

ANNUAL REPORT  
2007



**Working  
Towards a Stronger  
Metals Industry**

**HERA**

Innovation in Metals

HEAVY ENGINEERING RESEARCH ASSOCIATION



HERA is the Research Association of the New Zealand Metals Engineering Industry.

Established in 1979 under the Heavy Engineering Research Levy Act of 1978 as a member-based, not-for-profit Research Association, HERA today serves around six hundred industry members as their leading resource support centre.



**ABOUT THE COVER:**

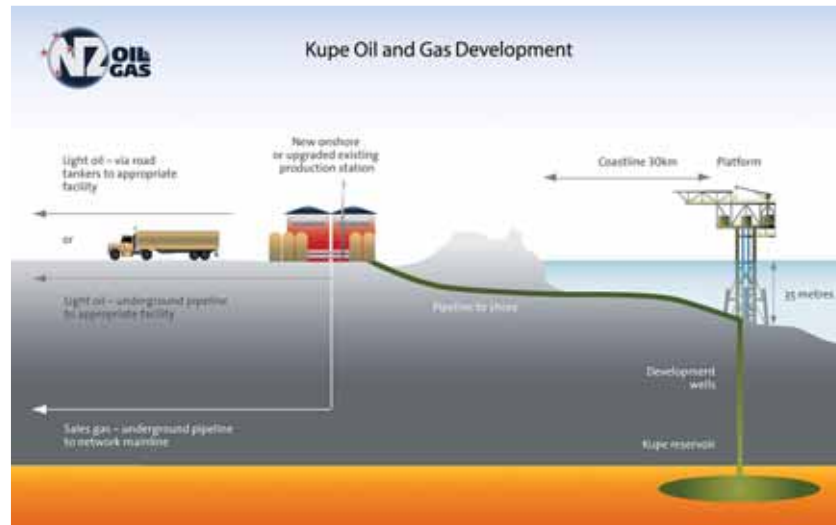
During the year, HERA continued working hard with various team players of the metals industry to put the pieces together in realising the formation of the NZ Metals Institute, and metaphorically keep the ball rolling.

**HERA MISSION STATEMENT**

To provide a platform for the NZ Metals Engineering Industry to explore new technologies and growth by accelerating innovation and strengthening combined opportunities through technical and marketing research, careers education, information technology, and product R&D.

This mission is to be realised by pursuing the following three main goals:

- To accelerate innovation in the Metals Engineering Industry
- To widen HERA's range of services and improve its cost-to-benefit ratio
- To position the New Zealand Metals Engineering Industry as a responsible leader in the sustainability of our environment



During the financial year reported, the Kupe oil and gas development provided significant tender opportunities for HERA members.

**HERA Executive for the year 2006/2007**

Name	Company	Representing
Mr D Moore (Chairman)	Grayson Engineering Ltd	Ordinary & Associate Members
Mr P Hutton (Deputy Chairman)	Brightwater Engineers Ltd	Ordinary & Associate Members
Mr D Turkington (Immediate Past Chairman)	Beca Carter Hollings & Ferner Ltd	Ordinary & Associate Members (Until March 07)
Mr C Ford	New Zealand Steel Ltd	President NZ Steel (Until May 07)
Mr S Fuller	New Zealand Steel Ltd	President NZ Steel (From June 07)
Mr D J Fraser	Acme Engineering Ltd	Ordinary & Associate Members
Mr J Frear	OneSteel NZ Ltd	Co-opted representing steel supply industry
Mr I Murray	Robt Stone Ltd	Ordinary & Associate Members
Mr N Davies (Past Chairman)	Hydraulink Fluid Connectors Ltd	Heavy Engineering Educational & Research Foundation
Mr P Herbert	Special Components	NZ Engineering Federation
Mr E Kroll	Stevenson Structural Engineers	Ordinary & Associate Members
Mr T Neitzert	Auckland University of Technology	Ordinary & Associate Members (from April 07)
Mr T Watkins	Auckland Steel Ltd	Ordinary & Associate Members
Mr T Duff	Southern Cross Engineering	Ordinary & Associate Members

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HERA Executive

From left:

- David Moore
- Evan Kroll
- Wolfgang Scholz
- Chris Ford
- Peter Hutton
- Duncan Fraser
- Dale Turkington
- Peter Herbert
- Ian Murray

Insets, from top:

- Noel Davies
- Scott Fuller
- Tim Watkins
- Thomas Neitzert
- John Frear
- Terry Duff

Welcome to the 2006-2007 Annual Review of HERA-related activities. This is the first review for newly-elected Chairman David Moore, who took over in April from Dale Turkington who left the HERA Executive due to an overseas work commitment.

**This message is a brief summary of the highs and lows of the 2006/2007 HERA Year:**

- The industry recovered from the slight slowing of the previous year
- HERA showed solid financial performance with slight surplus
- Continued progress towards establishing the Metals Institute of New Zealand
- Held the very successful third Metals Industry Conference in Hamilton
- Ran in conjunction with SCNZ an outstanding international Pacific Structural Steel Conference in Wairakei
- HERA divisions achieved most of their performance targets despite personnel constraints

### Industry Activities

This year's industry performance continued the overall growth trend of the NZ heavy engineering industry, which on average grew by 7.7% since its lowest steel consumption point in 1991. As the statistics for heavy sections and plate (above 4.75 mm thickness) usage show, following the peaks of 03/04 and 04/05, and the downward correction of 05/06, this year's figures show an overall growth of 0.9% in imported and locally-produced tonnages as compared to the last financial year (see Steel Volumes Figure).

The volume increases were even across the material groups. Plate grew from 64,988 to 65,757 tonnes – an increase of about 1.2%. Structural sections including Rectangular Hollow Sections (RHS) grew from 73,383 to 73,924 tonnes – an increase of about 0.7%. At the same time, steel landing cost moved again after the steady state of the previous year as a result of considerable energy and transport cost increases. As of the end of the 2006 calendar, steel landing cost has increased by just over 10%.

No doubt, the exchange rate and the steel price increases have not assisted our exporting industry members - but as can be seen from some of the photos in this annual report and the statistics in the Industry Development Section, there were again significant export successes to report. With the right strategy in place our members can compete on the world stage and HERA is

supporting this with an increased commitment to heavy engineering industry development activities.

Overall, the HERA activity level increased slightly, to about \$2 million, as compared to last year, and was driven up by the income of the biennial Metals Industry Conference and the Pacific Structural Steel Conference (PSSC). Levy income was slightly above budget expectation, and after past years' difficulties in having vacant staff positions filled with suitably qualified staff, two appointments could be made during the year allowing catching up on some of the deferred research work. Overall HERA as a members-based, non-profit research association is pleased to report that the commitment to use all the funds in focused efforts and achieve a balanced financial result has been met. The end result is a small surplus of around \$46,000, which has been fully committed to heavy engineering industry development in the new financial year.

Research commitment deferred into the next year (due to the way research contracts are funded and the above-mentioned staff recruitment problems) has decreased by about \$63,000 to approx. \$436,604, with about two-thirds of this commitment being with subcontracted research providers. Industry contributions of approximately \$68,000 towards HERA sustainable steel strategy are carried forward as commitments. Another deferred commitment is

to the welding fabrication industry where the back-collected welding levy of approximately \$200,000 will be allocated gradually in the next year's to dedicated projects agreed to in consultation with the welding fabrication and welding supply industry.

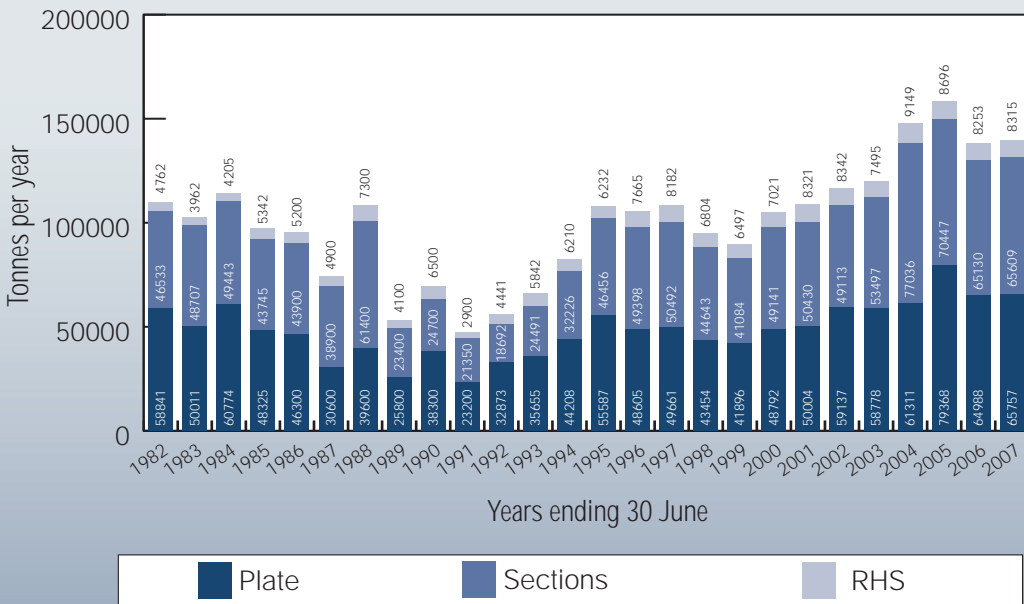
HERA's day-to-day routine of providing training, information, technical support and advisory services to our members and sector groups is reported on in detail in the following sections. However, in line with the HERA mission to grow our metals-related industry, the following non-routine activities deserve notice.

#### Metals Institute of New Zealand formation makes considerable progress

The proposal to use the amendment of the HERA Levy Act as the tool to form a sector-overarching Metals Institute of New Zealand (MINZ) was presented in detail at the Metals Conference in Hamilton and found widespread support. The proposal was formally adopted by the HERA AGM, and metals industry sector groups Light Alloys Manufacturing (LAM-NZ), NZ Stainless Steel Development Association (NZSSDA) and Steel Construction NZ (SCNZ) have committed to the concept and started the consultation process with their stakeholders. Due to the diverse nature of the light gauge metals industry sector a suitable solution has not yet been identified and planning work continues. Casting Technology NZ (CTNZ) despite extensive exploration has not found an acceptable material base to levy and is exploring other funding avenues to join the Metals Institute development. The Ministry for Research Science and Technology (MoRST), which administers the HERA Levy Act, has committed to the amendment and is driving consultation with Cabinet and interested Ministries. Introduction of the amendment is planned for 2008.

