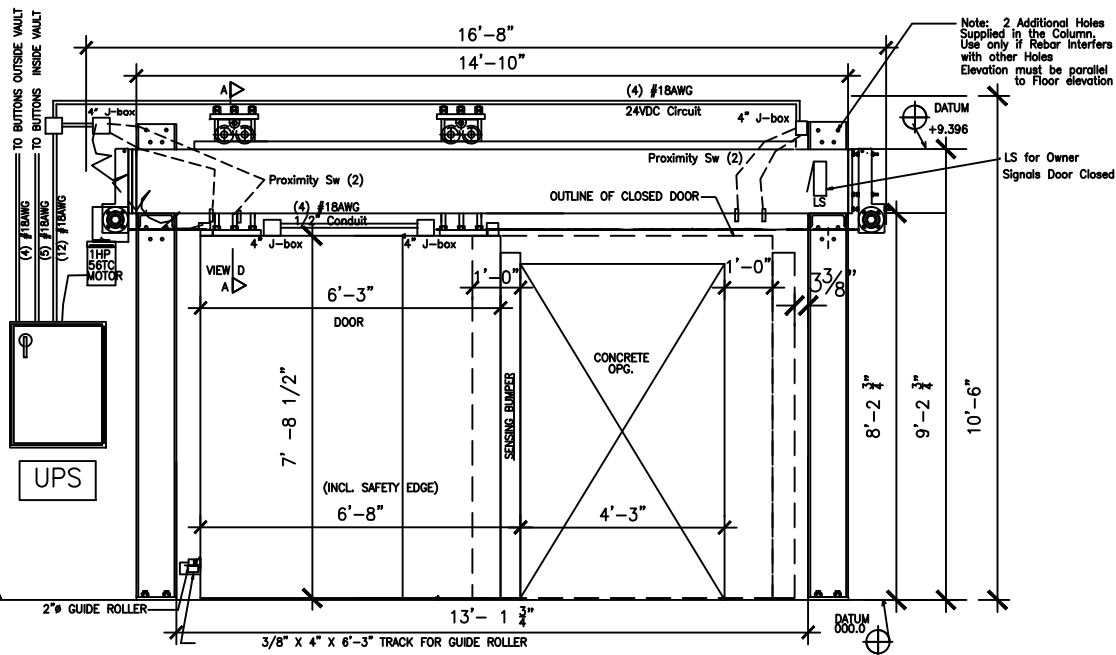
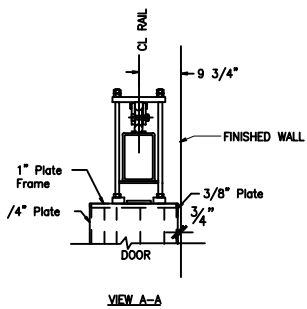


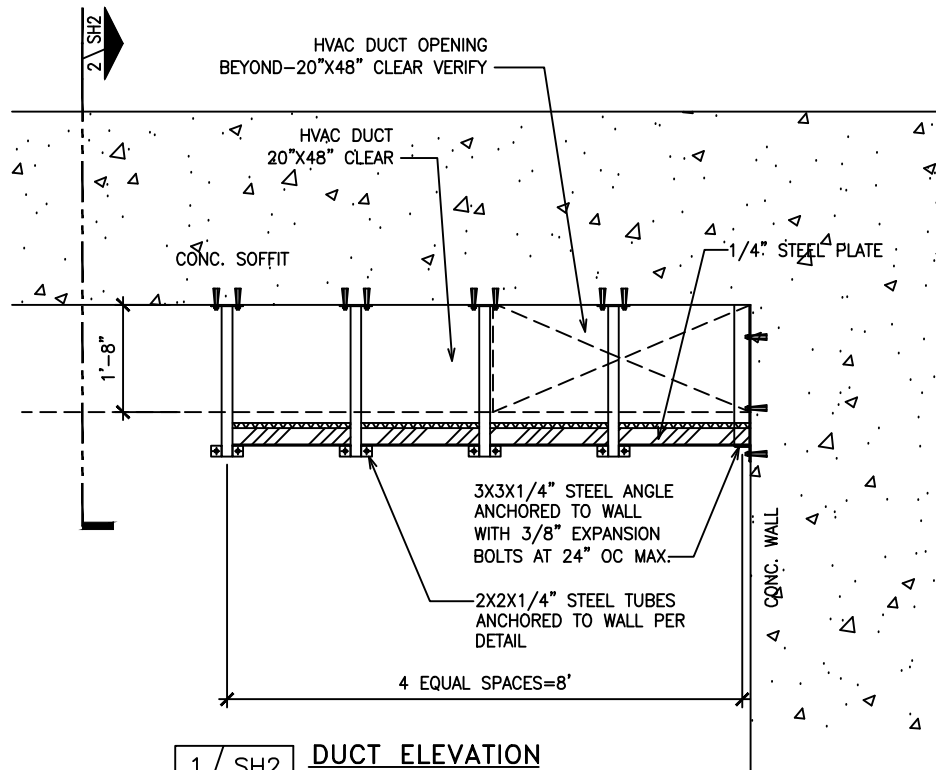
1. POWER FAILURE- A battery powered UPS will provide power to open door on power failure. In case of malfunction in battery operation the door may be operated manually. A Crank operated Winch is provided for manual opening of the door.
2. DOOR OBSTRUCTED- If the door is Closing when an obstruction occurs the door will Stop then reverse and Open.
3. Fused 120VAC 60Hz Single Phase 20Amp Service required.
4. Contractor to furnish and install all conduit and wiring



