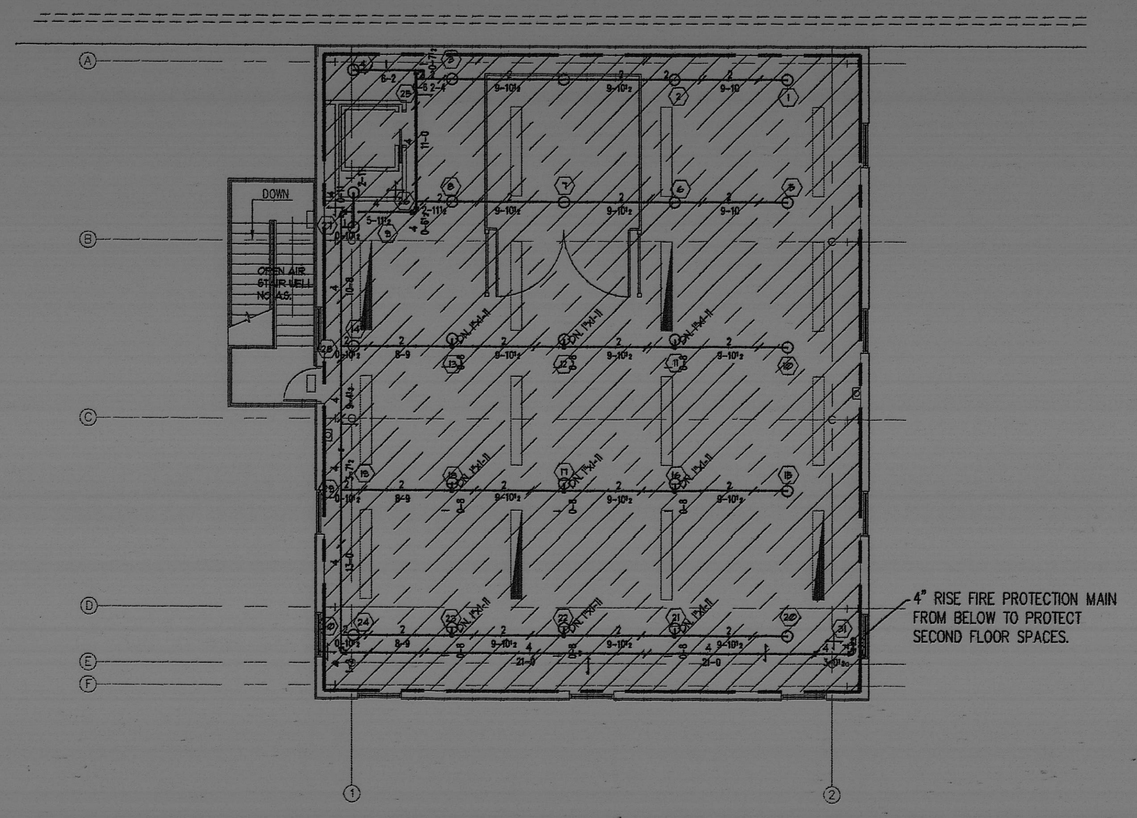


FIRE SPRINKLER SYSTEM DESIGN CRITERIA

DESIGN PARAMETERS SET BY SPEC

A. DESIGN DENSITIES AND AREAS OF APPLICATION SHALL MEET THE MINIMUM REQUIREMENTS OF NFPA 13 AND UFC 3-600-1 AS OUTLINED BELOW:

1. EXISTING AREAS OF THE BUILDING: 0.15 GPM/SQ. FT. OVER 3,056 SQ. FT. WITH SYSTEM DEMAND OF 545.6 GPM.
2. NEW BUILDING ADDITION: ORDINARY HAZARD GROUP 2, 0.20 GPM/SQ. FT. OVER 3,000 SQ. FT. WITH 500 GPM HOSE STEAM. OR OVER THE ENTIRE AREA SINCE THE 2ND FLOOR IS LESS THAN 3000 SQ. FT.

B. MAXIMUM COVERAGE PER SPRINKLER HEAD.

1. ORDINARY HAZARD: 130 SQ. FT.

C. MAXIMUM VELOCITY IN HYDRAULIC CALCULATIONS FOR FIRE SPRINKLER SYSTEM SHALL NOT EXCEED 20 FT/SEC.

D. THE DESIGN AREA SHALL BE THE HYDRAULICALLY MOST REMOTE RECTANGULAR AREA HAVING A DIMENSION PARALLEL TO THE BRANCH LINE EQUAL TO, OR GREATER THAN, 1.4 TIMES THE SQUARE ROOT OF THE AREA OF SPRINKLER OPERATION.

