

SMOKE EVAC. CALCULATION	
<b>OFFICE AREA:</b>	
FLOOR AREA =	3360 SQ.FT.
HEIGHT OF CEILING =	10 FT.
EXH. ACPH =	10 ACPH
PRESS. ACPH =	8 ACPH
<b>EXH.</b>	
3360 SQ.FT.x10 FT.x10 ACPH =	5600 CFM
TOTAL EXH. AIR REQUIRED =	5600 CFM
TOTAL EXH. AIR PROVIDED =	5600 CFM
<b>PRESS.</b>	
3360 SQ.FT.x10 FT.x8 ACPH =	4480 CFM
TOTAL PRESS. AIR REQUIRED =	4480 CFM
TOTAL PRESS. AIR PROVIDED =	4480 CFM

- SMOKE CONTROL NOTES:**
- THE EXISTING BUILDING IS PROVIDED WITH AN SMOKE CONTROL SYSTEM THROUGH OUT.
  - REFER TO ELECTRICAL PLANS FOR SMOKE DETECTOR LOCATIONS.
- TYP. HEAT PUMP COOLING MODE SEQUENCE OF OPERATION**
- THE DAMPER POSITIONS FOR TYP. HEAT PUMP IN COOLING MODE ARE AS FOLLOWS:
    - MOTORIZED DAMPER ON SUPPLY AIR DUCT SHALL OPEN.
    - MOTORIZED DAMPER ON OUTSIDE AIR DUCT SHALL OPEN.
    - MOTORIZED DAMPER ON PRESSURIZATION AIR DUCT SHALL BE CLOSED.
  - OUTSIDE AIR DAMPER FOR TYP. HEAT PUMP SHALL BE PROGRAMMED TO CLOSE DURING UNOCCUPIED HOURS.
  - HEAT PUMPS FAN AND COMPRESSOR SHALL START AND STOP CONTROLLED BY SPACE THERMOSTATS.
- SMOKE CONTROL SEQUENCE OF OPERATION**
- THE SMOKE CONTROL SYSTEM SHALL INITIATE WITHIN 30 SECONDS.
  - THIS SPACE SHALL OPERATE IN SMOKE CONTROL MODE AS DESIGNED BY THE SHELL BUILDING SMOKE CONTROL PANEL.
  - SMOKE DETECTOR ROOM & FIRE FLOW SENSORS SHALL INITIATE SMOKE CONTROL MODE.
    - A CALL FOR PRESSURIZATION IN THIS ZONE SHALL INITIATE:
      - THE SEQUENCE FOR TYP. HEAT PUMP WHEN ZONE IS IN PRESSURIZATION:
        - MOTORIZED DAMPER ON SUPPLY AIR DUCT SHALL CLOSE.
        - MOTORIZED DAMPER ON OUTSIDE AIR DUCT SHALL CLOSE.
        - MOTORIZED DAMPER ON PRESSURIZATION AIR DUCT SHALL OPEN.
        - HEAT PUMP TO SHUTDOWN.
        - EXISTING SMOKE SUPPLY FAN SHALL START.
      - A CALL FOR SMOKE EXHAUST IN THIS ZONE SHALL INITIATE:
        - THE SEQUENCE FOR TYP. HEAT PUMP WHEN ZONE IS IN EXHAUST:
          - MOTORIZED DAMPER ON SUPPLY AIR DUCT SHALL CLOSE.
          - MOTORIZED DAMPER ON OUTSIDE AIR DUCT SHALL CLOSE.
          - MOTORIZED DAMPER ON PRESSURIZATION AIR DUCT SHALL OPEN.
          - HEAT PUMP TO SHUTDOWN.
          - COMBINATION EXH. DAMPER SHALL OPEN.
          - EXISTING SMOKE EXHAUST SHALL START. EXISTING SMOKE SUPPLY SHALL START.

**SMOKE TEST PROCEDURE:**

- SMOKE BOMB PLACEMENT AND SIZES SHALL BE AS SHOWN ON PLANS.
- SMOKE CONTROL SYSTEM SHALL ACTIVATE WITHIN 60 SECONDS OF IGNITION OF THE SMOKE BOMBS.
- WITHIN 13 MINUTES OF THE START OF THE TEST, THE EXIT SIGN MUST BE LEGIBLE FROM 20 FEET.

