

Veneer Anchors

Description

Dur-O-Wal manufactures and markets a large variety of veneer anchor assemblies designed and engineered to anchor brick, tile, stone or CMU veneer to a wood stud, metal stud, concrete or CMU backing. These anchor assemblies install quickly and easily as they are mechanical attached to the structural backing. Dur-O-Wal also supplies a variety of screws and expansion anchors for use in attaching these anchor assemblies to backing.

The design of these anchor assemblies allows for the maximum practical in-plane vertical and horizontal movement, yet provides the required out-of-plane restraint for the veneer.

All of the Dur-O-Wal anchors, ties and assemblies meet the requirements of the *Building Code Requirements for Masonry Structures (ACI 530.1-05/ASCE 5-05/TMS 402-05)*. The seismic anchor assemblies meet the seismic section of this code, which requires a continuous reinforcing wire to be embedded in the horizontal mortar joint of a veneer wythe.

Applications

Veneer anchor assemblies are for use where the structural backing exists or where cast-in-place anchors have been left out of the concrete. The typical backing can be wood or metal stud with sheathing construction, CMU, brick, precast concrete or poured-in-place concrete.

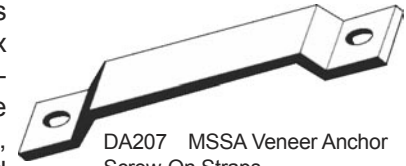
To attach anchors to wood stud construction, use the DA808 Wood Stud Screw - Corrosion Protected, for steel stud construction use either the DA807 Metal Stud Veneer Screw - Copolymer Coated or the DA995 Stainless Steel Screw - Type 300 Series. For attachment to CMU, brick or concrete use either the DA5410 or DA5610 Expansion Anchor.

Certain anchor assemblies, are primarily intended for use where no insulation is required in the cavity. Other anchor assemblies are recommended for use in insulated cavity construction, for use in seismic conditions or in composite walls.

Masonry Veneer Anchors

DA207 Veneer Anchor Screw-On Strap

The strap measures $\frac{3}{4}$ " wide x 5" long x 12 gauge in thickness and is available either mill galvanized, hot dipped galvanized after fabrication or from Type 304 Stainless Steel.



DA207 MSSA Veneer Anchor Screw-On Straps

DA210 Veneer Anchor Screw-On Plate

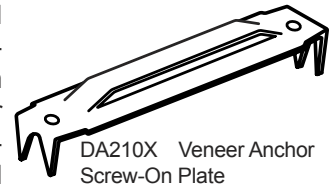
The plate measures $1\frac{1}{2}$ " wide x 6" long x 14 or 12 gauge in thickness and is available either mill galvanized, hot dipped galvanized or from Type 304 Stainless Steel.



DA210 Veneer Anchor Screw-On Plates

DA210X Veneer Anchor Screw-On Plate

Anchor installs quickly and easily with the legs piercing through the rigid foam insulation and/or glass fiber sheathing, providing positive contact with a metal stud. The design of this anchor allows the transfer of compression loads direct to the steel stud backing. Formed metal stiffeners increase tensile strength of the anchor.

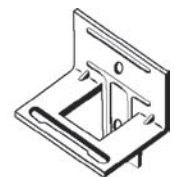


DA210X Veneer Anchor Screw-On Plate

Available in 14 gauge and measures $1\frac{1}{4}$ " wide x 5" long with legs sized to accommodate $\frac{5}{8}$ ", $\frac{3}{4}$ ", 1", $1\frac{1}{2}$ ", 2", $2\frac{1}{2}$ " and 3" insulation or sheathing. Finishes include mill galvanized, hot dip galvanized, and stainless steel.

DA213 Veneer Anchor Plates

Used to anchor veneer to most structural backings. Requires two screws or one expansion anchor to attach the plate to backing.



The plate is available in 14 or 12 gauge thickness and can be furnished either mill galvanized, hot dipped galvanized or from Type 304 Stainless Steel. Anchors are available to accommodate insulation thicknesses that range from $\frac{1}{2}$ " to 3" in $\frac{1}{2}$ " increments.

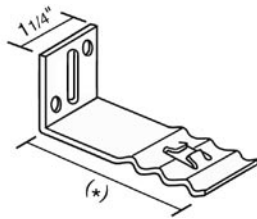
When the cavity between the veneer and backing is not insulated, a $\frac{3}{4}$ " minimum air cavity is required.

