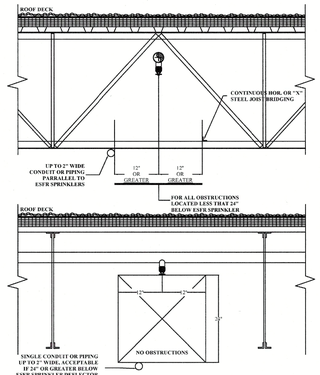
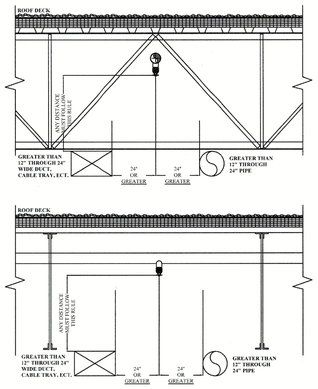


ESFR CONTINUOUS OBSTRUCTIONS 0" TO 2" WIDE (CONDUIT, PIPE, JOIST BRIDGING, ECT.)

NO SCALE

IF THE OBSTRUCTION IS 24" OR GREATER BELOW THE SPRINKLER DEFLECTOR, DISREGARD IT.

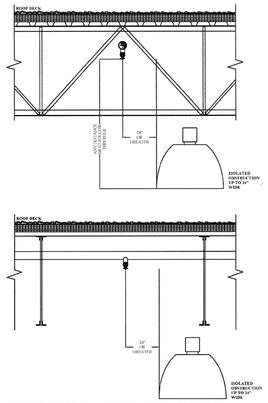
IF THE OBSTUCTION IS LESS THAN 24" BELOW THE SPRINKLER DEFLECTOR, THE ESFR SPRINKLER MUST BE AT LEAST 12" HORIZONTALLY FROM THE EDGE OF THE OBSTRUCTION.



ESFR CONTINUOUS OBSTRUCTIONS GREATER THAN 12" TO 24" WIDE (DUCTS, RACKS OF PIPING, ECT.)

NO SCALE

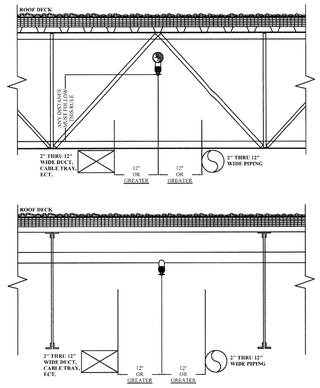
THE ESFR SPRINKLER MUST BE AT LEAST 24" HORIZONTALLY FROM THE EDGE OF THE OBSTRUCTION.



ESFR ISOLATED OBSTRUCTIONS 0" TO 24" (LIGHTING FIXTURES, ECT.)

NO SCALE

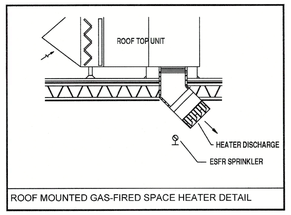
-IF AN OBJECT IS RECTANGULAR, SUCH AS A 2'x4' LIGHT FIXTURE IT MUST BE LOCATED AT LEAST 24" FROM AN ESFR SPRINKLER



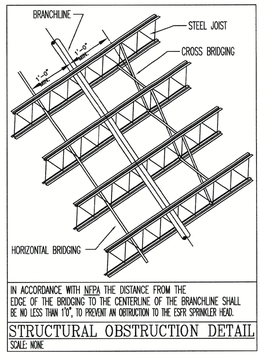
ESFR CONTINUOUS OBSTRUCTIONS GREATER THAN 2" TO 12" WIDE (DUCTS, PIPE, BOT. CORD OF JOIST, ECT.)

NO SCALE

THE ESFR SPRINKLER MUST BE AT LEAST 12" HORIZONTALLY FROM THE EDGE OF THE OBSTRUCTION.

