Engineering

Aviation Division

Sprinkler Standards

for LaGuardia Airport

Central Terminal Building

July 1991

Engineering Department

THE PORT AUTHORITY OF NY & NJ

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I. SPRINKLER

1. GENERAL:

A) WET SPRINKLER SYSTEMS SHALL BE INSTALLED IN HEATED AREAS ONLY.

B) DRY SPRINKLER SYSTEMS SHALL BE INSTALLED IN AREAS SUBJECT TO FREEZING ONLY; HEATED SPACES SHALL NOT BE FED FROM DRY SYSTEMS.

2. PIPING:

A) WET SYSTEM

STANDARD WEIGHT SCHEDULE 40 BLACK STEEL PIPE ASTM A120/53

B) DRY SYSTEM

NEW INSTALLATIONS SHALL BE GALVANIZED STEEL ASTM A120/53 SCHEDULE 40.

C) SCHEDULE 10 PIPING IS NOT PERMITTED.

3. FITTINGS:

A) 2 1/2" PIPING AND LARGER SHALL BE THREADED OR MECHANICAL FITTINGS.

B) 2" PIPING AND SMALLER THREADED FITTINGS ONLY.

C) SADDLE TYPE FITTINGS ARE NOT PERMITTED.

4. SPRINKLER HEADS:

A) SPRINKLER HEADS IN AREAS WITH HUNG CEILINGS SHALL BE CONCEALED, RECESSED TYPE AS MANUFACTURED BY RELIABLE SPRINKLER CORP. "MODEL G-4", OR APPROVED EQUAL. COVER PLATE FINISH SHALL BE CHROME.

B) SPRINKLER HEADS IN AREAS WITHOUT HUNG CEILINGS SHALL BE BRONZE, UPRIGHT TYPE, AS MANUFACTURED BY RELIABLE SPRINKLER CORP "MODEL G", OR APPROVED EQUAL.

5. HYDRAULIC CRITERIA

THE CONTRACTOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT HYDRAULIC CALCULATIONS BASED UPON ORDINARY HAZARD AND ON THE FOLLOWING CRITERIA:

TERMINAL AREAS (PASSENGER CHECK-IN AND ARRIVALS, VIP ROOMS, CLUBS AND CONCESSION SHOPS) SHALL BE OF ORDINARY HAZARD CLASSIFICATION AND SHALL HAVE A REMOTE AREA OF APPLICATION OF 1500 SQ. FT. HAVING A MINIMUM DENSITY OF 0.16 GPM/SQ. FT.

OFFICE SPACES SHALL BE OF LIGHT HAZARD CLASSIFICATION AND SHALL HAVE A REMOTE AREA OF APPLICATION OF 1500 SQ. FT. HAVING A MINIMUM DENSITY OF 0.10 GPM/SQ. FT.

SPRINKLER CLASSIFICATIONS AND DENSITIES FOR AREAS NOT LISTED SHALL BE IN ACCORDANCE WITH THE NEW YORK CITY BUILDING CODE AND NFPA STANDARD 13.

THE CONTRACTOR SHALL MOUNT IN PLEXIGLAS AN APPROVED AS-BUILT SHOP DRAWING ON THE DOOR WHERE THE SPRINKLER CONTROL VALVE IS TO BE LOCATED.

6. LOCATION OF ALL TENANT CONTROL VALVES SHALL BE ACCESSIBLE TO THE PORT AUTHORITY PERSONNEL. IDENTIFYING SIGNS AND ACCESS DOORS MUST BE PROVIDED WHERE NECESSARY.

7. FLOOR SYSTEMS:

ARRIVALS LEVEL (1ST FLOOR)

A) EXISTING TENANT SYSTEMS

1. EACH AIRLINE TENANT HAVING A SPRINKLER SYSTEM FOR THEIR SPACE IS BASED ON ORDINARY HAZARD CLASSIFICATION. THE TENANT IS CONNECTED TO THE 8" HIGH PRESSURE MAIN IN THE CRAWL SPACE BELOW. THE CONNECTION HAS AN OS&Y VALVE WITH A TAMPER SWITCH (INDIVIDUAL CODE PER VALVE) WITHIN THE CRAWL SPACE. THE TENANT CONTROL VALVE ASSEMBLY (OS&Y VALVE WITH A TAMPER SWITCH & WATER FLOW SWITCH) HAS A TRANSMITTER (SEE PARAGRAPHS 8A3) WHICH IS INSTALLED IN AN ACCESSIBLE SPACE, CODE IS DETERMINED BY AIRPORT FACILITY DIVISION MANAGER.

2. THE AIRLINE TENANT SPRINKLER SYSTEM INCORPORATES THE SPRINKLERS SHOWN ON THE CENTRAL TERMINAL BUILDING LANDSIDE EXPANSION & MODERNIZATION PROGRAM CONTRACT

NO. LGA-110.058A. THE TENANT SYSTEMS ARE HYDRAULICALLY CALCULATED AND INCLUDE THE LANDSIDE SPRINKLER SYSTEM.

