New Zealand Naval Architect

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The Marine Centre of Excellence Limited
by Dr Philip Mladenov

The Marine Centre of Excellence Limited (MCE) was formally established in November 2002 and is a grouping of 25 marine industry stakeholders whose mission is to work together to provide innovative solutions for the sustainable, long-term growth and competitiveness of its members, as well as to contribute to the overall growth of New Zealand's marine and associated industries. Stakeholders include companies directly involved in a broad range of marine industry activities as well as investment and finance companies interested in marine industry opportunities and relationships, and knowledge-based institutions.

The specific aims of the MCE include:

- Cluster and enhance the group's R&D, innovative and entrepreneurial activities to provide a creative environment for constant improvement and sustainability
- Develop innovative products and services with world-wide applications and commercialise them as quickly as possible
- Promote an environment fostering the development of spin-off companies capitalising on the intellectual property generated within the group
- Provide opportunities for post-graduate training and research in fields relevant to the future development of marine and associated industries
- Create opportunities to retain highly skilled people within the New Zealand marine industry
- Form strategic alliances with select offshore affiliates
- Enhance the group's competency to bid for large projects, including offshore contracts
- Develop world-class standards for the working environment in the marine industry through emphasis on safety, training and social responsibility

One role of the MCE is to coordinate the innovative activities of its stakeholders and provide high-level guidance, mentorship and strategy development to encourage and

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A Word from the President.

For several reasons, I am particularly pleased to bring you this issue of the New Zealand Naval Architect. Members will notice that our fresh efforts to increase the regularity of our magazine are bearing fruit, thanks to the energy and commitment of our new editor, Helen Queckett. Thanks are also due to our contributors for their ongoing support through provision of articles, as well as our advertisers on whom we rely so heavily.

Secondly, this issue profiles a number of positive developments for the profession of naval architecture in New Zealand. Growth in the educational framework being offered here is very positive for all. We look forward to a growing involvement, particularly as the level of these courses continues to deepen, hopefully eventually towards an engineering naval architecture degree in years to come. Reflective of this development is the introduction of our country's first naval architecture prize, the RINA Babcock Student Naval Architecture Award, detailed elsewhere in this issue. We are also hopeful that the recent establishment of the Marine Centre of Excellence will prove a great asset to our industry, and we watch with great interest the developments in this area.

Finally, it is with some relief that I look forward to standing down this month as President of the New Zealand Division. I first joined the Council of the Naval Architectural Society of NZ in 1996, becoming Vice President in 1998, and then President in mid-1999. Much and little has changed in the ensuing four years – most notable is our establishment of the New Zealand Division of the RINA in January 2001, the result of a great many months of work by many on Council. Looking now at our activities, I would have to say that I consider the merger to have been a great success, and a positive move for our industry here in NZ. Without doubt, our greatest achievement to date has been the High Performance Yacht

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Design Conference, held in Auckland last December. Thanks to the support of our sponsors, and of our partners The University of Auckland and Massey University, this event was a great success. With over 130 delegates from more than a dozen countries, many described the conference as the best conference ever held in its field. While we tend to be more modest in our claims, we are confident we can turn this into a regular event.

It has long been a goal of mine to see a Continuing Professional Development programme for naval architects, and this is now well established. Our involvement in wider industry issues continues to grow, thanks to our excellent relationship with the Boating Industries Association. Our programme of members meetings is now in the excellent hands of Susan Edinger, and despite a drop in income (due to the RINA merger), our finances are in great shape thanks in no small part to our Treasurer, Chris Mitchell.

My emphasis as President has always been to represent the membership. I sincerely trust I have done so faithfully and accurately, and I hope that I am handing-over the leadership to Graeme Finch with our affairs in the best possible shape. I would like to thank all those with whom I have worked on Council over the last four years, and hope that Graeme finds his new role as satisfying as I have.

