

***Session 5A***

***Technology Innovations That Improve Supply Chain Service Delivery:***

***Use of Composite and Steel Materials in Marine Structures***

By

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Dextra

## Vision

To be a global leader in engineering, manufacturing and delivery of high value-added quality product and services for the construction and the industry.

## Values

Customer recognition  
Integrity and transparency  
Passion for results  
Creativity and ability  
Commitment and accountability

- Established in 1983
- Leader in the production of engineered construction products
- First ASME-certified manufacturer in Southeast Asia



Ground Engineering Solutions → Composite Materials



Concrete Reinforcement Products → Precast



Engineered Bar Systems → Wall Anchoring



Dextra



1,000 collaborators worldwide



10,000+ projects successfully delivered



3 factories in 3 countries

# Over 80 Distributors • 12 Offices • 3 Factories



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# Manufacturing capabilities



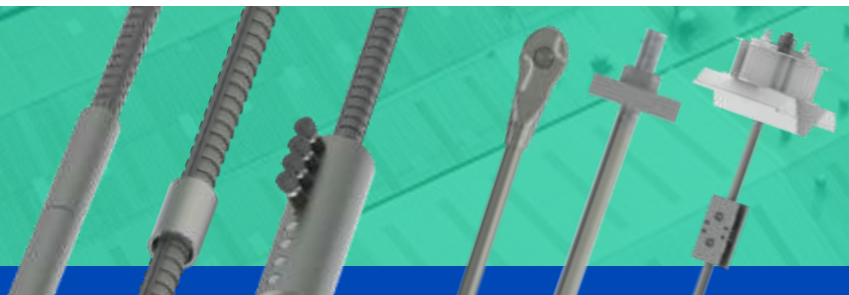
Bangkok, Thailand



Mumbai, India



Guangzhou, China



# Worldwide reference



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Buildings



Metros



Ports



Airports



Nuclear



Oil & Gas



Stadia



Dams

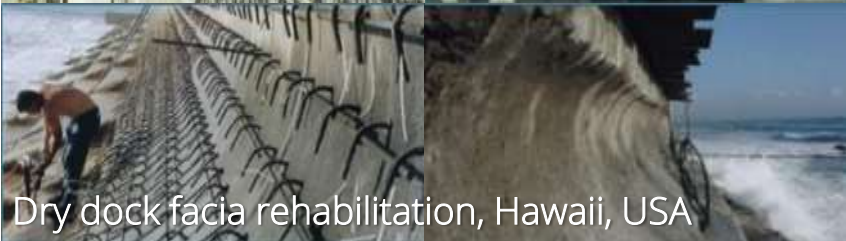


Elevated structures

# Marine reference



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Dry dock face rehabilitation, Hawaii, USA



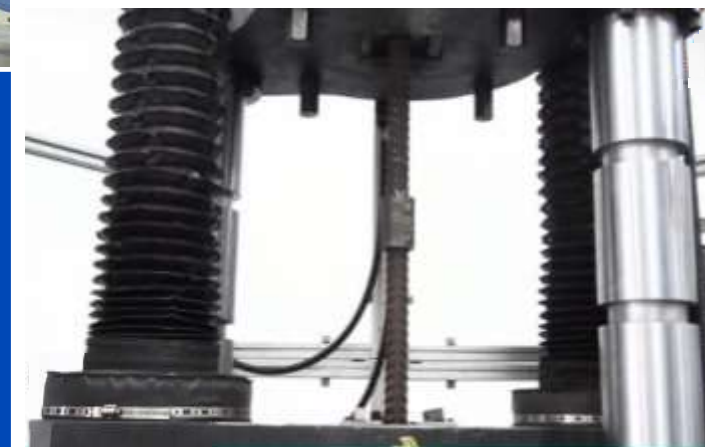
Dock of Armaco, KSA



Elizabeth Quay, Australia



Jizan Flood Mitigation Channel, Saudi Arabia



**COMMITMENT TO QUALITY:**  
**ISO-IEC 17025:2015 accredited**  
**laboratory featuring worldwide**  
**rebar library**



## Product Certification





# Certificates from the nuclear industry

ISO 19443 since 2021



Quality and Nuclear safety have always been Dextra's top priorities. This commitment is recognized by independent certificates from the nuclear industry :

- **ISO 19443** since 2021
- **ASME QSC** since 2009

To apply our thorough quality control process, we have equipped ourselves with our own testing laboratory, which is duly accredited :

