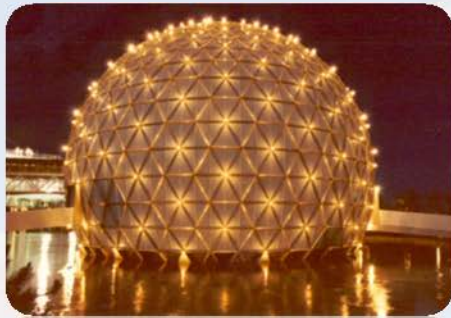




TRIODETIC®



MULTIPOINT  
FOUNDATIONS



# 60 + Years of Experience

The Triodetic system was invented and developed in Canada and has now worldwide applications.

Engineering office and fabrication plant are located at Arnprior, Ontario, Canadá.

- Architectural Applications
- Triodetic Multipoint Foundations
- Industrial Applications
- Others

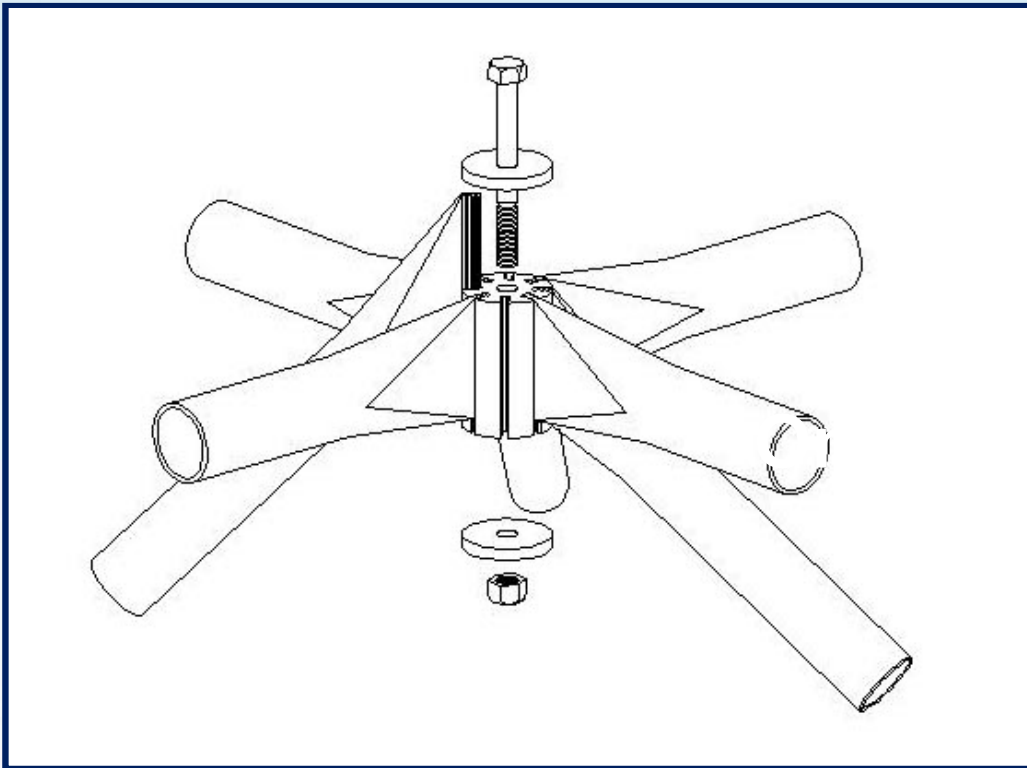


# Main topics / Industrial applications

- Triodetic typical node and size capabilities /material
- Visit some recent Triodetic domes
- Foundations and cladding options
- Installation comments and advantages
- Engineering process and timelines – Additional engineering Information provided
- Summary of advantages for Triodetic Domes
- Options and recommendations



## ■ Typical Joint and Size Capabilities / Materials



### Material used for Triodetic Domes

- Aluminum connector – Steel pipes – Galvanized cladding (painted)
- Aluminum connector – aluminum pipes – Aluminum cladding
- Stainless steel connector – SS pipes – SS cladding



