

# TANK CONNECTION

## EMPLOYEE OWNED

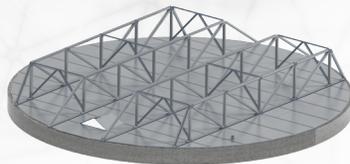
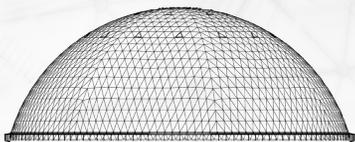
### ALUMINUM COVERS

Tank Connection is an international leader in the design, manufacturing, and installation of liquid and dry bulk storage products and covers. Quality, experience, innovation, and customer service are hallmarks of our company. As an employee owned organization, our goal each day is to provide the best storage tanks and services to our clients. As a result, Tank Connection has become the trusted name in storage around the world.

Tank Connection's growing line of premier aluminum tank covers take product protection to the next level. Tank Connection Covers feature enhanced design and manufacturing methods that provide increased flexibility and strength.

Tank Connection Covers' proprietary design components are the result of decades of experience that remove problematic installation issues commonly faced with other aluminum covers in the industry. Lighter overall aluminum covers are now possible without sacrificing strength. Advanced features offer superior vapor and product loss protection for geodesic domes; and easier access and higher field performance in aluminum flat covers.

Tank Connection Covers' product lines include APEX Domes and APEX Flat Covers which represent the peak performing product covers available. Combined with Golden Rule customer service, Tank Connection continues to raise the gold standard in storage, and exceed client expectations.



<b>PROPRIETARY DESIGN</b>	<b>SUPERIOR QUALITY</b>	<b>PRECISION FABRICATION</b>	<b>GOLDEN RULE CUSTOMER SERVICE</b>
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### AVAILABLE DESIGN CODES

- API 650 App. G
- API 2000
- AWWA D108/ D103/D100
- NFPA 22
- NFPA 30
- ASCE 7-05
- ADM 2005/ 2010/2015/2020
- IS875
- Canadian Build Code
- EuroCode



### APEX DOMES ADVANTAGE

The APEX Domes geodesic cover is utilized for a wide variety of liquid and dry bulk markets. The specialized design of an APEX Dome is the result of experience, ingenuity and a persistent drive for excellence. All the components of an APEX Dome are specifically engineered to achieve the highest performance possible. The end result is a premier dome design that maximizes strength and flexibility with enhanced protection against leaks, vapor loss, or product loss.

Tank Connection's focus on product quality and industry knowledge translates to a reliable dome cover with an extended service life. Our engineers utilize the latest 3D modeling and Finite Element Analysis in our proprietary design software.

Structural components are cut and drilled using only precision CNC machinery to ensure an exact fit in the field. This equates to quick dome installation, leak-proof design, and reduced costs.

- |                                                                                                                     |                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
|  EXACT MANUFACTURING TOLERANCES    |  ENHANCED VAPOR LOSS PROTECTION       |
|  ALL-ALUMINUM CONSTRUCTION        |  INCREASED LOAD STRENGTH             |
|  PRECISION ENGINEERING           |  CORROSION RESISTANT                |
|  STRONG SPACE FRAME DESIGN       |  WATERTIGHT DESIGN                  |
|  PRECISION FABRICATION           |  PROPRIETARY DESIGN COMPONENTS      |
|  LONG LIFE + LOW MAINTENANCE     |  FACTORY DIRECT INSTALLATION CREWS  |
|  DIAMETERS OVER 500 FT (152.4 M) |  PRECISION FIT + QUICK INSTALLATION |
|  OPTIMUM COST EFFICIENCY         |  CLEAR SPAN CONSTRUCTION            |

### TURNKEY SOLUTIONS

How do you top the #1 bolted storage tank selected worldwide? Put an APEX Domes cover on it. APEX Domes are often paired with our industry-leading bolted RTP (Rolled, Tapered Panel) tanks and share the same outstanding quality and stellar field performance.



