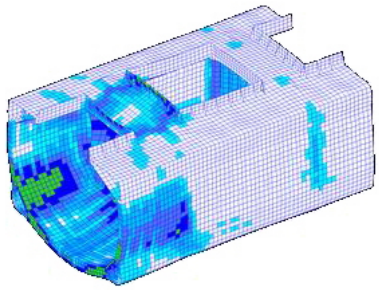
Success with Open CASCADE

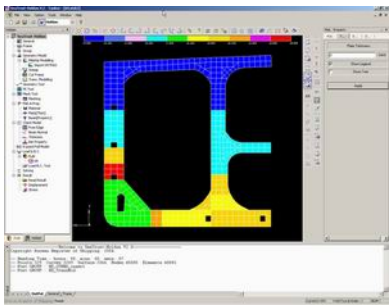
Korean Register of Shipping

Integrating Open CASCADE simulation technology opens a new level of reliability in the field of ship design and classification

"The choice of Open CASCADE Technology helped us to substantially reduce our efforts in creation of a complex software product for ship classification. Using Open CASCADE support and know-how and with help of their Mesh Framework we managed to dramatically speed up the development process "

Ho-Chul Son,
Senior Surveyor,
Korean Register of Shipping





MISSION

- *Create an application which could be used easily and conveniently to verify the compliance of ship design to KR's "Rules for Classification of Steel Ships" and "Guidelines Relating to Rules for Classification of Steel Ships".*

SOLUTION

- *Development of SeaTrust-Holdan, specialized software to run various calculations and checks on ships represented with finite element models. The software has been developed with the help of Open CASCADE Technology and its Mesh Framework (OMF).*
- *Subscription to support services to reduce development cycle and to ensure a most efficient implementation.*
- *SeaTrust-Holdan consists of an automatic modeler, finite element solver, and post-processor. It can be interfaced with MSC/NASTRAN software.*

RESULTS

- *Substantial costs saving thanks to the open source approach of Open CASCADE Technology.*
- *Fast integration of KR's know-how thanks to reliable support services provided by the Open CASCADE Company.*
- *Customization of the original OMF to KR's particular needs due to its source code availability.*
- *Reduction of user efforts and working time and standardization for hold analysis thanks to a powerful and user-friendly application interface.*
- *Automatic and manual mesh generation.*
- *Creation of standard boundary conditions and loads based on KR guidelines.*

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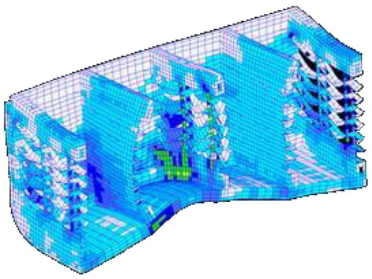
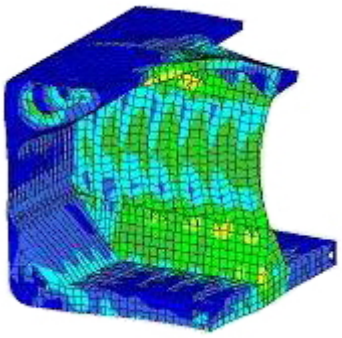
FACT FILE

Korean Register of Shipping

- KR (Korean Register of Shipping) is a ship classification society established in 1960. It is dedicated to working toward the goal of safe ships and clean oceans through promoting technology and human resource development related to shipping, shipbuilding and industrial services.
- KR has grown rapidly along with the expansion of shipbuilding and the shipping industries in Korea. In keeping with this rapid growth, KR became a member of the International Association of Classification Societies (IACS) in 1988, and, in 1990, was listed in the Institute Classification Clause (ICC) of London Underwriters. This high International standard of confidence is indicative of KR's solid underpinnings and provides outstanding global recognition of KR as a well-established classification society.
- The Korean Register of Shipping invests intensively in Research & Development to promote more effective classification rules. Continuous extension of its survey networks and enhancement of service excellence through training and education of its personnel help to maintain its technical integrity. In this way, KR ensures the delivery of a high standard of services to its clients. KR's ultimate goal is the realization of its vision, "World Leading Classification Society".

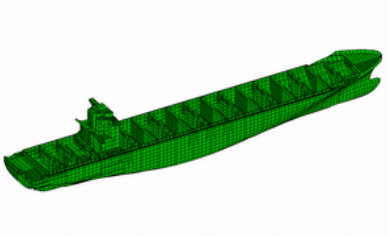




MORE ABOUT THE PROJECT

What is SeaTrust-Holdan?

SeaTrust-Holdan is a special-purpose software package developed for the structural strength analysis of bulk carriers, double hull oil tankers, containers ships. It consists of an automatic modeler, finite element solver and a post processor.



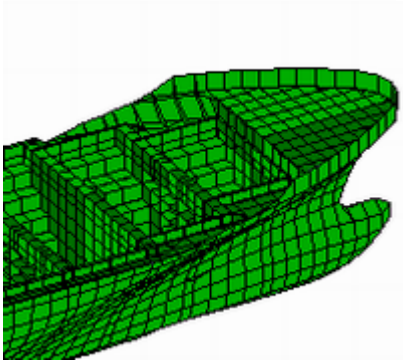
Features

A ship structure is subdivided into primary members, secondary members and tertiary members. Primary members consist of side shell, bottom, inner bottom, deck, etc. Secondary members consist of web frames, transverse bulkheads, floor, etc. Tertiary elements consist of web stiffeners, brackets, etc.

During the resizing or modifying process, the program automatically searches for elements which will be influenced by the process and also automatically adjusts them.

When some parts of the geometric data are changed, or when the user wants to generate FEM mesh from a geometrically similar ship, he can save much time by resizing or modifying only some parts of the already established FEM mesh data.

Topological information on frames and longitudinal stiffeners is included into basic ship data. Most elements are arranged by using this information. Also, the shape and the size of an element are decided. Employing all information shown on ship drawings, even a novice in this field is able to make an easy arrangement of elements.



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