Dome diameters from 25m to 140m



# Triodetic Structures and Experience

- Visit some recent Triodetic Domes

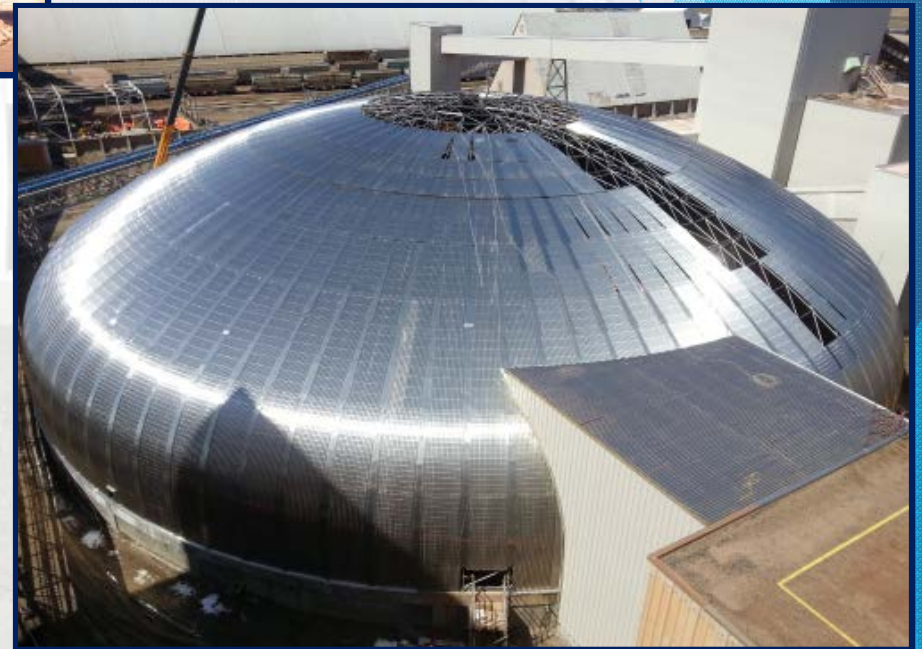


# TRIODETIC Recent Domes

Goldex Dome (Agnico Eagle)  
65 m Diameter (Val D 'or,



– Potash Mines Material (SS  
316L)  
74m diameter

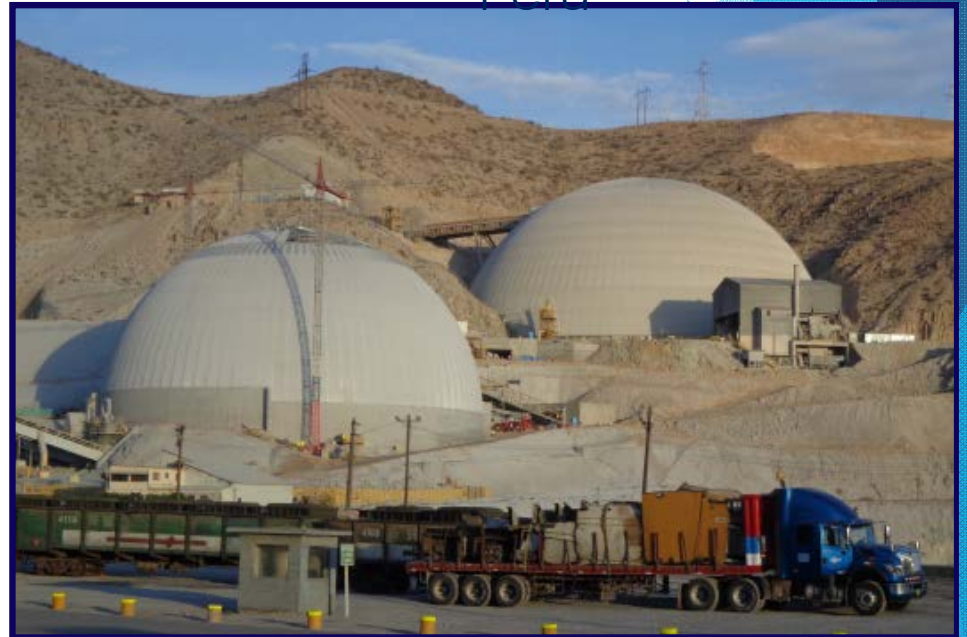


