



 **TRANSPORT  
MIDDLE EAST 2025**  
Towards Sustainable and Modern Logistics: From Aqaba to the World



**SPEAKER**

**Julien Raybaud-Gines**

General Manager  
Engineered Bars  
Dextra Group

# Use of Composite & Steel Materials and Precast Technology in Marine Structures

**Tuesday 15 to Thursday 17 April 2025**  
**Hyatt Regency Aqaba Ayala Resort, Jordan**

ensuring a **re** connection





## Leader in design and manufacturing of engineered solutions

Over 40 years of experience on the world's most prestigious projects



Integrated engineering  
& manufacturing  
products & equipment



80+ fabricators &  
distributors worldwide



International  
& local contractors

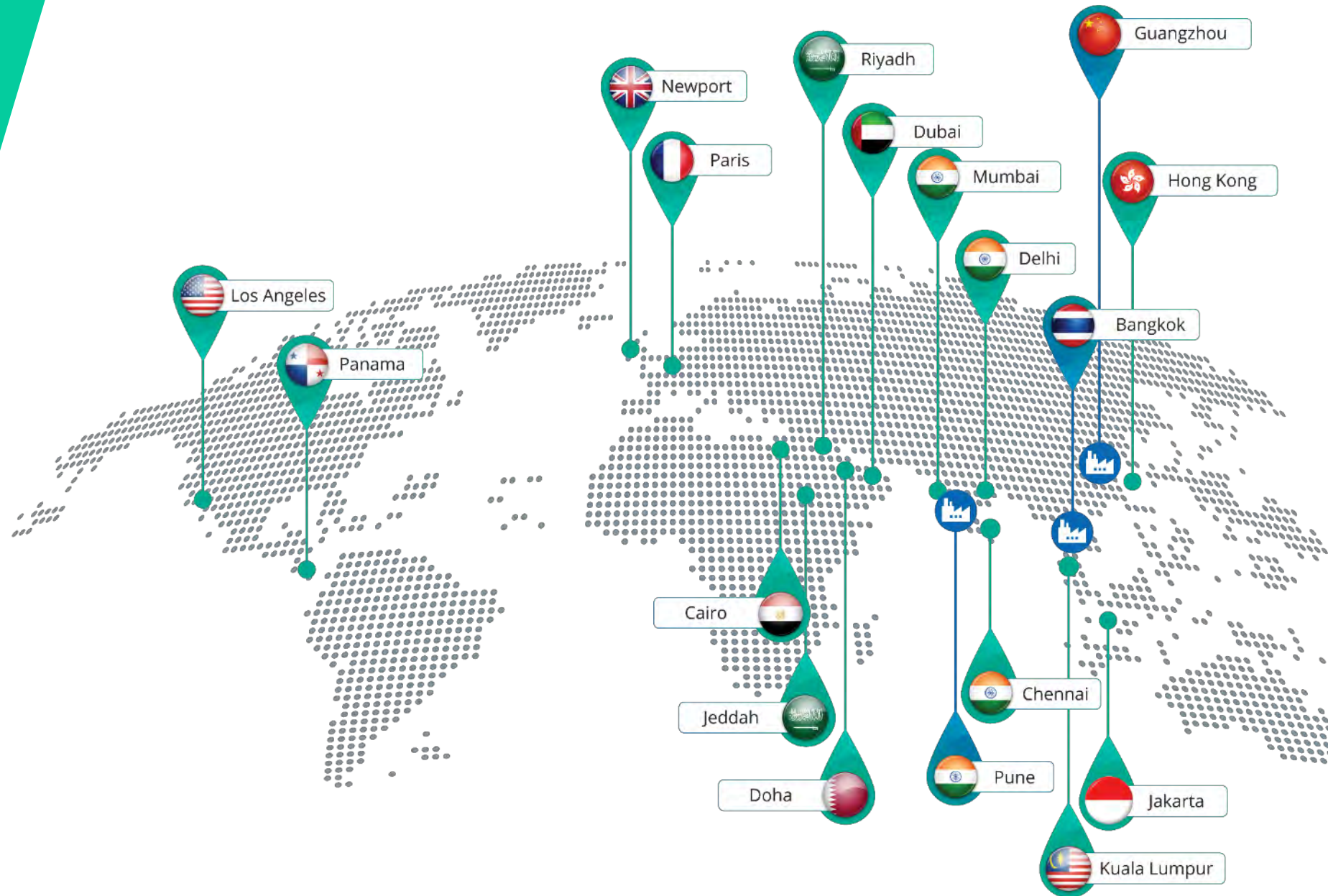


Landmark projects:  
high-rise, infrastructure  
and energy projects



Compliance with  
international standards,  
approved by major  
consultants

# GLOBAL FOOTPRINT



17

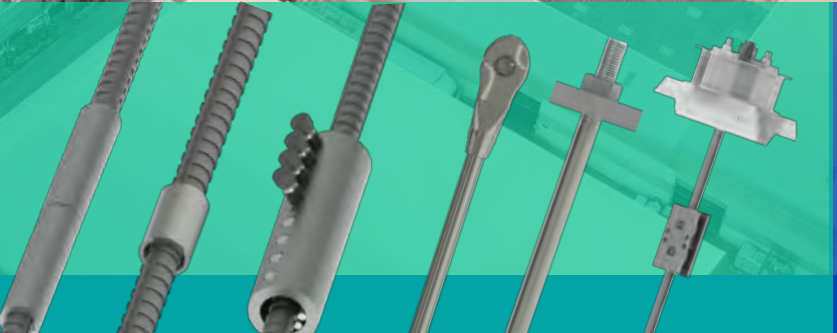
