

APPROVED MATERIALS



June 2024

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APPROVED MATERIALS

1. General

This section indicates the materials approved for use within the District. The approved Materials Section is subject to revisions and update from time-to-time as determined by the District. Users of the District's Standard Specifications for Water Main Installation, standard drawings, and Approved Materials List shall be responsible to confirm they are using the most recent versions. To confirm the most recent versions of the Standard Specifications for Water Main Installation, standard drawings and Approved Materials List, please contact the District Engineering Department at (510) 668-4499 or visit the District website at www.acwd.org.

The District may consider in-kind substitutions for any material listed below, provided the proposed substitution is acceptable to the District. However, Contractor's requests for substitution of material shall be submitted in writing to the District for District review. Please allow at least fourteen (14) days for District review of in-kind substitution requests. District approval must be granted prior to installation of the substitution material.

2. PVC Pipe, Couplings, Fittings, etc.

PVC Pipe C900 with Integral Bell (Reference F.2.1.1)

DR 14 and DR 18 AWWA C900 PVC Pipe

Manufacturer: Vinyltech
Diamond
Westlake (formerly North American Pipe Corporation)

PVC Pipe C900 with Restrained Joint and Integral Bell (RJIB) (Reference F.2.1.1)

DR 14 AWWA C900 PVC Pipe

Manufacturer: Westlake AquaSpring C900 Certa-Lok

PVC Pipe Couplings

<u>Manufacturer / Model</u>	<u>Sizes</u>	<u>Minimum Dimension Ratio</u>
Deflection Coupling Westlake High Deflection “HD” Stop Coupling	6 – 12-inch	DR 14
Pipeline Couplings (with stop) and Repair Couplings (without stop)		
Westlake (with or without stop)	6 – 12-inch	DR 14
Closure/Repair Coupling (without stop)		
IPEX / Multi Fittings Coupling (with stop)	6 – 12-inch	DR 18
IPEX / Multi Fittings Repair Coupling (without stop)	6 – 12-inch	DR 18
Restrained Joint (RJ) Coupling		
Westlake AquaConnect C900 Certa-Lok	6 – 12-inch	DR 14

Push-On by Flange or Flange by Flange Fittings for AWWA C900 PVC Pipe (Reference F.2.1, AWWA C153, AWWA C110)

Ductile Iron Tees, Crosses, and Reducers

Manufacturer: SIGMA Corporation
 Star Pipe Products, Inc.
 Tyler Union Waterworks
 U.S. Pipe and Foundry Co.
 SIP Industries

Push-On by Push-On Fittings for AWWA C900 PVC Pipe (Reference F.2.1, AWWA C153, AWWA C110)

Ductile Iron 11-1/4°, 22-1/2°, 45°, 90° Elbows

Manufacturer: SIGMA Corporation
 Star Pipe Products, Inc.
 Tyler Union Waterworks
 U.S. Pipe and Foundry Co.
 SIP Industries

Mechanical Joint by Flange or Mechanical Joint by Mechanical Joint Fittings for AWWA C900 PVC Pipe (Reference F.2.1, AWWA C153, AWWA C110)

Ductile Iron 11-1/4°, 22-1/2°, 45°, 90° Elbows, Tees, Crosses, and Reducers

Manufacturer: SIGMA Corporation
 Star Pipe Products, Inc.
 Tyler Union Waterworks
 U.S. Pipe and Foundry Co.
 SIP Industries

Mechanical Joint Restraints for AWWA C900 PVC Pipe and Mechanical Joint Fittings (Reference F.2.1, AWWA C110, AWWA C111)

Manufacturer: EBAA Iron, Inc., Megalug® Series 2000PV

3. Steel Pipe, Coating, Lining, Anodes, Insulating Flanges, etc.

Machine-Applied Spiral Wrap Tape Coating (Reference F.2.2.6.1, F.2.2.6.2, F.10.2)

<u>Manufacturer</u>	<u>Primer</u>	<u>Inner Wrap Thickness</u>		<u>Outer Wrap Thickness</u>	
		<u>No.</u>	<u>Mils</u>	<u>No.</u>	<u>Mils</u>
Polyken YG-III System	1019 or 1033A or 1039	989-20	20	955 or 956 -30	30

Field Repair of Tape Coatings (Reference F.2.2.6.1, F.2.2.6.2, F.10.2)

<u>Manufacturer</u>	<u>Primer</u>	<u>Tape (White)</u>	<u>Mils</u>
Polyguard	601	610 or CP50P	50 Min.
Polyken	1027 or 1033A or 1039	932-50 or 934-50	50 Min.

