard warning tones including:

SIX STANDARD WARNING TONES			
TONE	TONE SYMBOL	FREQUENCY	SWEEP RATE
WAIL		410 - 372	1 sec/1 sec
ALERT		403	Steady
HI/LO		465/350	.3 sec/2.4 sec
ATTACK		413 - 650	1 sec/1 sec
AIR HORN		400 - 350	Monotonic 1.1 sec
WHOOOP		300 - 600	3

- ❖ Tone 1 - WAIL - Wild Fire Alert
- ❖ Tone 2 - ATTACK - Evacuation Tone
- ❖ Tone 3 - ALERT - Tornado Warning
- ❖ Tone 4 - HI/LO - Hazardous Materials Incident
- ❖ Tone 5 - AIR HORN - All Clear
- ❖ Tone 6 - SLOW WHOOP - Test

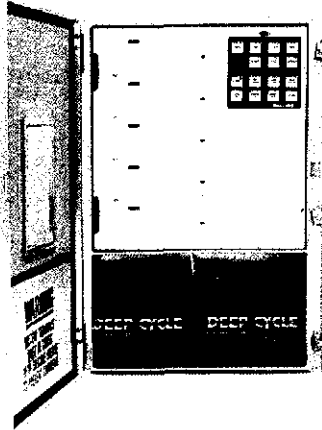
Remote Status Reporting

Each siren will include remote system diagnostics including:

- ❖ AC Power-On/Off (If applicable)
- ❖ Partial AMP/Driver Operation
- ❖ Full AMP/Driver Failure
- ❖ Ambient Temperature
- ❖ Battery Voltage
- ❖ System Power Up Status
- ❖ Intrusion Alarm-Open door
- ❖ Receiver Signal to Noise Ratio



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 Licensed Under North Carolina Public Information Act*



Electronics Cabinet Dimensions:
Height in/cm Width in/cm Depth in/cm
32.5/(82.6) 22.5/(57.2) 10.5/(26.7)

Weight lbs/kg
83/(37.7)*



*City of Jonesboro
1101 10th St
Jonesboro, Arkansas 72401
Phone: 501-937-2100*

Remote operation is provided via a unique coding/decoding system which utilizes dual-tone, multi-frequency (DTMF) signaling. DTMF signaling is accomplished with use of the software package or Whelen encoder. With this encoding/decoding system, it is possible to activate up to 10,000 sirens individually, by geographic groups, or all units simultaneously. Any specific siren tone may be activated.

5.4.2 The VENDOR will provide a turnkey system, to include the design, equipment specifications, installation, service, monitoring, maintenance, training and technical support for outdoor warning.

As an Authorized Master Distributor for Whelen Engineering and responsible for the nations largest City-wide deployment of sirens (201 sirens in Oklahoma City), we specialize in system design, equipment specifications, installation, service, maintenance, training and technical support of outdoor siren warning systems. See training curriculum on pages 17-20, Section one.

See attached coverage map.

5.4.2.1 The VENDOR will incorporate the guidance outlined in FEMA publication CPG-1-17 entitled Outdoor Warning Systems Guide to insure to ensure effective and efficient coverage plan of the City of Jonesboro.

FEMA CPG 1-17 guidelines have been reviewed and followed to provide a minimum standard for our system.

Of special note is section 4.6 *Preliminary Cost Estimations (FEMA document reprinted below)*. In paragraph two a pair of recent "best practice" installation cases are referenced. The City of Little Rock, AR and the City of Oklahoma City, OK. SafetyCom is proud to list these two cities as customers currently under maintenance contract with our company.

The success of these two large scale design and installations can be directly attributed to the teamwork established between City Officials and SafetyCom's Project Personnel.

*City of Jonesboro
1101 10th St
Jonesboro, Arkansas 72401*



PROGRAM AND TECHNICAL PLAN



City of Jonesboro
2004-2005
Emergency Director, 2004
Technical Appendix, 2004

4.6 Preliminary Cost Estimations (reprint of CPG-1-17)

A critical planning concern is the ultimate cost of the outdoor warning system. The number of devices needed and their control circuitry, in turn, is central to the system's eventual installation and maintenance costs. During system planning, the responsible officials may want to iteratively adjust system layout and device capabilities to balance costs while maximizing the alert coverage area. This balancing may include decreasing the total number of devices by increasing the sound level rating for each device used. *Appendix G* presents equipment cost information to assist in determining system planning level cost estimates.

A pair of recent "best practice" installation cases in the United States illustrated in *Appendix G*, Table G-2 can help demonstrate the costs associated with installing comprehensive systems. A good example of a mid-sized system (in terms of both area and population covered) can be found in Little Rock, Ark. The system went on line in April 2004 at a total installation cost of \$1.7 million. This included 56 audible PAS devices at a unit cost of \$30,400 each and provides coverage for 184,000 people.

The Oklahoma City, Okla. outdoor warning system gives a better idea of the costs involved in covering a larger populace and geographic area. Completed in 2002, the Oklahoma City system serves 750,000 people across a 620 mi² area. Comprised of 182 electronic, battery-powered sirens, the system is designed to provide alerts for tornadoes, severe storms, flooding, and terrorist acts and is designed around two principle siren types. In urban areas, omni-directional sirens with voice capability were installed, while in rural areas, rotating sirens were used. The finished system cost \$4.5 million and has an annual operational and maintenance budget of \$200,000 a year.

5.4.2.2 Surveys, referenced in FEMA publication CPG-1-17 entitled Outdoor Warning Systems Guide used to determine placement of outdoor sirens. The submittal should also include a map of the City of Jonesboro that references the recommended locations of the speakers/sirens and the coverage area to include decibel contours.

Qualitative Probability Information
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*City of Jonesboro
1000 North
Main Street, Jonesboro, AR
72403*

Preliminary site recommendations are listed on the attached map in Section four.

5.4.2.3 Vendor is to make recommendations for the most efficient and cost effective placement of siren system to include pole mounted units for effective coverage of the City of Jonesboro.

SafetyCom will recommend the final number, configuration and location of each siren unit. Our locations will primarily be on parks, schools and right-of-ways owned or controlled by the city. Consideration will be given to population density, public gathering areas, topography, availability of electrical power, and homeowner concerns.

While it is our intent to reuse as many suitable existing sites as possible, inevitably there will be the need for the selection of new sites. As the system will now incorporate diagnostic capability, proper radio evaluation criteria must be considered and is addressed below.

Since the city will approve final site selection, we will actively involve city officials in the site selection process. The more expertise we have in the site selection process, the better the siren locations will be. Therefore, we propose to divide into teams that will visit each proposed site. The teams will be comprised of a siren expert from SafetyCom, and a contractor from J&J Industrial to evaluate the electrical supply. They will also include any city officials interested in the location of these sirens.

The teams will prepare site reports that will include such information as a sketch showing existing features and approximate siren location, GPS coordinates, power source, apparent right-of-way, and pertinent observations such as homeowner issues and the presence of utilities. The teams will clearly mark the sites for future identification and will take digital pictures for group presentation and review.

Each team will be well equipped for organized and efficient initial site investigations. The equipment will include:

*City of Jonesboro
1000 North
Main Street, Jonesboro, AR
72403*



PROGRAM AND TECHNICAL PLAN

City of Jonesboro
1210 West 2nd
Jonesboro, Arkansas 72401
Phone: (501) 932-2111

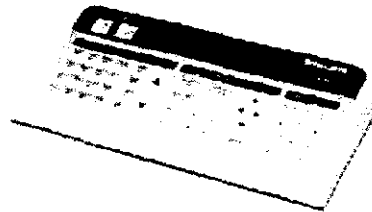
- ❖ Handheld GPS unit
- ❖ Digital camera
- ❖ Yagi antenna for radio reception check
- ❖ Sound meter
- ❖ Surveying supplies

Design criteria for the Jonesboro warning system includes:

- ❖ Geographic and topographic aspects of each location within 2500 feet from the siren location.
- ❖ The location of all existing structures including buildings, trees, etc. evaluated to estimate propagation, path and dispersion of sound
- ❖ Evaluation of all underground utilities
- ❖ Population density of each siren location and evaluation

City officials would otherwise spend a great deal of time and manpower approving site locations without the help of the available computer maps and photographs provided by our GIS department. We feel that our engineering services will give both city officials and citizens confidence in their new siren system and will greatly reduce the hours of reviewing the feasibility of each site.

5.4.2.4 The system will provide multiple activation and control methods. A Fixed control panel is to be standard.



Whelen E-2010 Encoder/Decoder

The E-2010 Central Station Control is configured to make maximum use of call keys or preprogrammed scenarios. In addition, commands are grouped into easy to follow categories for warning tones, digital voice messages (if applicable), and status.



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SafetyCom
Inc.

*City of Aurora, Illinois
1000 North La Grange
Aurora, Illinois 60007
Phone: 630.278.2000, FAX: 630.278.2001*

A numeric keypad section allows for individual remote siren addressing. A four line by forty character LCD display shows all keyboard and status activity. Command and status information are also sent to a printer port and a serial communication port for a PC.

All preprogrammed functions are stored in non-volatile memory. Internal, rechargeable batteries protect time and date. A key lock is available to disable the keyboards, but all status information is still active. (See attached Whelen E2010 product specification sheet.)

Remote operation is provided via a unique coding/decoding system which utilizes dual-tone, multi-frequency (DTMF) signaling. DTMF signaling is accomplished with the Whelen series of encoders. With this encoding/decoding system, it is possible to activate up to 10,000 sirens individually, by geographic groups, or all units simultaneously. Any specific siren tone may be activated.

Optional Software Activation Package

The current Whelen approved software package for siren control has a graphical user interface (GUI) that provides management personnel with complete control and status monitoring of the system from a computer console. It is a user-friendly program utilizing features such as drop-down menus and multi-screen and multi-tasking abilities that provides the ability to import maps and to add dynamic icons representing current and added sirens. It will record all activity including activations, polling and status data of each siren. The software will provide a display map of the city and the area one to two miles deep adjacent to the city limits with each siren location and unit clearly identified on the display.

The program will allow full operation by keyboard entry in addition to mouse/cursor operation. Due to the nature of the system, the software operates on Window Server 2003 platform and is only available via a server provided by the software vendor.

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City of Fayetteville
1000 2000
Fayetteville, Arkansas
Fayetteville, Arkansas, 72701

5.4.2.5 In addition to the 3 fixed control panels, the Vendor will provide optional cost for a laptop based mobile backup system as an alternative to the fixed based system.

While laptop specific backup is not available, entire system functionality can be achieved utilizing a *Whelen Portable Test Kit*. The test kit provides the city with the capability to selectively control siren sites from a mobile or portable point. We can provide a self-contained, mobile encoder. This unit will consist of an encoder/decoder, two-way radio and antenna housed in a carrying case.



Whelen PT2010 Portable Test Kit

5.4.2.6 The system must provide enough power for 30 minutes of continuous operation. With charge, the batteries must be able to back up the siren for at least 10 days with enough reserve for five (5) minute activation at the end of the 10 days.

While the VORTEXR4 siren can provide for 15 minutes of continuous tone activation, standard run time is preprogrammed at the factory for three minutes. The siren runs off of the 24VDC battery bank and risk of battery failure would be of concern if continuous operation were exercised.

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PROGRAM AND TECHNICAL PLAN



*City of Jonesboro
1001 North St.
Jonesboro, Arkansas 72403
Phone: (501) 932-1111*

Standard run times of 2-3 minutes followed by short recovery periods are recommended for operation of battery powered electronic sirens. A sequence of up to 30 minutes of automatic operation requiring the touch of one call key by the operator is easily achieved via programming the sequences into the software or encoder.

5.4.2.7 The system A. If applicable, the City of Jonesboro has an existing UHF frequency license that can be immediately used until the license of new frequency can be obtained. The City of Jonesboro requires acceptance of this clause with proposal.

It would be SafetyCom's preference to utilize the existing UHF frequency and is ready to assist in the licensing of a new frequency if required.

UHF frequencies provide excellent RF coverage in most environments and were the preferred frequency choices for our largest systems—Oklahoma City, Little Rock, and Fort Worth.

We will be utilizing the radio expertise of our most valued subcontractor and equipment provider Bytel, Inc., out of Houston, TX. Bytel will provide all field siren radios (and any required new control base station/repeaters) and has provided the radio systems for all of our major projects. The highlight being Oklahoma City where two independent repeater sites were installed and with Bytel's engineering and equipment, all 182 sirens receive, (and more impressively), transmit diagnostic data back at both repeaters while covering an area of 620 square miles. Bytel's Whelen interface utilizes an off the shelf Motorola handheld radio and superior antenna and cable to custom fit the output necessary at each individual siren location.

Bytel will provide the City of Jonesboro a propagation study on the existing UHF frequency to ensure superior results at every chosen siren location. These are services not available with most siren providers and we feel set SafetyCom apart in providing unparalleled design and system performance.

*City of Jonesboro, Arkansas
1001 North St.
Jonesboro, Arkansas 72403
Phone: (501) 932-1111*



Radio Specifications:

Make: Motorola

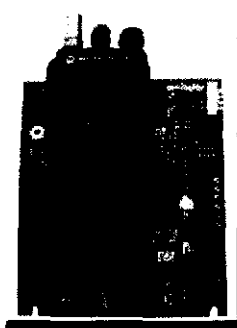
Model: CP200

Wattage: 4 watts of UHF Tx power

Current: 50ma. Receive current drain channel.

Channel Spacing: 12.5 / 25 kHz (Meets FCC 12.5 kHz requirements)

*City of Jonesboro
1000 Main St
Jonesboro, Georgia 30501*



Bytel/Motorola Siren Control Module

5.4.2.8 B. The 2.4GHz (2.400-2.500GHz) and 5.0GHz (5.725-5.875GHz), unlicensed frequency bands for implementation of this project are NOT acceptable to the City of Jonesboro as they will interfere with the current (and future) installation and deployment of the city wide wireless network.

The existing UHF frequency will be sufficient for control of the system and SafetyCom has no intentions of causing interference with the 2.4-5.0GHz bandwidths.

5.4.3 The VENDOR will coordinate with the City of Jonesboro's Maintenance and Operations Department for electrical circuit availability and external mounting locations.

Any locations requiring electrical circuit availability will be coordinated with the City's Maintenance and Operations Department.

5.4.3.1 All electrical power requirements for all equipment locations are to be provided by the contractor and included with proposal price.

SafetyCom will provide an overhead connection point at each site via a weather head with electrical connections ready to be connected to 120VAC by local utility company and compliant with all local electrical codes. SafetyCom will work as necessary with the city to expedite electrical connections at each site.



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PROGRAM AND TECHNICAL PLAN

SafetyCom
inc.

*Copy of Items 5.4.3.2
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5.4.98
5.4.99
5.4.100*

5.4.3.2 This RFP requires installation of all new conduit, Vendors are NOT to use existing conduit for this project instead Vendor must include in their pricing cost of any conduit required for this request.

All installation work performed shall be in accordance with laws and regulations of the U.S. Department of Labor and the State of Arkansas.

All materials, complete assemblies, and all components will be new and the manufacturer's standard model of the latest design in current production. Additionally the proposed equipment includes all standard features and performance specifications as advertised or otherwise represented by SafetyCom and our equipment manufacturers. The equipment will be manufactured, assembled, installed, and tested in accordance with the current industry standards considered a minimum requirement:

- ❖ *The American National Standards Institute (ANSI),*
- ❖ *The Institute of Electrical and Electronic Engineers (IEEE),*
- ❖ *The National Electrical Code (NEC),*
- ❖ *And the applicable state electrical code.*
- ❖ *In addition, where test standards exist, all materials and equipment furnished by Vendor for electrical construction shall bear the label of the Underwriters Laboratories (UL)*
- ❖ *Our equipment also complies with FAA Quality Control Requirements.*

5.4.3.3 If required as part of installation any cutting, patching and painting to be included in the cost of the proposal price.

SafetyCom has included as part of installation any cutting, patching and painting to be included in the cost of the proposal price.

5.4.4 As part of submittal documents, the VENDOR is to include the following

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PROGRAM AND TECHNICAL PLAN



*City of Jonesboro
June 2007
Contract #10000
Work Order #0000000000*

5.4.4.1 Shop Drawings and Submittals – A complete equipment list, with manufactures’ names, model numbers, and quantities of each item.

See Attached list Installation Manual.

5.4.4.2 Manufactures’ data sheets on all equipment items manufacturer name, model number/part number and complete specifications for the siren/tone warning.

See Attached product sheet.

5.4.3.1 A map of the City of Jonesboro to include the location of the recommended speakers/sirens and the coverage area to include decibel contours.

See Attached map.

5.4.3.2 Pole mounting specifications.

See Attached Installation Manual

5.4.3.3 Sirens are to be mechanically sound with the ability to withstand up to 100 mph winds, include pole mounting brackets for pole and/or wall mounting.

Whelen’s VORTEXER(4) siren is rated to withstand 140 mph winds.

5.4.4 The system should have the option for solar power charging.

Solar power is a very good solution for power in electronic sirens due to their low consumption of power and high battery capacity. Solar power also allows for more freedom in system design.

When designing an AC powered system one of the criteria used in determining feasibility of a location is whether or not a power source is available nearby. Therefore, in some instances, optimal locations have to be passed up for less desirable loca-

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*City of Jonesboro
100 - 20th St
Jonesboro, Arkansas 72401
Telephone: (501) 932-2100, 2101*

tions with access to utilities. Solar systems have become more and more prevalent over the past ten years as more of the old style electro-mechanical sirens have been replaced by electronic versions. The most important consideration of using solar power as a primary source of power for a public warning system is that the combination of solar panel output and battery capacity must handle the siren standby power requirement, while also maintaining enough charge on the batteries to meet the run time requirements of the siren. This requirement varies with location, seasons and weather. A solar powered siren depends on a properly sized battery bank for power during bad weather such as rain, snow or fog. Whelen sirens have a battery capacity of 230 Amp-Hours. Typical standby current is about 50mA, therefore, after two weeks of total darkness, only 16.8 Amp-Hours of capacity has been drained from the batteries. There is still plenty of capacity for a number of siren tone activations. All Whelen sirens are equipped with a large battery bank. The batteries actually power the siren during any warning tone or message. Therefore, any Whelen siren will meet its specified run time, regardless of whether it is powered by AC or solar.

5.4.5 The system will have the capability to incorporate future requirements and technology advances for future growth.

The outdoor emergency warning system, designed and installed by SafetyCom, Inc. will provide The City of Jonesboro with a cost-effective, technologically advanced siren system that will perform twenty-four (24) hours a day three-hundred-sixty-five (365) days a year. The system will have the capability to incorporate future requirements and technological advances for future growth, system upgrades and built-in anti-vandalism/ security strategies for each site location.

5.4.6 Final Test and Demonstration – The final testing and demonstration shall be performed after all installation and initial testing has been completed by the installer, but prior to any use of the system.



*The World's Proprietary Emergency
Warning System - With 100 Years of Experience*



FINAL TESTING AND TRAINING



*City of Dallas
1000
1000
1000
1000*

The city requires both standard commercial type factory testing and field tests to verify operational compliance. Once the equipment has been successfully installed, SafetyCom will inform the Contract Administrator, in writing, that the system is operating. Upon the city's receipt of this written notification and agreement that the system has been successfully installed a 30-day "Operational Verification" period will commence before any "accepted" use of the system is initiated.

5.4.7 Owner Training and Familiarization - The Vendor will provide for onsite training for City personnel necessary to operate the system:

5.4.7.1 To include but not limited to training by factory certified personnel, training on system operation, training on trouble shooting of potential system problems, all training manuals, hands on experience, industry's best practices and all incidental expenses.

Prior to cutover and final acceptance of the system, SafetyCom shall provide a comprehensive "Train-the-Trainer" training program for all operational personnel. This training will include sessions to familiarize city personnel with the operation of the Remote Station Operational System and equipment. SafetyCom's team will provide training classes for the supervisors, technicians and the computer operators. The operator training classes will cover operation of the activation/monitoring programs in sufficient detail to enable supervisors to independently train the daily system operators. Technical support shall be provided as needed at no additional charge for the life of the system. We have included a training plan outlining the training requirements and costs for training city staff members in the use of the new system. All cost associated with this training are listed on the official price sheet. Written materials, computer files, and any audiovisual aids produced by SafetyCom to provide system operation training will be furnished to the city for continuing education purposes.

We have included a resume for each of our trainers, a list of training classes, and prior client references that have been trained by these individuals. If the city desires to interview



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*City of Fayetteville
1994
1000 North Main Street
Fayetteville, Arkansas 72701*

our training team, we are willing to work with the city on the training package and the qualifications of the training personnel prior to the development and execution of the training program.

The following training will be provided to the supervisors, technicians and computer operators. Starting/operating the system, all input/change screens, generating all reports, and backing up the system files will be covered in sufficient detail to enable the operators to keep the system operating properly. These training sessions will be held in a classroom setting at a location agreeable to the city.

Copies of this proposal are provided for all components and programs. Additional copies of all manuals, etc. shall be provided as needed at no cost. Full technical maintenance training of firmware and software components not included in the maintenance contract will be provided as necessary.

Siren Control Hardware/Software-Training Curriculum

SafetyCom's training team will provide software and operation training to the customer. We anticipate this training to be a one-day training course for System Operators and System Administrators. The System Operators will attend the first half of the training while the System Administrators will attend the full day of training.

The first half of the training is focused on System Operators.

OPERATOR TRAINING – (One (1) 2-hour session):
(Operators should have experience with a computer and a mouse)

- ❖ System Overview
 - ❖ Central Computer
 - ❖ CPU
 - ❖ Keyboard
 - ❖ Monitor
 - ❖ Printer
 - ❖ Printouts

*City of Fayetteville, Arkansas
1000 North Main Street
Fayetteville, Arkansas 72701*



FINAL TESTING AND TRAINING

*City of Los Angeles
Fire Department
Fire Alarm Control Unit
Training Manual, August 2006*

- ❖ **Communication Protocol**
 - ❖ DTMF Format
 - ❖ Area Code
 - ❖ Remote Siren Address Code
 - ❖ Identification
 - ❖ Command
- ❖ **Software Control**
 - ❖ Logging in & out of the system
 - ❖ Passwords
 - ❖ Procedures
- ❖ **Displays**
 - ❖ How to move from display to display
 - ❖ Menu bar operation
 - ❖ Screens
 - ❖ Main screen
 - ❖ Status screen
- ❖ **How to acknowledge alarms**
 - ❖ Remote site acknowledge
 - ❖ Dispatch procedure
- ❖ **How to activate siren stations**
 - ❖ Call Keys
 - ❖ Manual Activations
- ❖ **How to test siren stations**
 - ❖ Silent test
 - ❖ Status Request
 - ❖ Instant Status
- ❖ **E-2010 Encoder**
 - ❖ Overview
 - ❖ Introduction
 - ❖ Getting Started
 - ❖ Keyboard Entries
 - ❖ Function Definitions
 - ❖ Menu Selection
 - ❖ Warning Tones



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*Copy of this document
is to be kept in the
training file for each
trainee and returned to the
trainer.*

- ❖ Voice Messages
- ❖ Status
 - ❖ Menu Selections
 - ❖ Call Keys

The second half of the training is focused on the System Managers. The goal of the System Manager training is to train them so they will be able to train other System Managers and Operators.

SYSTEM MANAGER TRAINING (One (1) 2-hour session):
(Operators & System Managers should have experience with computer and a mouse)

- ❖ Computer Control System
 - ❖ System Security
 - ❖ Configuring new users and passwords
 - ❖ Passwords
 - ❖ Procedures
- ❖ System Manager Screens
- ❖ Alarm Summary Screen
- ❖ System History
- ❖ How to acknowledge alarms
- ❖ Remote site acknowledge
- ❖ Putting new sites on line with a pre-configured system
- ❖ Interrogation
 - ❖ Automatic cycles
 - ❖ Manually interrogating remotes
- ❖ Encoder
 - ❖ System Setup
 - ❖ Port Setup
 - ❖ Polling Setup
 - ❖ Auto Call Setup
 - ❖ System Setup
 - ❖ Audio
 - ❖ Time Date
 - ❖ Call Keys
 - ❖ Call Key Functions
 - ❖ Call Key Programming
 - ❖ Modify A Call Key

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*City of Birmingham
1978-1979
Birmingham, Alabama
Wednesday, May 23, 1979*

- ❖ Delete A Call Key
- ❖ Finishing A Call Key
- ❖ Printing An Individual Call Key
- ❖ Remote Input Call Keys
- ❖ Time Of Day Call Keys
- ❖ Command Number Tables

5.4.8 Guarantee and Warranty – Guarantee all parts, labor and installation furnished under this contract for a period of twelve months from the date of final system acceptance. Where warranties on individual pieces of equipment exceed twelve months, the guarantee period shall be extended to the warranty period of the particular items.

See attached warranty statement.

5.4.8.1 Warranty to include an annual maintenance agreement after warranty expires.

Pricing for an annual maintenance agreement is included on the city provided Pricing and Delivery Schedule from Section 1.



*Qualitative Pricing Information
Available Upon Request Without Further Charge*

SECTION 3

PROPOSER'S GENERAL QUESTIONNAIRE

Proposals must include responses to the questions contained in this Proposer's General Questionnaire. Proposer should reference the item number and repeat the question in its response. In cases where a question does not apply or if unable to respond, Proposer should refer to the item number, repeat the question, and indicate N/A (Not Applicable) or N/R (No Response), as appropriate. Proposer will explain the reason when responding N/A or N/R.

3.1 Proposer Profile

3.1.1 Legal name of Proposer company: SafetyCom, Inc.

Address of principal place of business: 112 Smarthouse Way
N. Little Rock, AR 72114

Address of office that would be providing service under the Agreement: 112 Smarthouse Way
N. Little Rock, AR 72114

Number of years in Business: 10

State of incorporation: Arkansas

Number of Employees: 5

Annual Revenues Volume: 1.2 Million

Name of Parent Corporation, if any: None

NOTE: If Proposer is a subsidiary, City of Jonesboro prefers to enter into a contract or agreement with the Parent Corporation or to receive assurances of performance from the Parent Corporation.

3.1.2 State whether Proposer will provide a copy of its financial statements for the past two (2) years, if requested by City of Jonesboro: SafetyCom will comply

3.1.3 Proposer will provide a financial rating of the Proposer entity and any related documentation (such as a Dunn and Bradstreet analysis) that indicates the financial stability of Proposer.

SafetyCom will comply

3.1.4 Is Proposer currently for sale or involved in any transaction to expand or to become acquired by another business entity? If yes, Proposer will explain the expected impact, both in organizational and directional terms.

There is no proposed transaction

3.1.5 Proposer will provide any details of all past or pending litigation or claims filed against Proposer that would affect its performance under the Agreement with City of Jonesboro (if any).

There is no pending or past litigation

3.1.6 Is Proposer currently in default on any loan agreement or financing agreement with any bank, financial institution, or other entity? If yes, Proposer will specify the pertinent date(s), details, circumstances, and describe the current prospects for resolution.

SafetyCom is not in default with any financial entity.