E. HYDRAULIC CALCULATIONS FOR THE FIRE SPRINKLER SYSTEM SHALL EXTEND TO THE POINT OF CONNECTION WITH THE MAIN. THE CONTRACTOR SHALL PERFORM A FLOW TEST TO DETERMINE THE PRESSURES AND FLOW FOR THE FIRE SPRINKLER SYSTEM. COORDINATE FLOW TEST WITH THE CONTRACTING OFFICER.

NEW HYDRANT FLOW TEST CONDUCTED BY TFE AND BASE FIRE DEPARTMENT

THE FOLLOWING INFORMATION IS FROM THE BASE OF THE EXISTING TO BE REMOVED RISER:

		REVISED WATER SUPPLY:
STATIC PRESSURE:	70 PSI	70
RESIDUAL PRESSURE:	58.1 PSI	63
FLOW:	545.6 GPM	3082

F. A MINIMUM 10% PRESSURE CUSHION SHALL BE PROVIDED IN ALL HYDRAULIC CALCULATIONS.

FIRE PROTECTION GENERAL NOTES

Contract starts at 8" FLANGED SPIGOT LOCATED WITHIN THE BUILDING PROPER

Sprinkler Contractor cannot control and is not responsible for either a. the chemical or biological properties of the water supply to our sprinkler system. b. any impact on the condition of the piping contained in the sprinkler system resulting from or otherwise attributable to chemical or biological properties, including but not limited to microbiologically influenced corrosion (MIC).

FIRE PROTECTION INSTALLATION NOTES

System is a Wet-Pipe system, and is designed per NFPA 13, Installation of Sprinkler Systems, 2002 Edition.

All work and material shall conform to NFPA 13, 2002

All materials, where applicable, shall be U.L. listed.

All new piping shall be hydrostatically tested for two hours in accordance with NFPA 13, 2002 edition. Minimum hydrostatic test pressure shall be 200 PSI.

All pipe shall be supported from the building structure utilizing hangers, materials, and methods per NFPA 13, 1996, 2-6, NFPA 13, 1999, 6-1, and NFPA 13, 2002, 9.1

Wet system piping shall be installed level to drain back to the system riser, in accordance with NFPA 13, 1996, 4-14.3.2, NFPA 13, 1999, 5-14.2.2, and NFPA 13, 2002, 8.15.2.2.1. Trapped sections of piping shall have auxiliary drain connections in accordance with NFPA 13, 1996, 4-14.3.5, NFPA 13, 1999, 5-14.2.5.2. and NFPA 13,2002, 8.15.2.2.2.

Wet pipe system pendant sprinklers in ceilings shall be installed on straight drops or brass uprights pending the ceiling type.

Unless noted otherwise, pipe lengths shown are cut dimensions.

Electric sprinkler-flow detection and supervisory devices for the monitoring of the sprinkler system shall be installed by TFE System. All wiring of the devices is the responsibility of others.

Electric bell to signal a sprinkler-flow alarm will be provided by TFE System, and is to be mounted and wired by others. The bell is to be located on the exterior of the building adjacent to the riser per NFPA 13, 1996 Edition, 1999 Edition.

Line piping shall be black steel Sch. 40 manufactured to ASTM-A795, TYPE E, Grade A, standards.

Mains shall be black steel Schedule 40, manufactured to ASTM-A135 standards.

FITTINGS

Line screwed fittings shall be Cast Iron threaded, Class 125 (standard), manufactured per ANSI B16.4, U.L. listed for fire protection to 175 PSI.

Outlets on mains for lines shall be welded branch outlet fittings, Merit Weld Miser Tee-Let, UL/FM approved to 300 PSI for fire protection.

Grooved couplings shall be either rigid or flexable couplings, UL/FM approved to 300 PSI for fire protection service. Gaskets shall be "Grade E (Type A)" EPDM rubber compound, rated at -30°F to +150°F.

