

**ARCHITECTS  
&  
ENGINEERS  
SPECIFICATIONS**

**ADA 100<sup>®</sup>**  
**AREA OF REFUGE SYSTEM**  
VERSION 6.2A



HOUSING DEVICES, INC  
407 R. MYSTIC AVE.  
MEDFORD, MA 02155  
800-392-5200

**[www.housingdevices.com](http://www.housingdevices.com)**

# ADA 100<sup>®</sup> Area of Refuge System

## ARCHITECTS AND ENGINEERS SPECIFICATIONS

### PART 1 GENERAL

- 1.1 The Contractor shall furnish and install all ADA 100 Area of Refuge System equipment including, but not limited to, outlet boxes, conduit, wiring, telephones, Master Station and Area Stations as shown on the plans, and all other equipment necessary to provide a complete and operating Area of Refuge system for the \_\_\_\_\_ Project. Equipment furnished under the terms of this specification shall be the standard product of a single manufacturer.
- 1.2 Equipment supplied by Housing Devices, Inc., 407 R. Mystic Avenue, Medford, MA 02155, (800-392-5200) shall be considered as meeting these specifications and as the base bid. Any alternate system must be approved by the specifying authority. Bidders supplying an alternate system must make the authority aware of their intentions and provide adequate information, including catalog cuts, working and shop drawings, and a demonstration of the proposed system at least 10 days prior to bid date. Any prior approval of an alternate system does not exempt the supplier from meeting the intent of these specifications. If the alternate system fails to provide all the requirements specified in this document, the Contractor shall be responsible for all costs associated with the removal and replacement of said equipment.
  - 1.2.1 The system shall be vandal resistant, manufactured of 16 gauge (0.062) 304 stainless steel and comply with the Americans with Disabilities Act sections 4.3.11.4 and 4.3.11.5.
  - 1.2.2 The Master Station and Area Stations shall be custom engraved (not silk screened or stamped).
  - 1.2.3 The Area Station shall have a large domed, stainless steel engraved “3” diameter momentary pushbutton with the words “PUSH FOR HELP” backfill painted in bright red. Said button shall be “heavy duty” and the surface engraving shall be deep enough to withstand extreme conditions. It shall be activated with a minimum of effort and engineered so that it may be depressed from any angle for ease of use provided. No other hardware shall protrude from the station as high as the pushbutton.
  - 1.2.4 The system’s Area Stations shall also be weather resistant.
  - 1.2.5 The system shall be modular and expandable to include future Area Stations.
  - 1.2.6 The wire shall be 7 conductor 3 pair + one conductor 20 AWG with an overall shield HDI part # HDI ADA-S

### SUBMITTALS

- 1.3 Data sheets on all equipment shall be provided.
- 1.4 Internal control cabinet drawings showing internal block diagram connections shall be provided.
- 1.5 Wiring diagrams showing typical field wiring connections shall be provided.

### QUALIFICATIONS

- 1.6 The Contractor shall be from an established business that has been operating in the area for a minimum of five years.
- 1.7 The Contractor shall show evidence that he maintains a service organization and parts inventory to adequately support the supplied equipment.

# ADA 100<sup>®</sup> Area of Refuge System

## MAINTENANCE SERVICE

- 1.8 The Contractor shall provide a one year guarantee of the installed system against defects in material and workmanship. All contractor labor and materials shall be provided at no expense to the Owner. Guarantee period shall begin on the date of acceptance by the Owner or Engineer.
- 1.9 The System Manufacturer shall warrantee the installed system's components against defects in material and manufacturer's workmanship for a period of one year from date of the system's shipment from the Manufacturer to the Contractor, Owner, Engineer or other specified receiving authority. Replacement or repair of system components only (job-site labor not included) shall be at the Manufacturer's discretion and provided at no expense to the Owner (shipping costs at other than standard ground rates will be the Owner's responsibility).