DA431 Seismic Veneer Anchor

Designed to anchor masonry to a wood or metal stud and sheathing backing and is particularly effective when the air cavity is less than 1".

The embedment end of this anchor is corrugated and has shear lugs that are designed to engage a piece of Seismic Ladur or Pencil Rod where seismic codes require a 9 gauge or 3/16" diameter continuous wire reinforcement in the veneer as an integral component of the anchor system.

The anchor measures 1 1/4" wide x 3 1/2", 4 1/2" or 5 1/2" long x 14 or 12 gauge in thickness and can be furnished either hot dipped galvanized or from Type 304 Stainless Steel.



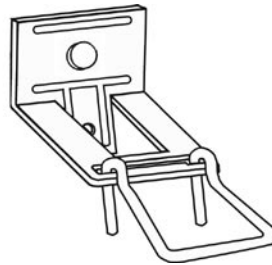
DA431
Seismic Veneer Anchor

Ties for Masonry Veneer Anchors

DA213 Pintle

Fabricated from 3/16" diameter mill galvanized, hot dipped galvanized or Type 304 Stainless Steel wire and in lengths of 3" to 7" in 1" increments. Legs will provide maximum vertical adjustment between plate and the veneer mortar joint of 2 1/2" total (1 1/4" with legs pointed downward and 1 1/4" with the legs pointed upward).

Designed for use with DA213 Veneer Anchor Plate and DA5213 Veneer Anchor Assembly.



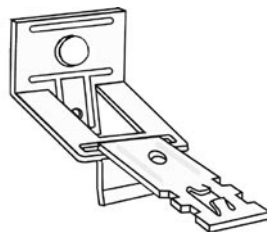
DA213
Veneer Anchor w/Pintle

DA213S Seismic Pintle

Fabricated from 2" wide x 11 or 12 gauge mill galvanized, hot dipped galvanized or Type 304 Stainless Steel sheet metal in 3 1/2" or 4 1/2" lengths with an integral formed shear lugs to engage Seismic Ladur or Pencil Rod.

2" long leg is designed to provide a maximum vertical adjustment between plate and the veneer mortar joint of 2 1/2" total (1 1/4" with legs pointed downward and 1 1/4" with the legs pointed upward).

Designed for use with either DA213 Veneer Anchor Plate or DA5213 Veneer Anchor Assembly.

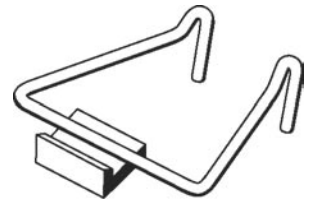


DA213S
Seismic Anchor w/Pintle

DA213QT Light Duty Seismic Pintle

Same as the DA213 Pintle except provided with a welded on steel Quake Clip designed to securely engage either Seismic Ladur or Pencil Rod.

Designed for use with DA213 Veneer Anchor Plate and DA5213 Veneer Anchor Assembly.

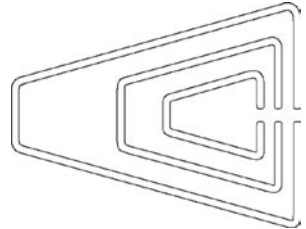


DA213QT
Light Duty Seismic Pintle

DA700 Series Triangular Tie

Available from 3/16 inch diameter wire in 3" x 3", 4" x 4", 5" x 5", 6" x 6" inches, 7" x 7" and 7" x 9" sizes and either mill galvanized, hot dipped galvanized or Type 304 Stainless Steel.

Designed for use with DA207 Veneer Anchor Screw-On

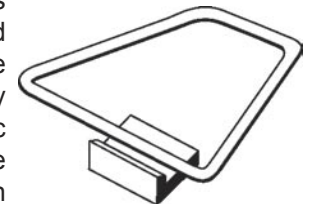


DA700
Series Triangular Ties

Strap, DA210 Veneer Anchor Screw-On Plate or DA210X Screw-On Plate in non-seismic locations.

DA700QT Series Light Duty Seismic Triangular Tie

Same as the DA700 Series Triangular Tie except provided with a welded on steel Quake Clip designed to securely engage a length of Seismic Ladur or Pencil Rod. The Quake Clip is welded in an offset position, which enables the Triangular Tie to be field installed onto the various screw-on plates.