**SMOKE TEST CALCS:**

**VOLUME 1: ELEVATOR LOBBY AND CORRIDOR**

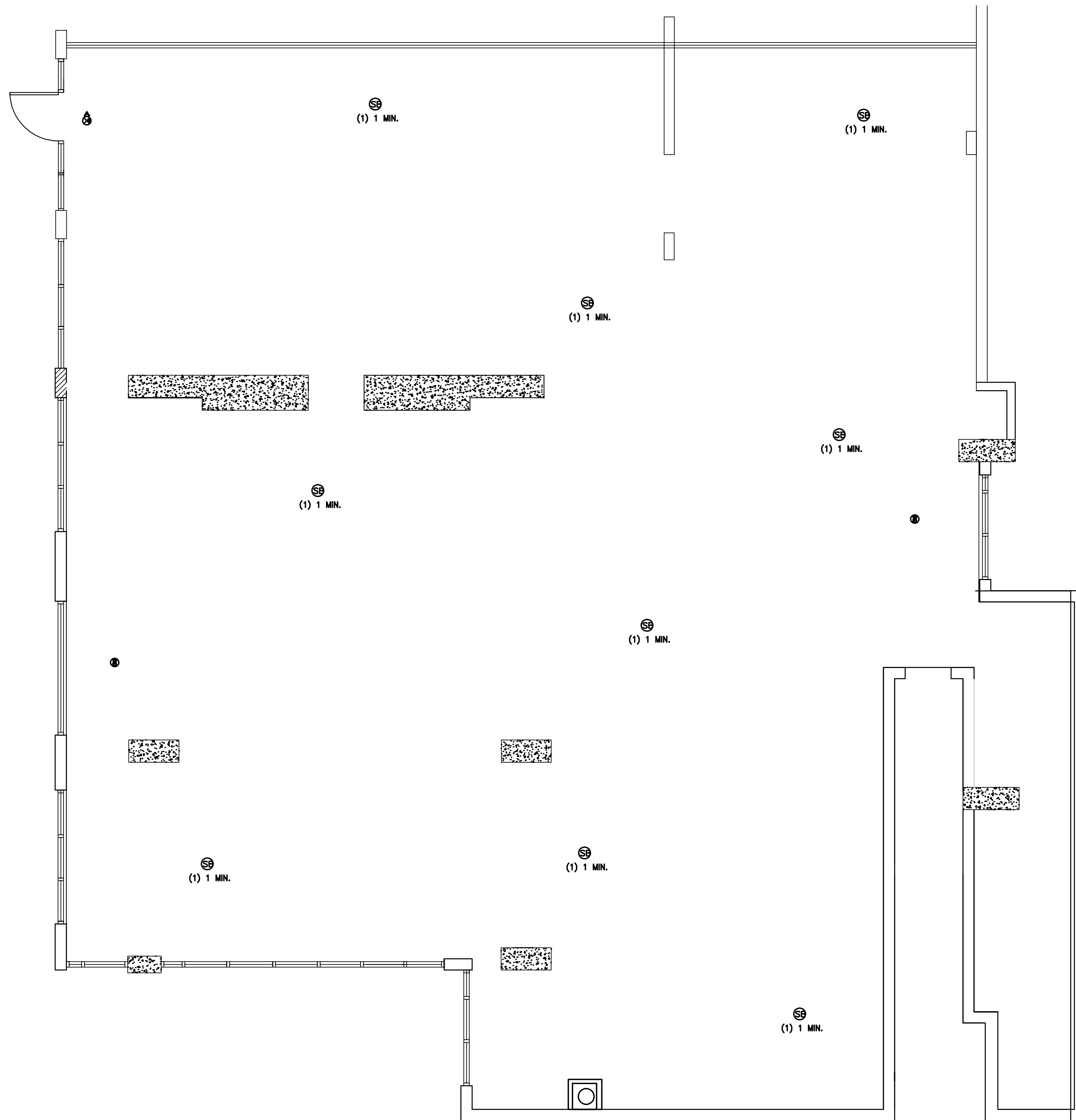
AREA OF PROTECTION	3360 SQ.FT.
AVERAGE CEILING HEIGHT	X 10 FT.
VOLUME	33,600 CU.FT.
DOUBLE VOLUME	X 2
REQUIRED SMOKE	67,200 CU.FT

PROVIDE (3) 1 MIN. SMOKE BOMBS THAT PRODUCE 8,000 CU.FT. OF SMOKE EACH FOR A TOTAL OF 24,000 CU.FT. SMOKE BOMBS SHALL BE SUPERIOR SIGNAL 2B OR EQUAL. LOCATE WHERE SHOWN ON PLAN.