3.1.7 Proposer will provide a customer reference list of no less than three (3) organizations with which Proposer currently has contracts and/or to which Proposer has previously provided services (within the past five (5) years) of a type and scope similar to those required by City of Jonesboro's RFP. Proposer will include in its customer reference list the customer's company name, contact person, telephone number, project description, length of business relationship, and background of services provided by Proposer.

References are included in proposal.

3.1.8 Does any relationship exist (whether by family kinship, business association, capital funding agreement, or any other such relationship) between Proposer and any employee of City of Jonesboro? If yes, Proposer will explain.

No relationship exists between any SafetyCom and any City Employee.

3.2 Approaches to Project Services

3.2.1 Proposer will provide a statement of the Proposer's service approach and will describe any unique benefits to City of Jonesboro from doing business with Proposer. Proposer will briefly describe its approach for each of the required services identified in Section 5.4 Scope of Work of this RFP.

3.2.2 Proposer will provide an estimate of the earliest starting date for services following execution of the Agreement.

3.2.3 Proposer will submit a work plan with key dates and milestones. The work plan should include:
See attached Project Schedule - Section 4

3.2.3.1 Identification of tasks to be performed;

See attached Project Schedule - Section 4

3.2.3.2 Time frames to perform the identified tasks;

See attached Project Schedule - Section 4

3.2.3.3 Project management methodology;

See Section 1 responses to Scope of Work

3.2.3.4 Implementation strategy; and

See Section 1 responses to Scope of Work

3.2.3.5 The expected time frame in which the services would be implemented.

See attached Project Schedule - Section 4

3.2.4 Proposer will describe the types of reports or other written documents Proposer will provide (if any) and the frequency of reporting, if more frequent than required in the RFP. Proposer will include samples of reports and documents if appropriate.

3.3 General Requirements

3.3.1 Proposer will provide summary resumes for its proposed key personnel who will be providing

services under the Agreement with City of Jonesboro, including their specific experiences with similar service projects, and number of years of employment with Proposer.

3.3.2 Proposer will describe any difficulties it anticipates in performing its duties under the Agreement with City of Jonesboro and how Proposer plans to manage these difficulties. Proposer will describe the assistance it will require from City of Jonesboro.
SafetyCom anticipates no difficulties in performing its duties

3.4 Service Support

Proposer will describe its service support philosophy, how is it implemented, and how Proposer measures its success in maintaining this philosophy.
See Section 1 responses to Scope of Work

3.5 Quality Assurance

Proposer will describe its quality assurance program, its quality requirements, and how they are measured.
See Section 1 responses to Scope of Work

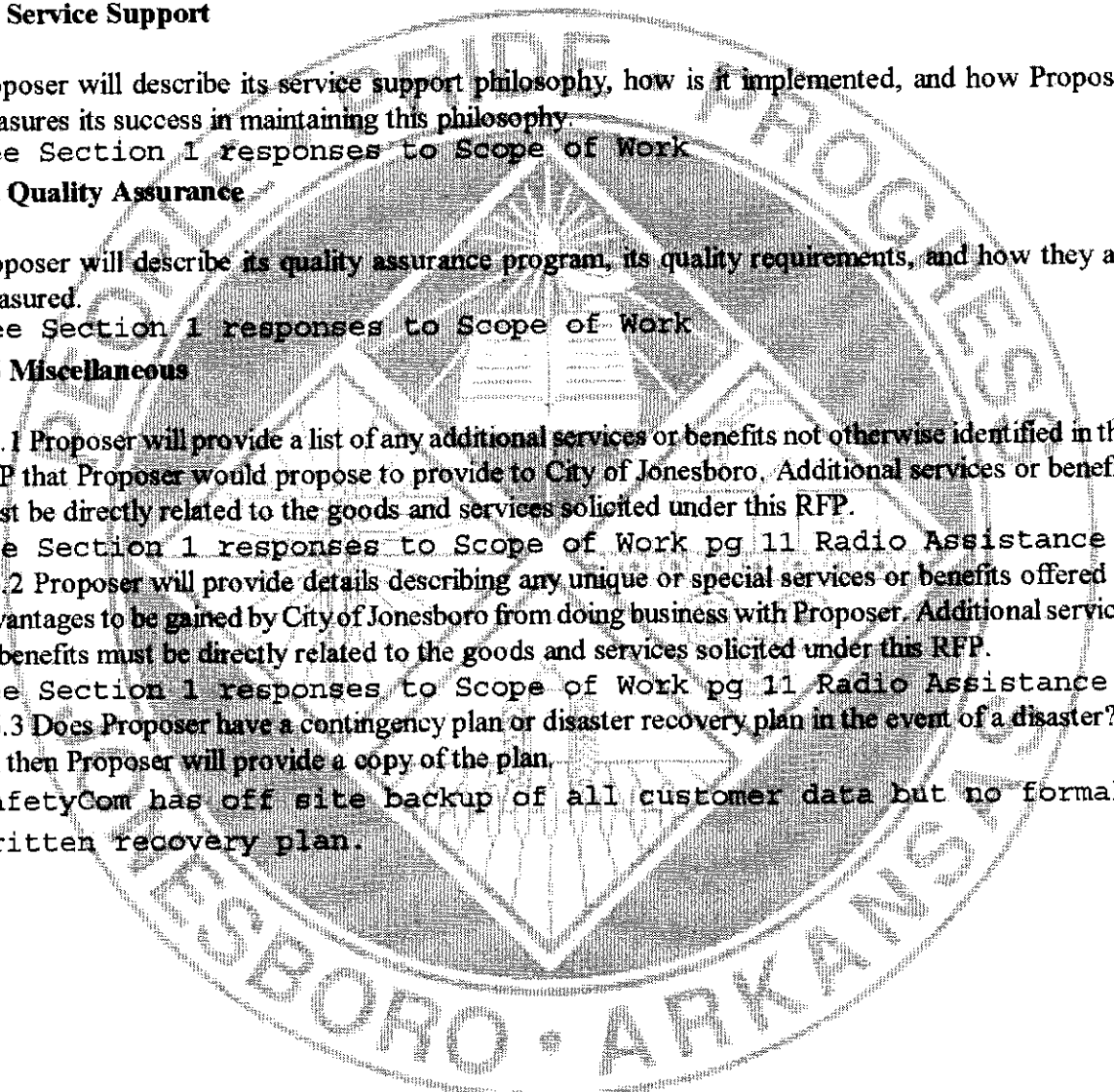
3.6 Miscellaneous

3.6.1 Proposer will provide a list of any additional services or benefits not otherwise identified in this RFP that Proposer would propose to provide to City of Jonesboro. Additional services or benefits must be directly related to the goods and services solicited under this RFP.
See Section 1 responses to Scope of Work pg 11 Radio Assistance

3.6.2 Proposer will provide details describing any unique or special services or benefits offered or advantages to be gained by City of Jonesboro from doing business with Proposer. Additional services or benefits must be directly related to the goods and services solicited under this RFP.
See Section 1 responses to Scope of Work pg 11 Radio Assistance

3.6.3 Does Proposer have a contingency plan or disaster recovery plan in the event of a disaster? If so, then Proposer will provide a copy of the plan.

SafetyCom has off site backup of all customer data but no formal written recovery plan.



All pages of the proposal should be numbered sequentially in Arabic numerals (1, 2, 3, etc.). Attachments should be numbered or referenced separately.]

SECTION 2

EXECUTION OF OFFER

THIS EXECUTION OF OFFER MUST BE COMPLETED, SIGNED AND RETURNED WITH PROPOSER'S PROPOSAL. FAILURE TO COMPLETE, SIGN AND RETURN THIS EXECUTION OF OFFER WITH THE PROPOSER'S PROPOSAL MAY RESULT IN THE REJECTION OF THE PROPOSAL.

2.1 By signature hereon, Proposer represents and warrants the following:

2.1.1 Proposer acknowledges and agrees that (1) this RFP is a solicitation for a proposal and is not a contract or an offer to contract; (2) the submission of a proposal by Proposer in response to this RFP will not create a contract between City of Jonesboro and Proposer; (3) City of Jonesboro has made no representation or warranty, written or oral, that one or more contracts with City of Jonesboro will be awarded under this RFP; and (4) Proposer will bear, as its sole risk and responsibility, any cost arising from Proposer's preparation of a response to this RFP.

2.1.2 Proposer is a reputable company that is lawfully and regularly engaged in providing the Services.

2.1.3 Proposer has the necessary experience, knowledge, abilities, skills, and resources to perform the Services.

2.1.4 Proposer is aware of, is fully informed about, and is in full compliance with all applicable federal, state and local laws, rules, regulations and ordinances.

2.1.5 Proposer understands (i) the requirements and specifications set forth in this RFP and (ii) the terms and conditions set forth in Section 4 of this RFP, under which Proposer will be required to operate.

2.1.6 If selected by City of Jonesboro, Proposer will not delegate any of its duties or responsibilities under this RFP or the Agreement to any sub-contractor, except as expressly provided in the Agreement.

2.1.7 If selected by City of Jonesboro, Proposer will maintain any insurance coverage as required by the Agreement during the term thereof.

2.1.8 All statements, information and representations prepared and submitted in response to this RFP

are current, complete, true and accurate. Proposer acknowledges that City of Jonesboro will rely on such statements, information and representations in selecting the Contractor. If selected by City of Jonesboro, Proposer will notify City of Jonesboro immediately of any material change in any matters with regard to which Proposer has made a statement or representation or provided information.

2.1.9 PROPOSER WILL DEFEND WITH COUNSEL APPROVED BY CITY OF JONESBORO, INDEMNIFY, AND HOLD HARMLESS CITY OF JONESBORO, THE STATE OF ARKANSAS, AND ALL OF THEIR REGENTS, OFFICERS, AGENTS AND EMPLOYEES, FROM AND AGAINST ALL ACTIONS, SUITS, DEMANDS, COSTS, DAMAGES, LIABILITIES AND OTHER CLAIMS OF ANY NATURE, KIND OR DESCRIPTION, INCLUDING REASONABLE ATTORNEYS' FEES INCURRED IN INVESTIGATING, DEFENDING OR SETTLING ANY OF THE FOREGOING, ARISING OUT OF, CONNECTED WITH, OR RESULTING FROM ANY NEGLIGENT ACTS OR OMISSIONS OR WILLFUL MISCONDUCT OF PROPOSER OR ANY AGENT, EMPLOYEE, SUBCONTRACTOR, OR SUPPLIER OF PROPOSER IN THE EXECUTION OR PERFORMANCE OF ANY CONTRACT OR AGREEMENT RESULTING FROM THIS RFP.

2.1.10 Any payments owing to Proposer under any contract or agreement resulting from this RFP may be applied directly to any debt or delinquency that Proposer owes the State of Arkansas or any agency of the State of Arkansas regardless of when it arises, until such debt or delinquency is paid in full.

2.2 By signature hereon, Proposer offers and agrees to furnish the Services to City of Jonesboro and comply with all terms, conditions, requirements and specifications set forth in this RFP.

2.3 By signature hereon, Proposer affirms that it has not given or offered to give, nor does Proposer intend to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor or service to a public servant in connection with its submitted proposal. Failure to sign this Execution of Offer, or signing with a false statement, may void the submitted proposal or any resulting contracts, and the Proposer may be removed from all proposal lists at City of Jonesboro.

2.4 By signature hereon, Proposer certifies that it is not currently delinquent in the payment of any taxes due or that Proposer is exempt from the payment of those taxes, or that Proposer is an out-of-state taxable entity that is not subject to those taxes, whichever is applicable. A false certification will be deemed a material breach of any resulting contract or agreement and, at City of Jonesboro's option, may result in termination of any resulting contract or agreement.

2.5 By signature hereon, Proposer hereby certifies that neither Proposer nor any firm, corporation, partnership or institution represented by Proposer, or anyone acting for such firm, corporation or institution, has violated the antitrust laws of the State of Arkansas, or the Federal antitrust laws, nor communicated directly or indirectly the proposal made to any competitor or any other person engaged in such line of business.

2.6 By signature hereon, Proposer certifies that the individual signing this document and the documents made a part of this RFP, is authorized to sign such documents on behalf of Proposer and to bind Proposer under any agreements and other contractual arrangements that may result from the submission of Proposer's proposal.

2.7 By signature hereon, Proposer certifies as follows: Proposer certifies that the individual or business entity named in the Proposer's proposal is not ineligible to receive the specified contract award and acknowledges that any agreements or other contractual arrangements resulting from this RFP may be terminated if this certification is inaccurate.

2.8 By signature hereon, Proposer certifies that (i) no relationship, whether by blood, marriage, business association, capital funding agreement or by any other such kinship or connection exists between the owner of any Proposer that is a sole proprietorship, the officers or directors of any Proposer that is a corporation, the partners of any Proposer that is a partnership, the joint ventures of any Proposer that is a joint venture or the members or managers of any Proposer that is a limited liability company, on one hand, and an employee of any component of The City of Jonesboro of Arkansas System, on the other hand, other than the relationships which have been previously disclosed to City of Jonesboro in writing and (ii) Proposer has not been an employee of any component institution of The City of Jonesboro within the immediate twelve (12) months prior to the Submittal Deadline. All disclosures by Proposer in connection with this certification will be subject to administrative review and approval before City of Jonesboro enters into a contract or agreement with Proposer.

2.9 By signature hereon, Proposer certifies its compliance with all federal laws and regulations pertaining to Equal Employment Opportunities and Affirmative Action.

2.10 By signature hereon, Proposer represents and warrants that all products and services offered to City of Jonesboro in response to this RFP meet or exceed the safety standards established and promulgated under the Federal Occupational Safety and Health Law and all related regulations in effect or proposed as of the date of this RFP.

2.11 Proposer will and has disclosed, as part of its proposal, any exceptions to the certifications stated in this Execution of Offer. All such disclosures will be subject to administrative review and approval prior to the time City of Jonesboro makes an award or enters into any contract or agreement with Proposer.

2.12 Proposer should complete the following information:

If Proposer is a Corporation, then State of Incorporation: Arkansas

If Proposer is a Corporation then Proposer's Corporate Charter Number: _____

RFP No.: 2008:30

Submitted and Certified By:

(Proposer Institution's Name) SafetyCom, Inc.

(Signature of Duly Authorized Representative) 

(Printed Name/Title) David B. Miller / President

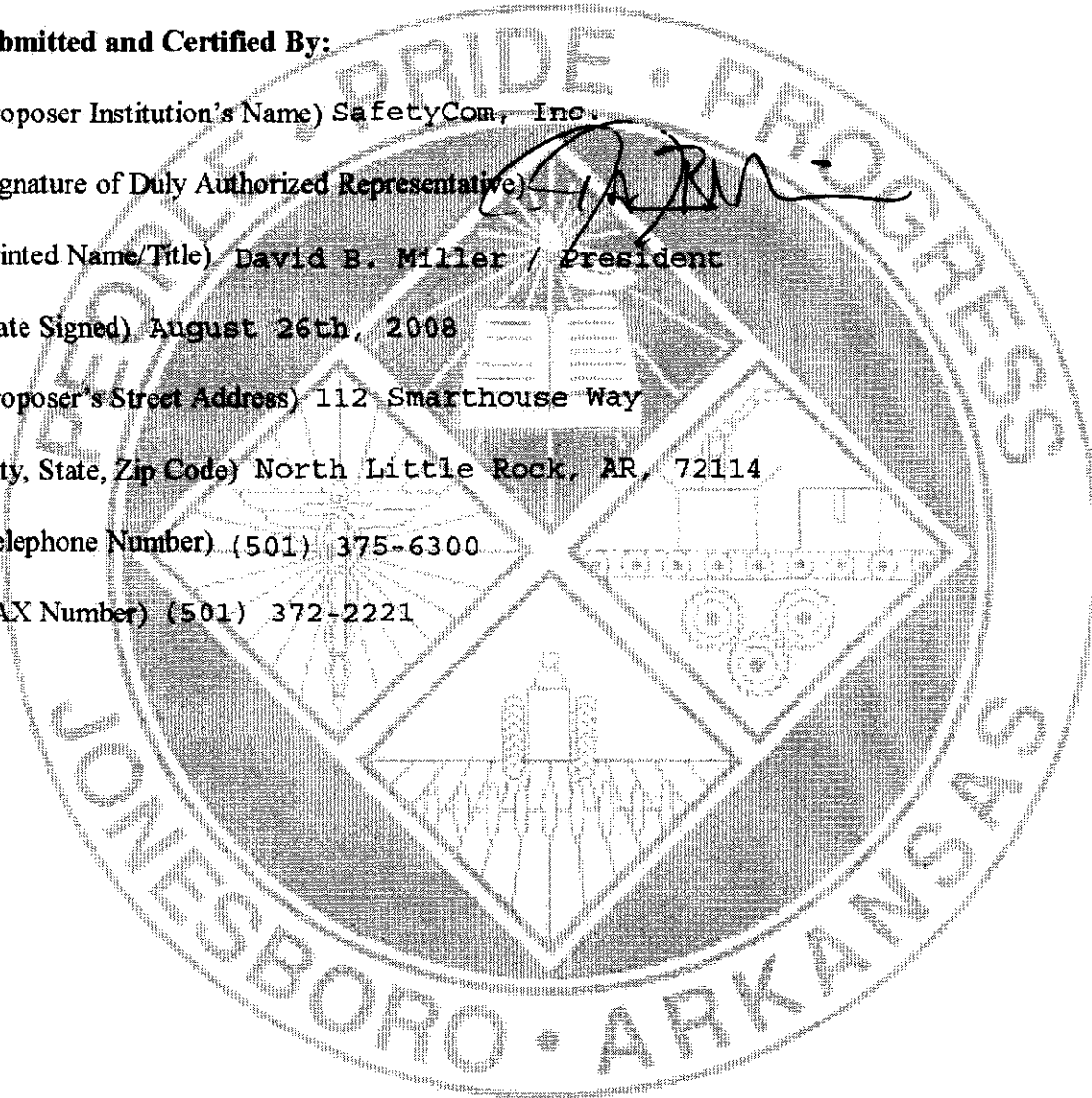
(Date Signed) August 26th, 2008

(Proposer's Street Address) 112 Smarthouse Way

(City, State, Zip Code) North Little Rock, AR, 72114

(Telephone Number) (501) 375-6300

(FAX Number) (501) 372-2221



SECTION 6

PRICING AND DELIVERY SCHEDULE

Proposal of: SafetyCom, Inc.
(Proposer Company Name)

To: The City of Jonesboro

Ref.: Outdoor Warning Siren System

RFP No. 2008:30

Ladies and Gentlemen:

Having carefully examined all the specifications and requirements of this RFP and any attachments thereto, the undersigned proposes to furnish the outdoor warning siren system services required pursuant to the above-referenced Request for Proposal upon the terms quoted below.

6.1 Pricing for Services Offered

6.1.2 Outdoor Warning Siren System

6.1.2.1 Cost / Specifications

a.) Number of Sirens	34
b.) Price per unit	\$9,750.00
c.) Number of Controllers	3
d.) Price per Controller	\$ 906.00
e.) Location, Attach map	Attached
f.) % of Coverage Area	95-100%
g.) Price per pole	\$ 960.00
h.) Installation price	\$2,800.00

NOTE: INCLUDE MANUFACTURER, PART NUMBER AND COMPLETE SPECIFICATIONS FOR EQUIPMENT IN THIS TABLE WITH RESPONSE.

6.1.2.2 Training \$ Included
6.1.2.3 Annual Maintenance (after initial expiration) \$ 17,000.00
6.1.2.4 Fixed Control panels for siren system (3) \$ 2,718.00
6.1.2.5 Consultation/ Support Services \$ Included

6.1.3. Price the following options for the city's consideration:

6.1.4. OPTION A: Mobile control panel option in addition
to fixed control panel option \$ 2,422.00
6.1.5. OPTION B: Solar panel option \$ 2,700.00
GRAND TOTAL: \$ 479,058.00

6.2 Delivery Schedule of Events and Time Periods

12 weeks ARO for siren equipment
and approximately 8 weeks
installation. See attached
project schedule.

Respectfully submitted,

Proposer: SafetyCom, Inc.

By: 
(Authorized Signature for Proposer)

Name: David B. Miller

Title: President

Date: August 26, 2008

SECTION 4

ADDENDA CHECKLIST

Proposal of: SafetyCom, Inc.
(Proposer Company Name)

To: The City of Jonesboro of Arkansas

Ref: Outdoor Warning Siren System Services

RFP No. 2008:30

Ladies and Gentlemen:

The undersigned Proposer hereby acknowledges receipt of the following Addenda to the captioned RFP (initial if applicable). Any addendum will be on the Purchasing web site at www.jonesboro.org no later than 1 (one) week before bid opening.

No. 1 No. 2 No. 3 No. 4 No. 5

Respectfully submitted,

Proposer SafetyCom, Inc.

By: [Signature]
(Authorized Signature for Proposer)

Name: David B. Miller

Title: President

Date: August 18th, 2008

Arkansas Best Insurance Agency
911 West Grand Avenue
Hot Springs, AR 71913
Phone: 501-624-8888 Fax: 501-624-8893

MEMO			Page 1
ACCOUNT NO.	OF	DATE	
SAFET-1	MM	08/22/2008	

Safety Com Inc.
David Miller
112 Smart House Way
N Little Rock, AR 72114

Re:

City of Jonesboro
P.O. Box 1845
Jonesboro, AR 72403

Please see attached certificate of insurance for Safety Com Inc. If the contract is awarded to Safety Com Inc., we will be able to provide a certificate with updated coverages.

Thank you

ABI Insurance Agency

ACORD CERTIFICATE OF LIABILITY INSURANCE

OP IDMM
SAFET-1

DATE (MM/DD/YYYY)
08/22/08

PRODUCER

 Arkansas Best Insurance Agency
 911 West Grand Avenue
 Hot Springs AR 71913
 Phone: 501-624-8888 Fax: 501-624-8893

INSURED

 Safety Com Inc.
 112 Smart House Way
 N Little Rock AR 72114

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE

NAIC #

INSURER A:	COMPANION PROPERTY & CASUALTY	
INSURER B:	EVANSTON INSURANCE COMPANY	
INSURER C:	Progressive	42919
INSURER D:		
INSURER E:		

COVERAGES

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

INSR LTR	ADDL INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
B	X	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Professional GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC	SP823693	02/13/08	02/13/09	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ excluded MED EXP (Any one person) \$ excluded PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 1,000,000 Emp Ben. excluded
C	X	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS	8335034-2	10/25/07	10/25/08	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ AUTO ONLY - EA ACCIDENT \$ OTHER THAN AUTO ONLY: EA ACC \$ AGG \$
		GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN AUTO ONLY: EA ACC \$ AGG \$
		EXCESS/UMBRELLA LIABILITY <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE DEDUCTIBLE \$ RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$
A		WORKERS COMPENSATION AND EMPLOYERS LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below	WCI703108300301	02/20/08	02/20/09	<input checked="" type="checkbox"/> WC STATU-TORY LIMITS <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 100000 E.L. DISEASE - EA EMPLOYEE \$ 100000 E.L. DISEASE - POLICY LIMIT \$ 500000
		OTHER				

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

Owners may be excluded under workers compensation.
 All States on work comp except monopolistic states ND, OH, WA, WV, WY.

CERTIFICATE HOLDER

CANCELLATION

City of Jonesboro
 P.O. Box 1845
 Jonesboro AR 72403-1845

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE
 Michael Lipton

David Miller

**Project Coordinator
SafetyCom, Inc.**

David Miller is a graduate of University of Arkansas at Little Rock with a Bachelor of Science Degree in Computer Science. Before establishing his position in at SafetyCom, David was the system administrator for the national marketing firm National Insurance Benefit Coordinators, as well as Pinnacle Printing and computer technician with the Maybelline Corporation. His extensive computer experience includes LAN/WAN networking, various operating systems, CADD systems, file structures, algorithmic analysis, and numerous programming languages.

During his tenure with SafetyCom, Mr. Miller's management in numerous warning system projects has produced expertise in systems integration including radio communications and infrastructure, computer interface, data compilation and management, as well as system layout and design. David has eleven years of training and experience in the community and industrial warning industry and is a Whelen Factory Certified Siren Systems Technician.

Relevant Experience and References

- ❖ **Oklahoma City Municipal Facilities Authority – Public Safety/Capitol Projects, Oklahoma City, Oklahoma**
Project Coordinator – 4.5 million dollar project consisting of 181 sirens.

Kerry Wagnon, Program Director
OKC - Public Safety Capital Project Office
420 W Main, 10th Floor
Oklahoma City, Oklahoma 73102
(405) 297-1924

- ❖ **Town of Collierville, Collierville, Tennessee**
Project Coordinator, citywide outdoor warning system

Town of Collierville Fire Department
Logistics Chief, Mark King
P.O. Box 636
Collierville, Tennessee 38027-0636
(901) 853-3223

- ❖ **City of Little Rock Arkansas**
Project Administrator and Layout Design

City of Little Rock, Arkansas
Jessie Tringleth, Manager, Building Services Division
3312 J.E. Davis Dr.
Little Rock, AR 72209
501-918-3664

- ❖ **Jackson County Arkansas**
Project Coordinator Layout Design, county wide outdoor warning system.

Jackson County Emergency Management
Don Ivie, Director Emergency Management
3405 s. Main
Diaz, Arkansas 72043
(870) 523-6011

Steve Miller

**Installation Supervisor
SafetyCom, Inc.**

As Installation Supervisor, Steve is responsible for coordinating and planning the installation and implementation of all SafetyCom projects. His duties includes: final modification of site selections, coordination of underground clearance, material acquisition, receiving and inventorying equipment, supervision of construction crew, site clean-up and final inspection.

During his tenure with SafetyCom, Steve has successfully completed over 75 projects resulting in the installation of over 500 sirens. Steve is a trained Whelen Certified Technician with ten years certification.

Relevant Experience and References

❖ **Cobb County, Georgia**

Installation Supervisor, 18 Whelen Vortex Sirens

Cobb County, Georgia
Jim Gillcrease, Director Emergency Management
140 North Marietta Parkway
Marietta, Georgia 30060
(770) 499-4567

❖ **Oklahoma City Municipal Facilities Authority – Public Safety/Capitol Projects,
Oklahoma City, Oklahoma**

Installation Supervisor – 4.5 million dollar project consisting of 181 sirens.