# TRIODETIC Recent Domes



Toquepala Mine (SPCC)  
2 Domes (115m Y 75m) Tacna,  
Peru

Meadowbank Mine, Agnico Eagle  
61m Diameter, Nunavut, Canadá



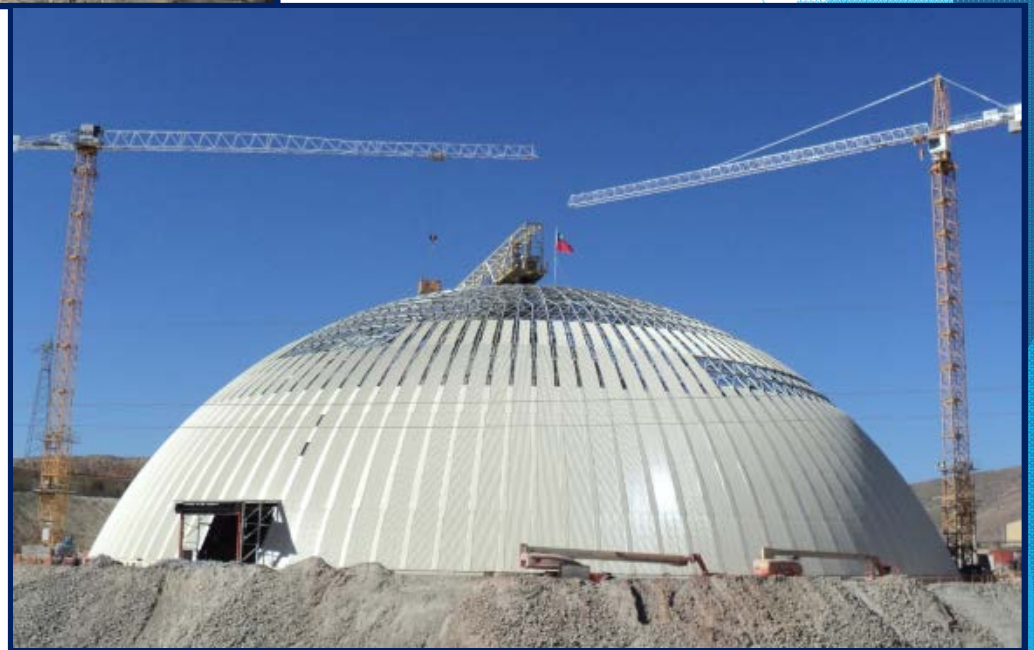


# Side Loaded vs. Top loaded



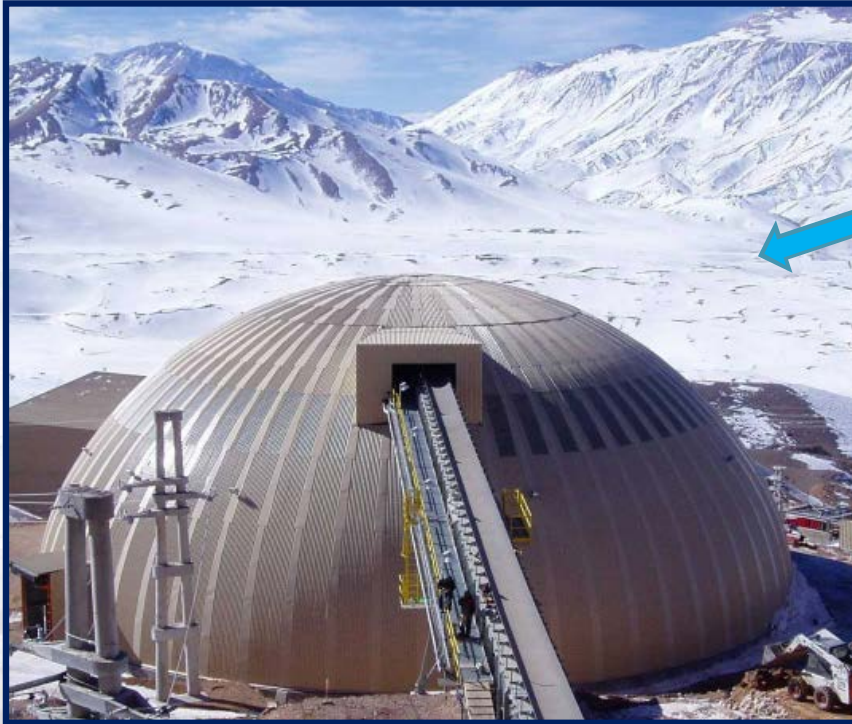
Andacollo Mine  
98m Diameter  
Top loaded Dome

