

ANSI/UL
INERGEN DESIGNER
 115 WEST EXETER, LEBANON, NEW HAMPSHIRE 03756
 VERSION 3.1.1.3
 FILE: Data file name: C:\Program Files\INERGEN DESIGNER\One City Center.inr with unsave1
 Job Number: for Medical Mutual
 Address: 1 City Center
 Portland, ME 04101

Agent Storage Conditions

Storage pressure is 2175 psia at 70 degrees Fahrenheit.
 20% mole fraction of agent in nitrogen.
 Total agent volume is 1317 cubic feet.
 Time to discharge 1185 cubic feet (90% of INERGEN) is 79.8 seconds
 Maximum pressure downstream of manifold office is 1312 psia

Concentrations

Area	95% Time (Sec)	95% Volume (cu ft)	95% INERGEN at max. temp.	Minimum Concentration at min. temp.	Requested Concentration at min. temp.
Lan Room	48	974.7	43.0% at 80°F	41.8% at 60°F	34.2% at 60°F
Above Ceiling	62.3	942.3	41.4% at 80°F	40.2% at 60°F	34.2% at 60°F

From Vent Calculation

Area	Peak Rate	Manifold Wall Strength	Minimum Free Vent Area
Lan Room	1833.0 cfm	5.0 lbs./sq.ft.	70 sq. in.
Above Ceiling	679.5 cfm	5.0 lbs./sq.ft.	28 sq. in.

Pressure Drop Results

Sec	Sec	Nominal Pipe Size (in)	Length (ft)	Equip. Length (ft)	Elv. (ft)	Trav. (ft)	Start Press. (psia)	Term. Press. (psia)	Flow (cfm)
1	2	1/2 40 T	0.0	38.0	0.0	WFLD	1033	1008	428.5
2	3	1 80 T	1.0	2.8	0.0	WFLD	1008	1008	428.5
3	4	1 80 T	1.0	2.8	0.0	WFLD	1008	1008	511.0
4	5	1 80 T	1.0	2.6	0.0	WFLD	1008	1008	1276.4
5	6	1 80 T	0.5	2.8	0.5	WFLD	1005	1005	1276.4
6	7	ORIFICE 3/16 INCHES	DRILL NO. 0				1009	499	1276.4

Pressure Drop Results (Continued)

Sec	Sec	Nominal Pipe Size (in)	Length (ft)	Equip. Length (ft)	Elv. (ft)	Trav. (ft)	Start Press. (psia)	Term. Press. (psia)	Flow (cfm)
7	8	1 40 T	3.0	3.0	0.0		438	587	1276.4
8	9	1 40 T	5.8	8.4	0.0		587	581	1276.4
9	302	1/2 40 T	2.8	5.8	2.8	SIDE	581	578	330.2
9	301	1 40 T	5.0	6.7	0.5	THRU	581	581	546.3

Calculation based on 70 degree Fahrenheit pre-discharge Piping Temperature

Pipe and Fittings

Sec	Sec	Nominal Pipe Size (in)	Length (ft)	90° Elbows	Side Tees	Thru Tees	Unions	Edl Cps	Edl Cps
1	2	1/2 40 T	0.0	0	0	0	0	0	0
2	3	1 80 T	1.0	0	0	0	0	1	0
3	4	1 80 T	1.0	0	0	0	0	1	0
4	5	1 80 T	1.0	0	0	0	0	1	0
5	6	1 80 T	0.5	0	0	0	0	0	0
6	7	1 80 T	1.0	0	0	0	0	0	0
7	8	1 40 T	3.0	0	0	0	0	0	0
8	9	1/2 40 T	2.8	0	1	0	0	0	0
8	302	1/2 40 T	2.8	0	1	0	0	0	0
9	301	1 40 T	5.0	0	0	1	0	0	0

