

Chapter 13 DRAINAGE PIPING

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13.1 DRAINAGE PIPING XFR DWV

SYSTEM XFR® DWV

Drainage Systems for Noncombustible Buildings

THE WORLD'S FIRST PVC RATED FOR HIGH RISES & PLENUMS



Contractors installing DWV pipe in high-rises and plenums had few alternatives to heavy cast iron and copper. IPEX has changed that. System XFR® —

the world's first PVC DWV system rated for high-rises and plenums where tighter fire and smoke regulations have previously limited the use of thermoplastic.

Suitable for use in noncombustible environments, System XFR's advanced material meets all fire-resistance and smoke development codes. Its revolutionary fire-retardant properties eliminate flame spread and reduce the volume of smoke generated.

And in addition to its reliable smoke and fire protection, System XFR delivers all the performance advantages you'd expect from thermoplastic piping.



FEATURES & BENEFITS



FLAME & SMOKE

System XFR possesses superior fire- and smoke- retardant capabilities. When tested to the CAN/ULC-102.2 Standard, System XFR achieved a Flame Spread Rating of not greater than 25 and a Smoke Developed Classification of not greater than 50.

CODE COMPLIANCE

Ideal for noncombustible applications, System XFR meets these national and provincial building codes:

- High-rise buildings as defined by NBC article 3.2.6
- Air plenums as defined by NBC article 3.6.4.3
- Noncombustible construction as defined by NBC article 3.1.5
- Penetrating a rated fire separation as defined by NBC article 3.1.9.4.(4)

RANGE OF SIZES

Sizes range from 1-1/2" to 12" in diameter.

HIGH IMPACT RESISTANCE

Thanks to its advanced materials, System XFR demonstrates a high impact strength in cold temperatures. Impact-tested at 0 °C and 23 °C, XFR is tough enough to exceed the CSA requirements.

IMPROVED FLOW

System XFR has a substantially lower roughness factor compared to metal systems, allowing for overall improved flow. It's also made with a larger inside diameter which provides a greater cross-sectional area for flow and raises both carrying capacity and flow rates. This feature gives engineers the versatility to design smaller, compact systems that can still handle the necessary flow rates.

LOWER THERMAL CONDUCTIVITY

System XFR sweats less than metal pipe due to its excellent insulating properties. As a result, XFR can reduce — and in many cases, eliminate — the need for insulation.

COMPARABLE NOISE ATTENUATION

In real world sound tests performed on constructed buildings, IPEX DWV systems have proven to provide comparable noise attenuation when compared to cast iron from drainage flow. Numerous installations from schools to hospitals and nursing homes have been plumbed with these IPEX drainage systems, all proving that in these critical installations the IPEX systems measure up in terms of sound transfer.

SYSTEM XFR DRAINAGE SYSTEMS

1-1/2" - 12" (40mm - 300mm)

SYSTEM XFR® DWV

Contractors installing DWV pipe in high-rises and plenums had few alternatives to heavy cast iron and copper. IPEX has changed that. System XFR® — the world's first PVC DWV system rated for high-rises and plenums where tighter fire and smoke regulations have previously limited the use of thermoplastic.

Suitable for use in noncombustible environments, System XFR's advanced material meets all fire-resistance and smoke development codes. Its revolutionary fire-retardant properties eliminate flame spread and reduce the volume of smoke generated.

And in addition to its reliable smoke and fire protection, System XFR delivers all the performance advantages you'd expect from thermoplastic piping.

APPLICATIONS

Drain Waste and Vent Piping in:

- Commercial
- Industrial
- Residential
- Above ground or underground

STANDARDS



CSA B181.2
CAN/ULC S102.2

ADVANTAGES

1 Flame & Smoke

System XFR possesses superior fire- and smoke- retardant capabilities. When tested to the CAN/ULC S102.2 Standard, System XFR achieved a Flame Spread Rating of not greater than 25 and a Smoke Developed Classification of not greater than 50.