DA700QT Series
Light Duty Triangular Tie

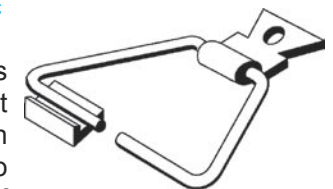
DA720 Series Dovetail Triangular Tie

Depending on backing material, fasten to backing with either a screw or an expansion anchor through hole in the metal dovetail then rotate wire tie 90° into veneer mortar joint. Tie is fabricated using a 12 gauge dovetail clip with a 3/16" diameter x 3 1/2", 4 1/2", 5 1/2", 6 1/2", 7 1/2" or 9 1/2" long wire tie. Length of tie does not include the dovetail.

Available either as mill galvanized, hot dipped galvanized after fabrication or from Type 304 Stainless Steel.

DA720QT Lite Duty Seismic Dovetail Triangular Tie

Same as the DA720 Series Dovetail Triangular Tie except provided with a welded on steel Quake Clip designed to securely engage a length of Seismic Ladur or Pencil Rod.

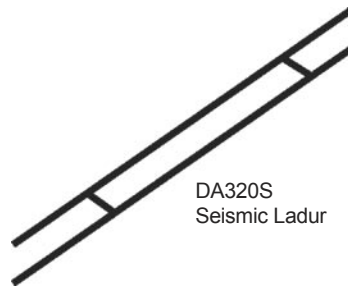


DA720QT Light Duty Seismic
Dovetail Triangular Tie

DA320S Seismic Ladur

Designed to meet the code requirements calling for veneers to be reinforced for seismic applications. Produced with 9-gauge wire for both side and cross rods, measures 5/8 inch out-to-out and shipped in 10'-8" lengths. Also available in 3/16" diameter wire for both side rods and 9 gauge wire for cross rods. Side rods are deformed to comply with code requirements for joint reinforcement.

Can be supplied fabricated from Type 304 Stainless Steel or carbon steel that has been hot dipped galvanized after fabrication.



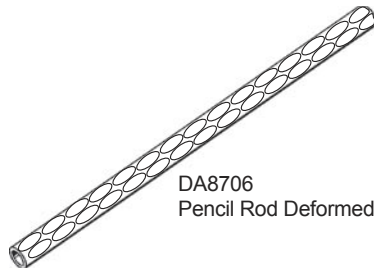
DA320S
Seismic Ladur

DA8706 Pencil Rod Deformed

Designed to provide greater ductility in veneers and is generally required in masonry veneers in seismic applications. Furnished in 9 gauge wire in 10 feet lengths.

Can be supplied fabricated from Type 304 Stainless Steel or carbon steel that has been hot dipped galvanized after fabrication. To comply with code requirements for joint reinforcement.

Due to the difficulty in shipping this material without having it damaged during transit, Dur-O-Wal suggests the use of our DA320S Seismic Ladur instead.



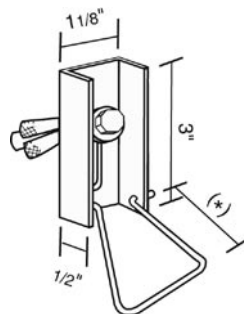
DA8706
Pencil Rod Deformed

Masonry Veneer Anchor Systems

DA801 Adjustable Speed Set Veneer Anchor

The attachment plate on this anchor assembly measures 1/2" deep x 1 1/8" wide x 3" tall x 14 gauge in thickness. The assembly ships preassembled with either a 3/16" diameter wire x 3" or x 4" long wire tie as required.

Anchor assembly can be furnished either mill galvanized, hot dipped galvanized or from Type 304 Stainless Steel.



DA801
Adjustable Speed Set
Veneer Anchor

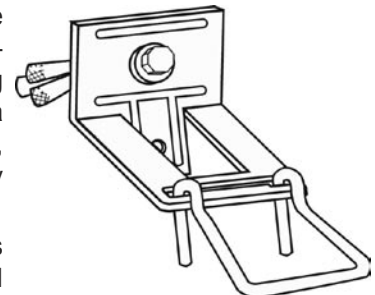
DA5213 Veneer Anchor Plate and Pintle

The DA5213 Veneer Tie Assembly is a very versatile veneer anchoring system for anchoring a veneer to a concrete, CMU or brick masonry backing.