Locations

3

Manufacturing  
Plants



# MANUFACTURING CAPABILITIES







## Bangkok, Thailand

**16** Million Splices p.a.

**12,000** Tons Bars p.a.

**60,000** Sonic Tubes p.a.

**150** Equipment Sets p.a.







## Guangzhou, China

**8** Million Linear Meters FRP bars p.a.

**2** Million Linear Meters FT bars p.a.

**1.6** Million Linear Meters Core bars p.a.

**360,000** Sonic Tubes p.a.







**Pune, India**

**8** Million Splices p.a.

**3.4** Million Linear Meters FRP  
bars p.a

**540,000** Sonic Tubes p.a.





# INNOVATIONS FOR PORTS INFRASTRUCTURE AND PERFORMANCE



Speed of execution & increase  
in productivity



Sustainability & Durability

## INNOVATION

Applications  
&  
Materials

Production processes



Quality & Safety



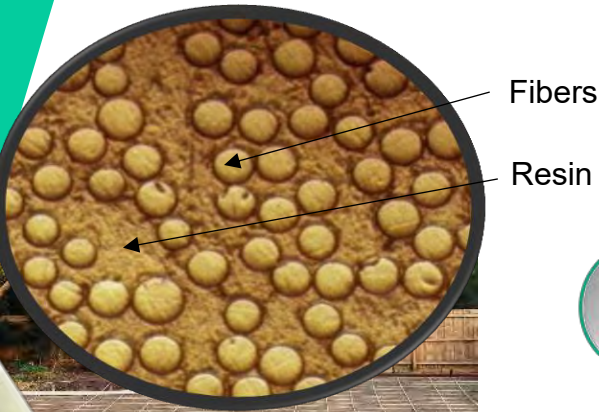
Modularity



# DEXTRA FIBRE REINFORCED PRODUCTS



The Perfect Alternative To Steel



## Stronger & Lighter than steel

- 2x the tensile strength of steel