In preparation for the extensive consultation process with sector stakeholders, draft 5-year business plans have been developed by the HERA Executive for "sector group" HERA and the overarching MINZ. This effort was mirrored by the NZSSDA and LAM-NZ. SCNZ is already past the consultation stage as it is operating soundly on the basis of a voluntary levy and serves as a positive example

**Steel Volumes 1982-2007**



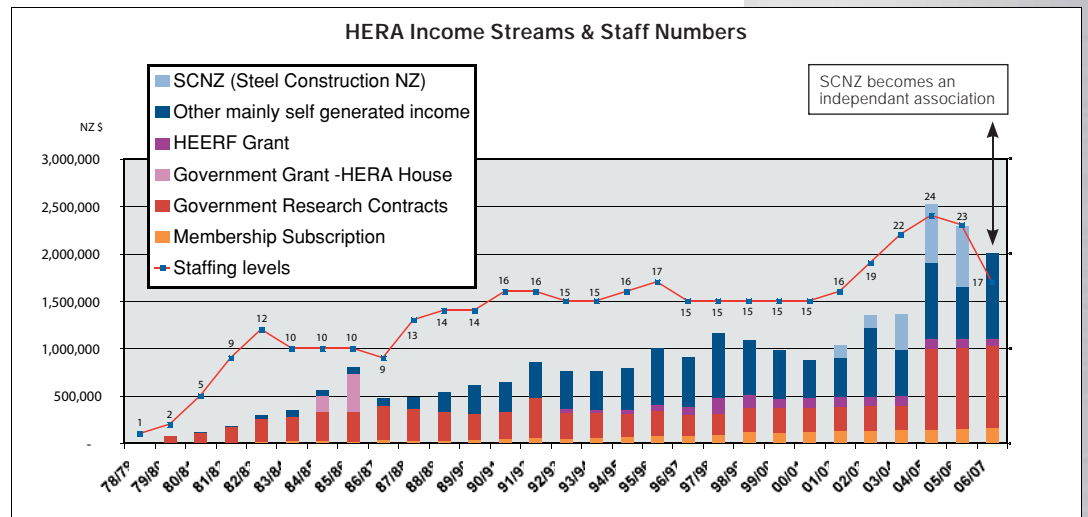
of what soundly base funded sector groups can achieve.

**3rd Metals Conference in Hamilton an outstanding success**

The November 2006 event in Hamilton with the theme "The NZ Metals Industry as a Global Player" replicated the successes of the previous two conferences. Over 300 delegates came together to network, improve industry performance and in particular explore export opportunities for the industry. With excellent sponsorship support and an exciting programme organised by HERA in partnership with Competenz, LAM-NZ, NASH, NZSSDA, NZEF, NZTE and SCNZ, conference feedback was excellent.

**International Pacific Structural Steel Conference back to the country of origin**

In New Zealand in the early 80s, structural steel market share was rock bottom. It was then that HERA decided to kick-start the resurgence of structural steel by holding an international conference inviting successful structural steel nations around the Pacific to share their recipes for success with us. Thus in 1986 the first Pacific Structural Steel Conference (PSSC) was held. After twenty years of circulating the Pacific, the 8th PSSC came back to its country of origin and was held in March 2007 in Wairakei with the theme 'Steel Structures in Natural Hazards'. No doubt the considerable planning paid off, as HERA and co-organiser SCNZ could attract over 130 international delegates from 15 nations and over 120 local attendees. The exchange of research results and ideas which happened at this conference demonstrated convincingly that without R&D, the international and New Zealand structural steel



industry would not be where it is today and that HERA's role in making this happen is invaluable.

**Acknowledgements**

In December 2006, HERA Executive member and HEERF Chairman Keith Smith passed away following a severe illness. Keith was instrumental in setting up HERA and became its inaugural Chairman in 1978. He tirelessly contributed to the development of HERA as an Executive member and also as Trustee and Chairman of the Heavy Engineering Educational and Research Foundation (HEERF). He was the recipient of the inaugural HERA Distinguished Services Award, presented to him at the 2004 Metals Conference in Christchurch.

Our thanks are due to all those who are contributing to the running of the Association from the volunteers on the Executive and the different panels and committees to the professional staff at HERA. HERA's success depends on the contributions of its membership and it is great to note the ongoing positive feedback. The HERA team of 17 permanent staff is an

outstanding resource and we look forward to jointly progressing the development of our industry.

**Outlook**

For HERA the outlook is excellent. The strategic planning around the Metals Institute concept provided new focus. A heavy engineering industry development position has been approved and a person is about to be appointed adding to an increased focus on industry development. The MINZ discussion has led to improved co-operation across the metals industry sector groups and a clear understanding on how to actively shape the future of the industry is emerging.

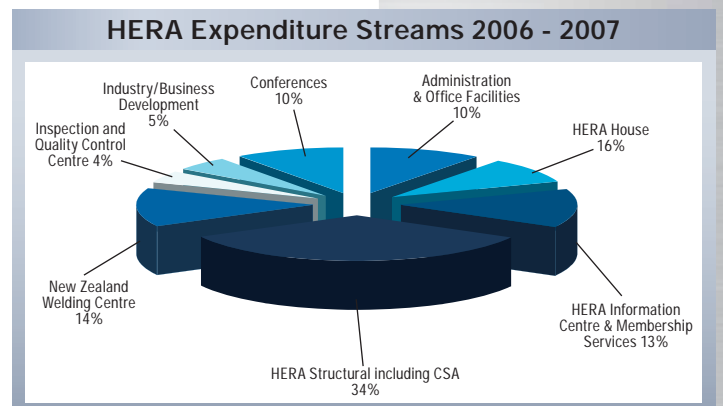
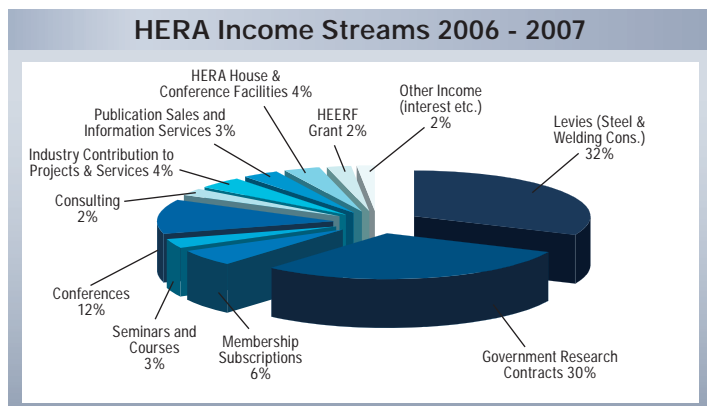
For the metals industry itself the outlook is for modest growth despite a tight labour market and exchange rate worries for the exporters amongst our members. A continued strong local economy including massive infrastructure developments as well as substantial opportunities overseas and in particular in Australia provides confidence for our industry to continuously invest in its future.



*David Moore*  
David Moore  
Chairman



*Wolfgang Scholz*  
Wolfgang Scholz  
Director



**Metals Institute Concept Advances**

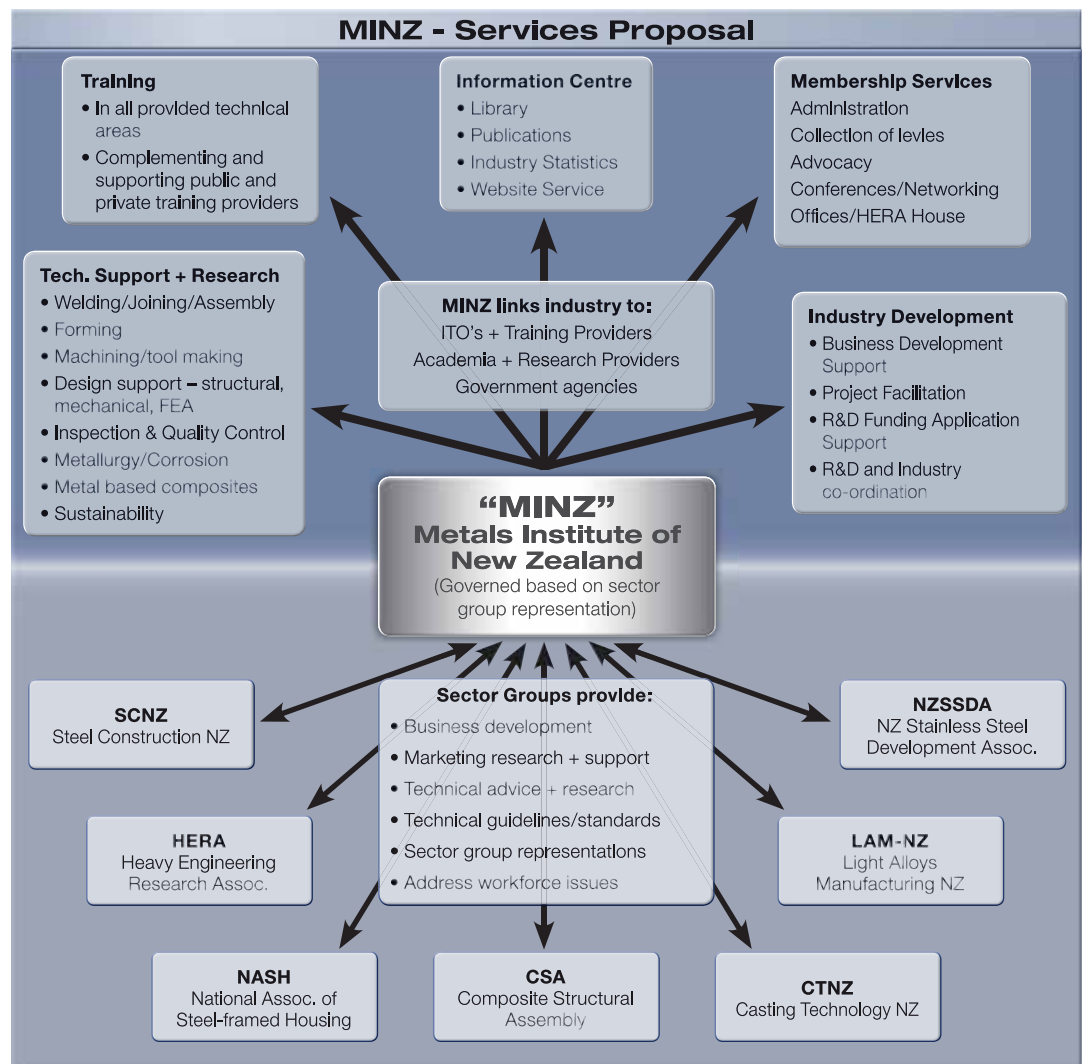
This year saw significant progress in the development of the proposal to create the Metals Institute of New Zealand (MINZ) and using a HERA Levy Act Amendment to achieve this. During and following the 3rd Metals Conference in Hamilton, where the HERA Chairman, in a keynote conference paper, outlined the concept to a wide audience, wide endorsement was received including from the HERA AGM and from participating sector groups. Work with the Ministry of Research Science and Technology (MoRST), which administers the HERA Act, progressed well and provided the industry can demonstrate industry agreement and no significant objections come from key stake holders, a challenging time frame of implementation in the second half of 2008 was set. The participating sector groups themselves made progress to differing degrees in their business/strategy development and in the consultation process with their stakeholders.