The anchor assembly is shipped preassembled with a single expansion anchor fastener. The clamping force provided by the expansion anchor is more than sufficient and the anchor can be field inspected using an inch-pound torque wrench.

This tie assembly is available in hot dipped galvanized or stainless steel. The plate can be furnished from either 11 or 12 gauge steel.

Use DA213 Pintles in non-seismic areas or DA213 Seismic Pintles or DA213QT Lite duty Seismic Pintles where severe wind loads are expected or the Building Code requires wire reinforcement in the veneer wythe.



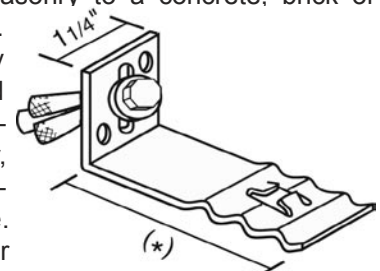
DA5213 Veneer Anchor
Plate and Pintle

DA5431 Seismic Veneer Anchor Assembly

Designed to anchor masonry to a concrete, brick or CMU backing structure. The anchor assembly comes preassembled with a single expansion anchor fastener, which provides exceptional clamping force. The expansion anchor can be field inspected for proper installation with the use of a torque wrench.

Embedment end of anchor is corrugated and has shear lugs which are designed to engage either Seismic Ladur or Pencil Rod where seismic codes require a 9 gauge or 3/16" diameter continuous wire in the veneer, as an integral component of the anchoring system.

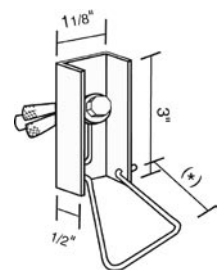
Anchor measures 1 1/4" wide x 3 1/2", 4 1/2" or 5 1/2" long x 14 or 12 gauge in thickness. Can be supplied either hot dipped galvanized or from Type 304 Stainless Steel.



DA5431 Seismic Veneer
Anchor Assembly

DA5801 Adjustable Speed Set Veneer Anchor Assembly

Attach this veneer anchor assembly to concrete, brick or CMU backing. Anchor assembly comes preassembled with a single expansion anchor fastener, which provides



DA5801
Adjustable Speed Set
Veneer Anchor Assembly

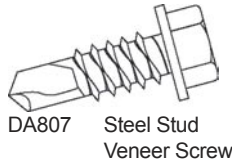
exceptional clamping force and can be field inspected with a torque wrench.

The plate measures 1/2" deep x 1 1/8" wide x 3" tall x 14 gauge in thickness and comes preassembled with either a 3/16" diameter x 3" long or 3/16" diameter x 4" long tie.

Anchor assembly can be furnished either mill galvanized, hot dipped galvanized or from Type 304 Stainless Steel.

DA807 STEEL STUD VENEER SCREW

The DA 807 Steel Stud Veneer Screw is a metal to metal, self-drilling, self tapping screw designed to fasten veneer anchors to a metal stud backing without drilling a pilot hole. The screws are coated with a proprietary corrosion resistant coating and are available in two sizes; #10- 6 x 1-1/2" long or #12-14 x 2" long. The 1 1/2" long screw is available with or without a EPDM washer under the hex washer head. The 2" length is available ONLY with a EPDM washer. The EPDM washer provides resistance to water penetration, around the screw into the backup.



DA807 Steel Stud Veneer Screw

DA807 Withdrawal Capacity		
Size	Steel Stud	Average Ultimate Capacity
#10-16 x 1 1/2"	25 ga.	124 lbs.
	20 ga.	299 lbs.
	18 ga.	499 lbs.
	16 ga.	708 lbs.
	14 ga.	967 lbs.
	12 ga.	1,474 lbs.
#12-14 x 2"	25 ga.	142 lbs.
	20 ga.	341 lbs.
	18 ga.	551 lbs.
	16 ga.	757 lbs.
	14 ga.	1,063 lbs.
	12 ga.	1,631 lbs.

NOTE: Withdrawal capacity based on the screw penetrating the stud by at least 3 thread pitches beyond the metal stud.

DA808 Wood Stud Screw - Corrosion Protected

The DA 808 Wood Stud Screw is designed to secure veneer anchors to wood studs. It is a self tapping screw and does not require the drilling of a pilot hole. Screws are coated with a proprietary corrosion resistant coating and are furnished with a #9 Phillips Head in 1 5/8" or 2 1/4" lengths. Maximum material attachment range for the 1 5/8" long screw is 1 1/8" and 1 3/4" for the 2 1/4" long screw.