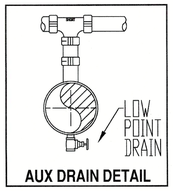


ROOF MOUNTED GAS-FIRED SPACE HEATER DETAIL

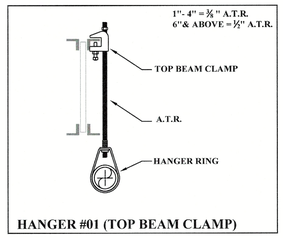


STRUCTURAL OBSTRUCTION DETAIL

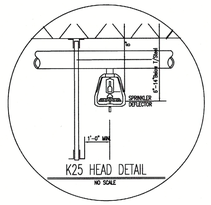
SCALE: NONE



AUX DRAIN DETAIL

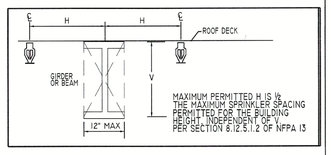


HANGER #01 (TOP BEAM CLAMP)



K25 HEAD DETAIL

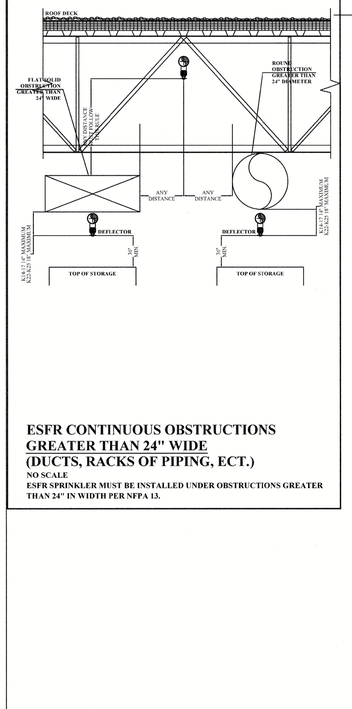
NO SCALE



MAXIMUM PERMITTED H IS ½ THE MAXIMUM SPRINKLER SPACING PERMITTED FOR THE BUILDING HEIGHT, INDEPENDENT OF V, PER SECTION 8.12.5.1.2 OF NFPA 13

S.A. COMUNALE CO. INC.
FIRE PROTECTION CONTRACTORS

FP 1	TITLE PAGE, DETAILS, AND INDEX
FP 2	SITE PLAN, SECTION VIEW, RISERS
FP 3	PUMP ROOM
FP 4	ESFR SYSTEM 1&2
FP 5	ESFR SYSTEM 3&4
FP 6	ESFR SYSTEM 5&6
FP 7	ESFR SYSTEM 7&8
FP 8	ESFR SYSTEM 9
FP 9	ESFR SYSTEM 10&11
FP 10	ESFR SYSTEM 12&13
FP 11	ESFR SYSTEM 14&15
FP 12	ESFR SYSTEM 16&17
FP 13	ESFR SYSTEM 18
FP 14	ESFR SYSTEM 19&20
FP 15	ESFR SYSTEM 21&22
FP 16	ESFR SYSTEM 23&24
FP 17	ESFR SYSTEM 25&26
FP 18	ESFR SYSTEM 27



ESFR CONTINUOUS OBSTRUCTIONS GREATER THAN 24" WIDE (DUCTS, RACKS OF PIPING, ECT.)

NO SCALE

ESFR SPRINKLER MUST BE INSTALLED UNDER OBSTRUCTIONS GREATER THAN 24" IN WIDTH PER NFPA 13.

Victaulic® FireLock™ Series FL-QR/ST/ESFR Storage, Fast Response ESFR Pendent Sprinklers K25.2 (36.8)

Victaulic 44.13

1.0 PRODUCT DESCRIPTION

QUICK RESPONSE STORAGE SPRINKLERS		
SIN	V4804	V4802
SPRINKLER TYPE	NFPA- ESFR / FM-QUICK RESPONSE STORAGE	NFPA- ESFR
SPRINKLER RESPONSE	ESFR	ESFR
ORIENTATION	Pendent	Pendent
K-FACTOR[1]	25.2 Imp./36.8 S.I.	25.2 Imp./36.8 S.I.
CONNECTION	1"NPT/25 mm BSPT/ Roll Grooved	IGS™ Grooved
MAX. WORKING PRESSURE	175 psi (1200 kPa)	175 psi (1200 kPa)

AVAILABLE WRENCHES		
SPRINKLER	V46 Open End	5/16 Hex-Bit (V9)
PENDENT	■	■

Factory Hydrostatic Test: 100% @ 500 psi/3447 kPa/34 bar

Min. Operating Pressure: UL/FM: 7 psi/48 kPa/.5 bar

Temperature Rating: See tables in section 2.0

[1] For K-Factor when pressure is measured in bar, multiply S.I. units by 10.0.