2 Code Compliance

Ideal for noncombustible applications, System XFR meets these national and provincial building codes:

- High-rise buildings as defined by NBC article 3.2.6
- Air plenums as defined by NBC article 3.6.4.3
- Noncombustible construction as defined by NBC article 3.1.5
- Penetrating a rated fire separation as defined by NBC article 3.1.9.4.(4)

3 High Impact Resistance

Thanks to its advanced materials, System XFR demonstrates a high impact strength in cold temperatures. Impact-tested at 0 °C and 23 °C, XFR is tough enough to exceed the CSA requirements.

4 Improved Flow

System XFR has a substantially lower roughness factor compared to metal systems, allowing for overall improved flow. It's also made with a larger inside diameter which provides a greater cross-sectional area for flow and raises both carrying capacity and flow rates. This feature gives engineers the versatility to design smaller, compact systems that can still handle the necessary flow rates.

5 Lower Thermal Conductivity

System XFR sweats less than metal pipe due to its excellent insulating properties. As a result, XFR can reduce — and in many cases, eliminate — the need for insulation.

6 Comparable Noise Attenuation

In real world sound tests performed on constructed buildings, IPEX DWV systems have proven to provide comparable noise attenuation when compared to cast iron from drainage flow. Numerous installations from schools to hospitals and nursing homes have been plumbed with these IPEX drainage systems, all proving that in these critical installations the IPEX systems measure up in terms of sound transfer.



DID YOU KNOW?

SYSTEM XFR — the world's first uncoated PVC rated for high-rises and plenums where tighter fire and smoke regulations have previously limited the use of thermoplastic.

Suitable for use in noncombustible environments, System XFR's advanced material meets all fire-resistance and smoke development codes. Its revolutionary fire-retardant properties virtually eliminate flame spread and reduce the volume of smoke generated.

SHORT FORM SPECIFICATIONS

SYSTEM XFR DWV PIPE AND FITTINGS

IPEX System XFR Drain, Waste and Vent pipe and fittings shall be certified to CSA B181.2 and when used in noncombustible construction, high-rise buildings and air plenums, they shall be tested and listed in accordance with CAN/ULC S102.2 and clearly marked with the certification logo indicating a Flame Spread Rating not more than 25 and a Smoke Developed Classification not exceeding 50.

System XFR® pipe and fittings have been tested and certified by CSA to the CSA B181.2 standard. System XFR pipe and fittings are listed with ITS (Warnock Hersey) to exhibit Flame and Smoke values as per CAN/ULC S102.2-10.

Test Results

ITS (Warnock Hersey) conducted the testing in accordance with CAN/ULC S102.2 test standard. The following table summarizes the results of these tests.

Component	Flame Spread Rating	Smoke-Developed Classification
System XFR®		
Pipe	≤ 25	≤ 50
Fittings	≤ 25	≤ 50
Fabricated PVC fittings with XFR Coating	≤ 25	≤ 50

PRODUCT SELECTION CHART - SYSTEM XFR

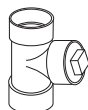
	Dimension inches	mm	Product Code
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System XFR DWV Pipe



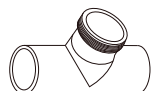
1-1/2	40	110067
2	50	110068
3	75	110069
4	100	110070
6	150	110071
8	200	110072
10	250	110073
12	300	110074

Line Cleanout H x H x Gasket Plug



1-1/2	40	526040
2	50	526041
3	75	526103
4	100	526104
4 x 3 x 4	100 x 75 x 100	526105
6	150	526161
8	200	526162
10	250	526163
12	300	526164

Line Cleanout Sp x Sp x Threaded Plug



8	200	526766
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FOR USE WITH
MJ GREY™

Plug Cleanout MPT with gasket



1-1/2	40	526401
2	50	526402
3	75	526403
4	100	526404
6	150	526405

Fitting Cleanout Sp x FPT



1-1/2	40	526042
2	50	526046
3	75	526047
4	100	526048
6	150	426050

Fitting Cleanout Sp x Gasket Plug



1-1/2	40	526345
2	50	526346
3	75	526347
4	100	526348
6	150	526349

	Dimension inches	mm	Product Code
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Tube End Cleanout H x Gasket Plug



1-1/2	40	526291
2	50	526298
3	75	526299
4	100	526300

Tube End Cleanout H x Bolted Cover



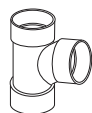
8	200	526000
10	250	526001
12	300	526002