Michael Eaglen

President.

facilitate innovation and R&D within the group. Those stakeholders who carry out and commercialise the R&D own the intellectual property and the benefits accruing from the MCE's activities. It is anticipated that the stakeholders involved in the MCE will share the benefits jointly of increased and better-planned investment in innovation and R&D.

The MCE also promotes strategic alliances among stakeholders and with key national and offshore affiliates to facilitate cooperation and cost-sharing of commercialisation, marketing and sale of new products and services.

The MCE is a non-profit trading foundation that will donate profits to named beneficiaries. Governance is provided by a Board of Governors consisting of Philip Mladenov (Chairperson), John Harrhy, Professor Peter Jackson and Martin Hannon. Special advisers to the Board are Hans Peder Wagner (CEO of CeAnic Limited) and Councillor Annette Fenton (Waitakere Council). In addition, RINA will appoint an ex-officio member to the MCE Board and will thus participate in the development of the Centre.

The innovation and commercialisation focus of the MCE is on:

- Ship design and construction
- Marine components such as software, marine equipment, new materials and products
- Marine related technologies such as wind turbines and offshore structures for aquaculture

The MCE is particularly keen to develop strong links with RINA and to support the development of New Zealand designers. The MCE will encourage New Zealand strengths in design and construction of high-performance mono- and multihulled yachts and superyachts. The Centre is also pursuing the development of test facilities such as towing and manoeuvring tanks in support of its members, potentially at Hobsonville or Whangarei.

The technical competencies within the MCE group include at this time:

- Project management and marine industry consultancy services
- Steel fabrication and assembly
- Shipbuilding
- Composites and rotationally moulded plastic products
- Design and manufacture of a wide range of marine equipment
- Offshore exploration
- Design and manufacture of mooring systems
- Design and operation of underwater vehicles
- Vessel design and assessment, class and national compliance, plan approval, ship stability and ship survey
- Software development and information and communication technologies for the marine industry
- Seawater clean-up systems
- Marine tourism
- Aquaculture engineering
- Education and training
- Investment banking and services and equity and debt raising for the marine industry

Some examples of current projects within the MCE group include:

- Novel control systems based on fuzzy logic approaches for dynamic positioning of vessels, including multi-hulls (This project is supported by a GPSRD grant from Technology New Zealand)
- Stability prediction systems for ships and barges with web-based applications
- Eco-efficient power systems for vessels including use of photovoltaics
- Roll reduction systems for vessels
- Environmentally friendly mooring systems
- Automated mooring systems
- Web-based expert decision support systems for vessel design and manufacture
- Offshore wind-based energy production systems
- Offshore aquaculture structures

With the support of Technology New Zealand, the MCE is now engaged in developing a comprehensive long-term technology strategy for the group that will foster further networking,

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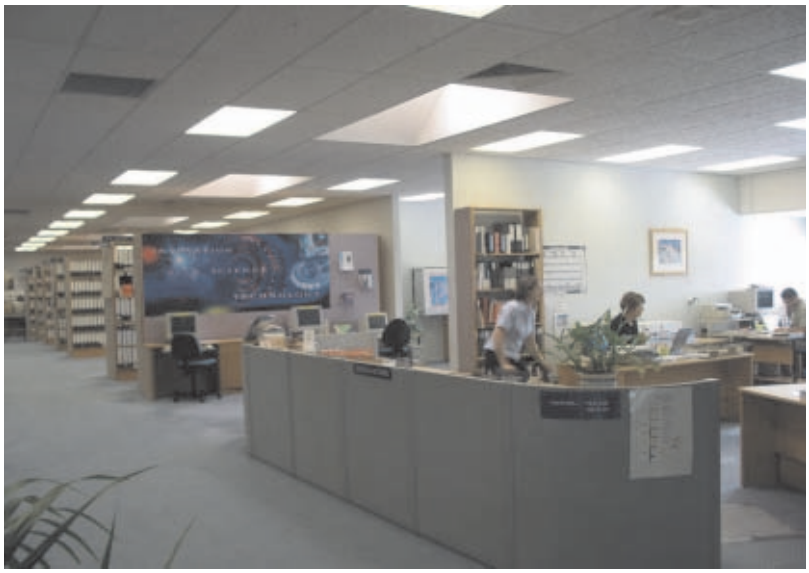
RINA COLLECTION ESTABLISHED AT INDUSTRIAL RESEARCH LIMITED LIBRARY

Following the kind donation by Ted Ewbank of his collection of RINA and SNAME journals, a technical library has been established by RINA NZ which will be managed and housed at Industrial Research's Auckland premises.