## QUALITY ASSURANCE

- 1.10 The Contractor shall currently maintain a locally run business for a minimum of five years and shall be an authorized distributor of the supplied equipment with full warranty privileges.
- 1.11 The Contractor shall maintain at his facility the necessary spare parts in the proper proportion as recommended by the equipment Manufacturer to maintain and service the equipment being supplied. This facility shall be available for inspection by the Engineer.
- 1.12 The supplying Contractor shall have attended the Manufacturer's installation and service school or have been authorized by the Manufacturer to install the equipment.
- 1.13 The Contractor shall furnish Manufacturer's manuals of the completed system including individual specification sheets, schematics, inter-panel and intra-panel wiring diagrams. In addition, all information necessary for the proper operation of the system must be included. Any bidder using other than the specified equipment must provide this information prior to bidding.
- 1.14 As built drawings that include any changes to wiring, wiring designations, junction box labeling and any other pertinent information shall be supplied upon completion of project.

## IN SERVICE TRAINING

- 1.15 The Contractor shall furnish training with the system. These sessions shall be broken into segments that will facilitate the training of individuals in operating the Master Station as well as Area Stations. Operating manuals and users guides shall be provided at the time of the training.

## WIRING

- 1.16 System wiring shall be in accordance with good engineering practices as established by the EIA and NEC. Wiring shall meet all established state and local electrical codes. All wiring shall test free from shorts and grounded as specified.
- 1.17 System wiring shall be accomplished using labeled, captive screw, plug-in connectors and 20 AWG shielded twisted pairs for all connections.
- 1.18

# ADA 100<sup>®</sup> Area of Refuge System

## BASIC SYSTEM OPERATION

- 1.19 When the system is in normal operating mode, the Master Station shall display an illuminated “green” LED system ready light indicating the system is functioning and operating correctly. When operated, the system shall provide two-way audio and visual communications between the Master Station location and each Area Station initiating a request for help. Communication at each Area Station shall be hands-free after initial contact from the Area Station.
- 1.20 When a “call for help” is placed by an Area Station, the system shall initiate audio and visual alarms at both the Master Station and each of the affected Area Stations. The audible alarm shall be at least 90 decibels and the visual display shall be indicated by a SuperBrite<sup>®</sup> LED light and surface engraved or attached engraved location name (ID) directory of the calling Area Station.
- 1.21 Communication is established by simply answering via the Master Station. When communication is completed and the Master Station communication link has been broken, the LED display will continue to show the Area Station location (ID) until the system has been reset at the Master Station.
- 1.22 When a “call for help” is placed by an Area Station, several indications must be provided at the Area Station to assure the caller that the call is being processed. After pressing the 3” “PUSH FOR HELP” call button the caller will be provided with both an audio and visual confirmation. A “HELP REQUESTED” LED shall illuminate and an alarm will sound at both the Area Station and the Master Station. When the security attendant at the Master Station has answered the call, the “HELP COMING” LED will illuminate and the security attendant’s voice can be heard through the speaker at the Area Station. Full two-way voice “hands-free” communication shall be provided at the Area Stations. The caller simply talks in the direction of the Area Station speaker, which acts as a microphone and enables the caller’s voice to be reproduced at the Master Station. Upon completion of the call, a LED on the Area Station indicating “HELP COMING” shall remain illuminated, providing visual indication that the “HELP REQUESTED” LED is acknowledged from the Master Station. The LED will not extinguish until building personnel have reported to the Area of Rescue Assistance and the system has been reset. Resetting the system shall be accomplished by turning a momentary key switch at the Master Station. The system shall also incorporate a momentary key switch at the Area Station if required (optional).

# ADA 100<sup>®</sup> Area of Refuge System

## PART 2 PRODUCTS

- 2.0 The installation shall include a supervised based Area Station communication system consisting of a Master Station capable of handling any number of Area Stations. The system shall be equipped for \_\_\_\_ stations.