Fitting Cleanout Sp x Bolted Cover



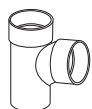
8	200	526140
10	250	526141
12	300	526142

Sanitary Tee H x H x H



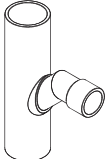
1-1/2	40	526081
2	50	526082
2 x 1-1/2 x 1-1/2	50 x 40 x 40	526058
2 x 1-1/2 x 2	50 x 40 x 50	526057
2 x 1-1/2	50 x 40	526056
3	75	526083
3 x 1 1/2	75 x 40	526061
3 x 2	75 x 50	526060
4	100	526084
4 x 2	100 x 50	526064
4 x 3	100 x 75	526066
6	150	526377
6 x 4	150 x 100	526385
8	200	526810
8 x 4	200 x 100	526808
8 x 6	200 x 150	526809
10	250	526814
10 x 4	250 x 100	526811
10 x 6	250 x 150	526812
10 x 8	250 x 200	526813
12	300	526819
12 x 4	300 x 100	526815
12 x 6	300 x 150	526816
12 x 8	300 x 200	526817
12 x 10	300 x 250	526818

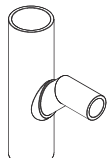
Sanitary Tee Sp x H x H

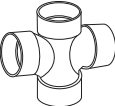


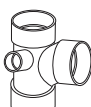
1-1/2	40	526550
3 x 1-1/2	75 x 40	526552
4	100	426557

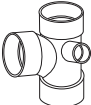
PRODUCT SELECTION CHART - SYSTEM XFR

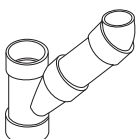
	Dimension		Product Code
	inches	mm	
Sanitary Tee	Sp x Sp x H		
	8 x 4	200 x 100	526926
	8 x 6	200 x 150	526998
	10 x 4	250 x 100	526997
	10 x 6	250 x 150	526758
	12 x 4	300 x 100	526761
	12 x 6	300 x 150	526762

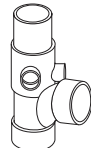
	Dimension		Product Code
	inches	mm	
Sanitary Tee	Sp x Sp x Sp		
	8	200	526999
	10 x 8	250 x 200	526759
	10	250	526760
	12 x 8	300 x 200	526763
	12 x 10	300 x 250	526764
	12	300	526765

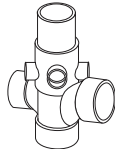
	Dimension			Product Code
	H	x	H x H x H	
Double Sanitary Tee				
	1-1/2	40		526542
	2	50		526543
	2 x 1-1/2	50 x 40		526547
	3	75		526544
	3 x 1-1/2	75 x 40		526538
	3 x 2	75 x 50		426539


	Dimension			Product Code
	H	x	H x H x H x SI	
Sanitary Tee Side Inlet	(left hand)			
	3 x 3 x 3 x 1-1/2	75 x 75 x 75 x 40		526395
	3 x 3 x 3 x 2	75 x 75 x 75 x 50		526396


	Dimension			Product Code
	H	x	H x H x H SI x H	
Sanitary Tee Side Inlet	(right hand)			
	3 x 3 x 3 x 1-1/2	75 x 75 x 75 x 40		526397
	3 x 3 x 3 x 2	75 x 75 x 75 x 50		526398


	Dimension			Product Code
	H	x	H x Sp	
Upright Extended Wye				
	3	75		526006


	Dimension		Product Code
	inches	mm	
Single Apartment Fitting	H x Sp x H		
	3	75	526007

	Dimension			Product Code
	H	x	Sp x H x H	
Double Apartment Fitting				
	3	75		526008

	Dimension			Product Code
	H	x	H	
90° Elbow				
	1-1/2	40		526121
	1-1/2 L	40 L		426024
	2	50		526035
	2 L	50 L		526122
	3	75		526025
	3 L	75 L		526123
	4	100		526124
	6	150		526125
	8	200		526126
	10	250		526127
	12	300		526128

	Dimension			Product Code
	Sp	x	H	
90° Elbow				
	1-1/2	40		526231
	2	50		526232
	3	75		526233
	3 L	75 L		526230
	4	100		526234
	6	150		526235
	8	200		526236
	10	250		526237
	12	300		526238

