

Norway Steel Group

Steel Fabrication Services

Worldwide Supplier of High Quality Steel Structures

COMPANY PRESENTATION

ROBERT BADER + MICHAEL VEEGH

Norway Steel Group AS is a Norwegian registered company that was established in 2004 by individuals with many years of experience in international steel fabrication and related services. Our mission is to provide steel fabrication and steel related services according to strict quality standards in almost any part of the world.

Norway Steel Group AS specializes in supplying all types of structural steel to meet our clients' needs, in conformance with their specifications and requirements. Signing a contract directly with us, and not with some "unknown" subcontractor, gives you solid assurance of an on-time delivery with minimal risk. All steel fabrication is carried out in our name and under our strict management system. Our pre-qualified workshops around the globe have carried out steel fabrication for several decades, both for light and heavy steel structures, ranging from offshore oil installations and heavy lifting equipment to simple steel trusses.

Norway Steel Europe s.r.o., based in Slovakia, was established to carry out all of Norway Steel's core business in Europe, particularly inside the EU. This avoids the difficult VAT problems linked to fabrication and delivery inside the EU as well issues related to exporting from the EU.

Wuhan Steel Machinery Co. Ltd is our subsidiary in China, in possession of a valid Chinese export license and providing us with assistance on various tasks, such as project management, QA/QC, procurement, tender and bid inquiries, contracts, logistic, etc.

Norse Inspection Co. Ltd is a Chinese registered, independent 3rd party company that is engaged in NDE inspection, material testing, documentation and QA/QC engineering for steel work in the petroleum and chemical industries, ship-building, offshore structures, bridges, buildings and other facilities.

Our scope of work falls into four categories:

- **TEMPORARY STEEL STRUCTURES**
- **PERMANENT STEEL STRUCTURES**
- **SPECIAL STEEL STRUCTURES**
- **STEEL PRODUCTS AND SERVICES**

TEMPORARY STEEL STRUCTURES - *Bridge Building Equipment*

Norway Steel Group has more than ten years of experience in manufacturing high-end bridge building equipment for one of the biggest global suppliers in this market. Over forty machines have been delivered, in over 15 countries, ranging from cast-in-place equipment to precast segmental equipment.

CAST-IN-PLACE EQUIPMENT LIKE **FORM TRAVELLERS** AND **MOVABLE SCAFFOLDING SYSTEMS**

Form travellers for a wide variety of bridge cross-sections. Single, double and triple box girder sections or plate girders for highway, railway or road construction. Can be used for a variety of bridge types such as arch bridges, suspension or cable stay bridges, simply supported or continuously constructed bridges. The equipment can be designed in overhead or underslung versions.