- **ISO/IEC 17025** since 2013



Akkuyu 1-4, Turkey



Rajasthan (Kota) 5&6, India



Ostrovets 1&2, Belarus

# *Use of Composite and Steel Materials in Marine Structures*



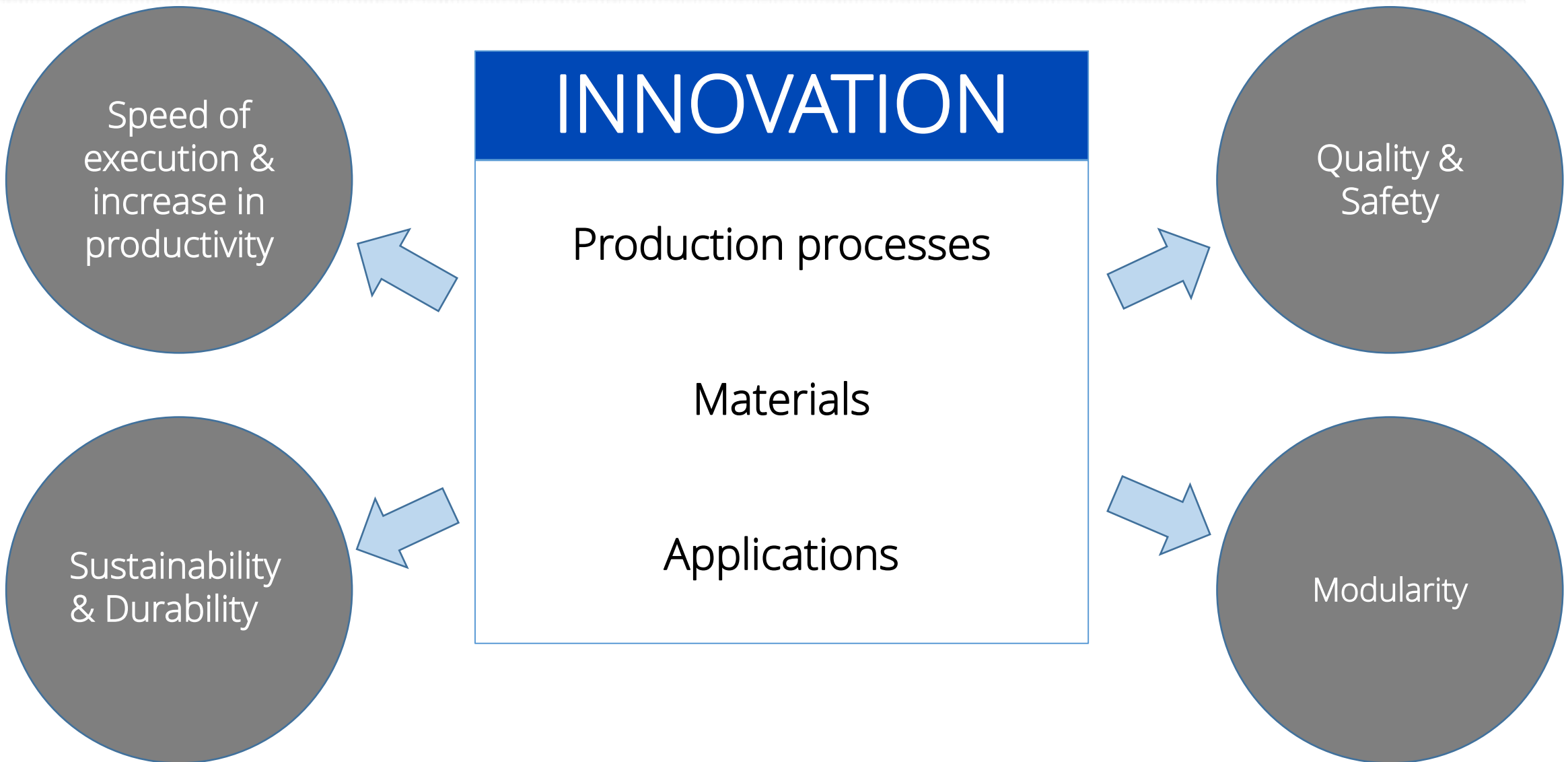
## INNOVATION

Production processes

Materials

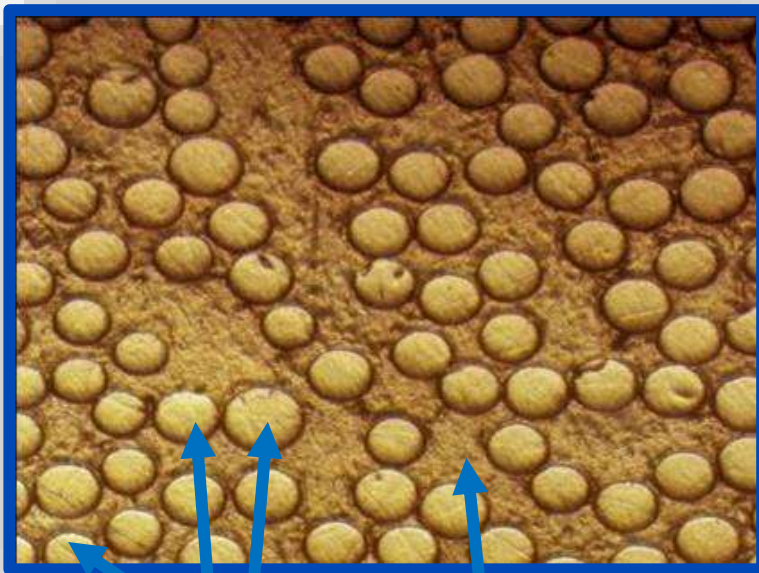