Kerry Wagnon, Program Director
OKC - Public Safety Capital Project Office
420 W Main, 10th Floor
Oklahoma City, Oklahoma 73102
(405) 297-1924

❖ **Town of Collierville, Collierville, Tennessee**

Installation Supervisor, 15 Citywide Outdoor Warning Sirens

Town of Collierville Fire Department
Logistics Chief, Mark King
P.O. Box 636
Collierville, Tennessee 38027-0636
(901) 853-3223

❖ **City of Little Rock Arkansas**

Installation Supervisor, 57 Citywide Outdoor Warning Siren System
City of Little Rock, Arkansas
Jessie Trigleth, Manager, Building Services Division
3312 J.E. Davis Dr.
Little Rock, AR 72209
501-918-3664

❖ **Jackson County Arkansas**

Installation Supervisor, 18 Countywide Warning Siren System

Jackson County Emergency Management
Don Ivie, Director Emergency Management
3405 s. Main
Diaz, Arkansas 72043
(870) 523-6011

❖ **Baxter County, Arkansas**

Installation Supervisor, 31 Countywide Warning Siren System

Mary Dunn, Director
Department of Emergency Management Services
815 Hwy 62 West
Mountain Home, Arkansas 72653
(870) 481-6252

Layout Date: August 22, 2008

Source:

Proposed siren location generated by SafteyCom

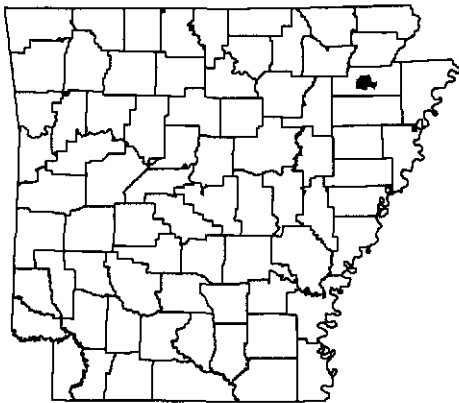
Buffer generated with ESRI, ArcMap-ArcInfo 9X

2006 Orthophotography- State of Arkansas

Note: The number of sirens (34- 6,000) detailed in this map is an estimate only to be used for discussion and budgetary purposes. A more precise study of the area will be required before determining an exact number of sirens.

Legend

-  6,000 foot buffer around siren
-  CITY LIMIT



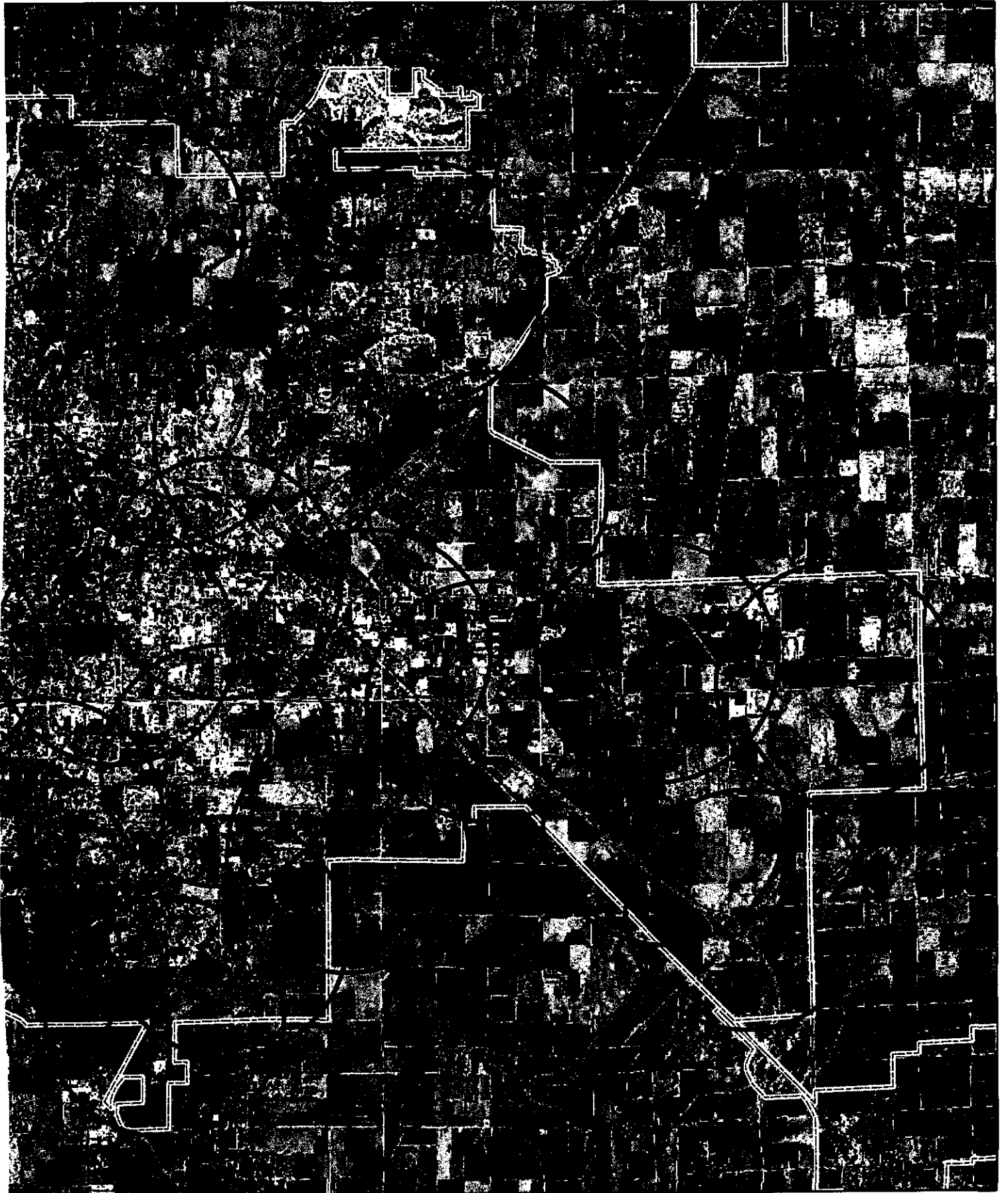
Safety Com, Inc.

Safety Communication Systems For Industries and Communities

Jon



nesboro, Arkansas










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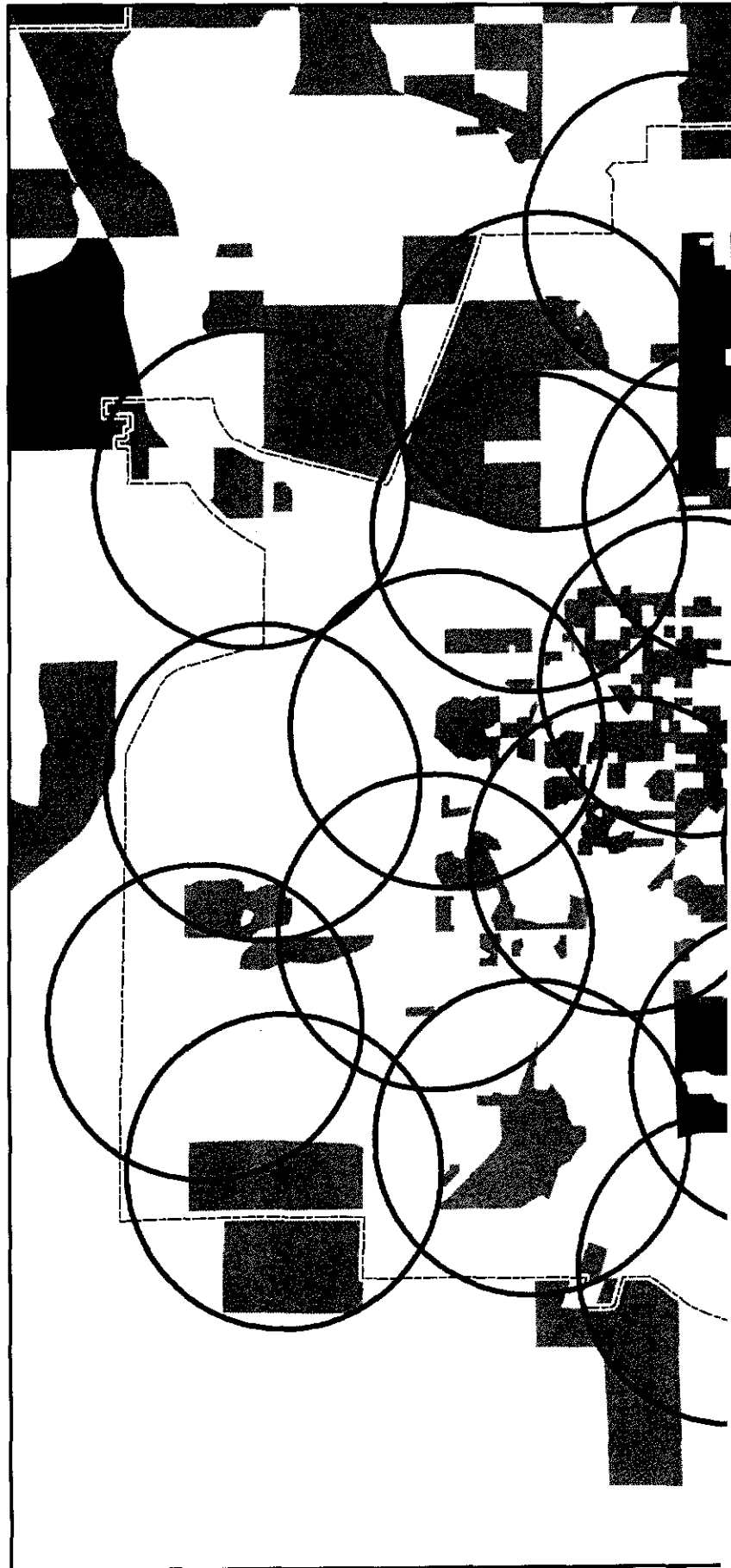
Proposed siren location generated by SafteyCom

Buffer generated with ESRI, ArcMap-ArcInfo 9X

Note: The number of sirens (34- 6,000) detailed in this map is an estimate only to be used for discussion and budgetary purposes. A more precise study of the area will be required before determining an exact number of sirens.

Legend

-  6,000 foot buffer around siren
-  CITY LIMIT
- 2000 Census Blocks**
- Total Persons**
-  0- 28
-  29 - 93
-  94 - 207
-  208 - 418
-  419 - 877



VORTEXR4

Specification Data

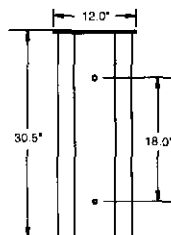
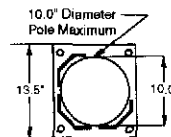
Component	Height Inches (CM)	Width Inches (CM)	Depth Inches (CM)	Weight Lbs. (kg)
VORTEXR4 Speaker & Rotor	49.0 (124.5)	28.5 (72.4)	56.0 (142.2)	234 (106.1)
Electronics Cabinet - Type I	32.5 (82.6)	22.5 (57.2)	10.5 (26.7)	83 (37.7)*
Pole Top Bracket (Optional)	30.0 (76.2)	12.0 (30.5)	10.0 (25.4)	71 (32.3)

* Less batteries. Two batteries. Delco DC74, add 90 Lbs. (40.9kg)

ELECTRICAL

- Battery charger input: 120VAC, 60Hz, 7A Fuse
 - Battery charger output: 28VDC, 5A*
 - Batteries: 2-12V, 60AH Lead Calcium (user supplied)
 - Standby current: 40mA,
 - Rotor motor: <1A, 24VDC
 - Operating current: 88A, 24VDC
 - Power amplifier output power: 1600 Watts
- # UL recognized component

ENVIRONMENTAL



Pole Top Bracket
(Optional VPTB)

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ENGINEERING COMPANY, INC.

Route 145, Winthrop Road
Chester, Connecticut 06412-0684

(860) 526-9504

1-800-637-4736

Fax: (860) 526-4784

Internet: www.whelen.com

e-mail: iow-sales@whelen.com

Whelen Engineering Company, Inc.
reserves the right to upgrade its products
with design improvements without notification.
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011005-11358C

CPD
CENTRAL STATION CONTROL

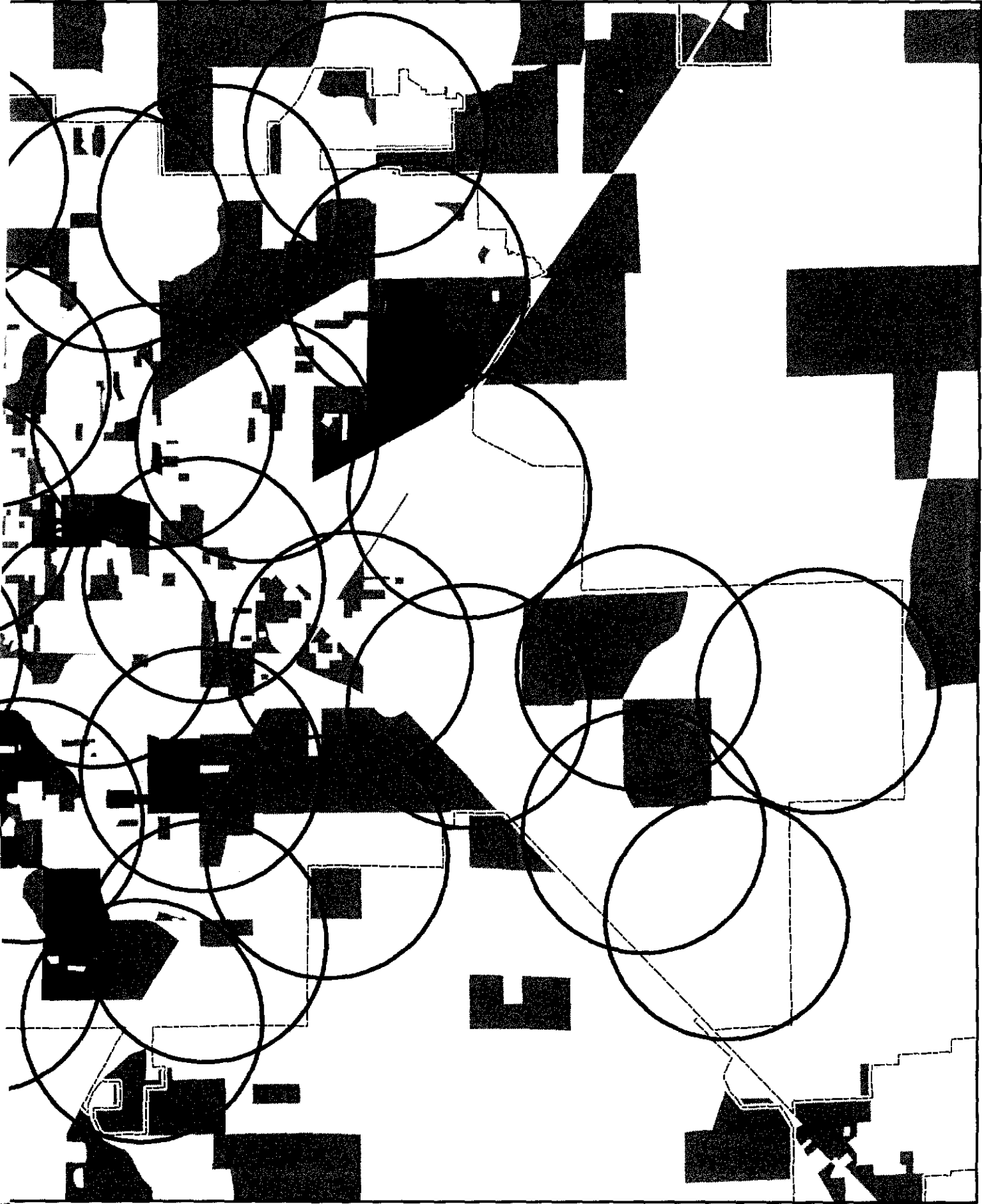
Encoder/Decoder

82010

CENTRAL STATION CONTROL

Specification Data

esboro, Arkansas



VORTEXR4

WHELEN®

All Hazard High-Power Siren System

Whelen's VORTEXR4 Series All Hazard High Power Sirens provide an economical alternative for powerful siren communication without compromising quality.

SYSTEM FEATURES

- VORTEXR4 - Speaker with Four Speaker Cells Active
- Two Compartment (Type I) Natural Finish Aluminum Cabinet
- 129dB @ 100'
- VORTEXR4 Speaker Includes Four High Efficiency 400 Watt Speaker Drivers
- 50' Cable Included
- Battery Powered, Minimum of 15 Minutes of Full Power Output with Batteries of Our Recommendation
- AC Temperature Compensated 5 Amp Battery Charger
- Local Controls or Remote Controls
- Four Tone-Only Power Amplifiers
- Gear Driven Rotor
- Electronic Siren Controller
- Tone Generator
- Timer
- Local Control Push Buttons
- Rotor Relay Control
- SI TEST®
- Low Battery Alarm
- Battery Tray
- Lightning Arrestor
- Six Standard Public Warning Tones - Horn, Whistle, Attack, Hi-Low, Alert, Airhorn

SYSTEM OPTIONS

- VORTEXR4 - 50' Cable
- VORTEXR4 - 100' Cable
- VORTEXR4 - 150' Cable
- VORTEXR4 - 200' Cable
- VORTEXR4 - 250' Cable
- VORTEXR4 - 300' Cable
- VORTEXR4 - 350' Cable
- VORTEXR4 - 400' Cable
- VORTEXR4 - 450' Cable
- VORTEXR4 - 500' Cable
- VORTEXR4 - 550' Cable
- VORTEXR4 - 600' Cable
- VORTEXR4 - 650' Cable
- VORTEXR4 - 700' Cable
- VORTEXR4 - 750' Cable
- VORTEXR4 - 800' Cable
- VORTEXR4 - 850' Cable
- VORTEXR4 - 900' Cable
- VORTEXR4 - 950' Cable
- VORTEXR4 - 1000' Cable
- VORTEXR4 - 1050' Cable
- VORTEXR4 - 1100' Cable
- VORTEXR4 - 1150' Cable
- VORTEXR4 - 1200' Cable
- VORTEXR4 - 1250' Cable
- VORTEXR4 - 1300' Cable
- VORTEXR4 - 1350' Cable
- VORTEXR4 - 1400' Cable
- VORTEXR4 - 1450' Cable
- VORTEXR4 - 1500' Cable
- VORTEXR4 - 1550' Cable
- VORTEXR4 - 1600' Cable
- VORTEXR4 - 1650' Cable
- VORTEXR4 - 1700' Cable
- VORTEXR4 - 1750' Cable
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- VORTEXR4 - 1900' Cable
- VORTEXR4 - 1950' Cable
- VORTEXR4 - 2000' Cable

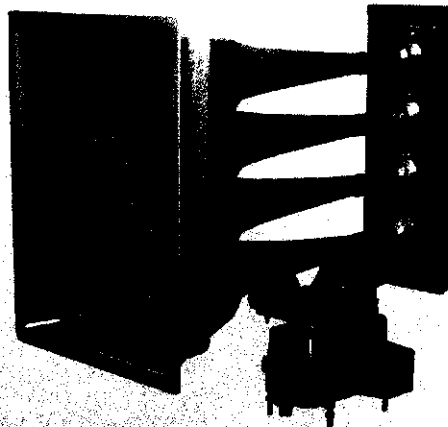
■ VORTEXR4 - 100' Cable, mounting bracket

SIREN ACTIVATION CONTROLS

Our VHF High and UHF siren activation control packages include the following:

- Radio
- Radio Interface
- Tone Squelch
- 2-3dB Gain Omni-Directional Antenna with Bracket
- 35' of RG58 Antenna Cable
- Polyphaser
- SI TEST®

Other features are dependant upon one or two-way controls. Whelen equipment can be interfaced with many different types of two-way radio communications products and systems including 800Mhz trunking, Motorola's MOSCAD, FSK, Narrow-Band and VHF Low Band. The following is available as standard options. Contact factory for special applications.



VORTEXR4 cell speaker housing mounted on rotor.

ONE-WAY CONTROLS

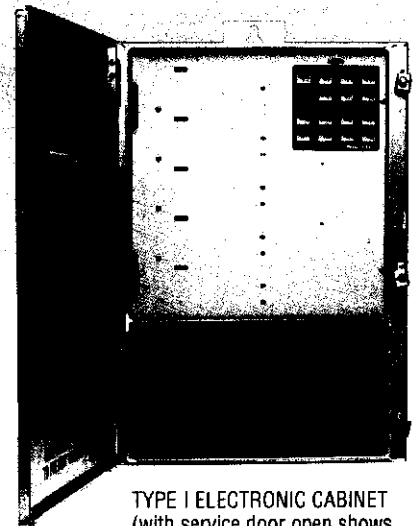
- VAUXIN - Auxiliary Board for Contact Closure Activation
- VD2020LL - 10 Digit DTMF Landline Activation
- VD2020H - 10 Digit DTMF VHF High Band / 150-170 Mhz
- VD2020U - 10 Digit DTMF UHF / 450-470 Mhz
- VORTT - Two-Tone Sequential Option

TWO-WAY CONTROLS

- VAUXCS - Two-Way Contact Closure Activation and Status Board
- VC2020LL - Two-Way Landline Activation
- VC2020H - 10 Digit DTMF VHF High Band / 150-170 Mhz
- VC2020U - 10 Digit DTMF UHF / 450-470 Mhz
- VC2020NH - 10 Digit DTMF VHF High Band Narrow-Band
- VC2020NU - 10 Digit DTMF UHF Narrow-Band

Options:

- VFSKXMOD - Converts the Siren Activation Controls to FSK Format
- VSTATUS - Cabinet Window LED Status Indicator
- VPGINT - Paging Interface to Interface Whelen Tones with Existing Paging Systems
- VINTRU - Intrusion Alarm (available with two-way only)



TYPE I ELECTRONIC CABINET (with service door open shows control panel and battery tray with optional batteries).

VORTEXR4

Specification Data

Component	Height Inches (CM)	Width Inches (CM)	Depth Inches (CM)	Weight Lbs. (kg)
VORTEXR4 Speaker & Rotor	49.0 (124.5)	28.5 (72.4)	56.0 (142.2)	234 (106.1)
Electronics Cabinet - Type I	32.5 (82.6)	22.5 (57.2)	10.5 (26.7)	83 (37.7)*
Pole Top Bracket (Optional)	30.0 (76.2)	12.0 (30.5)	10.0 (25.4)	71 (32.3)

* Less batteries. Two batteries, Daico DC74, add 90 Lbs. (40.9kg)

ELECTRICAL

- Battery charger input: 120VAC, 60Hz, 7A Fuse
 - Battery charger output: 28VDC, 5A#
 - Batteries: 2-12V, 60AH Lead Calcium (user supplied)
 - Standby current: 40mA,
 - Rotor motor: <1A, 24VDC
 - Operating current: 88A, 24VDC
 - Power amplifier output power: 1600 Watts
- # UL recognized component

ENVIRONMENTAL

- Operating Temperature: -35C to +60C
- Storage Temperature: -65C to +125C
- Humidity, Non Condensing: 0 to 95%

ORDERING INFORMATION

BASIC SYSTEM INCLUDES ALL OF THE FOLLOWING:

- VORTEXR4 - Speaker Assembly & Electronics Cabinet

OPTIONS:

- VAUXIN - Auxiliary Board for Contact Closure Activation
- VAUXCS - Auxiliary / Status Control Board for Contact Closure Activation and Status
- VD2020LL - VD2020H, VD2020U - One-Way Radio Control ●
- VC2020LL, VC2020H, VC2020U - Two-Way Radio Control / Status Monitoring, COMM/STAT™ ●
- VC2020NH, VC2020NU - Two-Way Narrow-Band Radio Control / Status Monitoring, COMM/STAT™ ●
- VORTT - Two-Tone Sequential
- VFSKXMOD - FSK Format
- VSTATUS - Cabinet Window LED Status Indicator
- VPGINT - Paging Interface to Interface Whelen Tones with Existing Paging Systems
- VINTRU - Intrusion Alarm
- VSBC80 - Solar Power ●
- VPTB - Speaker Pole Top Bracket
- BSETVOR - One Pair of Batteries

NOTES

- ① 10 digit DTMF Controls • Landline • VHF High Band/150-170 Mhz • UHF/450-470 Mhz
Our VHF High and UHF siren activation control packages include tone squelch, radio, radio interface, 2-3dB gain omni-directional antenna with bracket, 35' of RG58 antenna cable and polyphaser.
- ② Solar power option includes 2 - 80 watt panels, mounting bracket and regulator
- ③ Contact Factory

Acoustic Performance

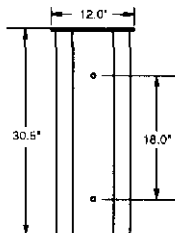
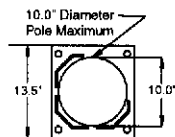
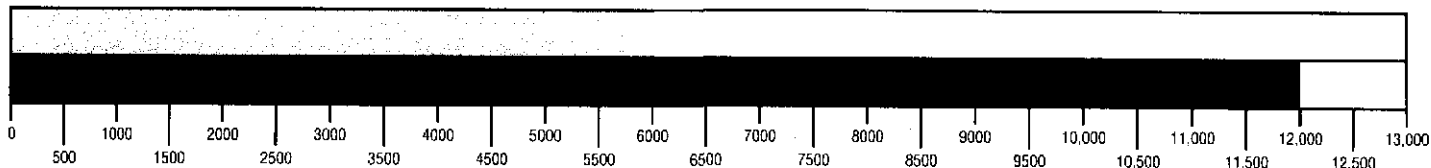
SPL @ 100': 129dB

Estimated 70dB range: 6,000'

Estimated 60dB range: 12,000'

Note: 100' performance levels listed represent repeatable results within +/-2dB to stated levels.

Estimated 70dB perimeter is based on the Federal Emergency Management Agency's (FEMA) -10dB per distance doubled path model.



Pole Top Bracket
(Optional VPTB)

WHELEN®

ENGINEERING COMPANY, INC.

Route 145, Winthrop Road
Chester, Connecticut 06412-0684
(860) 526-9504
1-800-637-4736
Fax: (860) 526-4784
Internet: www.whelen.com
e-mail: iowsales@whelen.com

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011005-11358C

E2010 CENTRAL STATION CONTROL AND MONITORING UNIT

Encoder/Decoder

Control and monitor your siren warning system from a central location. The E2010 allows the user to issue system activations and collect remote siren status via RF link or landline.

Features Whelen's field proven COMM/STAT™ Command and Status Monitoring protocol, for fast, secure, and reliable communication.

The E2010 supports all of the features that are available in Whelen's High-Power Voice and Siren product line, from individual Command selection to user programmed command scenarios or Call Keys. With the selection of one Call Key, an operator may prompt the encoder to issue multiple commands.

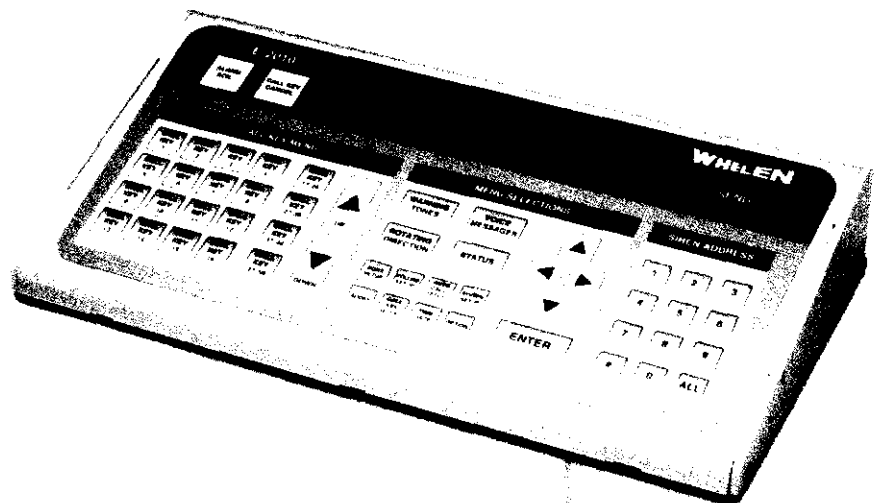
With the included computer accessory software, you can connect the E2010 to a PC for Windows® based programming and data archiving. Data is available through an ACCESS® data base.