DA808 Wood Stud Screw - Corrosion Protected

DA808 Withdrawal Capacity	
Embedment	Average Ultimate Capacity
1/2"	223 lbs.
3/4"	312 lbs.
1"	555 lbs.
1 1/4"	676 lbs.

NOTE: Values based on a screw embedded in a #2 grade, Spruce-Pine-Fir species 2"x4" stud.

A995 Stainless Steel Screw - Type 300 Series

The Dur-O-Wal A995 Stainless Steel Screw combine the corrosion resistance of an austenitic 300 series stainless head and threaded shank with a hardened carbon steel point for self-drilling installation. This screw has a 5/16" AF Hex Washer Head and a integral drill point, is engineered to drill the optimum hole size for efficient thread forming in the metal stud with optimized pullout values. These screws install like carbon steel screws, yet provide the corrosion resistance of a true stainless steel self-drilling screw.



A995 Stainless Steel Screw Type 300 Series

When selecting a stainless steel fastener for any application where minimizing corrosion is the goal, specify the A995 Stainless Steel Screw as it offers dramatically better corrosion resistance with its stainless steel composition. The welded drill point make this screw more costly, but the corrosion resistance benefits are far superior to other screw types.

A995 Withdrawal Capacity	
Steel Stud	Average Ultimate Capacity
20 ga.	315 lbs.
18 ga.	472 lbs.
16 ga.	787 lbs.

NOTE: Values based on the screw having threads penetrating beyond the stud by at least 3 thread pitches.

DA5410 Expansion Anchor

The Dur-O-Wal expansion anchor consists of a 1/4"-20 UNC threaded stainless steel bolt, a brass expansion sleeve and expander cone. The anchor provides a positive mechanical lock in the backing due to the expansion of the brass expansion sleeve.



DA5410 Expansion Anchor

To install these anchors, drill a 7/16" diameter hole 2" to 2 1/4" deep into the backing. Remove any fines left from drilling the hole, then tap the expansion anchor into the drilled hole and tighten the anchor bolt to between 50 and 100 inch-pounds.

DA5610 Expansion Anchor

This expansion anchor is identical to the DA5410 anchor with the exception that the 1/4"-20 bolt is electrogalvanized.

Backing Material	Average Ultimate Tension	Compressive Strength	Hole Diameter	Minimum Embedment Depth
Brick	1,348 lbs.	7,700 psi	1/2"	1 5/8"
Brick	2,062 lbs.	11,000 psi	1/2"	1 5/8"
CMU, Hollow	1,385 lbs.	7,700 psi	7/16"	1 1/4"
Concrete	2,169 lbs.	3,500 psi	7/16"	2"
Mortar Joint, 9/16"	1,216 lbs.	962 psi	1/2"	1 5/8"
Mortar Joint, 9/16"	1,321 lbs.	1,450 psi	1/2"	1 5/8"

NOTE: Values based on backing having attained a compressive strength equal to or greater than that listed.

Fastener Tensile Capacities

The above charts list the average ultimate tensile values achieved under laboratory conditions and apply to Dur-O-Wal supplied fasteners only. As these are average ultimate values, an appropriate safety factor should be applied to these values for design purposes.

Material Specifications

Material	ASTM Standard Specifications
Brass	B16/B16M-05
Sheet Metal, Carbon Steel	A-1008/A1008M-05b, A109/A109M-03 and A1011A-03
Sheet Metal, Hot Dipped Galvanized	A153/A153M-05 (1.50 oz./ft. ²)
Sheet Metal, Mill Galvanized	A653/A653M-05 (0.60 oz./ft. ²)
Sheet Metal, Stainless Steel	A167-99 (2004) - Type 304
Wire, Carbon Steel	A82/A82M-05a
Wire, Mill Galvanized	A641/A641M-03 (0.10 oz./ft. ²)
Wire, Stainless Steel	A580/A580M-98 (2004)- Type 304

Code Approvals

Generally, code approvals for Dur-O-Wal products are not necessary as they are accepted in the body of the model building code.

Limitations / Precautions

The information contained in this publication does not constitute any professional opinion or judgment and should not be used as a substitute for competent professional determinations. Each construction project is unique and the appropriate use of these products are the responsibility of the engineers, architects and other professionals that are familiar with the specific requirements of the project.