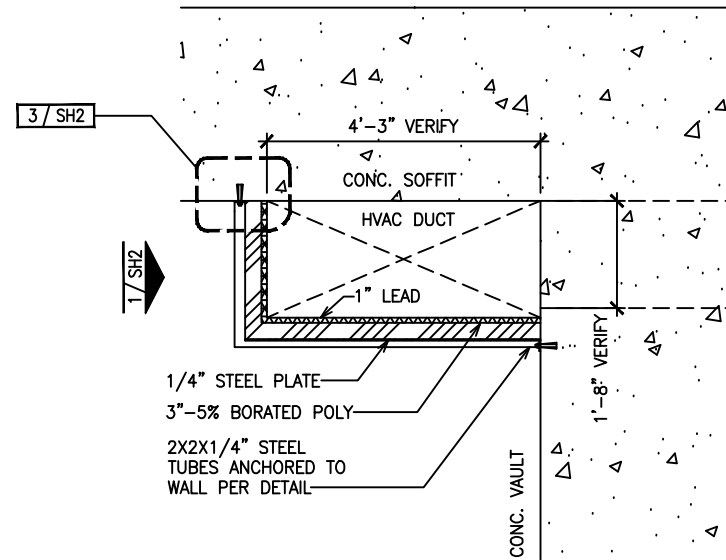
- NOTES:
- 1: THIS DRAWING MUST BE APPROVED BY THE PHYSICIST OF RECORD
 - 2: SHIELDING MUST BE VERIFIED BY THE PHYSICIST OF RECORD
 - 3: PITTS LITTLE CORPORATION WILL BUILD THE DOOR TO THIS APPROVED DRAWING
 - 4: PITTS LITTLE CORPORATION IS NOT RESPONSIBLE FOR THE CONCRETE WALL
 - 5: THE CONCRETE WALL AROUND THE DOOR MUST BE SMOOTH, LEVEL AND PLUMB IN ALL DIRECTIONS
 - 6: THE FLOOR AREA AROUND THE DOOR MUST BE LEVEL
 - 7: STRUCTURAL ENGINEERING IS BY OTHERS
 - 8: THE PHYSICIST / CONTRACTOR IS TO CERTIFY THAT THE SITE IS READY FOR INSTALLATION OF THE DOOR

	2711 ALTON ROAD Birmingham, AL 35210 Phone: 205-833-5911 Fax: 205-833-5912
	DRAWN BY: _____ SCALE: _____ APPROVED BY: _____ DATE: _____
Name - Project Number _____	
City, State _____	
SH1	