E2010 FEATURES

- 4 line by 40 character backlit, LCD display
- 16 "HOT" Call Keys
- 40 Auxiliary Call Keys
- 2 Time-Of-Day Call Key Activations
- 4 Remote Input Call Keys
- Automatic System Polling
- Internal Alarm Tone
- 2 Contact Closure Outputs for Alarms
- Base Radio Interface
- Channel Grant Input for Trunking Radio Systems
- Optional FSK Signaling
- Security Keylock
- Printer Port
- Battery Backup for Time and Date
- Rugged, Membrane Keyboard
- Microphone for Public Address E2010

COMPUTER INTERFACE FEATURES

- CD-ROM and 9 Pin "D" Cable included
- "Windows®" Based Call Key Programming
- Add Call Key Descriptions
- Hard Drive Archive of All Siren Activity
- Selective Printouts for Status by Siren Location or Date



E2010

CENTRAL STATION CONTROL

Specification Data

GENERAL

The E2010 Central Station Control is configured to make maximum use of Call Keys or preprogrammed scenarios. In addition, commands are grouped into easy to follow categories for Warning Tones, Digital Voice Messages, Direction (if applicable) and Status. A numeric keypad section allows for individual remote siren addressing.

A 4 line by 40 character LCD display shows all Keyboard and Status activity. Command and Status information are also sent to a printer port and a serial communication port for a PC.

All preprogrammed functions are stored in non-volatile memory. Time and date are protected by internal, rechargeable batteries.

A keylock is available to disable the keyboard, but all status information is still active.

COMPUTER REQUIREMENTS

PC with 486DX or Higher CPU
WINDOWS® 95 or 98
CD-ROM Drive
Comm. Port
Hard Disk Space Required:
8 MB

PRINTER OPTION

Optional. 9 pin, dot matrix, 120 CPS, tractor feed, with parallel cable. Designed to be used with an Okidata #184 printer.

COMMUNICATIONS

Transmitter Connection:
(Typical 1 of 2 transmitters)

Squelch

Push to Talk
(N.O., N.C. contacts)

Transmit Audio

Receive Audio

Channel Grant Active (for Trunking)

Signaling:
DTMF 2 of 8 format. 10 digit transmit. 14-18 digit receive.

Tone Level:
Audio level adjustable.

Transmitter Delay:
User selectable delay times.

DIMENSIONS

Height: 3"

Width: 17"

Depth: 9"

Weight: 4.5 lbs.

ELECTRICAL

120 VAC, UL listed, wall mount transformer.

ORDERING INFORMATION

E2010
Central Station Control Unit.

E2010R
Central Station Control Unit
(Rack Mount).

E2010P
Printer Option for Okidata
#184 Printer and Cable.

E2010FSK
FSK Internal Option.

WHELEN®

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PUBLIC WARNING PRODUCTS
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Fax: (860) 526-4784
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e-mail: iowsales@whelen.com

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ENGINEERING COMPANY INC.

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Chester, Connecticut 06412*

Phone: (800) 63SIREN

Phone: (860) 526-9504

Fax: (860) 526-4078

Internet: www.whelen.com

Sales e-mail: iowsales@whelen.com

Customer Service e-mail: iowserv@whelen.com

VORTEX[™] SERIES
SIREN SYSTEM

**INSTALLATION, OPERATING &
TROUBLESHOOTING MANUAL**

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Fig. 1: Sample Station Drawing (AC Powered Battery Charger)

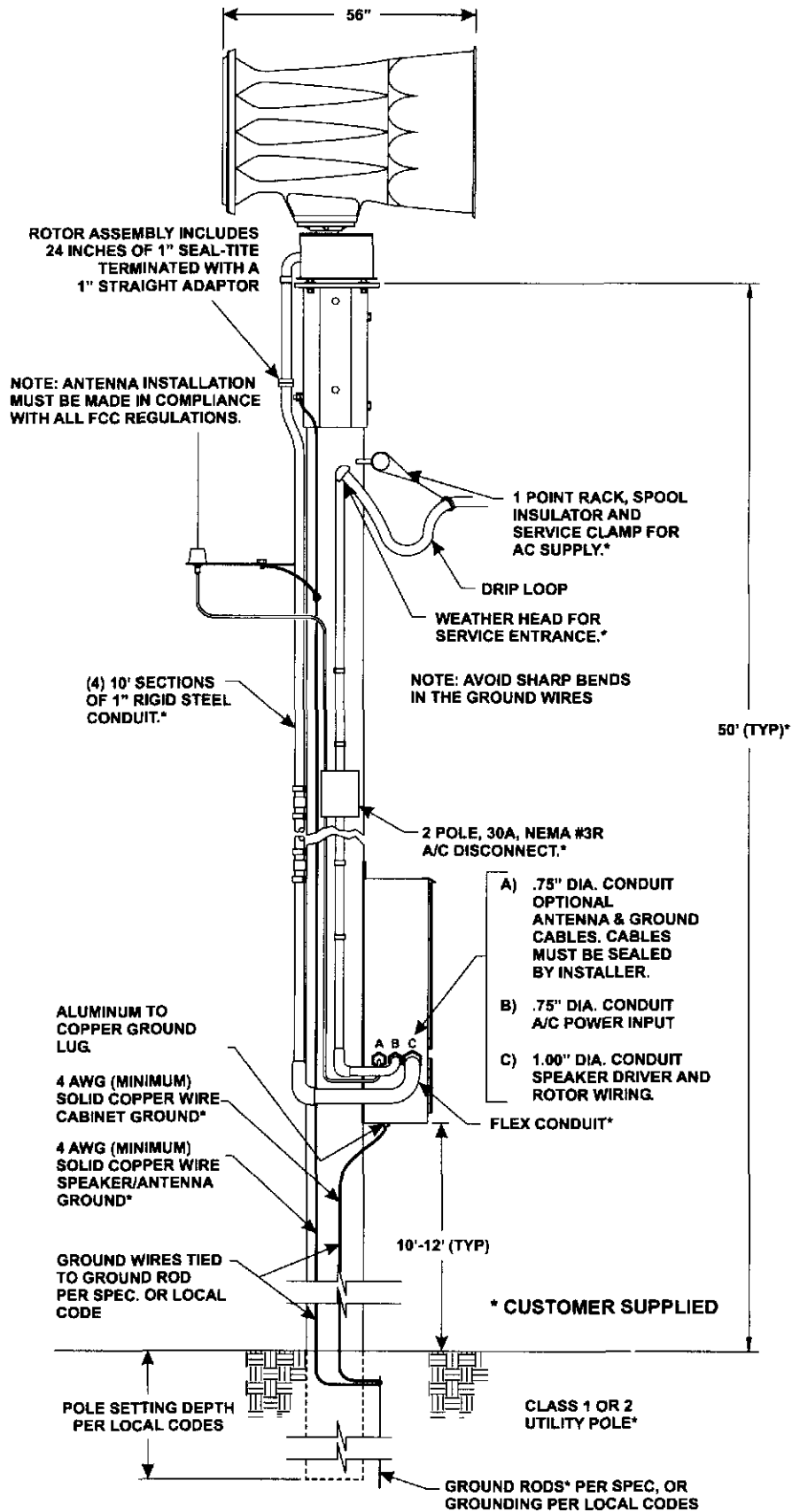
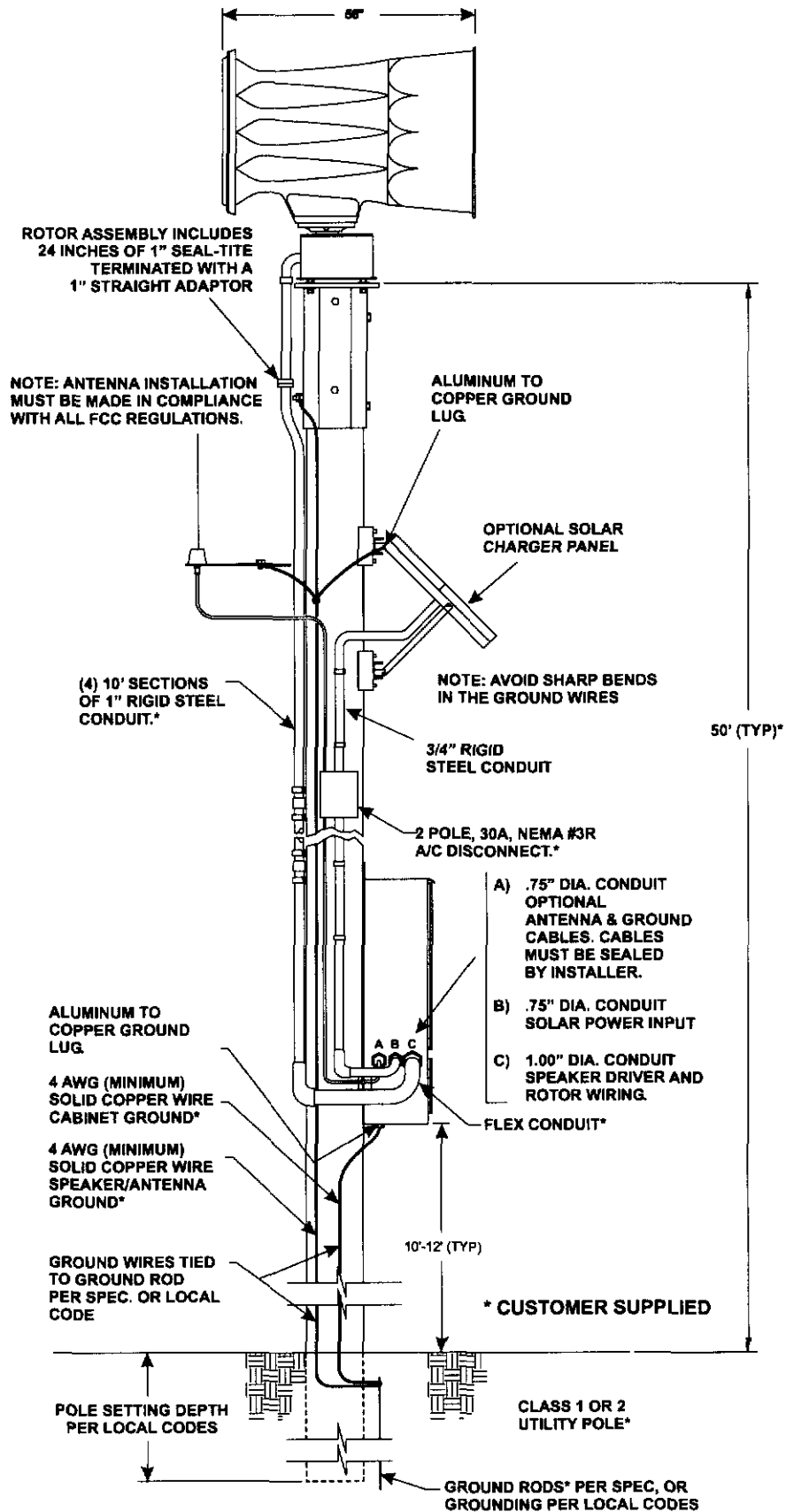


Fig. 2: Sample Station Drawing (Optional Solar Powered Battery Charger)



CHAPTER 1: INSTALLATION

An Important Note to the Installation Technicians...

The installation of this product requires careful planning and attention to detail! The installation of this system should NOT be attempted by individuals without experience in the disciplines necessary to this procedure (i.e. High-voltage electrical wiring, utility pole installation, etc.).

The installation of the Vortex station provided in this manual follows a logical progression. This process is not arbitrary and was developed using information gathered from both the manufacturer and experienced field technicians. Deviations from any of these procedures are not recommended unless they are in contradiction with local codes. **IN ALL INSTANCES, LOCAL CODES TAKE PRECEDENT OVER PROCEDURES OUTLINED HEREIN.**

It is the responsibility of the installation technicians to read this entire manual. The installation procedure should not begin until all personnel are familiar with the entire process. The overall process includes the following:

Installation sequence

1. Site Selection
2. Utility Pole Preparation
3. Mount Pole Top Bracket and Ground Wire
4. Mount Electronic Cabinet to Pole
5. Mount Siren Assembly to Pole Top Bracket and Conduit to Pole
6. Set Utility Pole
7. Prepare and Mount Antenna Assembly (if present)
8. Prepare and Mount Solar Panels and Conduit (if present)
9. Installation of AC or Solar Service and Batteries
10. Confirm Proper System Operation

Introduction

The Vortex™ is an outdoor, public warning siren, ideally suited for firehouse and community warning applications. A standard Vortex™ consists of a rugged speaker array, mounted on a rotor assembly and a self contained electronics control cabinet.

The Vortex™ is designed for easy installation and easy operation. The speaker array is factory mounted on to the rotor. The speaker drivers and rotor motor are factory wired, with the cable exiting through a piece of flexible conduit.

The electronics cabinet contains all of the control electronics and an isolated battery compartment. This means that there is only one cabinet to install, which simplifies the installation.

Operation is further simplified by the presence of LED indicators on all of the key components of the Vortex™. In addition to the status LED's the Vortex™ is equipped Whelen Engineering's patented SI-TEST® as a standard item.

Complete details about installation, operation, and service will be covered in this manual. A complete review of the manual is recommended to ensure the best possible siren results.

Section I: Site Selection

The site selection for the Vortex requires careful consideration in order to achieve the optimum coverage of the siren station. For a guideline to system planning, sound propagation and site selection we direct the user to the Federal Emergency Management Agency's "Outdoor Warning Systems Guide, CPG 1-17."

The Location of the siren site should be reviewed for its compatibility with its surroundings such as private homes, schools and hospitals. The user is cautioned to consider the use of hearing protection devices for service personnel working in close proximity to the speaker cluster.

Access to the siren site is important from the standpoint of service, maintenance inspection and access to a utility service connect.

Site locations for radio controlled units should be reviewed for radio reception.

Section II: Utility Pole Preparation...

a) Pole Selection

Note: This installation manual will address the procedures applicable to wooden utility poles of specific size and dimensions. Procedures for poles consisting of other materials (steel, concrete, etc.) are not addressed within this document. The information presented, however, provides the necessary data and guidelines for a successful installation regardless of pole material.

A Vortex system may use a Class 1 or Class 2 utility pole. The total length of the pole referenced within this document is 60 feet. The pole depth of the set pole is 10 feet, leaving a 50 foot pole as measured from the top of the pole to the ground. The utility pole should be set in accordance with local codes.

The inside area of the pole top mounting bracket will accept a pole that is no greater than 10.00" in diameter. On large scale projects, it is beneficial to order the pole to be "gained" to a top diameter of 9.5" +/- .50" for the top 30" section of the utility pole.

b) Component Dimensions

The utility pole may be pre-drilled prior to installation. The dimensions for all potentially mounted equipment are as follows:

Fig. 3: Pole Top Mounting Bracket Dimensions

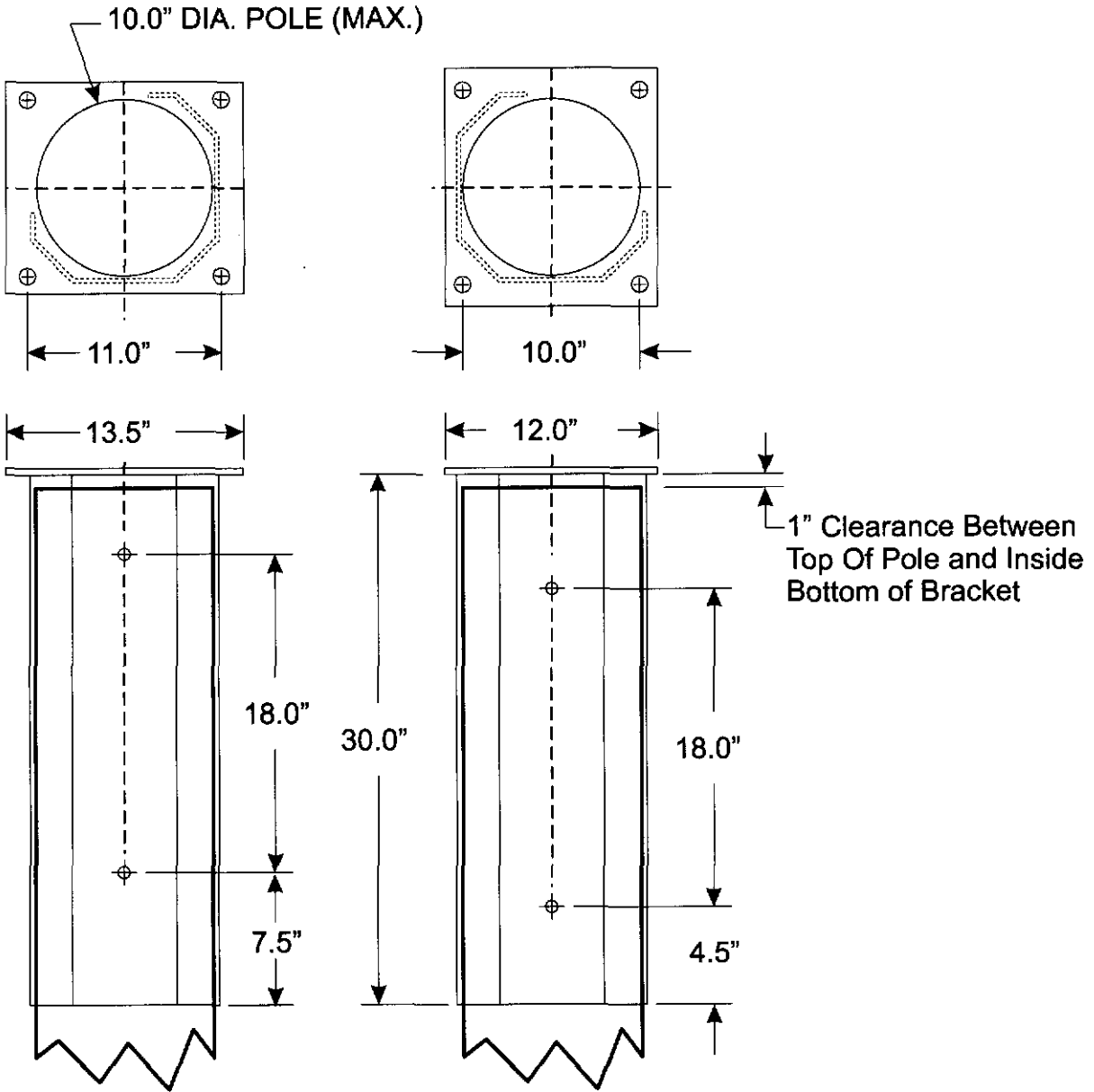


Fig. 4: Electronic Cabinet Dimensions

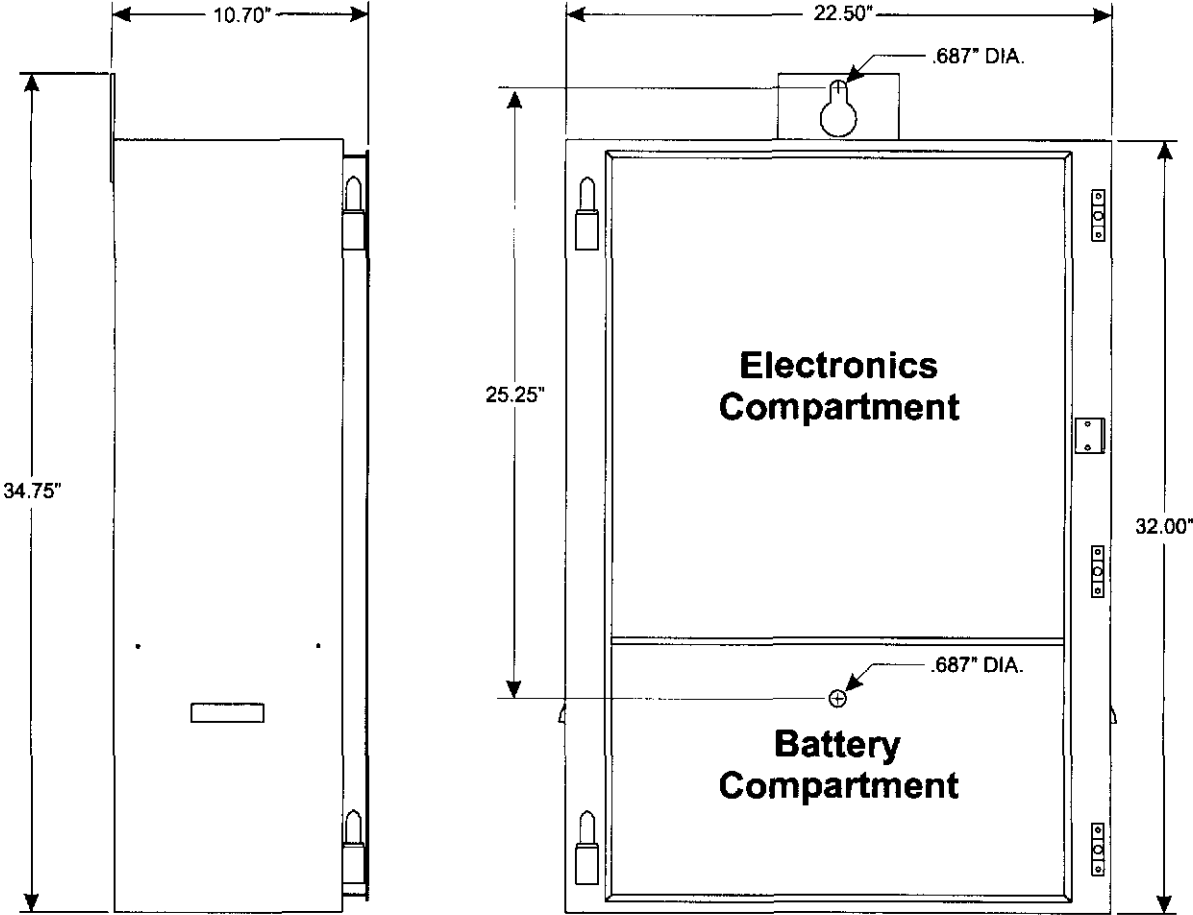
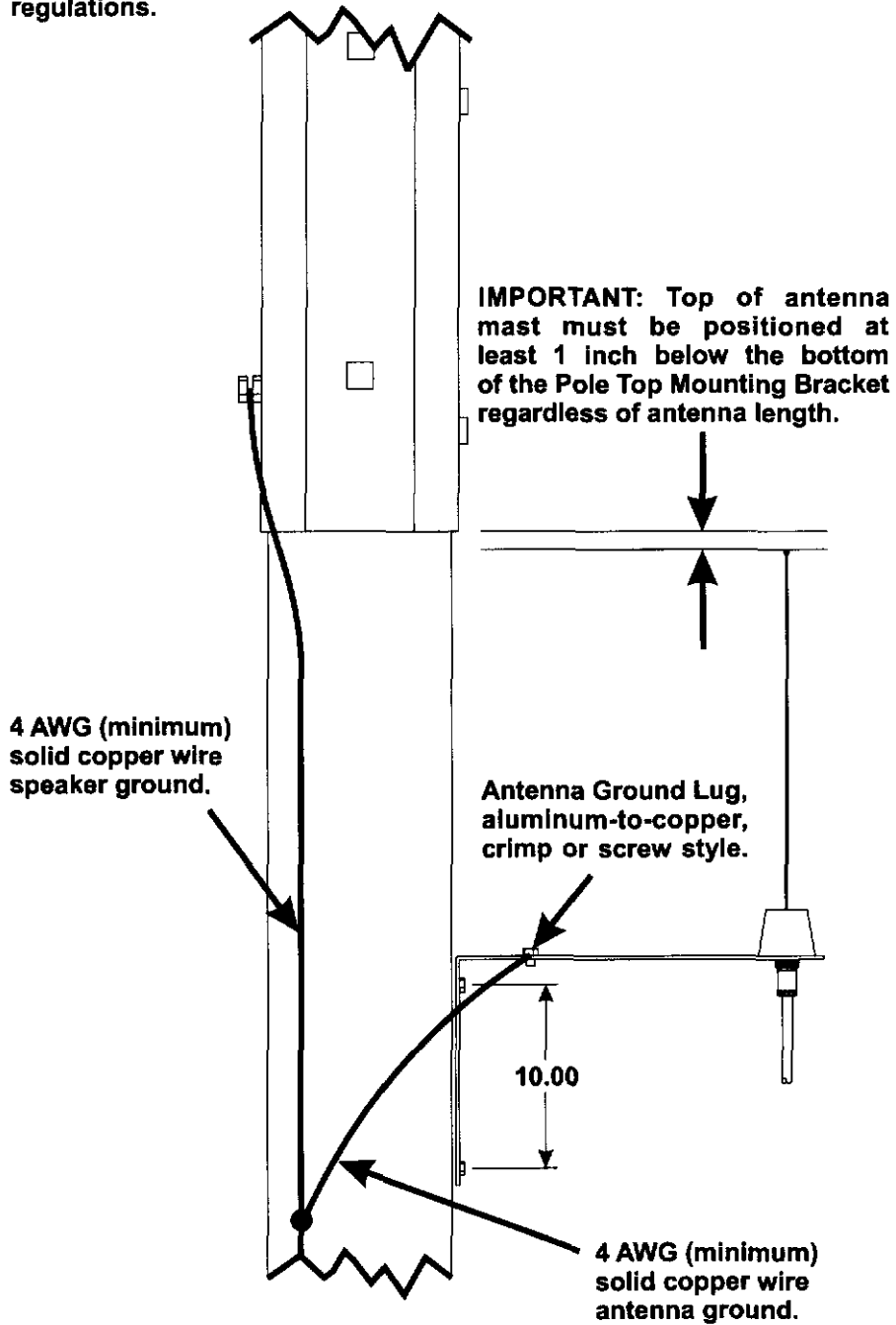


Fig. 5: Antenna Mounting Bracket Dimensions

NOTE: Antenna installation must be in compliance with all FCC regulations.



Section III: Equipment Mounting

a) Pole Top Bracket Installation...

Items required for installation (not included)....