B). NEW TENANT SYSTEMS

1. EACH AIRLINE TENANT SHALL PROVIDE A SPRINKLER SYSTEM FOR THEIR SPACE BASED ON ORDINARY HAZARD CLASSIFICATION. THE TENANT SHALL CONNECT TO THE 8" HIGH PRESSURE MAIN IN THE CRAWL SPACE BELOW AND PROVIDE AN OS&Y VALVE WITH A TAMPER SWITCH (INDIVIDUAL CODE PER VALVE) WITHIN THE CRAWL SPACE. A TENANT CONTROL VALVE ASSEMBLY (OS&Y VALVE WITH A TAMPER SWITCH & WATER FLOW SWITCH) HAVING A TRANSMITTER (SEE PARAGRAPH 8B3) SHALL BE INSTALLED IN AN ACCESSIBLE SPACE. THE TRANSMISSION CODE SHALL BE DETERMINED BY AIRPORT FACILITY DIVISION MANAGER.

CONNECTIONS TO THE LANDSIDE CONTRACT SHALL BE AS FOLLOWS:

- IF TERMINAL AREA SPRINKLER SYSTEM IS TO BE INSTALLED PRIOR TO THE LANDSIDE CONTRACT, THE TENANT SPRINKLER SYSTEM SHALL INCLUDE CAPPED OUTLETS FOR FUTURE CONNECTIONS LOCATED AND SIZED AS PER THE LANDSIDE EXPANSION AND MODERNIZATION CONTRACT.

- IF TERMINAL AREA SPRINKLER SYSTEM IS INSTALLED AFTER THE LANDSIDE CONTRACT, THE TENANT SPRINKLER SYSTEM IS TO INCORPORATE THE LANDSIDE EXPANSION AND MODERNIZATION SPRINKLER SYSTEM ADJACENT TO THEIR CONTRACT.

DEPARTURES LEVEL (2ND FLOOR)

AT EACH WING AND THE CENTER PORTION OF THE TERMINAL THE PORT AUTHORITY SHALL INSTALL A SUPPLY MAIN WITH A SPRINKLER CONTROL VALVE ASSEMBLY AND A WATERFLOW SWITCH WITH A TRANSMITTER (SEE PARAGRAPH 8B3). EACH EXISTING AND NEW AIRLINE TENANT SPRINKLER SYSTEMS CONNECTS TO THIS MAIN, PROVIDED WITH A TENANT SPRINKLER CONTROL VALVE ASSEMBLY IN AN ACCESSIBLE SPACE, EXISTING SYSTEMS ARE PROVIDED WITH ALARM TRANSMITTALS AS DESCRIBED IN PARAGRAPH 8A3. NEW SYSTEMS SHALL BE PROVIDED WITH ALARM TRANSMITTER AS DESCRIBED IN PARAGRAPH 8B3.

ALL SMALL SHOPS, CONCESSIONS AND ETC. SHALL BE CONNECTED TO THE BACK CORRIDOR CONTRACT FROM A CONTROL VALVE PROVIDED BY THE PORT AUTHORITY.

THIRD FLOOR

AT EACH WING AND THE CENTER PORTION OF THE TERMINAL THE PORT AUTHORITY SHALL INSTALL A SUPPLY MAIN WITH A SPRINKLER CONTROL VALVE ASSEMBLY AND A TRANSMITTER AS DESCRIBED IN PARAGRAPH 8B3. EACH TENANT SHALL CONNECT TO THIS MAIN.

8. SPRINKLER WATER FLOW AND SUPERVISORY ALARMS:

A) EXISTING TENANT SYSTEMS

1. WATER FLOW SWITCHES ARE OF THE PRESSURE TYPE. WATER FLOW IN ANY OF THE SPRINKLER SYSTEM RESULTS IN TRANSMISSION OF FOUR ROUNDS OF DISTINCTIVE CODE TO THE ALARM PANEL PROVIDED, AND THEN TO THE POLICE EMERGENCY GARAGE ALARM PANEL, AND THE SOUNDING OF FOUR ROUNDS OF A SECOND DISTINCTIVE CODE ON THE GONGS OF THE INTERIOR FIRE ALARM SYSTEM IN THE BUILDING.

2. CLOSING OF A VALVE TAMPER SWITCH RESULTS IN THE TRANSMISSION OF A DISTINCTIVE CODE TO THE ALARM PANEL PROVIDED, AND THE TO THE POLICE EMERGENCY GARAGE ALARM PANEL, RESTORATION OF THE FAULT SHALL ALSO RESULT IN TRANSMISSION OF A DISTINCTIVE CODE.

3. TRANSMITTERS ARE REQUIRED TO PROVIDE FOR TRANSMISSION TO THE ALARM PANEL.

a). CODED TRANSMITTERS WHICH FURNISH ALARM PANEL SIGNALS ARE THE DOUBLE CODE WHEEL, SPRING WOUND TYPE WITH A MINIMUM OF TWENTY-FOUR (24) TEETH PER WHEEL. CODE NUMBERS FOR ALL CODED SIGNALS ARE FURNISHED BY THE ENGINEER. ALL TRANSMITTERS ARE SHUNT WIRE TO PERMIT PREFERENTIAL TREATMENT OF ALL SIGNALS UNDER ANY CIRCUMSTANCES. CODE WHEEL SPEED SHALL BE ADJUSTED TO PERMIT ACCURATE REGISTRATION OF SIGNALS IN THE PROPRIETARY STATION.