Warranty

Seller makes no warranty of any kind, expressed or implied, except that the goods sold under this agreement shall be of the standard quality of the seller and buyer assumes all risks and liability resulting from the use of such goods, whether used singly or in combination with other goods. Seller neither assumes nor authorizes any person to assume for the seller any other liability in conjunction with the sale or use of the good sold and there is no oral agreement or warranty collateral to or affecting this transaction.

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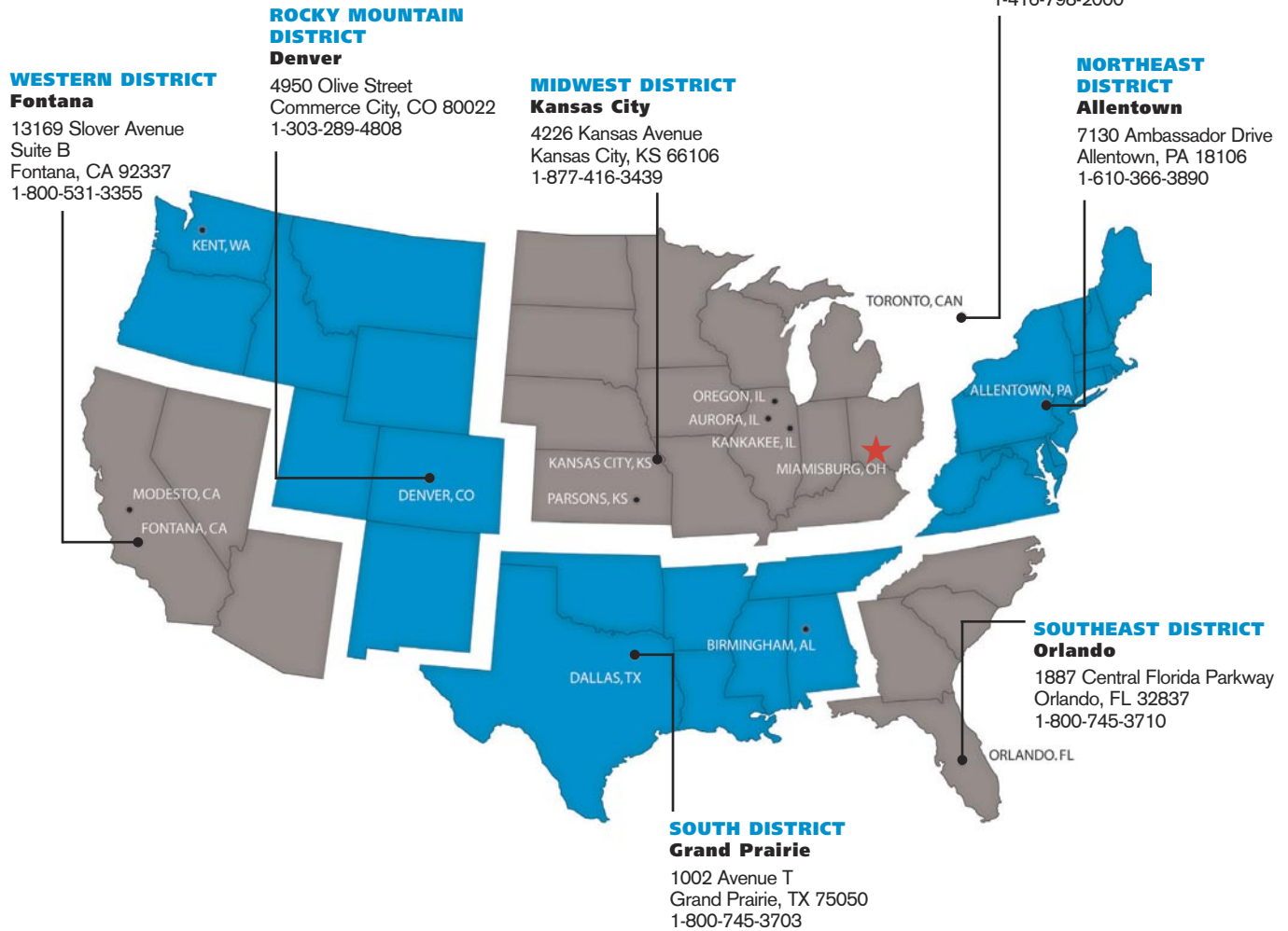
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