### CUSTOMIZED DESIGNS

The engineers at Tank Connection can create a tank tailor made to your specifications. Whether it is a dormer and wall extensions for a clarifier cover, or conveyor integration for mineral stockpile storage, our experts will provide you with the best solution for your product needs.



## RETROFIT APPLICATIONS

Tank Connection designs and installs stand-alone aluminum geodesic domes for bolted steel tanks, welded steel tanks as well as concrete tanks. In many instances, an APEX Dome cover is specified to replace an existing roof that is failing or if the customer wishes to add a cover to an open top tank.

BOLTED TANKS | FIELD WELD TANKS | CONCRETE BASINS



## SPECIALIZED COATINGS

Optional coatings that meet AAMA, API and AWWA requirements are available. Advantages include color matching, UV resistance to chalking and fading, and glare reduction.

## EMISSIONS AND ROOF OPTIONS

Tank Connection designs and manufactures a variety of internal and external roof options to provide superior vapor suppression and meet strict environmental standards.

## INTERIOR INSULATION

To aid in temperature control, interior insulation is available at up to three inches in thickness. The insulation panels can be applied on the ground, during assembly or after the dome is completed.



- EXTERNAL FLOATING ROOF TANK
- INTERNAL FLOATING ROOF TANK
- DOMED EXTERNAL ROOF TANK
- SUSPENDED INTERNAL FLOATING ROOF
- INTERNAL FLOATING ROOF WITH DOME
- SUSPENDED INTERNAL FLOATING ROOF WITH DOME

## COMMON DESIGN OPTIONS

INTERNAL WALKWAYS | WALL EXTENSIONS | IFR & EFR DOMES  
VESTIBULES | SPECIALIZED COATING | INTERIOR INSULATION  
ARCHITECTURAL DESIGNS | AUXILIARY COMPONENTS | ROOF HATCH  
DOOR ACCESS | ROOF DORMERS | SKYLIGHTS | VENTILATION  
HANDRAILS | API COMPLIANT WALKWAYS



## SPECIALIZED ENGINEERING

Customized designs range from walkways and wall extensions, to complex integrations for additional equipment.

## INTERNAL FLOATING ROOF WITH DOME

- Lowers emissions
- No columns to maintain
- No paint to apply or maintain
- Capacity gain at top (No internal rafters)
- Faster installation
- Option of suspending IFR to dome



## EXTERNAL FLOATING ROOF WITH DOME

- Lowers emissions
- Increased EFR lifespan
- No paint to apply or maintain
- Eliminates weatherization from EFR
- UV protection from wear and fading
- Minimal time to decommission tank for dome installation

## AUXILIARY COMPONENTS

Various components ranging from maintenance rails and perimeter hand rails to ventilation and sky lights are available.



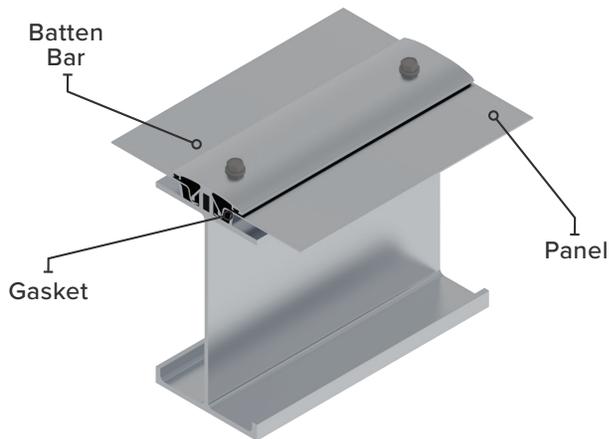
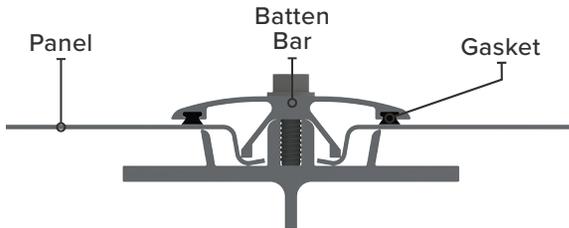
## BATTEN BAR SYSTEM

Our batten bar is designed as a positive sealing system, which compresses the gasket between the batten and the panel. In addition, the panel edge is designed such that when the batten bar is fully installed, the panel is compressed into the gasket.