4. ALL EXISTING DEVICES ARE COMPATIBLE WITH THE EXISTING MCCULLOCH TYPE FIRE ALARM SYSTEM OF THE AIRPORT.

5. PADDLE SWITCHES ON DRY PIPE OR PRE-ACTION SPRINKLER SYSTEMS ARE NOT PERMITTED.

B) NEW TENANT SYSTEMS

1. WATER FLOW SWITCHES SHALL BE OF THE PRESSURE TYPE. WATER FLOW IN ANY OF THE SPRINKLER SYSTEM SHALL RESULT IN TRANSMISSION OF FOUR ROUNDS OF DISTINCTIVE CODE TO THE ALARM PANEL PROVIDED, AND THEN TO THE POLICE EMERGENCY GARAGE ALARM PANEL, AND THE SOUNDING OF FOUR ROUNDS OF A SECOND DISTINCTIVE CODE ON THE HORNS AND ACTUATION OF STROBE LIGHTS OF THE INTERIOR FIRE ALARM SYSTEM IN THE BUILDING.

2. CLOSING OF A VALVE TAMPER SWITCH SHALL RESULT IN THE TRANSMISSION OF A DISTINCTIVE CODE TO THE ALARM PANEL PROVIDED, AND THE TO THE POLICE EMERGENCY GARAGE ALARM PANEL, RESTORATION OF THE FAULT SHALL ALSO RESULT IN TRANSMISSION OF A DISTINCTIVE CODE.

3. TRANSMITTERS ARE REQUIRED TO PROVIDE FOR THE TRANSMISSION OF THE ALARM PANEL.

a). CODED TRANSMITTERS WHICH FURNISH ALARM PANEL SIGNALS SHALL BE COMPATIBLE WITH CERBERUS PYROTRONICS MODEL MXL ADDRESSABLE FIRE ALARM SYSTEM. CODE NUMBERS FOR ALL CODED SIGNALS WILL BE FURNISHED BY THE ENGINEER.

4. ALL DEVICES SHALL BE COMPATIBLE WITH THE EXISTING CERBERUS PYROTRONICS MODEL MXL ADDRESSABLE FIRE ALARM SYSTEM OF THE AIRPORT.

5. PADDLE SWITCHES ON DRY PIPE OR PRE-ACTION SPRINKLER SYSTEMS ARE NOT PERMITTED.

9. TESTING:

A). PERFORM HYDROSTATIC TESTS FOR ALL SECTIONS OF THE PIPING SYSTEMS INSTALL AT NOT LESS THAN 200 PSI PRESSURE FOR TWO HOURS.

B). TEST DRY-PIPE AND PRE-ACTION SYSTEMS WITH AIR AT 40 PSI FOR 24 HOURS, PRIOR TO PERFORMING THE HYDROSTATIC TEST AS

DESCRIBED ABOVE. PERMISSIBLE AIR LEAKAGE SHALL NOT EXCEED THE VALUE SPECIFIED IN NFPA 13.

C). TEST ALL COMPONENTS IN THE SYSTEM INCLUDING ALARM DEVICES AND DEMONSTRATE THAT THE EQUIPMENT COMPLIES WITH THE REQUIREMENTS AND FUNCTIONS FOR WHICH THEY ARE INTENDED. TESTING THROUGH THE INSPECTOR'S TEST CONNECTION SHALL BE INCLUDED TO DEMONSTRATE THE FLOW AND TIME. PARAMETERS ARE SATISFIED.