The MINZ concept is straightforward and was developed as a result of HERA strategic planning in conjunction with MED's Manufacturing + Strategy, where HERA was invited to develop the metals engineering element. A clear outcome was that, in order to secure the future of the NZ metals industry, the industry needs to create more critical mass in sector-overarching R&D and business development capabilities, while at the same time allowing metals industry sector groups such as CTNZ, HERA, LAM-NZ, NZSSDA, SCNZ or the different groups in the light gauge steel area to develop their own sector-specific business development dynamics.

The framework for industry-governed and self-funded metals industry research and development activities with appropriate sector coverage will be established in the proposed HERA Levy Act amendment which also proposes a name change of the Act to "Metals Industry Research and Development Act" or similar. Following extensive

industry consultation, material-specific levy schedules additional to the existing HERA levies - such as on stainless steel, light gauge steel, light alloys or bar stock - can be created or upon unsatisfactory performance disestablished and the collected levies channeled via MINZ to the sector groups.

A yet-to-be-determined percentage, but likely in the order of 15%, of the material-specific levies will go to MINZ for common cross-sector purposes, such as the provision of base research capabilities, exploration of business opportunities for its members, or networking such as the biennial Metals Industry Conference. It is also envisaged that the sector groups commit to using the MINZ research and development capabilities extensively for their programs in order to maintain critical mass and credibility. An overview of the proposed MINZ and sector group functions are given in the diagram.



**HERA Strategy Review  
Focuses on Heavy  
Engineering**

In conjunction with the proposal to create the Metals Institute of New Zealand (MINZ), a HERA Executive sub-committee developed a "HERA" strategy, focusing solely on the core heavy engineering sector and excluding structural steel construction which is covered now by the sector group Steel Construction NZ (SCNZ). In the MINZ proposal, core funding for the "new" HERA would come from the levy on heavy steel plate and its main focus would be on R&D, as well as industry and market development around systematically researched and evaluated opportunities for NZ heavy engineering companies. The corresponding discussion at HERA Executive level on the heavy engineering industry development role strongly supported the proposal to engage a heavy engineering industry development officer/manager. However, finding the right person needed some time and we are pleased to announce the appointment of Bill Lovell, who will join the HERA team in September 2007.

**Tariff Concession  
Monitoring Project**

HERA continues to monitor for its membership duty tariff concession applications and objects to them where it can be demonstrated that local capabilities exist. This is an important function and requires ongoing input to demonstrate to potential importers that local capabilities exist and that these are worthwhile to consider at the early project planning stage. This year the objections raised or negotiations performed without

objecting but securing of NZ input demonstrated again the value of this work to our members and to New Zealand as every import dollar saved creates business in New Zealand and reduces our soaring trade deficit.

**Supported Projects**

HERA will continue to monitor developments in the energy field and maintain key linkages to international centres of research. In terms of proven renewable energy technologies, the wind farm industry is maintaining its growth phase. Given the high proportion of overseas content in this sector and the difficulty of increasing local content, the key objective for members is to gain returns from the ongoing maintenance. However, it is noted with satisfaction that a NZ manufacturer is winning projects to supply wind turbines, of which more than 90% of components are sourced locally. In the utilisation of biomass as a source of fuels, HERA has actively fostered joint-ventures and identified opportunities, and is continuing background work resulting from the HERA wood strategy started a few years ago. In conjunction with our tariff concession monitoring role, we also assisted a Japanese geothermal energy plant supplier in identifying local suppliers for their Kawerau geothermal power plant contract. This work indicated excellent potential for increased future engagement of our local heavy engineering industry.

HERA joined the Aotearoa Wave and Tidal Energy Association (AWATEA) during the year as

significant opportunities are seen for our members in this area. For example HERA has facilitated the registration of NZ companies to tender for the manufacture of the "Pelamis" wave energy system in the Asian Pacific region for Scottish-based company Ocean Power Developments (OPD). Several member companies were registered and in conjunction with UK Trade & Investment and sponsorship support from NZ Trade and Enterprise, HERA facilitated two members' visit to the Scottish company to promote NZ capabilities to fabricate over 100 of the 1MW Pelamis units in the next 3-4 years.

Maintaining close links with NZ universities has yet again not only benefited the development of the next generation of engineers, but also identified near-to-market products. This year, a clear example is that of a joint university / HERA member patent for the conversion of solar energy into supplying heat plus electricity in one unit with estimated product launch in 2008/9. In November 2007, the electric car developed by Waikato University Engineering students shown at the Metals Conference 2006 will race from Darwin to Adelaide in the World Solar challenge. Several HERA members linked by HERA to the project generously supported this endeavour. Although not in the renewable energy area, another example is of a new material for the defence industry being identified and brought to the notice of a member company that has immediately resulted in an overseas contract.

In line with the HERA Strategic Plan, the objectives of these activities are to grow the NZ metals industry sector. In addition to the standard activities such as announcing business opportunities in HERA News or via direct member contact, tariff concession application monitoring, and matching members' capabilities with enquiries, this year's focus was on strategic planning aspects of business development for the heavy engineering industry, the Bridge Development Group work (reported on in the Structural Division of this Annual Report) and the development work performed by Norm Stannard from MQS under contract to HERA.



**Norm Stannard**  
(MQS Ltd)  
Business Development  
Group Manager



**Bill Lovell**  
Industry Development  
Officer



Pelamis wave energy converter - soon to be "Made in New Zealand"?



6-axle boogie cast and machined by A & G Price ended up in this Australian locomotive

## Research, New Products and Conferences



**Dr. Charles Clifton**  
Senior Structural Engineer

In regard to research and development, the principal feature to report this year has been the successful implementation of previous research into building projects and progress towards new product development in the CSA project.

The Pacific Structural Steel Conference 2007, held at Wairakei in March 2007, hosted by HERA and co-organised by HERA and SCNZ, provided an excellent venue for the dissemination of many of these new developments.

## Seismic-Resisting System Development

In 2005 HERA Report R4-134 was published, presenting information on two new semi-rigid joint designs for moment-resisting steel framed seismic-resisting systems. The report also contained recommendations for an uplifting column detail incorporating pre-loaded ring springs suitable for use with braced frames. These new concepts have seen appreciable uptake by the profession; as of mid-2007 over \$650 million of new buildings incorporating these concepts are either built, under construction or under final design. The Structural division advises on the system introduction and supports ongoing further research on the two systems at the universities of Auckland and Canterbury.

## Fire Engineering Design Development

During 2006, a seminar series was held in conjunction with SCNZ at

which Charles Clifton and Raed El Sarraf presented information on the behaviour and design of multi-storey steel buildings for dependable response in severe fires. This included details of two new fire engineering design procedures, the Slab Panel Method and the Radiation Barrier method.

## Collaboration with the Universities on Steel Research

The past year has seen continued collaboration with the University of Auckland and the University of Canterbury on research programmes, including the following projects:

- Fire engineering project on steelwork partially protected by radiation barriers
- Testing and further development of the Flange Bolted Joint and the Sliding Hinge Joint
- Fatigue performance of steel bridge decks
- Extent of inelastic shortening in seismic-resisting steel frame columns

Details of the research were presented in papers at the PSSC 2007 and the New Zealand Society of Earthquake Engineering Conference 2007.

## Pacific Structural Steel Conference 2007

The 8th Pacific Structural Steel Conference, held at the Wairakei Resort Hotel from March 13th to March 16th was a great success, with three days of technical and

social programme attracting 250 delegates from 16 countries. It returned to its land of origin after 21 years and the theme of Steel Structures in Natural Hazards was very apt for the location in the heart of the world's most volcanic area!

The technical programme incorporated over 130 presentations, ranging from the three keynote presentations by top international academics, through highlights from the regions, to papers on a wide range of topics covering bridges and buildings. A two-volume set of proceedings was published and the papers are all available from the Conference website, [www.pssc2007.com](http://www.pssc2007.com)

## Bridge Development Group (BDG)

The BDG continued its main objective of promoting the benefits and cost effectiveness of steel in bridges. At the PSSC 2007, a paper was presented outlining the group's activities and achievements since its conception in 2004. The latest BDG publication is an update of the free HERA Report R4-126 "Bridge Fabricators Capability Booklet".

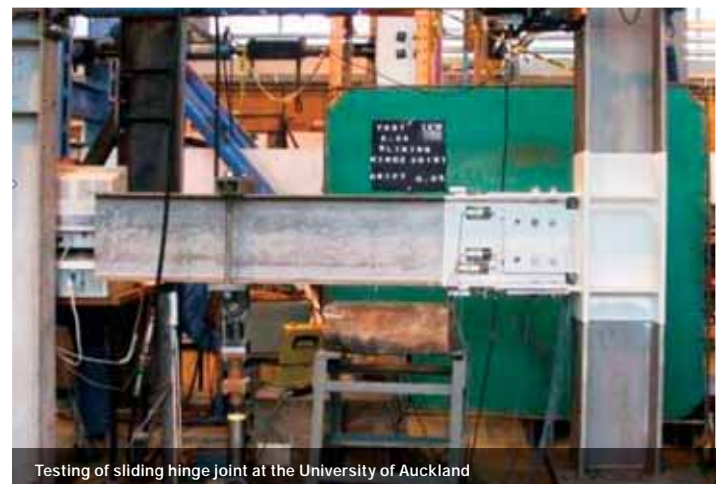
New steel bridges worked on by the BDG include a 3 span (15-21-15m) private ladder deck bridge with a non composite Comflor 80 steel decking which generated a 9% cost saving over the original pre-cast concrete option. Preliminary designs for an arch bridge and a box girder bridge were also undertaken. Finally, the Short Span Steel Bridge Project has commenced in June, 2007, with the first stage complete.