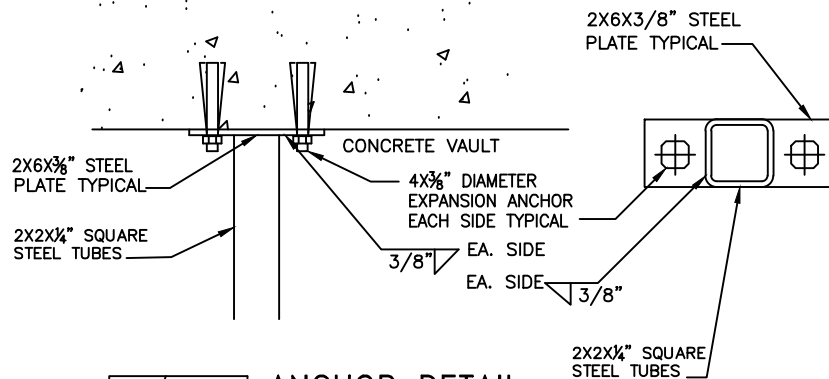
NOTE: PHYSICIST OF RECORD AND STRUCTURAL ENGINEER SHALL REVIEW DRAWING PRIOR TO PROCEEDING WITH THE WORK.



1 / SH2 **DUCT ELEVATION**
SCALE: SH2



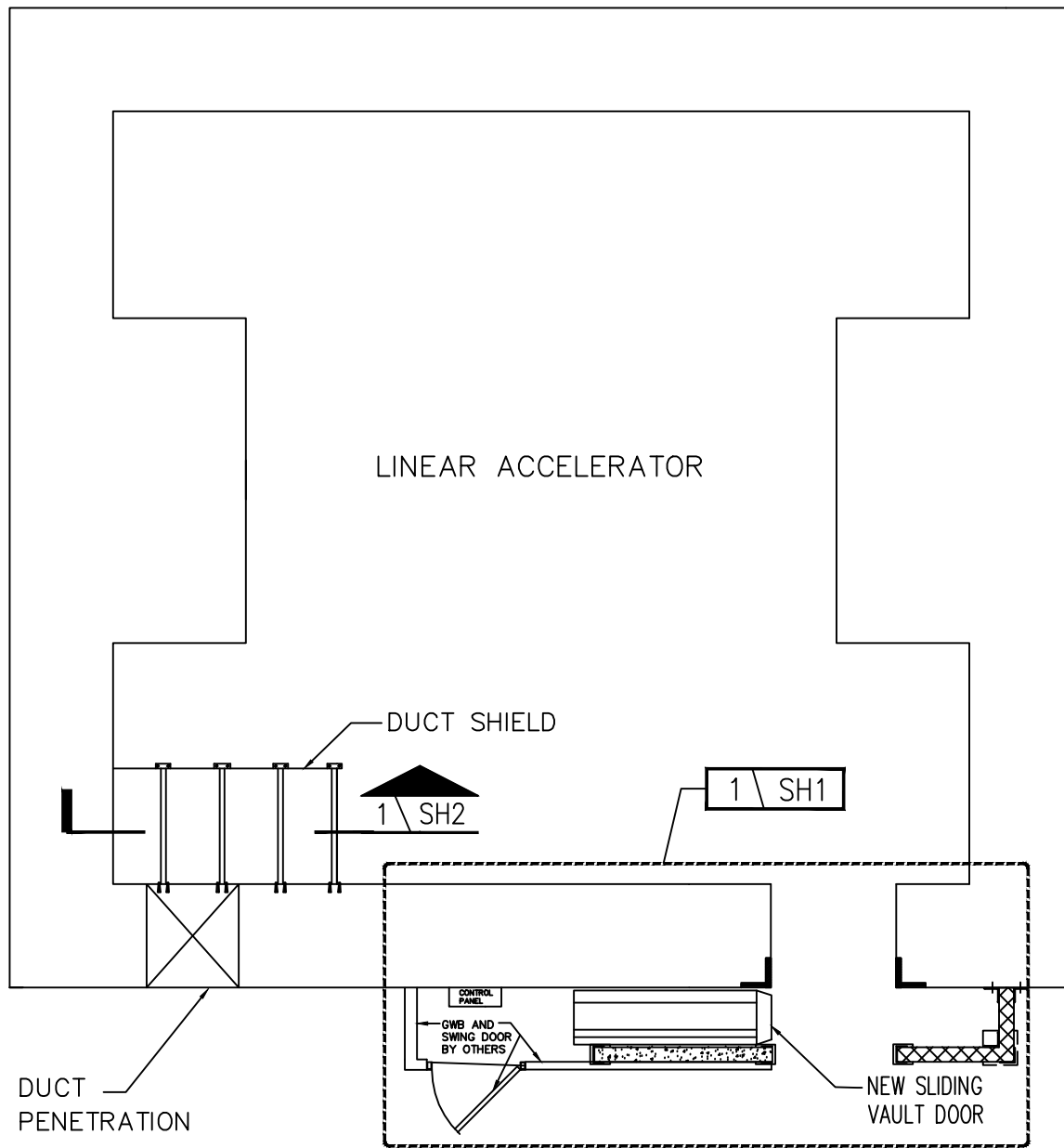
2 / SH2 **DUCT SECTION**
SCALE: 1/2" = 1'-0"



