

# Preface

The ship design is divided generally into four parts, hull form design, arrangement design, hull structure design, and fitting design (hull fitting and machinery fitting). The design of merchant ships starts with the owner's requirements such as kind and volume of cargo, transportation route and time generally. Sometimes the owner has a special requirement such as no bulkhead in hold.

Based on the above requirements a general arrangement plan is roughly designed and the studies are to be done from stability, strength, operation, and habitability viewpoints. Thus the general arrangement plan is finally decided with correction if necessary. Referring the lines plan, which shows the hull form, and the general arrangement plan, in the hull structure design the size, position, and materials of the structural members are decided, including the fabrication and assembly methods.

The most important duty of the hull structure design is to supply a strong enough hull structure against the internal and external loads. The text books or hand books of hull strength are helpful to the hull structure designer. However these books are generally written from the viewpoint of the strength theory and seem not to be sufficient from the design viewpoint.

The authors are hull structure designers in four generations, from the developing era of the structural design by large increase of the ship size and increase of ship production to establishing era of the design technology using computer; CAD and CAE. In this book the experiences of the authors in the above generations are condensed from the design viewpoint. Hence this book includes not only basic theory but also practical design matter. The authors are convinced that this book will be strong weapon for designers to design the hull structure as well as for students to understand the hull structure design in the world.

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*Masaki Mano  
Yasuhisa Okumoto  
Yu Takeda  
Tetsuo Okada*

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Okumoto, Y.; Takeda, Y.; Mano, M.; Okada, T.

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