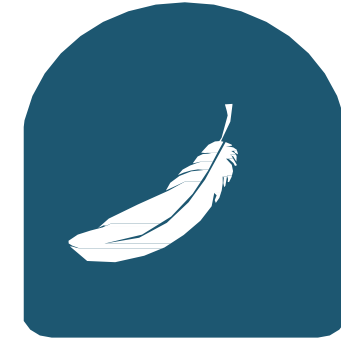
Applications

# Challenges & Opportunities for ports and shipping

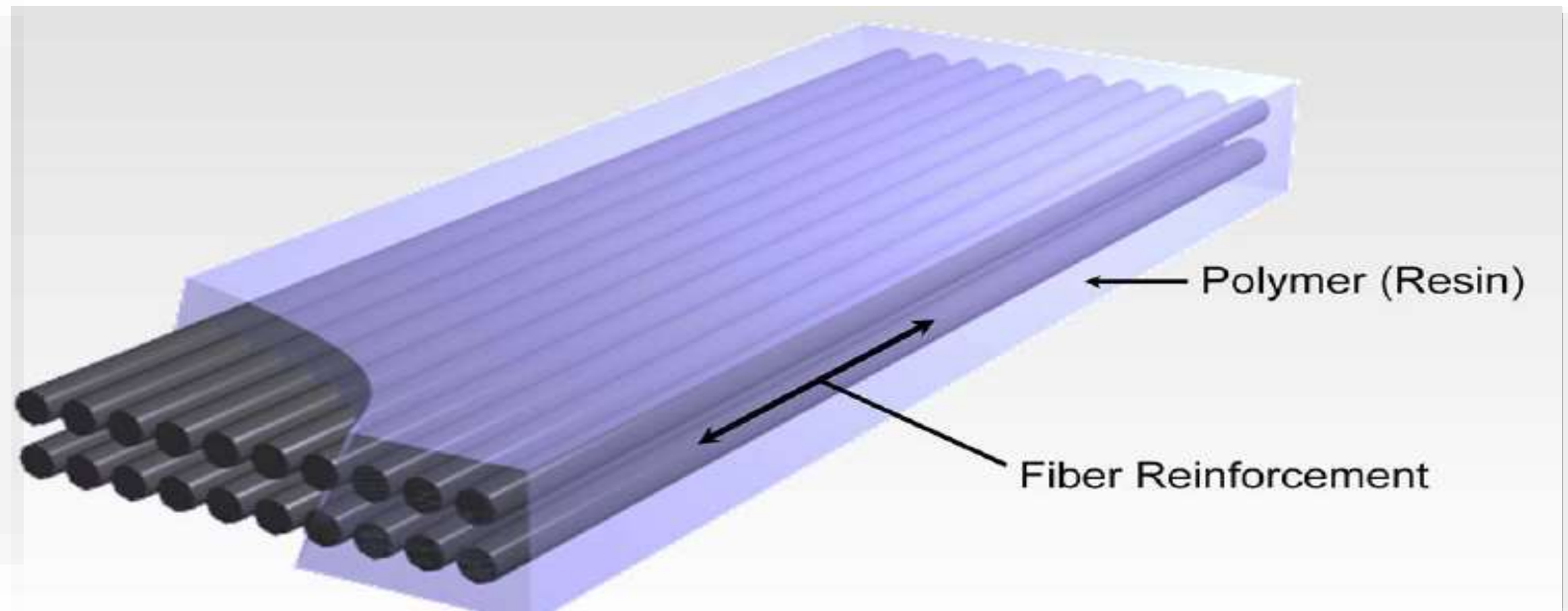


# Introduction to Composite Materials

- FRP = Fiber Reinforced Polymers
- Fiber = Glass / Aramid / Carbon / Basalt...
- Resin = Polyester / Vinylester / Epoxy ...