3 / SH2 **ANCHOR DETAIL**
SCALE: SH2

NOTE: PHYSICIST OF RECORD AND STRUCTURAL ENGINEER SHALL REVIEW DRAWING PRIOR TO PROCEEDING WITH THE WORK.

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		DRAWN BY:	SCALE:
APPROVED BY:	DATE:	City, State	
		SH2	



1 / SH3 **VAULT PLAN**
SCALE:

NOTE: PHYSICIST OF RECORD AND STRUCTURAL ENGINEER SHALL REVIEW DRAWING PRIOR TO PROCEEDING WITH THE WORK.

2 / SH1



2711 ALTON ROAD
Birmingham, AL 35210
Phone: 205-833-5911
Fax: 205-833-5912

DRAWN BY:	SCALE:
APPROVED BY:	DATE:

Name - Project Number

City, State

SH3

Linear Accelerator Sliding Doors

Division 13091

PART 1 - GENERAL

Furnish all labor, materials, tools and equipment for all linear accelerator room doors as indicated and in accordance with the contract documents.

1.1 ACCEPTABLE MANUFACTURERS

Sliding door shall be manufactured by, and all accessories and parts supplied by Pitts Little Corporation, 800-680-1967, or approved equal manufacturer regularly engaged in the manufacture of radiation shielding doors with at least ten (10) years experience in the production and installation of sliding radiation shielding doors.

1.2 SUBMITTALS

- A. In accordance with conditions of the contract, submit six (6) copies of shop drawings for each type of sliding door unit, including typical unit elevations, sections and details of typical composite members.
- B. Submit six (6) copies of door operating instructions and manufacturer's warranty. The sliding door unit shall be warranted against defects for a period of not less than one (1) year.

1.3 DESIGN

- A. Design sliding door, carrying beam, and structural supports to withstand all design loads that might inhibit operation or impair radiation protection.
- B. Design sliding door to have minimum overlaps to insure sufficient radiation shielding.
- C. Provide lead, 5% borated polyethylene and virgin polyethylene in thickness as specified by the physicist of record. Also, furnish and install any required jamb shielding.
- D. Structural engineering is excluded from the section
- E. The project engineer is to verify all connection points to the structure.

PART 2 - PRODUCTS

2.1 MATERIAL

- A. Steel sheet and strip: commercial quality carbon steel, ASTM A568.
- B. Steel bars and plates: ASTM A36.
- C. Roll formed steel members: ASTM A36.
- D. Inserts, bolts and fasteners: Manufacturer's standard units.
- E. Primer: rust-inhibiting paint suitable as base for specified finish paints.

- F. Lead: fed. spec. QQL-201-F, ASTM B29
- G. Polyethylene: 5% boron content, manufactured specifically for neutron shielding.

2.2 SLIDING DOOR AND STRUCTURAL STEEL SUPPORT SYSTEM

- A. Steel: Type A36. 1" thick steel flatbar around perimeter of door or as required for the weight of the door.
- B. Structural Steel Supports: ASTM 500 rectangular tubing based upon the length, width, thickness, and weight of the door.
- C. Raceway: System consists of single raceway only, multiple rails will not be allowed.