Toquepala Mine  
115m Diameter  
Side loaded Dome





# Side Loaded vs. Top loaded



Veladero Mine (side loaded)  
55m Diameter Dome  
San Juan Province of Argentina

Highland Valley Copper mine B.C.  
3 Domes 105 m diameter  
(top loaded)  
(One of the biggest Canadian Flag)





# Side Loaded vs. Top loaded





# Side Loaded vs. Top loaded





# Triodetic Structures and Experience

- Foundations Options

# Triodetic Foundation Alternatives



Steel Column Supports

Perimeter Steel Tension Ring





# Triodetic Foundation Alternatives



All Dome Supported at Ring # 1  
Concrete Foundation Wall



Dome Supports Ring 1 to 11  
Concrete Foundation Wall



# Triodetic Foundation Alternatives



Dome directly supported on  
compacted berm.  
(No Concrete Foundation  
Required)





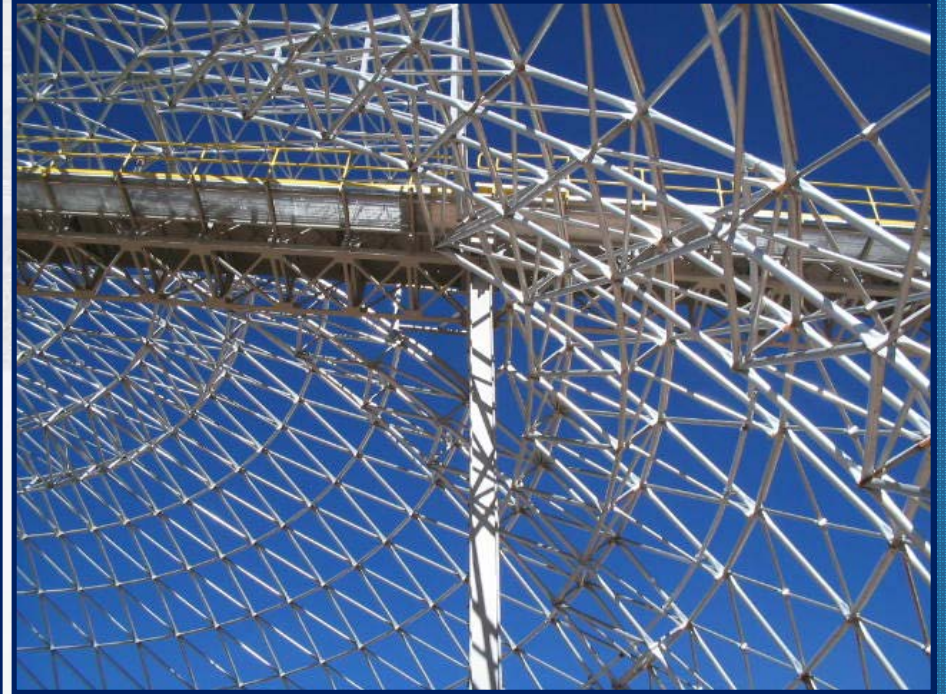
# Alternative Foundation Systems

(Tall foundation for material storage on Refineries and other applications)





# Dome Supporting Conveyor.



Veladero mine Argentina  
55m diameter Dome supporting conveyor gallery  
Barrick Gold



# Triodetic Dome Translucent panels (Natural light)

Standard 6% of total surface area is  
supplied of translucent panels.  
However; it can go up to 20%+ depending  
on project needs