Fibers Resin



# Construction of quay & jetty



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**Outer skin of wall in contact with sea-water**

# Storage of Oil & Gas at port terminal



# Dry-Dock rehabilitation



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**Grid of 19mm (#6) GFRP bars  
doweled and epoxied in place**

# Jetty Repair / External Strengthening



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**Concrete with GFRP dowels & post-tensioned steel bar**



# Platforms and Floating Structures



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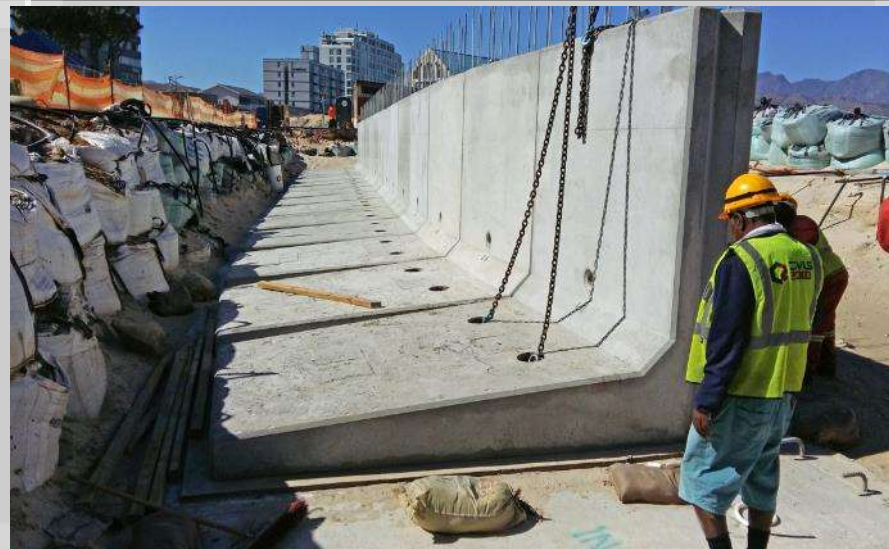


**Precast and Composite  
Materials at glance**

# Sea Walls



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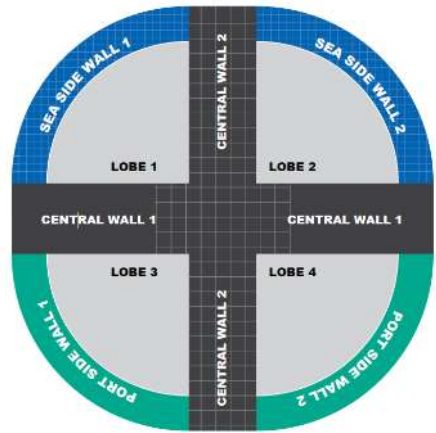


**Precast and Composite  
Materials at glance**

# Caissons Structures (1)



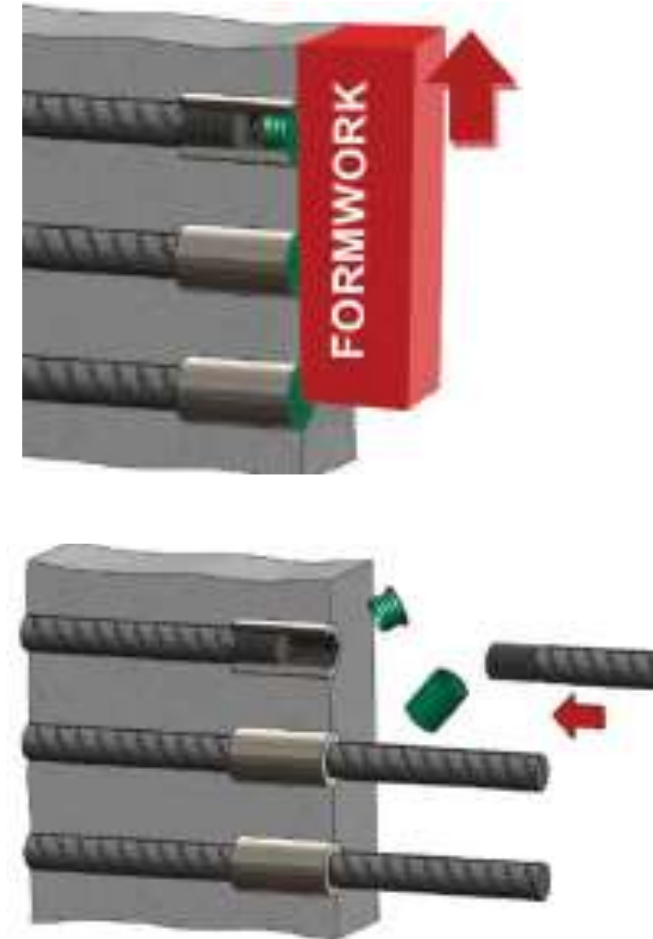
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Dextra Couplers = splicing systems designed for the connection of concrete reinforcing bars