2.3 SLIDING DOOR OPERATORS

The system will be belt driven. Hydraulic, ball screw, chain or lead-screw systems will not be allowed. Pitts Little electric sliding door operating system shall be motor driven. The operator has a slowdown/acceleration speed in both the opening and closing direction. The operator must be equipped with a battery backup system which will allow for the emergency opening during loss of power supply. The operator also must include two sets of buttons. A two button station (OPEN & STOP) and a three button station (OPEN, CLOSED & STOP) on the outside of the vault. A closed button is not allowed in the vault. Also, an E-Stop button must be mounted in clear view of the control area. The leading edge of the door must have a padded safety edge.

Work not included: All conduit and wiring, structural engineering

2.4 SAFETY FEATURES

- A. Standard:
 - Electric Safety Edges
 - Emergency stop
- B. Optional:
 - Presence Sensor
 - Floor Sensor
 - Light curtain

2.5 FABRICATION

Fabricate rigid, neat in appearance and free from defects. Fit and assemble in shop, wherever practical. Assure proper assembly at site. Weld joints continuously, dress exposed joints smooth and flush. Clean off all mill scale and foreign materials and shop prime.

PART 3 - EXECUTION

3.1 PREPARATION

Examine structure, substrates, and conditions under which work is to be installed for conditions detrimental to the correct and timely completion of the project. Installation constitutes acceptance of responsibility for performance.



- 3.2 **INSTALLATION:** Pitts Little Corporation , 800-680-1967
Installation of structural frame and door by Pitts Little
 - A. Touch up prime coat with compatible primer
 - B. Leave smooth for finish painting by others
- 3.3 **OPERATOR**
Electric door operator to be installed and maintained by trained personnel only.
- 3.4 **TESTING**
After equipment has been installed and placed in operating condition, the owner will engage a radiation health physicist to test radiation protection.

PART 4 - OPERATING INSTRUCTIONS

All personnel should read these instructions completely and be trained to the safe operation of this door.

- 4.1 **OPERATION**
 - A. The door is automatically opened by pushing an open button located both inside and outside the vault.
 - B. The door can only be closed from outside the vault by the close button.
 - C. Before operating, the door operating area should be visually inspected to be sure no person or other object is in the vicinity.
 - D. Sequence of Operations
 - 1) Open: When this button is pushed, the door will travel to the full open position.
 - 2) Close: When this button is pushed, the door will travel to the full close position.
 - 3) Stop: When this button is pushed, the door will stop from any current position along its path of travel.
 - 4) PARTIAL OPEN / PARTIAL CLOSE (OPTIONAL): When this button is pushed, the door will travel to the preset partial open position and stop. This partial open switch is designed to be used only for staff to enter the vault.

PART 5 - CAUTION

- 5.1 No attempts should be made at adjusting door operating speed except by authorized operator technicians.
- 5.2 Any attempt to operate at a faster speed will cause premature wear and damage to the operator and void any warranty. Also, liability may occur to anyone operating the door faster than recommended if injuries occur as a result.

5.3 No attempt should ever be made to disengage interlock switches or any safety feature as this could present a serious health risk.

5.4 Objects should be kept clear of door operation area. No objects should ever be placed to keep door in the closed or open position restricting free movement.

PART 6 - STANDARD SAFETY FEATURES

6.1 **Battery Back-up:** In the event of a power failure the battery back-up system will be activated. The emergency battery back-up will open the door during a loss of electric power.

6.2 **Padded Safety Edge:** On the lead edge of the door there is one continuous safety edge. Multiple safety strips with vertical dead spaces will not be allowed. When more than 10 oz. Of pressure is applied to the edge an electronic signal will be sent to the operator to stop the door and then open the door.

6.3 **Emergency Hand Crank:** In the event of power operator failure the hand crank will aid in manually opening the door. The hand crank is to be mounted near the door control box if possible.

PART 7 - OPTIONAL SAFETY FEATURES

7.1 **Interlock or Kill Switch:** If installed by others please reference information supplied by installer or manufacturer.

7.2 **Wall Mounted Safety Bumper:** Mounted to the wall at the leading edge of the door.

7.3 **Emergency Hand Held Motor:** In the event of operator failure the hand held motor can be used to drive the operator. This will aid in manually opening the door.

