Kidde Fire Systems - Flow Calculation Software v4.0.0 (Novec 1230)
UL: EX4674 / Component of FM Approved System

## Eastern Fire Protection

170 Kittyhawk Ave
Auburn, ME 04210
Phone: 207-784-1507
File Name: Apothecary by Design NOVEC Calc.FC4

## Consolidated Report

## Customer Information

Company Name: Apothecary by Design
Address: 141 Preble St
Portland, ME 04101

Phone:
Contact: Eddie Bureau
Title:

## Project Data

Project Name: 1st Floor Server Room
Designer: CRM
Number:
Account:
Location:
Description:

## Enclosure Report

Elevation: 25 ft (relative to sea level)
Atmospheric Correction Factor: 1

Enclosure 1 Server Room

Enclosure Temperature: Number of Nozzles: 1

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Calculation Date/Time: Friday, April 7, 2017, 9:19:15 AM

Key ID: 1803507359

Kidde Fire Systems

## Consolidated Report

| | | | |
|---|---|---|---|
| Minimum: | 70 F | Width: | 7.0 ft |
| Maximum: | 70 F | Length: | 12.3 ft |
| Max. Concentration: | 7.59 % | Height: | 9.0 ft |
| Design Concentration: | | Volume: | 774.9 ft ³ |
| Adjusted: | 7.59 % | Non-permeable: | 0.0 ft ³ |
| Minimum: | 4.70 % | Total Volume: | 774.9 ft ³ |
| Min. Agent Required: | 33.1 lb | | |
| Adjusted Agent Required: | 55.0 lb | | |

## Agent Source Report

| | |
|---|---|
| Agent: | Novec / Propellant N2 |
| (Novec 1230 is a Trademark of 3M) | |
| Cylinder Name: | 70 lb Cylinder |
| Cylinder Part Number: | 45-100070-001 |
| Agent Per Cylinder: | 55.0 lb |
| Fill Density: | 55.0 lbs / cubic ft |
| Number of Main Cylinders: | 1 |
| Number of Reserve Cylinders: | 1 |
| Total Agent Amount: | 110.0 lb (includes reserve) |
| | |
| Cylinder Empty Weight: | 52.0 lb |
| Weight, All Cylinders + Agent: | 214.0 lb |
| Floor Area Per Cylinder: | 0.44 ft ² |
| Floor Loading Per Cylinder: | 243 lbs / ft ² |

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# Consolidated Report

## Parts Report

Total Agent Required: 110.0 lb (includes reserve)

Cylinder Name: 70 lb Cylinder (Part: 45-100070-001)

Number of Cylinders: 2 (includes reserve)

| Nozzle | Type | Nozzle Diameter | Drill Size | Nozzle Area | Part Number |
|---|---|---|---|---|---|
| E1-N1 | 180-SS | 3/4 in | D | 0.3803 in ² | 45-194614-168 |

| Pipe & Fittings | Type | Diameter | Length | Elbows (90) | Elbows (45) | Tees | Unions |
|---|---|---|---|---|---|---|---|
| | 40T | 3/4 in | 8.75 ft | 6 | 0 | 0 | 0 |
| | 40T | 1 in | 0.75 ft | 0 | 0 | 1 | 0 |

| Other Objects | Name | Quantity | Part Number |
|---|---|---|---|
| | 1-1/2 in. Valve Outlet Adapter | 2 | 283904 |
| | 3/4 in. Check Valve | 2 | 81-800266-000 |

## System Acceptance Report

*** WARNING - The data in this project may have been changed after the calculations were performed.**

| | |
|---|---|
| System Discharge Time: | 8.1 seconds |
| Percent Agent In Pipe: | 11.7% |
| Percent Agent Before First Tee: | 0.0% |
| Dead Volume: | 0.0% (0.0 lb) |
| Enclosure Number: | 1 |
| Enclosure Name: | Server Room |
| Minimum Design Concentration: | 4.70% |
| Adjusted Design Concentration: | 7.59% |

Calculation Date/Time: Friday, April 7, 2017, 9:19:15 AM



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Kidde Fire Systems

# Consolidated Report

Predicted Concentration: 7.59%

Maximum Expected Agent Concentration: 7.59% (At 70 F)

| Nozzle | Minimum Agent Required | Adjusted Agent Required | Predicted Agent Delivered | Average Nozzle Pressure |
|---|---|---|---|---|
| E1-N1 | 33.1 lb | 55.0 lb | 55.0 lb | 65 psig |

