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Complete Solutions
Shurjoint HVAC Systems

SHURJOINT®

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HVAC Piping Systems

With today's tight project deadlines, increased costs and skilled labor shortage, Shurjoint grooved piping systems is your answer. We offer you a wide range of products designed for HVAC applications, with a product range from ½" to 104".

Why use grooved on your HVAC projects?

- Easy to install, less training required with faster installations.
- Safety First! Safer construction methods reduce and eliminate risks.
- No hot works required, limiting health, safety and fire risks.
- Time & Labor savings*, up to 60% faster when compared to traditional joining methods.
- Virtually maintenance free with proven long-life performance.
- Grooving equipment and tools are economical and readily available.
- Clean Installation results in reduced flushing & commissioning costs
- Grooved end valves reduce weight, installation time and costs.
- Controlled accommodation for thermal movement
- Flexible couplings can be used to accommodate angular deflection.
- Versatile Applications; Commercial, Industrial, Mining &Tunneling, Health, Education, Leisure, Process and Residential Applications
- Supports and complements modular construction and prefabrication methods.
- Well-suited to on-site installation methods
- Attractive and competitive material costs
- Robust supply chain
  - Comprehensive local stock.
  - Full technical design support
  - Pre-Grooved pipe available via local distribution
  - 2D and 3D modeling.
  - On-site training
  - Estimating and material take off service.

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Chilled water and heating Systems

Chilled Water

A full product offering for cooling applications, a complete solution.

Chilled Water	Central Chillers
Condenser Water	Ice Chiller Systems
Cooling Towers	Air handling units
Glycol systems	

Why Shurjoint Grooved Piping Solutions

- Easy to install, less training required, and faster installations.
- Safety First! Safer construction methods reduce and eliminate risks.
- Virtually maintenance free, proven long-life performance.
- Clean Installation results in reduced flushing & commissioning.
- Gaskets are designed for all HVAC applications as standard.
- Site support available, regular site visits, full training provided.
- Best in class with 10-year warranty.

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Shurjoint HVAC Valves

- Shurjoint offers a full line of valves and flow control components to meet the varied requirements for the HVAC systems.
- Shurjoint offers a variety of check valves, strainers, ball valves, butterfly valves, and suction diffusers.
- Model SJ-900 swing check valve, with a rated working pressure of 300 psi (20 bar), horizontal or vertical (upward flow only) position installation.
- Model 726 y-strainer, with low pressure drop, provides protection for pumps, meters and other pipeline components.
- Model SJ-500 ball valve for high pressure piping requirements.
- Model SJ-200 low profile butterfly valve features a fully rubber lined body, stainless steel (316) disc and tamper resistant locking device.
- Model 725G suction diffusers for space saving design, can be connected to grooved end pumps, or flanged end ones by using Shurjoint flange adaptors.

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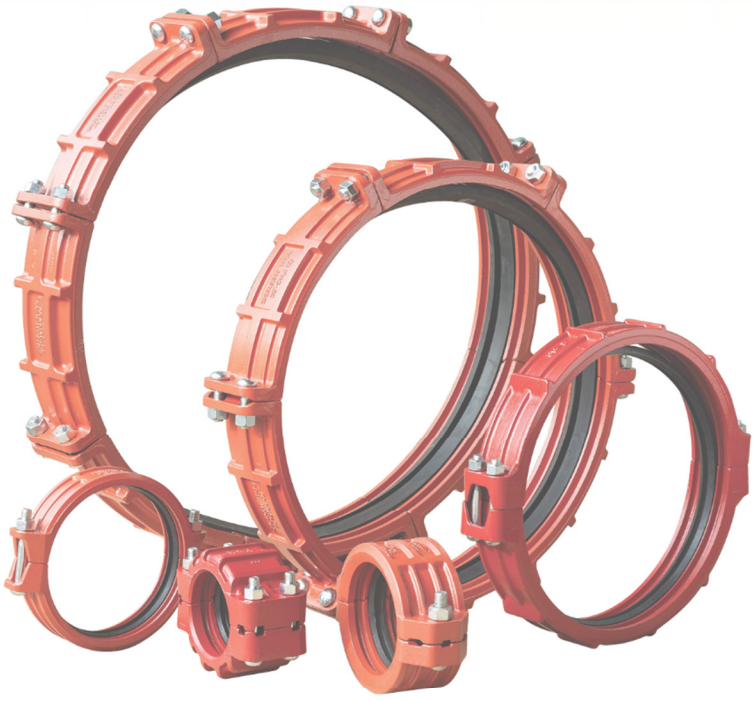
Full Product Range for Heating Applications

