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# WINDOW WALLS

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### **Top Notch System**

- Series TN451
  Series TT451
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- Series TT601

### **SECTION C2**

### 



Project: Office Building, Las Vegas, NV

Due to the diversity in state/provincial, local, and federal laws, and codes that govern the design and application of architectural products, it is the responsibility of the individual architect, owner, and installer to ensure that products selected for use on projects comply with all applicable building codes and laws. U.S. Aluminum exercises no control over the use or application of its products, glazing materials, and operating hardware, and assumes no responsibility thereof.

The rapidly changing technology within the architectural aluminum products industry demands that U.S. Aluminum reserve the right to revise, discontinue or change any product line, specification or electronic media without prior written notice.

**NOTE:** Dimensions in parentheses () are millimeters unless otherwise noted. Other metric units shown in this publication are:

ther metric units sho	wn in this publication are:
m - meter	Kg - kilogram
Pa - pascal	KPa - kilopascal
MPa - megapascal	

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### **Specifications**

# • Series TN451 • Series TT451

Series TN601 • Series TT601

SECTION 08 43 13 ALUMINUM FRAMED STOREFRONTS

SERIES	FACE WIDTH	HEAD/SILL DEPTH	GLAZING INFILL	<b>GLAZING METHOD</b>
TN451/TT451	2-1/4" (57.2)	4-1/2" (114.3)	1" (25)	Interior
TN601/TT601	2-1/4" (57.2)	6" (152.4)	1" (25)	Interior

### I. GENERAL DESCRIPTION

Work Included: Furnish all necessary materials, labor, and equipment for the complete installation of aluminum framing as shown on the drawings and specified herein.

Work Not Included: Structural support of the framing system, interior closures, trim. (*Specifier list other exclusions*).

Related Work Specified Elsewhere: (Specifier list).

#### **QUALITY ASSURANCE**

Drawings and specifications are based on the Series (*Specify*) TN451, TT451, TN601, and TT601 Systems as manufactured by U.S. Aluminum. Whenever substitute products are to be considered, supporting technical literature, samples, drawings, and performance data must be submitted 10 days prior to bid in order to make a valid comparison of the products involved. Test reports certified by an AAMA independent test laboratory must be made available upon request.

#### PERFORMANCE REQUIREMENTS

**Air Infiltration:** shall be tested in accordance with ASTM E 283. Infiltration shall not exceed .06 cfm per square foot (.0003m<sup>3</sup>/sm<sup>2</sup>) of fixed area when tested at 6.24 psf (300 Pa).

**Water Infiltration:** shall be tested in accordance with ASTM E 331:

- No water penetration at test pressure of 10 psf (480 Pa) TN451 and TT451.
- No water penetration at test pressure of 12 psf (576 Pa) TN601 and TT601

**Structural Performance:** shall be tested in accordance with ASTM E 330 and based on:

Maximum deflection of L/175 of the span

 Allowable stress with a safety factor of 1.65

The system shall perform to this criteria under a windload of (*Specify*) psf.

Testing Procedures -ASTM 283, E 331, and E 330 -Laboratory Performance Testing. AAMA 503-08 - Newly Installed Storefronts. AAMA 511-08 - Installed Storefronts After 6 Months.

#### **II. PRODUCTS/MATERIALS**

Extrusions shall be 6063-T5 alloy and temper (ASTM B221 alloy T5 temper). Fasteners, where exposed, shall be aluminum, stainless steel or zinc plated steel in accordance with ASTM A 164. Perimeter anchors shall be aluminum or steel, providing the steel is properly isolated from the aluminum. Glazing gaskets shall be E.P.D.M. elastomeric extrusions and glass spacers shall be extruded silicone compatible E.P.D.M.

All materials that come in contact with the silicone should be tested for compatibility. Samples of aluminum vertical mullions should be submitted to the silicone manufacturer for adhesion evaluation.