Figure 1 • OVERHEAD FORM TRAVELLER, KANAWA, USA



Figure 2 • ARCH TRAVELLER, OPARNO, CZECH REPUBLIC

CAST-IN-PLACE EQUIPMENT LIKE **FORM TRAVELLERS** AND **MOVABLE SCAFFOLDING SYSTEMS**

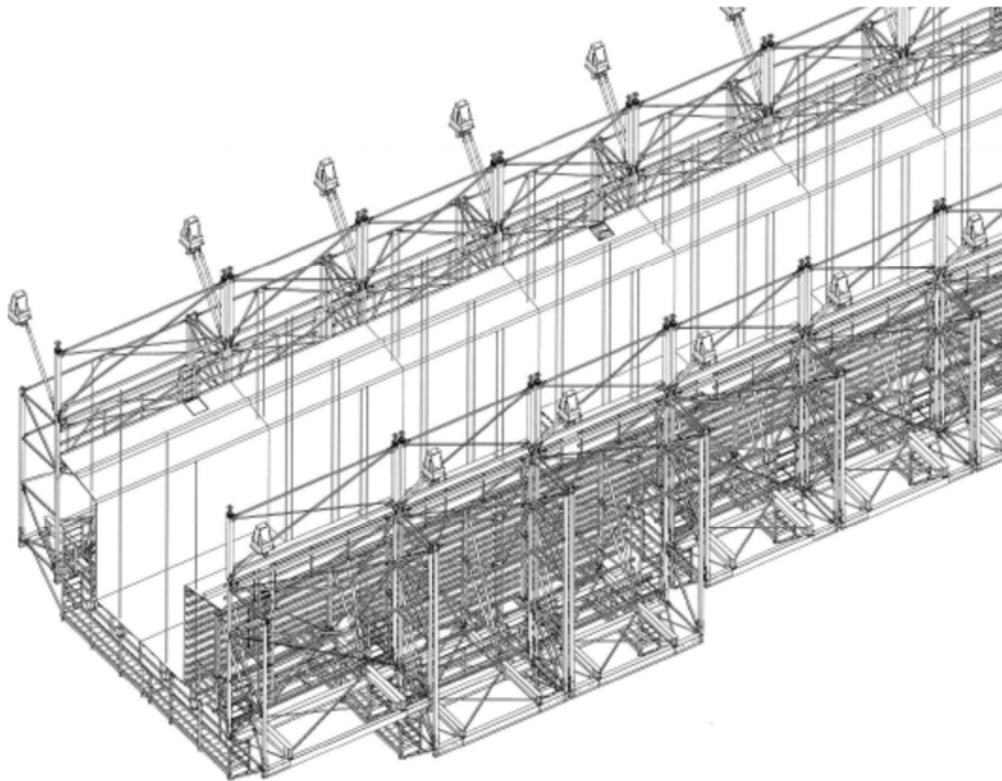


Figure 3 • OVERHEAD MSS, STRELASUND, GERMANY

Movable Scaffolding Systems for a wide variety of bridge sections. The MSS system can be delivered in overhead or underslung form. It is possible to have the system self-propelled and also independent from external cranes. Concrete pumps, rebar and even tower cranes can be transported by the MSS.



Figure 4 • UNDERSLUNG MSS, FÜLLBACH, GERMANY



Every machine is manufactured according to its Inspection and Test Plan, covering international and national standards and quality requirements. A partial trial assembly in the workshop is made to assure a smooth site operation.



Figure 5 • UNDERSLUNG FORM TRAVELLER, INDIAN RIVER, USA

PRECAST ERECTION EQUIPMENT - SEGMENT LIFTERS, BEAM LAUNCHERS & LAUNCHING GANTRIES



Figure 6 • SEGMENTAL TRAVELLER, FOUR BEARS, USA

Precast erection equipment is often delivered with winch systems. Alternatively, strand lifting systems or other hydraulic lifting devices can be used.



Figure 7 • UNDERSLUNG LAUNCHING GANTRY, GUANGZHOU, CHINA

TEMPORARY STEEL STRUCTURES - SELF-CLIMBING FORMWORK

Norway Steel Group has manufactured custom-designed formwork systems for projects ranging from buildings and bridge pylons to industrial tanks. We produce a wide variety of formwork, from simple formwork systems to tailor-made self-climbing systems, all according to our clients' designs and specifications. Norway Steel has excellent access to a number of workshops that are experienced in the fabrication of both steel and aluminum items.

Formwork systems for «LNG» Liquid Natural Gas tanks are often made as self-climbing jump form systems.



Figure 8 • SELF-CLIMBING JUMP FORM, GORGON LNG TANK, AUSTRALIA



Figure 9 • SELF-CLIMBING FORMWORK, WHEATSTONE LNG TANK, AUSTRALIA

Fully caged systems, creating a safe working environment. Several platform levels provide the necessary access.



Custom-made
formwork systems
for all shapes and
sizes...

Figure 10 • SELF-CLIMBING FORMWORK, HAMILTON HARBOUR, AUSTARLIA



Figure 11 • SELF-CLIMBING FORMWORK, PHU MY BRIDGE, VIETNAM

TEMPORARY STEEL STRUCTURES - MISCELLANEOUS STRUCTURAL STEEL

Norway Steel Group is able to fabricate temporary structural steel items for all types of projects and sites. Structures such as temporary supports, towers and ramps can be delivered with welded or bolted connections, all in accordance with the clients' plans and specifications. We can offer fabricated steel ex-works or delivered to site, with transportation either by land or sea, as appropriate.



Figure 12 • TEMPORAY CLIMBING TOWER, GERMANY



Miscellaneous temporary structures designed with bolted connections, pin bolt connections and adjustable bases.



PERMANENT STEEL STRUCTURES - *FABRIC BUILDINGS*

Norway Steel Group has manufactured framing for one of the biggest suppliers of fabric buildings, ranging from aviation hangers, sporting facilities and storage warehouses to military hangers. All these buildings are custom designed to any size or shape.



