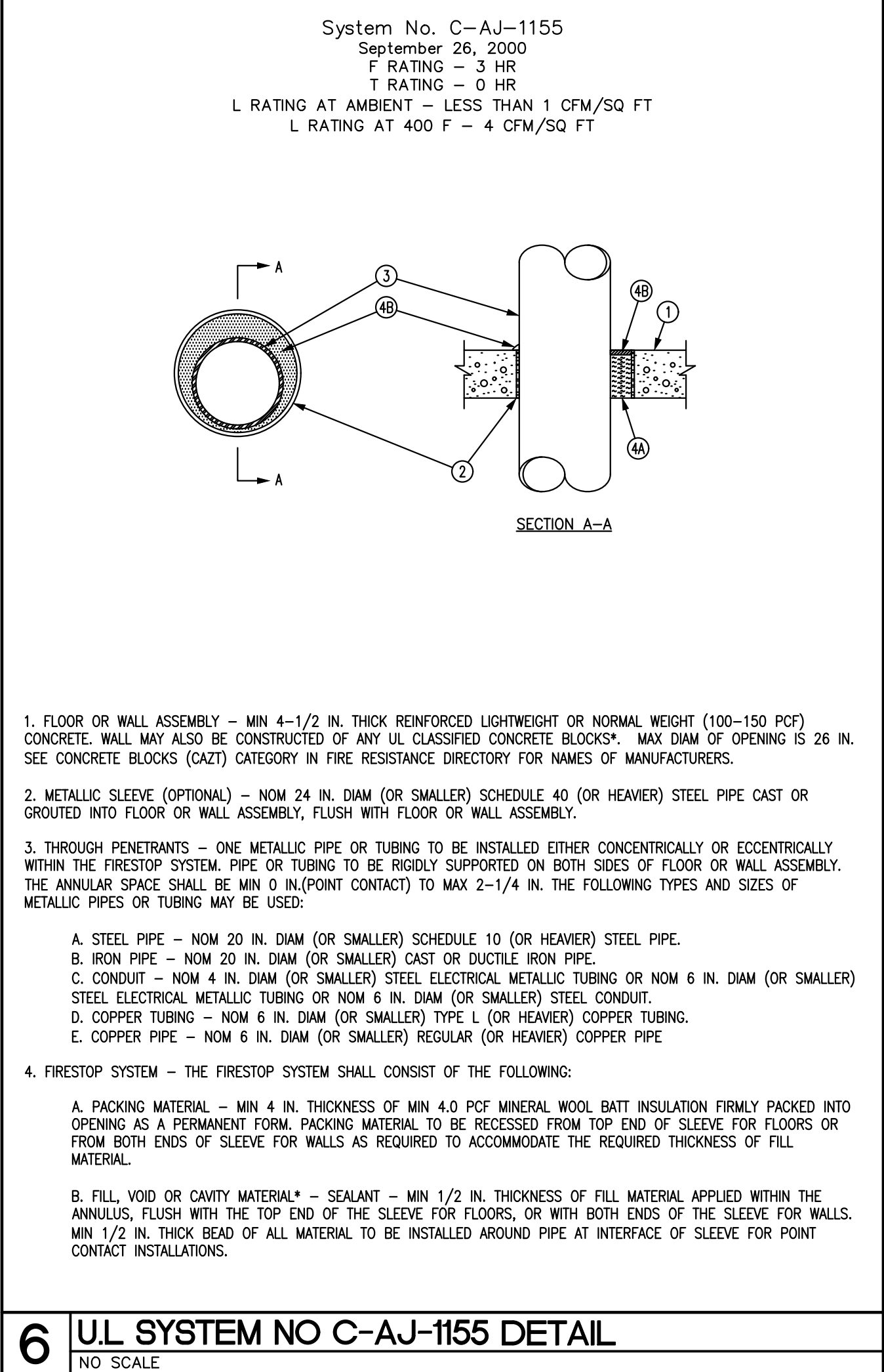
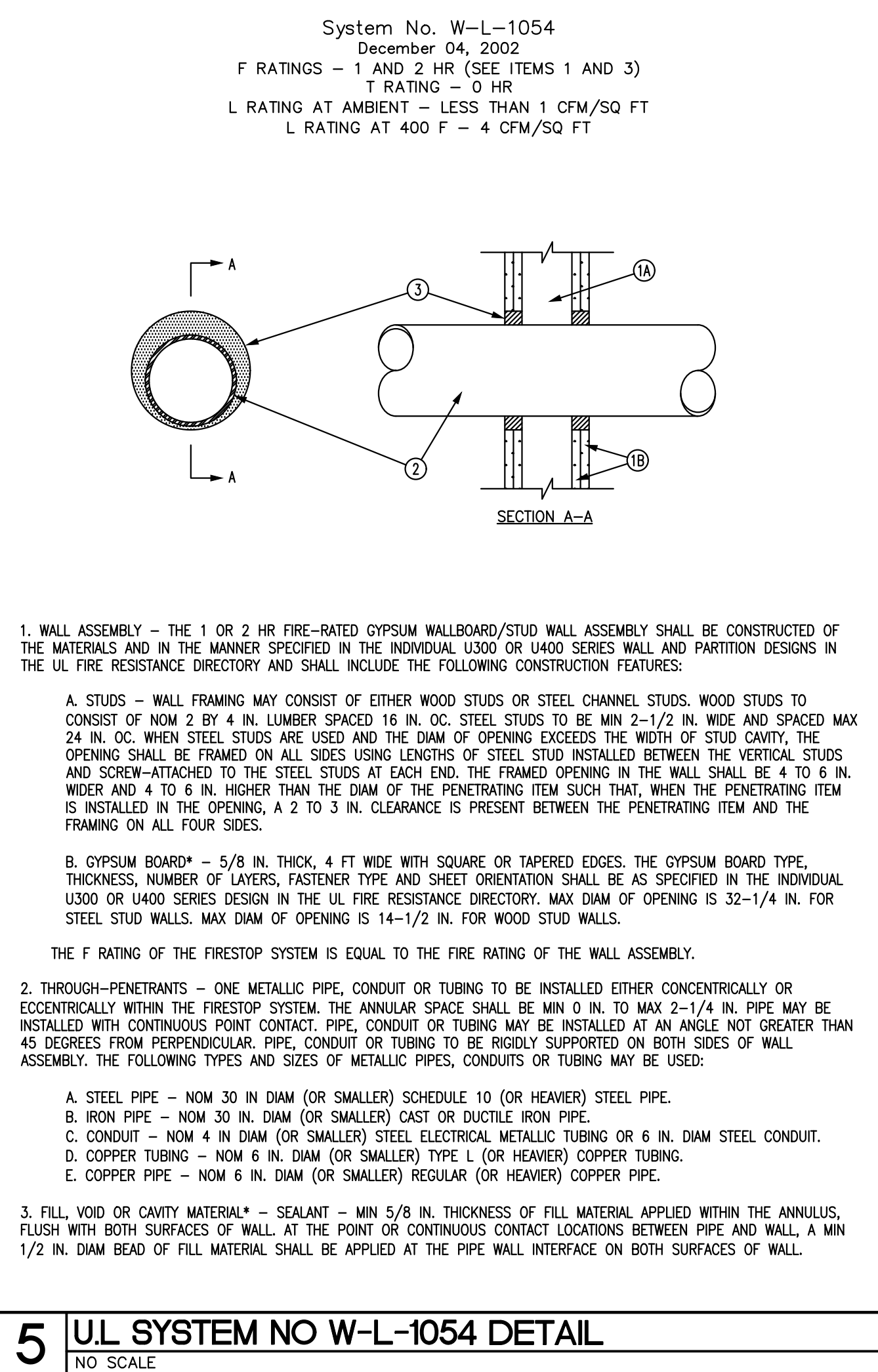
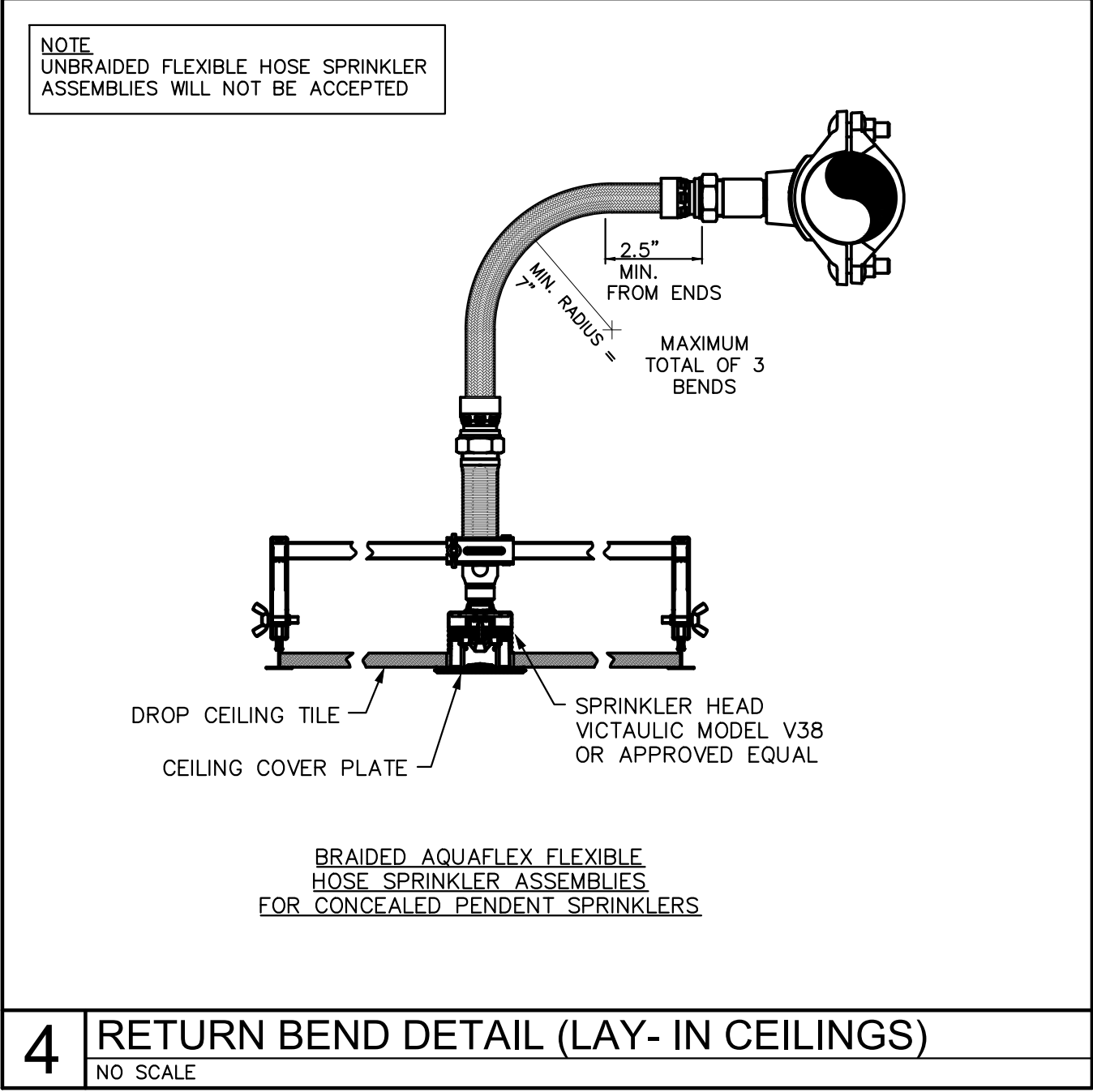
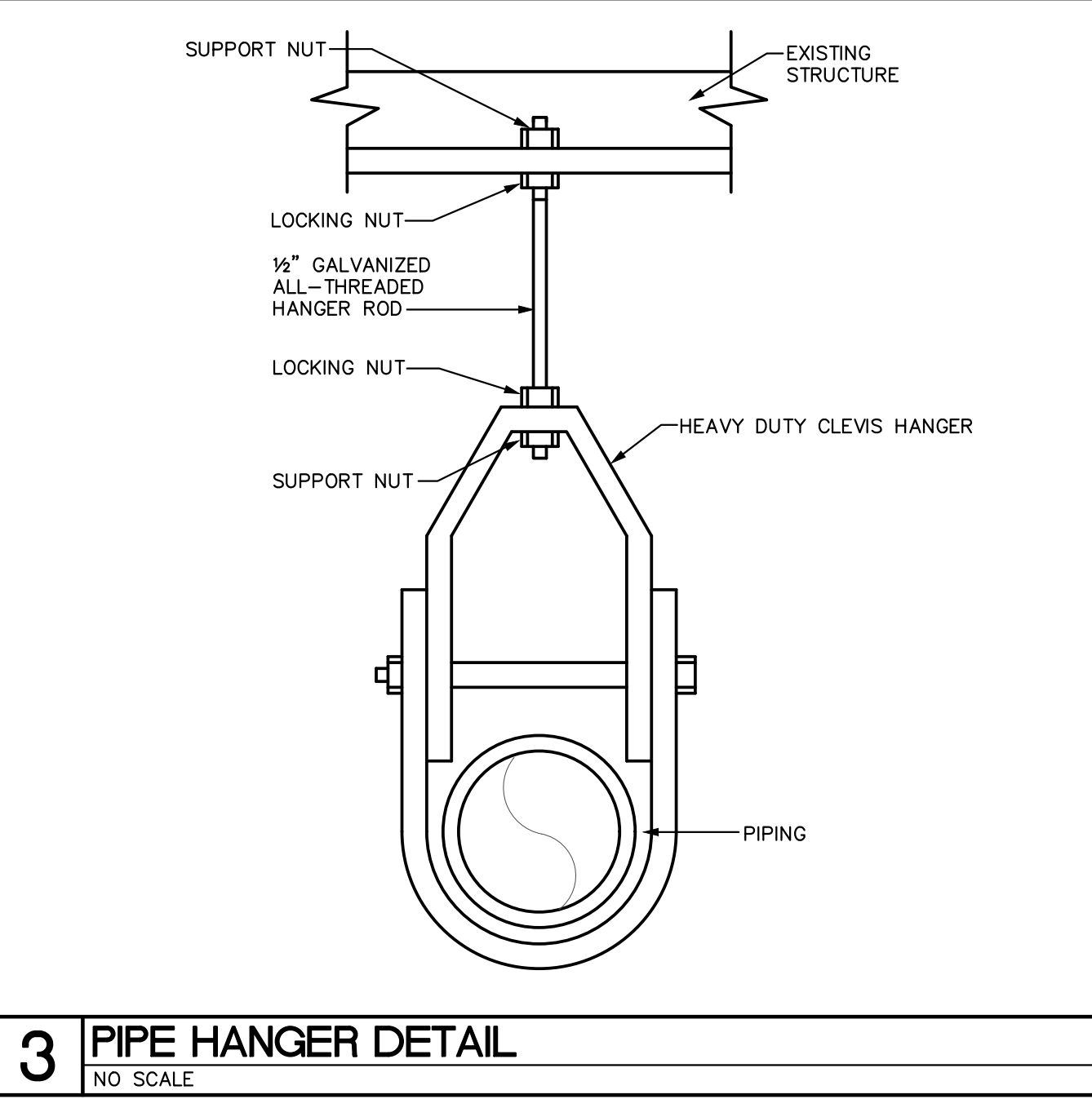


CLEAN AGENT QUANTITY ESTIMATOR					
Symbol	Description	Equation	Source	Value	Units
Given/Assumed					
-	Agent Type	-	Given	NOVEC 1230 (FK-5-1-12)	ft