7.5 **Light Curtain:** electric eye to detect the presence of people or other objects as they pass through the door opening. In the event of detection the door will be signaled to stop.

7.6 **Presence Sensor:** Ceiling mounted device detects people as they pass through the detection field sending a signal to the operator to stop.

PART 8 - SPECIFICATIONS



Since all door systems are custom designed per customer specifications please refer to shop drawings for information. All shielding must be approved by the physicist of record.

PART 9 - SERVICE

Refer to preventive maintenance schedule.

For technical information, product information and service please call 800-680-1967.

PART 10 – WARRANTY

All labor and materials furnished and work performed in conjunction with this project will be free from defects due to defective materials or workmanship for a period of one (1) year from the date of installation.

Should any defect develop during the warranty period due to improper materials or workmanship, the defect will be made good.

The Owner will give Subcontractor written notice of defective work.

Nothing in the above will be deemed to apply to work which has been abused or neglected. The guarantee does not cover defects due to the failure to exercise normal preventive maintenance, nor do we guarantee against the consequence of uses for which this product was not designed.



SafePath™ DH98i Industrial Door Motion & Presence Sensor



Product Name SafePath™ DH98i

featuring FRM-AI technology with
Maximum Pattern Infrared™ (MPI™)

Manufacturer

MS SEDCO
8701 Castle Park Drive
Indianapolis, IN 46256
Phone: (800) 842-2545
(317) 842-2545
Fax: (800) 849-3387
(317) 849-3387
Email: custsvc@mssedco.com
www.mssedco.com

Product Description

BASIC USE

The SafePath™ DH98i is a combination 2-row motion, 2-row presence sensor designed to provide both activation and safety protection for automatic industrial doors in a single device that can be mounted up to 13 feet (4m) high.

Floor Reflection Method™ (FRM™) sensors with Maximum Pattern Infrared™ (MPI™) provide better safety than other infrared sensors.

The DH98i is based on the most reliable active infrared (AI) technology available — Floor Reflection Method (FRM). With FRM-AI up to 48 individual detection zones are precisely reflected off of the floor in a

rectangular pattern for unparalleled performance.

SafePath Maximum Pattern Infrared (MPI™) sensors use more beams than other manufacturers—and provide a level of safety not found in other stand-alone infrared sensors.

The DH98i provides motion detection as far as 10 feet (3m) from the door while providing a dense zone of presence detection in close to the door. With a sensing area made up of 48 detection zones, the DH98i provides the highest density of any of our infrared detectors for industrial applications.

Width and depth are both mechanically adjustable. In addition, depth can be altered electronically. All adjustments are available without the use of proprietary set-up devices.

Technical Data

- Floor Reflection Method Active Infrared (FRM-AI) Technology
- One Sensor Provides Both Motion And Presence Detection
- Up To 48 Detection Zones
- Mount Up To 13' (4m) High
- 10 Mechanical Width Settings From 36" To 20'
- Electronic Depth Adjustment From 1 to 4 Rows (Also 5 Tilt Settings)
- Quick-Connect Wiring (Harness Included)
- Four Presence Timer Settings Up To Infinity And Four Frequency Settings
- 12V to 24V AC or DC Operation
- Form C Dry Relay Contact (N.O., COM, N.C.)
- Rain Cover Available (DHRC)