FIRE ALARM LEGEND		
SYMBOL	DESCRIPTION	
Ⓢ	SMOKE DETECTOR	
Ⓢ	EXIT SIGN	
▲ E	FIRE MAN TELEPHONE JACK	
Ⓢ	DUCT SMOKE DETECTOR	
Ⓢ	DUAL ACTION MANUAL PULL STATION (+48" A.F.F. U.N.D)	
Ⓢ	STROBE LIGHT- 75 cd- U.N.D. 80"A.F.F. TO BOTTOM OF DEVICE.	
Ⓢ	SPEAKER/STROBE -75 cd-1/2 WATT SPKR,U.N.D. 80"A.F.F. TO BOTTOM OF DEVICE.	
Ⓢ	SPEAKER- 1/2 WATT. 80"A.F.F. TO BOTTOM OF DEVICE.	
Ⓢ	SMOKE BOMB, SEE PLAN FOR SIZE.	
SMOKE BOMB		
MODEL #	DURATION	VOLUME
1A	30 SEC.	4,000 CU. FT.
2B	1 MIN.	8,000 CU. FT.
W3C	3 MIN.	40,000 CU. FT.

**SMOKE TEST NOTES**

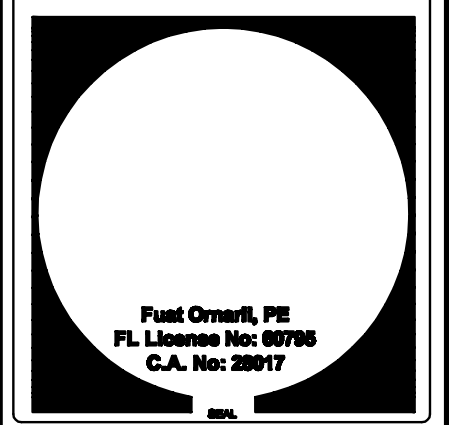
- CONTRACTOR'S RESPONSIBILITY:**  
CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF SMOKE TEST SYSTEM.
- COORDINATION:**  
WORK THESE DRAWINGS WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR LOCATIONS OF EMBEDDED ITEMS.
- SHOP DRAWINGS:**  
SMOKE TEST SHOP DRAWINGS SHALL BE SUBMITTED FOR A/E REVIEW ONLY AFTER THEY HAVE BEEN THOROUGHLY REVIEWED BY THE CONTRACTOR FOR CONSTRUCTION METHODS, DIMENSIONS AND OTHER TRADE REQUIREMENTS. THEY MUST BE STAMPED WITH THE CONTRACTOR'S APPROVAL STAMP. THE A/E ASSUMES NO RESPONSIBILITY FOR DIMENSIONS, QUANTITIES, ERRORS OR OMISSIONS AS A RESULT OF REVIEWING ANY SHOP DRAWINGS.



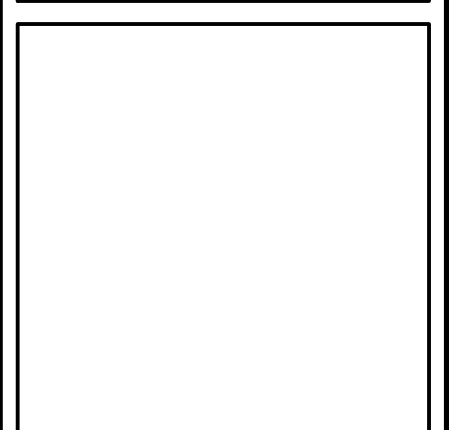
**SMOKE TEST PLAN**

SCALE: 1/4" = 1'-0"

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FTC Foundation  
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**REVISIONS:**


**SHEET TITLE:**

SMOKE TEST PLAN

**DRAWN:**

FO

**CHECKED:**

FO

**DATE:**

07.12.08

**SCALE:**

AS NOTED

**JOB. NO.:**

08472

**SHEET:**

ST-1