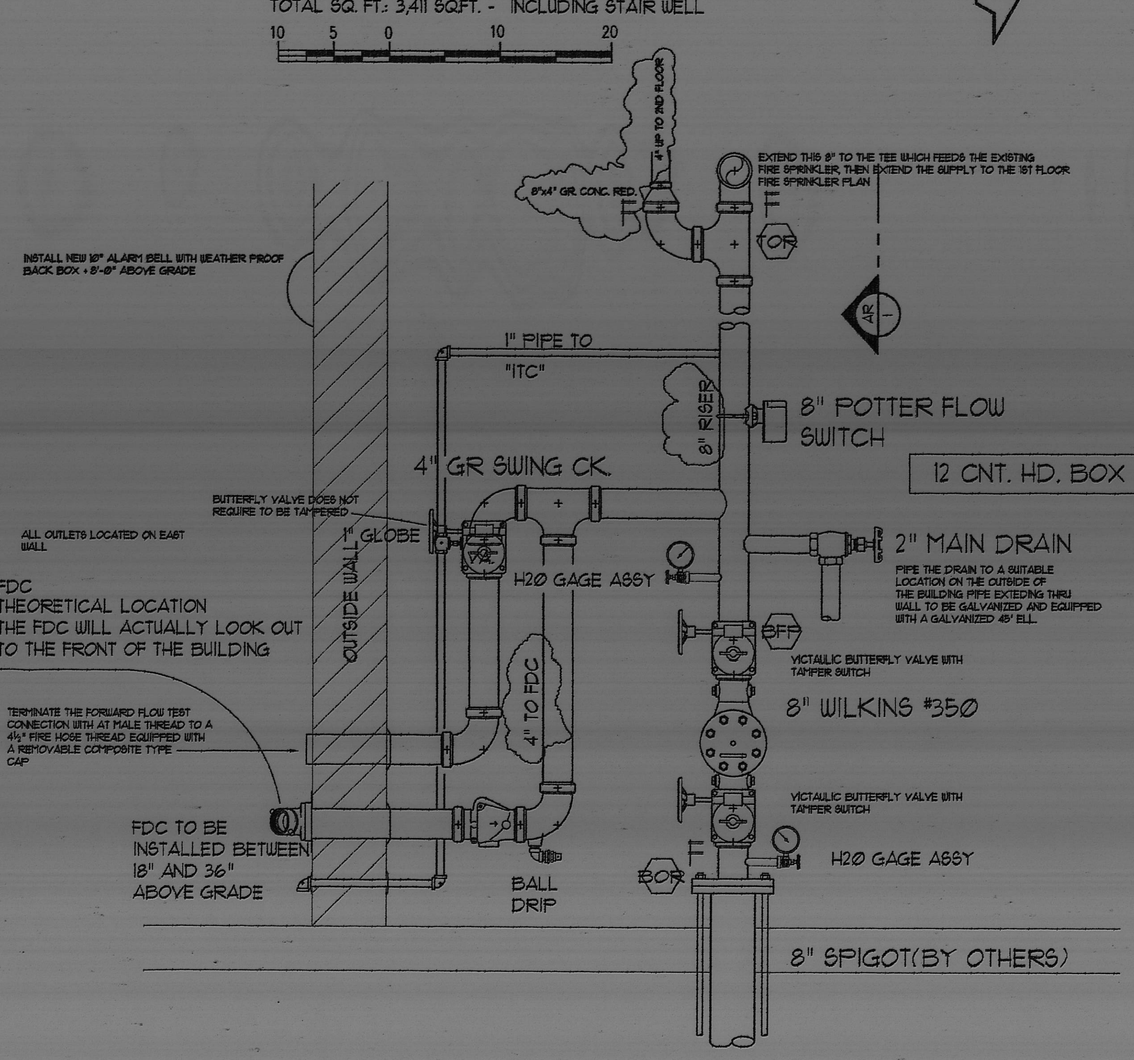
Flanged fittings, where used, shall be Cast Iron, Class 125 (standard), manufactured per ANSI B16.1 and marked 125. Flanges are faced and drilled American National Standard. UL listed for fire protection to 175 PSI.

SECOND FLOOR FIRE PROTECTION PLAN

SCALE: 1/8"=1'-0"

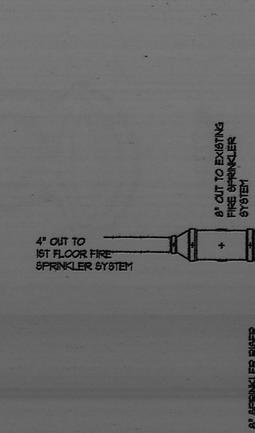
TOTAL SQ. FT.: 3,411 SQFT. - INCLUDING STAIR WELL

