

Offshore Projects

In this section, are selected projects where Strongwell FRP has proven its value in the Offshore Oil and Gas Industry. Specifically, are projects in the following areas:

- **A. - Deepwater Production (floating)**
- **B. - Shelf Production (fixed)**
- **C. - Drilling**

Also included is the long-term performance of the very first Strongwell FRP offshore install on the Ellen Platform (1979 - Offshore California), and a listing of most offshore projects where Strongwell FRP has been used to reduce weight, improve safety, decrease maintenance costs and lengthen service life¹.

¹ Project list may be incomplete due to inability to track all projects globally.

FEATURED PROJECT: “Ellen”

Date / Location

1979 / Offshore California

Ownership (Original)

Shell Oil Company

Strongwell Products Used

DURADEK® I-4000 25mm (1") pultruded grating and stair treads: ~10,000 sq ft)

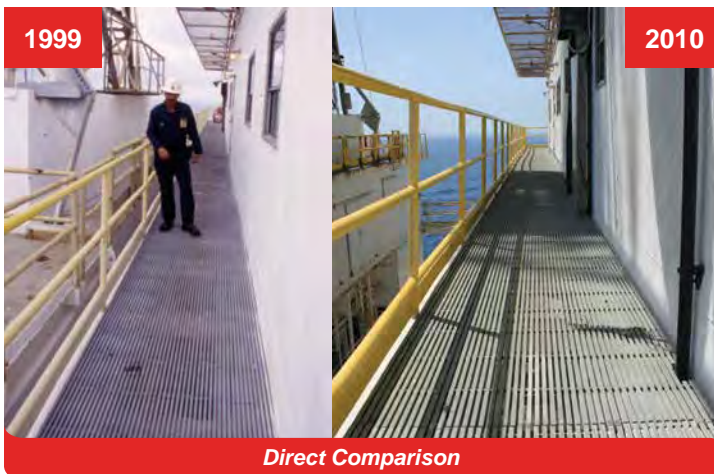
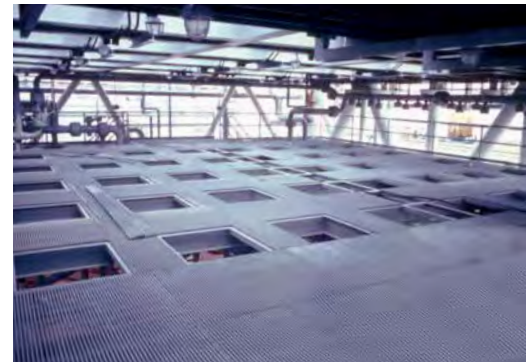
Area(s) Using Strongwell Products

Well Bay Platform

Description of Project

In 1979, DURADEK® I-4000 25mm (1") pultruded grating and stair treads were installed in Japan as part of the construction of the Ellen platform as a case study on the ability of pultruded fiberglass grating to perform on an offshore oil and gas environment. The original DURADEK® gratings are still in use and have proven a phenomenal success. This forward-thinking idea to install DURADEK® has saved an immense amount of maintenance costs and provided decades of safe service.

As a testament to the performance of Strongwell's DURADEK® (and now also DURAGRID® and DURAGRID® Phenolic) in 2010, 31 years after its initial installation, Facility Superintendent of Ellen Yohn Rosqui stated, "The grating looks to be in great shape. The surface shows very little wear and tear." In an industry that too often concentrates on short-term costs, DURADEK®, DURAGRID® and DURAGRID® Phenolic offer an excellent return on investment when considering long-term installed cost vs. traditional gratings.



Strongwell Offshore Oil & Gas Project Index

Year	Project	Type	Owner(s)	Strongwell Products	Location
1979	Ellen	Fixed	Shell	DURAGRID®	CA-USA
1986	South Pass 62A	Fixed	Shell	Grate-SAFRAIL™-EXTREN®	GOM
1988	South Pass 62D	Fixed	Shell	Grate, SAFRAIL™, EXTREN®	GOM
1993	Ship Shoal 141	Fixed	Shell Gas	DURADEK®	GOM
1993	Auger	TLP	Shell	DURADEK®, SAFRAIL™	GOM
1995	Mars	TLP	Shell, BP	DURAGRID® Phenolic	GOM
1996	P-27	Semi	Petrobras	DURADEK®, SAFRAIL™	Brazil
1996	W.Delta 143A	Fixed	Shell	DURAGRID®	GOM
1997	Ram-Powell	TLP	Shell,BP,Exxon	DURAGRID® Phenolic	GOM
1998	VZ LL-652	Fixed	Chevron	DURADEK®	Venezuela
1998	Ursa	TLP	Shell,Conoco, Exxon,BP	DURAGRID® Phenolic	GOM
1999	Spirit VK-780A	Fixed	Shell	DURADEK®, DURAGRID®	GOM
1999	Cinnamon	Fixed	Shell	DURADEK®	GOM
1999	P-37	FPSO	Petrobras	DURADEK®, SAFRAIL™	Brazil
1999	Diana-Hoover	DDCV	Exxon, BP	DURAGRID®/DURAGRID® Phenolic	GOM
1999	P-40	FPSO	Petrobras	DURAGRID®/Phenolic, SAFRAIL™	Brazil
2000	W.Delta 143B	Fixed	Shell	DURAGRID®	GOM
2000	Brutus	TLP	Shell	DURAGRID® Phenolic	GOM
2000	P-38	FSO	Petrobras	DURAGRID®, SAFRAIL™	Brazil
2001	Na Kika	Semi	Shell	DURAGRID® Phenolic	GOM
2001	Bayu Undan	Fixed	Philips Petro	DURAGRID® Phenolic	Timor
2001	Leidon	FPSO	Kerr-McGee	DURAGRID® Phenolic	N.Sea
2001	Grane	Fixed	Norsk Hydro-Esso	DURAGRID® Phenolic	N.Sea
2001	Safaynia	Fixed	ARAMCO	DURAGRID® Phenolic	Saudi
2001	Brunei-Shell	Fixed	Shell	DURAGRID® HD	Brunei
2001	Unocal-PTT	Fixed	Unocal-PTT	DURAGRATE®	Thailand
2001	Echo-Yodel	Fixed	Woodside	DURAGRID® Phenolic	Australia
2002	Rang Dong	Fixed	JVPC	DURAGRID® Phenolic	Viet Nam
2002	Manta Ray	Fixed	Shell Gas	DURAGRID®	GOM
2002	P 43 - Barracuda	FPSO	Petrobras	DURAGRID®, SAFRAIL™	Brazil
2002	P 48 - Caratinga	FPSO	Petrobras	DURAGRID®, SAFRAIL™	Brazil
2002	Kizomba A	W-TLP	Exxon-Mobil	DURAGRID® Phenolic	Africa
2002	Kizomba A	FPSO	Exxon-Mobil	DURAGRID® Phenolic	Africa
2002	Marco Polo	TLP	Anadarko-MODEC	DURADEK®	GOM
2002	Holstein	Spar	BP	DURAGRID® Phenolic, Treads	GOM
2002	Thunder Horse	Semi	BP	DURAGRID® Phenolic, Treads	GOM
2002	Matterhorn	Mini TLP	TotalFinaElf	DURAGRID® Phenolic	GOM
2002	Ampa Fairley	Fixed	Brunei Shell Petroleum	DURAGRID® Phenolic, SAFRAIL™, Ext	Brunei
2003	Magnolia	TLP	Conoco-Phillips	DURAGRID® Phenolic	GOM