UL LISTED

UL SPECIFIC APPLICATION APPROVAL		
SIN	V4804	
Description	Specific Application UL	Specific Application UL
Sprinkler Type	ESFR	ESFR
Temperature Rating °F. (°C)	165°F/74°C	212°F/100°C
Response Type	ESFR	ESFR
Sprinkler Position	Pendent	Pendent
System Type	Wet	Wet
Maximum Area of Coverage	100 ft²/9.1 m²	100 ft²/9.1 m²
Minimum Area of Coverage	64 ft²/6 m²	64 ft²/6 m²
Maximum Slope Ceiling	2 inch rise for 12 inch run	2 inch rise for 12 inch run
Maximum Spacing	10 ft/3.1 m	10 ft/3.1 m
Minimum Spacing	8 ft/2.4 m	8 ft/2.4 m
Deflector Distance from Walls	4"/100 mm	4"/100 mm
Deflector to Top of Storage	3 ft/0.9 m	3 ft/0.9 m
Deflector to Ceiling Distance	6"-14"/150 mm-355 mm	6"-14"/150 mm-355 mm
Maximum Ceiling Height	48 ft/14.6 m	48 ft/14.6 m
Maximum Storage Height	43 ft/13.1 m	43 ft/13.1 m
Storage Arrangement	Palletized, solid piled, open frame; single row, double row, or multiple row and portable rack arrangement	Palletized, solid piled, open frame; single row, or double row rack arrangement
Commodity	Class I-IV, Cartoned unexpanded plastic	Class I-IV, Cartoned unexpanded plastic
Sprinkler System Design	NFPA 13 for ESFR Sprinklers based upon 45 psi (3.1 bar) design pressure 169 gpm (640 lpm) with 12 sprinkler remote area	NFPA 13 for ESFR Sprinklers based upon 45 psi (3.1 bar) design pressure 169 gpm (640 lpm) with 12 sprinkler remote area
Obstruction Criteria	Reference NFPA 13	Reference NFPA 13
Minimum Aisle Width	4 ft/1.2 m	5 ft/1.5 m
Hose Stream allowance and Water Supply Duration	250 gpm/950 lpm for 60 minutes or as determined by the approval	250 gpm/950 lpm for 60 minutes or as determined by the approval

UL SPECIFIC APPLICATION APPROVAL		
SIN	V4802	
Description	Specific Application UL	Specific Application UL
Sprinkler Type	ESFR	ESFR
Temperature Rating °F. (°C)	155°F/68°C	200°F/93°C
Response Type	ESFR	ESFR
Sprinkler Position	Pendent	Pendent
System Type	Wet	Wet
Maximum Area of Coverage	100 ft²/9.1 m²	100 ft²/9.1 m²
Minimum Area of Coverage	64 ft²/6 m²	64 ft²/6 m²
Maximum Slope Ceiling	2 inch rise for 12 inch run	2 inch rise for 12 inch run
Maximum Spacing	10 ft/3.1 m	10 ft/3.1 m
Minimum Spacing	8 ft/2.4 m	8 ft/2.4 m
Deflector Distance from Walls	4"/100 mm	4"/100 mm
Deflector to Top of Storage	3 ft/0.9 m	3 ft/0.9 m
Deflector to Ceiling Distance	6"-14"/150 mm-355 mm	6"-14"/150 mm-355 mm
Maximum Ceiling Height	48 ft/14.6 m	48 ft/14.6 m
Maximum Storage Height	43 ft/13.1 m	43 ft/13.1 m
Storage Arrangement	Palletized, solid piled, open frame; single row, double row, or multiple row and portable rack arrangement	Palletized, solid piled, open frame; single row, or double row rack arrangement
Commodity	Class I-IV, Cartoned unexpanded plastic	Class I-IV, Cartoned unexpanded plastic
Sprinkler System Design	NFPA 13 for ESFR Sprinklers based upon 45 psi (3.1 bar) design pressure 169 gpm (640 lpm) with 12 sprinkler remote area	NFPA 13 for ESFR Sprinklers based upon 45 psi (3.1 bar) design pressure 169 gpm (640 lpm) with 12 sprinkler remote area
Obstruction Criteria	Reference NFPA 13	Reference NFPA 13
Minimum Aisle Width	5 ft/1.5 m	5 ft/1.5 m
Hose Stream allowance and Water Supply Duration	250 gpm/950 lpm for 60 minutes or as determined by the approval	250 gpm/950 lpm for 60 minutes or as determined by the approval

[2] For K-Factor when pressure is measured in Bar, multiply S.I. units by 10.