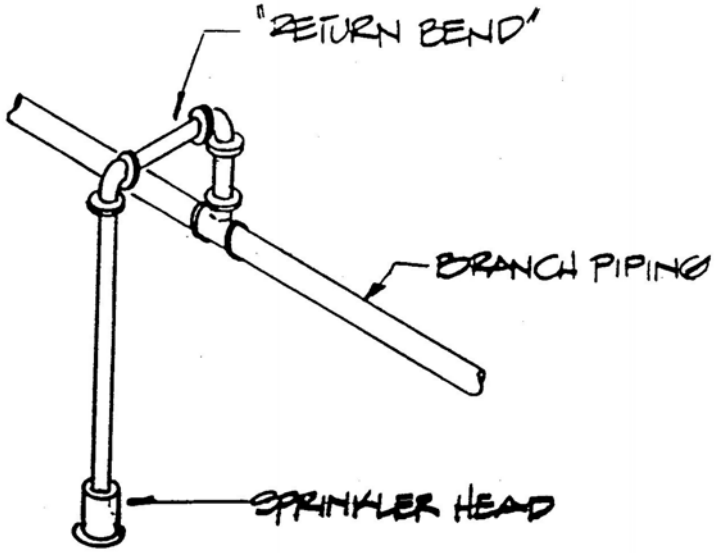
D). ALL TESTS SHALL CONFORM TO NFPA 13

II. FIRE STANDPIPE

1. PIPING AND FITTINGS:

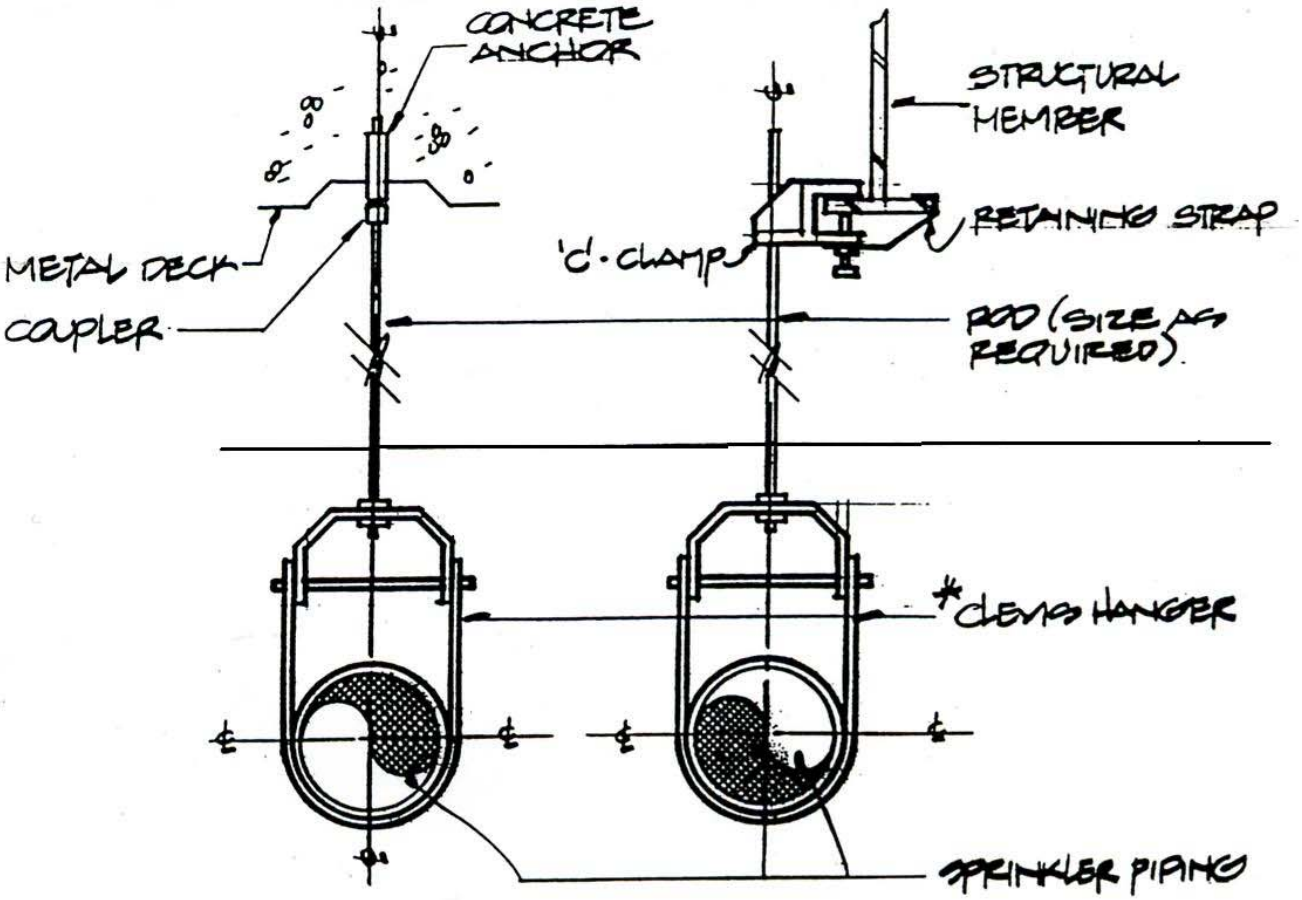
- 2 1/2" PIPING AND LARGER SHALL BE THREADED OR MECHANICAL FITTINGS.

- SCHEDULE 10 PIPING IS NOT PERMITTED.



RETURN BEND DETAIL

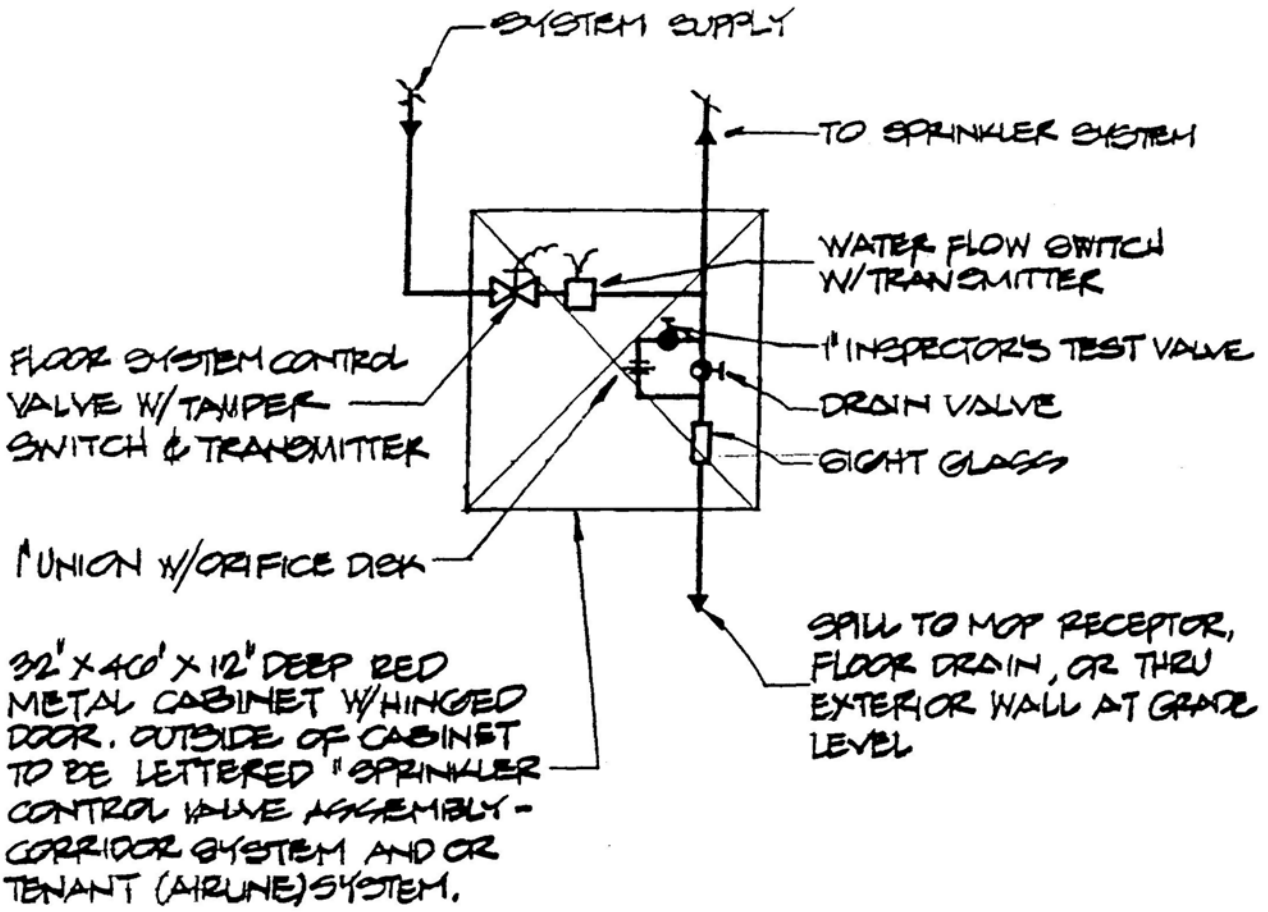
N.T.S.