- 1/4 weight of a steel bar of same diameter



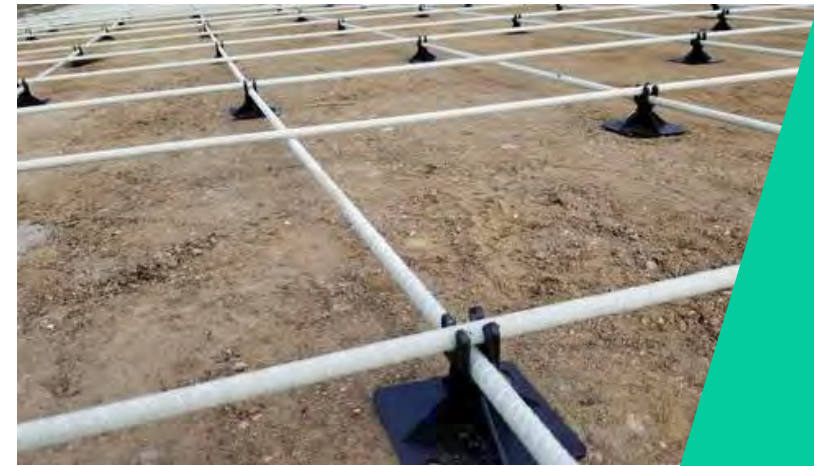
## Non-corrosive, non-conductive

- Material doesn't corrode and offer high resistance to chlorides and alkali.
- Particularly suitable for environments exposed to water, salt, & humidity.
- Non-conductive. It's the perfect reinforcement solution for high voltage currents and magnetic fields.



## Simplified Installation

- Delivered in straight bars up to 11.8m or in coils.
- Labor required for installation reduced by 2x to 3x.



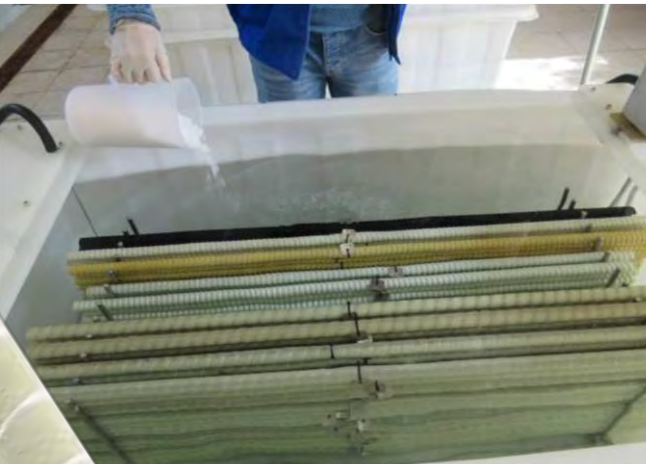
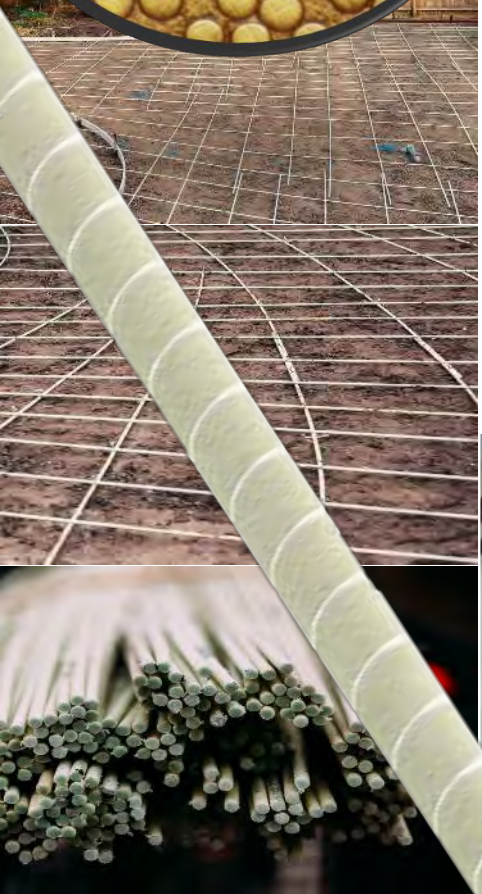
Material is safe & easy to handle, requiring much less labor for installation, generating both time & money saving.



Durable material, allowing to design for a longer lifetime of the structure. As no maintenance nor repair work is needed, ASTEC generates savings during the whole project life.