20% of total  
surface area



# Triodetic Structures and Experience

- Installation comments and advantages

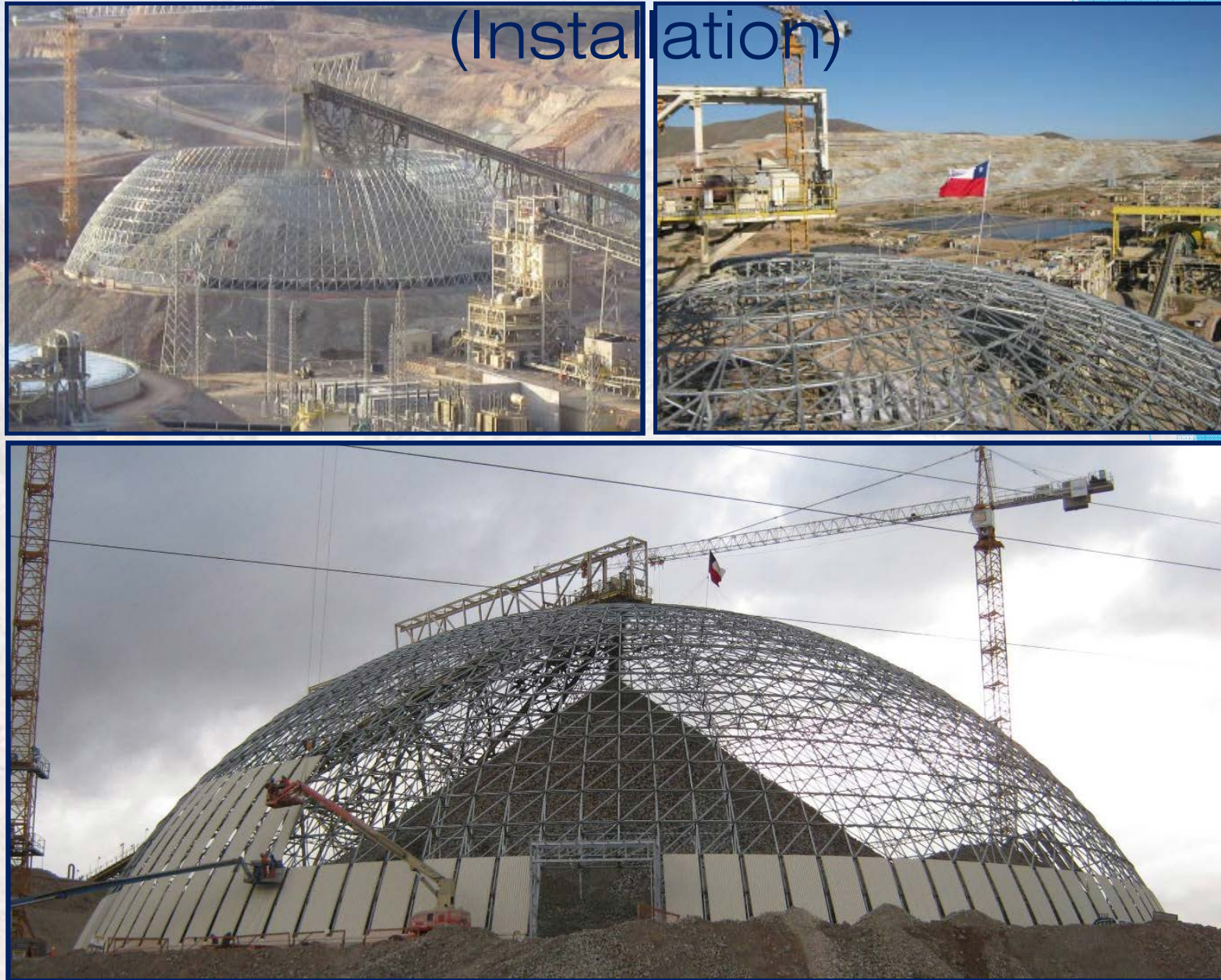


# Andacollo Dome 98m diameter (Installation Mine Operating)





# Andacollo Dome 98m diameter (Installation)





# Pre assembly capabilities 87m diameter

KIPIC Project Kuwait Refinery Sulfur Storage (Apex pre-assembled on the ground)





# Pre assembly capabilities

KIPIC Project Kuwait Refinery Sulfur Storage (Knitting Dome apex with rest of the structure)





# Pre assembly capabilities 87m diameter

KIPIC Project Kuwait Refinery (Knitting Dome apex with rest of the structure)





# Pre assembly capabilities Filter Plant 80m x 60m

(Spence Project – – Fluor Chile - Center section  
completed)





Pre assembly capabilities 80m x 60m  
(Spence Project – Fluor Chile – Center section completed)