Outermost layer of tape wrap coating (machine-applied spiral wrap or field repair wrap) shall be colored white. Inner layer(s) of tape wrap may be black or white.

Special Coatings and Linings for Ferrous Metals

Mastic Coating (Reference F.10.3)

Type: Mastic coatings will be used where the application of a tape coating cannot be satisfactorily applied because of the surface configuration such as at fittings and valves. Mastic coating shall be black and installed to a thickness of not less than 50 mils.

Manufacturer: Carboline Bitumastic 50
 Hy-Tech Coatings Bituminous Mastic 50-HT
 Polyguard CA 9 Mastic

Fusion Bonded Epoxy (Reference F.2.2.7.2, F.10.4.2, F.10.4.2.4, NSF 61)

	<u>Alternate A System</u>	<u>Alternate B System</u>
Electrostatic application:	3M Scotchkote No. 134	Valspar (formerly Lilly) Pipeclad 1500 Red
Fluidized bed process:	3M Scotchkote No. 206N	Valspar (formerly Lilly) Pipeclad 1500 Red
Repair:	3M Scotchkote No. 323	Valspar Pipeclad Patch Compound

Catalyst Cured Epoxy (12 Mils. Min.) (Reference F.10.4.3, NSF 61)

Manufacturer: Devoe, Bar Rust 235, Ellis Paint Co., Engard, 460 HS

Cement Mortar Lining (See F.2.2.4 for required thickness) (Reference F.2.2.7.1, F.2.2.4, AWWA C205, NSF 61)

Manufacturer: Aquafin MORTAR-LN
 Aquafin MORTAR-IC

Magnesium Anodes (Reference F.11.3.1)

<u>Manufacturer / Distributor</u>	<u>Model / Type</u>
Calpico	High Potential
Far West Corrosion Control Co.	High Potential or AMAX MAXMAG
Harco or Corpro	High Potential Cast Magnesium Anode
Protection Engineering	Galvotec SuperMAG High Potential

Zinc Anodes (Reference F.11.3.2)

<u>Manufacturer / Distributor</u>	<u>Model / Type</u>
Calpico	High Purity Alloy, ASTM B418, Type II
Far West Corrosion Control Co.	High Purity Alloy, ASTM B418, Type II
Harco or Corpro	High Purity Alloy, ASTM B418, Type II
Protection Engineering	High Purity Alloy, ASTM B418, Type II

Exothermic Welding Requirements (Reference F.6.6.4)

<u>Manufacturer / Distributor</u>	<u>Model</u>
Erico Products, Inc., Calpico	Cadweld
Continental Industries	thermOweld

Type: Weld mold and weld metal as recommended by the manufacturer for use with ductile iron or gray iron and for the fitting diameter when used on ductile iron or gray iron fittings and appurtenances; weld mold and weld metal as recommended by the manufacturer for use with steel pipe and for the pipe diameter when used on steel pipe. Wire sleeves shall be used as required by manufacturer for given connecting wire size and weld mold.

Flange Insulation Kit (Flanges with nominal diameter smaller than 24-inches) (Reference F.3.10 and F.3.12)

- Manufacturer: Calpico or PSI
- ANSI Series 15 Type E
 - 1/8-inch full face, neoprene-faced cloth inserted phenolic insulating gasket
 - Spiral-wound Mylar insulating sleeves
 - 1/8-inch NEMA Grade G-10 fiberglass epoxy insulating washers

Flange Insulation Kit (Flanges with nominal size 24-inches and greater) (Reference F.3.10 and F.3.12)

- Manufacturer: PSI
- ANSI Series 15 Type E
 - 1/8-inch full face, neoprene-faced cloth inserted phenolic insulating gasket with integral O-rings
 - Spiral-wound Mylar insulating sleeves
 - 1/8-inch NEMA Grade G-10 fiberglass epoxy insulating washers

Installation of Water Mains Within Steel Encasement Pipe (Reference F.9.3, F.9.4 and F.11.2.3)

Pipe Insulators:

Manufacturer: Calpico, Model M-Series

Encasement Closure (End Seal)

Manufacturer: Calpico, Model C Pull-on Casing End Seal 1/8-inch thick with 2 stainless steel bands

Tracer Wire Splices (Reference F.3.13 and F.5.7)

Manufacturer: Burndy Servit Model KS-15 or 3M Company Scotchlok Connector B or Connector G screw type connectors, with encapsulating 3M Company Model Scotchcast 3570G connector sealing packs; or 3M Company DBR Direct Bury Splice Kit, Part No. 054007-09964

Gaskets (Reference F.3.10)

Type: All gaskets shall be full faced type. Gaskets used for nominal pipeline diameters 14-inches and smaller shall be 1/8-inch thick. Gaskets used for nominal pipeline diameters 16-inches and larger shall be 1/4-inch thick. Only one gasket shall be used per flanged joint.