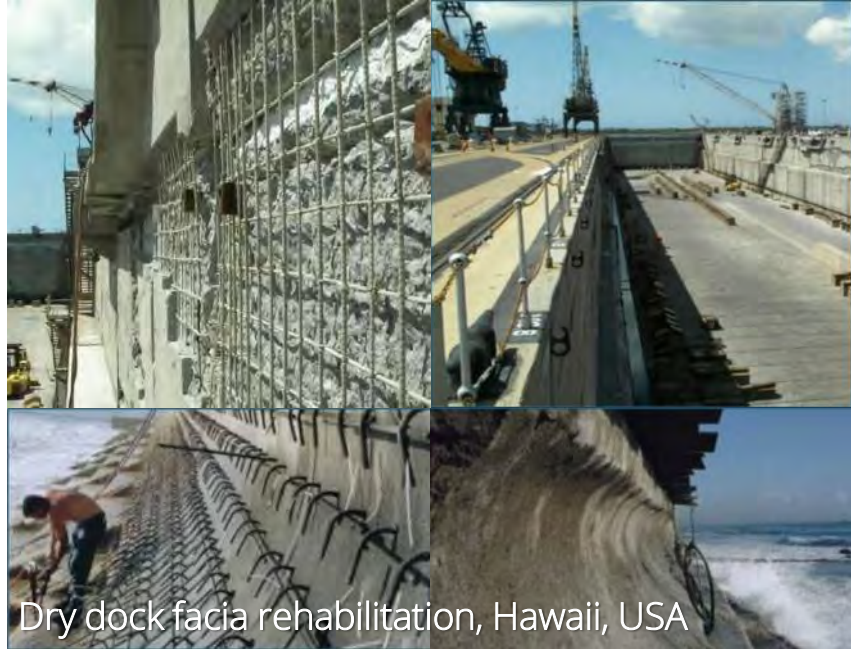


Sustainable material, with significantly less energy required and CO<sub>2</sub> emission, both at production stage and for its transportation & installation.





# MARINE APPLICATIONS





## Construction of Quay & Jetty



Outer skin of wall in contact with sea-water



# MARINE APPLICATIONS

## Storage of Oil & Gas at Port Terminal





## Dry-Dock Rehabilitation



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



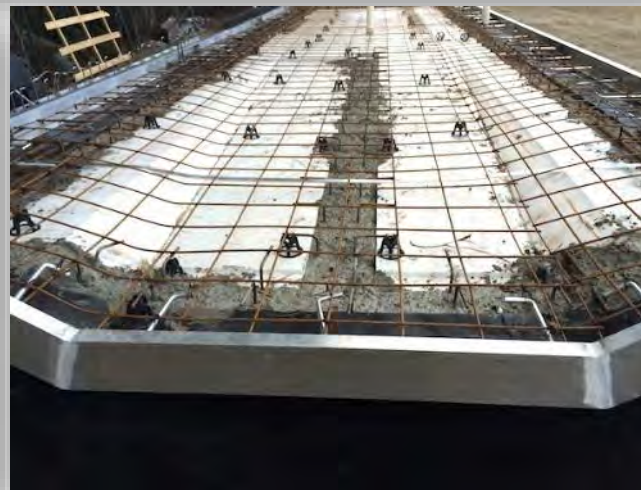
## Jetty Repair / External Strengthening