TYPICAL HANGER DETAIL

N.T.S.

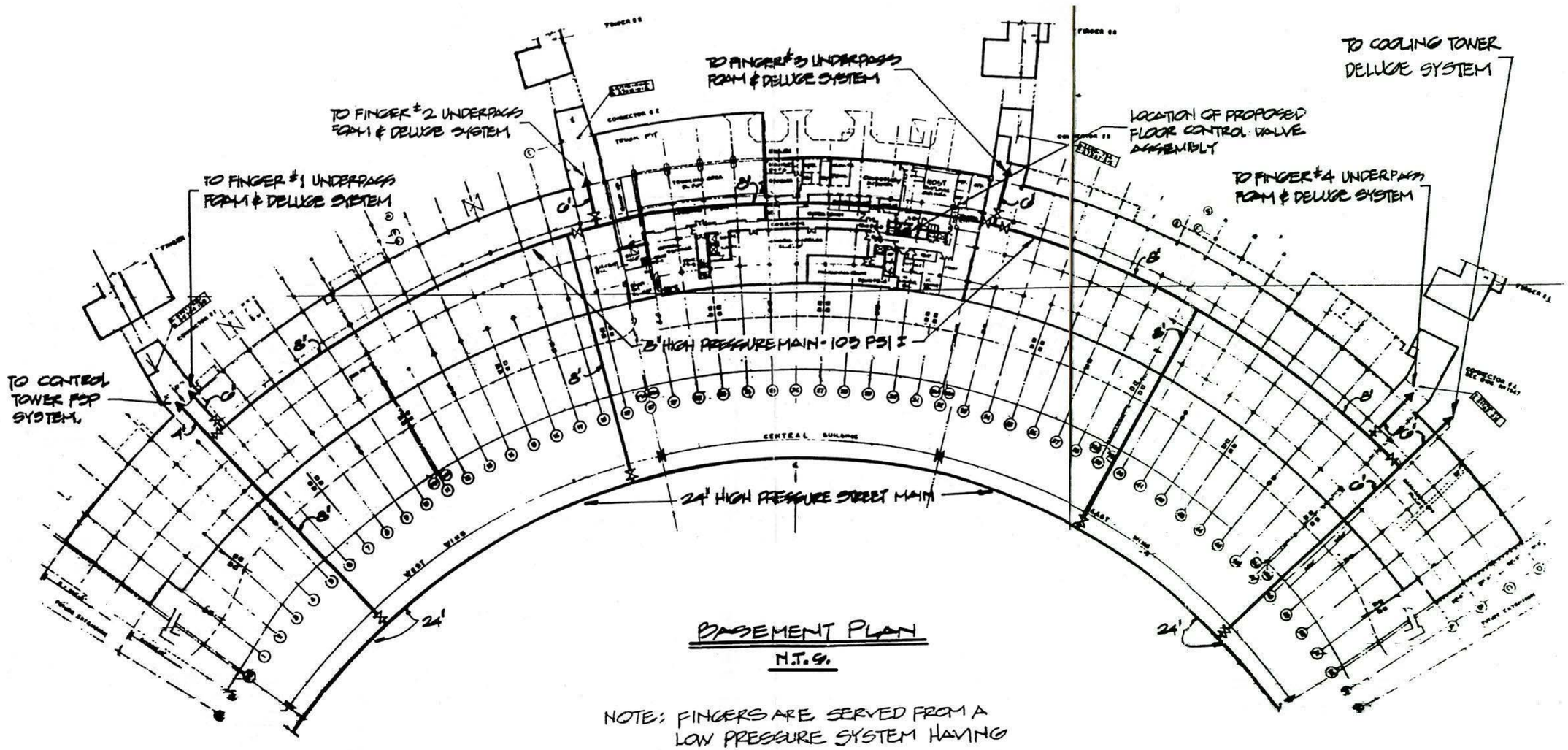
*NOTE: CLEVIS HANGERS REQUIRED ON SPRINKLER PIPING LARGER THAN 1", GENERAL PURPOSE HANGERS MAY BE USED ON 1" SPRINKLER PIPING ONLY.