Figure 13 • AVIATION HANGER, HAWAII

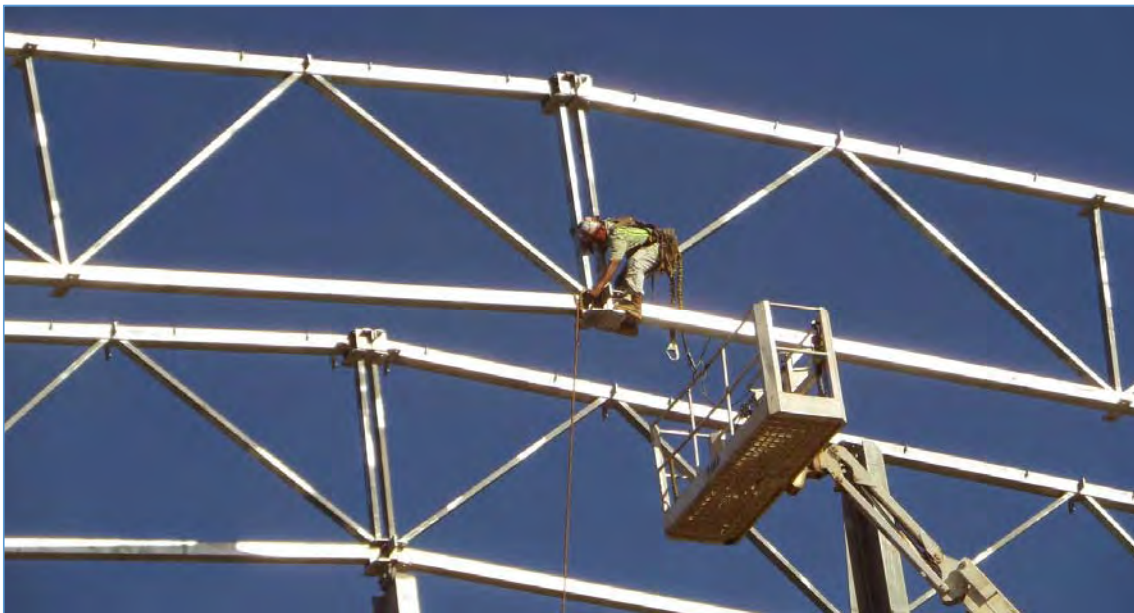




Figure 14 • FABRIC BUILDING, 30M, NORWAY



Figure 15 • FABRIC BUILDING, 25M, NORWAY

PERMANENT STEEL STRUCTURES - STEEL BUILDINGS

The range of application for steel has expanded with the improvement of materials, products and design capabilities. Norway Steel Group can not only manufacture entire steel structures, but also exposed architectural steel items, embedded steel elements such as shear walls and outdoor balcony assemblies.



Figure 16 • STEEL ROOF STRUCTURE, BRISKEBY STADION, NORWAY





All steel structures can be delivered with the required surface and corrosion protection, fire resistant painting or hot-dip galvanizing.

PERMANENT STEEL STRUCTURES - STEEL & COMPOSITE BRIDGES

The constant search for higher quality at better prices has resulted in the cooperation with workshops specializing in permanent steel structures such as composite bridges. Norway Steel Group can offer the manufacture of steel parts, sized to fit standard shipping containers and which can be transported over land or by sea. Oversized items can be shipped by sea.



Figure 17 • COMPOSITE STEEL BRIDGE, TUTI, SUDAN



SPECIAL STEEL STRUCTURES - OFFSHORE

The offshore market is well known for demanding high-quality products and thorough documentation. We have developed and fabricated several different products for easier handling of moorings for oil and gas subsea operators in the North Sea, like Chaser Stoppers and Triplates. Our involvement can vary from hiring out QS inspectors to fabricating subsea anchors and to building complete jack-up rigs.



Figure 18 • FREYHOF ANCHOR



Figure 19 • LOAD TEST OF ANCHOR





Figure 20 • MACHINING PROCESS OF CHASER STOPPERS





Figure 21 • LEAD PLUG, NORWAY



Figure 22 • TRIPLATES

SPECIAL STEEL STRUCTURES - *ELECTRO INSTALLATIONS*

We have workshops with many years of experience and who specialize in the fabrication of steel towers for power lines and railway systems. We can manufacture all the steel involved in a transformer station, from simple grounding poles to gantries and main gantries, all custom-made and delivered to site.



Figure 23 • PORTAL, SUNDLAND, NORWAY



Figure 24 • BEVERGRENDA TOWER, NORWAY

SPECIAL STEEL STRUCTURES - *OTHER PRODUCTS*

Fabrication of lattice and tubular wind towers, including all accessories.

Fabrication of large digging shovels in different sizes.

We will perform partial or full trial assemblies if requested, even though our workshops use CNC drilling technology to avoid site fit-up problems.



Figure 25 • TUBULAR WIND TOWERS, DENMARK



Our workshops can supply a wide variety of machined parts directly from in-house machine shops, equipped with state-of-the-art CNC drilling, machining and cutting centers.