Concrete with GFRP dowels  
& post-tensioned steel bar



## Platforms and Floating Structures



Precast and Composite  
Materials at glance



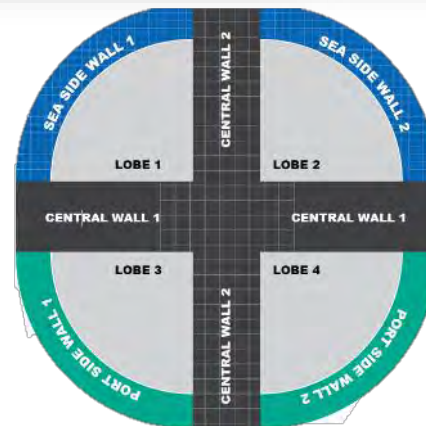
## Sea Walls



Precast and Composite  
Materials at glance



## Caissons Structures



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



# MARINE TIE BARS



*Short installation time thanks to reduced assembly scope*



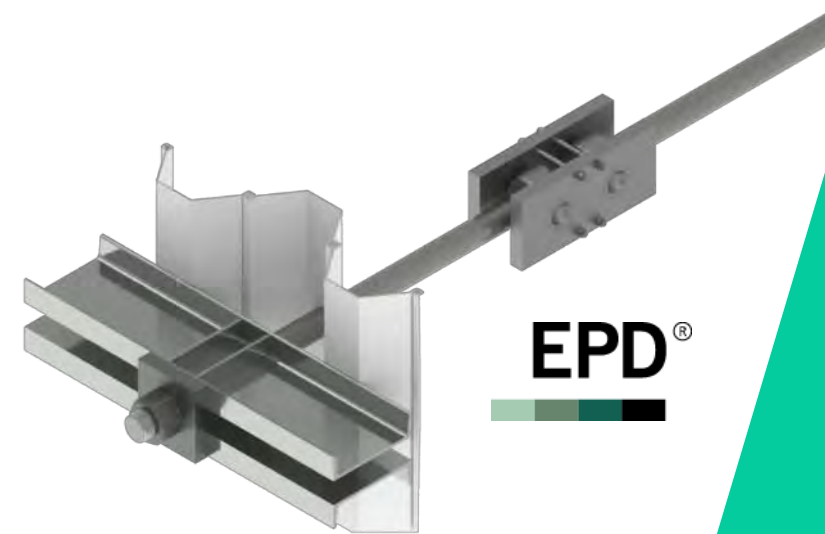
*Overall efficiency in detailed design phase*



*Control over delivery sequence*



*Cost saving*



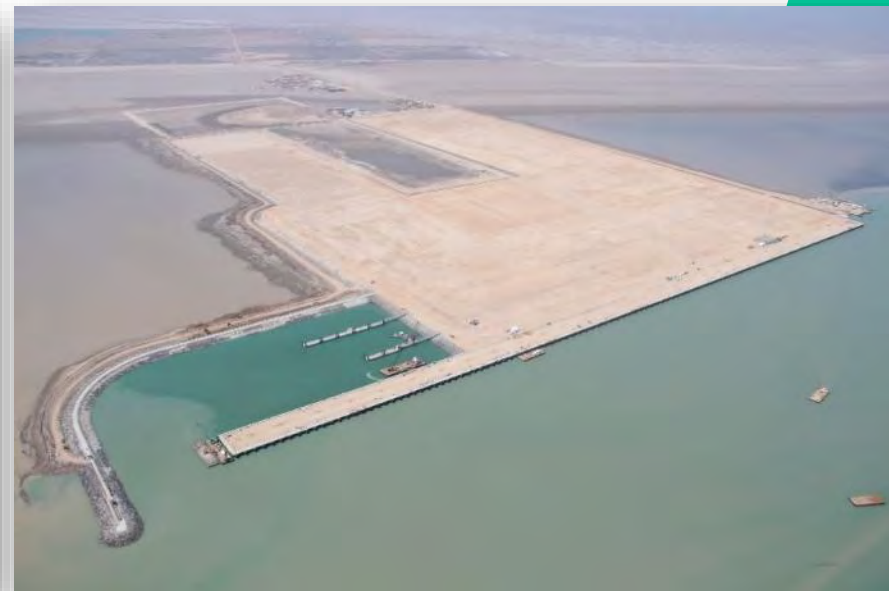
Steel Piles



Diaphragm Wall



Tubular Piles





# MARINE TIE BARS

Increase steel grades, reduce diameters and go “lighter”

For a given working load of 4,400 kN



Cost saving



Grade	500	700
Diameter	110 mm	95 mm
Weight per 1m	75 Kg	56 Kg
<div>Up to 25-30% savings for the contractor with Grade 700</div>		



# SEA-SAND SEAWATER CONCRETE (SSC)

***Life cycle cost analysis of structural concrete using seawater, recycled concrete aggregate, and GFRP reinforcement have shown significant CO<sub>2</sub> reductions along with cost savings***



*Substitute the use of freshwater with saltwater for concrete production ...*

*To construct durable and economical concrete infrastructures*

## Key benefits:

1. Resource Conservation
2. Early Strength
3. Sustainability
4. Cost Efficiency
5. Durability



Coastal Enhancement  
Works at Lei Yue Mun (HK)






# SEA-SAND SEAWATER CONCRETE (SSC)



## SUSTAINABILITY

Beyond direct reductions of 60% to 70% of embodied carbon (CO2)


Biggest impact is the reduction of CO2 from concrete itself: reduce the quantity - up to 30% - and change its composition with recycled materials

GFRP Rebars	Sea-sand Seawater	Recycled Concrete Aggregate (RCA)
		

### ACI Committee 243 - Seawater Concrete

New ACI committee whose mission is to develop and report information on concrete made with brackish, saline, and brine water and sea aggregates