### MASTER STATION

- 2.1 The Master Station shall be constructed of 16 gauge (0.062) 304 stainless steel. The station faceplate shall be 11"W x 11"H (larger for systems with more than 5 Area Stations), be capable of surface or flush mounting and utilize tamper proof mounting hardware. It shall include the following:
- 2.1.1 Panel capacity for the specified number of Area Stations.
  - 2.1.2 Two 7/16" diameter flat metal buttons ("TALK", "LISTEN") per Area Station to initiate and respond to a request for assistance from each specific Area Station in the system.
  - 2.1.3 When in standby mode, a "green" LED shall be illuminated to indicate the system is operational. Depressing the "TALK" button shall illuminate a "HELP COMING" LED at the respective Area Station, silence the piezoelectric alarm, and open up two-way voice communication between the Master Station and Area Station(s).
  - 2.1.4 Two SuperBrite<sup>®</sup> colored LEDs per Area Station to visually indicate "HELP REQUESTED" (red LED) or a line fault (amber LED) for each specific Area Station in the system, and to indicate that a fault has occurred at a particular Area Station(s), wiring between Area Station(s) and Master Station, or other system components shall be provided.
  - 2.1.5 A piezoelectric alarm shall generate a 90 dbA signal sounding through the Master Station to aurally indicate "HELP REQUESTED" from an Area Station.
  - 2.1.6 An audio confirmation signal shall be generated from the Master to the Area Station to acknowledge the request for assistance.
  - 2.1.7 Acknowledgment of the "HELP REQUESTED" call from the Area Station to the Master Station shall also be indicated at the Area Station by the illumination of a red LED ("HELP COMING") on the Area Station.
  - 2.1.8 The system shall be able to provide an optional set of N/O dry contacts (if specified) for connection to a secondary Master Station, paging system, fire alarm system, or other optional devices such as a DTMF telephone dialer or PBX telephone system. All communication between Master Stations or DTMF telephones shall be non-blocking.
  - 2.1.9 The system shall have the capability to add Master Stations and sub-annunciator panels as specified.
  - 2.1.10 It shall be possible to redirect "HELP REQUESTED" calls to a secondary Master Station, PBX system, or other outside telephone if there is no answer at the primary Master Station.
  - 2.1.11 Provide battery backup capable of sustaining equipment for 90 minutes under normal operating conditions, and 24 hours in standby mode.

# ADA 100<sup>®</sup> Area of Refuge System

## AREA STATIONS

- 2.2 The Area Station assembly shall be constructed of 16 gauge (0.062) 304 stainless steel. The station faceplate shall be 9"W x 9"H, be capable of surface or flush mounting and utilize tamper proof mounting hardware. The faceplate shall have the following features:
  - 2.2.1 A large 3" diameter domed stainless steel momentary pushbutton surface engraved and backfill painted in bright red the words "PUSH FOR HELP". It shall be activated with a minimum of effort and engineered so that it may be depressed from any angle for ease of use provided. No other hardware shall protrude from the station as high as the pushbutton.
  - 2.2.2 Two "SuperBrite<sup>®</sup>" red colored LEDs shall visually indicate and confirm request status to the caller with the words "HELP REQUESTED" and "HELP COMING" surface engraved and backfill painted as labels next to each LED.
  - 2.2.3 A 3" mylar 45 ohm speaker shall be provided.
  - 2.2.4 A piezoelectric alarm shall generate a 90 dbA signal sounding through the Area Station to aurally indicate "HELP REQUESTED" from an Area Station.
  - 2.2.5 An extra set of dry contacts shall be provided (if specified) for connection to optional equipment, such as, strobe light, video camera, DTMF dialer, etc.
  - 2.2.6 An optional momentary type keyed reset switch shall also be provided, if required. The reset switch will provide the means to reset the "HELP COMING" LED at the Area Station and also reset the corresponding area's red LED on the Master Station in order to ensure response by building personnel to the caller at the Area Station.
  - 2.2.7 Braille Instructional Signs (optional) shall be provided for each Area Station. Signs shall be tactile lettering & raster braille with tamper proof mounting hardware. Text shall conform with the Americans with Disabilities Act Sec. 4.30.4 for text size and style, be in Braille and English, and read: "FOR ASSISTANCE PUSH 3 INCH HELP BUTTON"

## PART 3 CABLES

- 3.0 All cable shall be as recommended by the manufacturer or an approved equivalent. All Area Station wiring must be home run with individually jacketed cable.
- 3.1 Area Station wiring shall be 7 Conductor (3) 20AWG overall shielded twisted pairs + 1 conductor. Recommended wire HDI ADA-S or equal.
- 3.2 Master Station wiring shall be 7 Conductor (3) 20AWG overall shielded twisted pairs + 1 conductor. Recommended wire HDI ADA-S or equal.
- 3.3 Three (3) 20AWG conductors for each Area Station are also required. Recommended wire HDI ADA-S or equal.
- 3.4 All cables run in underground conduits must be suitable for wet locations and appropriately grounded as per EIA and NEC recommendations. See wiring diagrams for details.