**Raed El Sarraf**  
Structural Engineer



Sliding hinge joint used in the Bellagio apartments in Auckland



Testing of sliding hinge joint at the University of Auckland



**Composite Structural Assemblies Project**

As the 6 year CSA project approaches the half way point, resources have been increased including the appointment of Richard Green as CSA Technical Manager. The work of over 20 researchers from HERA, the University of Auckland and Auckland University of Technology adds in significant inputs from the industry partners, Fletcher Composite Research Ltd, Grayson Engineering Ltd., New Zealand Steel Ltd and Tandarra Engineering Ltd.

The first wall system to be developed, codenamed W1, has been subjected to a research programme to determine its load carrying capacity, fire and durability performance, acoustic characteristics, thermal performance and methods of manufacture. Concepts for a building system have been developed.

Concepts for the first floor system, codenamed F1, have been formulated. Pathway to market projects are being developed with Unitec School of Architecture.

**Presentations, Papers, Staff Qualifications**

Charles Clifton gave presentations on corrosion and coatings to the Australasian Corrosion Association and the Galvanizing Association of New Zealand, respectively. Charles gave a presentation on Durability and Constructability of Light Steel Framed Buildings to the Claddings Institute of New Zealand. He also co-authored 4 papers for the 2007 PSSC and presented one and

co-authored 3 papers for the 2007 National Society for Earthquake Engineering Conference. Raed El Sarraf gained his Master of Engineering with First Class Honours with research on the CSA wall panel. He presented one paper on his research and co-authored another at the 2007 PSSC.

**Codes and Standards**

HERA represented the structural steel industry on the following:

- Construction Industry Council
- P3404 Committee developing Amendment No 2 to the Steel Structures Standard
- DBH Working Group G6 on Airborne and Impact Sound
- Design and Construction Advisory Group for Standards New Zealand

**Other Structural Division Activities Included:**

- Lectures to the IIW Welding Specialist course run by the New Zealand Welding Centre
- Consulting work on a range of projects from fire engineering peer reviews to pallet racking design
- Participation in the Steelwork Call Centre
- Becoming actively involved in sustainability/green ratings of buildings in regard to steel and composite products. Changes in legislation (especially the 2004 Building Act) and increasing market demand make this a topic of rapidly increasing importance.

**Finite Element Analysis in Applied Research and Consulting**

Finite Element Analysis (FEA) has been a component of HERA's structural research activities for the last eight years. This past year, FE Analyst Nandor Mago attained his NAFEMS Advanced Analyst status.

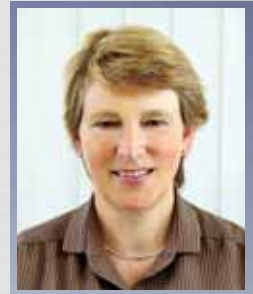
The projects this year have involved:

- Determining the influence of the concrete slab on the beam strength of moment-resisting steel frames. This work is presented in HERA Report R4-140 and a paper to the PSSC2007.
- Ongoing research on the CSA project determining the load carrying capacity of a proposed new wall product and its ability to support incoming external loads.
- Three papers were co-authored at the PSSC 2007
- General industry advice and consulting
- In addition to ABAQUS version 6.7-1, Pro Engineer Wildfire 3.0 was implemented.

New hardware includes a two-CPU quad-core HP xw8400 workstation to provide expert FEA solutions to a wide range of applications to HERA members.

**Acknowledgements**

The Structural Division would like to acknowledge the excellent work of Steel Construction New Zealand in supporting and promoting the use of structural steel in New Zealand.



**Rosemary Scofield**  
CSA Business Development Manager



**Richard Green**  
CSA Technical Research



**Welding Activities at a Consistent Level**

The New Zealand welding industry performs on a consistent level. This is reflected in the figures for imported welding consumables where the buoyant 2005 figures are followed by a downward correction in 2006 and noticeable growth in 2007 probably indicating where the real average welding consumable consumption is.

Welding and joining of metals is a key technology for the NZ metals industry and the support role of the New Zealand Welding Centre (NZWC) has been in continuous high demand.

**Staff Changes**

The reported staff shortage in welding engineering had also affected the NZ Welding Centre. Following some difficulties in finding a suitable local replacement for graduate welding engineer Andrew Short who left for a PhD scholarship to the UK, Rian Holdstock joined the NZWC as a welding engineer in April 2007. Rian has a MSc in Pipeline and Welding Engineering from the Cranfield University in the UK. He worked as a PhD student at the University of Wollongong on hydrogen induced cracking in weld metal for the last three years. With his qualification and practical experience the NZWC should now again be better equipped to fulfil its varied roles.

**Training Courses and Seminars**

HERA, as an Authorised Training Body for the International Institute of Welding (IIW) qualifications,

offers an International Welding Specialist (IWS) course once every year. This year's course, consisting of 172 teaching hours, was attended by 10 students and offers the opportunity to qualify for the IIW IWS Certificate via examination. The IWS certificate fills the gap of the previous NZIW Welding Supervisor and is a recognised qualification in our commonly used welding standards. In addition to the IWS course a free Welding Technology Refresher Course was offered for the first time. This four day course was designed to summarise key topics of the IWS Course and was regarded by the attendees as extremely useful for the daily welding supervisor work and also as IWS exam preparation.

Two overseas experts visited HERA in 2006/07 to participate in the Welding Centre's seminar program. Professor Horst Herold, head of the Welding Institute of Magdeburg, Germany, gave two papers at the Metals Industry Conference in Hamilton. Additionally he presented half-day seminars in Auckland, Wellington and Invercargill with the topic "Case Studies on Welded Structures - Problems That Could Have Been Avoided". Following on from Prof. Herold's morning presentation, an afternoon follow-up session reported on recent developments in welding related standards and outlined how AS/NZS Standards can provide the necessary quality control in our local fabrication and welding environment.

In March 2007, the New Zealand Welding Centre enjoyed the visit

of Dr. Anatol Rabinkin, Senior Scientist of Metglas Inc., USA, an internationally recognized expert in the field of brazing technology. Dr. Rabinkin gave a half day seminar in Auckland entitled "Brazing Fundamentals and Applications of Brazing Technology".

**Welding Training Modules, Unit Standards, Industry Guidelines**

The welding training modules continue to be widely used by training providers in both hard copy and CD versions. The NZ Welding Centre is active on Competenz's sector advisory group for fabrication/welding which has reviewed the welding unit standards and is now working on updating the qualifications in the Fabrication stream. Regular informing of the industry is part of this function.

The NZWC also continues to contribute to the ACC Metal Manufacturing Safer Industry Programme which includes the development of new safety guidelines for the metals industry.

**Welding Standard development**

The Welding Centre is the sole representative of New Zealand welding fabrication interests on the joint Australian/NZ Welding Standards Committee. This year it has provided significant input into the review of the standards AS/NZS 2980 "Qualification of arc-welders for welding of steels" and AS/NZS 1554.6 "Welding stainless steels for structural purposes".



**Dr Michail Karpenko**  
Welding Centre Manager



**Alan McClintock**  
Welding Engineer

**Imported Quantity of Wire and Rods used for Welding**

(Source: Statistic NZ and HERA)



Page-McRae 1-tonne Welding Positioner designed originally for own use but now marketed to customers both in NZ and overseas

**Welding and Joining  
research - CSA Project**

The Welding Centre is strongly involved in the industry-supported Composite Structural Assemblies (CSA) project with research activities in welding/joining and in sheet metal forming. The joining project focused on evaluation, testing and further development of technologies for connecting thin coated steel sheets and on evaluation of corrosion and thermal performance of different joining solutions. The forming part of the project is reported separately in the InForming section of this report.

**Technical Advice,  
Consultancy, Industry  
Projects.**

The Welding Centre continues to provide free welding advice and technical support as part of its service to the HERA member companies. Several larger consulting projects, typically developing from initial advice enquiries, have been performed on a commercial basis.

**Conferences, Papers,  
Publications**

This year the New Zealand Welding Centre had its own stand area and hosted the Welding and

Fabrication session of the Metals Industry Conference. A focus for the stand centered on the services and courses offered by the Welding Centre, and highlighted technologies suitable for welding and joining of thin sheet metal. In order to keep industry up-to-date with technology, the NZWC continues publishing welding related articles in the Engineering News and HERANews every month. In 2006/07, the Welding Centre has published 6 conference papers reflecting its current activities in the field of research, education and standard development.

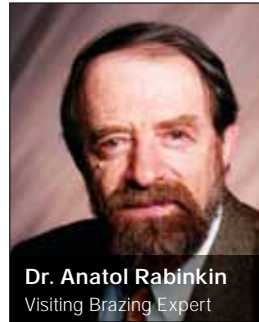
**International Contacts**

NZWC Manager Michail Karpenko and Welding Engineer Alan McClintock represented New Zealand Metals Industry at the Welding Technology Institute of Australia's (WTIA) Technology Week in March 2007. The event included the 5th Asian Pacific IIW International Congress, WTIA 55th Annual Conference, and the AINDT 2007 National Conference as well as a number of pipeline and welding related courses. They gave two technical presentations to the current research and educational activities of the Welding Centre.

Dr. Karpenko participated on the WTIA Qualification and Certification Board meeting discussing New Zealand experiences with the IWS scheme and further cooperation between HERA and WTIA.



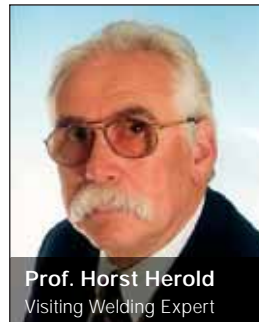
**Rian Holdstock**  
Welding Engineer



**Dr. Anatol Rabinkin**  
Visiting Brazing Expert



**David Wrightson**  
Materials Engineer



**Prof. Horst Herold**  
Visiting Welding Expert



Robt Stone provided hookup and finishing work worth \$7m for the Tui floating platform



IWS students upon completion of the challenging course



NZWC hosts students for a session on careers in welding



Industrial robot plasma spraying in action at Air NZ



**Holger Heinzl**  
Mechanical Engineer

**Metal Forming Research Focus created**

New Zealand has a well established sheet metal based industry with a complete, very effective and to some extent export focused product chain. The base material for many of the well known sheet steel based building products such as in roofing, cladding and cold formed steel structures is sourced locally from NZ Steel. While NZ Steel exports a large part of its production it has a strategy to expand the local market by supporting it in its development of higher value added products which will then be exported. NZ also has a top roll forming equipment industry which exports the larger part of its production very successfully as far away as the US and Europe. However, despite a very successful sheet metals based local industry our export share of formed sheet-metal based products is low.