- (4) 5/8" x 14" Hex or Square head mounting bolts**
- (4) 5/8" Hex or Square head nuts**
- (8) 5/8" Flat Washer sized for the above referenced mounting bolt**
- (4) 5/8" Lock Washer**

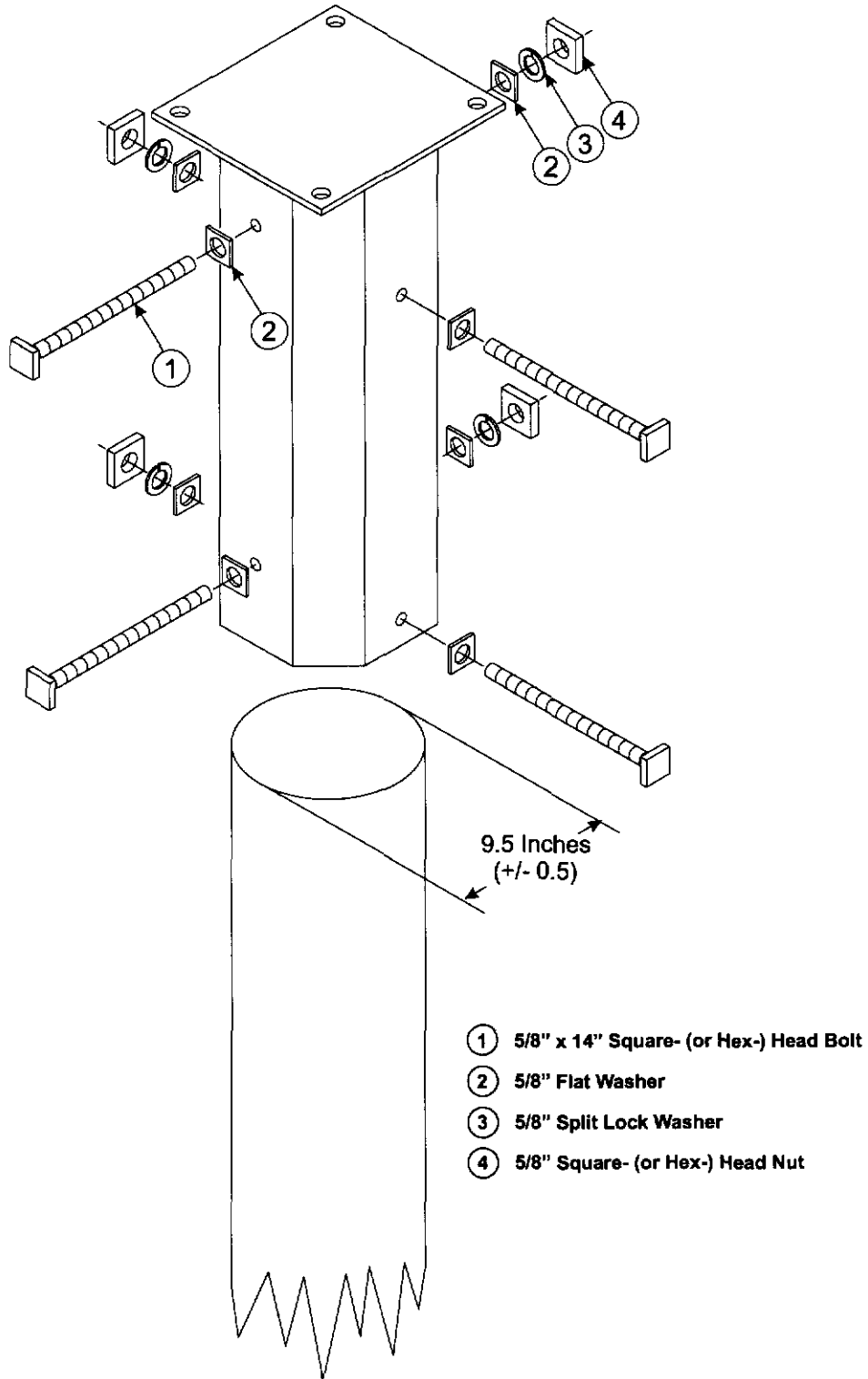
1. Position the Vortex pole top mounting bracket onto the top of the pole (see "Fig. 6: Pole Top Mounting Bracket" on page 15). Make sure there is a 1 inch space between the top of the pole and the pole top mounting bracket (see "Fig. 7: Electronic Cabinet Mounting (Side View)" on page 16).

Note: **The inside area of the pole top mounting bracket will accept a pole that is no greater than 10.00" in diameter. On large scale projects, it is beneficial to order the pole to be "gained" to a top diameter of 9.5" +/- .50" for the top 30" section of the utility pole.**

2. Using the pole top mounting bracket as a guide, drill four mounting holes through the pole at the bracket mounting hole locations. These holes should be sized to accommodate the above referenced hardware.
3. Secure the bracket to the pole using the prescribed hardware (see "Fig. 6: Pole Top Mounting Bracket" on page 15). Be sure to position all the associated hardware items in their proper order.
4. Secure a length of #4 solid copper wire to the pole top bracket grounding lug using the supplied nut. Make sure that this wire is of sufficient length to reach the ground when the pole has been set.

Note: **All Hardware used for connecting equipment to the utility pole should be inspected for tightness between 12 to 18 months after installation. Some shrinkage of the newly treated utility pole may occur, loosening connections.**

Fig. 6: Pole Top Mounting Bracket

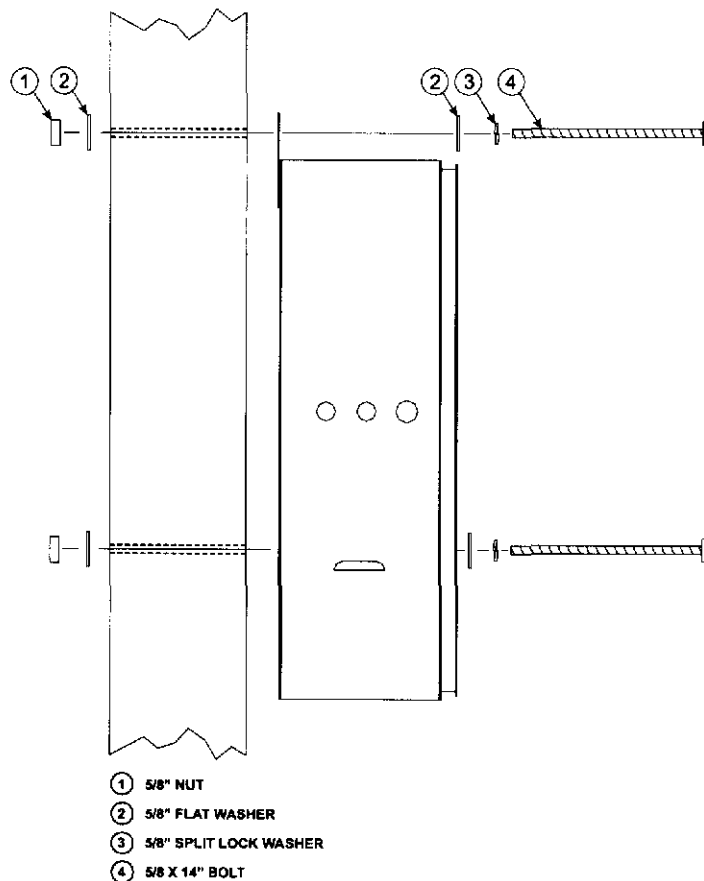


b) Electronic Cabinet Mounting...

Items Required for installation (not included)....

<u>Qty.</u>	<u>Description</u>
(2)	5/8" x 14" Hex or Square head mounting bolts
(4)	5/8" Flat Washer sized for the above mounting bolt
(2)	5/8" Split-Lock Washer
(2)	5/8" Hex or Square head nuts
(1)	Aluminum-to-Copper lug sized for #4 ground wire (crimp or screw style)
(1)	Stainless Steel 1/4-20 x 2" bolt with appropriately sized flat washer, split-lock washer and nut
(1)	10' Copper ground rod

Fig. 7: Electronic Cabinet Mounting (Side View)



The Vortex siren case assembly may be installed onto the pole and wired before setting the pole.

1. It is necessary for the installer to remember that two factors should determine the optimum mounting location; the desired distance of the mounted cabinet to the ground (typically 10 to 12 feet as measured from the bottom of the cabinet) and available speaker wire length (speaker assemblies are provided with a minimum of 50 feet of speaker wire as measured from the bottom of the speaker assembly).
2. After the mounting location has been determined, drill an appropriately sized thru-hole into the pole at the top cabinet mounting hole. Install a bolt loosely into the hole and hang the cabinet onto the bolt.
3. With the cabinet fitted snugly to the pole, mark the surface of the pole at the lower mounting hole location inside the battery storage compartment. Remove the cabinet from the pole and drill an appropriately sized thru-hole into the pole at the location(s) marked. Return the cabinet to its mounting location and secure to the pole using the specified hardware.
4. Install an aluminum-to-copper lug (crimp or screw style) onto the #4 solid copper wire. Secure this to the cabinet mounting channel in hole supplied using stainless steel 1/4-20 hardware.
5. Install the ground rod as specified by local codes and connect both copper wires (from pole top mounting bracket and electronic cabinet) to this rod.
6. Install rigid steel conduit and necessary couplings from the speaker's 1" conduit adapter to the 1" speaker conduit protruding from the base of the siren case assembly. The first section of conduit may be installed onto the speaker's base casting prior to mounting the speaker to the pole top bracket. At the option of the user, conduit unions may be used between the first section of conduit and the speaker base casting and at the speaker cable conduit entrance to the siren case assembly.

Note: If the location of the conduit on the pole requires difficult conduit bends or couplings, a section of metal bonded seal tight conduit NOT TO EXCEED 24 INCHES may be used at the top of the pole and/or at the bottom of the pole as needed for the speaker cable installation.

Batteries for the system should not be installed until the siren station is set in place, otherwise some leakage of the battery fluid may occur. Batteries should not be connected to the system until AC power (or solar power if equipped) is available to the system to operate the system's battery charger.

c) Siren Assembly Mounting

Hardware required for installation (factory included)....

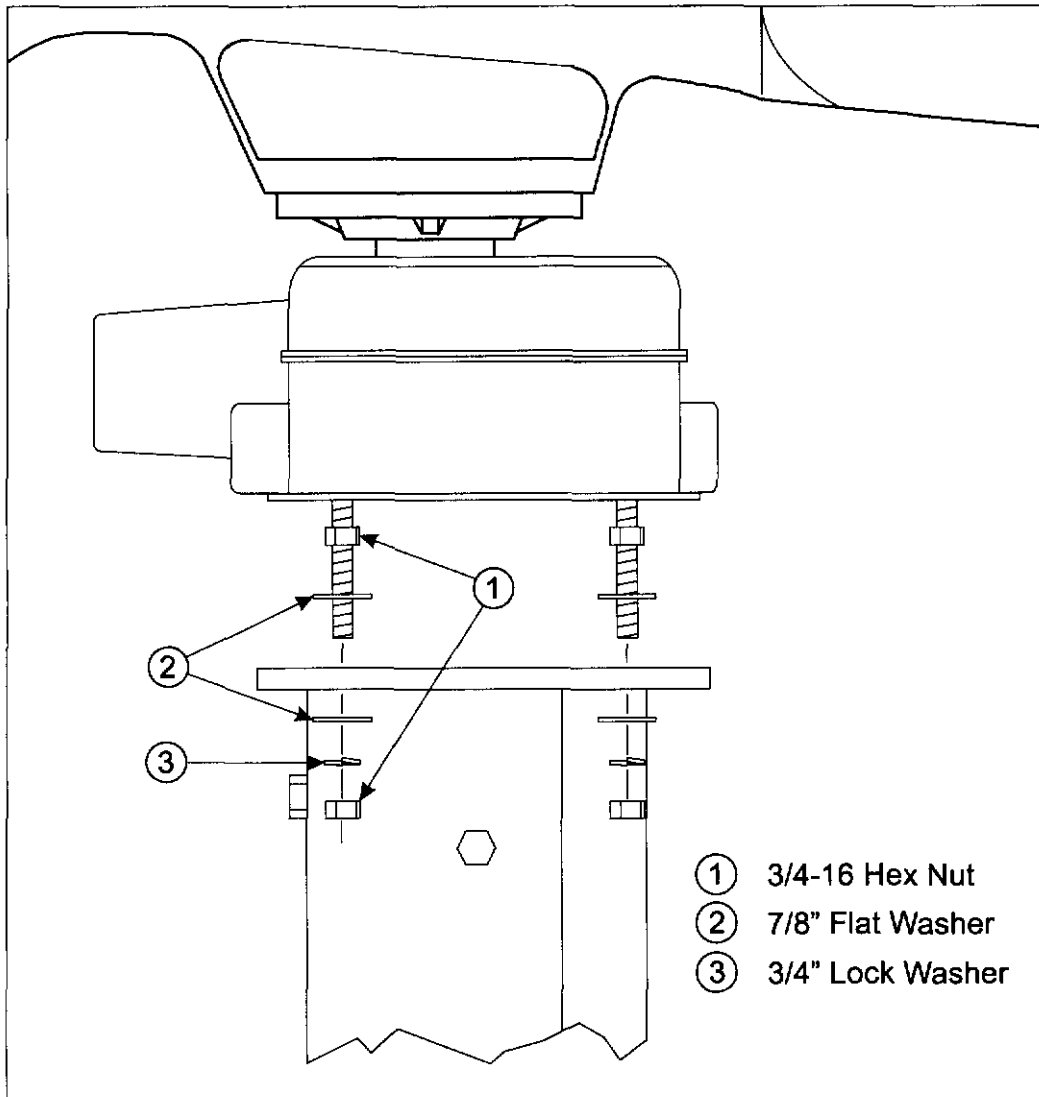
- (8) 20mm hex head nuts**
- (8) 7/8" Flat Washers**
- (4) 3/4" Split Lock Washers**

1. Sling or cradle the utility pole in a safe manner so that the pole top is 3 to 4 feet off the ground. This will allow the speaker assembly to clear the ground when installed.
2. Locate the 4 mounting studs on the bottom of the speaker assembly (see "Fig. 8: Siren to Pole Top Mounting Bracket (Side View)" on page 19).
3. Thread a 20mm hex nut onto each of the mounting studs until there is approximately 1" of space between the top of the nuts and the bottom of the siren assembly. This space will allow the speaker assembly to be leveled once the pole has been set.
4. Install a 7/8" flat washer onto each of the mounting studs.
5. Insert the four mounting studs through the mounting holes on the top of the pole top bracket. The bottom of the siren assembly should lie flat against the pole top bracket.
6. Install a 7/8" flat washer onto each of the mounting studs.
7. Install a 3/4" split lock-washer onto each of the mounting studs.
8. Thread a 20mm hex nut onto each of the mounting studs. Tighten this nut firmly to secure the siren assembly to the pole top bracket.

At this point the pole should now be set. However, the installer may use their own discretion as to whether to mount the electronic cabinet onto the utility pole before the pole is set.

When the pole has been set, use the adjustment nuts (indicated in step 3) to adjust the siren assembly until it is level.

Fig. 8: Siren to Pole Top Mounting Bracket (Side View)



d) Antenna Mounting (optional)...

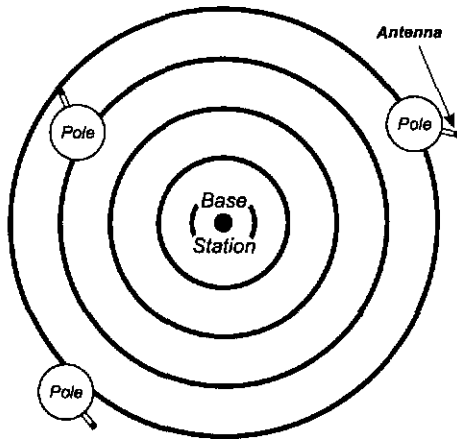
Note: **Antenna installation must be in compliance with all FCC regulations.**

The proper antenna bracket mounting location is determined by several considerations. The antenna bracket should be positioned as high on the utility pole as is possible. However, under no circumstances should the top of the installed antenna mast be any closer than one inch from the bottom of the Pole Top Mounting Bracket (see "Fig. 6: Pole Top Mounting Bracket" on page 15). Be sure to ground the antenna bracket as shown using 4 AWG solid copper wire. The antenna cable provided by the factory is 35 feet in length.

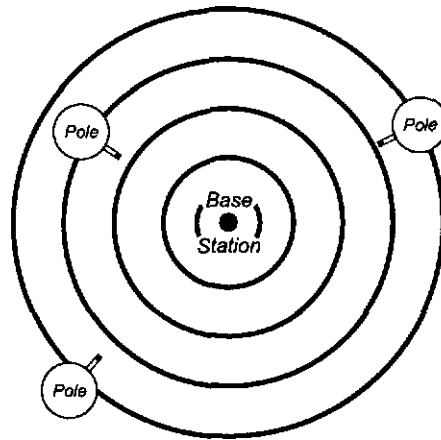
It is also important to remember that the antenna **MUST** be mounted on the side of the utility pole that faces the transmitter (see below)

Fig. 9: Antenna Mounting Orientation

Improper Antenna Orientation



Correct Antenna Orientation



Refer to the installation sheet included with your antenna kit for further information regarding cable connections and antenna trimming.

e) Solar Panel Mounting (optional)...

The solar panel must be installed so that it is directly facing the earth's equator with an unobstructed view. Failure to orient the solar panel in this way will result in significantly reduced charging effectiveness.

The most critical aspect of properly mounting the solar panel involves achieving the optimum tilt angle. The tilt angle is determined by the distance between the upper and lower mounting brackets, as shown.

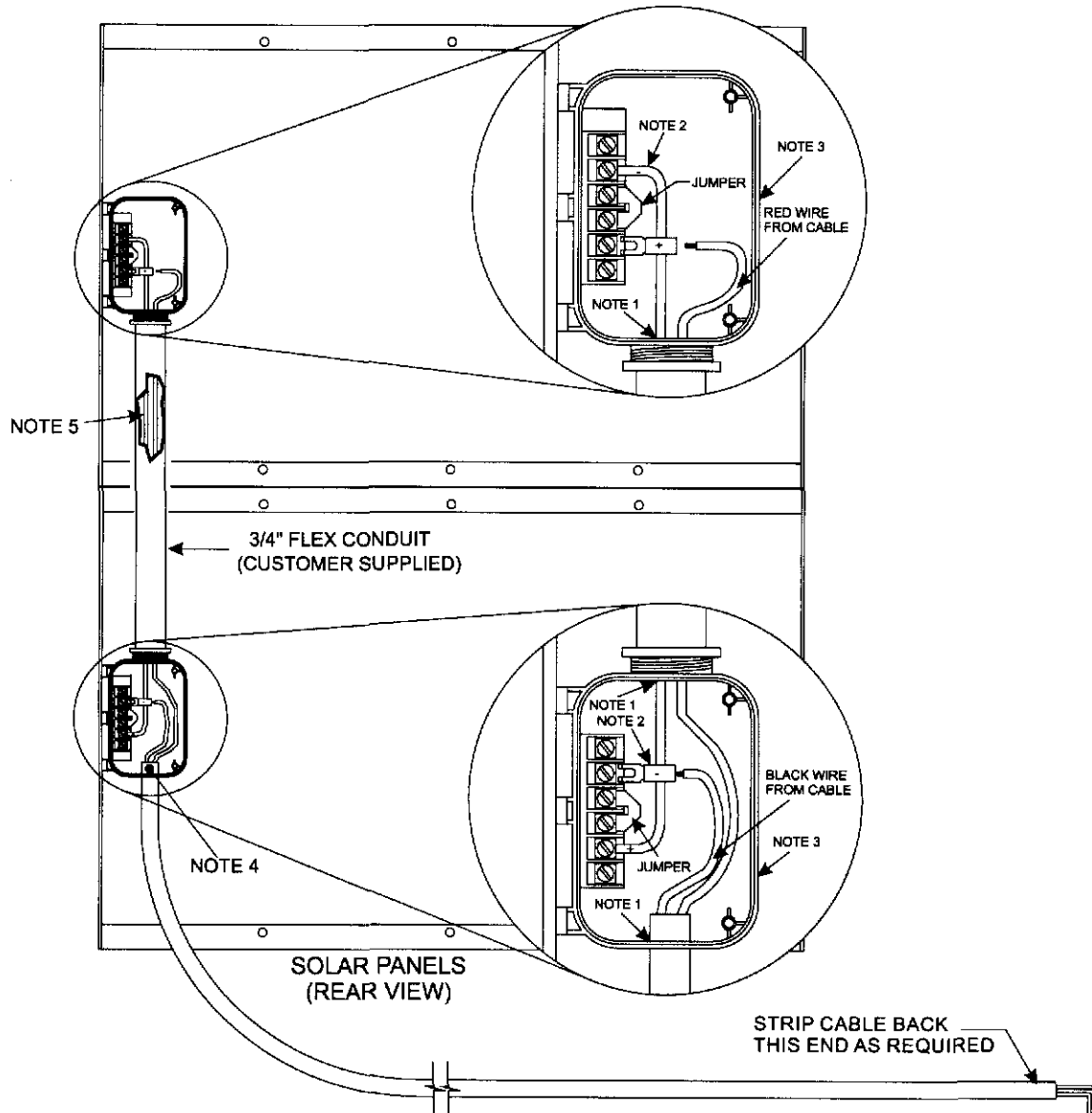
Refer to page 22 for electrical connection information.

Refer to page 23 for general solar panel mounting.

Refer to page 24 for information on determining your specific mounting angle.

Run rigid steel conduit from the solar panel to the 3/4" AC knockout located at the bottom of the siren case assembly. A section of up to 24 inches of metal bonded seal tight conduit may be utilized where conduit connections to the solar panel or electronic cabinet are not conveniently accomplished with rigid steel conduit and fittings. This conduit should be sealed to prevent insects and pests from entering the siren case assembly.

Fig. 10: Solar Panel Wiring Connections



NOTES:

- 1 - Wire entrance hardware per local codes, water tight as required (3 places).
- 2 - Fork terminals & fast-ons included with installation kit.
- 3 - Electrical boxes shown with covers removed.
- 4 - Cable to be stripped back 26" at solar panel end.
- 5 - Supplied by Whelen, included with installation kit.
- 6 - Install fast-ons to the solar regulator end of the cable only after the proper length of cable has been achieved, leaving at least a 6' service loop.

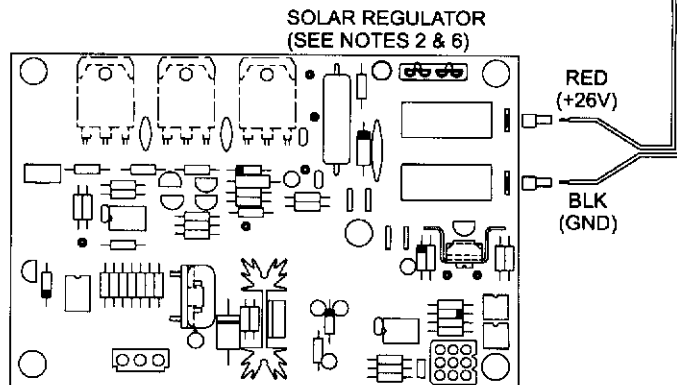
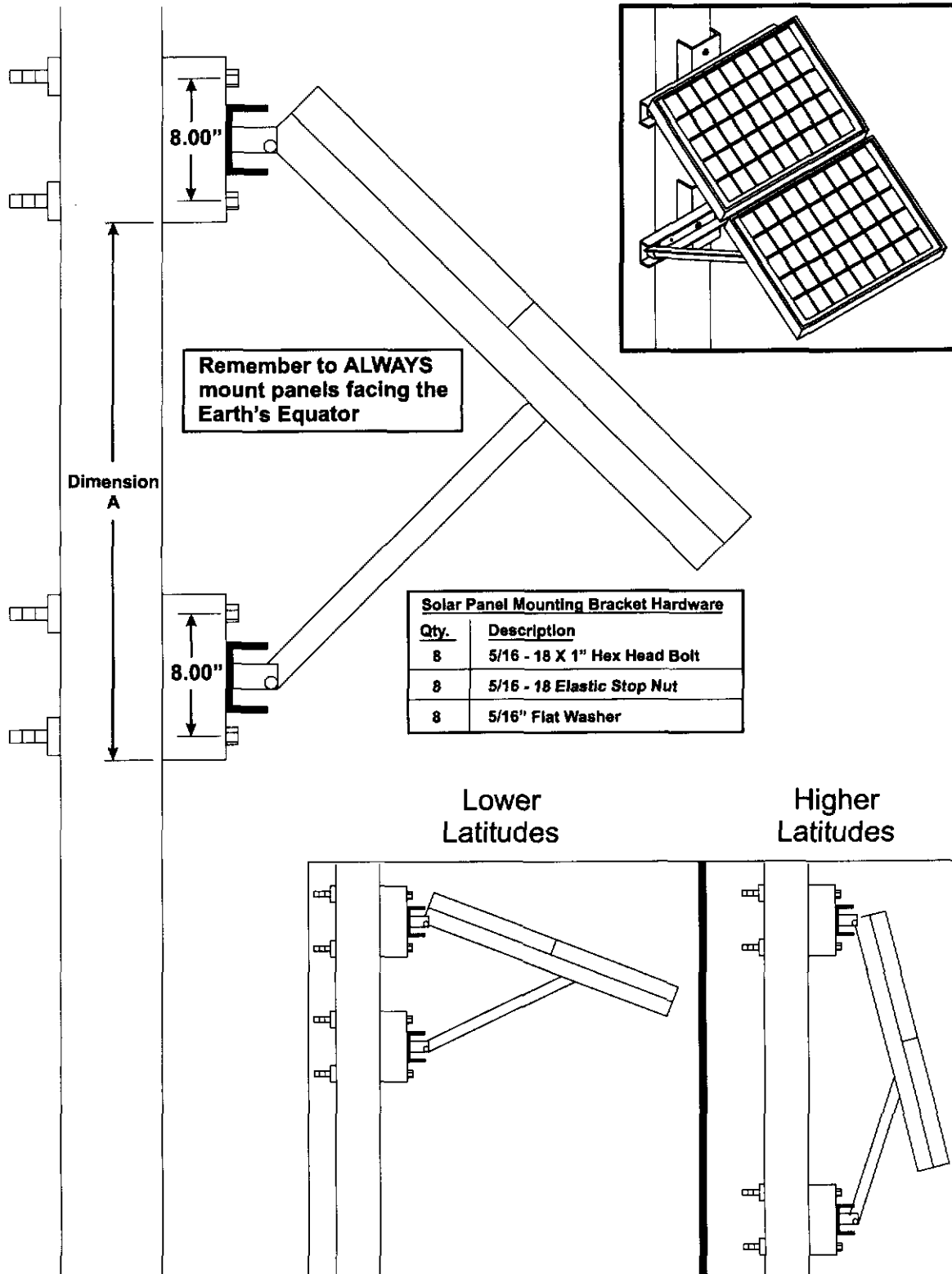


Fig. 11: Solar Panel Mounting Views



f) Determining Solar Panel Mounting Angle

1. Determine the *LATITUDE* of your location.
2. Find your *Latitude* on the table below and note the corresponding *Tilt Angle*.