#### **FINISH**

All exposed framing surfaces shall be free of scratches and other serious blemishes. Aluminum extrusions shall be given a caustic etch followed by an anodic oxide treatment to obtain (Specify one of the following):

#11 Clear anodic coating
 #22 Dark Bronze anodic coating
 #33 Black anodic coating

A fluoropolymer paint coating conforming to the requirements of AAMA 2605. Color shall be (*Specify a U.S. Aluminum standard color*).

#### FABRICATION

The window wall system shall provide continuous head and sill members with vertical mullions screw spline attached at head and sill to form multi-light units. Horizontal mullions shall be shear block attached to vertical mullions. Expansion mullions connect units to form continuous ribbon windows and to accommodate thermal expansion. Water penetration above the window wall may be collected in head member and weeped to exterior (by others). Infiltrated water in the system is to be weeped through weep holes at head and sill. The framing system shall provide for flush glazing on all four sides. **Optional Structural Silicone Glazed** mullions are also available. Vertical and horizontal framing members shall have a nominal face dimension of 2-1/4" (57.2). Overall depth of system shall be (*specify*). Entrance framing members shall be compatible with window wall system in appearance.

### **III. EXECUTION/INSTALLATION**

All glass framing shall be set in correct locations as shown in the details, and shall be level, square, plumb, and in alignment with other work in accordance with the manufacturer's installation instructions and approved shop drawings. All joints between framing and the building structure shall be sealed in order to secure a watertight installation.

### **PROTECTION AND CLEANING**

After installation the General Contractor shall adequately protect exposed portions of aluminum surfaces from damage by grinding and polishing compounds, plaster, lime, acid, cement, or other contaminants. The General Contractor shall be responsible for final cleaning.

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## **Technical Data**

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### Top Notch System • Series TN451 • Series TT451 • Series TN601 • Series TT601

The Top Notch Systems offer a shallow face reveal that creates a flush exterior appearance. These systems are designed for labor saving stacking type installations that requires glazing from the interior. Series TN451 and TT451 utilize Top Load Gaskets. Series TN601 and TT601 utilize wedge-type molded corner exterior sponge gaskets for superior air and water performance. Internal water deflectors at intermediate horizontal to vertical intersections allow infiltrated water to be drained into a continuous sill gutter and weeped to the exterior. Vertical mullions for structural silicone glazing are also available. The Top Notch Systems are designed for fixed horizontal window wall or punched opening applications.



SERIES	WIDTH	HEAD/SILL DEPTH	GLAZING INFILL	APPLICATION
TN451/TT451	2-1/4" (57.2)	4-1/2" (114.3)	1" (25)	Horizontal Interior Glazed Window
TN601/TT601	2-1/4" (57.2)	6" (152.4)	1" (25)	Walls for Low to Mid-Rise Buildings.

GLASS SIZES*		
Glass Width and Glass Height	= Daylight Opening + 7/8" (22.2).	

\* These formulae do not take into account glass tolerances. Consult glass manufacturer before ordering glass.



### **Special Features**

# WINDOW WALLS

# Top Notch System • Series TN451



The Top Notch Systems feature continuous head and sill members for superior water control in ribbon window and punched opening applications. Frame assembly is simplified by the use of screw spline joinery and one piece mullions. Labor savings are achieved by allowing installation of completely assembled frame units.



Various anchoring methods are available to accommodate a multitude of building conditions. Please consult factory for special conditions.

Secondary water drainage control is achieved with weep holes/slots in head and sill members.



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# WINDOW WALLS



## **Typical Details**









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# **Optional Details**

### FOR 1" (25) GLAZING

**NOTE:** Part numbers shown are available in 24' (7.3 m) stock lengths. Visit **usalum.com** for more information.



### **Top Notch System**



Series TT601



Part Number prefix ending in "T" represents **THERMALLY BROKEN** parts. Thermal parts are in bold print.