DETAIL OF TYPICAL CONTROL VALVE ASSEMBLY

N.T.S.

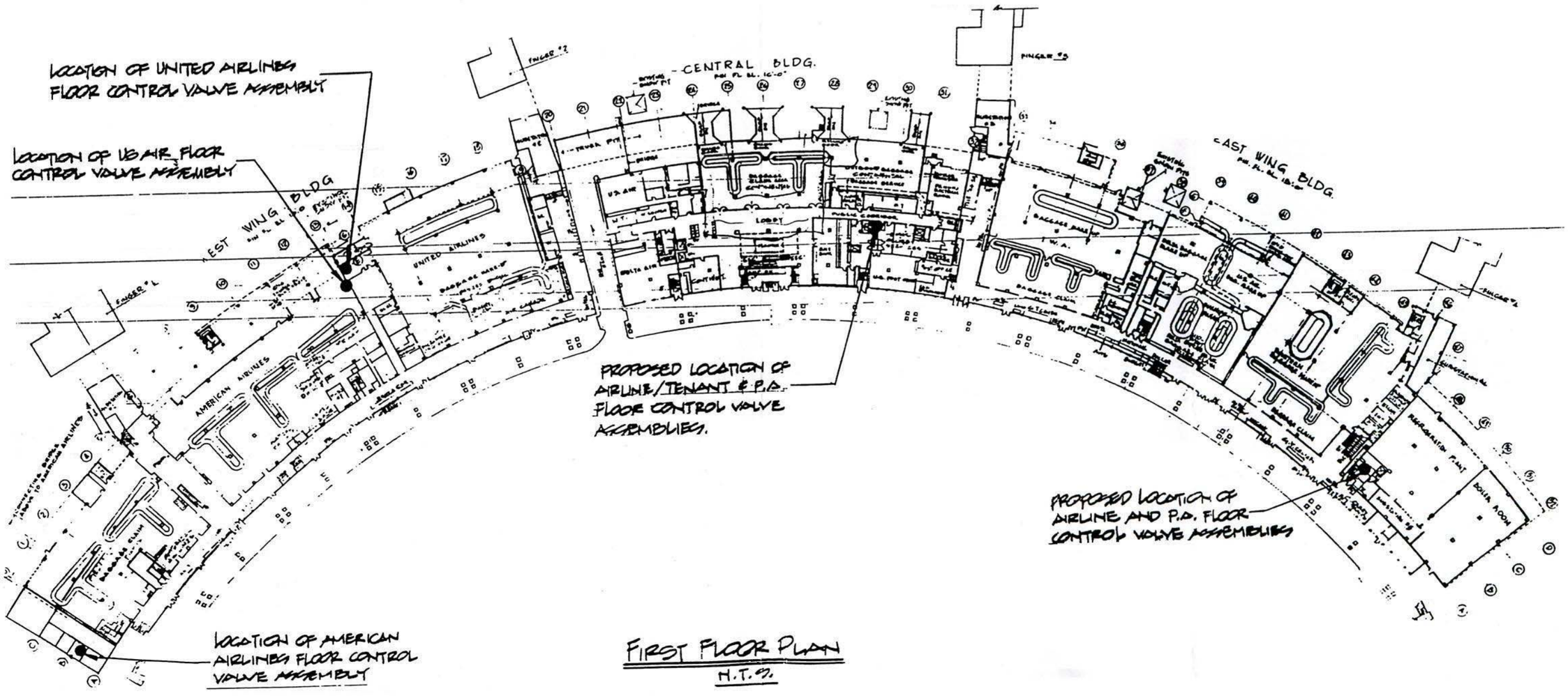
NOTE: SHOP DRAWING OF SYSTEM LAYOUT SHALL BE REDUCED IN SIZE AND MOUNTED ON INSIDE OF CABINET DOOR.