	Dimension		Product Code
	Sp	x	
90° Elbow	Sp	x	
	8	200	526967
	10	250	526968
	12	300	526970

	Dimension		Product Code
	Sp	x	
90° Reducing Elbow	Closet Bend Reducing	Sp x H	
	4 x 3	100 x 75	426026

PRODUCT SELECTION CHART - SYSTEM XFR

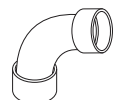
	Dimension		Product Code
	inches	mm	

90° Reducing Elbow H x H



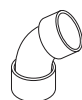
4 x 3	100 x 75	526155
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90° Elbow Extra Long Sweep H x H



2	50	426157
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60° Elbow H x H



1-1/2	40	526261
2	50	526262
3	75	526253
4	100	526264

45° Elbow Short Turn H x H



1-1/2	40	526241
2	50	526242
3	75	526243
4	100	526244
6	150	526245
8	200	526246
10	250	526247
12	300	526248

45° Elbow Short Turn Sp x H



1-1/2	40	526221
2	50	526071
3	75	526223
4	100	526072
6	150	526073
8	200	526226
10	250	526270
12	300	526271

45° Elbow Short Turn Sp x Sp



8	200	526971
10	250	526770
12	300	526771

FOR USE WITH
MJ GREY™

	Dimension		Product Code
	inches	mm	

45° Elbow Long Turn H x H



6	150	426038
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45° Elbow Long Turn Sp x H



6	150	426225
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22-1/2° Elbow H x H



1-1/2	40	526251
2	50	526252
3	75	526253
4	100	526254
6	150	526255
8	200	526256
10	250	526257
12	300	526258

22-1/2° Elbow Sp x H



6	150	526651
8	200	526652
10	250	526653
12	300	526654

22-1/2° Elbow Sp x Sp



8	200	526972
10	250	526973
12	300	526908

FOR USE WITH
MJ GREY™

11-1/4° Elbow H x H



6	150	526671
8	200	526672
10	250	526673
12	300	526674

11-1/4° Elbow Sp x H



6	150	526681
8	200	526682
10	250	526683
12	300	526684

PRODUCT SELECTION CHART - SYSTEM XFR

Dimension		Product Code
inches	mm	

45° Wye H x H x H



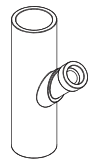
1-1/2	40	526171
2	50	526172
2 x 1-1/2 x 1-1/2	50 x 40 x 40	526194
2 x 1-1/2	50 x 40	526195
3	75	526173
3 x 1-1/2	75 x 40	526201
3 x 2	75 x 50	526196
4	100	526174
4 x 2	100 x 50	526198
4 x 3	100 x 75	526197
6	150	526175
6 x 4	150 x 100	526199
8	200	526560
8 x 4	200 x 100	526606
8 x 6	200 x 150	526607
10	250	526706
10 x 4	250 x 100	526703
10 x 6	250 x 150	526704
10 x 8	250 x 200	526705
12	300	526711
12 x 4	300 x 100	526707
12 x 6	300 x 150	526708
12 x 8	300 x 200	526709
12 x 10	300 x 250	526710

45° Wye Sp x H x H



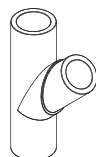
3	75	426635
3 x 1-1/2	75 x 40	426638

45° Wye Sp x Sp x H



FOR USE WITH			MJ GREY™
8 x 4	200 x 100	526985	
8 x 6	200 x 150	526986	
10 x 4	250 x 100	526988	
10 x 6	250 x 150	526989	
12 x 4	300 x 100	526992	
12 x 6	300 x 150	526993	

45° Wye Sp x Sp x Sp



FOR USE WITH			MJ GREY™
8	200	526987	
10 x 8	250 x 200	526990	
10	250	526991	
12 x 8	300 x 200	526994	
12 x 10	300 x 250	526995	
12	300	526996	