NOTE:
- Listings and approval as of printing.

Storage of Class 1, 2, 3, 4 and Plastic Commodities 8-9

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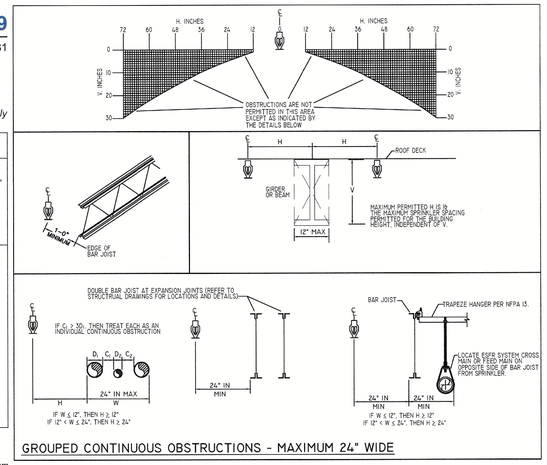
Table 17b. Quick-Response, 160°F (70°C) Nominally Rated, Standard-Coverage Pendent Storage Sprinkler Ceiling-Only Designs for Ceiling Heights Over 40 ft (12.0 m)

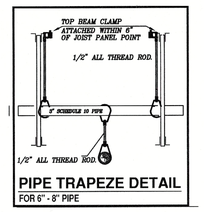
Storage Arrangement	Commodity	Max. Storage Height, ft (m)	Max. Ceiling Height, ft (m)	Ceiling Sprinkler K-Factor	Max. Vertical Distance from Ceiling to Sprinkler's Thermal Element, in. (mm)	Min. Aisle Width, ft (m)	Sprinkler System Design: Ceiling Sprinkler System, No. of AS @ psi (bar)	Sprinkler System Design: Hose Demand, gpm (L/min)	Sprinkler System Design: System Duration, min
Solid-Piled, Palletized, Bin-Box, Shelf, and Open-Frame Racks*	Class 1, 2, 3, 4 and Cartoned Unexpanded Plastics	45 (13.7)	50 (15.2)	22.4 (320)	13 (325)	6 (1.8)	10 @ 63 (4.3)	250 (950)	60
				25.2 (360)	13 (325)	6 (1.8)	10 @ 50 (3.5)		
					17 (425)	6 (1.8)	10 @ 75 (5.2)		
				28.0** (400**)	13 (325)	6 (1.8)	10 @ 40 (2.8)		
				33.6 (480)	17 (425)	6 (1.8)	9 @ 55 (3.8)		
		50 (15.2)	55 (16.8)	28.0 (400)	13 (325)	8 (2.4)	9 @ 80 (5.5)		
				33.6 (480)	17 (425)	6 (1.8)	9 @ 55 (3.8)		

* See the guidelines in Section 2.2.3.2 to confirm that any multiple-row racks being protected in accordance with this table meet the requirements to be considered open-frame.

** The design of 10 AS @ 40 psi (2.8 bar) can be reduced to 9 AS @ 40 psi (2.8 bar) when the water supply can also provide a minimum pressure of 80 psi (5.5 bar) from the most remote 4 sprinklers (2 sprinklers on 2 lines).

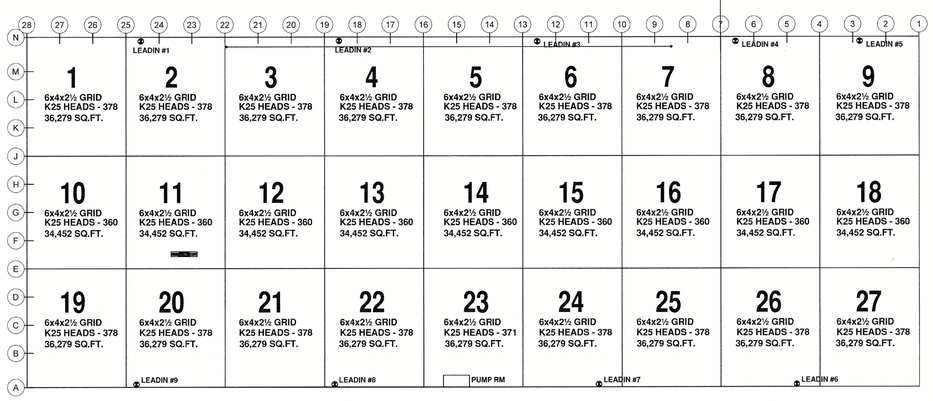


GROUPED CONTINUOUS OBSTRUCTIONS - MAXIMUM 24" WIDE



PIPE TRAPEZE DETAIL

FOR 6" - 8" PIPE



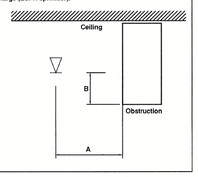
KEY PLAN

NOT TO SCALE

Table 8.12.5.1.1 Position of Sprinklers to Avoid Obstructions to Discharge (ESFR Sprinkler)