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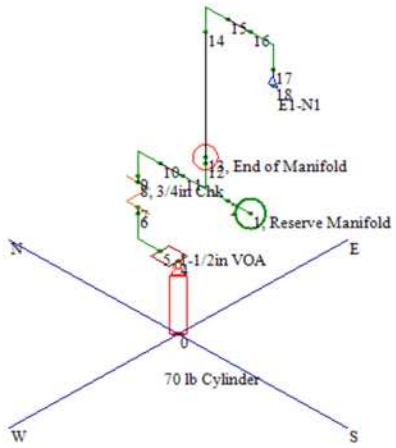
## Pipe Network Report

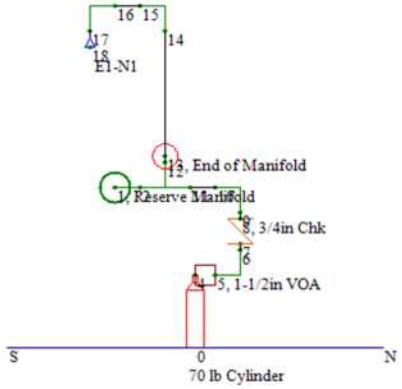
| Description | Pipe Section | Start Node | End Node | Pipe Type | Pipe Diameter | Pipe Length | Union | Total Elevation Change | Total Equivalent Length | Nozzle Name | Nozzle Size | Nozzle Type | Nozzle Area |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cylinder - On | Man. | 0 | 4 | | 1-1/2 in | 2.91 ft | 0 | 2.91 ft | 50.00 ft | | | | |
| Adapter | Man. | 4 | 5 | | 1-1/2 in | 0.22 ft | 0 | ------ | 11.80 ft | | | | |
| Elbow (90) | Man. | 5 | 6 | 40T | 3/4 in | ------ | 0 | ------ | 2.20 ft | | | | |
| Pipe | Man. | 6 | 7 | 40T | 3/4 in | 0.25 ft | 0 | 0.25 ft | 0.30 ft | | | | |
| Check Valve -> | Man. | 7 | 8 | | 3/4 in | 0.28 ft | 0 | 0.28 ft | 17.00 ft | | | | |
| Pipe | Man. | 8 | 9 | 40T | 1 in | 0.25 ft | 0 | 0.25 ft | 0.30 ft | | | | |
| Elbow (90) | Man. | 9 | 10 | 40T | 3/4 in | ------ | 0 | ------ | 2.20 ft | | | | |
| Pipe | Man. | 10 | 11 | 40T | 3/4 in | 1.00 ft | 0 | ------ | 1.00 ft | | | | |
| Tee | Man. | 2 | 12 | 40T | 1 in | ------ | 0 | ------ | 5.70 ft | | | | |
| Reserve Man. | Man. | 1 | 2 | 40T | 1 in | ------ | 0 | ------ | 0.00 ft | | | | |
| Tee | Man. | 11 | 12 | 40T | 1 in | ------ | 0 | ------ | 5.70 ft | | | | |
| Pipe | Man./End | 12 | 13 | 40T | 1 in | 0.25 ft | 0 | 0.25 ft | 0.30 ft | | | | |
| Pipe | System | 13 | 14 | 40T | 3/4 in | 5.00 ft | 0 | 5.00 ft | 5.00 ft | | | | |
| Elbow (90) | System | 14 | 15 | 40T | 3/4 in | ------ | 0 | ------ | 2.20 ft | | | | |
| Pipe | System | 15 | 16 | 40T | 3/4 in | 1.00 ft | 0 | ------ | 1.00 ft | | | | |
| Elbow (90) | System | 16 | 17 | 40T | 3/4 in | ------ | 0 | ------ | 2.20 ft | | | | |
| Pipe&Nozzle | System | 17 | 18 | 40T | 3/4 in | 0.25 ft | 0 | -0.25 ft | 0.30 ft | E1-N1 | 3/4 in | 180-SS | 0.3803 in ² |

# Consolidated Report

View #: 1 - Isometric View-Node



View #: 5 - Standard Elevation View



View #: 9 - Standard Plan View