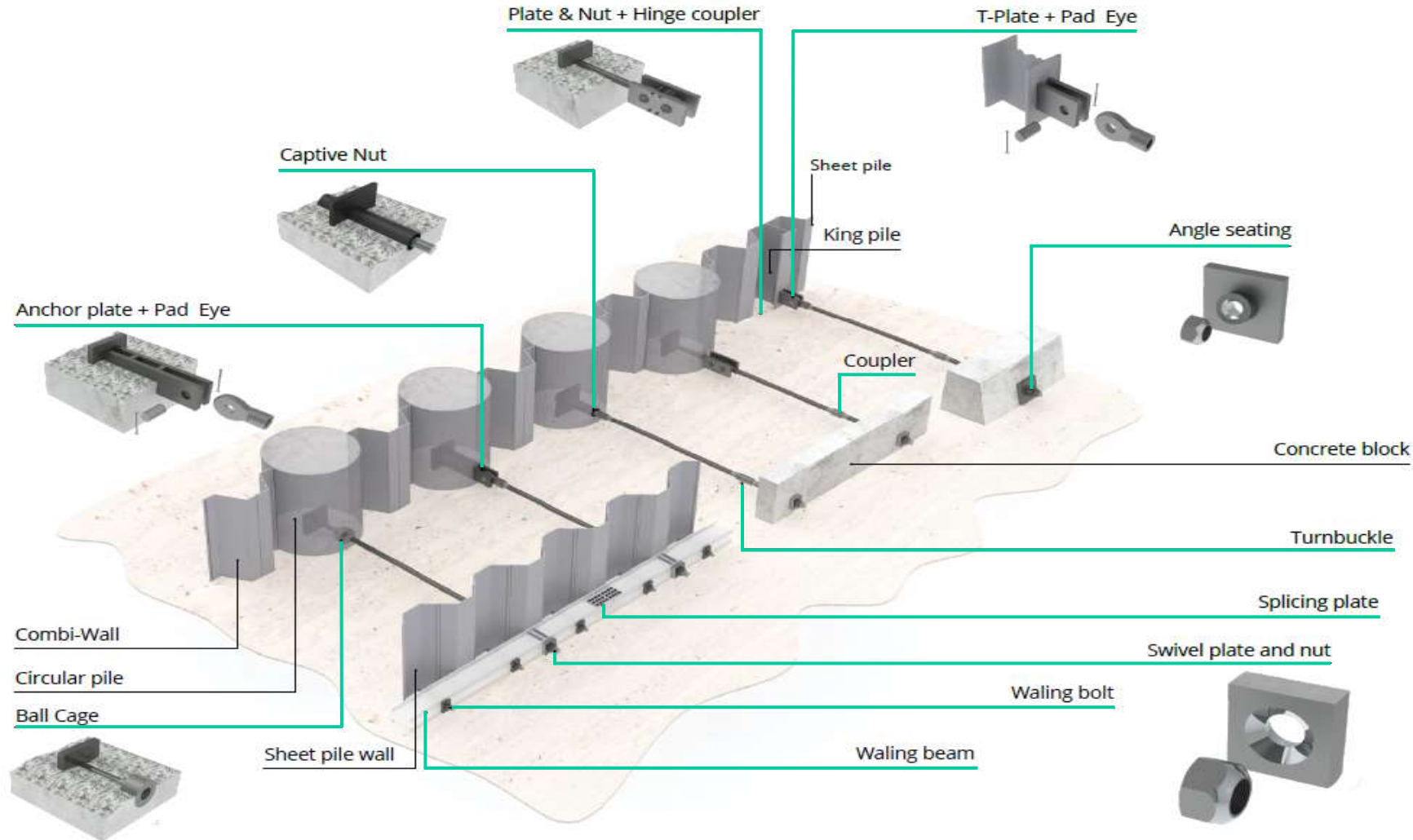
# Caissons Structures (2)