10 5 0 10 20



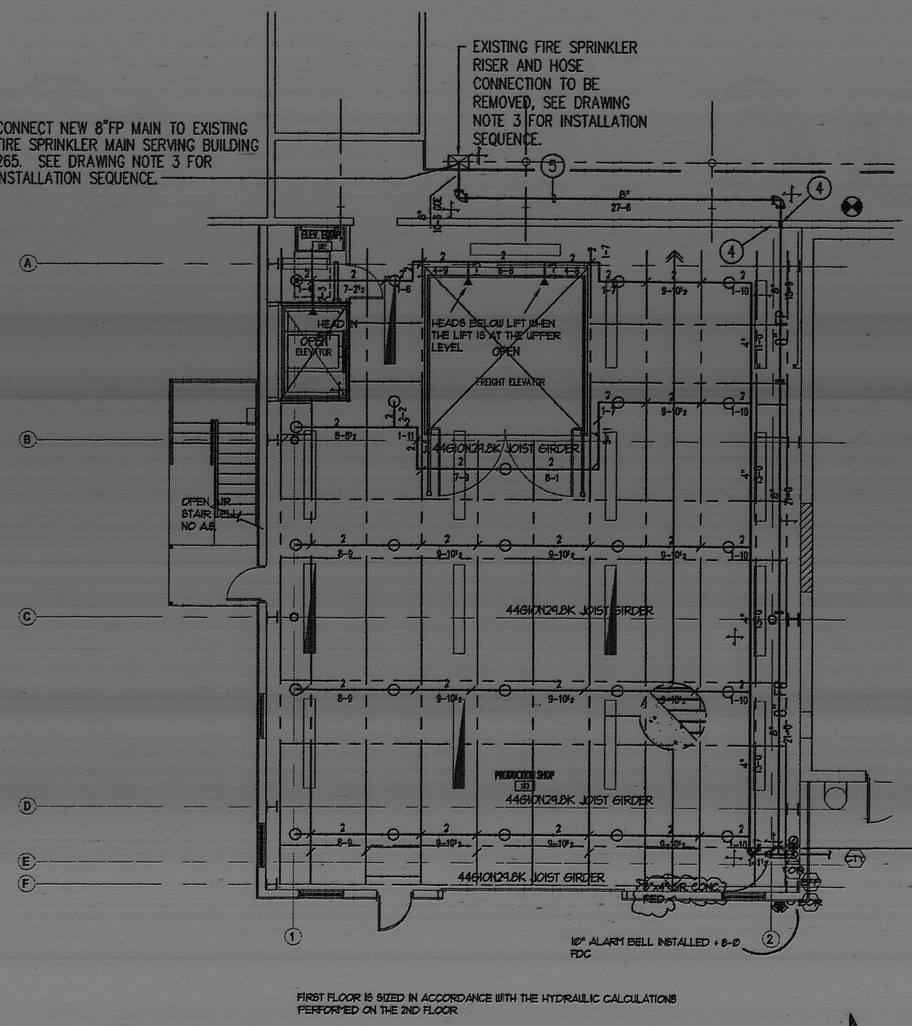
R/1 RISER SECTION

SCALE: 1" = 1'-0"



AR/1 RISER SECTION

SCALE: 1" = 1'-0"



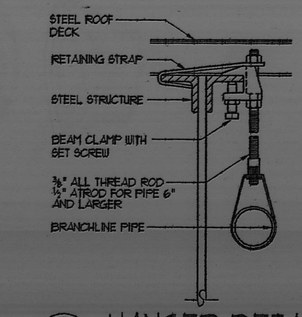
FIRST FLOOR IS SIZED IN ACCORDANCE WITH THE HYDRAULIC CALCULATIONS PERFORMED ON THE 2ND FLOOR

FIRST FLOOR FIRE PROTECTION PLAN

SCALE: 1/8"=1'-0"

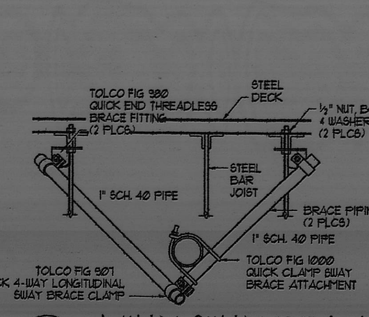
TOTAL SQFT.: 3500 SQ. FT.