Strongwell Offshore Oil & Gas Project Index

2003	Kristin	Semi	Statoil	DURAGRID® Phenolic	NSEA
2003	Mad Dog	Spar	BP	DURAGRID® Phenolic, Treads	GOM
2003	Kizomba B	W-TLP	Exxon-Mobil	DURAGRID® Phenolic, DURADEK®	Africa
2004	Kizomba B	FPSO	Exxon-Mobil	DURAGRID® Phenolic	Africa
2004	Atlantis	Semi	BP	DURAGRID® Phenolic, Treads	GOM
2004	Eko-Fisk 2/4	Fixed	Conoco-Phillips	DURAGRID® Phenolic	NSEA
2004	Champion West	Fixed	Brunei Shell Petroleum	DURAGRID®, DURAGRID® Phenolic, SAFRAIL™, Stair	Brunei
2004	Coker Line	Refinery	PDVSA	DURAGRID® Phenolic, Handrail	VZ
2004	South Seperator	Refinery	PDVSA	DURADEK®, Platforms, Handrail	VZ
2005	Statfjord Field	Fixed	Statoil	DURAGRID® Phenolic	NSEA
2005	BR - CO2	Fixed	Talisman	DURAGRID® Phenolic	Malaysia
2005	KU Maloob Zaap	Fixed	PEMEX	DURAGRID® Phenolic	Mexico
2005	Sigma 3	Fixed	Shell UK	DURAGRID® Phenolic	UK
2005	Katrina Damage	Various	USA-GOM	DURAGRID® Phenolic	GOM
2006	Various Plats	Various	Norway	DURAGRID® Phenolic	NSEA
2007	Vasai East	Fixed	ONGC-india	DURAGRID® Phenolic	India
2007	KG-D6	Fixed	Reliance Industries	DURAGRID® Phenolic, DURAGRATE®	India
2007	Rubicon Intrepid	FPSO	NIDO	DURAGRID® Phenolic	Pippines
2007	Mpot PJ-D5682	Fixed	ARAMCO	DURAGRID® Phenolic	Saudi
2007	Block 0	Fixed	Chevron	DURAGRID® Phenolic Treads	Angola
2007	Perdido	Spar	Shell	DURAGRID® Phenolic	GOM
2007	Angel	Fixed	Woodside	DURAGRID® Phenolic 38 & 50mm	Australia
2007	Rubicon Vantage	FPSO	NIDO	DURAGRID® Phenolic	Thailand
2007	MOQ	Fixed	Maersk Oil Qatar (MOQ)	DURAGRATE® Phenolic	Qatar
2007	Mampak	Fixed	Brunei Shell Petroleum	DURAGRID® HD & Handrail	Brunei
2007	Karan 6,7,8	Fixed	ARAMCO	DURAGRID® Phenolic	Saudi
2007	Zulf 400, 420	Fixed	ARAMCO	DURAGRID® Phenolic	Saudi
2007	Maricaibo	Fixed	PDVSA	DURAGRATE®	VZ
2007	Umm Shaif-HHI	Fixed	ADMA OPCO/Total	DURADEK®-SAFPLANK®	UAE
2007	Cayo Arcas	Fixed	PEMEX	DURADEK®	Mexico
2008	Lone Star	FPSO	SBM	DURAGRID® Phenolic	GOM
2008	Valhall	Fixed	BP	DURAGRID® Phenolic	Norway
2008	Gjoa	Semi	Statoil	DURAGRID® Phenolic 45 & 38mm	Norway
2008	Pluto	Fixed	Woodside	DURAGRID® Phenolic	Australia
2009	Liberdate-BU	FPSO	Conoco-Phillips	DURAGRID® Phenolic	Australia
2009	NR2-	Fixed	Woodside	DURAGRID® Phenolic 48 & 38mm	Australia
2010	NR2-	Fixed	Woodside	DURAGRID® Phenolic 48 & 38mm	Australia
2011	Skarv	FPSO	BP	DURAGRID® Phenolic I-6000	Norway
2011	USAN	FPSO	Total	DURAGRID® Phenolic	Africa

Strongwell Offshore Oil & Gas Project Index

2011	Olympus-Mars 2	TLP	Shell (hull & drilling)	DURAGRID® Phenolic	GOM
2011	5 yr Blanket	Fixed	ARAMCO	DURAGRID® Phenolic	Saudi
2011	Gudrun	Fixed	Aibel-Statoil	DURAGRID® Phenolic	Norway
2011	Eko-Fisk 2/4-L	Fixed	SMOEConoco-Phillips	DURAGRID® Phenolic	Norway
2011	KUMUL	Fixed	Exxon	DURAGRATE®	N. Guinea
2012	Eldfisk 2/7-S	Fixed	Kvaerner-ConocoPhillips	DURAGRID® Phenolic	Norway
2012	Jack-St Malo	Semi	Chevron (hull)	DURAGRID® Phenolic 45mm	GOM
2012	Guntong A	Fixed	Exxon	DURAGRID®-SAFRAIL™	Malaysia
2012	Tapis R	Fixed	Exxon	DURAGRID® Phenolic, SAFRAIL™, Boat Landings	Malaysia
2012	Tapis Q	Fixed	Exxon	DURAGRID® Phenolic, SAFRAIL™	Malaysia
2012	Big Foot	ETLP	Chevron	DURAGRID® Phenolic	GOM
2012	Goliat	FPSO	ENI-Norge	DURAGRID® Phenolic + sleeves	Norway
2012	Telok A	Fixed	Exxon	DURAGRID® Phenolic, HD grate	Malaysia
2013	Telok B	Fixed	Exxon	DURAGRID® Phenolic, HD grate	Malaysia
2013	Damar A	Fixed	Exxon	DURAGRID® Phenolic, SAFRAIL™	Malaysia
2013	Clair Ridge	Fixed	BP (UK)	DURAGRID® Phenolic, SAFRAIL™, Cust, Rod, Pipesleeves	UK
2013	Edvard Grieg	Fixed	Lundin	DURAGRID® Phenolic 38 & 45mm	Norway
2013	Quad 204	FPSO	BP (UK)	DURAGRID® Phenolic 38mm, Rod, Pipesleeves	UK
2013	Kikeh LQ	FPSO	Murphy	DURAGRID® Phenolic 38mm	Malaysia
2013	Eagle Texas	MVC-A	Modular Capture Vessels	DURAGRID® Phenolic 38mm	GOM
2013	Eagle Louisiana	MVC-B	Owners- major GOM operators	DURAGRID® Phenolic 38mm	GOM
2014	Ichthys-SBM	FPSO	Inpex-Total	DURAGRID® Phenolic 38mm, SAFRAIL™, SAFRAIL™ Ladder	Australia
2014	Moho Nord	TLP	Total	DURAGRID® Phenolic 38mm, SAFRAIL™, SAFRAIL™ Ladder, Pipesleeves	Congo
2014	Tapis C	Fixed	Exxon (Brownfield)	DURAGRID® Phenolic 38mm SAFRAIL™	Malaysia
2014	Aasta Hansteen	Spar	Statoil	DURAGRID® Phenolic 38mm	Norway
2014	Ichthys CPF	Semi	Inpex -Total	DURAGRID® Phenolic 38mm	Australia
2014	Hejre	Fixed	Dong Energy	DURAGRID® Phenolic 45 & 38mm	Denmark
2014	Ivar Aasen	Fixed	Statoil	DURAGRID® Phenolic	Norway
2014	Gina Krog	Fixed	Statoil- Tank skid only	DURAGRID® Phenolic 45mm	Norway
2014	Hebron	GBS	Exxonmobil	DURAGRID® Phenolic 38mm	Canada
2016	KAOMBO (North & South)	FPSOs	Total, Sonangol Pesquisa & Producao, China Sonangol Petroleum, Esso, and Galp	DURAGRID® Phenolic 45mm, Treads, Pipesleeves	Angola Block 32



Largest use of FRP grating on an offshore platform at the time of its installation.

“MARS” Tension Leg Platform

Date / Location

1995 / Gulf of Mexico

Ownership

Shell Oil Company (71.5%)
British Petroleum (28.5%)

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5"): ~9,300 m² (~100,105 ft²)
DURADEK®: ~480 m² (~5,172 ft²)
Phenolic Stair Treads: ~373 m (1,225 lin ft; 490 treads)

Area(s) Using Strongwell Products

Power Module, Wellbay Module, Drilling Module, Process Module, Gas Compressor Package, Vapor Recovery Manifold, Production Manifold, Cranes, Tensioner, Wellhead, Drilling Riser, Mud Pits, Subsea Tiebacks

Description of Project

DURAGRID® Phenolic I-6000 1.5" Grating was used in this project because of a weight savings, low maintenance for cost reduction, improved ROI. Added benefits realized/not expected were fast installation and durability.

“RAM-POWELL” Tension Leg Platform

Date / Location

1997 / Gulf of Mexico

Ownership

Shell Oil Company, Exxon, Amoco

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5"): ~9,220 m² (~99,248 ft²)
Phenolic Stair Treads: ~390 m (1,279 lin ft)

Area(s) Using Strongwell Products

Power Module, Wellbay Module, Drilling Module, Process Module, Gas Compressor Package, Vapor Recovery Manifold, Production Manifold, Cranes, Tensioner, Flare Boom, Helideck, Stairs, Wellhead, Drilling Riser, Mud Pits, Pig Launching Stations

Description of Project

DURAGRID® Phenolic I-6000 38mm (1.5") Grating was used because of weight savings and low maintenance for cost reduction, which improved ROI. Well accepted on the Mars Project, fast, easy installation, durable.