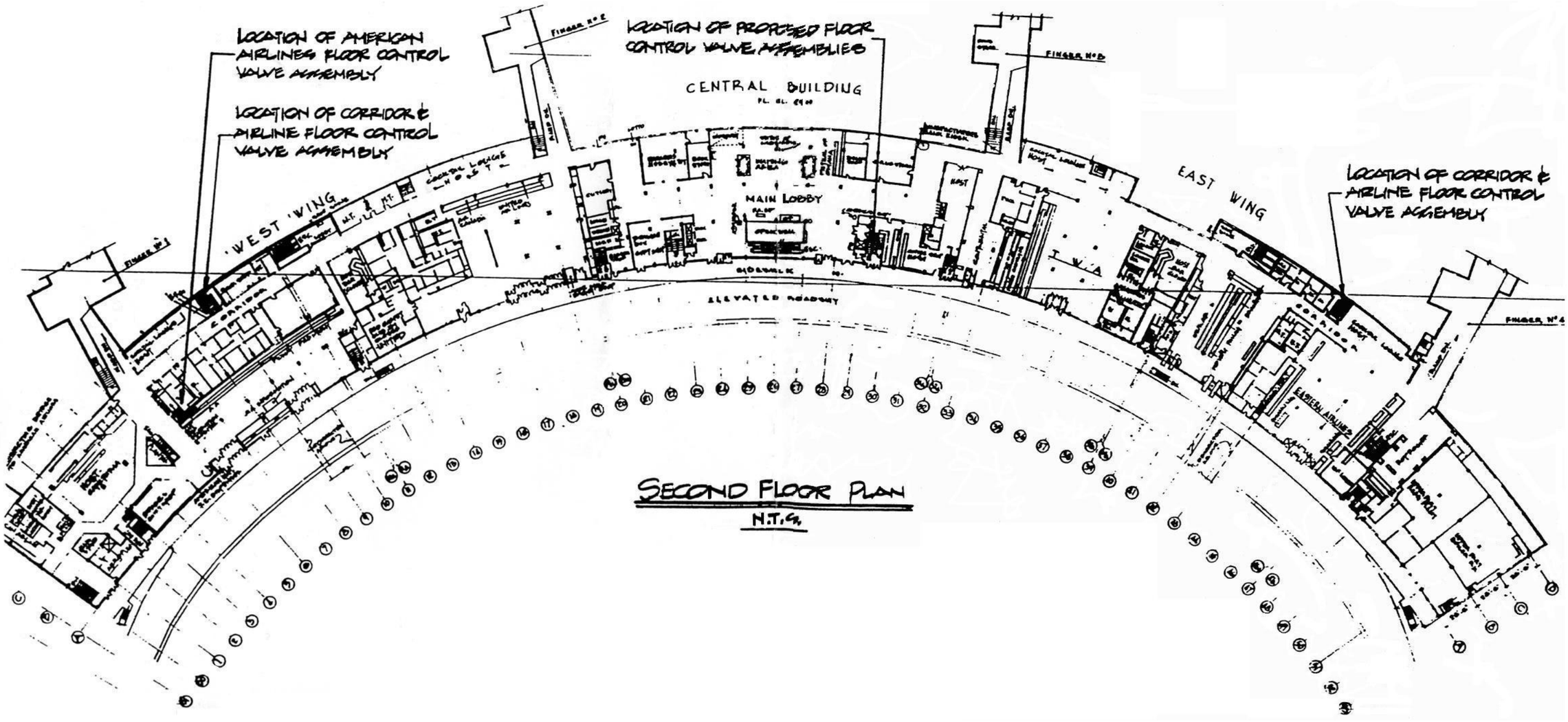
BASEMENT PLAN

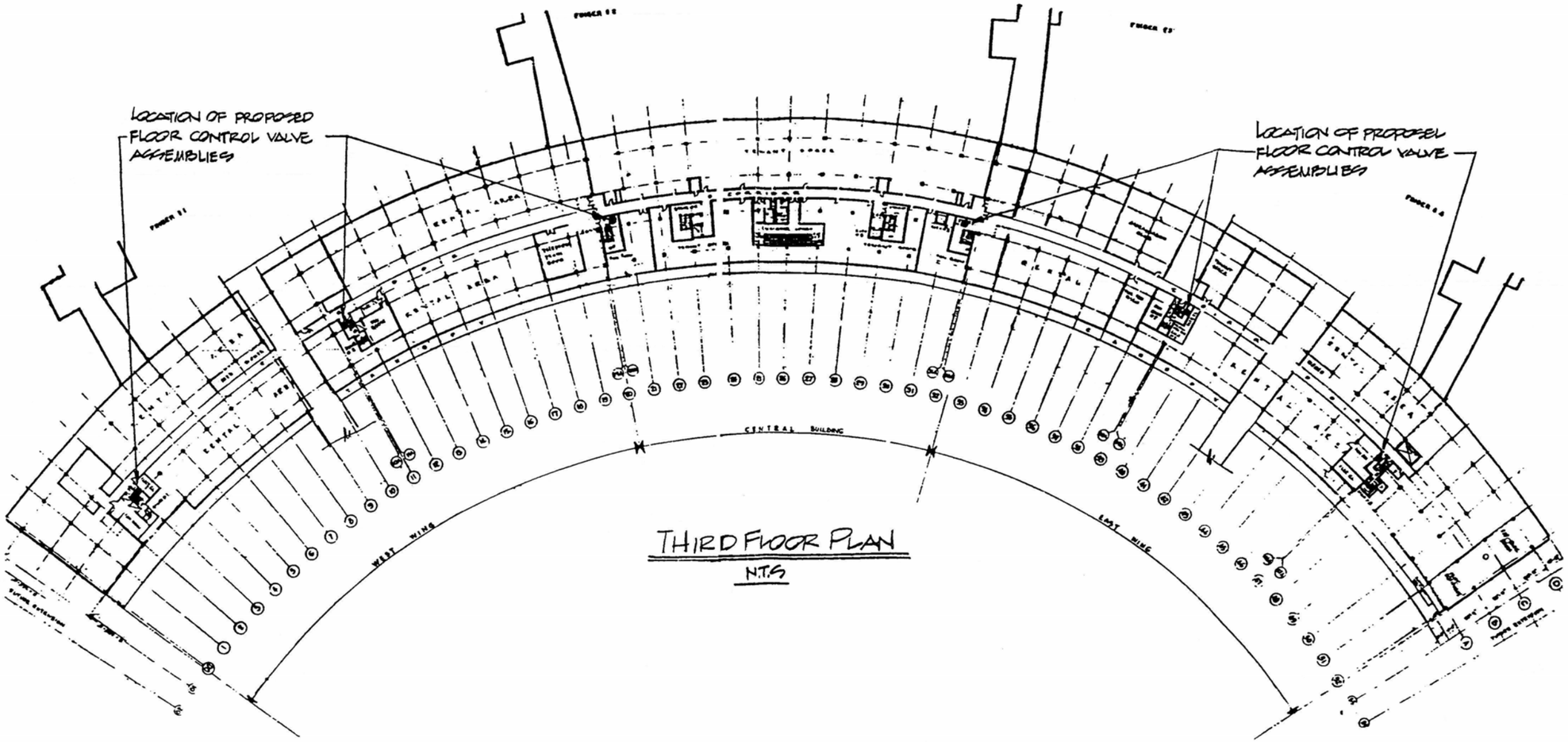
N.T.S.