*As of June 2024 - Dextra is associated member of this new committee*






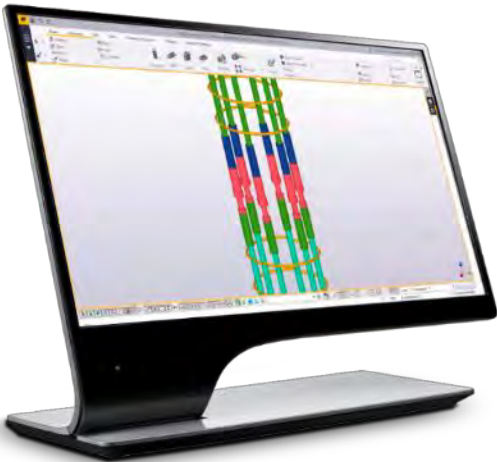
# CAD & BIM DETAILING TOOLS

 **Get fast and precise 2D & 3D design**

 **Easy to use**

 **Up-to-date libraries**

 **Dedicated support**



Rebar  
Couplers



Tension  
Rods



PT Bars



Marine  
Tie Bars



Ground  
Engineering

 **Tekla**



 **AUTODESK  
AUTOCAD**




 **AUTODESK  
REVIT**



**ALLPLAN**



 **rocscience**





## ESG Policy

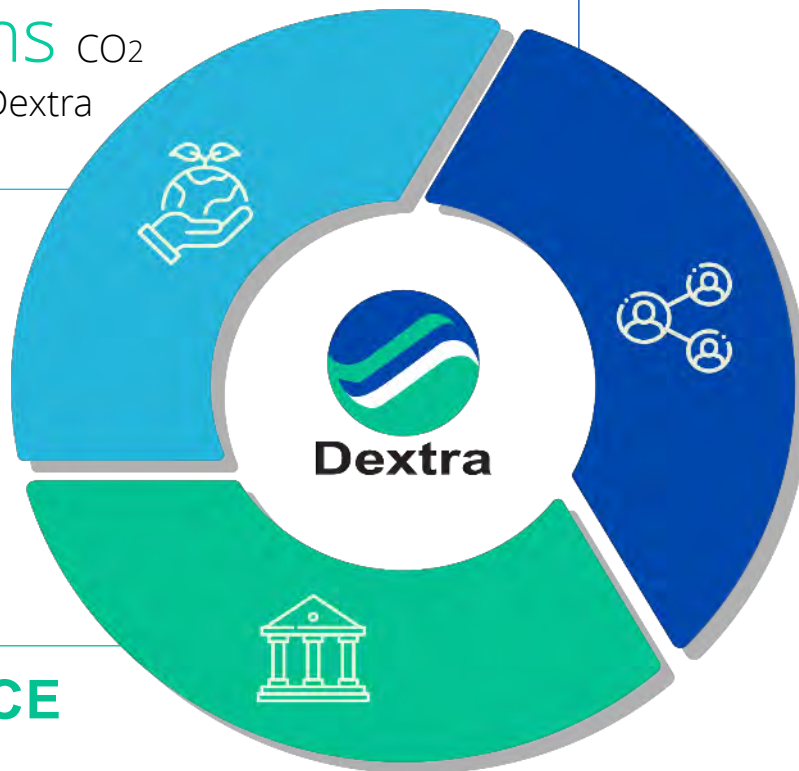
## SOCIAL

88%

Employee Engagement rate  
score achieved in 2023

## ENVIRONMENTAL

60,000 Tons CO<sub>2</sub>  
emissions saved by Dextra  
couplers in 2023



## GOVERNANCE

- Legal & Regulatory compliance
- Code of conducts & ethics
- Risk management
- Stakeholder engagement





## Environmental Certifications

CERTIFIED  
**ISO 14001**



THE INTERNATIONAL EPD® SYSTEM



Dextra solutions are **EPD (Environmental Product Declaration)** verified and officially listed on the **EPD Hub** website

- |                        |                                  |
|------------------------|----------------------------------|
| ✓ Marine Tie Bars      | ✓ Steel Ground Anchors           |
| ✓ Tension Rods         | ✓ Steel Self-Drilling Rock-Bolts |
| ✓ Post-Tensioning Bars | ✓ Steel Combination Bolts        |
| ✓ Rebar Couplers       | ✓ Sonitec CSL Tubes              |
| ✓ GFRP Rebars          |                                  |





# THANK YOU

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