It is HERA's and more importantly the future Metals Institute's aim via the CSA and follow-on projects to increase the export share of locally sourced sheet steel based materials, but also to grow the local market through innovative product and sector development. Last year HERA reported on the successful setup of a sheet metal interest group at HERA called InForming, which in co-operation with industry partners and the Auckland University of Technology (AUT) established a research program extending the CSA metal forming scope. This year, this development led to the inauguration of AUT's Centre of Metal Forming

where, under the leadership of Professor Thomas Neitzert, two PhDs and a metal forming technician are now active. The Metal Forming Centre at AUT now holds industry and HERA-donated press- and roll-forming equipment including devices for testing and measuring material formability. Metallographic equipment is also available and surface and friction testers are on their way.

**Metals Industry Conference**

The Metals Industry Conference 2006 hosted a session relating to sheet-metal forming for the first time. The papers presented covered press and roll forming of sheet metal materials and Professor Duncan presented a paper from Australia's Deakin University regarding the development of composite sheet steel material. The session was well attended by representatives from industry and academia.

**CSA**

As part of the CSA research project and in co-operation with AUT's Metal Forming Centre, the InForming group is investigating manufacturing options for the formed steel part of the composite assemblies. Mechanical testing of potential steel materials was carried out to evaluate the individual performances and to gain input values for design optimizations based on computer simulation.

**International Conferences, Industry Visits and Networking**

Forming Engineer Holger Heinzl attended the Metalform Conference and Exhibition in March 2007 in Chicago (US). The educational conference covered roll-forming and press-forming, while the exhibition floors were filled with companies from along the whole forming process chain. Following on from this he attended the 10th annual conference of the European Scientific Association for Material Forming (ESAFORM) in Zaragoza (Spain). The convention covered the multitude of disciplines related to material forming, including all traditional and new forming processes. Additionally Holger was able to visit a number of metal forming research centres in Europe and reported on the impressions taken back.

These new and previously established contacts with university metal forming institutes in Australia, Germany and the United States allow the newly established group to link into a well established network and play at a competent international level.

**Industry Projects**

In cooperation with NZ Steel, the first commercially oriented research project has been started by the InForming group and executed at the AUT Metal Forming Centre. The ultimate aim of the research project is to extend the application range of NZ-sourced sheet material and to develop understanding and material further.

**Outlook**

The sheet metal forming activities initiated as part of the CSA project have now gained sufficient momentum and critical mass to be set up as sound activities, supporting the sheet-metals based industries of New Zealand in the long term. The next step in the establishment of a sector-specific business plan is the development of a NZ-specific R&D roadmap, and the InForming group will invite all stakeholders to contribute.



Example of sheet-formed metal



The metal press jointly developed by HERA and AUT



Tandarrah roll forming equipment made for export

**Role**

The HERA Inspection and Quality Control Centre (I&QC Centre) supports businesses in meeting their inspection and quality control requirements through technical advice, consultation and training.

**I&QC Panel Established and Business Plan Developed**

As a result of the HERA strategic planning the I&QC Centre role was reviewed. Via a wider industry consultation the continued need to provide services not only for HERA members but also for the wider inspection industry was confirmed. The I&QC Centre panel was formed and held its inaugural meeting at HERA. The panel is made up of representatives from the particular fields of expertise in which the I&QC Centre operates and includes strong representation from the inspection and quality control industry and the NZNTDA. A business plan was prepared and approved by the I&QC Centre Panel.

**I&QC Centre Training Courses in High Demand**

Successful business support has been accomplished through planning programmes for the HERA Training Centre and providing specialised training that falls under the scope of the I&QC Centre. Attendance of I&QC Centre training courses and seminars were excellent with over 130 attendees registered during the financial year. Budgets set for training courses were met. The Centre has also supported the New Zealand Welding Centre in its IIW qualification programme and training courses. A considerable effort was made to put the inspection and welding related training into the National Qualification Framework. I&QC centre staff were involved in the development of the quality system to make HERA an NZQA approved training provider with submission of the application expected in the coming year.

**Inspection and Welding Advice**

Support has been offered in a consultation capacity embracing fabrication, welding problems,

quality control, inspection, non-destructive testing and preparing inspection and quality control procedures. This support has included assisting a fabrication company to meet ASME U Stamp requirements for the fabrication of pressure vessels.

**Research into Inspection Technology**

I&QC Centre staff are highly qualified and experienced particularly in non-destructive testing methods and welding. To assist industry to meet its inspection requirements the I&QC Centre this year carried out research on the use and application of the radioactive source Selenium 75. Comparisons were made to the X-ray and gamma source Iridium 192. The results of the research clearly demonstrated the improved and economical advantages of using Se 75 for thicknesses of 5 mm steel and that it can be applied economically for a maximum steel thickness of 30mm. The results were presented at the APCNDT Asia Pacific Conference in Auckland.

**Conferences, Papers, Publications**

During the year I&QC Centre staff attended and presented papers at the APCNDT Asia Pacific Conference on NDT in Auckland, the 5th Asian Pacific IIW International Congress in Sydney and the Metals Industry Conference in Hamilton. The I&QC Centre also provides a monthly column in

HERA News informing on quality control and inspection technology updates and industry issues.

**Standards Development**

The I&QC Centre represents the interests of the metals industry in welding, quality control and inspection disciplines in joint committees with Australia and locally. This year the main contribution was in pressure equipment inspection, welding and non-destructive testing.

**Outlook**

The I&QC Centre business plan put forward sets directions for sound long-term support for the inspection and fabrication industry. In the coming year the focus is on addressing industry skills demand issues with a first step being the development of inspection industry career path options and career promotion and assisting industry in implementing ISO 9712 "Quality requirements for fusion welding of metallic materials". A further focus is the development of an inspection industry capability register to be implemented in the HERA capability register.



**Peter Hayward**  
Inspection and Quality Control Manager



I & QC training is a vital HERA activity for keeping the growth of the industry in gear



I & QC course attendees receive valuable practical training

**HERA Membership is increasing steadily**

HERA membership has increased for the 7th consecutive year to around 667 members. This demonstrates the continued industry interest in HERA's services.

**3rd NZ Metals Industry Conference in Hamilton**

The 3rd New Zealand Metals Industry Conference was held at the Kingsgate Hamilton in the Waikato region. Over 300 attendees were present for the two days of the Conference. The conference theme was "The NZ Metals Industry as a Global Player". The Conference aimed at future-proofing the NZ metals industry with the emphasis on exporting and global market development. HERA - along with the different metals industry sectors and NZTE - presented the NZ Metals Industry strategy for the future. NZTE teamed up with the organisers to deliver tailored strategy-driven sessions for participants to refocus their business in a global context.

HERA and the sector groups in conjunction with suppliers to the industry used the Conference to get updated on the latest technical developments. In the 'Waikato Showcase', an outstanding and multi-faceted industry tour of leading New Zealand companies was followed by the 'Meet the Local Industry' networking opportunity which showcased many of the local Waikato companies to the rest of New Zealand. Many such companies were also showcased at the Conference Exhibition.

The two plenary sessions kicked off with an address by the Minister for Economic Development, the Right Honourable Trevor Mallard, and a series of outstanding papers focused on the need for NZ to engage in export activities. NZTE's David Penny showed strategies and actions for New Zealand industry to work the global market. Rod Oram explained the importance of focusing on increasing productivity. Most convincing were the papers from our industry colleagues Ken Stevens, CEO of Glidepath NZ and MED Export champion for 2007; Bill Gallagher, Gallagher Group CEO; and Gary Stannard, MD of Avalon Engineering.

BBC Technologies Ltd. develops and manufactures innovative and affordable technology solutions for the small fruits, nuts and vegetable industries. Their 'Soft Sorter' was named one of the Top Ten New Products at the World Agricultural Expo, California. Cuddon Engineering's highly automated CFD-000 significantly reduces the labour for continuous freeze drying operation, and hence reduces costs. Stuart Thomson is iconic in the steel roofing and cladding industry, as well as the wider sheet-metals industry and particularly NASH (NZ).

**2008 NZ Metals Industry Conference to be in Auckland**

It has been decided that the next Metals Industry Conference will be held in the City of Sails, Auckland, from the 29th to 31st October 2008. The Conference venue is the Sky City Convention Centre, with the newly-completed Auckland Museum Events Centre hosting the Industry Gala Dinner.



**Brian Low**  
Information Centre  
Manager



**Raewyn Porter**  
Reception/Administration



Aviation industry tour of Alpha Aviation at the 3rd Metals Industry Conference 2006 in Hamilton

**Industry Awards**

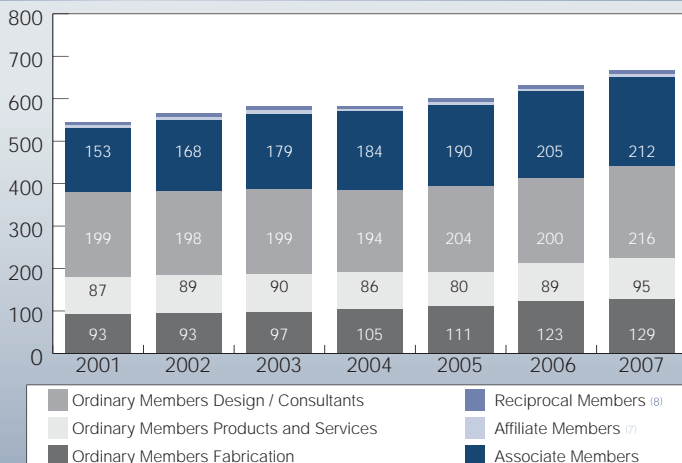
The Industry Awards went to

- BBC Technologies for Exporter of the Year
- Cuddon Engineering for Industry Innovation
- Stuart Thomson for Distinguished Service.



Distinguished Service Award winner Stuart Thomson

**Membership by Category 2001-2007**



Hamilton Gardens provided the beautifully-themed setting for the Industry Gala Dinner

## Library

The HERA Library is the primary source of information and research assistance for HERA's staff and its members. It contains a large collection of books, standards, journals and other material on various topics relating to heavy engineering. In line with the common interests of the NZ metals industry the major topics covered are welding, structural engineering, non-destructive testing, corrosion protection, metallurgy, and in particular the use of steel in architecture and construction.