Library reception at 24 Balfour Road, Parnell
(current financial RINA membership required)

These journals, which date from the early seventies, have supplemented an existing collection established by Jack Brooke who was the founder of the Auckland office of DSIR (forerunner of Industrial Research) and designer of the youth training vessel *'Spirit of Adventure'*.
This now means that Industrial Research will house a collection of Transactions of RINA dating back to 1936.

The donation of these transactions was the catalyst for establishing an independent technical library for the NZ branch of RINA, which has subsequently been supplemented with various publications such as Proceedings from the High Performance Yacht Design conference and the RINA Noise and Vibration seminar.

The Council expects that the library will establish itself as a repository for classic naval architecture text and valuable reference material. We are

innovation and commercialisation of new ideas. Through this process, member stakeholders wish to grow and diversify their respective technical competencies and share ideas and information for mutual benefit.

The MCE welcomes new members. Membership is free and new members will be able to participate in the ongoing technology strategy building exercise and will receive regular updates and newsletters. In addition, the MCE will hold networking forums targeting marine industry innovation.

Anyone seeking further information about the Marine Centre of Excellence or wishing to join the group should contact:

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Marine Centre of Excellence Ltd
PO Box 91129 AMSC
132 Halsey Street, Viaduct Basin
Auckland, New Zealand
Tel. (09) 379 3022
Fax. (09) 379 5075
Mobile 021 678 995

Current financial members of RINA NZ are able to access the library and borrow individual items from the collection by contacting Information Services staff at Industrial Research Limited. The key contact is Gillian Ralph, phone (09) 920 3466, email: g.ralph@irl.cri.nz. A list of the collection can also be accessed through the Internet as follows;

1. Access site http://www.irl.cri.nz/infoservice
2. click on 'search the library catalogues'
3. type in 'RINA collection' into the search field provided
4. a list of RINA material that is available will appear

MISSING ISSUES

We are currently seeking to obtain copies of the following publications to complete the existing collection. Any donations will be gratefully accepted.

Journal of ship production

All issues missing except: v.10(1,2,4)1994

Journal of ship research

All issues missing except

v. 38(2,3,4)1994; v. 43(1,2,4)1999;v. 44-45(2001),v. 46(1,3)2002

Marine technology and SNAME news

All issues missing except:

v.13(3)July 1976 - 33(4)1996; 35(1,4)1998; 36(1,2,4) 1999; 37(2000), 38(2001), 39(1,4)2002

Naval architect

All issues missing except

[1971] - 1984; [1988]-1989; 2002

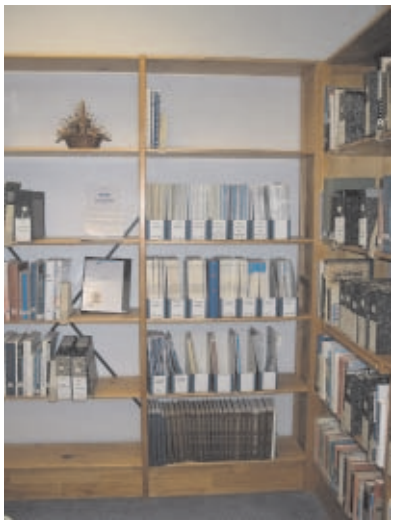
Ship and boat international

Only issue held: October 2002

Transactions - Royal Institution of Naval Architects
All issues missing except : v. 78(1936) - 112(1970), 139(1997)-141(1999)

Transactions SNAME

All issues missing except : v. 84(1976) - 102 (1994



Council agrees New definition of Corporate Member

Report by the Chief Executive

In recent years, there have been a number of significant changes to the Institution which have had the common aim of ensuring that the Institution is the modern, forward looking organisation representing the international naval architecture profession, which its members and the profession demands today and in the future.