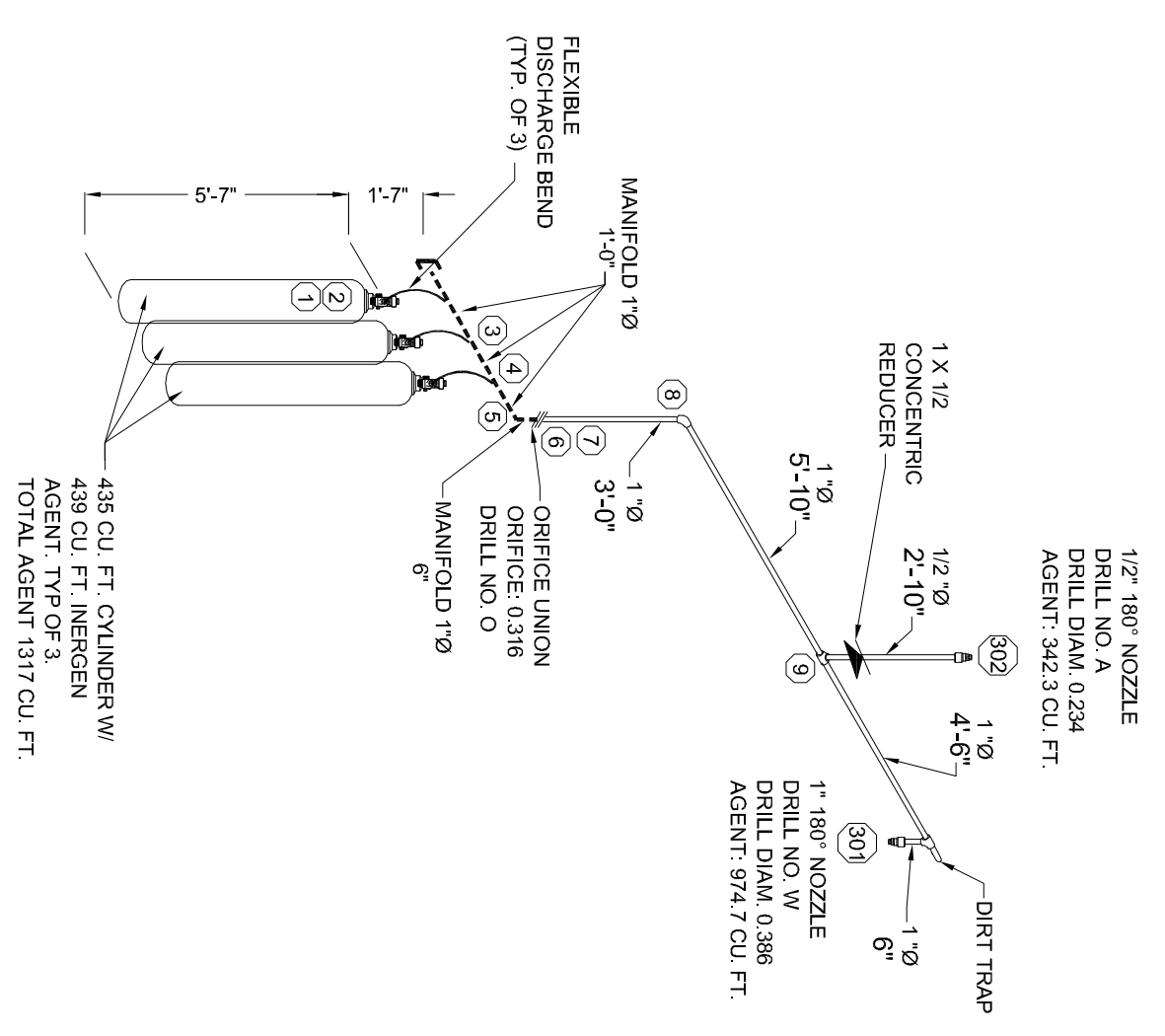
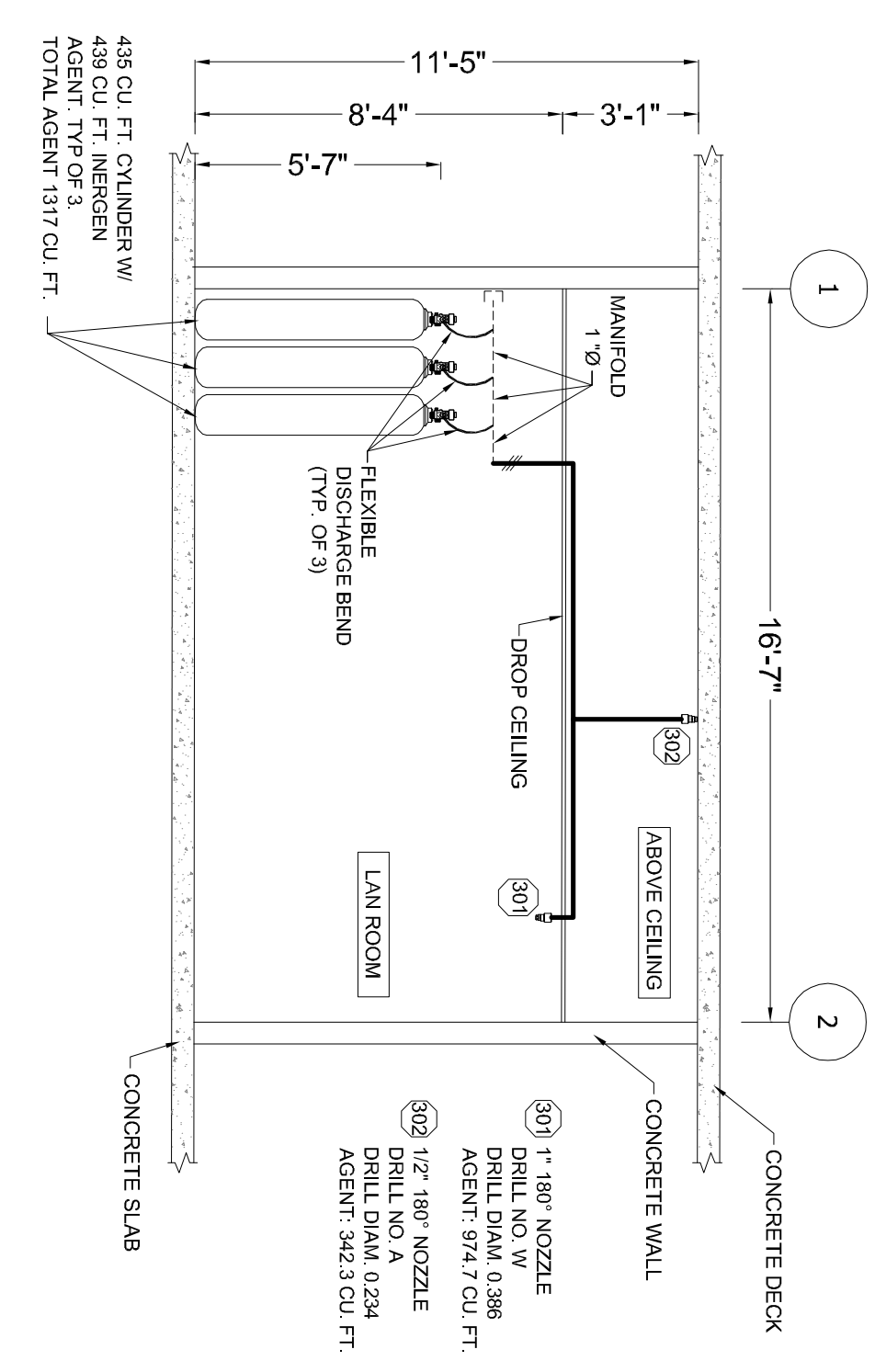
Nozzle Performance Summary

Nozzle Number	Nominal Pipe Size	Drill Diameter	Drill Quantity (cu ft)	Area (sq. in.)	Discharged Above Ceiling	Area (sq. in.)	Discharged Lan Room
302	1/2 40 T	A	0.254	342.3			
301	1 40 T	W	0.380	974.7			

Messages/Errors

ANSI - 150 per INERGEN DESIGNER Version number 2.1.2
 Calculation done on 6/20/2013 at 1:24:17 PM
 Pipe schedule selected for pipe sizes downstream of the manifold office is based on the maximum pipe size of 150 per ANSI. 150 schedule is used for all other pipes and connections. Only the maximum pipe size for other grades are equal to or greater than the maximum anticipated downstream pressure.

Calculation by Simplex Grinnell



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

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

CALCULATION DATA

NO.	DATE	REVISION DESCRIPTION	CHG BY

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INERGEN-FIRE SUPPRESSION-SYSTEM
 MEDICAL MUTUAL (LAN ROOM)
 1 CENTER STREET
 PORTLAND, ME 04101

SHEET TITLE: INERGEN-FIRE SUPPRESSION-SYSTEM
 SHEET NUMBER: 2 OF 3