NOTE: FINGERS ARE SERVED FROM A LOW PRESSURE SYSTEM HAVING 55 ± PSI.



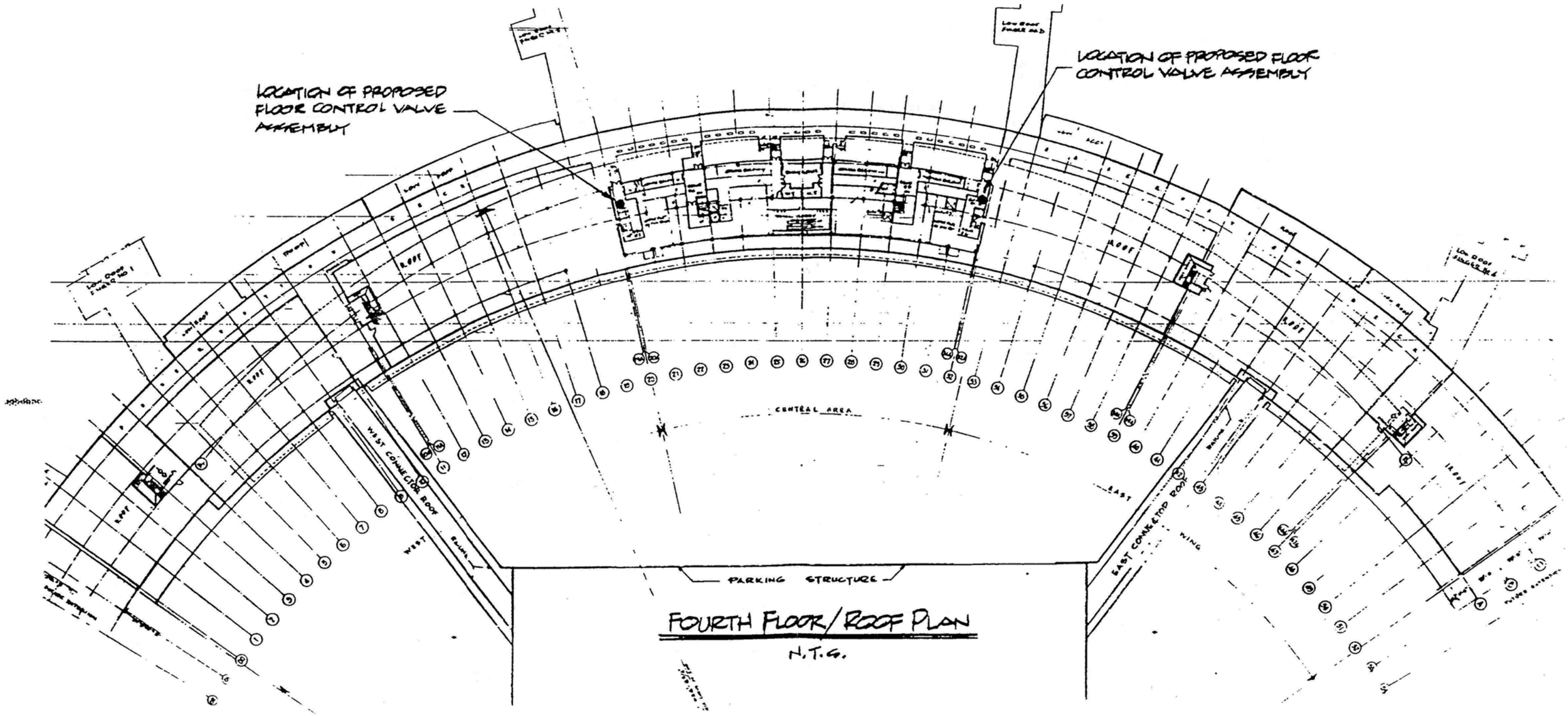
FIRST FLOOR PLAN
H.T.S.


LOCATION OF AMERICAN AIRLINES FLOOR CONTROL VALVE ASSEMBLY
LOCATION OF CORRIDOR & AIRLINE FLOOR CONTROL VALVE ASSEMBLY
LOCATION OF PROPOSED FLOOR CONTROL VALVE ASSEMBLIES
CENTRAL BUILDING
MAIN LOBBY
WEST WING
EAST WING
LOCATION OF CORRIDOR & AIRLINE FLOOR CONTROL VALVE ASSEMBLY
FINGER N°1
FINGER N°2
FINGER N°3
FINGER N°4
ELEVATED ROADWAY
SECOND FLOOR PLAN
N.T.S.



THIRD FLOOR PLAN

N.T.S



FOURTH FLOOR/ROOF PLAN

N.T.S.