I believe that the change to the definition of Corporate Member, recently approved by Council and reported in detail below, will prove to be equally significant to the future of the Institution. In recognising the role of engineers, applied scientists and designers, who each contribute to the process of the design, construction, and maintenance of marine vessels and structures, the Institution has recognised and responded to the complexity and breadth of professional activity faced by those who today should be members of the world's leading professional institution representing the naval architecture profession.

Naval: *adj*. of ships [f. L (*navis:* ship)]

Architect: *n*. a designer or constructor of large structures.

Members will recollect the breadth and variety of response to the question posed through the RINA *Affairs* three years ago – "What is a naval architect?" The diversity of collective education, above surface vessels and much more. Such is the complexity and scope, that few if any Corporate Members can rightly claim competency in all aspects. Applications for Corporate Membership show an increasing trend towards a greater depth of knowledge across a relatively narrow field.

Historically, "naval architecture" has only been considered as a discipline of engineering. However, those Corporate Members who are predominantly engaged in research might be more aptly described as engineering scientists. And where do those concerned with the design and construction of sophisticated masts, sails and rigging for ocean-going yachts fit? The Institution's Charter refers to the "art and science of naval architecture",

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implying that it is concerned with both form and function. Can the complex interiors of modern cruise ships or exterior forms of luxury megayachts be designed without significant understanding of stability and structural issues? Many Corporate Members employ their education and professional development in areas of engineering regulation and administration, as soon as they graduate. In short, however one defines a Corporate Member today, it is self evident that he or she is a member of a very diverse team.

The Council considers that such diversity should be recognised by a definition of the eligibility for becoming a Corporate Member of the Institution which reflects the output of their education, professional development and experience, as well as the standards required for a particular class of Corporate Membership. The Council has therefore agreed the following definition:

"Corporate Membership of the Institution is open to those whose education, professional development and experience meet the standards defined for their class of membership, and enable them to make a direct contribution to the process of designing, constructing and maintaining marine vessels and structures. "

"Standards" refers to the level of academic attainment, professional development objectives achieved and minimum experience in the maritime industry. Such standards are generic. The qualification of " direct contribution to the process of ...." acknowledges the breadth of activity of Corporate Members, but excludes those who indirectly support the naval architect, eg the accountant, the economist, the operator etc, whom the Institution would nevertheless welcome as Companion members, ie non-Corporate Members. And whilst acknowledging that breadth of activity, it is considered that "designing, constructing and maintaining" are the core activities of naval architecture.

This definition will encompass as Corporate Members those engineers, scientists and designers for whom the common factor is the material of ships, boats and marine structures. It is acknowledged that this would include those whose education and professional development did not include the level and depth of engineering which would make them eligible to register as Chartered Engineers or Professional Engineers, and would, for example, be those who are concerned more with form than function, for example with the appearance of the maritime structure rather than it shape or construction. In the complex modern cruise ship or the mega yacht, neither can work in isolation without knowledge and understanding of the work and constraints of the other. Generally, the "engineer" and "non-engineer" in this sense would be distinguished by the content of their academic qualification (but not its standard). The increasing non-engineering content of engineering courses is already acknowledged by the Engineering Council (UK) when accrediting academic courses, where a minimum 50% engineering content would be required. Courses approved by the Institution with a smaller "engineering" content would be acceptable for such members.

The Council intends that this broader definition of Corporate Membership will not lead to any reduction in the standards required of members of the Institution, nor will it "open the membership floodgates" although it would extend an invitation to those who perhaps are termed "marine designers" rather than "ship designers". However, it is considered that it more aptly describes those members of the maritime industry today who can "*contribute fully to the objectives of the Institution" [of today]* and for whom membership of the Institution would encourage and assist in achieving and maintaining high professional standards.