Our standards collection includes a wide variety of New Zealand, Australian, British, ISO and assorted other standards on engineering-related topics. We have recently become a member of BSI, the British Standards Institution, and are in the process of expanding our collection of British and European standards. Standards (and some books) not included in the Information Centre's collection can usually be borrowed from other libraries via Te Puna Interloan, the New Zealand interlibrary loan network for a fee.

Most of this material is available to be borrowed by HERA members; an exception is our archive of journals and loose documents, which may not be taken out of the library. However, copies of articles will be made on request. We are also able to carry out literature searches and other research for HERA members, using our own holdings and several online databases.

In addition to our own material, last year the Information Centre agreed to house the collection of the Australasian Corrosion Association of New Zealand (ACANZ), a set of books and papers on a wide variety of aspects of corrosion and protection, which is also available to HERA members on request.

Over the last year, the HERA Library has loaned out 435 books and 645 standards, arranged 101 interlibrary loans, and purchased 27 books and 75 standards.

## Publications

HERA continues to provide valuable information to members and non members through its own publications and those from overseas organizations.

HERA reports were in great demand with our best seller being the New Zealand Steelwork Corrosion Coatings Guide – HERA Report R4-133. This report provides the necessary guidance to allow an appropriate and cost-effective coatings system for structural steelwork to be selected and then specified in a generic manner.

Other reports which have sold well this year include:

HERA Report R4-139  
Steel Structures Seminar:  
Earthquake, Wind and Fire

HERA Report R4-107 Composite  
Floor Construction Handbook

HERA Report R4-131 Design  
of Composite Steel Floor  
Systems for Severe Fires (This is published in conjunction with a software program SPM0306).

The second edition of the Bridge Fabricators Capability Booklet - HERA Report R4-126 was published this year. This useful booklet contains a directory of fabricators with the capability and interest to fabricate steel bridges. The HERA Information Centre also acts as an agent for the Welding Technology Institute of Australia and the Australian Steel Institute and supplies their publications to HERA members.



**Sally Geard**  
Librarian



**Pauline Hayward**  
Publications Officer



Auckland Museum extension and new 'bee-hive', situated below the events centre



NZ assembled Crane photo courtesy of Baker Cranes



**Russell Thorburn**  
NZSSDA Chairman

HERA provides secretariat and support services to various metals industry sub-sector groups.

### New Zealand Stainless Steel Development Association (NZSSDA)

The following is adapted from the report of NZSSDA Chairman's Russell Thorburn:

The highlight of this last year was undoubtedly the NZSSDA's participation in the 3rd NZ Metals Industry Conference in Hamilton.

This began with an industry tour of some key stainless steel / food industry related sites in the Waikato region. Visits to BBC Technologies, Ryan Manufacturing, Stainless Design, NDA and Fonterra (Te Rapa), were very well attended, and extremely informative.

The Stainless Steel (SS) presence at the Conference included paper presentations, the holding of the AGM and a workshop exploring SS export potential. The NZSSDA session had 6 papers on offer and included contributions from two visiting Australian experts, Drs Ward and Gouch. The AGM was held during the conference.

Behind the scenes, NZSSDA members answered a steady stream of queries relating to SS and included the Technical Advisory Service generously supplied from the Nickel Institute. Their NZ representative, Mr Les Boulton, advises that hundreds of requests

come in annually ranging from small domestic issues through to complex technical questions requiring advice from international experts.

The major NZSSDA Executive focus during the year was on developing the strategy and business plan of a future-focused association as one of the partners in the Metals Institute. A detailed five year draft business plan has been developed and in conjunction with a comprehensive industry consultation document is about to be shared with the SS industry stakeholders.

### National Association For Steel-Framed Housing (NASH)

2007 saw NASH continue to establish its role as the industry representative body for the steel framing industry in New Zealand. Progress was made on a number of initiatives, namely:

- As a result of work with the BCITO, compulsory steel theory units will now be included in the National Certificate of Carpentry.
- Promotional activity has centred around targeted builders evenings in major centres and also participation in Future Proof Building roadshows in partnership with New Zealand Steel and Construction Management Services.
- Technical development has continued in areas such as bracing tests, building wraps, claddings and fasteners.

- NASH 3405, a non-specific design and construction guide for steel framed buildings, is in the process of being reviewed.

NASH remains heavily supported by New Zealand Steel and much would not have been achieved without their support. A growing membership and other funding options will see NASH becoming a self-funding body. NASH NZ continues to work closely with NASH Australia and the Steel Framing Alliance in the United States. Representatives of both organizations were in New Zealand to attend the 3rd Metals Industry Conference in Hamilton. At this Conference, after being nominated by NASH, Stuart Thomson was presented a distinguished service award and thoroughly deserves this recognition for his past and ongoing support of NASH.

Cameron Bennett resigned as General Manager of NASH in May. Thanks to Cameron for his efforts during his time with NASH.



**Chris Ford**  
Interim NASH  
General Manager



This large Shell and Tube Heat Exchanger is a Brine Concentrator being installed at Bayswater in NSW, Australia. Supplied by NZ company NDA for Veoliawater HPD, Chicago. It is constructed of AL6XN with titanium tubes, and weighs approx. 65 tonnes



Example of steel-framing promoted by NASH for residential construction



## STATEMENT OF FINANCIAL PERFORMANCE FOR YEAR ENDED 30 JUNE 2007

	Note	2007 \$	2006 \$
<b>INCOME</b>			
Levies (Steel & Welding Consum.)		918,750	837,278
Backdated Welding Levies	12	31,193	176,812
Government Research Contracts (GRC)	2	857,733	433,648
GRC-Deferred Income (2006)		499,486	433,648
Consulting and Project Income		217,515	227,032
Member Subscriptions		171,481	155,122
Interest		44,048	24,845
Other Income		27,730	30,443
Publications		40,369	34,369
Welding Modules		54,015	66,675
Rent		61,948	43,804
Metals Conference		156,363	-
PSSC Conference		202,044	-
Seminars & Courses		93,495	123,868
HEER Foundation	3	78,766	96,501
Service for SCNZ		6,324	138,033
		<b>3,461,259</b>	<b>3,246,166</b>
Less GRC Income Deferred	2	436,604	499,486
Less Consulting Income Deferred		67,704	-
Less Welding Levies Deferred	12	31,193	176,812
<b>TOTAL INCOME</b>		<b>2,925,758</b>	<b>2,569,868</b>
<b>EXPENDITURE</b>			
Staff Expenses		1,140,138	1,131,362
Member Services		124,345	151,109
Office & Other Expenses	4	157,855	182,823
Seminar Expenses		27,054	35,170
Consulting Expenses		2,889	15,197
Metals Conference		126,654	-
PSSC Conference		185,508	-
External Research		736,725	676,750
HERA House Costs		74,885	82,069
Rent	3	206,860	174,220
		<b>2,782,913</b>	<b>2,448,700</b>
Depreciation		96,606	109,601
<b>TOTAL EXPENDITURE</b>		<b>2,879,519</b>	<b>2,558,301</b>
<b>NET (DEFICIT) SURPLUS FOR THE YEAR</b>		<b>46,239</b>	<b>11,567</b>
Equity Funds at Beginning of Year		407,321	395,754
<b>EQUITY FUNDS FOR END OF YEAR</b>		<b>453,560</b>	<b>407,321</b>

## BALANCE SHEET AS AT 30 JUNE 2007

	Note	2007 \$	2006 \$
<b>ACCUMULATED FUNDS</b>			
<b>453,560</b>			
<b>REPRESENTED BY</b>			
<b>Current Assets</b>			
Bank - Current Account	11	47,364	171,023
Bank - CSA		162,361	26,038
Short Term Deposits		8,815	8,594
Accounts Receivable - HERA		135,783	133,391
Loan		24,743	-
Publications for Sale		11,126	12,271
Accrued Income		82,528	72,579
Prepaid		9,500	19,063
<b>TOTAL CURRENT ASSETS</b>		<b>482,219</b>	<b>992,971</b>
<b>Investments</b>	<b>6</b>	<b>591,076</b>	<b>550,012</b>
<b>Fixed Assets</b>	<b>5</b>	<b>260,950</b>	<b>312,559</b>
<b>TOTAL ASSETS</b>		<b>1,334,245</b>	<b>1,305,530</b>
<b>Current Liabilities-HERA</b>			
GST Payable		12,289	17,204
Accounts Payable		139,770	178,770
Holiday Pay Provision		26,118	25,652
Backdated Welding Levies	12	197,901	176,812
Income in Advance CSA	2	436,604	499,486
Income in Advance Industry		67,704	-
Income in Advance Other		299	285
<b>TOTAL LIABILITIES</b>		<b>880,685</b>	<b>858,205</b>
<b>NET ASSETS</b>		<b>453,560</b>	<b>407,321</b>

This information has been extracted from the Audited Accounts on which an unqualified audit opinion has been expressed. The set of audited accounts is available on request from HERA.



**Kam Subramani**  
Accounts Officer

Please note: the following is not necessarily in numerical order.

### 1. Statement of Accounting Policies

#### (a) General Accounting Policies

The Heavy Engineering Research Association (HERA) follows Generally Accepted Accounting Principles (GAAP) recognised as appropriate for the measurement and reporting of earnings and financial position on historical cost basis. Accrual accounting is used to match expenses and revenues. Reliance is placed on the fact that HERA is a going concern.

HERA is an Incorporated Society and these financial statements have been prepared in accordance with the Incorporated Societies Act 1908.

#### (b) Particular Accounting Policies

The particular accounting policies, which materially affect the measurement of financial performance and the financial position, are:

The Association is exempt from income taxation and therefore there is no income tax liability.

All transactions are recorded exclusive of Goods and Services Tax.

Fixed assets are valued at cost less depreciation. Depreciation has been calculated on all fixed assets using the straight-line method at rates varying between 10% - 40% based on cost.

Books held as inventory are valued at the lower of cost or net realisable value on a FIFO basis after due allowance for damaged or obsolete books.

HERA is a qualifying entity under the New Zealand Society of Accountants Differential Reporting Framework.

The Association qualifies under the size criteria. The Association has not taken advantage of the differential exemptions available to it in respect of FRS 19 – Accounting for GST. Except for this, the association has taken advantage of all other exemptions available to it under the differential reporting framework.

#### (c) Changes in Accounting Policies

There have been no changes in accounting policies. Accounting policies have been applied on a basis consistent with previous years.

### 2. Revenue in Advance

Majority of Revenue in Advance represents income in advance from various agencies including the Government, which funds the Association for research and services.

The Funding received for programmes (projects) that were completed during the year is recognised as revenue in that year.