**OPTIONAL PRECAST ANCHORING** 



NOT TO SCALE

### **USALUMINUM** Windload Charts

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# WINDOW WALLS

### Top Notch System • Series TN451 • Series TT451

### VERTICAL MULLIONS FOR 1" (25) GLAZING

Deflection criteria to be in accordance with AAMA TIR-A11 - L/175 or L/240 + 1/4" (6.4 mm) for spans greater than 13'-6" (4.1 m) but less than 40'-0" (12.2 m). Codes and specifications may vary. No single lite of glass shall deflect more than 3/4" (19 mm). Glass is not considered as contributing to resistance of deflection. Aluminum alloy 6063-T6 allowable stress for windload is 15,200 psi. (89 MPa), and steel reinforcing allowable stress for windload is 21,600 psi. (183 MPa).

These charts include unbraced length analysis and are based on at least one horizontal being placed at the midpoint of the span. For other applications, please contact U.S. Aluminum Technical Sales at (800) 262-5151, or visit our web site at **usalum.com**.





**RT450 RW450** I = 2.969 (123.78 x 10<sup>4</sup>) S = 1.387 (22.73 x 10<sup>3</sup>) **RW460** I = 0.721 (29.64 x 10<sup>4</sup>) S = 0.558

(9.14 x 10<sup>3</sup>)

Mullion Height in Feet (meters)



Limitation of vertical mullions for: CUBVES $\mathbf{A} = 15$ PSE (718 Pa)
CURVES $\mathbf{B} = 20$ PSF (957 Pa)
CURVES <b>C</b> = 25 PSF (1197 Pa)
CURVES <b>D</b> = 30 PSF (1436 Pa)
CURVES <b>E</b> = 40 PSF (1915 Pa)



RT466 RT469 RW466 RW469

 $I = 4.493 (187.01 \times 10^4) \\ S = 1.915 (31.9 \times 10^3)$ 



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## **Deadload Charts**

### INTERMEDIATE HORIZONTAL MULLIONS FOR 1" (25) GLAZING

Deadload charts are based on 1/8" (3.2) maximum deflection at the center point of the horizontal mullion and on a glass weight of 6.5 psf (31.74 Kg/m<sup>2</sup>) for 1" (25) glass.

Glass shall rest on two setting blocks located at:

CURVES A: 1/4 points

CURVES B: 1/8 points or 8" (203.2) from corners, whichever is larger.



**US ALUMINUM** 

Series TT451

Top Notch System • Series TN451



Project: M2i Lofts, San Diego, CA





### Top Notch System • Series TN601 • Series TT601

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### VERTICAL MULLIONS FOR 1" (25) GLAZING

Deflection criteria to be in accordance with AAMA TIR-A11 - L/175 or L/240 + 1/4" (6.4 mm) for spans greater than 13'-6" (4.1 m) but less than 40'-0" (12.2 m). Codes and specifications may vary. No single lite of glass shall deflect more than 3/4" (19 mm). Glass is not considered as contributing to resistance of deflection. Aluminum alloy 6063-T6 allowable stress for windload is 15,200 psi. (89 MPa), and steel reinforcing allowable stress for windload is 21,600 psi. (183 MPa).

These charts include unbraced length analysis and are based on at least one horizontal being placed at the midpoint of the span. For other applications, please contact U.S. Aluminum Technical Sales at (800) 262-5151, or visit our web site at **usalum.com**.



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I = 2.606 (108.47 x 10<sup>4</sup>) S = 1.298 (21.27 x 10<sup>3</sup>)



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### **Deadload Charts**

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### INTERMEDIATE HORIZONTAL MULLIONS FOR 1" (25) GLAZING

Deadload charts are based on 1/8" (3.2) maximum deflection at the center point of the horizontal mullion and on a glass weight of 6.5 psf (31.74 Kg/m<sup>2</sup>) for 1" (25) glass.

Glass shall rest on two setting blocks located at: CURVES A: 1/4 points

CURVES B: 1/8 points or 8" (203.2) from corners, whichever is larger.







lyy = 0.558 (23.23 x 10<sup>4</sup>)



Mullion Span in Feet (meters)



RT633 RW633

lyy = 0.389 (16.19 x 10<sup>4</sup>)





### **Structural Silicone Chart**

Top Notch System • Series TN451

Series TT451

Series TN601

Series TT601

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For structural silicone glazing the stress on the silicone must not exceed 20 psi (137 Kpa) for a 6:1 safety factor.