Trevor Blakeley

Letter from the Chief Executive

Dear Editor,

May I congratulate you on the content and presentation of the NZ Naval Architect, which I know is read, via the RINA website, by many members outside NZ.

May I also take this opportunity to congratulate the NZ Division on the success of the High Performance Yacht Design conference last December. To have organised such a successful major international conference at the first attempt was no mean achievement, and one of which the Division can be proud. The quality of papers and delegates is a testament to the reputation of the Institution, and of course to the NZ yacht industry. I believe that the conference will have done much to raise the profile of the Institution in NZ. At the time of writing, I am not aware of the outcome of the Americas Cup, but I believe that the HPYD conference in NZ has already gained the professional credibility to become a regular and important event on the international conference calendar, regardless of the outcome and future venue. I am sure that the members of the NZ Division will join with me in congratulating those members of the Division who gave of their time to organise the conference.

Finally, may I thank those members of the Division whom I met during my visit for their warm welcome. I look forward to my next visit to NZ.

Terms of Trade and Design Agreement – an Update

Design Contract and Terms of Trade

The Institution's honorary solicitors, Clendon Feeney, recently reviewed the Standard Conditions and Recognised Customs of the Marine Design Profession in New Zealand (commonly referred to as the "Terms of Trade") and the two-party Design Agreement (architect - owner/client). These two documents are the two most extensively used documents by the New Zealand members of the Royal Institution of Naval Architects and were reviewed in the light of legal and practical issues identified by members that had arisen since originally prepared six years ago.

The naval architect benefits from adopting terms of trade or a contract at the outset of the design brief, as it adds certainty to the contracting arrangement and serves to define the scope of the relationship between the architect and client, including services to be provided, expected deliverables and timing, and other important terms and conditions under which the architect will provide its services.

The Institution's Terms of Trade have been specifically prepared to address important legal issues facing naval architects in New Zealand, such as the retention of intellectual property rights in documents and designs produced by the architect, and an agreed dispute resolution mechanism should disagreements arise.

Further revisions to the Institution's Terms of Trade include the addition of an indemnity in favour of the naval architect and a provision governing confidential information provided by the client as part of the design process.

The two-party Design Agreement is a more detailed contract suitable for medium or large scale projects or projects that might involve, for example, progressive payments or the engagement of a consultant or another third party. In addition, there are several other contracts within the Institution's "contract set", each suited to a specific design circumstance. If members are unsure about the form of contract that is suitable in any specific situation, Clendon Feeney are happy to assist.

When reviewing the Terms of Trade, an important consideration was the practice of RINA members to use the Terms of Trade alone as the "contract" between the parties, without necessarily addressing all of the required variable components of the contract.

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To address this and to assist members in continuing this preferred method of contracting for relatively straightforward projects, Clendon Feeney have now prepared a standard form Letter of Engagement to be used in conjunction with the Terms of Trade. The Letter of Engagement and the Terms of Trade together constitute the contract between Architect and Client.

The updated Terms of Trade and Design Agreement will be available on the Institution's website (www.rina.org.uk) and at the Clendon Feeney website (www.clendons.co.nz)

If members have any queries regarding the terms of trade, how to implement them effectively in their business or for any other further information, they are welcome to contact James Carnie or Craig Horrocks, Partners at Clendon Feeney.

RINA-BABCOCK STUDENT NAVAL ARCHITECT AWARD

The RINA Student Naval Architect Awards are made annually to students who are studying naval architecture or a related subject and who are adjudged to have given the best presentation of their final year project in their university or college. The Institution believes it is essential that naval architects are able to communicate their ideas beyond the drawing board and the Student Naval Architect Awards serve to promote and encourage this need. The Awards are sponsored by industry, and are awarded at 15 universities and colleges in Australia, Greece, Canada, Singapore, Burma and the UK, with more Awards being added each year. The Awards also serve to provide a link between the Institution, industry and academia.