Largest use of FRP grating on an offshore platform at the time of its installation.

“URSA”

Tension Leg Platform

Date / Location

1998 / Gulf of Mexico

Ownership

Shell Oil Company, Exxon, Conoco, and British Petroleum

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5") + 455 stair treads and some small areas of DURADEK®: ~20,200 m² (~218,000 ft²)

Area(s) Using Strongwell Products

Power Module, Wellbay Module, Drilling Module, Process Modules, Inside Hull and externals, Production Manifold, Methanol Storage, I&E building, Chemical Injection, Glycol Skid, Gas Compressors/Vapor Recovery, Cranes, Drilling package

Description of Project

DURAGRID® Phenolic I-6000 38mm (1.5") Grating was used for a weight savings, low maintenance, durability, improved ROI. Well accepted on Mars & Ram-Powell projects. Works very well on fast track projects. Grating delivered ahead of schedule.

“DIANA-HOOVER”

Deep Draft Caisson Vessel

Date / Location

1999 / Gulf of Mexico

Ownership

Exxon-Mobil, British Petroleum



Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5"): ~2,453 m² (26,400 ft²)

DURAGRID® I-7000 38mm (1.5"): ~2,287 m² (24,615 ft²)

SAFPLATE® Phenolic Grating with Plate: ~188 m² (~2,000 ft²)

Area(s) Using Strongwell Products

Methanol Mezzanine, Cellar Deck, Production Deck - Dance Floor, Glycol Mezzanine, West Pipe Rack, Pipe Line Pump, Utility Area Walkways, Dance Floor Walkways, Compressor Mezzanine, Cellar Deck Scrubber, Surge/Treater Mezzanine, Separator Access Mezzanine, Crane Access, Secondary Mezzanines, Equipment Thoroughfare

Description of Project

DURAGRID® Phenolic I-6000 38mm (1.5"), DURAGRID® I-7000 38mm (1.5") and SAFPLATE® Phenolic Grating and Plate was used for the significant weight savings.





“BRUTUS”

Tension Leg Platform

Date / Location

2000 / Gulf of Mexico

Ownership

Shell Oil Company

Construction

Topside: J.R. McDermott, Amelia, LA USA

Hull: Daewoo Heavy Industries, Geoje Island, Korea

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5"): ~12,000 m²
(~130,000 ft²)

Area(s) Using Strongwell Products

Top Hull (including stairs), Power Module, Process Module, Drilling Module, Well Bay, Production Manifold, Vapor Recovery, Cranes, Compressor Package, Hydrocarbon Dewpoint Control Package

Description of Project

DURAGRID® Phenolic was used on this project because of weight savings, low maintenance for cost reduction and improved ROI. Previous projects have proven the durability, ease and speed of fabrication.

PETROBRAS “P-40”

FPSO

Date / Location

1999 / Brazil

Ownership

PETROBRAS (Brazil)



Construction

Topside: Jurong Shipyard, Singapore

Strongwell Products Used

DURADEK®/DURAGRID® I-6000 38mm (1.5") grating: 1,422 m² (15,299 ft²)

SAFRAIL™ Handrail System, 3-rail & 4-rail: 1,093 lin m (3,586 lin ft)

Description of Project

Strongwell products were used to save weight and maintenance costs. The first use of DURAGRID® Phenolic was on inspection platforms hanging below decks.



PETROBRAS “P-27”

Semi-Submersible

Date / Location

1996 / Brazil

Strongwell Products Used

DURADEK® Pultruded Grating,
SAFRAIL™ Handrail



PETROBRAS “P-37”

FPSO

Date / Location

1999 / Brazil

Strongwell Products Used

DURADEK® Pultruded Grating (25mm & 38mm; GCAW Equipment Skids), SAFRAIL™ Handrail (2-rail & 4-rail)



PETROBRAS “P-38”

FSO

Date / Location

2000 / Brazil

Strongwell Products Used

DURAGRID® T-1800 Pultruded Grating



PETROBRAS “P-43”

(Barracuda) FPSO - NATCO Units ONLY

Date / Location

2002 / Brazil

Strongwell Products Used

DURADEK® Pultruded Grating, SAFRAIL™ Handrail System and
SAFRAIL™ Ladder/Cage Systems



PETROBRAS “P-48”

(Caratinga) FPSO - NATCO Units ONLY

Date / Location

2002 / Brazil

Strongwell Products Used

DURADEK® Pultruded Grating,
SAFRAIL™ Handrail System and
SAFRAIL™ Ladder/Cage Systems





“HOLSTEIN”

Spar

Date / Location

2002 / Gulf of Mexico
(Green Canyon 645)

Ownership

British Petroleum
Shell Oil

Fabricator

J.R. McDermott, Amelia, LA USA

Strongwell Products Used

DURAGRID® Phenolic grating: ~7,200 m² (~77,000 ft²)

Area(s) Using Strongwell Products

Topside

Project Benefit(s)

Estimated Weight Savings: 386,195 kg (851,400 lbs)



“MAD DOG”

Truss Spar

Date / Location

2003 / Gulf of Mexico
(Green Canyon 782)

Ownership

British Petroleum, BHP
Billiton, Chevron

Fabricator

J.R. McDermott, Amelia, LA USA

Strongwell Products Used

DURAGRID® Phenolic grating: ~3,500 m² (~37,500 ft²)

Area(s) Using Strongwell Products

Topside

Project Benefit(s)

Estimated Weight Savings: 186,377 kg (410,883 lbs)



“THUNDER HORSE”

Semi-Submersible

Date / Location

2002 / Gulf of Mexico
(Mississippi Canyon
778/822)



Ownership

British Petroleum

Fabricator

J.R. McDermott, Amelia, LA USA

Strongwell Products Used

DURAGRID® Phenolic grating: ~9,300 m²
(~100,000 ft²), DURAGRID® Phenolic stair
treads

Area(s) Using Strongwell Products

Topside and Hull

Project Benefit(s)

Estimated Weight Savings: 498,952 kg (1.1
million lbs) Stair treads admired for their
robustness at long spans.



“ATLANTIS”

Semi-Submersible

Date / Location

2004 / Gulf of Mexico
(Green Canyon 787)



Ownership

British Petroleum,
BHP Billiton

Fabricator

J.R. McDermott, Amelia, LA USA

Strongwell Products Used

DURAGRID® Phenolic grating: ~5,500 m² (~59,000 ft²)

Area(s) Using Strongwell Products

Topside

Project Benefit(s)

Weight savings, low maintenance, worked well on
the similar Thunderhorse project.

“MAGNOLIA”

Tension Leg Platform



Date / Location
2003 / Gulf of Mexico

Strongwell Products Used
DURAGRID® Phenolic grating:
~1,200 m² (~12,916 ft²)

Ownership
ConocoPhillips



“MARCO POLO”

MODEC Design Tension Leg Platform

Date / Location
2002 / Gulf of Mexico

Strongwell Products Used
DURAGRID® Phenolic grating:
~560 m² (~6,000 ft²)

Ownership
Anadarko

“NA-KIKA”

Semi-Submersible



Date / Location
2001 / Gulf of Mexico

Strongwell Products Used
DURAGRID® Phenolic grating

Ownership
Shell, British Petroleum

Area(s) Using Strongwell Products
MEG/TEG Modules ONLY



“MATTERHORN”

SeaStar® Tension Leg Platform

Date / Location
2002 / Gulf of Mexico

Strongwell Products Used
DURAGRID® Phenolic grating
(on two decks)

Ownership
Total

“KIZOMBA”

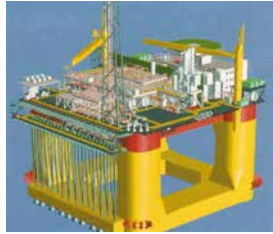
Tension Leg Platform A&B and FPSO A&B

Date / Location
2003, 2004 / Angola

Strongwell Products Used
DURAGRID® Phenolic grating:
~1,200 m² (~12,916 ft²)

Ownership
Exxon-Mobil





“KRISTIN” Semi-Submersible

Date / Location

2003 / North Sea (Norway)

Ownership

Statoil A.S.A., Petoro A.S., Norsk Hydro Produksjon A.S., Mobil Development Norway A.S., ENI Norge A.S., Total E&P A.S.