NOTE: The maximum shorter span of glass may be the width or the highest dimension. EG. for 5' x 7' (1.52 m x 2.13 m) check 5' (1.52 m)

for 7' x 5' (2.13 m x 1.52 m) check 5' (1.52 m)

THESE LIMITATIONS ARE RELATED ONLY TO THE SILICONE JOINT CAPABILITY. ALUMINUM MEMBERS SHOULD ALSO BE CHECKED FOR WINDLOAD AND DEADLOAD.





Project: Corporate Business Center, Plano, TX



# **Accessories**

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# Top Notch System Series TN451 Series TN601 Series TT601

			PKG.	PKG. WHERE USED			
PART NO.	DETAIL	DESCRIPTION	QTY.	TN451	TT451	TN601	TT601
VS200		Vinyl Used at Expansion Mullion	500' Roll	٠	•	•	•
NP225	TE	Standard Gasket for 4-1/2" (114.3) System	500' Roll	•	•		
SP455		Structural Silicone Spacer	250' Roll	٠	•	•	•
NP425		Exterior Sponge and Interior Wedge Gasket	500' Roll			•	•
UB625	NP425 NP606	Weep Baffle	100	•	•	•	•
WB600	66	Standard "W" Edge Block	50	٠	•	•	•
WB452	WB600 WB452	"W" Edge Block for Expansion Mullion	50	•	•	•	•
SB334		1" (25.4) Setting Block at 4-1/2" (114.3)	50				
SB633	SB334 SB633	System for Sill,	50	•			
SB576	SB576	O.G. Horizontal	50				
SB334		1" (25.4) Setting Block	50				
SB633	SB334 SB633	System for Sill, I.G. Horizontal and	50			•	•
SB663	SB663	O.G. Horizontal	50				
RW465		1" (25.4) Setting-Chair at 4-1/2" (114.3) System	50	٠	•		
RW665		1" (25.4) Setting-Chair at 6" (152.4) System	50			•	•
AP499		1" (25.4) Shear Block at 4-1/2" (114.3) System	50	٠	•		
AP699		1" (25.4) Shear Block at 6" (152.4) System	50			•	•
BA431			50	•			
BA451	BA451 BA431	EVA FUAITI Daitie	50		•	•	•

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# Top Notch System Series TN451 Series TN601 Series TT601

DADTNO	DETAIL		PKG.	WHERE USED			
PART NO.	DETAIL	DESCRIPTION	QTY.	TN451	TT451	TN601	TT601
HC301	HC301 or HC311	Precast Head Anchor	10	•			
HC311		Precast Head Anchor	10			•	•
HC302		Precast Sill Anchor	10	•	•		
HC312	HC302 or HC312	Precast Sill Anchor	10			•	•
HC300	lo l	Anchor Bearing Plate	10	•	•	•	•
EC455		End Dam	20	•	•		
EC664	EC455 EC664	End Dam	20			•	•
WD650		Water Diverter Deep Pocket	50			•	•
WT660		Water Diverter BG Mullion	50			•	•
WD669		Water Diverter Female Expansion Mullion	50			•	•
WD652		Water Diverter Shallow Pocket	50			•	•
WD661		Water Diverter Male Expansion Mullion	50			•	•
WD200		Water Diverter Deep Pocket	50	•	•		
WD525		Water Diverter BG Mullion	50	•	•		
WD210		Water Diverter Shallow Pocket	50	•	•		
DJ456		Drill Jig	1	•	•	•	•

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### **Accessories**

**CRL 95C SILICONE BUILDING SEALANT** 

- Excellent Primerless Adhesion to Most **Common Construction Substrates**
- ± 50% Joint Width Movement
- AAMA Approved
- Approved for the Florida Hurricane Impact Glazing Code
- **20 Year Limited Warranty**

CRL 95C Silicone is a one-part, medium modulus, neutral cure, 100% silicone formulation that cures to a durable and flexible silicone rubber building joint seal. It can accommodate ± 50% joint movement in properly designed joints.