10 5 0 10 20



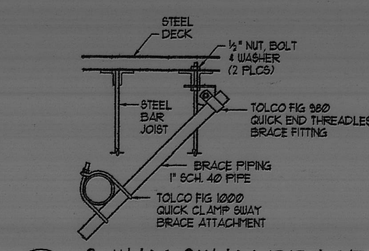
A/1 HANGER DETAIL

SCALE: NONE



A/1 4-WAY SWAY BRACE

SCALE: NONE



B/1 2-WAY SWAY BRACE

SCALE: NONE

AS-BUILT

NICET CERTIFIED LEVEL IV #172562

Brad N. Blackett #172562

HYDRAULIC DESIGN INFORMATION

☑ THIS SYSTEM IS HYDRAULICALLY DESIGNED ☐ THIS SYSTEM IS NOT HYDRAULICALLY DESIGNED

SYSTEM NUMBER:	ONE	REMOTE AREA NO.	2ND	SYSTEM NUMBER	-	REMOTE AREA NO.	-	SYSTEM NUMBER	-	REMOTE AREA NO.	-
REMOTE AREA =	AREA	SQ. FT.		REMOTE AREA =	-	SQ. FT.		REMOTE AREA =	-	SQ. FT.	
DENSITY =	.20	GPM/SQ. FT.		DENSITY =	-	GPM/SQ. FT.		DENSITY =	-	GPM/SQ. FT.	
667.50	GPM (INSIDE)	45.10	PSI RISER BASE	-	GPM (INSIDE)	-	PSI RISER BASE	-	GPM (INSIDE)	-	PSI RISER BASE
-	GPM (INSIDE)	500	GPM-HOSE (OUTSIDE)	-	GPM (INSIDE)	-	GPM-HOSE (OUTSIDE)	-	GPM (INSIDE)	-	GPM-HOSE (OUTSIDE)

SUPPLY: 70 STATIC (PSI) | 63 RESIDUAL (PSI) | 3082 GPM FLOWING

☐ FIRE PUMP SEE PUMP DATA

2" 4" 6" 8" 10" 12" 14" 16" 18" 20"

DATE:	REVISION	BY:	ISSUE
12-4-06	REVISED AS PER ENGINEERING REVIEW COMMENTS	BNC	B
12-8-06	AS BUILT NOTES ADDED	BNC	C

TESTS TO BE WITNESSED BY _____ PHONE No. _____

NORTH

NOTICE: IT IS THE OWNERS RESPONSIBILITY TO MAINTAIN ADEQUATE HEAT FOR THE PREVENTION OF FREEZING THROUGHOUT NOT FIRE SPRINKLER SYSTEMS AND IN ROOMS FOR DRY PIPE, DELUGE AND PREACTION VALVES CONTROLLING WATER SUPPLIES TO AUTOMATIC SPRINKLER SYSTEMS.

SYMBOLS

- ALARM VALVE RISER
- DRY PIPE RISER
- FLOW SWITCH RISER
- DELUGE VALVE RISER
- PIPE "RISE"
- PIPE "DROP"
- SWAY BRACING
- PIPE HANGER (SEE CHART)
- GPMS / DROP (SEE CHART)
- FLEXIBLE GROOVED COUPLING
- RIGID GROOVED COUPLING
- THREADED PIPE COUPLING
- CONTROL VALVE
- CHECK VALVE
- FIRE DEPARTMENT CONNECTION
- FIRE HYDRANT
- WATER MOTOR GONG
- ELECTRIC ALARM BELL
- (4-1) MAIN PIPE NUMBER
- 21-0 MAIN PIPE LENGTH
- (02) BRANCHLINE NUMBER
- (03) HYDRAULIC CALC. REFERENCE
- 6 OF PIPE BELOW DECK / CEILING
- 6 OF PIPE ABOVE FINISHED FLOOR
- CEILING ELEVATION
- ELEVATION DATUM

HEAD COUNT

SYMBOL	NAME	MODEL	TYPE	FINISH	K-FACTOR	ORIFICE	TEMP.	CHROMED	QUANTITY
○	RELIABLE	G	UPRIGHT	PLAIN	8.0	1/32"	155°	NONE	50
▲	VIGILANT	V-34	HOR. SIDE	PLAIN	8.0	1/32"	155°	NONE	3
◉	RELIABLE	G	PENDENT	PLAIN	8.0	1/32"	155°	2 PC	1
54	TOTAL PROJECT SPRINKLERS	FIRE PROTECTION PLAN			TOTAL SPRINKLERS THIS SHEET ONLY				54

TREASURE'S FIRE EQUIPMENT
1460 W. PLEASANTVIEW RD.
PLEASANT VIEW, UT 84414
T: (801) 731-FIRE F: (801) 731-0726
(3473)

JOB NAME: CONSTRUCT 2 STORY ADDITION EAST SIDE BUILDING 265

JOB ADDRESS: HILL AIR FORCE BASE

DEPARTMENT OF THE AIR FORCE OGDEN AIR LOGISTICS CENTER

ISSUE	C
REVIEWED BY	JT
FILE NAME	-
DRAWN	OD
DATE	4-20-06
SCALE	1/8"=1'-0"
SHEET	1 OF 1
JOB NUMBER	-