<u>LATITUDE</u>	<u>TILT ANGLE</u>
0° to 9°	75° = Tilt Angle
10° to 20°	85° minus LATITUDE = Tilt Angle
21° to 45°	80° minus LATITUDE = Tilt Angle
46° to 65°	75° minus LATITUDE = Tilt Angle
66° to 75°	10° minus LATITUDE = Tilt Angle

3. Locate your TILT ANGLE in the list below. For every TILT ANGLE, there is a corresponding "Dimension A". "Dimension A" represents the distance from the bottom of the upper mounting bracket to the bottom of the lower mounting bracket.

example 1:

Location LATITUDE is 30°
 80° - 30° = 50° Tilt Angle
 50° Tilt Angle = 33.60" Dimension A

example 2:

Location LATITUDE is 7°
 7° = 75° Tilt Angle
 75° Tilt Angle = 15.54" Dimension A

Tilt Angle	Dimension A (inches)	Tilt Angle	Dimension A (inches)	Tilt Angle	Dimension A (inches)
10	50.49	32	43.71	54	30.93
11	50.34	33	43.24	55	30.24
12	50.16	34	42.77	56	29.54
13	49.97	35	42.28	57	28.84
14	49.77	36	41.78	58	28.13
15	49.55	37	41.26	59	27.41
16	49.32	38	40.74	60	26.69
17	49.08	39	40.20	61	25.96
18	48.82	40	39.65	62	25.23
19	48.54	41	39.10	63	24.50
20	48.25	42	38.53	64	23.76
21	47.95	43	37.95	65	23.01
22	47.63	44	37.36	66	22.27
23	47.30	45	36.75	67	21.52
24	46.95	46	36.14	68	20.77
25	46.59	47	35.52	69	20.02
26	46.22	48	34.89	70	19.27
27	45.83	49	34.25	71	18.52
28	45.43	50	33.60	72	17.77
29	45.02	51	32.95	73	17.02
30	44.60	52	32.28	74	16.28
31	44.16	53	31.61	75	15.54

Section IV: Wiring

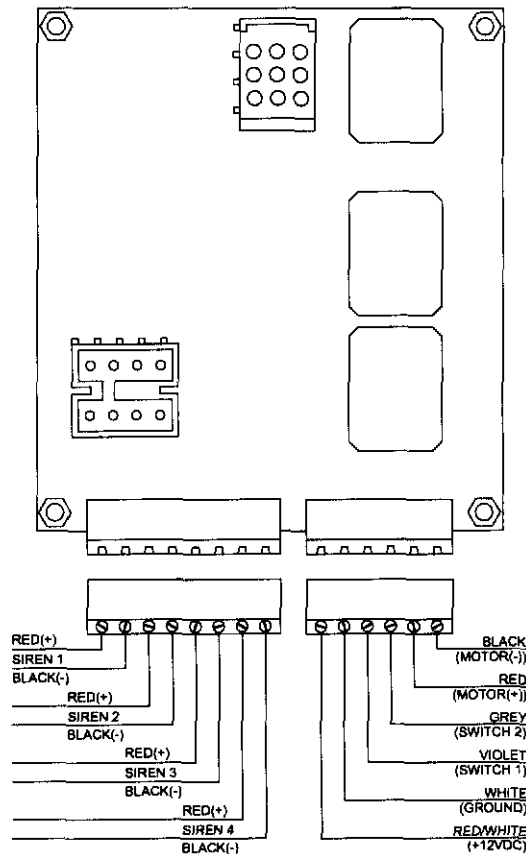
This section covers field wiring for the Speaker/Rotor Assembly and the AC service.

a) Speaker/Rotor Wiring

The 14 conductor Speaker/Rotor cable has five red wires, five black wires, one gray, one violet, one white and a red wire with a white strip. Each of the red and black wires has a white ink identifier on it. The wires are grouped in red and black pairs, with labels 1, 2, 3, 4 and M. The red and black wires are polarity sensitive. Pair 1 is wired to speaker driver 1, which is the bottom driver of the speaker, pair 2 is wired to speaker driver 2, which is the next driver up the speaker and so on. Pair M is connected to the rotor motor. The other four wires are connected to limit switches in the rotor.

The speaker driver wires (red & black 1-4) connect to the 8-position Phoenix connector on the oscillator board. The rotor wires connect to the 6-position Phoenix connector. This board is mounted to the inner, left, vertical wall of the upper cabinet compartment. Refer to Fig. 12 for the specific designations and destinations for both the speaker and rotor wires.

Fig. 12: Oscillator Board Connections



b) AC Wiring

An AC Service (Single Phase only) with an acceptable disconnect is required. A 15 amp (minimum) 120 VAC circuit is recommended.

Locate the service on the pole according to local codes, taking care that the service entrance will meet height requirements once the pole is set into place.

The Vortex includes a 15 amp, 120 VAC outlet. The cabinet's battery charger plugs into one of the receptacles. The remaining receptacle is available for use by service personnel (see "Fig. 13: AC Outlet Installation" on page 27).

Note: A section of up to 24 inches of metal bonded seal tight conduit may be utilized where conduit connections to the siren case assembly are not conveniently accomplished with rigid steel conduit and fittings.

Each Vortex siren system is supplied with a Lightning arrestor which is to be installed on the AC service. Local codes should be reviewed and followed to establish the connection of this device on the primary or secondary side of the disconnect.

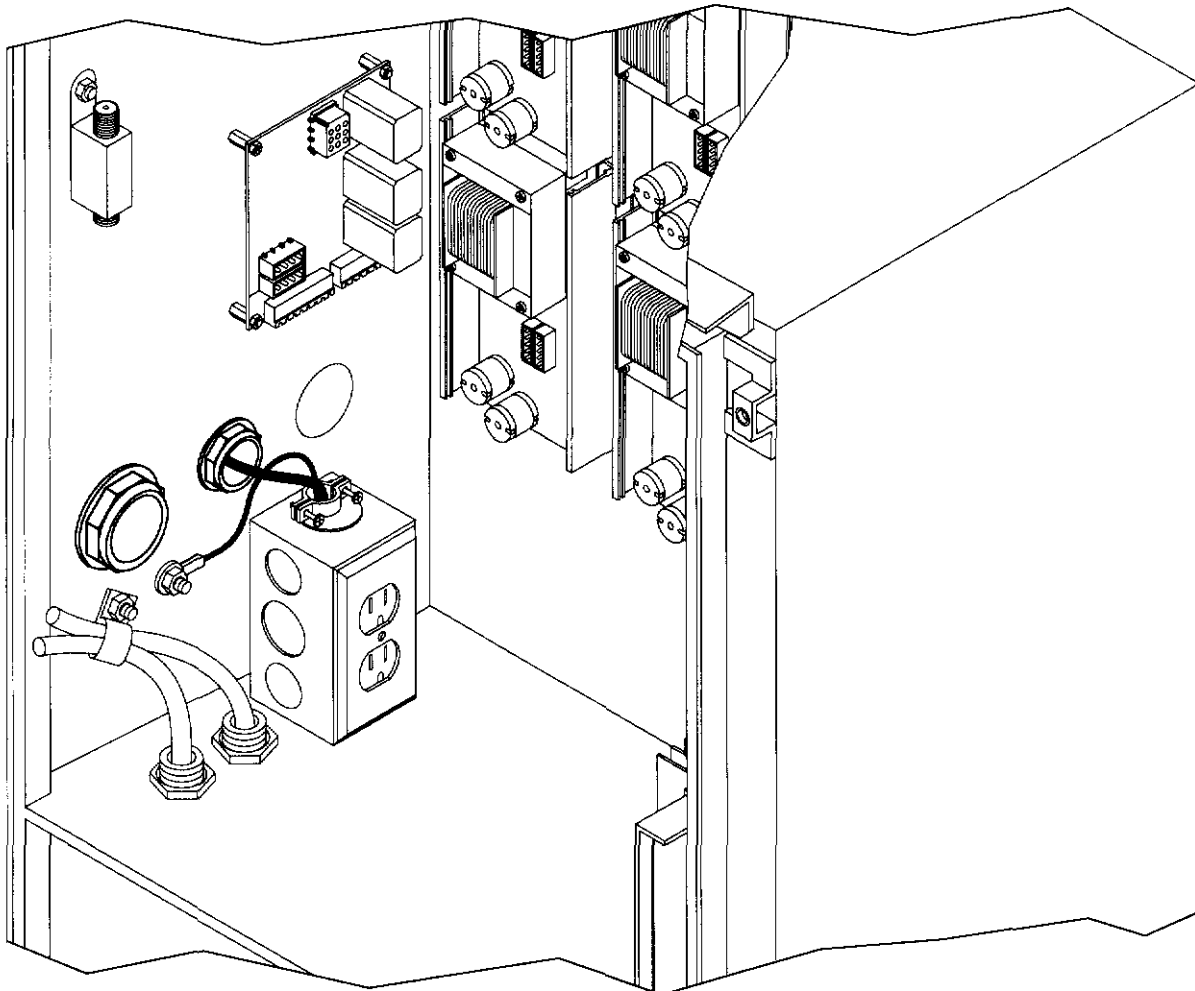
Note: The location of the siren site should be reviewed for the quality of the AC service. AC power sources that are subject to excessive power surges or transients are not acceptable.

Make sure the battery charger is unplugged from the AC outlet in the left rear corner of the control cabinet. Route the AC service wire through the cable clamp on top of the box. Make the AC connections to the outlet, according to local electrical codes.

Locate the green wire in the outlet box. This is the cabinet chassis ground. Connect the green wire to the ground wire of the electrical service, within the outlet box. Make a ground connection from one of the lower mounting tabs to earth ground using minimum of 4 AWG copper wire. An Aluminum-to-Copper (ALCO) connector must be used for ground connection to the cabinet. Always follow local codes.

Leave the battery charger unplugged.

Fig. 13: AC Outlet Installation



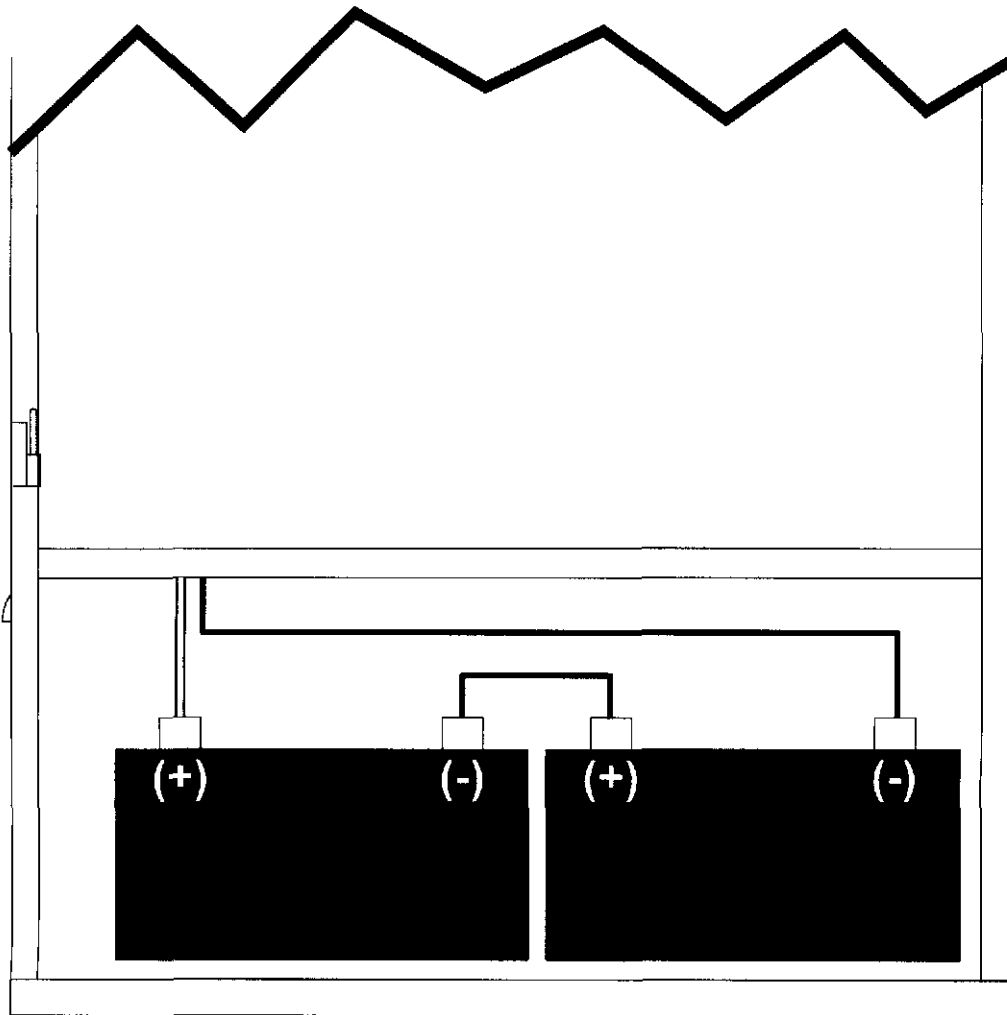
c) Batteries

1. Install the batteries and connect them as shown in the illustration below. **MAKE SURE TO OBSERVE THE POLARITY OF THE TERMINALS BEFORE MAKING ANY CONNECTIONS.**

Note: For battery wiring, DC wiring conventions are used (BLACK is ground (-)).

2. Plug the battery charger into the AC outlet.
3. Verify system operation as outlined in the system maintenance check list.

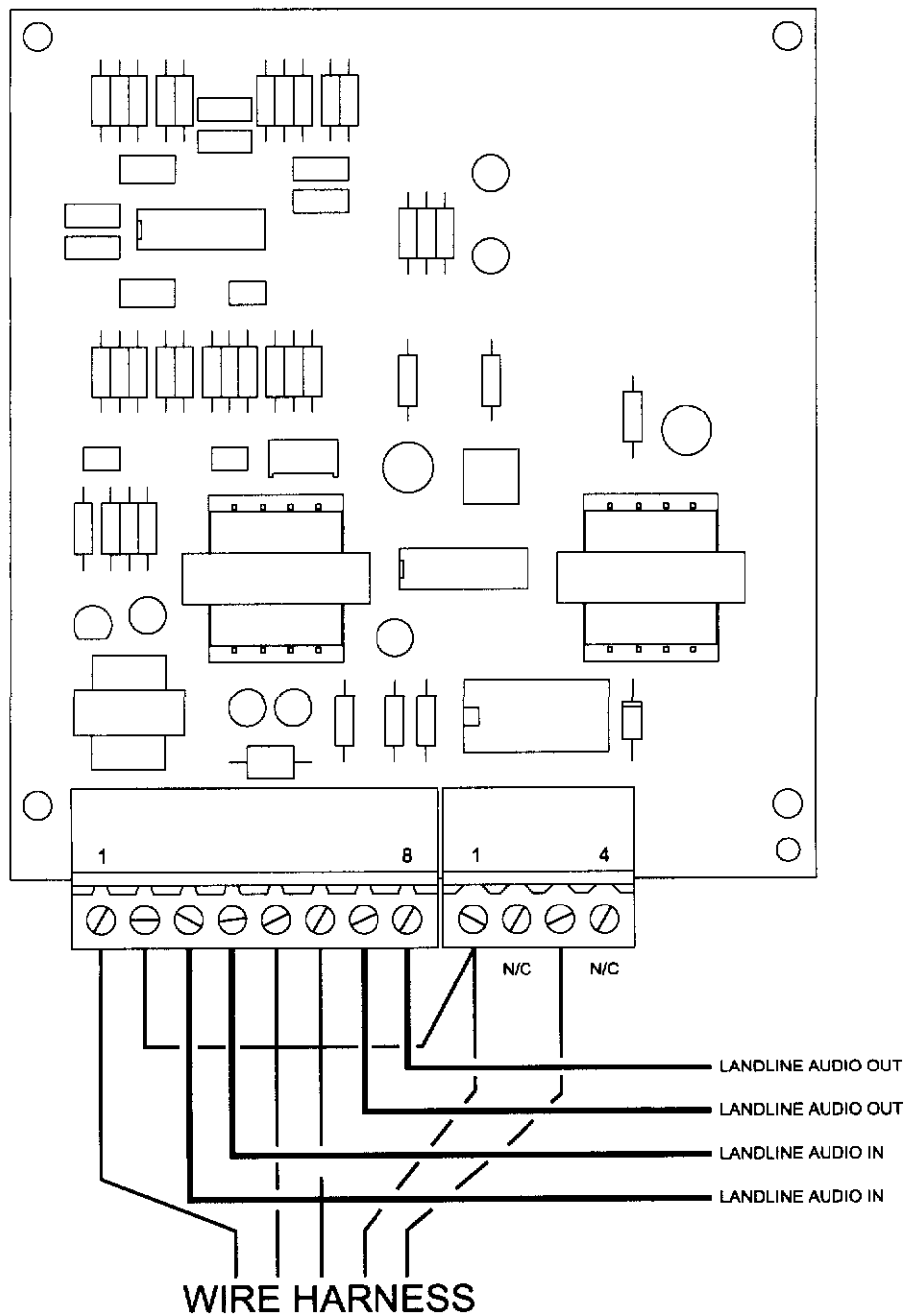
Fig. 14: Battery Connections



d) Landline (optional)

As an option, the Vortex may be remotely controlled by either landline or RF link. Either method communicates via a DTMF protocol. Remote control may be one-way or two-way. The one-way option simply controls the Vortex, while the two-way option controls the Vortex and reports Vortex status back to a central control point.

Fig. 15: Landline Wiring

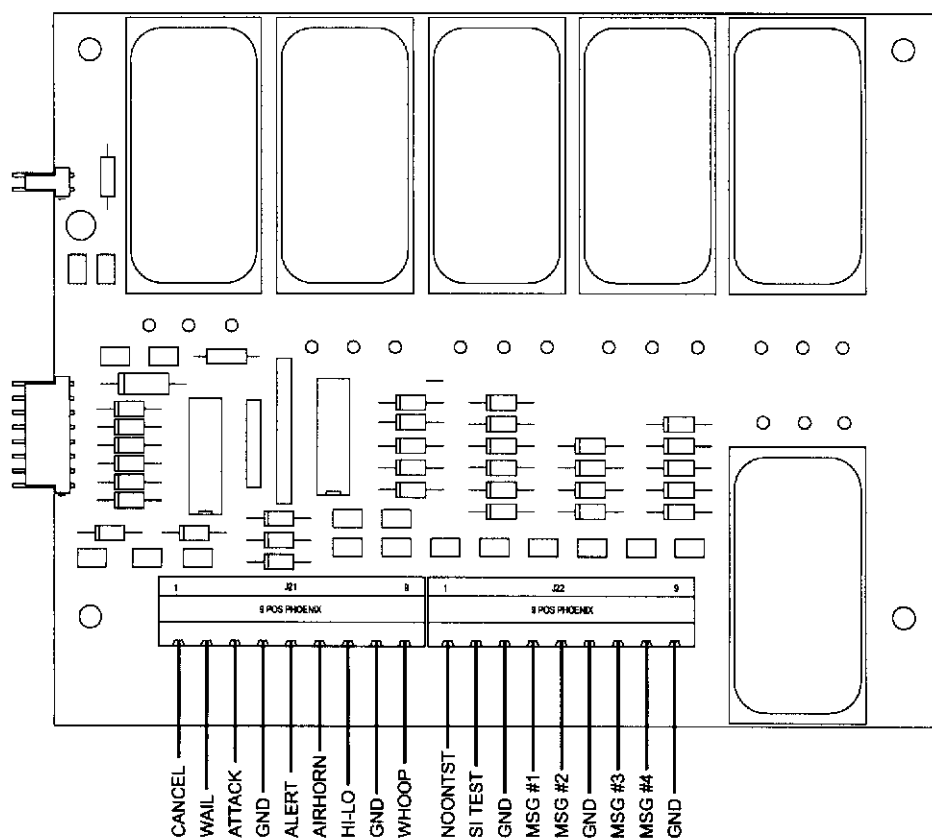


e) Two-Tone (optional)

The Two Tone Decoder may be equipped with up to six decode modules, for Motorola Quick-Call frequencies. The appropriate decode module is factory wired to the appropriate Vortex command, provided the information is supplied to the factory.

The tables on page 31 list the timing sequences and tones that are supported by the two tone decoder for a Vortex siren. Up to six modules may be used on one decoder board. Any one timing sequence may be used for each module, with the first and second tones always being from the same tone table.

Fig. 16: Two-Tone Board



Frequency Tables

Table 1: Timing Sequence

Format	Call Sequence	1st Tone	Gap	2nd Tone
Motorola Quick Call 2	Individual Call Tone & Voice	1 Second	0	3 Seconds
	Group Call	8 Seconds	0	0

Table 2: Motorola Tone Tables 1,2,3 Frequencies - Whelen Model "2TTMA"

288.5Hz	330.5Hz	410.8Hz	510.5Hz	624.5Hz	788.5Hz	953.7Hz	1063.2Hz
296.5Hz	349.0Hz	433.7Hz	539.0Hz	669.9Hz	832.5Hz	979.9Hz	1092.4Hz
304.7Hz	368.5Hz	457.9Hz	569.1Hz	707.3Hz	879.0Hz	1006.9Hz	
313.0Hz	389.0Hz	483.5Hz	600.9Hz	746.8Hz	928.1Hz	1034.7Hz	

Table 3: Motorola Tone Tables 4,5,6 Frequencies - Whelen Model "2TTMB"

321.7Hz	399.8Hz	496.8Hz	584.8Hz	726.8Hz	903.2Hz	1185.2Hz	1321.2Hz
339.6Hz	422.1Hz	524.6Hz	617.4Hz	767.4Hz	979.9Hz	1217.8Hz	1357.6Hz
358.6Hz	445.7Hz	553.9Hz	651.9Hz	810.2Hz	1122.5Hz	1251.4Hz	1395.0Hz
378.6Hz	470.5Hz	569.1Hz	688.3Hz	855.5Hz	1153.4Hz	1285.8Hz	1433.4Hz

Table 4: Motorola Tone Tables A,B,Z Frequencies - Whelen Model "2TTMC"

346.7Hz	398.1Hz	457.1Hz	524.8Hz	582.1Hz	668.3Hz	767.4Hz	881.0Hz
358.9Hz	412.1Hz	473.2Hz	543.3Hz	602.6Hz	691.8Hz	794.3Hz	912.0Hz
371.5Hz	426.6Hz	489.8Hz	562.3Hz	623.7Hz	716.1Hz	822.2Hz	944.1Hz
384.6Hz	441.6Hz	507.0Hz	569.1Hz	645.7Hz	741.3Hz	851.1Hz	979.9Hz

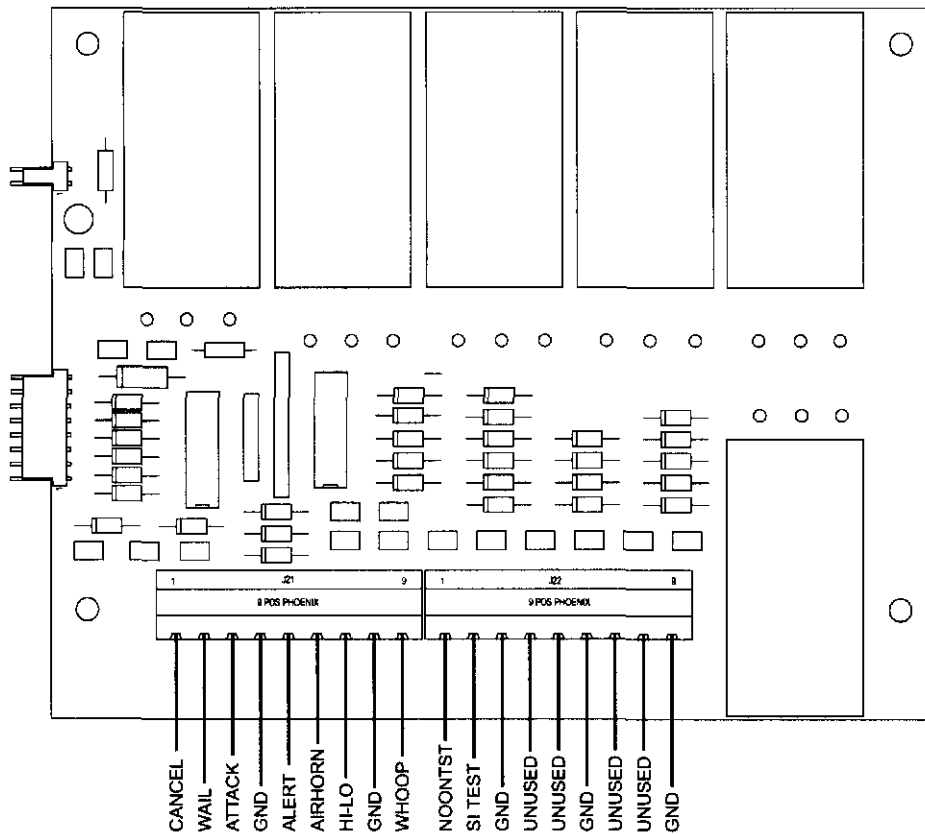
Table 5: Motorola Tone Tables A,B,C Frequencies - Whelen Model "2TTMD"

517.5Hz	577.5Hz	637.5Hz	697.5Hz	757.7Hz	817.5Hz	877.5Hz	937.5Hz
532.5Hz	592.5Hz	652.5Hz	712.5Hz	772.5Hz	832.5Hz	892.5Hz	952.5Hz
547.5Hz	607.5Hz	667.5Hz	727.5Hz	787.5Hz	847.5Hz	907.5Hz	967.5Hz
562.5Hz	622.5Hz	682.5Hz	742.5Hz	802.5Hz	862.5Hz	922.5Hz	

f) Aux-In (optional)

Vortex siren functions can be activated via external auxiliary input contact closure. For external controls, the “closure” must be at least 1/2 a second in duration. The “closure” must be made to ground. A ground contact is supplied at the terminal strip for this reason.

Fig. 17: Aux-In Board



Section V: System Test...

After the installation of the Vortex station has been completed, a basic system check is recommended to confirm that the system is functioning properly. Before initiating these tests, locate the system LED's on the control board mounted to the cabinet door (see "Fig. 18: System LED Diagnostic Indicators" on page 34).

1. Confirm that the ACTIVE light on the control board is flashing at a rate of a 1/2 second on and a 1/2 second off.
2. Press the SI TEST® button on the siren front panel and check to make sure that all the siren amplifier diagnostic LED's illuminate for 5 seconds. These LED's are located on each amplifiers circuit board.
3. Confirm that the speaker has turned one complete rotation.
4. After the amplifier LED's turn off, check to see if the AC, DC, PARTIAL, FULL and ROTOR LED's are on.

If one of your amplifier lights did not illuminate during this test then refer to the procedure below to troubleshoot the problem.

This procedure may be used when the Partial or Full LED's indicate a failure.

Note: In order for a "Full" indication to be valid, the "Partial" LED must also be on.

1. Press the SI TEST® button located on the front panel of the electronic cabinet. Each amplifier has a red LED on its circuit board.
2. A SI TEST® will cause each amplifier's diagnostic indicator to turn on. If one or more do not turn on, proceed to step 3. If all indicators turn on, the siren amplifiers are functioning properly.
3. Open the front panel and remove the speaker driver from the amplifier that did not light and install it onto an amplifier that did light. For example: If amplifier 1 did not light but amplifier 2 did, install speaker 1 on amplifier 2 and speaker 2 on amplifier 1. This will indicate if the failure was with the speaker or the amplifier.