Fabricators

Aker Stord (Norway) & Dragados (Spain)

Strongwell Products Used

DURAGRID® Phenolic I-5500 grating: ~4,500 m² (~49,000 ft²)

Project Benefit(s)

Estimated Weight Savings: 177,000 kg (~390,200 lbs)
Complies with NORSOK Regulations

“VANTAGE” FPSO

Date / Location

2007 / Gulf of Thailand

Ownership

Rubicon Offshore International

Strongwell Products Used

DURAGRID® Phenolic I-6000 grating 38mm (1.5")



“INTREPID” FPSO

Date / Location

2007 / Philippine Offshore

Ownership

Rubicon Offshore International

Strongwell Products Used

DURAGRID® Phenolic I-6000 grating 38mm (1.5") on Deck Module

“PERDIDO”

Spar

Date / Location

2007 / Gulf of Mexico (Great White, Tobago, Silvertip Fields)

Ownership

Shell, Chevron, BP, Nexen, Unocal

Fabricators (Topside)

Kiewit Fabrication

Strongwell Products Used

DURAGRID® Phenolic I-6000 grating and stair treads on Topside

Project Benefit(s)

Estimated Weight Savings: 177,000 kg (~390,200 lbs)



World's deepest offshore platform at 2,450m (8,000 ft.) at its commissioning.



First use of 45mm grating for added robustness.

“GJOA”

Semi-Submersible

Date / Location

2008 / North Sea (Norway)

Ownership

GDF Suez, Petoro, Statoil, Shell, RWE Dea

Fabricators (Topside)

Aker (Egersund & Stord)

Strongwell Products Used

DURAGRID® Phenolic I-5500 38mm (1.5") and 45mm (1.75") grating (5,400 m²)

Area(s) Using Strongwell Products

Inside TLP Hull and Drilling Unit



“OLYMPUS”

Tension Leg Platform



Date / Location

2011 / Gulf of Mexico (Mars, West Boreas and South Deimos Fields)

Ownership

Shell, BP

Fabricators (Hull)

Samsung Heavy Industries

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5") grating

Area(s) Using Strongwell Products

Inside TLP Hull and Drilling Unit



“JACK ST. MALO”

Semi-Submersible

Date / Location

2011 / Gulf of Mexico

Ownership

Jack: Chevron, Statoil, Maersk

St. Malo: Chevron, Petrobras, Statoil, ExxonMobil, Eni

Fabricator (Hull)

Samsung Heavy Industries

Strongwell Products Used

DURAGRID® Phenolic I-6000 45mm (1.75") grating

Area(s) Using Strongwell Products

Inside of hull

Chevron wanted a highly robust composite grating for major pump areas inside the hull.





“BIG FOOT”

Tension Leg Platform

Date / Location

2012 / Gulf of Mexico

Ownership

Chevron, Statoil, Marubeni Oil & Gas

Fabricator

Gulf Marine

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5")

Area(s) Using Strongwell Products

Topside



“GOLIAT”

Sevan Design FPSO

Date / Location

2012 / North Sea (Norway)

Ownership

Eni-Norge, Statoil

Fabricator

Hyundai Heavy Industries

Strongwell Products Used

DURAGRID® Phenolic I-5500 (NORSOK-Compliant) 38mm (1.5") grating (13,600 m²), DURAGRID® nosings for landings, pipe sleeves, EXTREN® plate, F-section kick plate, MARRS® OFFSHORE handrail

Area(s) Using Strongwell Products

Entire Unit



At the time, this platform was the most northern operating production platform





“QUAD 204”

FPSO

Date / Location

2013 / North Sea (UK - Shetlands)

Ownership

BP, OMV, Shell

Fabricator

Hyundai Heavy Industries

Strongwell Products Used

DURAGRID® Phenolic I-5500 (ISO 14122-2-Qualified) 38mm grating and stair treads, FRP Pipe sleeves, FRP Penetration Plates, Phenolic Levelling bars, Phenolic Bearing pads, Phenolic Rods for passive fire protection (PFP) application

Area(s) Using Strongwell Products

Topside

Project Description

5,500 square metres of DURAGRID® Phenolic I-5500 38mm grating and stair treads used to save weight, for fast installation when compared to steel, for low maintenance and durability which all reduces costs. FRP Pipe Sleeves and FRP Penetration Plates used around pipe penetrations for safety, to save weight, for fast installation, low maintenance and durability when compared to steel Phenolic Levelling bars and Phenolic Bearing pads used to facilitate all around PFP (Passive Fire Protection) of structural steel on which DURAGRID® Phenolic grating is secured .

“KIKEH”

FPSO

Date / Location

2013 / South China Sea - Offshore Sabah

Ownership

Murphy Oil, Petronas

LQ Addition Fabricator

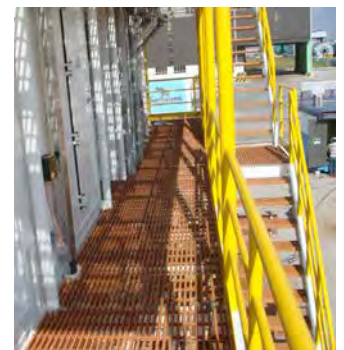
Amerstrand Engineering

Strongwell Products Used

DURAGRID® Phenolic

Area(s) Using Strongwell Products

Additional Living Quarters



“MOHO NORD”

Tension Leg Platform

Date / Location

2014 / Congo

Ownership

Total

Fabricator

Hyundai Heavy Industries

Strongwell Products Used

DURAGRID® Phenolic I-5500 (ISO 14122-2-Qualified) 38mm (1.5") grating, SAFRAIL™ Handrail System and ladders

Area(s) Using Strongwell Products

Topside, generous use on internal hull walkways and columns.



“AASTA HANSTEEN”

Spar

Date / Location

2014 / North Sea (Norway)

Ownership

Statoil, Wintershall, OMV, ConocoPhillips

Fabricator

Hyundai Heavy Industries

Strongwell Products Used

DURAGRID® Phenolic I-5500 38mm (1.5")

Area(s) Using Strongwell Products

Topside



“ICHTHYS”

FPSO Turret

Date / Location

2014 / Australia

Ownership

Inpex, Total

Fabricator

Amerstrand Engineering (installation by Keppel FELS)

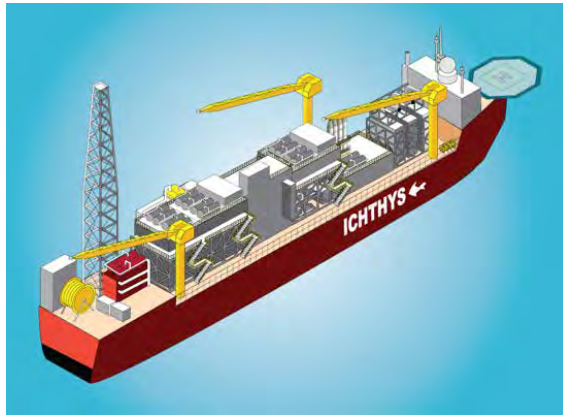
Strongwell Products Used

DURAGRID® Phenolic I-5500 (ISO 14122-2-Qualified) 38mm (1.5") grating, SAFRAIL™ Handrail System and ladders

Area(s) Using**Strongwell****Products**

SBM Design

FPSO Turret



“ICHTHYS”

Semi-Submersible

**Date / Location**

2014 / Australia

Ownership

Inpex, Total

Fabricator

Samsung Heavy Industries (Korea)

Strongwell Products Used

DURAGRID® Phenolic I-5500 (ISO 14122-2-Qualified) 38mm (1.5") grating

Area(s) Using Strongwell Products

Topside

Project Benefit(s)

Weight savings on the largest semi-submersible ever built.