- A full product offering heating applications for complete solutions.
- Virtually maintenance free with proven long-life performance.
- Time & Labor savings, up to 60% faster when compared to traditional joining methods.
- Solar Power Passive or Active



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GASKET SELECTION GUIDE

Over the past 50 years great advances have been made in synthetic elastomer technologies, allowing us to offer a full range of gasket materials for a wide variety of piping applications. Shurjoint utilizes the finest materials available in our gaskets which are engineered and designed to meet and exceed industry standards such as ASTM D2000, AWWA C606, NSF61, IAPMO, etc. Our continual research, development and testing all serve to advance this field and to develop new and superior solutions for our changing industry. Selecting the proper gasket for the intended service application requires careful consideration of many factors to assure maximum gasket life. Those factors include temperature, fluid media and concentration, and continuity of service. The gaskets color coding helps to identify the gasket grade and compound.

Gasket Grade Index

Compound	Grade	Color Code	General Service Recommendations	Maximum Temp. Range
EPDM	**E**	Green Stripe	Suitable for cold & hot water up to +230°F (+110°C). It is also suitable for services for water with acid, water with chlorine, deionized water, seawater and wastewater, dilute acids, oil-free air, and many chemicals. Not recommended for petroleum oils, mineral oils, solvents, and aromatic hydrocarbons.	-30°F (-34°C) to +230°F (+110°C)
EPDM	**EHM**	Green and Red Stripes	Suitable for cold & hot water up to +250°F (+121°C). It is also suitable for services for water with acid, water with chlorine, deionized water, seawater and wastewater, dilute acids, oil-free air, and many chemicals. The Grade "EHM" gasket is only available on Shurjoint Quick Install Couplings. The compound is ANSI/NSF 61 certified. Not recommended for petroleum oils, mineral oils, solvents, and aromatic hydrocarbons.	-30°F (-34°C) to +250°F (+121°C)
Nitrile	**T**	Orange Stripe	Suitable for petroleum oils, mineral oils, vegetable oils, non-aromatic hydrocarbons, many acids and water ≤+150°F (+65°C).	-20°F (-29°C) to +180°F (+82°C)
EPDM	**E-pw**	Double Green Stripe	Specially compounded for cold +86°F (+30°C) and hot +180°F (+82°C) potable water services. The compound is UL classified per ANSI/NSF 61.	-30°F (-34°C) to +230°F (+110°C)
EPDM	**Lube-E (E-A)**	Green and Violet Stripe	UL approved pre-lubricated gasket designed specifically only for the fire protection industry.	Ambient
EPDM	**Lube-E2 (E2-A)**	Violet Stripe	UL/FM approved pre-lubricated quick install coupling gasket designed specifically for the fire protection industry.	Ambient
White Nitrile	**A**	White Gasket	Suitable for oily and greasy food products and processing, as well as pharmaceutical and cosmetics manufacturing. Compounded from FDA approved ingredients (CFR Title 21 Part 177.2600).	+20°F (-7°C) to +180°F (+82°C)
Silicone	**L**	Red Gasket	Suitable for dry, hot air without hydrocarbons and some high temperature chemical services.	-30°F (-34°C) to +350°F (+177°C)
Neoprene	**V**	Yellow Stripe	Suitable for hot lubricating oils and certain chemicals.	-30°F (-34°C) to +180°F (+82°C)

Fluoro-elastomer	O	Blue Stripe	Suitable many oxidizing acids, petroleum oils, halogenated hydrocarbons, lubricants, hydraulic fluids, organic liquids, and air with hydrocarbons to +300°F (+149°C).	+20°F (-7°C) to +300°F (+149°C)
Epichloro-hydrin	M2	White Stripe	Suitable for aromatic fuels at low temperatures and ambient water.	-40°F (-40°C) to +160°F (+71°C)