CHAPTER 2: OPERATION

Section VI: Overview of System Components

a) Station Component Locations

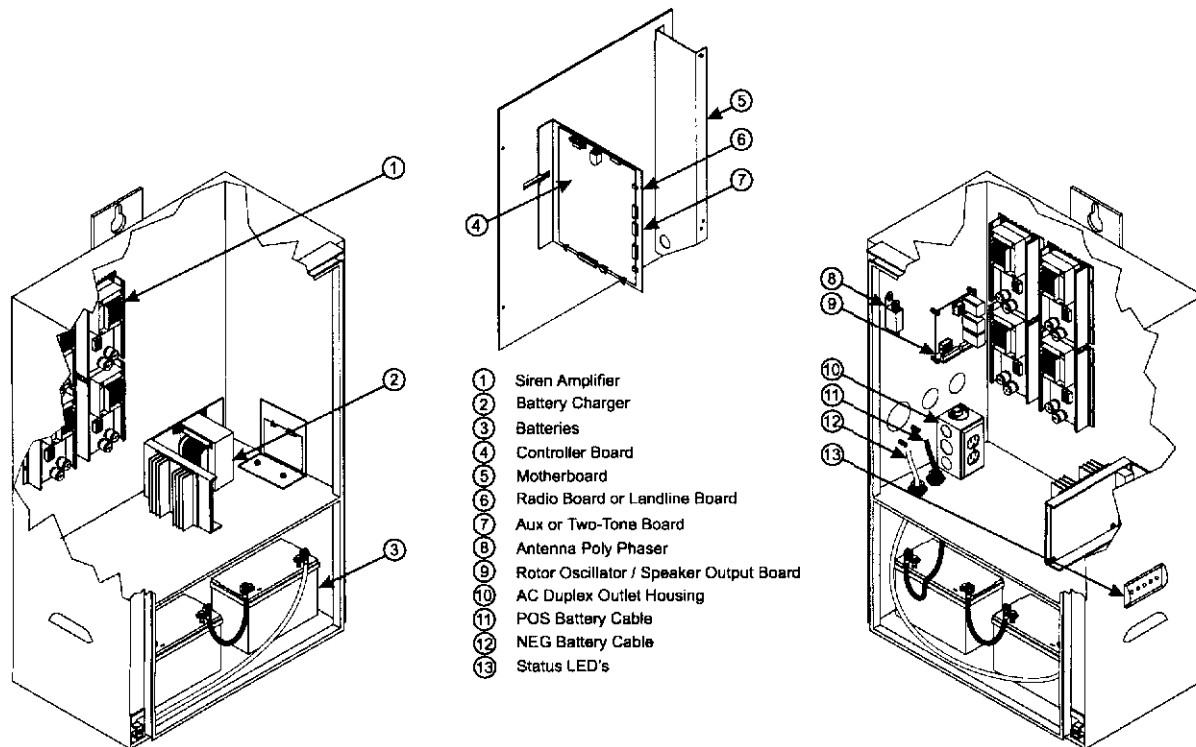
The Vortex System is comprised of two basic models:

<u>Model</u>	<u>Driver Info</u>
Vortex3	Three siren drivers
Vortex4	Four siren drivers

Both systems essentially function in the same manner. This manual will provide the necessary information to properly operate, program and diagnose this system regardless of specific model.

The Vortex systems is comprised of several major components common to both models, although quantities of some components will vary from model to model.

Fig. 19: Siren Cabinet Components



b) Station Components Defined

Siren Amplifier - These components (located on the rear wall of the upper cabinet compartment) receive the desired tone generated by the control board, amplify it and deliver it to the siren driver. Vortex3 systems use 3 amplifiers; Vortex4 systems use 4. **NOTE: At no time should the siren be activated when the speaker is not connected!**

Aux-in Board (Optional) - This component (located on the inside of the upper cabinet door) can be wired to provide remote activation of all siren functions *via* momentary contact closure.

Two-Tone Board (Optional) - This component (located on the inside of the upper cabinet door) receives two-tone signals from either the antenna or landline and delivers them to the control board for processing.

AC Battery Charger - This component (located on the rear wall of the upper cabinet compartment) uses 110 VAC (or 220 VAC) single-phase service to maintain the station batteries at their proper voltages.

Solar Regulator (optional) - This component (located on the rear wall of the upper cabinet compartment) uses electrical energy collected by a pole-mounted solar panel to maintain the station batteries at their proper voltages.

Batteries - These components (located on the inside of the lower cabinet) provide the 28VDC necessary for the system to operate.

Control Board - This component (located on the inside of the upper cabinet door) controls the key functions of the Vortex system including:

Tone Generation	Remote Activation
Remote Station Status Reporting* (encoding)	Event Timing
System Diagnostics (incl. SI TEST®)*	Local Control

* optional equipment

The control board contains a serial port to allow connection of a palm computer (hereafter referred to as a PalmPC) to the remote station. The control board is also the location of the diagnostic LED's.

Radio Board or Landline Board (Optional) - This component (located on the inside of the upper cabinet door) receives signals from either the antenna or landline and delivers them to the control board for processing. Through the use of the included radio, the station is also capable of transmitting status information back to the control center.

Motherboard - This component (located on the inside of the upper cabinet door) distributes Battery Voltage and signals to all system components that require this voltage. The motherboard is fused @10 Amps to protect all connected components EXCEPT for the siren amplifiers and the rotor (they contain their own fuse).

Antenna Poly Phaser (optional) - This component suppresses high-voltage (static) charges that could be present on the antenna.

Rotor Oscillator/Speaker Output Board - This component (located on the inside of the upper cabinet wall) activates the rotor motor after receiving commands from the control board. This board also provides speaker output signals for the siren amplifiers.

This component is fused @20Amps.

AC Duplex Outlet Housing - This component (located against the inside left vertical cabinet wall), as wired by the customer, provides a 110 VAC source.

Siren Driver - This component (located in the speaker assembly) produces the desired audible tone. Vortex3 systems use 3 drivers; Vortex4 systems use 4.

Status LED's - This component (visible through the right-side cabinet wall) duplicates the 5 status LED's (AC, DC, Partial, Full & Rotor) located on the controller board. This allows for visual confirmation of station status without having to open the cabinet doors (see "Fig. 18: System LED Diagnostic Indicators" on page 34)

Antenna (optional) - This component (located on the utility pole) is capable of either receiving signals broadcast from the control center (one-way) or can both transmit and receive signals to and from the control center (two-way), depending how the system was ordered.

Solar Panel (optional) - This component (located on the utility pole) collects solar energy, converts it to electrical energy and delivers it to the Solar Regulator to maintain the station batteries at their proper voltage.

Intrusion Alarm (optional) - This sensor (located on the door jam of the upper cabinet door) detects the opening of the cabinet door. If the station is equipped with this option, the alarm is configured to transmit a signal back to the control center.

Section VII: System Operations

a) Remote Operations

Remote operation of a Vortex series siren involves transmitting signals from the control center to the desired station. This is accomplished by using either an encoder and transmitter or, if the station is so equipped, using an aux-in board that has been wired to switches/controls at the control center. Remote operation is beyond the scope of this document and will therefore not be addressed. If your system is equipped with an encoder, please refer to the encoder operating manual for information regarding remote operation. If your station has been wired to use the auxiliary control status board, refer to the reference materials provided by the electrical engineer or installer.

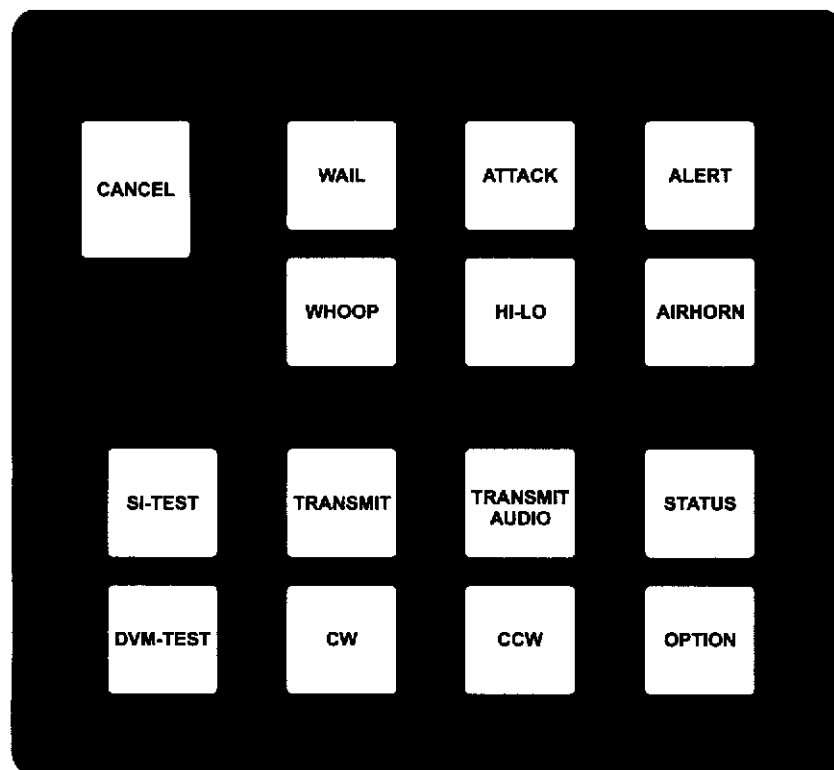
b) Local Operations

Local operation is accomplished through the control panel on the front of the station cabinet. The functions of these controls are as follows:

Cancel	Abruptly stops siren tones without the normal "ramp down" found in several tones. Helpful in the event of an accidental tone activation.
Wail	Produces a slow rise and fall tone.
Attack	Produces a faster rise and fall tone (used for designated Civil Defense National Attack tone).
Alert	A steady tone (Civil Defense alert).
Whoop	A repetitive rise-only tone.
Hi-Low	An alternating two-tone sound.
Air Horn	A pulsing air horn sound.
SI TEST®	Initiates SI TEST® tone and the optional diagnostic SI TEST® routine.
X-mit Carrier	Actuates remote station radio transmitter PTT circuit. When tone squelch is used with the transmitter, the transmit carrier function is used when adjusting tone squelch modulation.

X-mit Audio	For use with remote station radio transceiver, causes transmission of DTMF tone via RF link for tone modulation adjustment. The transmit tone level is adjusted with the transmit audio potentiometer located on the controller board (see “Fig. 18: System LED Diagnostic Indicators” on page 34).
X-mit Status	Transmits station status information and battery voltage to the control center
DVM Test	This function is not available in Vortex systems.
Rotor CW	This function is not available in Vortex systems.
Rotor CCW	This function is not available in Vortex systems.
Option	As of this printing, the “Option” control has not yet been defined.

Fig. 20: Station Control Panel



Section VIII: Understanding Station Addressing

Every Siren Station in a given area code has its own, unique "Station Address". This address allows the user to select an individual or a group of stations. As stated elsewhere in this manual, a valid station address can be any number from 0000 to 9999. This allows for 10,000 unique addresses; a staggering number of stations to keep track of. Although it is logistically impossible to have that many stations in a single area code, it does illustrate the importance of a sensible, intuitive numbering convention for station addresses. This section will outline two types of conventions

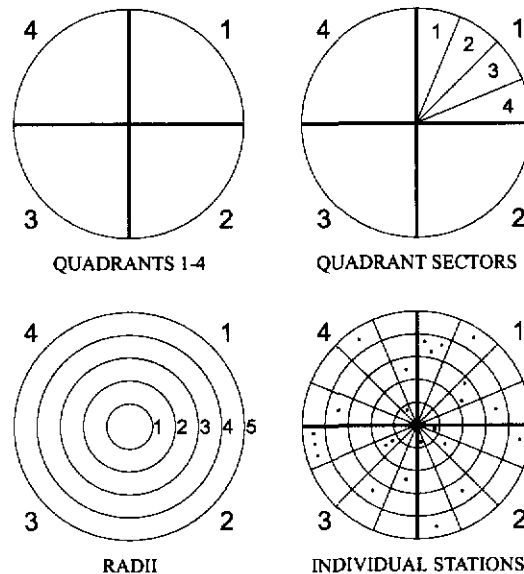
a) Central Point Source: Quadrant, Sector, Radial & Station

Frequently, warning systems are used to notify the public of emergency situations that may occur from a single, centralized location. Typically, siren stations would be located throughout a 360° area surrounding this location for a specified distance from the source. In this scenario, the Central Point Source convention would be well suited.

For illustration purposes, assume the siren stations are installed within a 5 mile radius of the Central Point. As such, a Quadrant, Sector, Radial & Station numbering convention would allow the selection of any of the following:

- any siren station
- all siren stations
- any one of four sectors
- any one of 5 radii within the sectors

The area of coverage in this system, a circle, is divided into 4 quadrants. Each quadrant is then divided into 4 sectors. Each sector is further divided into 5 segments or radii emanating from the center of this siren system.



In this system, a stations address is structured as follows:

<u>Digit</u>	<u>Allocation</u>
1	Quadrant (1 to 4)
2	Sector (1 to 4)
3	Radii (1 to 5)
4	Individual station within a radian

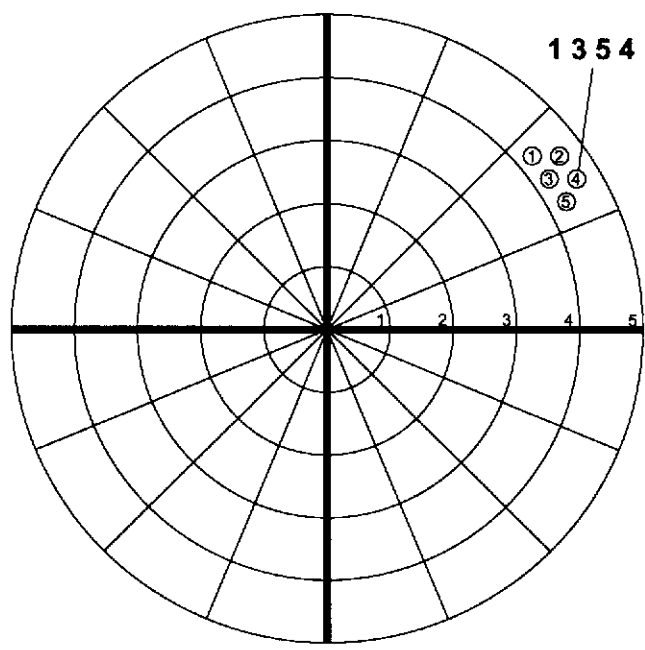
Here are some sample activations to further illustrate this concept.

Sample 1:

A station with address 1354 would be located in:

- Quadrant: 1**
- Sector: 3 of Quadrant 1**
- Radial: 5**
- Station: 4**

If an operator selects station 1-3-5-4, only that station will be selected, as shown.



**SINGLE STATION SELECTION
STATION 1354**

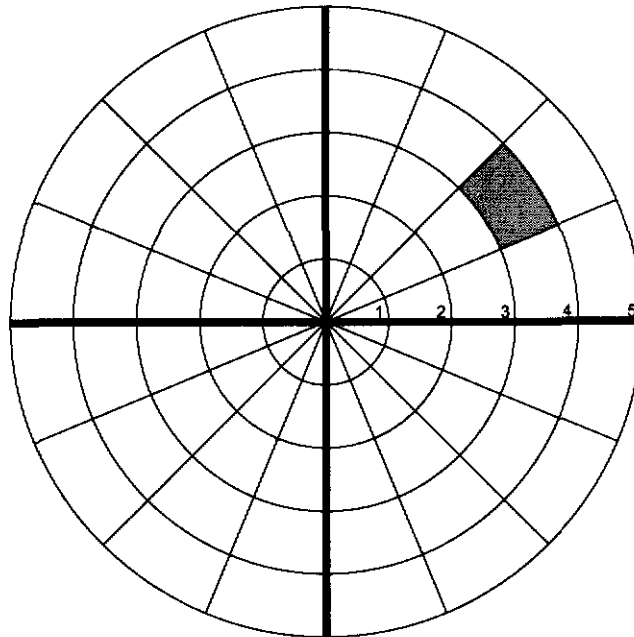
Sample 2:

If the activation of a group of remote stations within a whole segment of a radius within a quadrant and sector is desired, the fourth digit address is substituted with a "Wild Card", the "#" pound sign.

An address selection of 1 - 3 - 4 - # would activate the system as follows:

- Quadrant: 1**
- Sector: 3 of Quadrant 1**
- Radial: 4**
- Station: # All stations defined by above**

This selection is shown below.



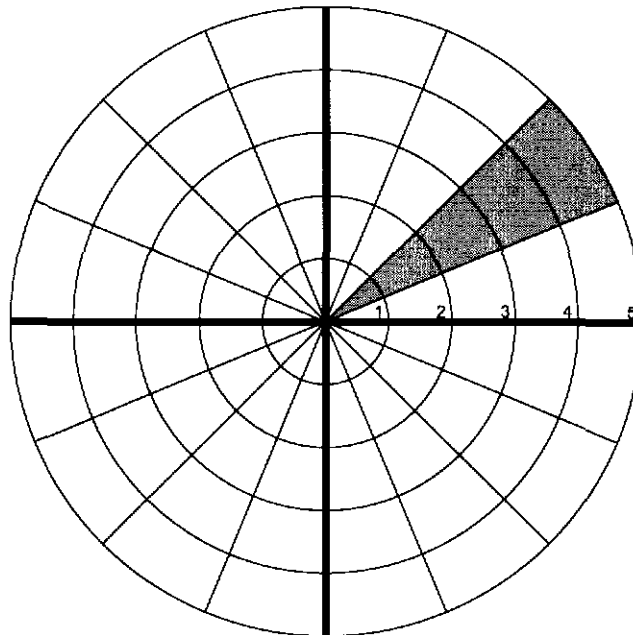
**GROUP SELECTION-RADIAL SECTOR
GROUP 134#**

Sample 3:

Selection of an entire sector can be accomplished by using the following address:

- Quadrant:** 1
- Sector:** 3 of Quadrant 1
- Radial:** # All radial 1 - 3
- Station:** # All stations defined by above

In selecting a sector, the first two digits of the address are set for the sector address, for example 1 - 3 (Quadrant 1 - Sector 3). The third and fourth digits are substituted with a # (Wild Card). Therefore, the address to select all stations in sector 1-3 is 1 - 3 - # - #. This selection is represented below.



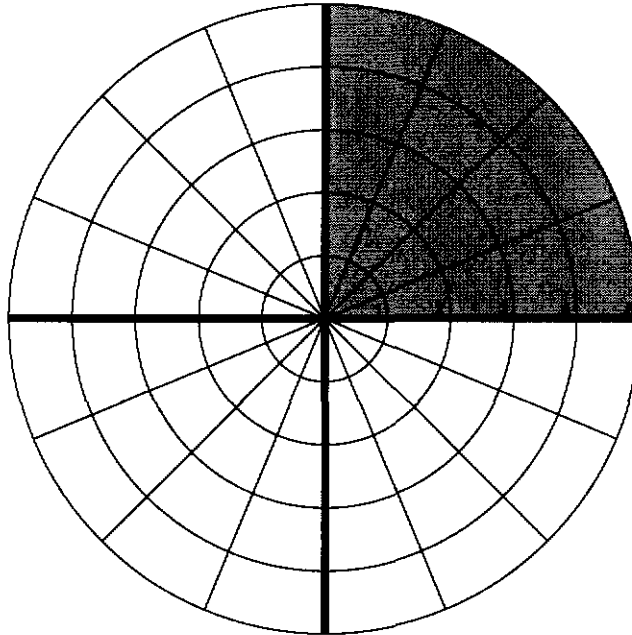
GROUP SELECTION-SUB-SECTOR
GROUP13##

Sample 4:

The selection of a complete quadrant can be achieved by using the following address:

- Quadrant: 1**
- Sector: # All sectors of Quadrant 1**
- Radial: # All radials in 1 - 3**
- Station: # All stations defined by above**

When selecting a quadrant, the first digit designates the Quadrant (1). the second, third and fourth digits are replaced with Wild Cards (#,#,#). Therefore, the address for selecting all stations in quadrant 1 is 1 - # - # - # as illustrated below.



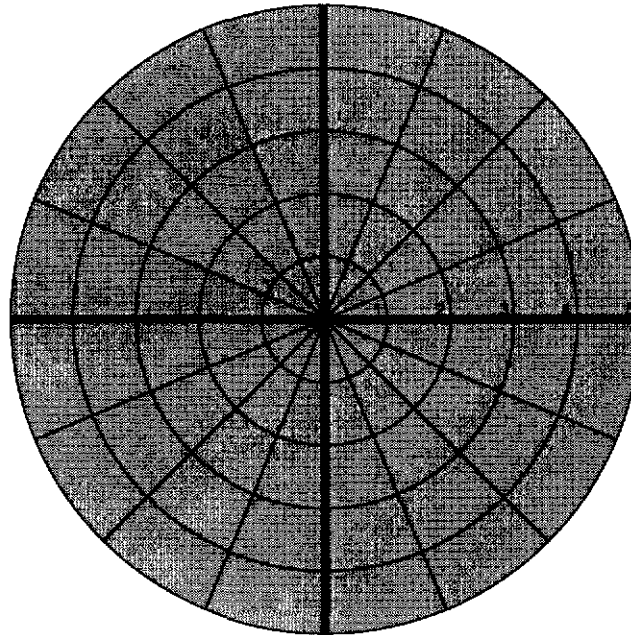
**GROUP SELECTION-QUADRANT
GROUP###**

Sample 5:

All stations in a system may be accessed by using the Wild Card (#) for all address numbers.
The address would be # - # - # - #.

- Quadrant:** # All Quadrants
- Sector:** # All sectors of all Quadrant
- Radial:** # All radials
- Station:** # All stations defined by above

This "All Call" is illustrated as shown.



GROUP SELECTION-"ALL-CALL"
GROUP #####

b) Governmental: County, City & Station

For this next type of address structure, assume that the siren system in question is used primarily for tornado warnings throughout a major population center. This center encompasses three counties with each county having no more than ten cities. Two cities contain more than 50 high-power voice and siren stations.

The following represents a Governmental System 4-digit address configuration, allowing activation by "All Call", county group activations, city group activations and individual station activations:

X	X	X	X
:	:	:	:..... Individual Siren Station (0 - 9)
:	:		
:	:.....		City (0 - 9)*
:			
:.....			County (0 - 9)

***One digit could also be reserved for unincorporated areas.**

An address of 2 - 5 - 4 - 5 would indicate the following individual station:

Siren Station 45, in City 5, in County 2.

The Wild Card (#) permits the use of several different types of group activations. Three samples follow:

Sample 1: County Activation (1 - # - # - #)
All Siren Stations in all Cities in County 1 will be activated by this transmission.

Sample 2: City Activation (1 - 5 - # - #)
All Siren Stations in City 5 of County 1 will be activated by this transmission.

Sample 3: System All Call (# - # - # - #)
All Siren Stations in all Cities in all Counties will be activated by this transmission.

CHAPTER 3: TROUBLESHOOTING

Section IX: Troubleshooting

a) Audio Loss

If after activating the siren there is no audio output, perform the following procedure step by step. This procedure will require a digital multimeter.

1. Locate the Audio Presence LED on the controller board (see "Fig. 18: System LED Diagnostic Indicators" on page 34). When audio is present on the board, this LED will be on.
2. Activate the WAIL siren tone from the control panel on the siren cabinet. Confirm that the Audio Presence LED is on. If this LED is not on *or* if it turns off quickly, measure the battery voltage. The siren will not activate if battery voltage drops below 19 VDC. Be sure to measure the battery voltage at the same time you activate the siren. The batteries may show a good float voltage while they are not under load, but upon activation, the battery voltage may drop below 19 VDC if their capacity is low. Note that when the siren shuts down and the load is removed from the batteries, the voltage may rapidly return to 25 VDC or more. If this condition is occurring, the batteries will need to be replaced. If the voltages are in the normal range, proceed to step 3.
3. Locate connector J2 on the control board. With your multimeter set to AC volts, measure across pins 6 and 7 (White with Orange stripe and White with Brown stripe). With the siren tone running, 5 VAC should be present. *If no voltage is present, the controller board is probably at fault.*
NOTE: Confirm that the audio presence LED is on while performing these measurements. It indicates that the siren controller is still activated. If the specified voltages are present, proceed to step 4.
4. With the siren tone still active, measure across pin 1 (Blue wire) and pin 2 (Black w/White trace) on each of the siren amplifiers. 5 VAC should be present at each amplifier. If so, proceed to step 5. If no voltage is measured, this is indicative of a wiring problem between the controller board and the siren amplifiers. Check the wiring between these components
5. Set your meter to measure resistance at its lowest scale. Disconnect the speaker drivers from their amplifiers. Measure across each of the speaker drivers, making sure that at least one wire of each driver is removed from the power amplifier (or else the transformer in the amp is being measured as well). Each driver should have a DC resistance of approximately 3 Ohms +/- .3 Ohms. If a resistance value outside of this range is found, contact factory.

6. Set your meter to measure DC Volts. Connect the negative lead of your meter to ground (one of the solid black wires in the multi-position connector on the amplifier is a good ground source). With a siren tone activated, measure the following wires for the following voltages (approximately):

<u>Wire</u>	<u>Proper Voltage</u>	<u>If not...</u>
Grey	6 VDC	Controller Board is suspect
Brown	5 VDC	Controller Board is suspect
Solid White (all)	24 VDC	Contact Factory

b) AC Battery Charger

The Vortex is basically a 24 volt DC battery powered device. An internal battery charger maintains the batteries at an optimum charge level. The charger incorporates a temperature compensation circuit to insure proper charging regardless of outside temperature.

There are two (2) serviceable fuses on the battery charger. The AC fuse is a 7 amp, SLO-BLO, 3AG type, located at the back of the printed circuit board. The fuse for battery charge voltage is a 7 amp, 3AG type, located along the right rear of the printed circuit board.

c) Solar Regulator

The following procedure can be performed to confirm proper operation of the solar regulator:

1. Disconnect the solar panel from the charger. With a DC voltmeter, measure the voltage across the wires coming from the solar panel. The voltage should be greater than 32 VDC (NOTE: The solar panel must be in direct sunlight).
2. Reconnect the solar panel to the charger. Monitor the battery voltage with the cabinet voltmeter. The float voltage will vary between 25 to 30 VDC, depending on battery temperature. When the solar regulator is charging, the DC LED on the circuit board will be on. During normal operation the charger will cycle on and off.

d) Partial or Full Diagnostic Failure

This procedure is to be used if the Partial or Full diagnostic LED (located on the controller board) indicates that a problem has been detected. A Partial indication means that at least one speaker and/or amplifier is operational. A Full indication means that all speakers and amplifiers are operational.

Note: **In order for a good Full indicator to be valid, a good Partial indicator must also be present).**

1. Connect the PalmPC to the siren station *via* the com port on the front of the siren cabinet control panel.
2. Display the "Status" screen on the PalmPC.
3. Press the SI TEST® control on the front control panel.
4. Each amplifier contains a red LED that is visible on the front of the control panel. Note if all the LED's are on. Tap the "Update Status" button on the PalmPC and note which amp is displaying an error.
5. Open the front panel and swap the speaker driver wires from the amplifier that indicated a failure, with an amplifier with a lit LED. For example: if the LED for amplifier 1 is the only LED not on, install amplifier 1 speaker wires onto amplifier 2 and install amplifier 2 speaker wires onto amplifier 1. This will diagnose if it is the speaker or the amplifier that has failed. You may also measure the DC resistance of the speaker driver with your ohm meter. Be sure that the speaker driver wires are disconnected from the amp prior to measuring. A good driver will read 3 ohms +/- .3 ohms.

Section X: Maintenance

Although The Vortex is of a dependable, solid-state design, periodic activation, field inspection and preventive maintenance is recommended to insure the maximum performance of each station.

a) Frequency of Testing and Activation

A system of twice-monthly activation and confirmation, combined with a quarterly service and preventive maintenance is recommended to help insure the successful performance of a station. Increasing the frequency of testing will support and improve a station's test record.