Gaskets shall be made from EPDM rubber only. Gaskets shall be NSF 61 for use with potable water systems.

<u>Manufacturer/ Distributor</u>	<u>Model</u>
American	Toruseal
Garlock	Style 98206
U.S. Pipe	Flange-Tyte II

4. Valves and Appurtenances

Resilient-Seated Gate Valves (Reference F.3.1, AWWA C509)

	Flanged	C900 Push-On (PO)		C900 Mechanical Joint (MJ)	2-Inch Only NPT
<u>Manufacturer</u>	<u>Flange by Flange</u>	<u>PO by PO</u>	<u>PO by Flange</u>	<u>MJ by Flange</u>	<u>Threaded Ends</u>
American AVK	45/FFN	45/PPN	45/PFN	45/MFN	03-063-TTN
Clow	F-6102	F-6112	F-6113	F-6106	F-6103
Kennedy Ken-Seal	8561AN	8901	8902	8572	8057
M & H	4067-02	4067-22	4067-23	4067-13	4067-07
Mueller	A-2362-6	A-2362-38	A-2362-41	A-2362-16	A-2362-8

Butterfly Valves (Flange by Flange) (Reference F.3.2)

<u>Manufacturer</u>	<u>Model Name/No.</u>	<u>Working Pressure Class</u>	<u>Sizes [inches]</u>
Clow, M&H, and Dresser	450	200	4 – 12
	1450	150	30 – 42
	4500	150	14 – 24
Mueller-Linseal III	#B-3211-6	150B	12 – 48
Pratt	Groundhog	150B	4 – 20
	Triton XR-70	150B	24 – 48
Val-Matic	---	150	4 – 72
	---	250	4 – 48

Valve Boxes (Reference F.3.5 and F.11.5)

Manufacturer: Christy, Model Style G5 (Box No. G05TBOX with Cast Iron Lid No. G05C)
Bes, Model Style G5

Air Valves (Reference F.3.7.1)

<u>Manufacturer</u>	<u>Model No.</u>	<u>Size</u>
APCO-Combination	143-C	1-inch
Air Release Valves	145-C	2-inch
Crispin	UL10	1-inch Screwed
Universal Air Valves	UL20	2-inch Screwed
	UL21	2-inch 125# Flanged
	UL22	2-inch 250# Flanged
	UL40	4-inch Screwed
	UL41	4-inch 125# Flanged
	UL42	4-inch 250# Flanged
Val-Matic	201C	1-inch
Combination Air	202C	2-inch
Valves	204C	4-inch

Air Valve Meter Boxes (Reference F.3.7.1)

<u>Manufacturer</u>	<u>Air Valve Size</u> <u>[inches]</u>	<u>Meter</u> <u>Box</u> <u>Model No.</u>	<u>Inside Dimensions</u> <u>[inches]</u>	<u>Box Extension</u> <u>Model No.</u>	<u>Lid Model</u> <u>No.</u>
Christy	1	B24	18-3/4 by 20-1/4	B24 x 12	B24D
	2	B36	17-1/4 by 30	B36 x 12	B36D

5. Fire Hydrants (Wet Barrel)

Fire Hydrants (Reference F.3.3.1)

Two 2-1/2 inch and one 4-1/2 inch NST outlets with 1-inch or 1-1/8-inch pent-nut, point to flat

<u>Manufacturer</u>	<u>Model / No.</u>	<u>Cities</u>
Clow (800 Series)	860	FNUC
Clow (900 Series)	960	FNUC
Jones	J-3760	FNUC
Jones	J-4060	FNUC

Fire Hydrant Break-Off Check Valve

<u>Manufacturer</u>	<u>Model / No.</u>	<u>Cities</u>
Clow	LBIW #400a	FNUC

Where F = City of Fremont
N = City of Newark
UC = City of Union City

Fire Hydrant Paint Color (Reference F.3.3.2)

<u>Manufacturer</u>	<u>Paint Color</u>
Rustoleum	Commercial CV740 System DTM Alkyd Enamel Gloss “Safety Yellow”
Sherwin Williams	Pro Industrial DTM Acrylic Gloss “Safety Yellow”

Fire Hydrant Burys (C900 Push-On, Mechanical Joint) (Reference F.3.3.2)

Manufacturer: Clow
Westlake
South Bay Foundry

6. Service Lines, Brass Fittings, Meter Boxes, etc.

Plastic Tubing (Reference F.2.3)

Polyethylene, 1-1/2 inch and 2 inch, 200 psi, SDR-9, PE 4710 classification number, Copper Tube Size (CTS), NSF 61 Certified

Compression fittings with stainless steel inserts required

<u>Manufacturer</u>	<u>Model</u>
Advanced Drainage Systems (ADS)	ADS PolyFlex CTS PE4710
Centennial Plastics	CenFlo HDPE 4710
Interstate Plastic Performance Pipe	HD PE4710
	Driscoplex 5100 Ultra-Line (PE 4710)

Corporation Stops, Curb Stops, Angle Meter Stops and Miscellaneous Brass Fittings
(Reference F.3.8.)