Special Gaskets for AWWA Ductile Iron Pipe

Compound	Grade	Color Code	Recommended Services	Maximum Temp. Range
Nitrile	S	Red Stripe	Specially compounded for use with AWWA ductile iron pipe and used for petroleum products, mineral oils, vegetable oils and air with oil vapors.	-20°F (-29°C) to +180°F (+82°C)
Halogenated Butyl	M	Brown Stripe	Suitable for water services, mild dilute acids, oil-free air, and many chemicals. The compound is UL classified per ANSI/NSF 61. (AWWA ductile iron pipe use)	-20°F (-29°C) to +200°F (+93°C)

NOTE: Service conditions, including service fluids, concentrations, combination of fluids, temperature exposure, constant temperature cycling, and incompatible fluids can reduce service life and performance. As such, gaskets are considered a wear part and should be replaced as service conditions demand.

WARNING!

EPDM gaskets for water services are not recommended for steam services. Shurjoint EHC silicone lubricant should not be used on Silicone Compound gaskets. Failure to select Compatibility of all elastomers in each system should be aligned with service conditions, temperature, and media. the proper gasket and compound may result in joint leakage or failure resulting in personal injury and/or property damage. Gaskets should never be exposed to temperatures outside their ratings. Recommended services do not necessarily imply compatibility. Suitability of gasket grade and coupling design must be verified by a competent person familiar with individual system designs and specifications.

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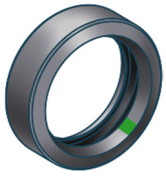
Rubber gasket compounds

The 20th century was the era of innovation in plastic and rubber materials. Among the new synthetic rubber compounds that most impacted our industry were EPDM (ethylene propylene diene monomer) and Nitrile rubbers.

EPDM



EPDM is recognized as the most water-resistant rubber available today. Suitable for cold & hot water up to 230°F (110°C), wastewater, water with acid, deionized water and seawater. EPDM is not recommended for use with petroleum-based oils and fuels, hydrocarbon solvents and aromatic hydrocarbons.

Shurjoint Grade "E" EPDM is compounded per ASTM D2000 designation 2CA615A25B24F17Z. Peroxide curing and post curing give a higher crosslink density, which provides a higher aging resistance than required in AWWA C606.

Basic requirements	AWWA C606 2CA615A25B24F17Z	Shurjoint standard
hardness, durometer A, point	65±7	60±5
tensile strength, psi, min.	1500 psi (10.34 MPa)	1500 psi (10.34 MPa)
elongation, %, min.	300%	300%
heat aging properties	**after aged at 212°F (100°C) for 70 hours**	**after aged at 257°F (125°C) for 70 hours**
change in durometer hardness, max.	+10 point	+5 point
change in tensile strength, max.	-25%	-10%
change in ultimate elongation, max.	-25%	-20%
compression set, method b, max.	25%	20%

Use Shurjoint Grade "E-pw" for potable water and food processing services. The Grade "E-pw" is UL classified per NSF/ ANSI 61 and NSF/ANSI 372 for cold +86°F (30°C) and hot +180°F (82°C) potable water services. EPDM seals are recommended for use in breweries as they have the least impact on the characteristics of beer or wort.

note: EPDM materials used in domestic water applications with high levels of chlorine and or chloramines should be subjected to resistance testing, as not all materials will be suitable. EPDM materials with higher saturated ethylene content and lower carbon black content are recommended for chloramine and chlorine resistance. Contact Shurjoint for further information.

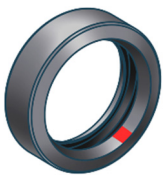
NBR, buna-n, and nitrile

All represent the same copolymer of butadiene and acrylonitrile (ACN), which is inherently resistant to hydraulic fluids, lubricating oils, transmission fluids and other non-polar petroleum-based products and water less than 150º F (65º C). The higher the ACN content, the higher the resistance to oils and heat, but the lower elastic characteristics and compression set. NBR displays poor resistance to hot water and steam.

Shurjoint grade "T" NBR rubber is compounded based on ASTM D2000 designation 5BG615A14B24Z and exceeds the requirements of AWWA C606. Grade "T" is a general-purpose compound with a medium ACN level. For fuels, especially those with a low aniline point, such as premium or unleaded gasoline, ASTM referenced fuels B & C and naphtha, use Shurjoint grade "M2" Epichloro-Hydrin or grade "O" Fluorocarbon.