NOTE: CRL 95C should not be used for structural glazing; sealing horizontal decks, patios, driveways or terrace joints where abrasion or physical abuse is encountered; sealing submerged joints; or for exterior or interior sealing below the waterline in marine applications.

### DOW CORNING® 795 SILICONE BUILDING SEALANT

- ± 50% Joint Width Movement
- Medium Modulus Building Sealant for **Expansion Joints**
- Structural and Non-Structural Glazing of Glass, Metals, and Plastics

Dow Corning® 795 is a one-part, medium modulus, neutral cure silicone formulation. Dow Corning® 795 cures to a durable and flexible silicone rubber building joint seal, and can accommodate ± 50% joint movement in a properly designed joint.

NOTE: Should not be applied to building materials that bleed oils, plasticizers or solvents, or in totally confined spaces. Do not apply to frost-laden or wet surfaces, or to surfaces that are in direct contact with food. Check cartridge label and Specification Data Sheet for additional limitations.

### **DOW CORNING® 995 SILICONE STRUCTURAL ADHESIVE**

- Designed Specifically for Structural and **Protective Glazing**
- Self-Priming to Most Common Building Substrates, Including Most **Fluoropolymer-Based Paints**

Dow Corning® 995 is a one-component, self-priming, shelf stable, neutral cure, elastomeric adhesive specifically formulated for silicone structural glazing.

**NOTE:** Structural glazing applications for Dow Corning<sup>®</sup> 995 must be reviewed by the Technical Service staff, Dow Corning Corporation, Construction Sealants Technical Service and Development. Check cartridge label and Specification Data Sheet for additional limitations.

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Get Spec. Data for all Sealants at

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### **Sealants**

10.3 Fl. Oz. (305 ml); 30 Cartridges Per Case; 1440 Cartridges Per Pallet

PART NO.	COLOR
95CBL	Black
95CDBRZ	Dark Bronze
95CGRY	Gray
95CL	Limestone
95CW	Precast White
95CWHT	White

Minimum order: 1 each. All cartridge sealants can be combined for quantity pricing

> 10.3 Fl. Oz. (305 ml): 12 Cartridges Per Case; 1296 Cartridges Per Pallet

PART NO.	COLOR
795BL	Black
795BRZ	Bronze
795GRY	Gray
795L	Limestone
795W	White

Minimum order: 1 each. All cartridge sealants can be combined for quantity pricing

> 10.3 Fl. Oz. (305 ml); 12 Cartridges Per Case; 1296 Cartridges Per Pallet

PART NO.	COLOR
995BL	Black
995W	White

Minimum order: 1 each. All cartridge sealants can be combined for quantity pricing.

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# WINDOW WALLS

### **Backer Rods**

### **OPEN CELL BACKER ROD**

**US** ALUMINUM

**Accessories** 

- Controls Depth of Sealant and Acts as a Bond Breaker
- Has No Skin, So It's Non-Gassing
- Soft So it Compresses Easily

Open Cell Backer Rod is a soft, round, and easily compressible open cell polyurethane foam. Dynamic joint movement does not adversely affect Open Cell Backer Rod, and its inherent flexibility applies itself to joint variations very easily.

#### 100 FOOT (30.5 M) ROLLS

PART NO.	ROD DIAMETER	ROLL LENGTH
B0CBR58C	5/8" (16)	100' (30.5 m)
B0CBR78C	7/8" (22)	100' (30.5 m)
B0CBR118C	1-1/8" (28)	100' (30.5 m)
B0CBR112C	1-1/2" (38)	100' (30.5 m)

2	OSFD	CFL	BACKEE	

Minimum order: 1 case. Sizes can be combined for quantity pricing.