Corporation stops, curb stops, angle meter stops and miscellaneous brass fittings shall be made of copper alloy (brass) conforming to AWWA C800, except that only brass materials with CDA No. C89520 or CDA No. C89833 (“non-leaded”) will be allowed and as otherwise modified herein. Written District approval will be required before any substitutions may be used.

Manufacturer:	A.Y. McDonald
	Cambridge Brass
	Ford
	Jones
	Mueller

C900 Service Saddles (Reference F.3.6.1)

1-inch, 1-1/2-inch and 2-inch tap sizes, all brass / bronze

<u>Manufacturer</u>	<u>Model No.</u>
A.Y. McDonald	3806
Ford	S91 or S912
Jones	J-996
Mueller	H-13491 for 6” Main
	H-13492 for 8” Main
	H-13494 for 12” Main

Water Meter Boxes (Reference F.7.9)

<u>Manufacturer</u>		Oldcastle/ Christy Concrete	Nicor, Inc.
<u>Water Meter Sizes [inches]</u>	<u>Nom. Inside Dimension of Box [inches]</u>	<u>Box Model No.</u>	<u>Lid Model No.</u>
3/4 and 1	12 by 22	B16	B16NLGRYWATthOLTE
1-1/2 and 2	13 by 24	N30BOX	B30NLGRYWATthOLTE
1, 1-1/2 and 2	17 by 30	B36BOX	B36NLGRYWATthOLTE
Residential Fire Sprinkler Junction Box	10-1/2 by 17	B9	B9XNLGRYWATthOLTE

Top rim of boxes shall have etched polyethylene face. Lids shall be compatible with the Badger Orion AMI meter endpoint, including a 2” (minimum) thru hole and a 3” Badger endpoint recess. Lids shall be etched or embossed with “ACWD” or “WATER”.

Traffic Rated Water Meter Boxes

Armorcast traffic rated (20k) meter boxes for ¾ and 1 inch, and 1, 1-1/2 and 2 inch meter boxes shall be used on projects where District approval has been granted for meters set within garage aprons or at locations shown on the approved plans.

Lids shall be compatible with the Badger Orion AMI meter endpoint, including a 2” thru hole and a 3” Badger endpoint recess.

<u>Manufacturer:</u>		Armorcast Polymer Concrete (20k-rated)	
<u>Water Meter Sizes [inches]</u>	<u>Nom. Inside Dimension of Box [inches]</u>	<u>Box Model No.</u>	<u>Lid Model No.</u>
3/4 and 1	11 by 21	A6000492	A6000489T-H10
1, 1-1/2 and 2	17 by 30	A6001640PCX12	A6001947T-H10

Detector Check BoxesManufacturer:

<u>Detector Check Sizes [inches]</u>	<u>Nom. Inside Dimension of Box [inches]</u>	<u>Oldcastle/Christy Concrete Box Model No.</u>	<u>Nicor, Inc. Lid Model No.</u>
2	12 by 22	B36	B36NLGRYWATthOLTE

Top rim of boxes shall have etched polyethylene face. Lids shall be compatible with the Badger Orion AMI meter endpoint, including a 2” thru hole and a 3” Badger endpoint recess. Lids shall be etched or embossed with “ACWD” or “WATER”.

7. Backflow Assemblies

Reduced Pressure Principle Assembly (RP) manufacturer and model type shall be approved for use by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research List of Approved Backflow Prevention Assemblies and listed under “RP” or “Reduced Pressure” type.

Double Check Valve Assemblies (DC), Double Check Detector Assemblies (DCDA), and Reduced Pressure Principle Detector Assemblies (RPDA) are not acceptable.

For more information, visit <https://fccchr.usc.edu>

8. Flexible Couplings and/or Transition Couplings

Transition Couplings / Flexible Couplings (Reference Section F.3.12)

<u>Manufacturer</u>	<u>Model/No.</u>
APAC	Style 301/311
Dresser	Style 38
Dresser	#162
Hymax	Hymax 2 Wide-Range
Power Seal	Style 3501 (SS)
Power Seal	Style 3506 (3506-316, SS) Power Max
Romac	501, XR501