-	Hazard Classification	-	NFPA 2001 Table A.5.4.2.2(b)	Class C	-
l	Length of Space	-	Given	23.0	ft
w	Width of Space	-	Given	16.0	ft
h	Height of Space	-	Given	17.0	ft
t	Temperature of Space	-	Given	70	deg F
V _{fixed}	Fixed Inpenetrable Volume within Space	-	Estimated	0.0	ft ³
C	Design Concentration	-	NFPA 2001 Table A.5.4.2.2(b)	4.7	%
Solution					
V	Net Volume of Space	$V = lwh - V_{fixed} = (23)(16)(17) - 0$	Definition of Volume	6,256	ft ³
s	Specific volume of the agent	$s = 0.9856 + 0.00244t$ $= 0.9856 + 0.00244(70)$	NFPA 2001-2015 Table A.5.5.1(a), p62	1.16	ft ³ /lb
W	Approximate Agent Weight	$W = (V/s) [C(100-C)]$ $= (6256 / 1.16) [4.7 / (100-4.7)]$	SFPE 5th p1512, NFPA 2001-2015 Table A.5.5.1	267	lb
Notes					
This tool is used for preliminary estimating only. Actual agent quantity depends upon incorporating Design Factors of NFPA 2001 5.5.3, Atmospheric Correction Factors, Duration of Protection, and Discharge time which accommodates special conditions affecting extinguishing efficiency.					