Distance from Sprinkler to Side of Obstruction (A)	Maximum Allowable Distance of Deflector above Bottom of Obstruction (in.) (B)
Less than 1 ft	0
1 ft to less than 1 ft 6 in.	1½
1 ft 6 in. to less than 2 ft	3
2 ft to less than 2 ft 6 in.	5½
2 ft 6 in. to less than 3 ft	8
3 ft to less than 3 ft 6 in.	10
3 ft 6 in to less than 4 ft	12
4 ft to less than 4 ft 6 in.	15
4 ft 6 in. to less than 5 ft	18
5 ft to less than 5 ft 6 in.	22
5 ft 6 in. to less than 6 ft	26
6 ft	31

Figure 8.12.5.1.1 Positioning of sprinkler to avoid obstructions to discharge (ESFR sprinkler).



SEISMIC DESIGN CATEGORY 'B', SEISMIC BRACING NOT REQUIRED

USE GROUP: S-1

CONSTRUCTION TYPE: II-B

AREA OF WORK: 963,100 SQ.FT.

PROJECT NAME: NY145 BROOKFIELD SUFFERN

PROJECT LOCATION: SUFFERN NY

TIM SURMAN PROFESSIONAL ENGINEER NY PE LIC.# 107503

STATE OF NEW YORK · TIMOTHY SURMAN · 107503 · LICENSED PROFESSIONAL ENGINEER

SIGNATURE:

DATE SIGNED: 3/14/24

HYDROSTATIC TEST TO BE CONDUCTED AT 225 PSI

STANDARD DRAWING SYMBOLS

DENOTES CENTERLINE OF PIPE ABOVE FINISH FLOOR	
DENOTES CENTERLINE OF PIPE BELOW TOP OF STEEL	
DENOTES CENTERLINE OF PIPE BELOW BOTTOM OF JOIST	
DENOTES CENTERLINE OF PIPE BELOW BOTTOM OF BEAM	
DENOTES CENTERLINE OF PIPE BELOW THE CEILING	
DENOTES HANGER	
DENOTES HANGER ROD LENGTH	
DENOTES CEILING HEIGHT	
HYDRAULIC CALC. REF. POINT	
GROOVE COUPLING	
GROOVE CHECK VA	
FIRE HOSE VALVE CABINET	
HYDRAULIC DATA STICKER	
FIRE HOSE VALVE	
FIRE HYDRANT	
ELECTRIC BELL	
RISER	
FLOW SWITCH	
FIRE DEPT. CONN.	
AUXILIARY DRAIN	
PRESSURE GAUGE	

TYPICAL HANGER ASSEMBLIES BY NUMBER

01	TOP BEAM CLAMP (TBC)	08A	SAMMY SWC-20 SIDE CONCRETE
01A	WIDE MOUTH TOP BEAM CLAMP	09	SAMMY CST-20 STRAIGHT WOOD
01B	INVERTED TOP BEAM CLAMP	09A	SAMMY SWC-20 SIDE WOOD
01C	INVERTED WIDE MOUTH TBC	10	
01D	TBC w/CLEVIS RING	10B	SAMMY SW08-516 SIDE STEEL
01E	TBC w/ 5" RETAINING STRAP	11A	EYE SOCKET
01S	TBC w/ 12" RETAINING STRAP	12	
04	ROD, RING	13A	U-HOOK HANGER
04A	ROD, RING, NUTS & WASHER	14	STRUT NUT, ROD & RING
04C	CLEVIS HANGER w/ROD	15	
06	CONCRETE/BELT DROP IN ANCHOR	16	E-PUBLIN CLAMP
07	BELT SHOT & STUD	17	SAMMY DST0.75 STRAIGHT LIGHT WEIGHT STEEL
08	SAMMY CST-20 STRAIGHT CONCRETE	18	SAMMY SW08.516 SIDE, HEAVY WEIGHT STEEL

