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HFC 227 ea AGENT CALCULATION SHEET

Date	6/Oct/15	PROJECT:	**BEN THANH STATION**	Approved	Checked	Revision
						1

Design Standard	NFPA2001-2012

Height Above Sea Level (m):	0

Protected Area Number		# 1	# 2	# 3	# 4	# 5	# 6	#7
Protected Area Name		SUBSTATION ROOM	ELECTRIC SUPPLY ROOM	SIGNALING TELECOMMUN	SERVICE SUBSTATION			
Fire class		Class C	Class C	Class C	Class C			
Length (m)		38.15	13.30	13.90	27.00			
Width (m)		26.70	8.50	8.50	9.10			
Ambient Height (m)		5.85	5.85	5.85	5.85			
False Ceiling Height (m)								
False Floor Height (m)								
① Area (m^2)		1018.61	113.05	118.15	245.70	0.00	0.00	0.00
② Total Volume (m^3)		5958.84	661.34	691.18	1437.35	0.00	0.00	0.00
③ Design Concentration (%)		7.00	7.00	7.00	7.00			
④ Flooding Factor (kg/m^3)		0.5482	0.5482	0.5482	0.5482			
⑤ **Amount of Agent (kg)**		3266.68	362.55	378.91	787.96			
⑥ **Cylinder size options**	13 lts 42 bar	**220**	**25**	**26**	**53**			
	26 lts 42 bar	**110**	**13**	**13**	**27**			
	40 lts 42 bar	**72**	**8**	**9**	**18**			
	67 lts 42 bar	**43**	**5**	**5**	**11**			
	75 lts 42 bar	**38**	**5**	**5**	**10**			
	100 lts 42 bar	**29**	**4**	**4**	**7**			
	*120 lts 42 bar	**28**	**4**	**4**	**7**			
	240 lts 25 bar	**12**	**2**	**2**	**3**			
⑦ Battery (B) or Modular (M)		B	B	B	B			
⑧ **Choose system**		7 x 120lts	4 x 120lts	4 x 120lts	7 x 120lts			
⑨ Number of systems		4	1	**1**	**1**			
⑩ **Amount per cylinder (kg)**		117.0	91.0	95.0	113.0	↑	↑	↑
TOTAL AMOUNT OF GAS (Kg)		**3276.0**	**364.0**	**380.0**	**791.0**			
Ambient Nozzle	⑪ Quantity	20	2	2	8			
	⑫ Diameter	2''	2''	2''	1 1/4''			
	⑬ Double Row	YES	YES	YES	YES	NO	NO	NO
Ceiling Nozzle	⑪ Quantity							
	⑫ Diameter							
Floor Nozzle	⑪ Quantity							
	⑫ Diameter							
⑭ Discharge Time (s)		10	10	10	10	10	10	10
⑮ Mass flow (Kg/s)		310.334	34.442	35.996	74.856			
⑯ **Manifold diameter**		**4''**	**2 1/2''**	**2 1/2''**	**4''**			
⑰ Allowable Strength of the Protected Area (Pa)		1000	1000	1000	1000	1000	1000	1000
⑱ Area of the Pressure Relief Opening (m^2)		1.05552	0.11715	0.12243	0.25460			

* For batteries, we use 120lts cylinders with a maximum filling density of 1Kg/Lt (Maximum fill 120lts)

Quick instructions:

Fill all the information available in the gaps with this coulour

The gaps with this colour is to manually introduce the design concentration or the number of nozzles.
AIRFIRE WORLDWIDE, recommends not to fill these gaps, to avoid **incorrect** designs.

NOTE: These calculation results always have to be checked by hydraulic calculations.