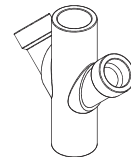
Dimension		Product Code
inches	mm	

Double 45° Wye H x H x H x H



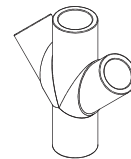
1-1/2	40	526637
2	50	526456
2 x 1-1/2	50 x 40	526642
3	75	526639
3 x 1-1/2	75 x 40	526643
3 x 2	75 x 50	526644
4 x 3	100 x 75	526457
6	150	426752
8	200	426755
8 x 4	200 x 100	426753
8 x 6	200 x 150	526754
10	250	426759
10 x 4	250 x 100	426756
10 x 6	250 x 150	426757
10 x 8	250 x 200	426758
12	300	426764
12 x 4	300 x 100	426760
12 x 6	300 x 150	426761
12 x 8	300 x 200	426762
12 x 10	300 x 250	426763

45° Double Wye Sp x Sp x H x H




8 x 4	200 x 100	526769
8 x 6	200 x 150	526974
10 x 4	250 x 100	526976
10 x 6	250 x 150	526977
12 x 4	300 x 100	526980
12 x 6	300 x 150	526982


45° Double Wye Sp x Sp x Sp x Sp

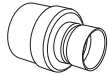



FOR USE WITH			MJ GREY™
8	200	526975	
10	250	526979	
10 x 8	250 x 200	526978	
12 x 8	300 x 200	526983	
12 x 10	300 x 250	526984	

PRODUCT SELECTION CHART - SYSTEM XFR


	Dimension		Product Code
	inches	mm	
Increaser Coupling H x H			
	2 x 1-1/2	50 x 40	526362
	3 x 1-1/2	75 x 40	526363
	3 x 2	75 x 50	526364
	4 x 1-1/2	100 x 40	526369
	4 x 2	100 x 50	526365
	4 x 3	100 x 75	526366
	5 x 3	125 x 75	526944
	6 x 4	150 x 100	526860
	8 x 4	200 x 100	526861
	8 x 6	200 x 150	526867
	10 x 4	250 x 100	526862
	10 x 6	250 x 150	526868
	10 x 8	250 x 200	526900
	12 x 6	300 x 150	526869
	12 x 8	300 x 200	526901
	12 x 10	300 x 250	526907


Reducer Bushing Sp x H			
	2 x 1-1/2	50 x 40	526282
	3 x 1-1/2	75 x 40	526292
	3 x 2	75 x 50	526284
	4 x 2	100 x 50	526288
	4 x 3	100 x 75	526286
	6 x 4	150 x 100	526054
	8 x 4	200 x 100	526446
	8 x 6	200 x 150	526447


Reducer Bushing (Extended) Sp x H			
	10 x 4	250 x 100	526296
	10 x 6	250 x 150	526297
	10 x 8	250 x 200	526962
	12 x 4	300 x 100	526963
	12 x 6	300 x 150	526964
	12 x 8	300 x 200	526965
	12 x 10	300 x 250	526966


Reducer Bushing (Extended) Sp x Sp			
	10 x 8	250 x 200	526981
	12 x 8	300 x 200	526767
	12 x 10	300 x 250	526768

FOR USE WITH
MJ GREY™


	Dimension		Product Code
	inches	mm	
Male Adapter H x MPT			
	1-1/2	40	526331
	2	50	526332
	3	75	526333
	4	100	526334

Female Adapter H x FPT			
	1-1/2	40	526341
	2	50	526342
	3	75	526343
	4	100	526344

Coupling H x H			
	1-1/2	40	526351
	2	50	526352
	3	75	526353
	4	100	526354
	6	150	526356
	8	200	526358
	10	250	526359
	12	300	526360

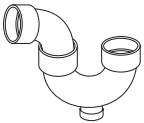
Plastic MJ Spigot MJ Sp x H			
	2	50	526522
	3	75	526523
	4	100	526524

Adapts M-J Cast Iron Pipe to Plastic DWV Pipe

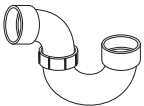
P Trap Solvent Weld H x H			
	1-1/2	40	526431
	2	50	526432
	3	75	526433
	4	100	526434

PRODUCT SELECTION CHART - SYSTEM XFR

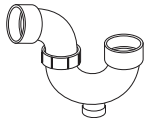
	Dimension		Product Code
	inches	mm	
P Trap Solvent Weld with Cleanout H x H			
	1-1/2	40	526441
	2	50	526442