The part of the Funding that relates to incomplete parts of projects at year-end is deferred to the next period. This is stated under "Revenue Received in Advance" in the Statement of Financial Position. The main project concerned with funding from FRST is the Composite Structural Assembly (CSA) project which started late due to staff resource constraints however also reflects a funding issue, where FRST pays equal amounts every year over the total period, while expenditure varies due to changing projects tasks, resulting in a large portion of funding being deferred to next year based on percentage of project complete.

### 3. Related Party

Heavy Engineering Educational and Research Foundation (HEERF) is a related party to the Association. It is related by the administrative and management expertise the Association provides to the Foundation, in the form of grants provided to the association for the research projects it undertakes. It is also the Association's landlord, owing HERA House.

In 2007, only the portion of HEERF Grant paid to HERA is included in the financial statements.

### 4. Audit Fees

Audit fees have been included in office and other expenses to the value of \$4,700 (2006:\$4,700). There was no other remuneration paid to the Auditors.

### 7. Capital and Other Commitments

As at 30 June 2007 there were no outstanding capital commitments. (2006: \$nil)

### 8. Contingent Liabilities

As at 30 June 2007 there were no outstanding contingent liabilities. (2006: \$Nil)

### 11. BNZ Bank Account

The Association has a Visa credit card facility with BNZ. The limit on all cards is \$21,000. (2005:\$26,000)

### 5. Fixed Assets

2007	COST	ACCUM. DEPRECIATION	NET BOOK VALUE 2007
Metallurgy Equipment	12,430	12,430	–
Office Furniture	21,086	16,515	4,571
Fixtures & Fittings	82,955	45,839	37,116
HERA House Refurbishment	69,015	10,353	58,662
Motor Vehicles	123,225	78,331	44,894
Office Equipment	271,905	192,163	79,742
Training Equipment	81,834	45,869	35,965
	<b>662,450</b>	<b>401,500</b>	<b>260,950</b>

2006	COST	ACCUM. DEPRECIATION	NET BOOK VALUE 2006
Metallurgy Equipment	12,430	12,430	–
Office Furniture	25,510	17,935	7,575
Fixtures & Fittings	82,955	34,269	48,686
HERA House Refurbishment	69,015	3,451	65,564
Motor Vehicles	145,291	72,897	72,394
Office Equipment	237,914	167,796	70,118
Training Equipment	78,884	30,661	48,223
	<b>651,999</b>	<b>339,439</b>	<b>312,560</b>

### 6. Investments

	2007	2006
National Bank TB	262,142	242,913
BNZ Term deposits	328,934	307,099
	<b>591,076</b>	<b>550,012</b>

### 9. Operating Lease Commitment

	2007	2006
Current	\$11,436	\$11,436
Non Current	\$17,154	\$28,590
Total payable for the lease contract	<b>\$ 28,590</b>	<b>\$40,021</b>

HERA has entered a lease agreement to lease HERA House with HEERF. In respect to the lease, HERA has an annual commitment of \$206,860.

### 10. Prior Period Adjustment - SCNZ

Up to 30 June 2006, HERA administered the operation of Steel Construction Industry NZ (SCNZ) and the HERA Balance Sheet included the assets and liabilities of SCNZ. Since SCNZ become an independent entity and its assets and liabilities have been transferred to the new entity SCNZ at the book value.

	2006
<b>Accumulated Funds - SCNZ</b>	<b>\$ 341,554</b>
Represented By	
Current Assets	
Bank SCNZ	71,987
Short Term Deposit	207,070
Accounts Receivable	99,535
<b>TOTAL CURRENT ASSETS</b>	<b>\$ 378,592</b>
Current Liabilities	
Accounts Payable	37,038
Total Current Liabilities	37,038
<b>NET ASSETS</b>	<b>341,554</b>

### 12. Welding Consumable Levy

As advised by the NZ Customs Service, the total backdated consumables levy amount owed to HERA was \$214,398.69. In the 05/06 year \$176,812 was received and in the 06/07 year an additional \$31,193 has been received. The remaining amount is expected to be received in 07/08 year depending on the arrangement made between the importers and Customs. HERA has agreed with the welding supply companies that the backdated welding levy will be used exclusively for welding industry purposes and only following consultation with the NZ Welding Centre Panel and the welding supply industry. Therefore the unspent balance of \$197,901 backdated welding levy has been treated as income received in advance.

### Audit Statement

The accounts as published are extracted from the financial statements audited by CST Nexia, Chartered Accountants, an unqualified audit opinion expressed at 10 August 2007. A full set of the audited financial statements is available from HERA on request.

The Heavy Engineering Educational & Research Foundation (HEERF) is a Charitable Trust established by HERA to promote the study of and understanding of the use of ferrous and non-ferrous metals in the engineering industry. HEERF receives income from the property "HERA House" which HERA settled on the Trust and an endowment fund created in 2005/06 receiving donations from those interested in supporting the HEERF objectives.

**STATEMENT OF FINANCIAL PERFORMANCE FOR YEAR ENDED 30 JUNE 2007**

In line with its objectives, the Foundation funded a number of projects related to the metals engineering industry, including student support for research projects.

**Balance Sheet as at 30 June 2007**

Note	2007 \$	2006 \$
<b>ACCUMULATED FUNDS</b>		
Equity funds at start of year	1,656,577	1,611,353
Net surplus for the year	106,997	45,042
Equity funds at end of year	<b>1,763,574</b>	<b>1,656,577</b>
<b>REPRESENTED BY</b>		
Current Assets		
Bank	64,099	35,195
Call Account	72,896	110,710
Short Term Deposit	298,424	133,818
Account Receivable	200	
Accrued Income	4,480	
GST Receivable		924
	<b>440,099</b>	<b>280,647</b>
<b>Total Fixed Assets</b>	<b>4 1,342,250</b>	<b>1,377,280</b>
<b>TOTAL ASSETS</b>	<b>1,782,349</b>	<b>1,657,927</b>
Current Liabilities		
Accounts Payable	17,094	4,984
GST Payable	1,681	-
<b>TOTAL LIABILITIES</b>	<b>18,775</b>	<b>1,350</b>
<b>NET ASSETS</b>	<b>1,763,574</b>	<b>1,656,577</b>

**Income & Expenditure for year ended 30 June 07**

	2007 \$	2006 \$
<b>INCOME</b>		
Rent	206,860	174,220
Interest	22,127	9,550
Endowment Fund	200	-
CSA Refund		11,083
<b>Total Income</b>	<b>229,187</b>	<b>198,489</b>
<b>EXPENDITURE</b>		
Blding Maintenance	5,317	1,184
Blding Managmt Fee	6,000	6,000
Trust Administration	10,000	10,000
Honoraria	-	3,000
Grants to HERA/SCNZ	64,608	96,911
Bank Charges	34	121
Audit Fees	1,200	1,200
	<b>87,159</b>	<b>118,419</b>
Depreciation	35,031	35,031
<b>Total Expenditure</b>	<b>122,190</b>	<b>153,447</b>
<b>NET SURPLUS (Deficit)</b>	<b>106,997</b>	<b>45,042</b>



HERA Executive and HEERF trustees acknowledge the immense contribution made by Keith Smith, the Inaugural Chairman of both HERA and HEERF. Keith Smith developed the Foundation concept with the vision to secure the long term future of the HERA asset HERA House and through the returns from this asset make an ongoing contribution to engineering research and the development of future generations of engineers driving the industry forward. Keith Smith died in December 2006 after a serious illness.

We also acknowledge the outstanding service of former HERA Director and Trustee Gavin Fletcher, who following the 2007 AGM is stepping down from his trustee position. As former HERA Director, Gavin was responsible for building our fabulous HERA House facilities. Since the start of the Foundation in 1992, he has been a trustee contributing to the running of the Trust and keeping HERA House in a presentable state.

In 2006/2007 the Foundation has again contributed significantly to HERA's research and industry development efforts through the support of engineering students, visiting experts and promoted careers in metal fabrication. An exciting research and visiting scholar programme has already been outlined to the Trustees for the 2007/2008-year and we are looking forward to ongoing top class research supporting the future of our New Zealand metals engineering industry.

Noel Davies  
HEERF Chairman

**1. Statement of Accounting Policies**

(a) General Accounting Policies

Heavy Engineering Educational and Research Foundation (the Foundation) is a charitable trust established under the Charitable Trusts Act 1957. These financial statements have been prepared in accordance with the Act.

The Foundation follows Generally Accepted Accounting Principles (GAAP) recognised as appropriate for the measurement and reporting of earnings and financial position on historical cost basis. Accrual accounting is used to match expenses and revenues.

(b) Particular Accounting Policies

The particular accounting policies, which materially affect the measurement of financial performance and the financial position, are:

**Income Tax**

The Foundation has a charitable status from the Inland Revenue Department, hence is exempt from income tax.

**4. Fixed Assets**

	COST \$	ACCUM. DEPRECIATION	BOOK VALUE 30 JUNE 07 \$
Land	244,602	-	244,602
Land Development	24,489		24,489
Building Upgrade	151,019	43,388	107,631
Air Condition Unit	157,300	28,908	128,392
Building	1,049,090	211,955	837,135
	<b>\$1,626,500</b>	<b>284,251</b>	<b>1,342,249</b>

**Goods and Services Tax**

All transactions are recorded exclusive of Goods and Services Tax (GST) except for receivables and payables that are stated inclusive of GST.

**Fixed Assets**

Fixed assets have been shown at cost less depreciation. Buildings are depreciated using the straight-line method at 1% of the cost price, Air Conditioning Unit at 6% and Roof & Cladding at 10%.

**Differential Reporting**

The Foundation is a qualifying entity under the New Zealand Society of Accountants Differential Reporting Framework.

The entity qualifies under the size criteria, and because it is not publicly accountable.

The Foundation has not taken advantage of the differential reporting exemptions available to it in respect of FRS-19: Accounting for Goods and Services Tax.

(c) Changes in Accounting Policies

There have been no changes in accounting policies. Accounting policies have been applied on a basis consistent with previous years

**2. Capital Commitments & Contingent Liabilities**

There are no capital commitments or contingent liabilities as at 30 June 2007. (2006: nil)

There were no capital commitments as at 30 June 2007. (2006: Nil)

**3. Related Parties**

The Foundation is related to New Zealand Heavy Engineering Research Association (HERA). Members of the Foundation are also members of HERA.

HERA is the tenant of the land and building owned by the Foundation and pays rent.

The Foundation pays fees to HERA for the management and administration of the building.