Storage Silos and Pressure Tanks in plain or stainless steel, finished and painted according to customer specifications.



Figure 26 • SILOS AND TANKS IN STAINLESS STEEL

STEEL PRODUCTS - NORSE BLADES

Norse blades are a series of high-quality saw blades for cutting metal, wood and plastic.

SAW BLADES



Product Name	1-1/4" HCS Saw Blade(straight tooth)
NORSE No.	W3418
Material	Blade SKS Holder 65Mn
Thickness (mm)	Blade 0.6, Holder 1.2
Surface Treatment	Narural Color-Varnish only
Features	Wood-Plastic
Size(mm)	34*34*92



Product Name	2-5/8" Triangular HCS Saw Blade(oblique tooth)
NORSE No.	W6818
Material	Blade SKS Holder 65Mn
Thickness (mm)	Blade 0.6, Holder 1.2
Surface Treatment	Narural Color-Varnish only
Features	Wood-Plastic
Size(mm)	68*94



Product Name	1-3/4" Titanium Universal Bi Metal Oscillating Multitool Saw Blade
NORSE No.	MT4518
Material	Blade HSS,M42 Holder 65Mn,teeth area is hardened by titanium
Thickness (mm)	Blade 0.8, Holder 1.2
Surface Treatment	Narural Color-Varnish only
Features	Metal-Wood-Plastic
Size(mm)	32.5*45*111



Product Name	3-1/8" Segment HSS Saw Blade
NORSE No.	M8018
Material	HSS,M2
Thickness (mm)	0.8
Surface Treatment	Narural Color-Varnish only
Features	Metal-Wood-Plastic
Size(mm)	Ø80

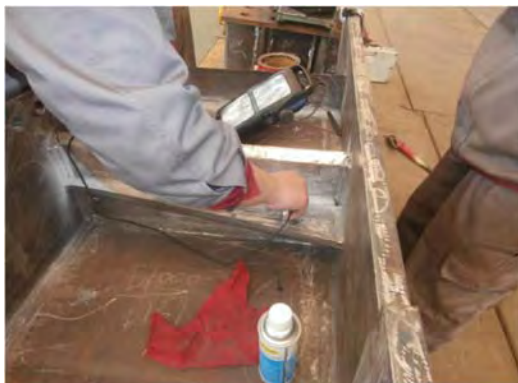
SERVICES

QUALITY ASSURANCE

Norway Steel AS specializes in supplying many different types of steel structures for your needs and in accordance with your specifications and requirements. Let our reference list be your assurance that you will receive the best value for your money, combined with quality workmanship and on-time delivery, without compromising safety. The QS inspectors we employ are on site during fabrication to make sure that steel quality, fitting, welding, machining and surface treatment all are supplied and executed in full conformance with the applicable drawings, specifications and standards.

HIRING OF QS INSPECTORS

To ensure quality production in your own facility, it is possible to hire our QS Inspectors and Team Leaders on a temporary basis. We offer experienced personnel who will stay in your workshop for the duration of a project, all over the world, to ensure the integrity of your fabrication process and the quality of your final products.



Norway Steel will follow and document the entire fabrication process from material receiving to final painting and packing for shipment. All checking and verification efforts are documented for each step and assembled into a final report, as proof of quality and to provide total traceability in terms of material conformance and workmanship.



As part of this process, we will develop a thorough and optimal ITP (Inspection and Test Plan) for our client and then make sure this ITP is in fact closely followed by the workshop. All results and checks are included in the final documentation. We have 100% traceability for the materials supplied and the work performed.

Through years of work, we have secured access to workshops certified in all execution classes and with annual production capacities ranging from 15 000 ton up to 150 000 ton.

Most workshops are equipped with CNC drilling machines, CNC cutting tables, welding computers, multi-directional CNC drilling machines, shot and sand blasting facilities, painting booths and so on.



Figure 27 • AUTOMATIC SUBMERGED ARC WELDING MACHINE



Figure 28 • CNC CUTTING TABLE



Figure 29 • ARRAY OF CNC DRILLING MACHINES



Figure 30 • 3D MULTI-DIRECTIONAL CNC DRILLING MACHINE



Figure 31 • SHOT BLASTING MACHINE



Figure 32 • SAND BLASTING COMPARTMENT

Before painting, we will perform a partial or complete trial assembly, to ensure the proper fit-up of the individual components. This ensures that site operations will run smoothly and avoids on-site rework and associated delays.