Stations located in environmentally adverse locations will require inspection and preventive maintenance at more frequent intervals than just discussed. Stations should always be inspected following severe storms.

If a station is activated by remote control (landline or radio), the twice-monthly activation should be performed using the remote control link.

The twice-monthly activation of a station can be confirmed by several different methods, depending upon the options selected with each Whelen System.

b) Local Site Confirmation

For a basic station activated at the cabinet, or by landline or radio, have an observer confirm that the station activated audibly. The observer should report successful as well as failed station tests. Station Performance Logs should be maintained. It is important to understand that audible confirmation alone is not assurance that the station is operating at 100% power. This requires inspecting the station in greater detail.

Stations may be optionally equipped with counters that advance upon radio or tone generator activation. These counters do not confirm total operation or the final expected output of an outdoor warning device.

The station's activation may be confirmed using SI TEST® or full power siren mode. Following an activation, SI TEST® displays its information on control board mounted LED's or through a LED display board visible on the right side of the cabinet. Fig. 15 (page 34) shows the location and function of the LED's on the control board. The cabinet mounted display board LED's will confirm the following (from Left to Right):

Red	AC Power
Yellow	DC Power at minimum proper operating level
Red	Partial Amplifier and Speaker Driver Operation
Green	Full Amplifier and Speaker Driver Operation
Red	Rotor Operation

Following activation and observation the results should be noted in the performance log. Any indication of incomplete operation presented by the LED indicators should prompt IMMEDIATE service attention.

The SI TEST® system retains information until cleared by a specific command.

The SI TEST® information stored at the station, if not cleared, will update itself automatically with subsequent SI TEST® activations.

c) Remote Monitoring and Confirmation

Stations equipped with the optional Whelen COMM/STAT™ Command and Status Monitoring control, allow remote monitoring of status as well as confirmation of system activation. COMM/STAT™ returns the results of a remote station activation (both SI TEST® and siren warning mode) in a DTMF encoded format via radio link.

Remote monitoring by RF link eliminates the necessity of physically visiting a station to confirm an activation.

Following the activation of a station, a “Status Request” may be sent to that station by DTMF encoded radio command. Diagnostic SI TEST® information is then presented to the status encoder at the station, converted into DTMF code and transmitted back to the control center, where one of several COMM/STAT™ base station products will convert the DTMF code into meaningful information.

d) Quarterly Maintenance

Developing a quarterly inspection and preventive maintenance program for an outdoor warning station requires a thorough understanding of all the elements and expectations of the system. The following section provides an overview and basic guideline for quarterly station inspection and preventive maintenance program for the sample station.

e) Visual Siren Station Physical Inspection

- **Observe the speaker cluster, siren cabinet and AC Service for any signs of damage or loose mounting hardware (Some shrinkage of a newly treated utility pole may occur in the first several years following installation, requiring the tightening of mounting hardware.**
- **Check all conduit for watertight connection and entrance into the siren cabinet.**
- **Inspect the AC Service for damage, blown fuses, degraded (corroded) power connections and integrity of the lightning arrester.**
- **Inspect the grounding system for AC Service, Siren Cabinet and pole top equipment. Verify connections and acceptability of earth ground.**
- **Observe the pole for any shifting and/or leaning. Poles that are not plumb will not properly direct alerting sounds.**
- **Examine entire station for any signs of vandalism or forced entry.**

f) Siren Cabinet and Components

- **Inspect AC Outlet, fuse and surge suppression equipment. Examine system for infiltration of foreign material(s), rodents or other pests.**
- **Inspect and, if necessary, clean all drain holes and vent screens.**
- **Inspect battery terminal connections and clean if necessary. Re-apply silicone coating to battery terminals if necessary. Observe battery voltage with siren in inactive state (AC power must be on to station, otherwise station must be powered up to observe meter).**
- **Examine all wiring harnesses for chafing. Verify wiring terminations for tightness and wiring connections for proper electrical connections. Replace and correct any corroded or marginal connections. Inspect antenna for proper connection.**

g) Speaker Assembly and Pole Top Equipment

Note: Any examination of Pole Top equipment should be performed with the station audibly disabled.

- **Inspect speaker for blockage by rodents, pests or other foreign material. Clean if necessary. Inspect any wiring cables or harnesses for chafing. Inspect the siren driver compartment for infiltration of foreign materials, rodents or pests. Clean if necessary. Confirm that the driver compartment will allow for water or moisture drainage. Inspect speaker wiring connections for any sign of corrosion.**

- **Verify tightness of all mounting hardware.**
- **Check all wiring terminations and connections.**
- **Verify lubrication of the rotor gear train. The recommended inspection interval is initially 6 months. Following the initial two inspections, the owner may determine if a longer inspection interval is acceptable. Varying weather conditions will affect this interval. Many stations are located in areas of the country where an annual inspection/lubrication interval is acceptable.**

h) Station Performance Testing

Note: Depending on local conditions and station options selected, the station may be tested on or off line. Off line testing of the station involves disconnecting the speaker drivers from the siren amplifiers, so as not to disturb the public when verifying tone generator operation. A complete test must, however, include the testing of the siren amplifier operation.

A basic routine, verifying the performance and operation of the sample station previously described, would be as follows:

1. Local and Remote Activation -

Activation of each remote station function by local control and remote control. With amplifiers on and off line as needed. An examination of each activation function will also facilitate a verification of related and subsequent system module activations and electrical connections that would be caused by an activation command. Also confirm function time outs (ex.: does the Alert signal time out at three minutes as per user specification?).

2. Response to Station Address and All Call address programming -

Control Center reception and activation on SI TEST® or non-tone activation, for individual station address and All Call address selection.

3. Siren Amplifiers -

Inspect for complete operation with speaker drivers (observe LED's).

4. SI TEST® Station Analysis -

Observe and confirm diagnostic status of:

AC

DC

Partial Amplifier & Speaker Driver Operation (disable one amplifier to confirm this test).

Full Amplifier & Speaker Driver Operation

Verify AC drop out during SI TEST® mode.

5. Battery Charger Operation -

Observe for proper charging operation.

6. Batteries -

Verify voltage stability under load.

Perform a load test.

7. Status Encoder -

Perform a diagnostic SI TEST® of the station and compare status information with observations made locally at the station.

Disable one speaker and verify that the "Full" LED indicator is off.

Disable AC and verify that the "AC" LED indicator is off.

Compare battery voltage return status with observed and measured battery voltage.

8. Transmitter -

Check status encoder DTMF tone level modulation with transmitter.

Check transmitter set up.

Verify power output and SWR.

9. Rotor -

Activate the siren with Si-test™ or tone and verify speaker rotation. Speaker should oscillate back and forth.

Note: On concluding any examination of a station where connectors have been opened and closed, a final radio test by either SI TEST® or full power should be performed and the results observed for a complete successful test.

The following is a sample form that may be used for quarterly inspection and maintenance.

MAINTENANCE CHECK LIST

Station #: _____ Siren Address: _____

Installation Date: ____/____/____ Inspection Date: _____

Inspector: _____

PHYSICAL INSPECTION:

	<u>OK</u>	<u>NOT OK</u>	<u>COMMENT</u>
Mounting Hardware	___	___	_____
Speaker Assembly	___	___	_____
AC Service	___	___	_____
Proper Grounding	___	___	_____
Solar Panels*	___	___	_____
Antenna*	___	___	_____
Conduit Connections	___	___	_____
Siren Case Assembly	___	___	_____
Batteries	___	___	_____
Components Secure	___	___	_____
Harnesses	___	___	_____

LOCAL OPERATIONAL TESTING

Battery Voltage	___	___	_____
Manual Test:			
Clear	___	___	_____
Wail	___	___	_____
Attack	___	___	_____
Alert	___	___	_____
Airhorn	___	___	_____
Hi-Lo	___	___	_____
Whoop	___	___	_____
Clockwise	___	___	_____
Counter Clockwise	___	___	_____
(SI TEST®):			
AC LED	___	___	_____
DC LED	___	___	_____
Partial LED	___	___	_____
Full LED	___	___	_____
Rotor LED	___	___	_____
Timer Set LED	___	___	_____
Audio Present LED	___	___	_____

MAINTENANCE CHECK LIST

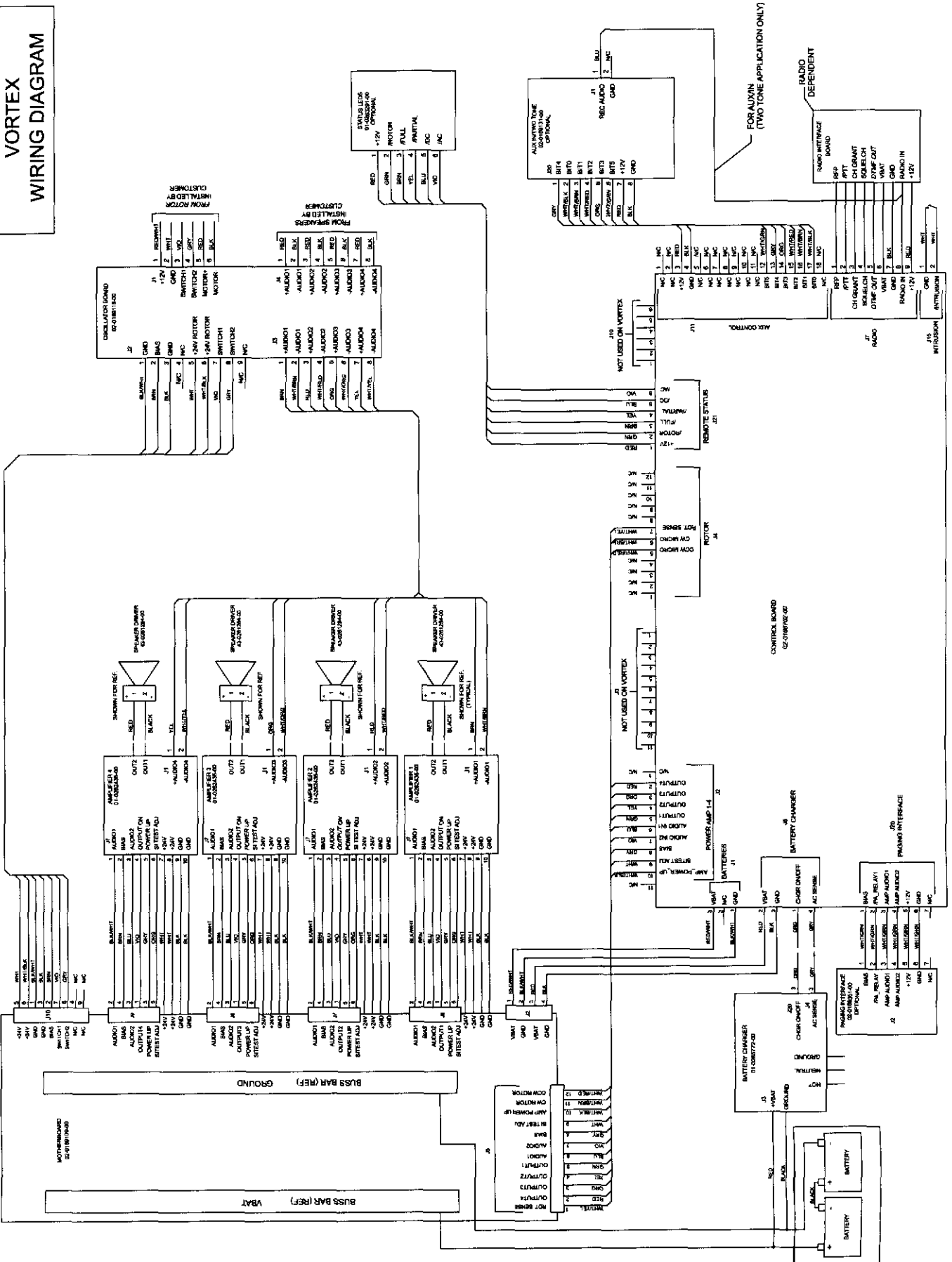
(continued)

Radio*:

	<u>OK</u>	<u>NOT OK</u>	<u>COMMENT</u>
Squelch Control	—	—	—
Sensitivity	—	—	—
Antenna Tuned*	—	—	—
Transmit LED	—	—	—
Remote Activation:			
Clear	—	—	—
Wail	—	—	—
Attack	—	—	—
Alert	—	—	—
Airhorn	—	—	—
Hi-Lo	—	—	—
Whoop	—	—	—
Wail / 5 Sec.	—	—	—
All Call	—	—	—
Speaker LEDs:			
1	—	—	—
2	—	—	—
3	—	—	—
4	—	—	—
SI TEST@:			
AC	—	—	—
DC	—	—	—
Partial	—	—	—
Full	—	—	—
Status Request	—	—	—
Intrusion*	—	—	—

***Optional**

VORTEX WIRING DIAGRAM



PUBLIC WARNING SYSTEM PRODUCTS ONLY

USER DIRECT WARRANTY

PUBLIC WARNING SYSTEM PRODUCTS ONLY

Whelen's warranty on Whelen High-Power Voice and Siren Systems is limited to the following:

For a period of 24 months from the date of manufacture, Whelen will repair* or replace at its option, defective modules, which are manufactured by Whelen Engineering Company, Inc. in their entirety, and are returned by the customer via prepaid freight. Whelen will return repaired modules via prepaid ground transportation if shipping address is within the 48 contiguous states or District of Columbia. Repaired modules shipped outside of the 48 contiguous states or District of Columbia are at customer's expense.

Excluded from warranty consideration is any loss arising from vandalism, tampering, misuse, improper installation, environmental damage or alterations to the product.

A "pass-through" warranty is offered for products manufactured by other companies that are sold with Whelen High-Power Voice and Siren Systems and Whelen Electronic Sirens. Typical examples of such products include, but are not limited to: computers, printers, weather data sensors, uninterruptible power supplies, and batteries. Warranties on these products are "pass-through", meaning the equipment warranty will be limited to that offered by the equipment's original manufacturer and that the warranty will exist solely between the manufacturer and end user. Exceptions will be by prior contractual agreement only.

For a three year period following the 24 month warranty, Whelen will repair defective modules, which are manufactured in their entirety by Whelen and are returned to Whelen via prepaid freight for a flat fee. Whelen reserves the right to determine of the unit is repairable. This flat fee is now \$75 per module. This offering is limited to defective modules, exclusive of any loss arising from vandalism, misuse, improper installation, tampering or environmental damage. Whelen warrants its repair of defective modules for a period of one year.

Whelen will not be held liable for any incidental or consequential damages, and assumes no responsibility or liability for expenses incurred in the removal and/or reinstallation of products requiring service and/or repair, nor the packaging, handling and shipping to the Factory Repair Center, nor the handling of products returned from the repair center after service or repair.

There are no warranties, expressed or implied, including, but not limited to, any implied merchantability or fitness for a particular use.

Whelen Engineering Company, Inc. reserves the right to discontinue, modify, or upgrade any products of its manufacture with design improvements without prior notice.

This Warranty gives you specific rights and you may also have other rights which vary from state to state.

WHELEN[®]
ENGINEERING COMPANY, INC.

Route 145, Winthrop Road, Chester, CT 06412-0684
Tel: (860) 526-9504 (bullet) Fax: (860) 526-4784

PWSWARR-10572C-101697

PROJECT SCHEDULE

DATES TO BE DETERMINED

Total Project Timeline Approximately Twenty Weeks

12 Weeks for siren shipments 8 weeks installation

- ❖ Contract Signing
- ❖ Submit Initial Equipment Order To Whelen Engineering
 - ✓ Manufacturing Begins
 - ✓ Ten to Twelve Weeks for first delivery
- ❖ Kickoff Meeting With All Participants (within two weeks of contract signing)
 - ✓ Equipment Acceptance
 - ✓ Sirens
 - ✓ Poles
 - ✓ Radio Systems
 - ✓ Required Updates
 - ✓ Approval of all RFP information
 - ✓ Schedule Site Surveys
- ❖ Establish Site Survey Guidelines Designated at Kickoff Meeting
- ❖ Site Surveys Begin
 - ✓ Four weeks for site evaluations
- ❖ Site Survey Evaluation Meeting (As needed)
 - ✓ Compilation of Results
 - ✓ Site Location Requirements
 - ✓ Review Permit Process
 - ✓ Discuss ways to speed up the project with all project participants.
 - ✓ Resolution of Conflicts and Design Changes
 - ✓ Submit Request for Approval of Final System Design Acceptance To The City
- ❖ Subcontractor Meeting (Week 8-10)
 - ✓ Pole Design Approval
 - ✓ Work on Permit Approval Begins
 - ✓ Establish an equipment list corresponding to installation phases

- ❖ Receive Approval on Final System Design Form City Weeks 10-12 for Next 2 Bulleted Items
- ❖ Survey Approval/Construction Sequence Meeting
 - ✓ Site Surveys
 - ✓ Electrical Requirements
 - ✓ Neighborhood Approval
 - ✓ Call Dig Test
- ❖ Pre-Construction Meeting
 - ✓ Review any design changes
 - ✓ Review AR One Call permits
 - ✓ Final review of permit requirements
 - ✓ Define Acceptance Test Plan
- ❖ Begin Receipt of Siren Equipment Weeks 12-20
 - ✓ Whelen Siren shipments of ten units per week
- ❖ Drop First Shipment of Poles at sites
 - ✓ Installation of Sirens Begins (assume a minimum of 6 sirens per week)
 - ✓ Submit Weekly Installation/Testing Report
- ❖ Operator Training Begins (Estimate 1 Day per location for Training)
- ❖ Construction Completion Meeting
 - ✓ Review Compliance
 - ✓ Closeout Construction Documentation
- ❖ Coverage Acceptance Testing Begins
 - ✓ Submit Documentation of Testing
- ❖ City Acceptance of Overall System
- ❖ Warranty Begins

LTM Engineering, Inc.

January 31, 2001

Mr. Kerry Wagnon, Program Manger
Oklahoma City Municipal Facilities Authority
420 West Main
Oklahoma city, Oklahoma 73102

Subject: Performance of SafetyCom, Inc., on the Tempe Town Lake
Emergency Warning System

Dear Mr. Wagnon:

This is in reference to an installation recently completed by SafetyCom, Inc., of an emergency warning system featuring a Whelen siren system in Tempe, Arizona.

The City of Tempe recently created a two-mile lake through the use of inflatable rubber dams in the channelized portion of the normally dry Salt River bed. Tempe Town Lake is expected to draw up to 5 million visitors annually for boating and special events on the Lake as well as perimeter activities such as bicycling, outdoor sports, shopping, and dining.

In recognition of public safety concerns, the City retained LTM Engineering, Inc., to develop an emergency warning system. The Town Lake EWS was installed by SafetyCom, Inc., and uses innovative applications of existing technology to provide the public with weather forecasts, severe weather warnings, and specific visual and audio warnings for high winds, lightning, and other hazards that would require lake evacuation.

The Whelen siren system was selected because it was uniquely able to meet critical installation, integration, reliability, and performance criteria. Throughout the design and installation, LTM Engineering worked closely with Jon-Claude Jenkins at SafetyCom to ensure timely completion and smooth integration with the City's existing and new equipment. Mr. Jenkins was very responsive and knowledgeable throughout the process, and provided valuable input during installation to enhance the system performance and capabilities. To date, the Town Lake EWS is operating well and is a showcased feature of Tempe Town Lake.

Sincerely,

LTM ENGINEERING, INC.



Laurie T. Miller, P.E.
President



BANK of the OZARKS®

www.bankozarks.com

Chenal Parkway & W. Markham St.
P.O. Box 8811 • Little Rock, AR 72231-8811
(501) 978-2265 • Fax (501) 978-2350

December 28, 2001

To Whom It May Concern:

Re: Letter of Recommendation for Safetycom, Inc.

Bank of the Ozarks is pleased to recommend Safetycom, Inc. for your project.

Safetycom, Inc. has been a customer of Bank of the Ozarks for the last year. The company presently has deposits and short-term investments with us totaling in the six figures. Additionally, the company has a credit facility to provide Letters of Credit to its supplier, Whelen Engineering Company. All accounts are in good standing and we consider this a valuable business relationship.

Safetycom, Inc. and the owners of the company are important customers of Bank of the Ozarks and are active and important in our community.

Sincerely,

George G. Gleason
Chairman of the Board



Town of Collierville

Emergency Management Agency
Ben F. Wilson, Director



May 31, 2000

To Whom This May Concern:

This document acknowledges that the Town of Collierville purchased an outdoor warning siren system in November of 1998. This was a turnkey project consisting of 13 electronic sirens. The cost of the project was \$300,000.00.

All three major outdoor warning siren manufactures submitted bid proposals per Town of Collierville technical and performance specifications.

The contract was awarded to Safety Com., Inc. of Little Rock, Arkansas. Safety Com., Inc. is an authorized managing sales representative of the Whelen Engineering Company, Inc. of Chester, CT.

Representative of Safety Com., Inc. acted in a most professional manner from the inception of the project to the day of completion and certification. This included, but not limited to:

- Pre-bid conference requirements
- Ambient noise level surveys
- On site product demonstration requirements
- Detail mapping for individual siren locations
- Product identification
- Performance specifications
- Technical specifications
- Technical assistance - 2 way radio communications
- Absolute adherence to Town of Collierville specifications
- Absolute adherence to Town of Collierville purchasing policies and procedures
- Met bid bond requirements
- Met performance requirements
- Adhered to project calendar
- Met all installation requirements
- Provided detail documents relating to system operation and certification
- Conducted training on all 3 shifts for dispatch personnel
- Has followed up to date on system warranty

Finally, it is my belief that the categories listed is a must when considering the purchase of outdoor warning sirens. Each category must be coupled with many hours of research and development as to provide the latest state of the art system. Then last but not least, representatives offering such equipment and components thereof must spend many hours describing and detailing the performance of the same.

No doubt the dedication, interest and product confidence displayed by Safety Com., Inc. representatives played an integral part in providing the Town of Collierville with an outdoor warning siren system that our citizens can be proud of.

Respectfully,



Ben F. Wilson,
Director Collierville Emergency Management

BFW:sel



Stuart Thomas
Chief of Police

LITTLE ROCK POLICE DEPARTMENT
700 WEST MARKHAM
LITTLE ROCK, ARKANSAS 72201-1329



(501)-371-4605
Fax (501)-371-4892

June 6, 2006

RE: SafetyCom, Inc.

This letter comes to make a professional recommendation for Safety, Inc. to perspective parties.

In the spring of 2004, the City of Little Rock entered into a contract with SafetyCom, Inc. to replace our outdated network of Outdoor Warning Sirens with a new system consisting of 56 new voice and siren systems.

SafetyCom, Inc. performed their duties flawlessly and delivered the system as promised and on schedule. The system works as proposed and has added an improved sense of security for the citizens of our city.

We have been very pleased with the on going support offered by SafetyCom, Inc. They have volunteered to be on-call to answer questions and provide support at anytime for our dispatch operators, even at 3:00 a.m.!

We find SafetyCom, Inc. and its Project Team led by Jon-Claude Jenkins to be very competent, professional and capable in their ability to provide a system of this complexity and size.

The City of Little Rock is proud to recommend SafetyCom, Inc. and encourages all interested parties to give them serious consideration.

I encourage you to consider SafetyCom, Inc. as the vendor for your Public Safety needs. If you need to contact me for any additional information, please feel free to do so at (501) 371-4540 or e-mail me at lmartin@littlerock.org

Sincerely,

Laura Martin
City of Little Rock
9-1-1 Director Police/Fire Communications



Shelby County Tennessee

Jim Rout, Mayor

February 5, 2001

TO WHOM THIS MAY CONCERN:

The governing body of Shelby County, Tennessee entered into a contract with SafetyCom, Inc. of North Little Rock, Arkansas on January 24th of 2000 for the purchase and installation of an outdoor siren warning system. This endeavor is a multi-phased project which will require a large number of sirens in its entirety. We are currently in the final stages of finishing the first phase of this project.

Prior to putting this project out for bid, Shelby County engineers conducted comprehensive research to determine the most up to date and technologically sound sirens available on today's market. Our research resulted in a specification detailing omni-directional, electronic voice and siren systems. We received two (2) bids detailing two of the major manufacturer's products. The contract was awarded to SafetyCom, Inc. representing Whelen Engineering Co.

Representatives of SafetyCom were most professional in every aspect of the job. Jon-Claude Jenkins served as Project Manager and handled all of the required tasks to the complete satisfaction of Shelby County engineers and managed even the most trying and challenging aspects of the job with competence and control.

During the installation of one of the sirens in one of our more affluent neighborhoods, we experienced opposition from several of its residents. In the end we were forced to relocate the siren. Mr. Jenkins' experience proved to be extremely important as he was asked to promptly organize the movement of a pre-assembled 6,000 lb. siren assembly within a matter of two hours to avoid causing traffic problems in the area. The SafetyCom team handled the task without a single hitch further enhancing their value.

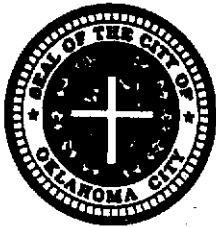
February 5, 2001
Page 2

The dedication, knowledge and confidence displayed by Jr. Jenkins and the rest of the Safety Com is outstanding and I strongly recommend them. Without doubt, they have proven themselves to be one of the most capable contractors we have had the pleasure to work with in quite some time.

Respectfully,

A handwritten signature in black ink, appearing to read 'Ted Fox', written over a horizontal line.

Ted Fox, Director
Public Works



The City of
OKLAHOMA CITY

PUBLIC SAFETY CAPITAL PROJECT OFFICE

November 30, 2001

To Whom It May Concern:

In May 2001, the City of Oklahoma City entered into a contract with SafetyCom, Inc. of North Little Rock Arkansas for a turnkey outdoor siren warning system. The project scope included 181 Whelen outdoor electronic sirens, covering approximately 620 square miles, at a cost of approximately \$4.5 million.

As of the writing of this letter, 140 sirens have been installed. The purpose of this letter is not to highlight one technology over another, nor is it to extol one manufacturer's equipment over another (though we are quite satisfied with the equipment provided by Whelen). The purpose is to convey to you our experience working with SafetyCom as prime contractor for this project.

Our goal has been to implement sufficient numbers of outdoor sirens as necessary to provide extensive coverage throughout our large geographic area, without negatively impacting our citizens. We believed one of the most critical factors leading to a successful project would be site selection and installation of equipment. The implementation process has validated that belief, as well as the benefits provided by the implementation team selected by SafetyCom. They have combined their specific expertise with local providers of survey and site planning, together with an established local electrical contractor, to create an efficient implementation team.

This team led by SafetyCom has been responsive to the needs and changes of the City and its citizens. Deliveries of equipment and quality of service have met their promises and our expectations. There have been very few surprises, no substantive disagreements, and no negative publicity associated with this project to date.

Though we have not completed the implementation and therefore have no system performance experiences to share at this time, I would not hesitate to recommend SafetyCom and its employees for any outdoor warning project you may be contemplating.

If you have any specific questions regarding this matter, please do not hesitate to contact me directly.

Sincerely,

A handwritten signature in cursive script that reads "Kerry R. Wagnon".

Kerry R. Wagnon
Program Director