The batten bar attachment center groove is designed so that fasteners can be installed and removed in the same position multiple times utilizing the tri-lobe style screw.

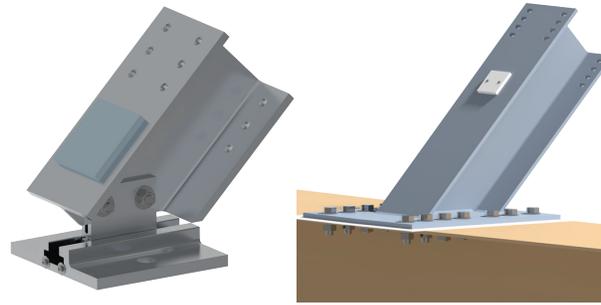
The unique strut design offers a stronger geometry with reduced weight for maximum design efficiency. The batten legs are also designed to prevent twisting when additional load weight is applied.

The batten bar system provides redundant protective features against leaking.



## PIER ATTACHMENTS

Tank Connection can supply either a sliding pier or fixed pier design. Our proprietary sliding pier design allows the dome components to relieve stress in both wind and downward loading conditions, such as snow or ice. Other dome manufacturers only design for downward loading conditions.

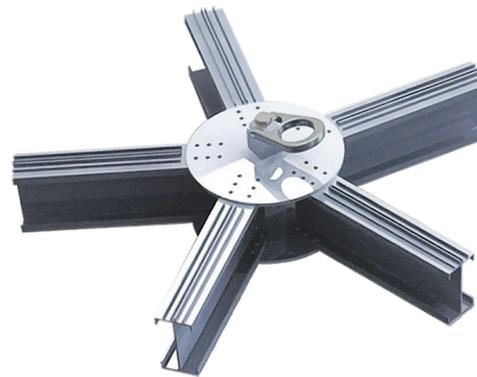


Sliding pier design

Fixed pier design

## CENTER SAFETY LINE SUPPORT

Safety is always a determining factor in our designs. Our 360 degree central tie off attachment is no exception. The center safety line support uses a hoist ring that is designed for 5,000 lbs. (2,268 Kg.) of lateral load for personnel safety.

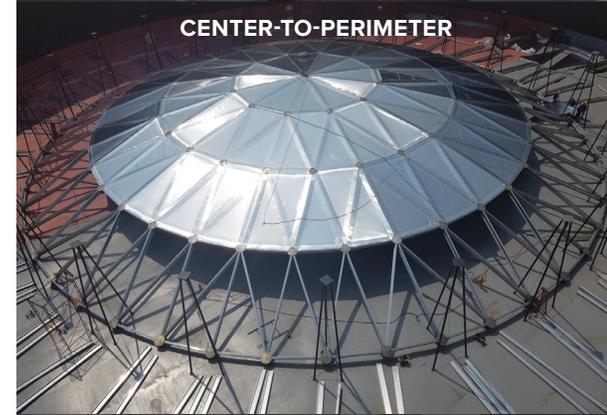


## FIELD INSTALLATION

Tank Connection can provide factory direct installation. The modular construction of geodesic domes allows for easy shipping and quick installation. Precision fabricated covers allow for exceptional ease of installation.



CRANE LIFTED



CENTER-TO-PERIMETER



PERIMETER-TO-CENTER

## BULK STORAGE COVERS

Tank Connection Covers' bulk storage covers alleviate environmental concerns by providing dust control and excellent protection against product loss. Optional custom designs for dry bulk handling and miscellaneous equipment loads are available. The strong, clear span design minimizes foundation loads and maximizes storage capacity. Common types of storage include mining and industrial use, such as clinker, limestone, coal, and fly ash storage.