# Pre assembly capabilities 80m x 60m





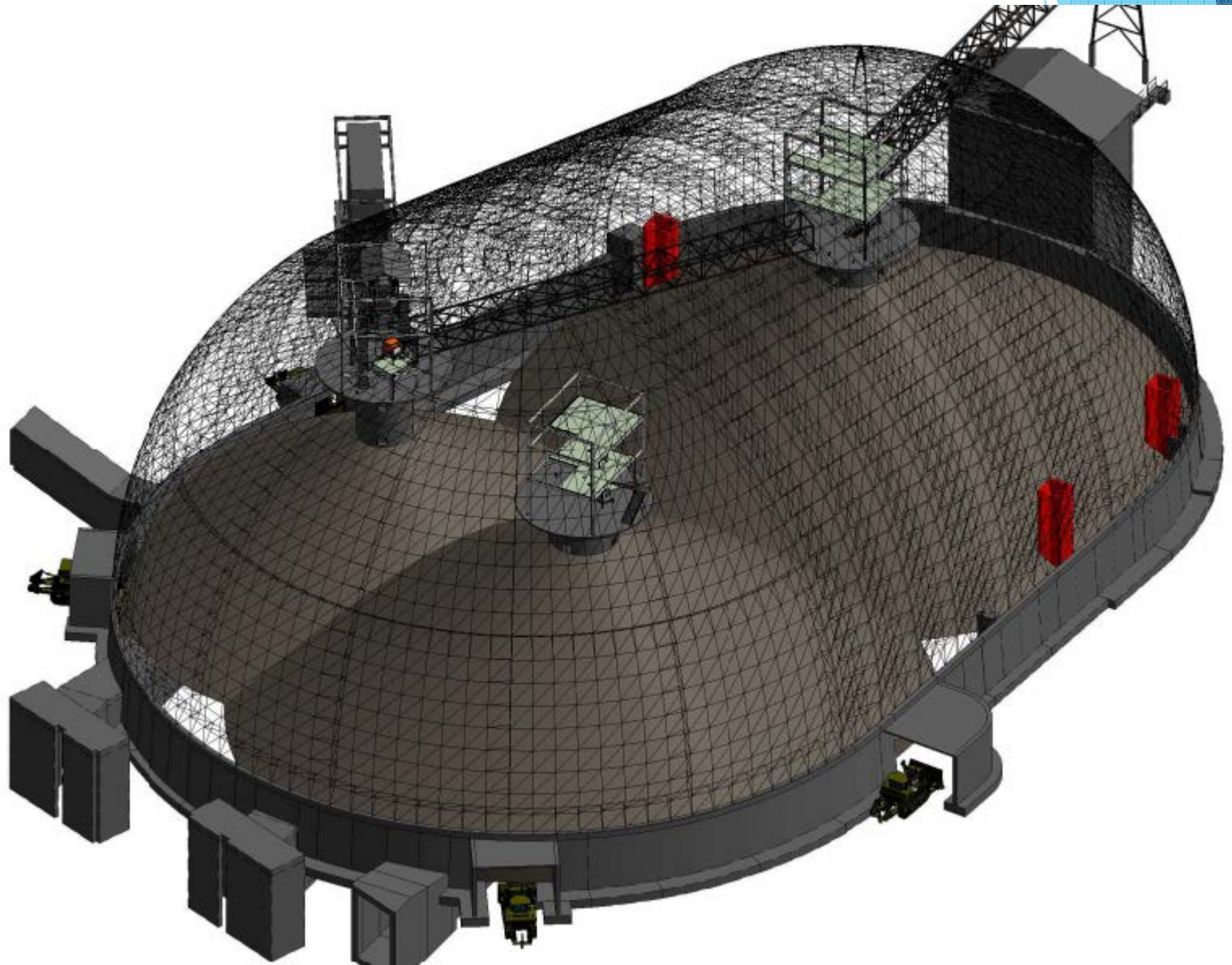
Pre assembly capabilities 80m x 60m  
(Spence Project – Fluor Chile – Filter Plant 100% completed)