FIRE PROTECTION SPECIFICATIONS

1. DO NOT SCALE DRAWING(S).
2. ALL PIPE NOTED AS: GC=GROOVED END TO CENTER, GG = GROOVED END TO GROOVED END; INDICATES ACTUAL PIPE "CUT" LENGTHS. (U.O.N.)
3. DESIGN, INSTALLATION & MATERIALS TO BE PER N.F.P.A. #13 2016
4. HANGERS & ATTACHMENTS TO BE U.L. LISTED & SPACING PER N.F.P.A. #13 2016
5. ALL NEW PIPING SHALL BE HYDROSTATICALLY TESTED AT 225 PSI FOR 2 HOURS W/ NO VISIBLE SIGN OF LEAKAGE.
6. THE OWNER SHALL PROVIDE A MINIMUM OF 40° F TO PREVENT SPRINKLER PIPE FROM FREEZING.
7. CONTRACTOR SHALL PROVIDE THE OWNER, INSURANCE CO., & THE PROPER CITY OFFICIALS WITH COPIES OF THE MATERIAL & TEST CERTIFICATES.
8. ALL FLOW AND TAMPERS SHALL BE SUPERVISED IN ACCORDANCE WITH NFPA 72. THIS WORK IS TO BE DONE BY OTHERS AND IS NOT PART OF S A COMUNALE CONTRACT.

MATERIAL SPECIFICATIONS

Note: 1" Pipe is	GRID	GRID	MAIN	MAIN
Sch 40 A53 (uno)	MAIN	LINE	LINE	
Sch 40 A53 Black				
Sch 10 Thinwall	X			
Sch 7		X		
Sch 40 Galvanized				
Sch 10 Galvanized				
Weld-O-Lets Thrd		X		
Weld-O-Lets Grv	X			
Weld-O-Lets Buff				
Cast Iron Fittings				
Galvanized Fittings				
Malleable Ftgs 150#				
Malleable Ftgs 300#				
Cpvc				
Number of Welds				
Cut Lengths				
Center to Center	X	X		

SUPPLY THE FOLLOWING	Yes/No
American Made (Domestic)	N
Smith-Cooper Fittings	N
Smith-Cooper Couplings	N
Firelock Fittings	Y
Firelock Couplings	Y
Standard Vic/Central Ftgs	N
Head Wrenches	Y
Spare Head Cabinet	Y
Top Beam Clamps	Y
Concrete Inserts	N
Sammy Screws	N
Pipe/Strut/Angle Iron	N
Can Heads be 4oz brand?	Y
Pit Fittings	N
Hangers Cut Length	N
Hangers Center to Center	Y
FM Approved Material Only	N

REVISIONS

NO.	DESCRIPTION	BY	DATE

PENDENT SPRINKLERS SHALL BE INSTALLED PER THE SPACING DICTATED BY APPROPRIATE CODES AND SHALL BE ALIGNED WITHIN NORMAL FABRICATION TOLERANCES, BUT WILL NOT NECESSARILY BE CENTERED IN CEILING TILES.

SPRINKLER LEGEND

SYMBOL	QTY.	DESCRIPTION	SIN#	THD.	K=	TEMP.
		VICTAULIC FL-QR/ST/ESFR ESFR BRASS PENDENT	V4804	1"	25.2	165°

TOTAL SPRINKLERS THIS PAGE ____ TOTAL SPRINKLERS ON ENTIRE PROJECT ____

S.A. COMUNALE CO. INC.
FIRE PROTECTION CONTRACTORS

2900 NEWPARK DR BARBERTON, OHIO 44203 330-706-3040 FAX: 330-861-0860
CLEVELAND: 440-884-0325 COLUMBUS: 614-291-7001 CINCINNATI: 513-874-4268
FREMONT: 419-334-3841 PHILADELPHIA, PA: 856-840-4666 YOUNGSTOWN: 330-856-4440
MARION 740-383-6789 WASHINGTON, DC 410-768-1931 READING, PA: 610-670-3960

NY154 BROOKFIELD SUFFERN- BUILDING 1

25 OLD MILL ROAD SUFFERN, NY 20901

TITLE PAGE, DETAILS, AND INDEX

DATE	SCALE	DRAWN	JOB NO.	DWG. NO.
01.11.24	3/32" = 1'-0"	SARAH CAREW	51718093	1 OF 18