Basic requirements	AWWA C606 G615A14B24Z	Shurjoint standard
hardness, durometer A, point	60±7	60±5
tensile strength, psi, min.	1500 psi (10.34 MPa)	1500 psi (10.34 MPa)
elongation, %, min.	300%	300%
when heat aged at 212°F (100°C) for 70 hours	-	-
change in durometer hardness, max.	+10 points	+5 points
change in tensile strength, max.	-25%	-20%
change in ultimate elongation, max.	-30%	-30%
compression set, method b, max.	25%	25%

Use Shurjoint Grade "A" white Nitrile gaskets for oily and greasy food products and processing, as well as pharmaceutical and cosmetics manufacturing. Grade "A" is compounded from FDA approved ingredients (CFR Title 21 Part 177.2600).

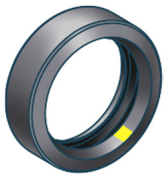


Use Shurjoint Grade "S" Nitrile gaskets for joints with AWWA ductile iron pipe. Suitable for mineral oils, vegetable oils, air with oil vapors and water less than 150°F (65°C).

silicone (VMQ)

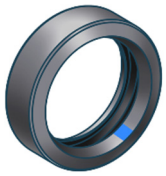
Shurjoint Grade "L" Silicone compound features high temperature range stability and low temperature flexibility. Recommended for dry heat and air without hydrocarbons up to 350ºF (177ºC). Silicone compounds are used in many food and medical applications as they do not impart odor or taste. Not recommended for hot water or steam services.

chloroprene (CR, neoprene)



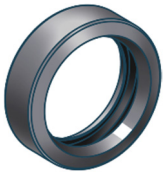
Shurjoint Grade "V" chloroprene rubber is a general-purpose elastomer that demonstrates good resistance to lubricating oils, animal & vegetable fats, and greases. Chloroprene is not effective in aromatic and oxygenated solvent environments and is not recommended for hot water and steam services.

fluorocarbon (FKM)



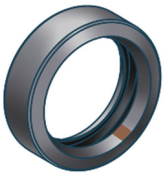
FKM is a highly fluorinated carbon backboned compound and offers excellent resistance to harsh chemical and ozone attack with a thermal stability to 300°F (149°C). Shurjoint Grade "O" fluorocarbon gasket is recommended for use with oils, gasoline, hydraulic fluids, hydrocarbon solvents and extended fuels that fall outside the service parameters of grade T / NBR compounds. Not recommended for steam services.

epichloro-hydrin (ECO)



Shurjoint Grade "M2" compound offers good to excellent resistance to aliphatic hydrocarbon and aromatic hydrocarbon fuels at low temperatures, LP gases & fuels, mineral oils, and many solvents. ECO offers limited resistance to many organic chemicals.

halogenated butyl (CIIR)



Shurjoint Grade "M" CIIR is specially compounded for use with AWWA ductile iron pipe for water services, mild dilute acids, oil-free air and many chemicals. The compound is UL classified for potable water use per NSF/ANSI 61 and NSF/ANSI 372.

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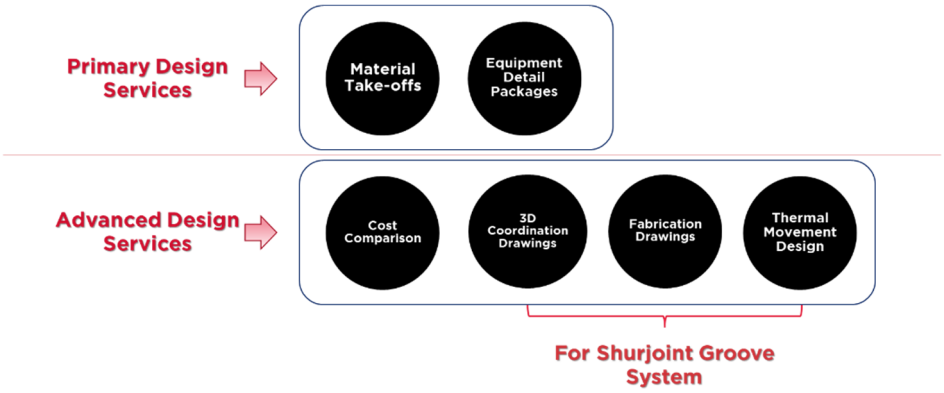
Shurjoint design solution for HVAC piping



design services

Shurjoint solutions are designed to help meet and exceed all your project deadlines and to provide engineered solutions and best practice methods.