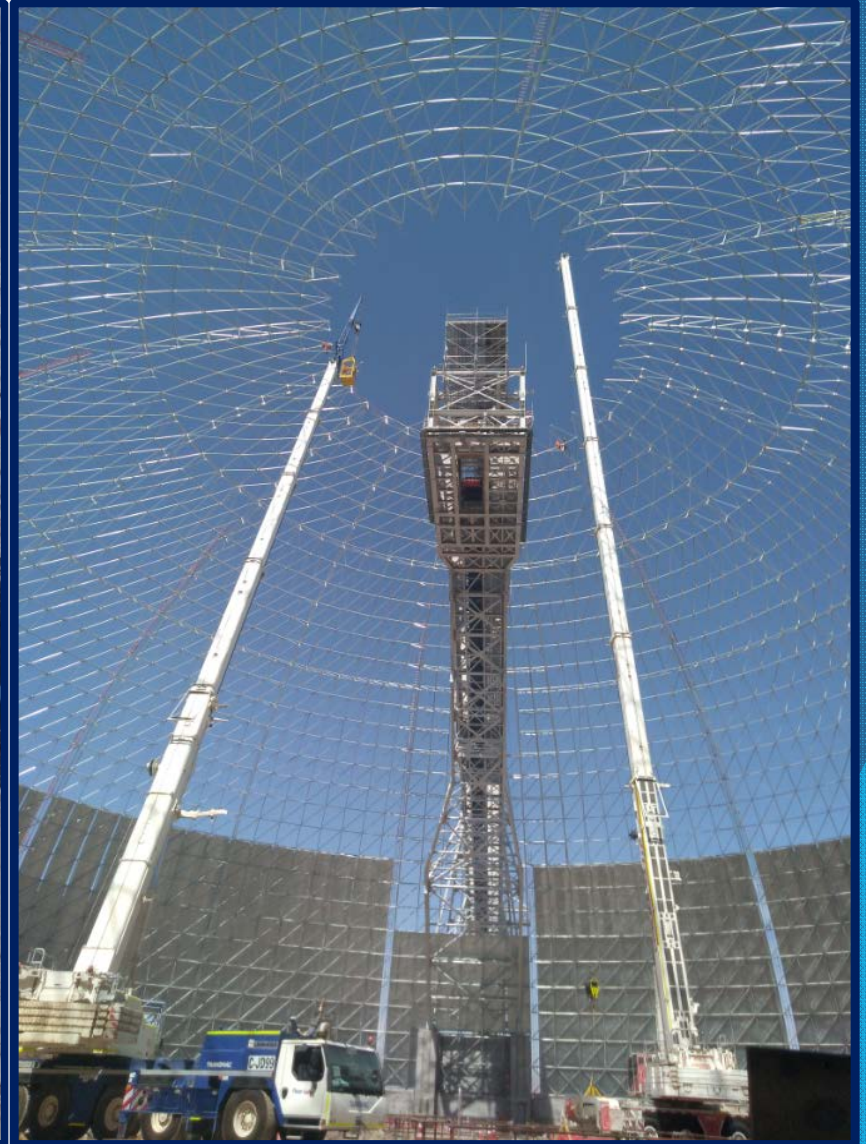
# Triodetic capabilities to adapt to existing plant layout