“KAOMBO (NORTH AND SOUTH)”

FPSOs

Date / Location

2016 / Angola Block 32

Ownership

Total, Sonangol Pesquisa & Producao, China Sonangol Petroleum, Esso, and Galp

Fabricators

- Saipem Karimun Island Yard (Indonesia)
- Siemens - (Batam) - Seawater Treatment Units
- Gulf Piping - Bluewater (UAE) - turrets
- ROS (Singapore) - Chemical Injection Skids

Strongwell Products Used

DURAGRID® Phenolic I-5500 45mm grating & treads, Pipe sleeves

Area(s) Using Strongwell Products
Topside

Comments

ASTM F3059 Qualified product - BV Class



“SOUTH PASS 62A & D”

Fixed Platforms

Date / Location

1986, 1988 / Gulf of Mexico (Offshore Louisiana)

Ownership

Shell, later sold to Apache

Brownfield Work

62A: Installed an all FRP well head mezzanine deck (18 wellheads). The deck consisted of EXTREN® Structure (20' x 40' wellbay), handrail, ladders, and pultruded grating. Special wave zone grating and wave zone handrail were installed at the +9 level of the jacket. The well bay platform was installed without any hot work by 2 men in 2 days. South Pass 62A was considered a major case study at the time. 62D: An FRP wellbay deck for 32 wells. The deck consisted on EXTREN® Structure, DURADEK® grating, stair treads, handrail, and F section kickplate.



“SHIP SHOAL 241”

Fixed Platform

Date / Location

1992 / Gulf of Mexico

Ownership

Shell Gas Pipeline

Brownfield Work

Replaced corroded steel grating with DURADEK® I-6000 38mm (1.5"). The replacement was fast and easy and solved the corrosion problem.

“SPIRIT”

Fixed Platforms

Date / Location

1999 / Gulf of Mexico

Ownership

Shell

Fabricator

Gulf Island (Houma, LA)

Strongwell Products Used

DURAGRID® I-6000 and I-7000 38mm (1.5") grating (~930 m² (~10,000 ft²)), stair treads



“WEST DELTA 143A/B”

Fixed 4 Leg Hub Platforms

Date / Location

1996, 2000 / Gulf of Mexico

Ownership

Shell

Fabricator

McDermott (Amelia, LA)

Strongwell Products Used

DURAGRID® T-5000 38mm (1.5") grating

Project Summary

Approximately 3,700 m² (~40,000 ft²) DURAGRID® T-5000 was used for 143A due to its light weight, speed of install and performance capabilities. The success of T-5000 on 143A prompted a similar quantity of T-5000 on 143B.



Fast Track Project





“GRANE”

Fixed Platform

Date / Location

2001 / North Sea (Norway)

Ownership

Norsk Hydro Produksjon A.S., Petoro A.S, Esso E & P Norway A.S., Norske ConocoPhillips A.S.

Fabricator

Kvaerner-Egersund & Rosenberg Verft

Strongwell Products Used

DURAGRID® Phenolic I-5500 (NORSOK-Qualified) grating: ~5,500 m² (~60,000 ft²)

*First Large-Scale
Use of Composite
Grating in Norway*

“BAYU UNDAN”

Fixed Platforms

**Date / Location**

2001 / Timor Sea

Ownership

ConocoPhillips, Santos, Inpex, ENI, Tokyo Electric, Tokyo Gas

Fabricators

HHI (Korea), McDermott (Batam), Sembacorp (Singapore)

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5") grating

Project Benefits

Estimated Weight Savings: 153,621 kg (338,676 lbs.)



“EKO-FISK 2/4M”

Fixed Platform

Date / Location

2004 / North Sea (Norway)

Ownership

Conoco Phillips Skandinavia A.S., ENI Norge A.S., Norsk Hydro Produksjon A.S., Petoro A.S., Statoil A.S.A., Total E&P A.S.

Fabricator

Kvaerner-Egersund

Strongwell Products Used

DURAGRID® Phenolic I-5500 (NORSOK-Qualified) grating: ~1,860 m² (~20,000 ft²)

“CHAMPION WEST”

Fixed Platform

Date / Location

2004 / South China Sea, Brunei

Ownership

Brunei Shell Petroleum

Fabricator

Brunei

Strongwell Products Used

DURAGRID® Phenolic I-6000 38 mm (Lower Topside)
DURAGRID® HD 6500 on Jacket; SAFRAIL™ FRP handrail (orange)
for Jacket & sub-cellar deck

Area(s) Using Strongwell Products

Lower Topside, Jacket, Sub-cellar Deck



“BUNGA RAYA E (BR-E)”

Fixed Platform

Date / Location

2005 / South China Sea (West Malaysia)

Ownership

Petronas Carigali, Talisman & PetroVietnam

Fabricator

Sime Darby Engineering (SDE) (Malaysia)

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5") (4,229 m²)

“KU MALOOB ZAAP”

Fixed Platform

Date / Location

2005 / Gulf of Mexico (Bay of Campeche)

Ownership

PEMEX

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5"), SAFRAIL™ Handrail System



“AH001”

Fixed Platform

Date / Location

2008 / North Sea (UK)

Ownership

Hess

Fabricator

Pipex px®

Strongwell Products Used

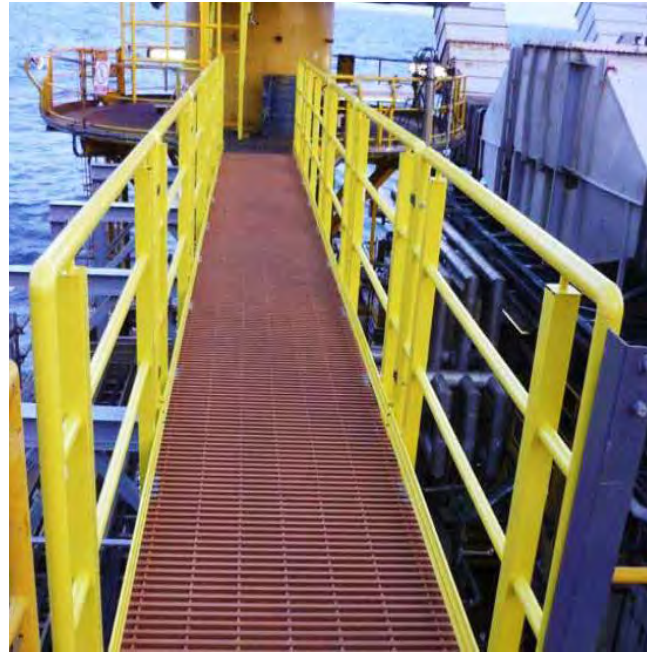
DURAGRID® Phenolic I-6000
38mm (1.5") grating, MARRS®
OFFSHORE handrail, custom FRP
ladder and cage

Area(s) Using Strongwell Products

Metering Skids, Crane, Access Walkways, Open
Decks,

Comments

Ease of Install, Light Weight, Low Maintenance, Low
Life-cycle Costs, Corrosion Resistant, Temperature



Starboard crane platform fully erected before being disassembled and shipped offshore.



“VASAI EAST BCPA-2”

Fixed Platform

Date / Location

2008 / Indian Ocean (Offshore Mumbai)

Ownership

ONGC

Fabricator

Jacket: Ramunia Fabricators (Malaysia)

Topside: SHI (Korea)

GRP Fabrication/Installation by Amerstrand Engineering

Strongwell Products Used

Topside: DURAGRID® Phenolic I-6000 38mm (300 m²), Topside Treads I-6000 38 mm (50 treads), Jacket: DURAGRID® Phenolic I-6000 38mm (486 m²)

Jacket Stair Treads I-4800 38 mm (17 treads)



“KG-D6”

Fixed Platform

Date / Location

2009 / Indian Ocean (Bay of Bengal)

Ownership

Reliance Industries, Niko Resources

Fabricator

J. Ray McDermott

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5"), DURAGRATE® molded grating

Area(s) Using Strongwell Products

Platform and jacket



“ANGEL”

Fixed Platform

Date / Location

2008 / Offshore Australia (Northwest Shelf)

Ownership

Woodside

Fabrication

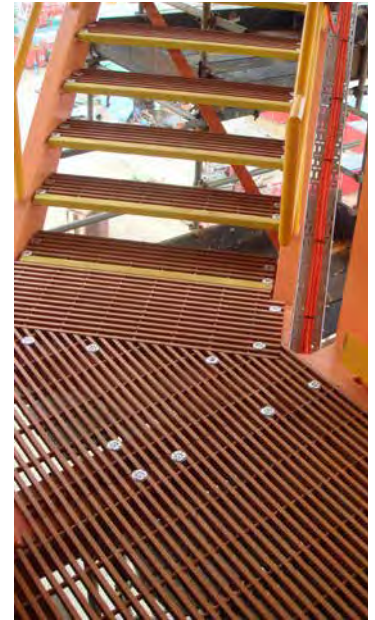
MMHE, Pasir Gudang (Malaysia)
GRP Fabrication/Installation by Amerstrand Engineering