### Compatible With All Cold-Applied Sealants

### Available in Nine Widths

Closed Cell Backer Rod is a round, flexible, closed cell polyethylene foam with an exterior "skin" used as a backing and thickness control device for elastomeric and other cold-applied sealants.

100 FOOT (30.5 M) ROLLS					
PART NO.	ROD DIAMETER	ROLL LENGTH			
EF14C	1/4" (6)	100' (30.5 m)			
EF38C	3/8" (10)	100' (30.5 m)			
EF12C	1/2" (12)	100' (30.5 m)			
EF58C	5/8" (16)	100' (30.5 m)			
EF34C	3/4" (19)	100' (30.5 m)			
EF1C	1" (25)	100' (30.5 m)			
EF114C	1-1/4" (32)	100' (30.5 m)			
EF112C*	1-1/2" (38)	102' (31.1 m)			
EF2C* 2" (51)		102' (31.1 m)			

Minimum order: 1 roll. Sizes can be combined for quantity pricing. \* This size is shipped in 84\* (2.13 m) cut lengths.

#### BULK CASES

**BULK CASES** 

PART NO.

**B0CBR58** 

B0CBR78

**B0CBR118** 

**B0CBR112** 

B0CBR2

PART NO.	ROD DIAMETER	QTY/CASE		
EF14B	1/4" (6)	6400' (1951 m)		
EF38B	3/8" (10)	3600' (1097 m)		
EF12B	1/2" (12)	2500' (762 m)		
EF58B	5/8" (16)	1550' (472 m)		
EF34B	3/4" (19)	1100' (335 m)		
EF1B	1" (25)	550' (167 m)		
EF114B 1-1/4" (32)		400' (122 m)		
EF112B* 1-1/2" (38)		552' (168 m)		
EF2B* 2" (51)		360' (110 m)		

Minimum order: 1 roll. Sizes can be combined for quantity pricing. \* This size is shipped in 84\* (2.13 m) cut lengths.





Part No. SBRR Roller Tool will not tear "skin" of Backer Rod.





Part No. T607CU605 Backer Rod Insert Tool Set. Helpful for proper installation.

### SOF<sup>®</sup> ROD

### Non-Gassing if Damaged

No Moisture Absorption

Sof<sup>®</sup> Rod is a state-of-the-art sealant backing material combining the best properties of both open and closed cell backer rods in a single, trouble-free product. Sof<sup>®</sup> Rod is a continuous length of extruded polyolefin foam made with a non-absorbent outer skin and a highly resilient interior network of open and closed cells. Sof<sup>®</sup> Rod will not out-gas if ruptured.

#### 100 FOOT (30.5 M) ROLLS

PART NO.	ROD DIAMETER	ROLL LENGTH
SR38C	3/8" (10)	100' (30.5 m)
SR58C	5/8" (16)	100' (30.5 m)
SR78C	7/8" (22)	100' (30.5 m)
SR118C	1-1/8" (28)	100' (30.5 m)
SR112C**	1-1/2" (38)	102' (31.1 m)
SR2C** 2" (51)		102' (31.1 m)

Minimum order: 1 roll. \*\*Minimum order: 1 box of seventeen 6-foot lengths. Sizes can be combined for quantity pricing.

#### **BULK CASES** PART NO. **ROD DIAMETER** QTY/CASE SR38B 3/8" (10) 3600' (1097 m) SR58B 1550' (472 m) 5/8" (16) SR78B 7/8" (22) 850' (259 m) **SR118B** 1-1/8" (28) 500' (152 m) 1-1/2" (38) SR112B\* 552' (167 m) SR2B\* 2" (51) 360' (110 m)

Minimum order: 1 roll. \*Minimum order: 1 box of 6-foot lengths Sizes can be combined for quantity pricing.



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**ROD DIAMETER** 

5/8" (16)

7/8" (22)

1-1/8" (28)

1-1/2" (38)

2" (51)

Minimum order: 1 case. Sizes can be combined for quantity pricing.

QTY/CASE

1400' (426 m)

900' (274 m)

350' (107 m)

200' (61 m)

100' (30.5 m)



Sealant