(Clinker storage - tapered barrel section and two different



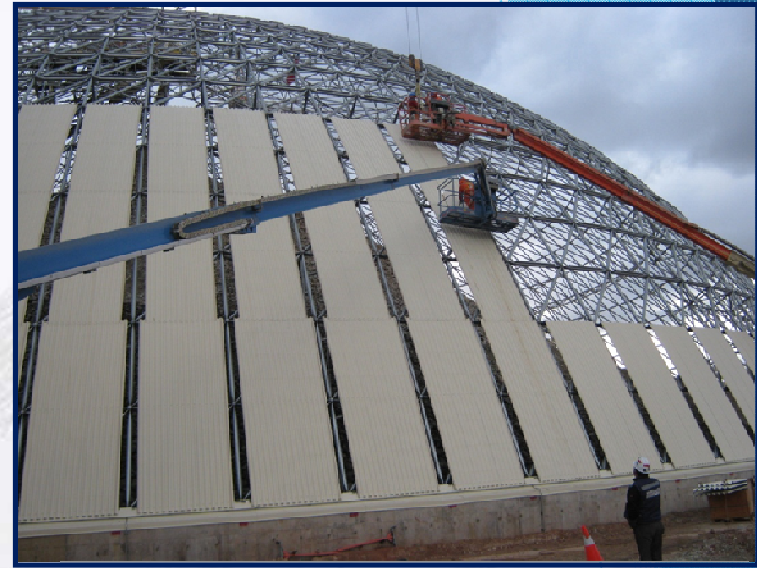
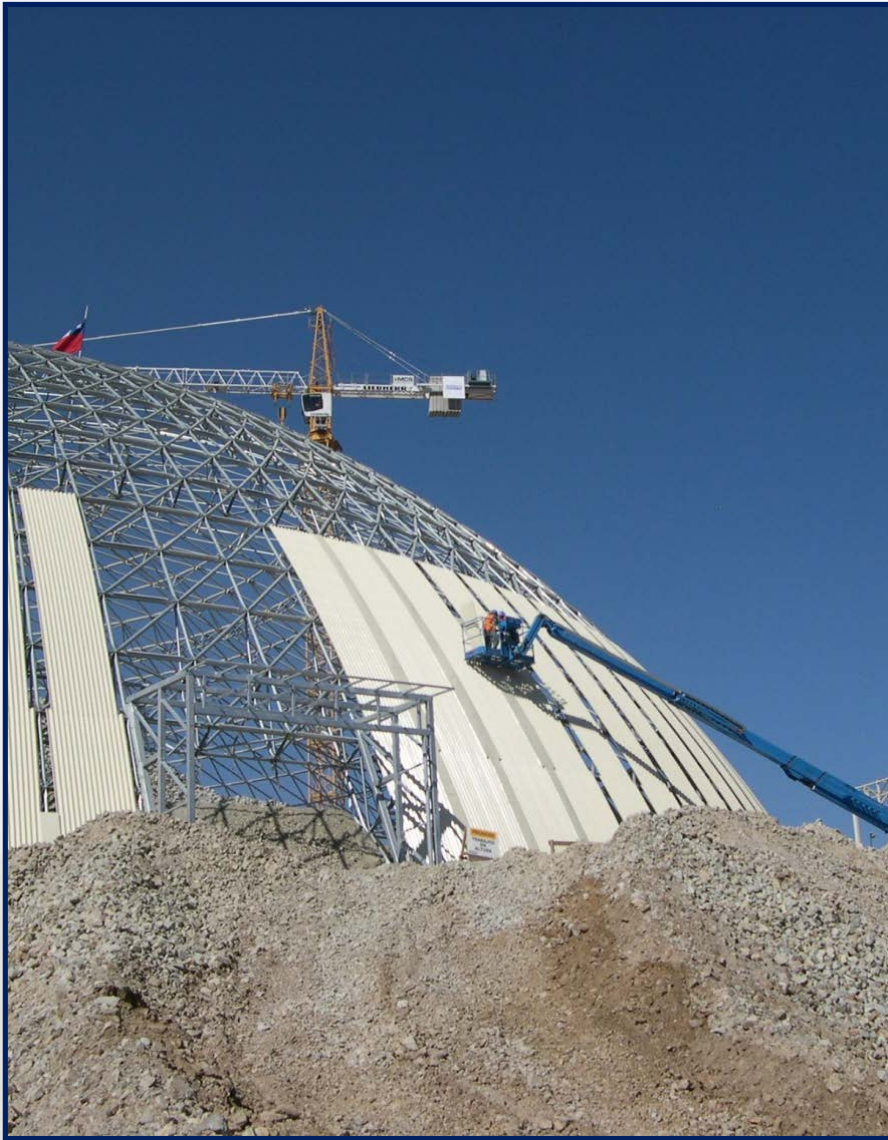


# Standard installation procedure hemispherical Dome 110.5m diameter (Spence Project – Fluor Chile – Stockpile Dome)





# Triodetic Cladding System (Installation)



Customized, prefab cladding system, becomes on high savings on labor and equipment, as well as shorter installation schedule



# Triodetic Structures and Experience

- Summary of Advantages



# TRIODETTIC DOMES (ADVANTAGES)



- Low complexity (simple joint)
- Installation performed while mine is operating
- Lighter structures / more economical Foundations
- Least components to be installed (1/2 – 2/3 vs competition)
- Easier to Installed (single layer)
- Customized and pre-fab cladding panels (no site work required)
- Shorter Installation Schedule
- Very low maintenance (negligible)

- Non or few reinforcing trusses, single layer of components
- Reinforcing around openings
- Easier to adapt to interferences
  - foundation pillars
  - door openings
  - conveyor penetration
- Superior material quality and overall superior quality on engineering and supply







A TRIODETIC DOME IS THE BEST CHOICE FOR YOUR PROJECT