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5") and stair treads:
Approx. 1,440 m² (~15,500 ft²)

Area(s) Using Strongwell Products

Topside



“MAMPAK”

Unmanned Remote Platform

Date / Location

2009 / South China Sea (Brunei)

Ownership

Brunei Shell Petroleum

Fabricator

BSP Marine Construction

Strongwell Products Used

DURAGRID® HD 6500 grating, SAFRAIL™ handrail system

Area(s) Using Strongwell Products

Jacket and Boat Landings

“ARAMCO FIELDS”

Fixed Platforms

Location

Arabian Gulf

Ownership

ARAMCO Services

Fields

Karan, Safaniah, Manifa, Berry Gas, KJO, ZULUF, Tanajib

Fabrication Sites

McDermott, Saipem, MIS Arabia

أرامكو السعودية
saudi aramco



Note: photos of ARAMCO platforms are not permitted

Strongwell Products Used

Over 9,000 m² of DURAGRID® Phenolic grating, 900 stair treads, 1,200 LM of SAFRAIL™ handrail and 250 LM of EXTREN® structural shapes have been used for walkways to reduce maintenance and improve life cycle costs.

“UMM SHAIF”

Platform Complex

Date / Location

2009 / Arabian Gulf (offshore UAE)

Ownership

ADMA-OPCO

Fabricator

Hyundai Heavy Industries

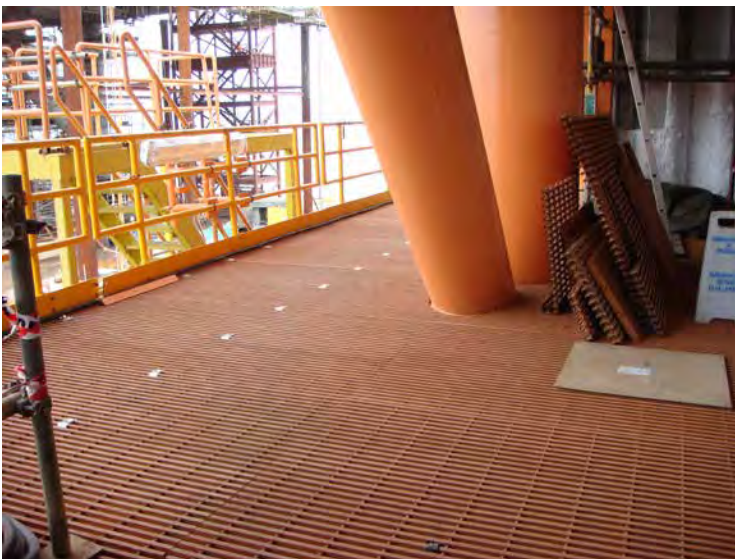
Strongwell Products Used

SAFPLANK® 24" planking

Area(s) Using Strongwell Products

Strongwell SAFPLANK® was used as sun shade over all platform bridges in this complex. The product was ideal for this application with the following features and benefits:

- Poor Thermal Conductivity: Poorly conducts the heat through the shade (people stay cooler)
- Non-Corrosive: Capable of long-term exposure to offshore elements, including bird waste (no maintenance)



“PLUTO”

Fixed Platform

Date / Location

2012 / Offshore Australia (Northwest Shelf)

Ownership

Woodside

Fabricator

Ramunia Yard (Malaysia)

GRP Fabrication/Installation by Amerstrand Engineering

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5") and stair treads

Area(s) Using Strongwell Products

Generous use on Topside

“VALHALL”

Fixed Platform

Date / Location

2010 / North Sea (Norway)

Ownership

BP Norge

Fabricators

Heerema (Zwijndrecht), Burntisland Fabrication (Fife), SLP Engineering (UK), Prosernat (Glycol Skids); Engineering by Mustang Engineering

Strongwell Products Used

DURAGRID® Phenolic I-5500 (NORSOK Qualified) 38mm (1.5") and stair treads (~2,900 m²), EXTREN® Structural Shapes, Pipe sleeves (2" - 32"), MARRS® OFFSHORE Handrail System (100 LM added in 2016)

Area(s) Using Strongwell Products

numerous access platforms, equipment skids, intermediate, mezzanine, mass, sub-cellar decks



“NORTH RANKIN B”

Fixed Platform

Date / Location

2012 / Offshore Australia (Northwest Shelf)

Ownership

Woodside, BHP Billiton, BP, Chevron, Japan Australia LNG, Shell

Fabricator

Hyundai Heavy Industries-Ulsan, KR, GRP fabrication by Strongwell

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5") and DURAGRID® Phenolic I-6000 45mm (5,000 m²) grating and stair treads (200+), pipe sleeves, penetration plates, DURATREAD™ with safety signs, EXTREN® plate (safety signs)

Area(s) Using Strongwell Products

generous use of grating on topside, bridges

“GUDRUN”

Fixed Platform



Date / Location

2011 / North Sea (Norway)

Operator

Statoil

Ownership

Statoil, ENGIE E&P Norge, OMV Norge, Repsol Norge

Fabricator

Aibel (Norway)

Strongwell Products Used

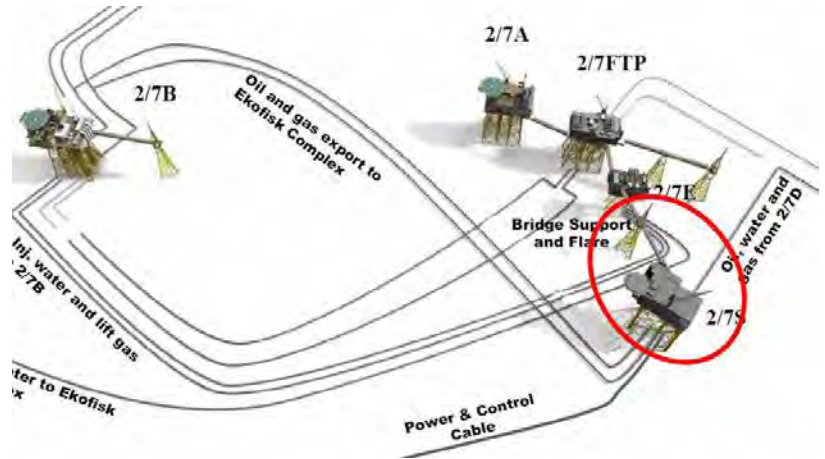
DURAGRID® Phenolic I-5500 (NORSOK-Qualified) 38mm (1.5") and 45mm (1.75") grating

Area(s) Using Strongwell Products

Topside

“ELDFISK II 2-7 S”

Fixed Platform



Date / Location

2012 / North Sea (Norway)

Ownership

ConocoPhillips, Statoil

Fabricator

Kvaerner (Norway)

Strongwell Products Used

DURAGRID® Phenolic I-5500 (NORSOK-Qualified) 45mm (1.75") grating

Area(s) Using Strongwell Products

Wellhead, process, accommodation and utilities platform

“EKOFISK 2/4 L”

Fixed Platform

Date / Location

2013 / North Sea (Norway)

Ownership

ConocoPhillips

Fabricator

Kvaerner-Egersund

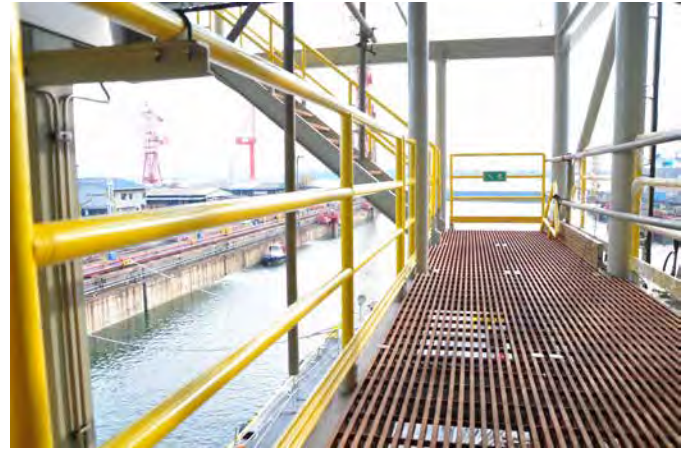
Strongwell Products Used

DURAGRID® Phenolic I-5500 (NORSOK-Qualified) 38mm (1.5") grating (2,200 m²)