-  EXACT MANUFACTURING TOLERANCES
-  PRODUCT LOSS PROTECTION
-  FACTORY DIRECT INSTALLATION CREWS
-  ALL-ALUMINUM CONSTRUCTION
-  INCREASED LOAD STRENGTH
-  PRECISION FIT + QUICK INSTALLATION
-  PRECISION ENGINEERING
-  CORROSION RESISTANT
-  CLEAR SPAN CONSTRUCTION
-  STRONG SPACE FRAME DESIGN
-  PROPRIETARY DESIGN COMPONENTS
-  PRECISION FABRICATION
-  DESIGNED FOR BULK HANDLING AND EQUIPMENT LOADS
-  LONG LIFE + LOW MAINTENANCE
-  DIAMETERS OVER 500 FT (152.4 M)
-  OPTIMUM COST EFFICIENCY
-  WATERTIGHT DESIGN



**BULK STORAGE COVERS  
THAT OUTPERFORM**



# APEX FLAT COVERS

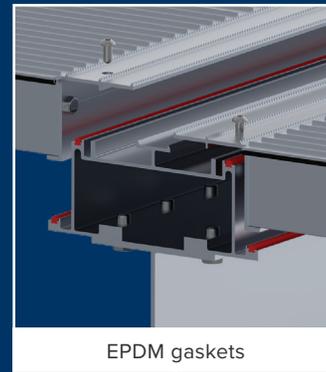
Tank Connection continues to spearhead new market innovations and the advancement of storage by introducing the next evolution of aluminum products. APEX Flat Covers represents the next step in the Tank Connection product line.

The Tank Connection Covers design team have developed a solution that remedies common issues with existing flat cover designs in the industry. Tank Connection's flat cover design team have accumulated decades of experience in design innovation for multiple, high profile, large scale, complex projects around the world. Paired with Tank Connection's gold standard of quality and customer service, our flat cover product is a world class solution to your project's requirements.

## APEX FLAT COVERS ADVANTAGE

-  **LOW DEFLECTION WALKING SURFACE**
-  **SLIP RESISTANT WALKING SURFACE**
-  **EASE OF ACCESSIBILITY FOR MAINTENANCE**
-  **OPTIMAL PANEL ATTACHMENT METHOD TO BASIN WALL**
-  **FREEDOM OF HINGED ACCESS LID PLACEMENT ON COVER**
-  **LIGHTWEIGHT ACCESS LIDS**
-  **UP TO 70" X 70" SINGLE HINGED ACCESS LIDS**
-  **UP TO 70" X 140" DOUBLE HINGED ACCESS LIDS**
-  **REDUCED AIR VOLUME THAT NEEDS TO BE SCRUBBED**
-  **REDUCED COST OF AIR SCRUBBING EQUIPMENT**
-  **EPDM GASKETS**
-  **ODOR REDUCTION**
-  **ALL ALUMINUM, CORROSION RESISTANT CONSTRUCTION**
-  **LIGHT WEIGHT + STRONG STRUCTURAL PANELS**
-  **REDUCED SHIPPING SPACE = LOWER SHIPPING COSTS**
-  **QUALITY DRIVEN STRUCTURAL ANALYSIS PROGRAMS**
-  **100% CNC PRECISION FABRICATED FLAT COVER COMPONENTS**