SPECIFICATIONS

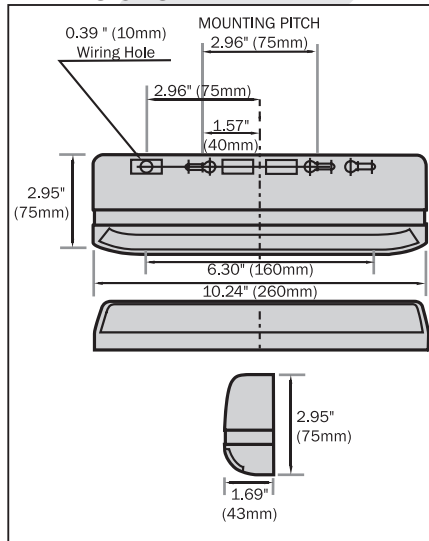
Model	DH98i
Detection Method	Floor Reflection Method Active Infrared (FRM-AI)
Max. Installation Height	13.2 Feet (4m)
Sensitivity Adjustment	Variable (via potentiometer)
Detection Area Adjustment	Pattern Width (36" to 20") Pattern Depth (1 to 4 Rows + tilt settings of 0° to 10° in 5 steps)
Detection Beams	12 Beams x 4 Rows = 48 Beams
Presence Detection	1 & 2 Rows (Door Side) Utilizing Presence Timer
Motion Detection	3 & 4 Rows (Approach Side)
Power Requirements	12V to 24V AC or DC ± 10%
Power Consumption	AC24V-3VA, AC12V-3VA DC24V-75mA, DC12V-120mA
Output Contact	Form C Relay: DC50V 0.1A Resistor Load
Output Holding Time	Approx. 0.5 Seconds
Presence Timer (Rows 1 & 2 Only)	2 Seconds, 60 Seconds, 10 Minutes and Infinite
Operation Indication	Red LED = Detection Green LED = Monitoring Area Orange LED = Abnormal Oscillating between Red/Green=Fault
Enclosure Rating	IP54 (IEC60529)
Temperature Range	-4° F to 140° F (-20° C to 60° C)
Weight	Approx. 0.8 lbs. (0.35 kg)
Cover Color	Black
Accessories	Cable: 5 ft. (1.5m)

SafePath™ DH98i Industrial Door Motion & Presence Sensor



SENSORS & SWITCHES

DIMENSIONS



APPLICABLE STANDARDS

Enclosure Rating IP54 (IEC60529)

APPROVALS

CE

Installation

SETUP AND ADJUSTMENT

The DH98i installs easily. Simple Amp connectors make wiring fast. Twin revolving lens units allow pattern width to be adjusted from wide to narrow and the body of the sensor can be tilted to adjust pattern depth. The indicator LED is clearly visible with the cover on. An 8 position dip switch allows the installer to adjust the presence timer, pattern depth, frequency, monitoring modes.

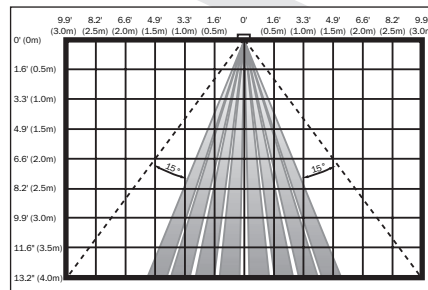
The DH97-BDB is an optional bracket used to swivel mount the DH97 sensor for unique applications.



DH97-BDB

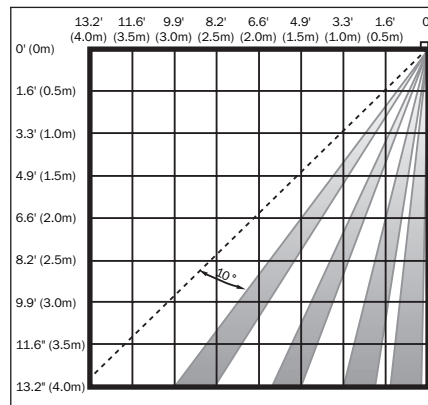
The DH97-MP is an optional mounting plate that will adapt the DH97 for mounting to a 1 3/4" door header.

COVERAGE PATTERN



Wide Pattern @ Maximum
20' (6m) Wide

Narrow Pattern @ Maximum
10' (3m) Wide



Wide Pattern @ Maximum
13' (4m) Deep

Narrow Pattern @ Maximum
13' (4m) Deep

(These detection patterns are approximate and will vary slightly. Walk-test the unit to assure the pattern desired.)

Availability & Cost

AVAILABILITY

Available internationally from manufacturer's authorized

distributors; contact MS SEDCO for the location of nearest distributor.

COST

Cost information on MS SEDCO products is available from the manufacturer's authorized distributors.

Warranty

A one year warranty is available from the manufacturer covering defects in materials and workmanship. Contact MS SEDCO for details.

Maintenance

MS SEDCO recommends that all maintenance and adjustments be performed by a qualified technician.

Technical Services

MS SEDCO's staff of factory trained sales and service personnel offer design assistance and technical support. Local distributors are also available to assist in selecting appropriate devices for specific uses and to provide onsite installation.