“TAPIS Q”

Fixed Platform

**Date / Location**

2013 / South China Sea (West Malaysia)

Ownership

EXXONMobil, Petronas

Fabricator

MMHE (Malaysia)

GRP Fabrication/Installation by Amerstrand Engineering

Strongwell Products Used

DURAGRID® Phenolic I-6000 38 mm (2,043 m²), Stair Treads (95 m²), Round SAFRAIL™ (3 rail) handrail (3,051 LM), DURAGRID® HD-6500 38 mm Jacket grating (115 m²), Jacket Stairtreads: (19 m²), SAFRAIL™ Round handrail used on Jacket (640 LM)

Area(s) Using Strongwell Products

Topside, Jacket

“TAPIS R”

Fixed Platform

Date / Location

2013 / South China Sea (West Malaysia)

Ownership

EXXONMobil, Petronas

Fabricator

MMHE (Malaysia)

GRP Fabrication/Installation
by Amerstrand Engineering

Strongwell Products Used

DURAGRID® Phenolic I-6000 38 mm (9314.11 m²), Stair Treads (249 m²), and Round SAFRAIL™ (3-rail) handrail (12,650 LM)

Area(s) Using Strongwell Products

Topside, Jacket





“TAPIS A & B”

Fixed Platforms

Date / Location

2013 / South China Sea (West Malaysia)

Ownership

EXXONMobil, Petronas

Fabricator

Brownfield work by Amerstrand Engineering

Strongwell Products Used

DURAGRID® Phenolic I-5500 38mm (1.5") and stair treads, DURAGRID® Jacket grating, SAFRAIL™ handrail

Area(s) Using Strongwell Products

Jacket and Topside

“DAMAR A”

Fixed Platform

Date / Location

2013 / South China Sea (West Malaysia, PM 303)

Ownership

EXXONMobil, Petronas

Fabricator

MMHE-Pasir Gudang (Malaysia)
GRP Fabrication/Installation by Amerstrand Engineering

Strongwell Products Used

DURAGRID® Phenolic I-5500 38mm (1.5") and stair treads, DURAGRID® Jacket grating, Round SAFRAIL™ handrail

Area(s) Using Strongwell Products

Topside and Jacket



“EDVARD GRIEG”

Fixed Platform

Date / Location

2013 / North Sea

Operator

Lundin Norway

Ownership

Lundin Norway, OMV Norge,
Wintershall Norge, Statoil

Fabricator

Kvaerner

Strongwell Products Used

DURAGRID® Phenolic I-5500 (NORSOK-
Qualified) 38mm (1.5") and 45mm (1.75") grating

Area(s) Using Strongwell Products

Topside

“ANDREW”

Fixed Platforms

Date / Location

2010 / North Sea (UK)

Ownership

BP, JX Nippon, Talisman-Sinopec

Fabricator

Brownfield Work by Pipex px®

Strongwell Products Used

DURAGRID® Phenolic I-5500 (ISO 14122-2-Qualified) 38mm grating and stair treads, Phenolic MARRS® OFFSHORE handrail

Area(s) Using Strongwell Products

For a new module 710 square metres of DURAGRID® Phenolic I-5500 38mm grating and stair treads were used to save weight, for fast installation when compared to steel, for low maintenance and durability which all reduces costs. Phenolic Handrail Profiles used to form 450 linear metres of Pipex px® MARRS® OFFSHORE handrail to save weight, for fast installation, low maintenance and durability.



“CLAIR RIDGE”

Fixed Platforms

Date / Location

2014 / North Sea (UK - Shetlands)

Ownership

BP, ConocoPhillips, Chevron Corporation, Royal Dutch Shell

Fabricator

Hyundai Heavy Industries, Pipex px® (handrail/hop-ups)

Strongwell Products Used

DURAGRID® Phenolic I-5500 (ISO 14122-2-Qualified) 38mm (1.5") grating and stair treads, Phenolic Structural Profiles, Phenolic MARRS® OFFSHORE handrail, penetration plates, pipe sleeves

Area(s) Using Strongwell Products

8,800 square metres of DURAGRID® Phenolic I-5500 38mm grating used to save weight, for fast installation when compared to steel, for low maintenance and durability which all reduces costs. Phenolic Structural Profiles used for hop-up tertiary access structures to save weight, for fast installation, low maintenance and durability.



Phenolic Handrail Profiles used to form 4,200 linear meters of Pipex px® MARRS® OFFSHORE handrail to save weight, for fast installation, low maintenance and durability.



“HEJRE”

Fixed Platform

Date / Location

2014 / Offshore Denmark

Ownership

Dong Energy

Fabricator

DSME

Grating Fabrication:

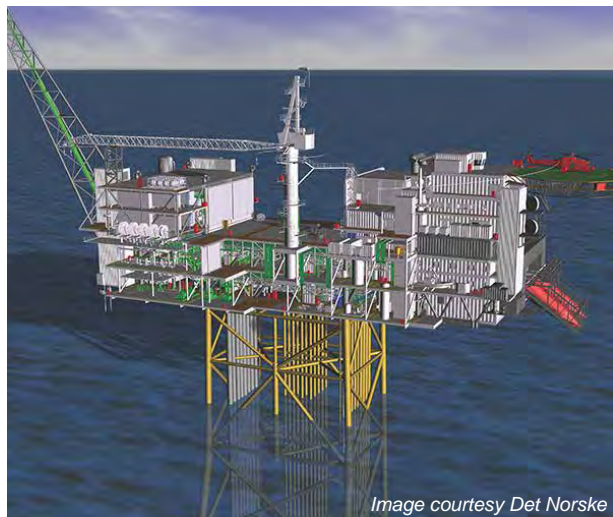
World Ocean (Korea)

Strongwell Products Used

DURAGRID® Phenolic I-5500 (NORSOK-Qualified) 38mm (1.5") (495 m²) and 45mm (1.75") (1,825 m²) grating

Area(s) Using Strongwell Products

Generous use on Topside



“IVAR AASEN”

Fixed Platform

Date / Location

2015 / North Sea (Norway)

Operator

Det norske oljeselskap

Ownership

Det norske oljeselskap, Statoil, Bayergas Norge, Wintershall Norge, VNG Norge, Lundin Norway, OMV Norge

Fabricator

Sembcorp Marine Ltd (SMOE) (Singapore)

Strongwell Products Used

DURAGRID® Phenolic I-5500 (NORSOK-Qualified) 38mm (1.5") grating (2,417 m²), kickplate, pipe sleeves

Area(s) Using Strongwell Products

Topside

“OCEAN STAR” & “OCEAN QUEST”

Victory Class Semi-Submersibles



Date

1996 and ongoing

Ownership

Diamond Offshore Drilling

Strongwell Products Used

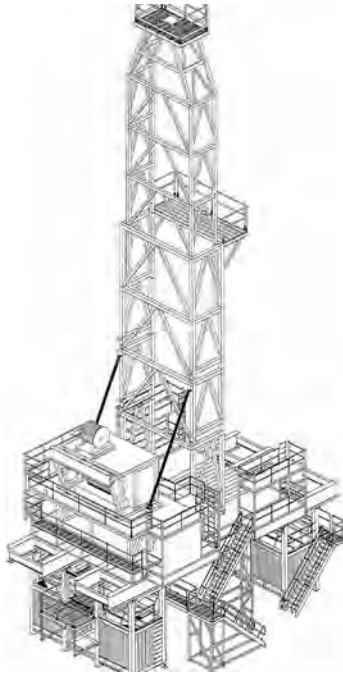
DURAGRID® Phenolic I-6000 38 mm & plated grating (total approx. 1,200 m²)

Area(s) Using Strongwell Products

Anchor handling, Life boat landings, Helideck perimeter walkways, engine, accumulator, shaker & mud rooms, offshore cranes, drill floor perimeter walkways, tensioner access walkways, cellar deck, anchor bolsters

Diamond Offshore upgraded many Victory Class Semis with DURAGRID® Phenolic gratings. Among them were: Ocean Baroness, Ocean Rover, & Ocean Nomad. The same products were used to save weight and maintenance costs on the Ocean Clipper as well as other numerous undocumented upgrades on Diamond Offshore Rigs.