# ADA 100<sup>®</sup> Area of Refuge System

## **PART 4 INSTALLATION**

- 4.0 Complete system shall be installed in strict accordance with manufacturer's recommendations.
- 4.1 All wiring shall be installed in raceways where routed through ceiling areas.
- 4.2 Master Station and Area Station mounting shall be in accordance with the ADA recommendations and specifications.

## **PART 5 INSPECTION AND TEST UPON COMPLETION**

- 5.1 System field wiring diagrams shall be provided to the Contractor by the system Manufacturer prior to installation.
- 5.2 Upon completion of the installation, four (4) copies of complete operational instructions shall be furnished, complete with record drawings. Instructions shall include part numbers and name, address, and telephone number of parts source.
- 5.3 Upon completion of the installation of the equipment, the Contractor shall provide to the Engineer a signed statement that the system has been wired, tested, and functions properly according to the specifications.
- 5.4 Nothing herein contained shall be construed to relieve the Contractor from furnishing a complete and acceptable electrical wiring system in all its categories. The Engineer will reject any materials or labor which are or may become detrimental to the accomplishment of the intentions of these specifications.

# ADA 100<sup>®</sup> Area of Refuge System

## Notes for the Specifier

Area of Refuge equipment comply with Sections 4.3.11.4 and 4.3.11.5 of the Americans with Disabilities Act, NFPA Life Safety 101, IBC Codes, & ICC Codes. Housing Devices' ADA 100<sup>®</sup> Area of Refuge System conforms to the relevant parts of the Act.

Some features of note:

- ➔ 16 gauge architectural grade stainless steel enclosures
- ➔ Audio and visual communications modes <sup>(1)</sup>
- ➔ Two-way hands-free operation at the Area Station
- ➔ Large heavy duty 3" "PUSH FOR HELP" button <sup>(2)</sup>
- ➔ Engraved lettering for extreme conditions
- ➔ Electrical failures (shorts, opens, power outages) are monitored by "supervisory circuits" which generate alert signals in the event of failures or outages.

(1) The ADA Act does not specify precisely what sort of communications this entails, except that voice inter-communications by themselves are not sufficient. A SuperBrite<sup>®</sup> LED visual alarm plus a loud piezoelectric alarm system is reliable and serves a range of handicapped uses.

(2) As the Area of Refuge Station will be operated by handicapped users, the push button must be as large as possible, and easily operated from any angle so as to accommodate use of a handicapped individual's wrist, elbow, nose, etc. It should not be obscured by elements around the panel and should be at least 3" in diameter for easy operation. Furthermore, the unit may be subjected to some vandalism or tampering, so a heavy-duty button is important.

Equipment shall comply with ADA Sections 4.3.11.4, 4.3.11.5 and additional sections of the Act that specify labeling, intensity of alarm signals, signs, text, protrusion from the wall, height above the floor, and similar matters. Standard configurations for the Master Station are:

➔ 1- 5 Area of Rescue locations	➔ 36-40 Area of Rescue locations
➔ 6-10 Area of Rescue locations	➔ 41-45 Area of Rescue locations
➔ 11-15 Area of Rescue locations	➔ 46-50 Area of Rescue locations
➔ 16-20 Area of Rescue locations	➔ 51-55 Area of Rescue locations
➔ 21-25 Area of Rescue locations	➔ 56-60 Area of Rescue locations
➔ 26-30 Area of Rescue locations	➔ 61-65 Area of Rescue locations
➔ 31-35 Area of Rescue locations	➔ 66-90+ Consult Manufacturer