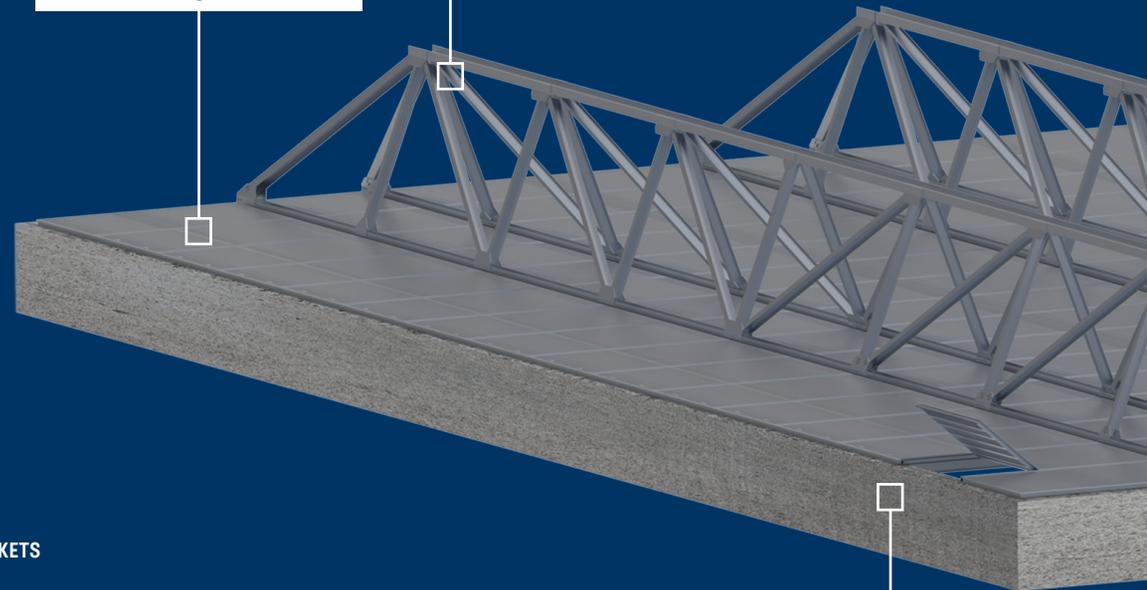
## TOP MOUNT COVER OPTION



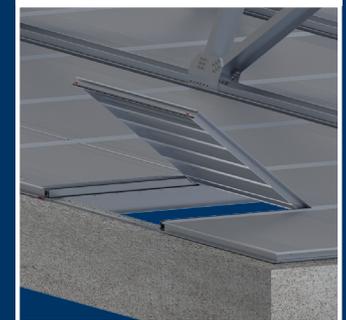
EPDM gaskets

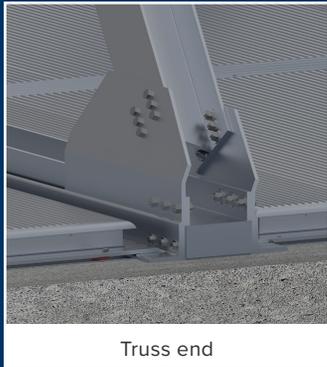
## STRUCTURAL SUPPORT SYSTEMS

- Panels alone can span up to 8 feet (2.4 meters).
- Beams can span up to 30 feet (9 meters).
- Parallel trusses can span up to 300 feet (91.4 meters). Parallel trusses will require cross bracing. Cross bracing is typically a minimum of 8 feet above walking surface.
- Tri-truss supports can span up to 300 feet (91.4 meters) with no cross bracing.