“RIGS 41 & 42”

Platform Rigs

Date

1996

Ownership

Mallard Bay Drilling (Parker)

Fabricator

Red Foxx Industries (New Iberia, LA)

Strongwell Products Used

DURAGRID® T-5000 50mm (75 m²) & 76 I-6000 stair treads

Area(s) Using Strongwell Products

Active Mud Tank, Process Mud, Stair towers, brake pump module, mud tank walkway, V-door area

Comments

Rig 41 and 43 were new build projects to be used on fixed platforms.

“ADMIRANTE”

Semi-Submersible (Upgrade)

Date

1998

Ownership

Transocean

Fabricator

AMFELS (Brownsville, TX)

Strongwell Products Used

1000 m² of DURAGRID® Phenolic I-6000 38 mm

Comments

This was a major upgrade to the existing rig (brownfield work). The product helped reduce weight while lowering maintenance costs.



“CELTIC SEA”

Semi-Submersible (Upgrade)

Date

1998

Ownership

Transocean (former Global Santa Fe Corp)

Fabricator

AMFELS (Brownsville, TX)

Strongwell Products Used

DURAGRID® Phenolic I-6000 38 mm; DURADEK® I-6000 38 mm

Comments

This was a major upgrade to the existing rig (brownfield work). The product helped reduce weight while lowering maintenance costs.

“EXPRESS”, “ENERGY” & “CAJUN EXPRESS”

Express Class Deepwater Semi-Submersibles

Date

1999

Ownership

Transocean Drilling (built under SEDCO FOREX)



Fabricator

DCN Shipyard (France) and PPL Shipyard (Singapore)

Strongwell Products Used

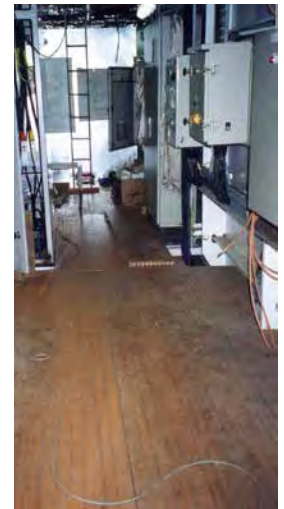
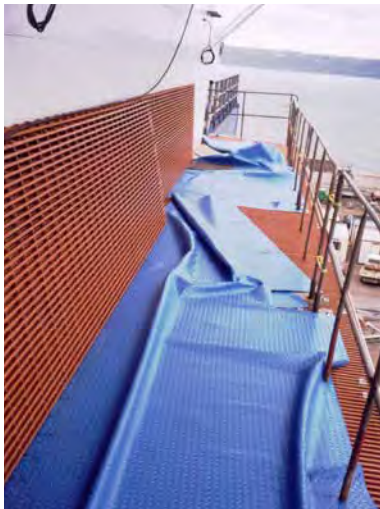
DURAGRID® Phenolic I-6000 (1,043 m²); DURAGRID® Phenolic with phenolic plate (2 versions) (1445 m²). A SAFRAIL™ handrail system was used exclusively on the Cajun Express

Area(s) Using Strongwell Products

Thruster rooms, Main deck, outside of the living quarters, Lifeboat landings. Duragrid Phenolic bonded to phenolic plate was used as flooring in the mud sack storage, electrical rooms and additional areas in the deck box, glass protection



DURAGRID® Phenolic was used in this project because of the significant weight savings on each of the 3 rigs.



“7500”

Deepwater Semi-Submersible

Date

1999

Ownership

ENSCO Drilling

Designer

Ocean Designs (Houston, TX)

Fabricator

Freide Goldman Offshore (Sabine Pass, TX)

Strongwell Products Used

DURAGRID® Phenolic I-6000 38 mm (935 m²), DURADEK® (190 m²), SAFPLATE® with DURAGRID® Phenolic (540 m²)

Area(s) Using Strongwell Products

- DURAGRID® Phenolic: Thruster rooms, lifeboat landings, crane, tensioner, and ROV accesses, Degasser area, access within columns, and general deck areas.
- DURADEK®: Blow out preventer, Diverter and closing unit
- Safeplate with DURAGRID® Phenolic: Mud tank access covers

Comments

DURAGRID® Phenolic, DURADEK®, and SAFPLATE® provide substantial weight savings on weight sensitive projects. Safeplate over the mud tanks eliminates costly maintenance. Subsea applications for DURADEK® reduce weight, corrosion, and galvanic action. All products install much faster than metal products and are superior for use on fast track projects.



Other ENSCO Projects include: Windwalls for ENSCO 101 & 102 Jack-ups.



“JACK RYAN” & “CR LUIGS” Drillships



Date

1999

Ownership

Transocean (former Global Marine)

Fabricator

Harland & Wolff

Strongwell Products Used

1,100 m² DURAGRID® Phenolic I-6000 38 mm per vessel

Area(s) Using Strongwell Products

Access walkways and bridge cranes



“GORILLA 7”

219C Super Gorilla Class Jack-up

Date

2001

Ownership

Rowan Drilling

Fabricator

Marathon Le Tourneau (Vicksburg, MS)

Strongwell Products Used

DURAGRID® Phenolic I-6000 38mm (1.5”) grating



DURAGRID® Phenolic grating was used on nearly all Tarzan and Gorilla Class rigs.

“DISCOVERY”

KFELS MOD V B Class Premium Jack-up

Date

2002

Ownership

Chiles Offshore Inc.

Fabricator

Keppel FELS (Singapore)

Strongwell Products Used

DURAGRID® Phenolic Grating

Comments

Particular attention to weight savings on the cantilever enabled this rig to set production jackets for customers offshore Australia.



“CONSTELLATION 1 & 2”

Friede and Goldman Super Mod 2 Design Jack-up

Date

2002

Ownership

Transocean (former Global Santa-Fe)

Fabricator

PPL Shipyard (Singapore)

Strongwell Products Used

DURAGRID® Phenolic, DURADEK® and DURAGRATE® gratings; SAFRAIL™ Hand rails (+450 meters each), SAFRAIL™ Ladders (43 each), EXTREN® Structure for stairways.

Comments

Constellation 1 used gray handrail. Constellation 2 used yellow handrail.



“SCOOTER YEARGAIN” & “BOB KELLER” Tarzan Class Jack-up Design



Date
2003 / 2004

Fabricator
Marathon Le Tourneau (Vicksburg, MS)

Ownership
Rowan Drilling

Strongwell Products Used
DURAGRID® Phenolic I-6000 38 mm (1160 m² each)



“WEST PHOENIX” Semi-Submersible (Harsh Environment)

Date
2007

Ownership
Seadrill

Fabricator
Samsung Heavy Industries (Korea)

Strongwell Products Used
2000 m² DURAGRID® Phenolic I-4800 38 mm (NMD compliant),
55 Stairtreads and nosing for landings

Area(s) Using Strongwell Products
Inside Pontoons, Living quarters area, Drill floor area, Fore Deck



“WEST EMINENCE”

Semi-Submersible (Harsh Environment)

Date
2008

Ownership
Seadrill

Fabricator
Samsung Heavy Industries (Korea)

Strongwell Products Used
Strongwell Products used: 2000 m² DURAGRID® Phenolic I-4800 38 mm
(NMD compliant), 170 Stair treads and nosing for landings

Area(s) Using Strongwell Products
Inside Pontoons, Living quarters area, Drill floor area, Fore Deck



“SPITSBERGEN”

Semi-Submersible (Harsh Environment)

Date

2009

Strongwell Products Used

DURAGRID® Phenolic I-4800 38mm (NMD compliant)

Ownership

Transocean

Area(s) Using Strongwell Products

Entire Topside (2,500 m²)

Fabricator

Aker (Norway)



“BARENTS”

Semi-Submersible (Harsh Environment)

Date

2009

Ownership

Transocean

Fabricator

Aker (Norway)

Strongwell Products Used

DURAGRID® Phenolic I-4800 38mm (NMD compliant)

Area(s) Using Strongwell Products

Entire Topside (2,500 m²)

“ORITSETIMEYIN” & “ONOME”

Friede and Goldman Super Mod 2 Design Jack-ups

Date

2009

Ownership

SeaWolf Oilfield Services (Nigeria)

Fabricator

Maritime Industrial Services (MIS) (Sharjah, UAE)

Strongwell Products Used

DURAGRID® Phenolic I-6000 38 mm
(Hull 2203=500 m²) / (Hull 2305=600 m²)

Area(s) Using Strongwell Products

Throughout the Rig according to ABS Code