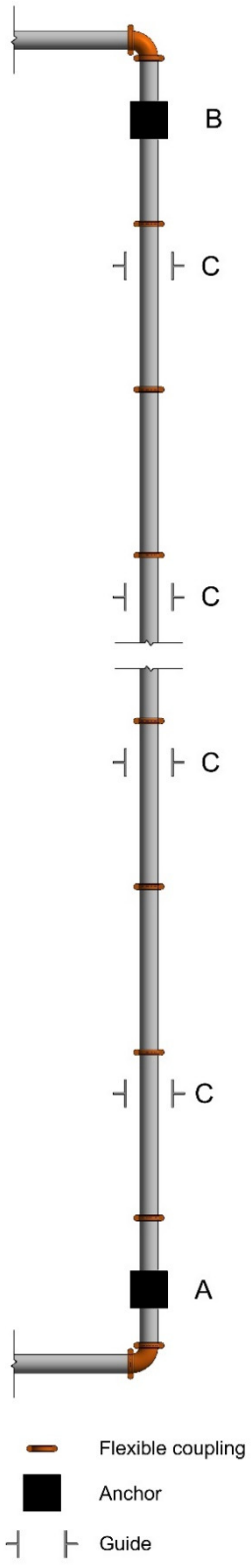
- 3D shop drawings for coordination & modeling
- Identify building interferences and trade conflicts
- Provide accurate fitting, valve, and piping accessory material lists / schedules to get an early start on material orders
- 3D layouts of MERs with fully tagged fabrication drawings
- Fitting and valve / accessory BOMs
- Piping spool lists
- Bag and tag material list (ensure product gets to the jobsite and is easily identified for installation).
- Realignment
- Provided angular deflection
- Provided expansion & contraction.
- Thermal movement calculations
- Thermal movement joint locations
- Anchor and guide locations
- Anchor load calculations
- Bending Leg / Arm Calculation
- Revit-plugin: Aalberts integrated piping systems has developed a free plug-in for Autodesk Revit with which users can easily and clearly select Revit families and load them into projects. In addition to a library function, the plugin contains a number of useful tools that simplify the modeling of piping systems within Autodesk Revit.

Thermal Movement Design

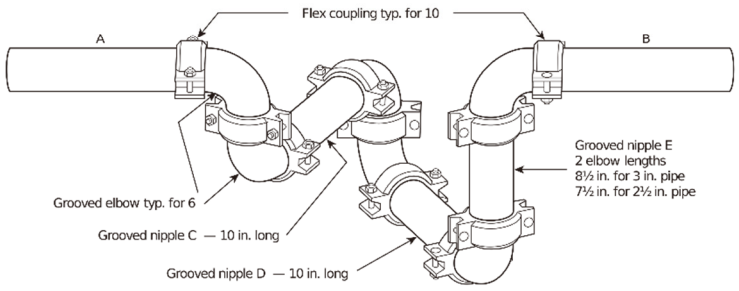
grooved riser installation

riser with branch connections

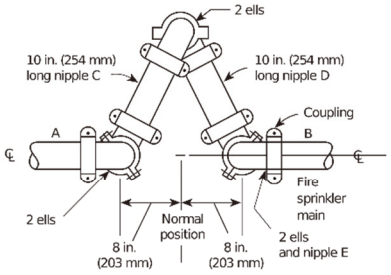
1. Install the riser with predetermined gap method.
    - Expansion: start installation from top of riser or use chain block to ensure pipe in fully gapped between flexible couple connections.
    - Contractions: art installation from bottom of riser to ensure pipe is installed fully butted between flexible coupling connections.
2. Anchor the pipe at or near the riser base “A”.
    - Anchor much be capable of supporting full pressure thrust, full water column, and weight of pipe between anchors.
3. Anchor at “B” with an anchor capable of handling pressure thrust and weight of pipe above.
4. Place guides “C” at every other floor as a minimum to prevent possible deflection of pipeline at coupling joints.