Single hinged access lid

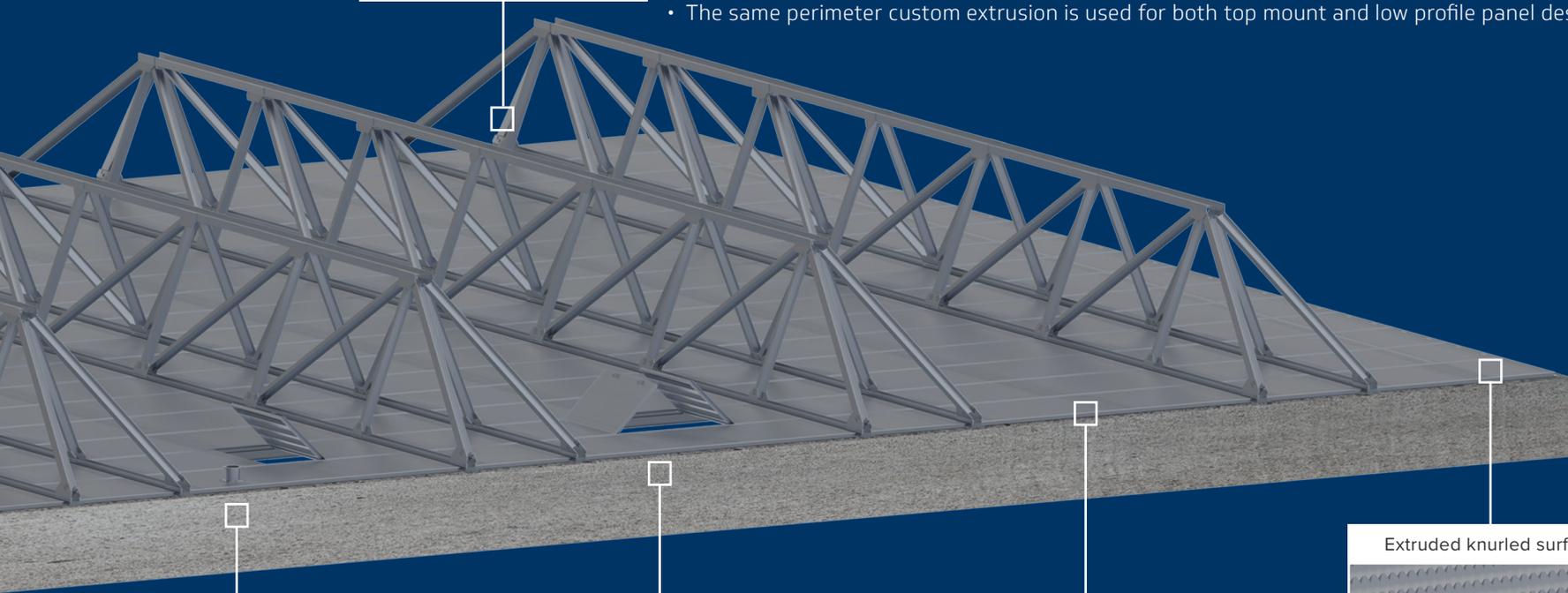




Truss end

### ATTACHMENT OF PANELS TO PERIMETER

- Custom perimeter extrusions are provided. Perimeter extrusions are permanently attached to concrete wall with concrete anchor bolts.
- Panels are attached to the perimeter extrusions with a simple latch system.
- Removal of concrete anchor bolts, washers, and nuts is not required to remove panels or open hinged lids.
- The custom design requires no "re-anchoring" of the panels after removal. This makes installation of the panels a non-event due to each system coming complete with a custom perimeter extrusion that allows for easy and flexible placement of the panel without the requirement for setting new anchors.
- The same perimeter custom extrusion is used for both top mount and low profile panel designs.



Nozzle attachment



Double hinged lid access



Perimeter wall connection



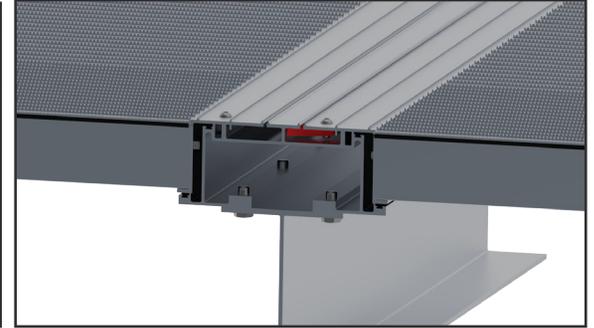
Extruded knurled surface

**INNOVATIVE DESIGN**

The innovative flat cover handle design allows for custom placement and orientation in the hinged access lids. This allows the handles to be placed extremely close to the edge of the access lids which improves the function of lifting and minimizes safety concerns. Other flat cover systems require the operators to reach several inches over the flat cover to open the access hatches.