# Dextra Marine Tie Bars



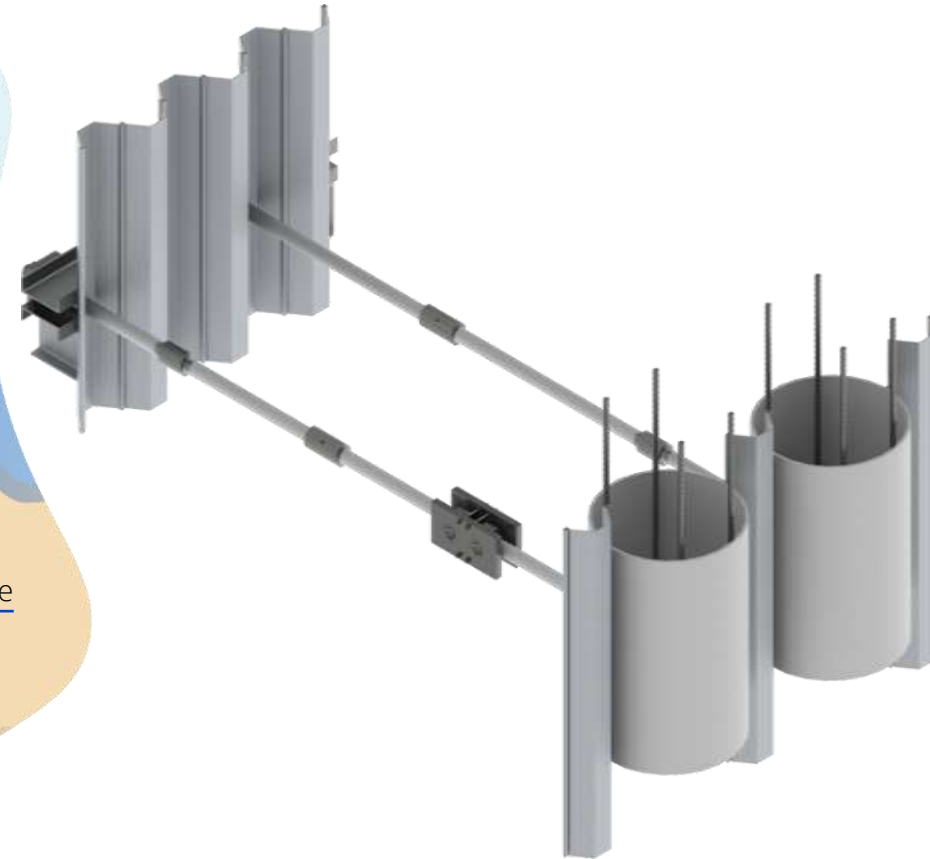
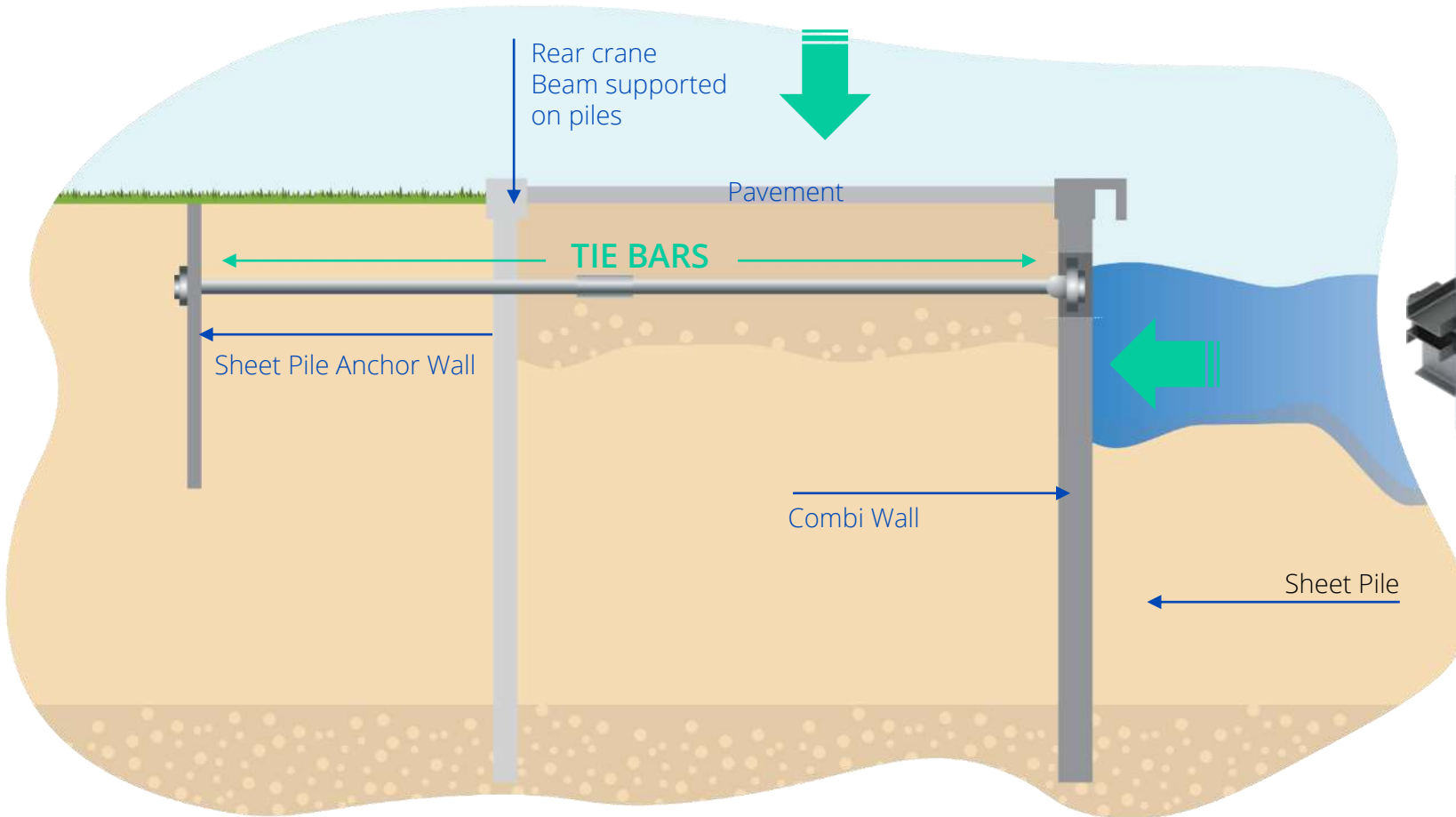
“Dextra Marine Tie Bars are used in port construction to anchor waterfront structures”