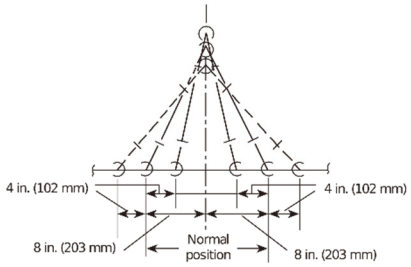
Seismic Separation Assembly



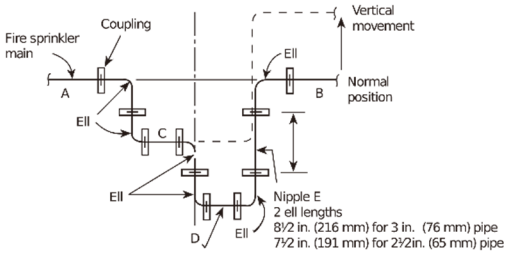
Actual View



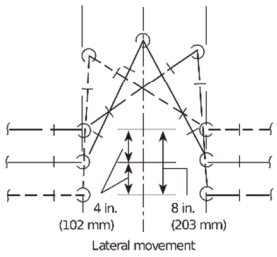
Plan



Longitudinal movement

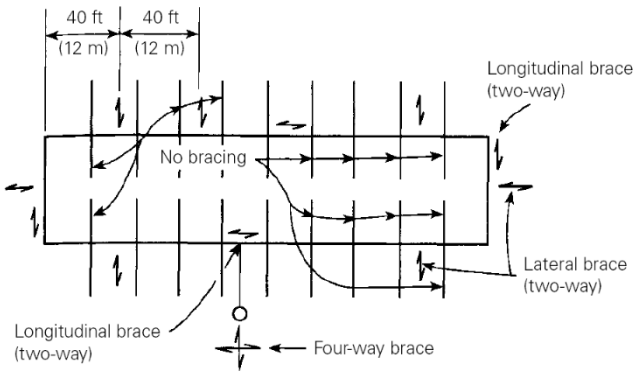


Elevation



Horizontal Views

Typical Location of Bracing on a Looped System



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Project References

Sharjah International Airport Expansion

Sharjah International Airport is located in Sharjah, United Arab Emirates. It is an important cargo airport and home base of the low-cost carrier Air Arabia. The expansion project started in Jan. 2005 and was completed in July 2006. When the expansion was completed, Sharjah International Airport became four times bigger than it originally was.

Shurjoint was specified for the HVAC system. Besides the fact that the product quality meets the high standard requirements of the contractor, the grooved system can be installed in small spaces, and all pipes can be grooved at the shops by experienced technicians instead of at job site. Also, the grooved design permits the system to be flexible, forgiving, and can handle the expansion or contraction of the pipe-line under extreme weather conditions.

Dubai Ski Dome (Glycol pipeline)

Dubai Ski Dome is located in Dubai, U.A.E., and it is the first indoor ski resort in the Middle East, offering an amazing snow setting to enjoy skiing, snowboarding or just playing in the snow.

Shurjoint Model SS-8 2.5” austenitic grade CF8M (316) stainless steel couplings were selected and specified in the glycol pipeline because of their cost, quality, durability and ease of maintenance. In addition, Shurjoint #SS-8 Couplings are UL listed and FM approved.

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Trump International Hotel & Tower (Vancouver, Canada)

This 69-story, 616 ft tall mixed-use building is the second tallest building in the city, ranked after the Shangri-La tower located across West Georgia St. The Trump Hotel occupies the first 15 floors with 238 residential condos.

Shurjoint products (up to 12") were used on Trump International Hotel & Tower's chilled, condensed, and heating water supply systems.

Children & Women's Hospital (Vancouver, Canada)

This project began on the new Teck Acute Care Centre, a $676 million project in 3 phases to build "an eight-story facility, approximately 640,000 sqft in size. Designed to LEED Gold standard, his facility includes medical and surgical inpatient units, an emergency department, medical imaging and procedural suites, a hematology/oncology department and a pediatric intensive care unit.

Shurjoint AWWA series products were used on this project's domestic water supply systems.

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Telus Sky Tower (Alberta, Canada)

This 750,000 sqft mixed-use tower incorporates office, retail, and residential space. By design there's 450,000 sqft of office space, of which 155,000 sqft is for Telus, a Canadian telecommunication company. Office and retail space achieve LEED Platinum while the 58 story, 341-unit residential space achieve LEED Gold.