Panel beam and gasket connection

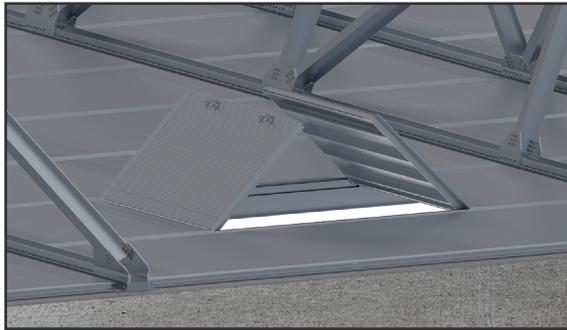


Panels attached to perimeter extrusion with latch

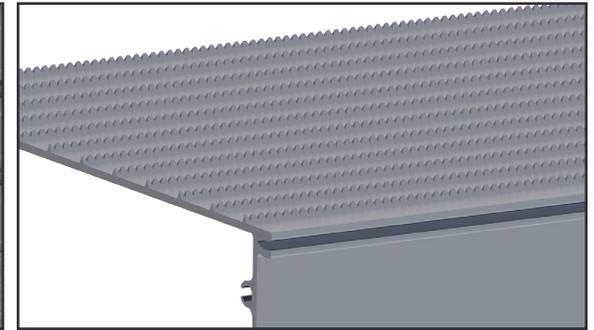
**PANELS**

An APEX Flat Cover panel utilizes highly efficient structural elements within the panel allowing for longer and wider panels while staying under the specified weight limit.

Our longer, wider, and lighter weight panels are designed to allow for the addition of a hinged access lid into any panel. This greatly increases the flexibility of the cover system to allow access to most product zone areas under the cover. Hinged access lids can be designed to be up to 70" wide. In comparison, other flat cover systems have a 27" opening width limit.



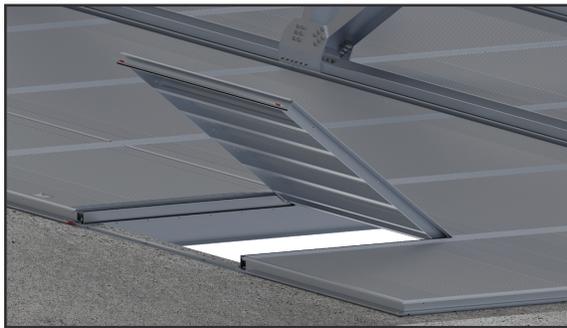
Double lid access anywhere



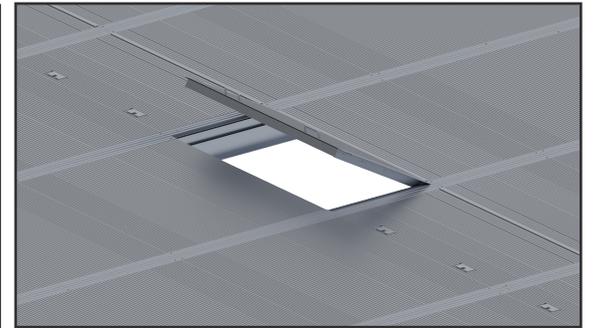
Extruded non-slip, knurled surface

The flat cover panels are designed with a small deflection, stiff walking surface with an integrated slip-resistant surface. This design results in a safe structure with more basin access and stability for the operator. The integrated slip-resistant walking surface provides a higher level of traction compared to competing products.

Our standard top mount panels sit 3" above the top of the basin while our low profile option has a walking surface ¾" above the top of the basin.