# Dextra Marine Tie Bars



## Marine tie bars in combi wall



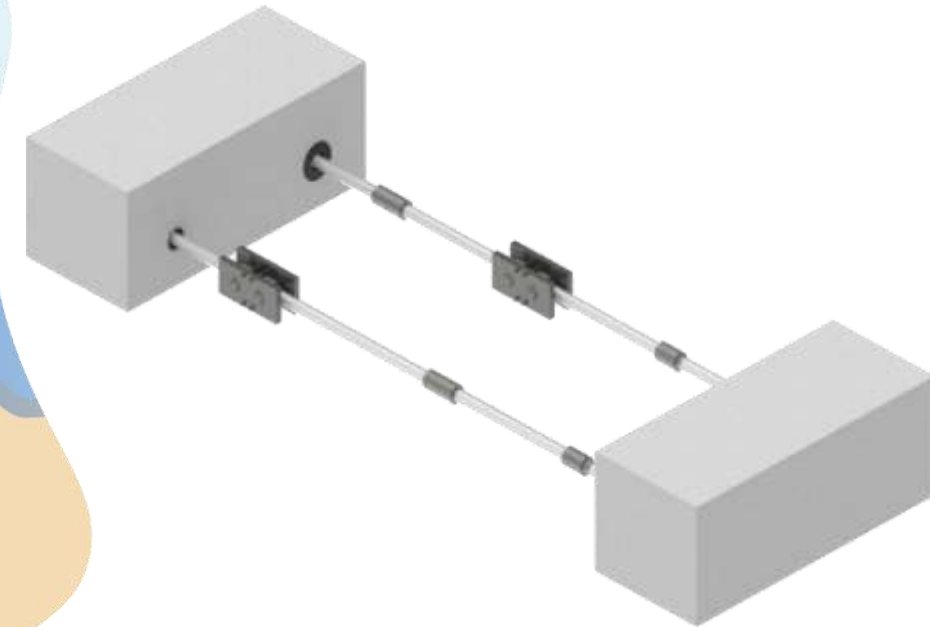
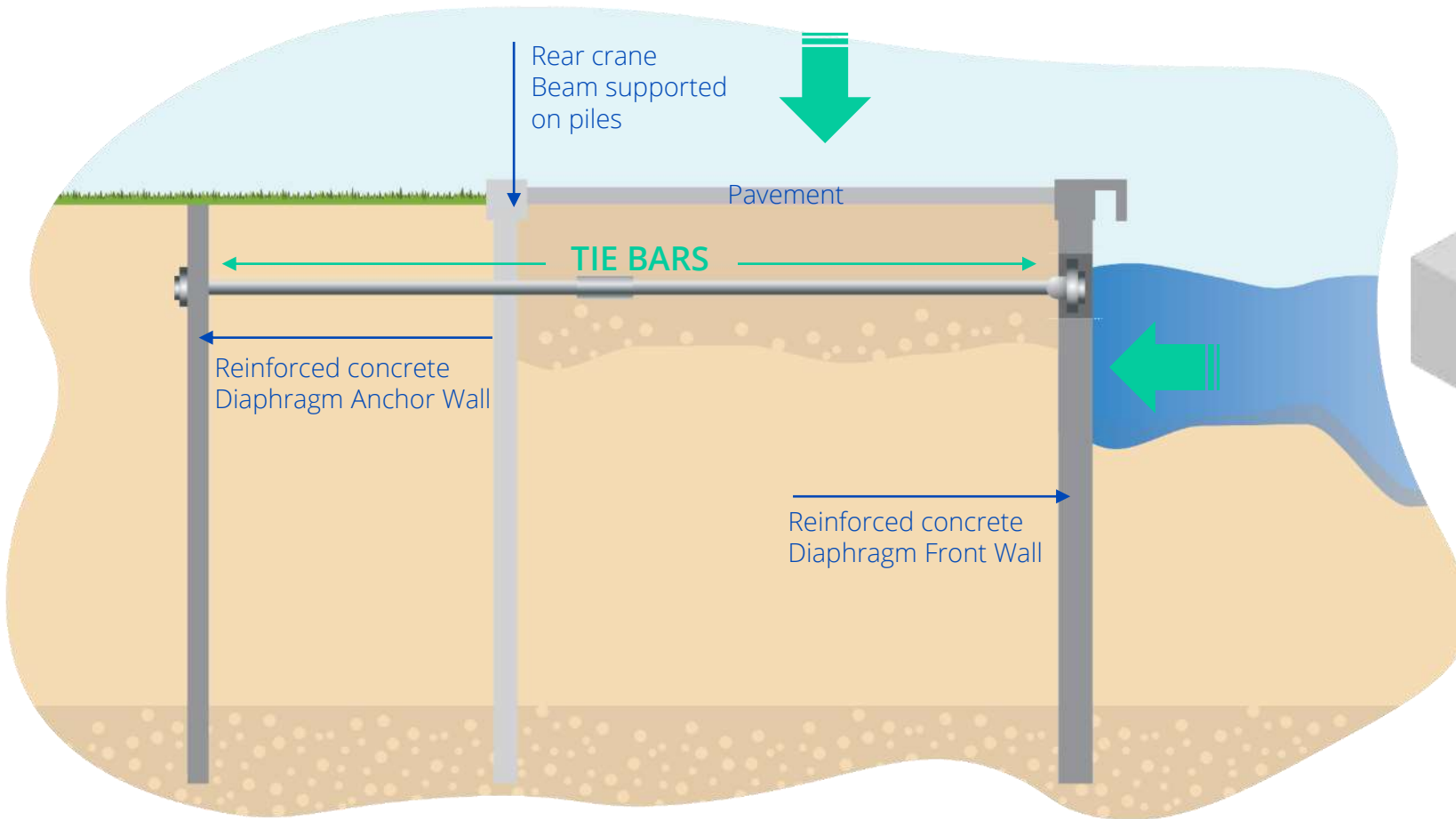
# Dextra Marine Tie Bars



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## Marine tie bars in concrete diaphragm walls



# Dextra Marine Tie Bars



Steel Piles



Diaphragm Wall



Tubular Piles





# CAD & BIM Tools



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Get fast and precise 2D & 3D design



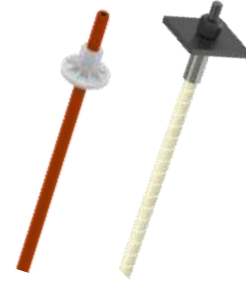
Easy to use



Up-to-date libraries



Dedicated support



Ground Engineering



Tension Rods



PT Bars



Marine Tie Bars



Rebar Couplers



# Thank You



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