Figure 33 • PARTIAL TRIAL ASSEMBLY



Figure 34 • FULL TRIAL ASSEMBLY

Workshops have special “stuffing” areas with gantry crane support for filling standard shipping containers as efficiently as possible, in preparation for international delivery by sea and by truck.

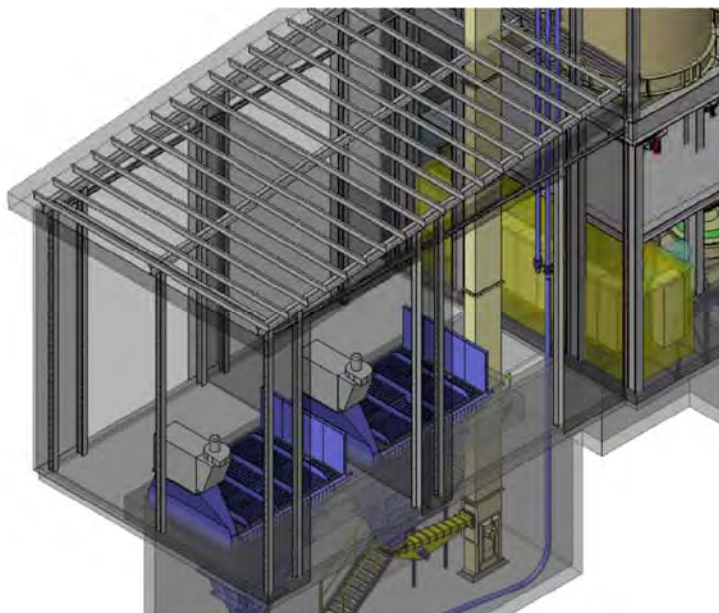


If requested by our clients, we can also perform extensive load testing in the workshop.

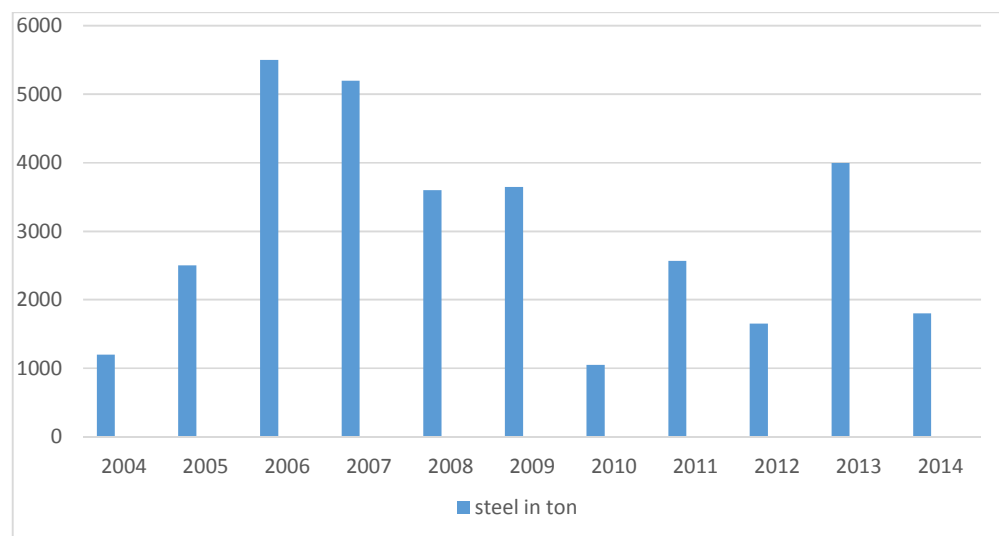


Figure 35 • LOAD TEST FOR SUBSEA ANCHOR

Most of the workshops use TEKLA 3D software for preparing their detailed shop drawings and parts lists.



Our annual fabrication volume over the last decade



- Norway Steel Group's wide range of activities gives us access to many different and specialized workshops around the globe.
- Norway Steel can also connect you with highly specialized companies for your structural steel design needs.
- We have the experience, resources, knowledge and commitment to be your partner of choice for steel manufacturing around the world.



Figure 36 • SEVEN SISTERS – GREETINGS FROM NORWAY

A PARTNER FOR THE FUTURE

THANK YOU

Robert Bader **NSG – Main Office**
Tel: +47 35 58 85 40
Cell: +47 901 33 778
Mail: robert.bader@norway-steel.no

Michael Veegh **NSG – North America**
Tel: +1 401 841 0623
Cell: +1 401 935 3637
Mail: mveegh1@cox.net

www.norway-steel.no

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