The Institution is most grateful to Babcock New Zealand Ltd., who have agreed to sponsor an Award at the University of Auckland . The RINA-Babcock Student Naval Architect Award will be awarded annually to the to the student of mechanical engineering who gives the best presentation of a final year project on a maritime subject. The first Award will be made in 2003.

In his address to the 2003 AGM, the President reported on a year in which the Institution's activities again reflected the priorities set by Council some years ago, which included that of placing emphasis on the needs of the younger members of the profession. In this he included those who are studying to achieve the academic qualification which underpins the training and experience required to become a Corporate Member of the Institution. Student Members are a valued part of the Institution's membership and can make a valuable contribution through their involvement in conference and local activities. I have often noticed that the most searching question at a RINA conference comes from a Student Member enjoying an industry sponsored place.

I believe that the introduction of this Award is a significant contribution to the development of the New Zealand Division of RINA as the national professional institution for naval architects in New Zealand, at all stages in their professional development. I have no doubt that the NZ Division will benefit from its Student Membership, just as I am certain that they will benefit from their membership of the NZ Division. I hope that the introduction of this Award will serve to demonstrate to them that the Institution values their membership, because of course they are the future of both the Institution and the naval architecture profession in NZ.

Trevor Blakeley

Chief Executive

Recent Technical Meetings

Over the summer we had one technical meeting as the introduction of the 2003 AGM.

Meetings are generally held at 6pm on the second Tuesday of the month at the BIA offices 1/38 Ireland Street. These meetings are open to all members as well as interested people from the wider community.

NOVEMBER– Soft Impact of Honeycomb Sandwich Structures– Dan Wadsworth

DECEMBER-"Mirabella", the worlds largest high performance sloop – Ron Holland & Grant Firth

FEBRUARY– 80' Sea Navigator– New Construction visit Saba Yachts Ltd.

MARCH: Advances in Optimisation in Yacht Performance Analysis presented by Professor Andrew Philpott

MAY: Tour of Southern Spars Ltd to see how they design and build their race-boat and superyacht spars

Forthcoming Events – Members Meetings

Note the new start time of 6pm

Date: Wednesday **28th May** Time: 6 pm
Venue: Industrial Research Limited, 24 Balfour Rd, Parnell
Title: Loads and responses for high speed craft in waves - The Swedish approach
Speaker: Anders Rosén, KTH (The Royal Institute of Technology), Stockholm, Sweden. Anders lectures part time in naval hydrodynamics, and is one of the staff involved in running the Division of Naval Systems at KTH.

Date: Tuesday **10th June** Time: 6 pm
Venue: ***Marine Rescue Centre, Mechanics Bay***
Title: Measurements of Wake Crossing Motions and Loads
Speaker: Graeme Finch, Engineering Dynamics, IRL
All welcome.

Date: Tuesday **8th July** Time: 6 pm
Venue: Royal NZ Yacht Squadron
Title: Computer Modelling of Downwind Sail Flows
Speaker: Steve Collie, PhD Candidate University of Auckland
All welcome.

Date: Tuesday **12th August** Time: 6 pm
Venue: Industrial Research Limited
Title: The Big Splash, Slam Loading of Marine Composite Panels
Speaker: Mark Battley, PhD, Senior research Engineer Composite Materials and Structure .All welcome

Contact: Susan Edinger for more information:
susan.edinger@highmodulus.co.nz

We would welcome ideas from readers offering suggestions for future Member's meetings.

ClendonFeeney
BARRISTERS & SOLICITORS

The Royal Institution of Naval Architects (New Zealand Division) would like to gratefully acknowledge the continuing support of Clendon Feeney as our Honary Solicitors.

See the article on Terms of Trade and Design Agreement on page 6 for the news of the agreement that has been prepared and the website to contact for a free download.

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All correspondence and advertising should be sent to:

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Opinions expressed in this newsletter are not necessarily those of the Institution.

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