Shurjoint products (up to 12") were used on Telus Sky Tower's chilled, condensed, domestic, and heating water supply systems.

Northside Hospital Cherokee (Georgia, USA)

This 440,000 square feet facility replaced the original facility. This 105-bed facility is twice the square footage of the original one and is part of the Northside Hospital Network.

Shurjoint grooved product was used on this facility's domestic water supply system.

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Eole Tunnel Project (Paris, France)

As part of the Grand Paris Express megaproject, this €3.8bn (£3.34bn) Eole RER urban railway project is large enough to compare with London's Crossrail in scope and complexity. Like Cross rail it features a tunneled central section connecting with existing, upgraded railway lines at either end to improve east-west connectivity and crucially link the main Paris business district to the city centre. When completed in 2024, it's expected to carry more than 620,000 passengers daily.

Shurjoint #R-88N Ring Joint couplings (450mm) pass the 50bar pressure surge requirement and are used for the slurry piping of TBM (tunnel boring machine).

Dept. of Justice Office Building (Victoria, Australia)

This under-development $49 million office building for the Victorian Government is located on the former International Motel site at 383 Nepean Road and will focus on delivering essential government services to Frankston and its neighboring communities. This 5,500 m^2 facility, inspired by the local Eastern Great Egret, will accommodate over 450 employees and is designed to achieve a 5 Star NABERS energy and water rating. The building will include high-end amenities like bicycle spaces, e-scooter parking, locker rooms, and showers.

Shurjoint grooved piping products are being used in both the plantroom and riser systems, ensuring efficient and reliable water distribution throughout the facility.

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88 Queensbridge Street (Melbourne, Australia)

88 Queensbridge Street is a 62-story residential tower featuring a distinctive three-dimensional diamond-patterned façade. The project represents New Sky Group's largest development in Melbourne and includes state-of-the-art design and construction techniques. Using real and raw materials and rewilding through endemic planting, the architecture and landscape characterize the natural environs that once occupied the land. Industrial era influences are evident through bronze details and steel-framed windows.

Shurjoint grooved piping products were utilized extensively in the plantroom and riser systems of this high-rise residential tower, ensuring reliable and efficient water distribution and HVAC systems throughout the building.

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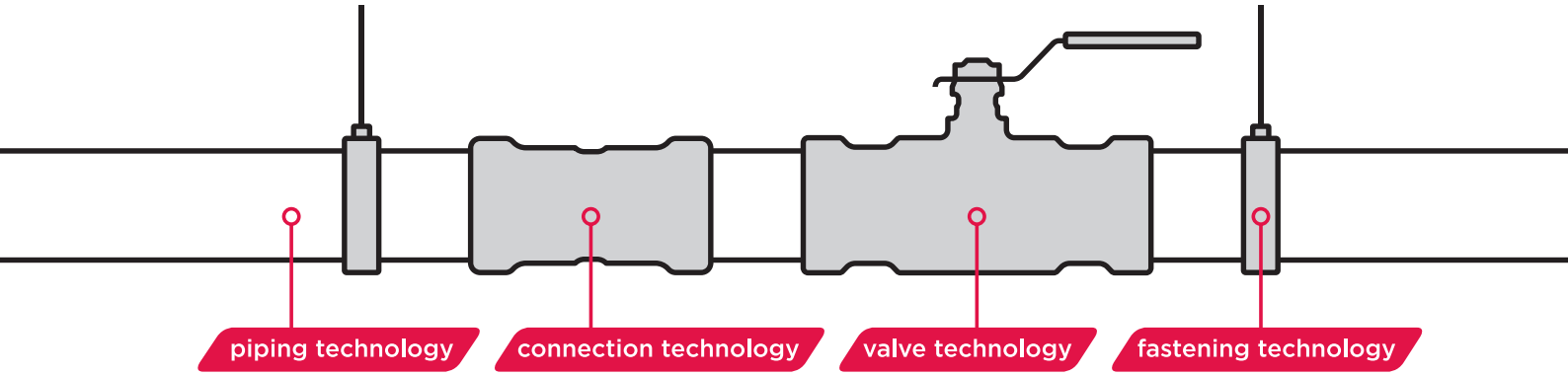

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