P Trap Union Connection H x H			
	1-1/2	40	526443
	2	50	526444




P Trap Union Connection with Cleanout H x H			
	1-1/2	40	526505



U Bend H x H			
	4	100	526499
	6	150	426503




Fitting Trap Adapter Sp x Slip Joint			
	1-1/2	40	426304
	2	50	426305




Plastic Nut & Washer

Pipe Trap Adapter H x Slip Joint			
	1-1/2	40	526321
	1-1/2 x 1-1/4	40 x 32	526329

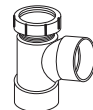


Plastic Nut & Washer


	Dimension		Product Code
	inches	mm	
90° Pipe Trap Adapter H x Slip Joint			
	1-1/2 x 1-1/2	40 x 40	526330




Sanitary Tee Trap Adapter H x Slip Joint x H			
	1-1/2	40	426179



Copper to DWV Pipe Adapter H x Slip Joint			
	1-1/2	40	426320
	1-1/2 x 1-1/4	40 x 32	426430
	2	50	426510




Tail Piece Adapter Sp x Slip Joint			
	1-1/2	40	526555
	1-1/2 x 1-1/4	40 x 32	526556





Plastic Nut & Washer


Swivel Strainer Adapter H x Swivel Nut			
	1-1/2	40	426894





PRODUCT SELECTION CHART - SYSTEM XFR


	Dimension		Product Code
	inches	mm	
Closet Flange One Piece Plastic Slip			
	4	100	526573
	4 x 3	100 x 75	526584


Closet Flange One Piece Plastic Slip w Spigot End			
	4 x 3	100 x 75	526592


Closet Flange One Piece Plastic Slip w Molded Test Plate			
	4 x 3	100 x 75	526591

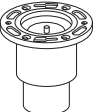
Closet Flange One Piece Plastic Slip Flush Kit			
	4 x 3	100 x 75	426594

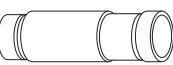
Closet Flange One Piece Plastic Slip Flush Kit w Molded Test Plate			
	4 x 3	100 x 75	526595

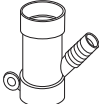
Adjustable Closet Flange with Plastic Ring Slip			
	4 x 3	100 x 75	526586


	Dimension		Product Code
	inches	mm	
Adjustable Closet Flange w Plastic Ring Slip w Molded Test Plate			
	4 x 3	100 x 75	526588

45° Discharge Closet Flange Adjustable w Plastic Ring			
	4 x 3	100 x 75	426589

Closet Flange Kit for Concrete			
	4 x 3	100 x 75	426593
for use in Slab on Grade W.C. installations			

Expansion Joint - Type 1 (Vertical & Horizontal Use) H x H			
	1-1/2	40	526485
	2	50	526486
	3	75	526487
	4	100	526489
	6	150	426209
	8	200	426210
	10	250	426211
	12	300	426212

Dishwasher Wye H x H x Hose Barb			
	1-1/2 x 1-1/2 x 1/2	40 x 40 x 12	526495

Slip Cap H			
	1-1/2	40	526411
	2	50	526412
	3	75	526413
	4	100	526414
	6	150	526415
	8	200	526416
	10	250	526417
	12	300	526418

The **Modern Age** of DWV is here

Mechanical engineers and contractors are converting from metal piping to System XFR® and System 15®

SYSTEM XFR® DWV **SYSTEM 15® DWV**

PROVEN BENEFITS

IMPROVED FLOW – Larger inside diameter and smoother interior walls for more efficient waste removal

THERMAL PROPERTIES – Storm drains can often be used without insulation

LONGEVITY – Extremely durable, will not rust or corrode

JOINING METHODS – Solvent welding or MJ Grey™ mechanical joint coupling options

PLENUM/HIGH-RISE – System XFR® carries 25/50 Flame/Smoke requirements

LABOUR SAVINGS – Easy to handle, cut and assemble

ENVIRONMENTAL EFFECTS – Local manufacturing minimizes transport and reduces carbon footprint

SYSTEM XFR® DWV



Proven in noncombustible environments, the advanced material meets all Flame and Smoke code requirements.

SYSTEM 15® DWV



A cost-effective “workhorse” designed for low-rise, light commercial and underground applications.