References Used					
1	SFPE	SFPE Handbook of Fire Protection Engineering, 5th Edition			
2	NFPA 2001	Standard on Clean Agent Fire Extinguishing Systems, 2015 Edition			
3	FPH	Fire Protection Handbook, 20th Edition			

CLEAN AGENT QUANTITY ESTIMATOR					
Symbol	Description	Equation	Source	Value	Units
Given/Assumed					
-	Agent Type	-	Given	FM-200 (HFC-227ea)	ft
-	Hazard Classification	-	NFPA 2001 Table A.5.4.2.2(b)	Class C	-
l	Length of Space	-	Given	23.0	ft
w	Width of Space	-	Given	16.0	ft
h	Height of Space	-	Given	17.0	ft
t	Temperature of Space	-	Given	70	deg F
V _{fixed}	Fixed Inpenetrable Volume within Space	-	Estimated	0.0	ft ³
C	Design Concentration	-	NFPA 2001 Table A.5.4.2.2(b)	7.0	%
Solution					
V	Net Volume of Space	$V = lwh - V_{fixed} = (23)(16)(17) - 0$	Definition of Volume	6,256	ft ³
s	Specific volume of the agent	$s = 1.885 + 0.0048t$ $= 1.885 + 0.0048(70)$	NFPA 2001-2015 Table A.5.5.1(i), p70	2.21	ft ³ /lb
W	Approximate Agent Weight	$W = (V/s) [C(100-C)]$ $= (6256 / 2.21) [7 / (100-7)]$	SFPE 5th p1512, NFPA 2001-2015 Table A.5.5.1	213	lb
Notes					
This tool is used for preliminary estimating only. Actual agent quantity depends upon incorporating Design Factors of NFPA 2001 5.5.3, Atmospheric Correction Factors, Duration of Protection, and Discharge time which accommodates special conditions affecting extinguishing efficiency.					
References Used					
1	SFPE	SFPE Handbook of Fire Protection Engineering, 5th Edition			
2	NFPA 2001	Standard on Clean Agent Fire Extinguishing Systems, 2015 Edition			
3	FPH	Fire Protection Handbook, 20th Edition			



SAMPSON COUNTY 911 & ES FACILITIES

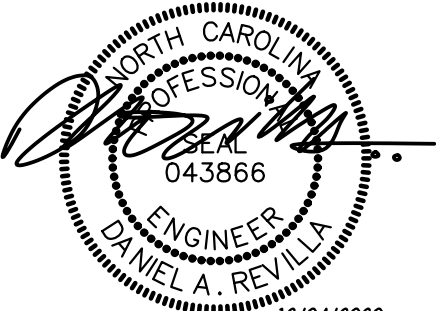
CLINTON,
NORTH CAROLINA

CONSTRUCTION DOCUMENTS

DETAILS - FIRE PROTECTION

DATE	12.04.2020	
PROJECT NO	20003	
REVISIONS		
NUM.	DATE	DESCRIPTION:

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SEAL 12/04/2020