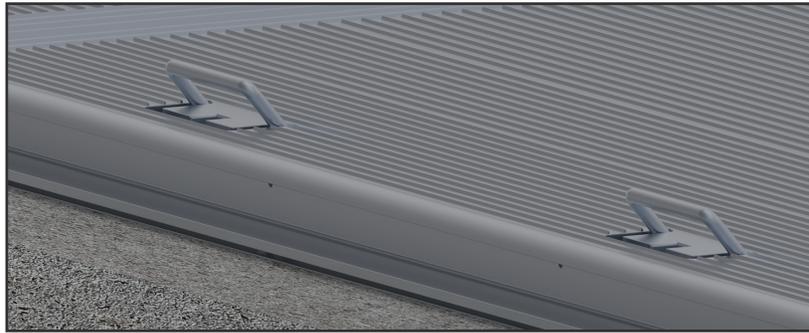
Hinged lid at perimeter



Hinged lid access in middle



Panels attaching at the wall

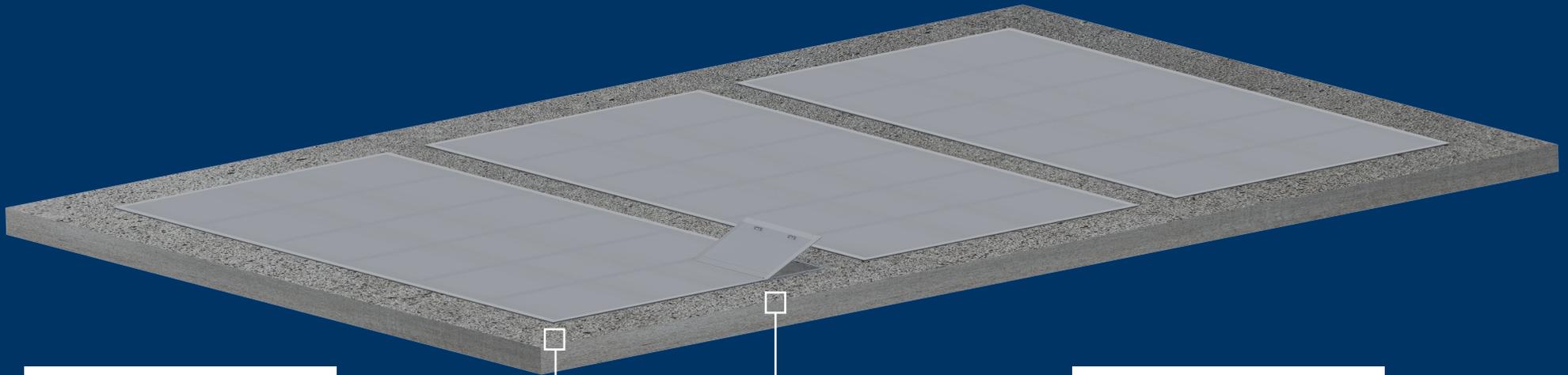


Panel handles in the open position

## EPDM SOLID GASKETS

EPDM provides excellent compatibility and resistance to H<sub>2</sub>S, a typical wastewater by-product. A solid gasket avoids compression set which is a common problem with sponge gaskets. The solid gasket also avoids the complexity of a bulb gasket maintaining its correct shape. The panels are gasketed on all sides increasing the air and water tightness of the cover system.

## LOW PROFILE COVER OPTION



Low profile panel at wall



Low profile lid

## GOLDEN RULE CUSTOMER SERVICE

Tank Connection provides services geared towards helping our clients realize success with their projects. Our Golden Rule customer service approach will meet and exceed client expectations throughout their project's life cycle. Contact our experts today for any of your storage tank or aluminum cover needs!

 <p><b>PROJECT MANAGEMENT</b></p>	 <p><b>MATERIAL TESTING + INSPECTION SERVICES</b></p>	 <p><b>CUSTOMIZED DESIGNS</b></p>	 <p><b>CONSULTING SERVICES</b></p>
 <p><b>IN-HOUSE ENGINEERING</b></p>	 <p><b>INSTALLATION SERVICES</b></p>	 <p><b>DOMES COMPONENTS + ACCESSORY SERVICE</b></p>	 <p><b>MAINTENANCE + REPAIR</b></p>



### CERTIFICATIONS

- ISO 9001:2015
- FM 4020
- NFPA 22
- ISPM 15
- NSF/ANSI/CAN 61

**REQUEST A QUOTE AND GET CONNECTED WITH REAL PERFORMANCE FROM THE INDUSTRY LEADER, TANK CONNECTION!**

 **TANK CONNECTION**  
EMPLOYEE OWNED

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STAY **CONNECTED**