The late K Smith was the Chairperson of HEERF. He was the Principal of DRK Smith & Associates, which provided professional services of \$3,000 during the year 2006. All transactions are approved by the Board and at arms length.

**Audit Statement**

The accounts as published are extracted from the financial statements audited by CST Nexia, Chartered Accountants, and an unqualified audit opinion as expressed at 10 August 2007. A full set of the audited financial statements is available from HERA on request.

## Affiliate Members

C J Wallis Pty Ltd  
 EDL Fasteners Limited  
 Fletcher Easysteel  
 Steel & Tube Holdings Ltd

TBS Farnsworth Ltd  
 Vulcan Steel Ltd  
 Welding Technology Inst of Australia

## Associate Members

A & S Engineering Ltd  
 ABB Power Ltd  
 Accurate Engineering Limited  
 Advanced Training Academy  
 Aimecs Ltd  
 Airwork (NZ) Ltd  
 All Steel Services Ltd  
 Alloy Yachts International Limited  
 ALRO Truck Smash Repairs  
 Alstom Northern Wagons  
 ANDAR-ADM Group Ltd  
 APV New Zealand Ltd  
 ATCO Controls Ltd  
 ATI Engineering Ltd  
 Awesome Awnings Ltd  
 Axiam Engineering Limited  
 Bailey Engineering Ltd  
 Baker Cranes Ltd  
 Bay of Plenty Polytechnic  
 Bedford Engineering Ltd  
 Best Bars Ltd  
 Bill Baillie Engineering Ltd  
 Bitumen Equipment Ltd  
 Bradken Dunedin  
 Bridgeway Steel Ltd  
 Brightwater Engineers Ltd  
 C J Saunders Engineering Ltd  
 Calder Stewart Steel  
 Cambridge Welding Service (1953) Ltd  
 Cameron Bros Engineering Co Ltd  
 Campbell Tube Products Ltd  
 Canco  
 Canco Engineering Ltd  
 CCL Barber Ltd  
 Century Resources Ltd  
 CFM Engineering Ltd  
 Clough Agriculture Ltd  
 Consolidated Engineering Company Ltd  
 Contract Connections Ltd  
 Contra-Shear Separation Technologies Ltd  
 Courtney Engineering  
 Croucher & Crowder Engineering Co Ltd  
 Culham Engineering Co  
 D A Ireland (1990) Ltd  
 D R Howells Engineering Co Ltd  
 Dan Cosgrove Ltd  
 Dave Smith Structural Steel  
 Dawn Group Ltd  
 Domett Trailers  
 DSK Engineering Ltd  
 Eastbridge Ltd  
 Eastern Institute of Technology  
 Ede Engineering  
 Engineering Contractors Ltd  
 Enterprize Steel  
 Eric Paton Ltd  
 Etech Industries NZ Ltd  
 Fairbrother Industries Ltd  
 Fairfax Industries Ltd  
 Farmex Hawkes Bay Ltd  
 Fisher & Paykel Production Machinery Ltd  
 Flotech Limited  
 Fruehauf Trailers

Fuelquip Services Ltd  
 G T Liddell Contracting Ltd  
 Gamman Industrial Componentry Ltd  
 General Engineering North Shore  
 George Grant Engineering  
 Gillies Foundry  
 Gisborne Development Incorporated  
 Gray Construction  
 Harford Greenhouses  
 Hayes International  
 Hino Distributors (NZ) Ltd  
 Howick Engineering Ltd  
 Iain Codling Stainless Steel  
 Ipsco Ltd  
 Irwin Industrial Tool Company Ltd  
 J & D McLennan Ltd  
 J J Niven Engineering Ltd  
 J P Marshall & Co Ltd  
 Jay Cee Welding Ltd  
 Jetweld Engineering  
 Keith M J Adams  
 Kernohan Engineering Ltd  
 Kopu Engineering Ltd  
 Lakeland Steel Products Ltd  
 Leighs Construction Ltd  
 Leonard Products Ltd  
 Longhare Engineering Ltd  
 Mace Engineering Ltd  
 Machine Part Welding Ltd  
 McCarthy Engineering Ltd  
 McEwan Engineering  
 Mecal Ltd  
 Metso Minerals (Matamata) Ltd  
 Michael Harris (NZ) Ltd  
 Mike Christie Sheetmetals Ltd  
 Millers Mechanical (NZ) Ltd  
 Mobridge Ltd  
 Modern Transport Engineers Ltd  
 Mooloo Stockcrates Ltd  
 Morgan O'Shea Engineering  
 Morrow Equipment Co (NZ)  
 Mouats Engineering Ltd  
 MSC Engineering  
 Mulcahy Engineering Ltd  
 Mullan and Noy Ltd  
 Murray Landon  
 Nalder & Biddle Group Ltd  
 Napier Engineering & Contracting Ltd  
 NDA Group  
 Necklen Engineering Ltd  
 Nelson Reliance Eng Co Ltd  
 Nelson Stud Welding Ltd  
 Nepean Engineering Ltd  
 Niemac Industrial Ltd  
 NZMP Kauri  
 Otahuhu Engineering Ltd  
 OTENZ Group  
 Pacific Timber Engineering Ltd  
 Parr & Co Limited  
 Patchell Industries Ltd  
 Piako Transport Engineering  
 Pilcher Engineering Ltd  
 Pipework Specialties Ltd

Progressive Hydraulics  
 Pyramid Engineering  
 R & R Contractors Limited  
 Reel Stainless  
 Refrigeration Engineering Co Ltd  
 Renold New Zealand Ltd  
 Rex Barnes Engineering  
 Roadmaster Trailers Ltd  
 Rocktec Ltd  
 Royal New Zealand Air Force  
 SAFE Engineering  
 Salthouse Boatbuilders Ltd  
 Sensation Yachts Ltd  
 Service Engineers Ltd  
 Sharland Engineering  
 Sheetmetals (1983) Ltd  
 Ship Constructors Ltd  
 Snorkel Elevating Work Platforms  
 South Fence Machinery Ltd  
 Southern Cross Engineering Limited  
 Specialised Container Services  
 Specialist Energy Engineering  
 Developments  
 Spirax Sarco Limited  
 Stafford Engineering Ltd  
 Stainless Down Under  
 Stainless Engineering Co Ltd  
 Sta-Tec Manufacturing  
 Steel Structures Ltd  
 Steelbro NZ Ltd  
 Stevensons Structural Engineers Ltd  
 Stewart & Cavalier Ltd  
 Street Marine Ltd  
 Stud Welding New Zealand Ltd  
 Tasman Engineering Company  
 The 4711 Training Centre  
 Tidd Ross Todd Ltd  
 Titan Cranes  
 Transfleet Equipment Ltd  
 Trimtech New Zealand Ltd  
 Truweld Engineering Kerikeri Ltd  
 Twig Industries  
 Ullrich Aluminium Co  
 Verissimo Engineering Ltd  
 Wade Engineering Ltd  
 Wainuiomata Training Centre  
 Waratah NZ Limited  
 Warner & Mould Construction Ltd  
 Webbs Industrial Group  
 Webforge NZ  
 Weld IT Ltd  
 Weld Fabrication Engineering Ltd  
 Weld Tests Hawkes Bay  
 Wells & Boe Ltd  
 Whangaparaoa Engineering  
 Wilson Bros Engineering Ltd  
 Wilson Precast Construction Ltd  
 Wyma Engineering NZ Ltd  
 Zealsteel Ltd

## Ordinary Consultants

Abacus Engineering Ltd  
 ABB Kinleith  
 Abuild Consulting Engineers  
 AC Consulting Group Ltd  
 Airey Consultants Ltd  
 Alan Reay Consultants Ltd  
 Allan Estcourt Ltd  
 Antro Enterprises Limited  
 Apex Consultants  
 Arnold & Johnstone Ltd  
 Babbage Consultants Ltd  
 Base Consulting Engineers Ltd  
 Beca Carter Holings & Ferner Ltd  
 Belcher Industries Ltd  
 BHC Consulting  
 Bill Cassidy & Associates  
 Bloxam Burnett & Olliver Ltd  
 Blueprint Consulting Limited  
 Brian Carter Consulting Engineer Ltd  
 Brian Jones Engineering Ltd  
 Brian Wilson Consulting Engineer  
 Brown & Thomson  
 Bruce Wallace Partners Ltd  
 BSK Consulting Engineers Ltd  
 Buchanan & Fletcher Ltd  
 Bucher-Alimentech Ltd  
 Buller George Turkington Ltd  
 Bycroft Petherick Ltd  
 C L C Consulting Group Ltd  
 Cameron Crabtree Partnership  
 Cameron Gibson & Wells Ltd  
 CDT Consultants Limited  
 Chambers Consultants Ltd  
 Chapman Oulsnam Speirs Limited  
 Chapman Sanders Consultants  
 Charles Consulting  
 Chester Consultants Ltd  
 CHP Wellington Ltd  
 Chris W Howell & Associates Ltd  
 City Solutions  
 Civil Engineering Tokoroa  
 Clearwater Construction  
 Clendon Burns & Park Ltd  
 Compusoft Engineering  
 Connell Wagner Ltd  
 Dainty Alderton & Associates  
 Davidson Partners Ltd  
 Davis Ogilvie & Partners Ltd  
 Day Consultants  
 Derek Booth Consultancy Ltd  
 Design Engineering (SI) Ltd  
 Design Management Consultants Limited  
 Deznign Works (HB) Ltd  
 Dick Joyce Consultants Ltd  
 Dobbie Engineers Ltd  
 Dodd Civil Consultants  
 Don Thomson Consulting Engineers  
 Duffill Watts & King Ltd  
 Dunning Moore & Associates  
 Dunning Thornton Consultants Ltd  
 E Cubed Engineering Ltd  
 East Coast Steelwork Ltd  
 Emc<sup>2</sup>  
 EMPA Group Consultants Limited  
 Engineered Cold Systems Ltd  
 Engineering Design Consultants Limited  
 ETS Engineers Ltd  
 Fairclough and King Consultants Ltd  
 Fletcher Construction - Engineering  
 Flo-Dry Engineering Ltd  
 Forbes Consultants  
 Fraser Thomas Limited  
 Frederick R Smith  
 Fulghum Limited  
 Garry Newton Ltd  
 Geoff Kell Consulting Ltd  
 GHD Ltd  
 Grant D Crook  
 Hadley & Robinson Ltd  
 Hanlon & Partners Ltd  
 Harding Consulting Engineers Ltd  
 Harrison Grierson Consultants Limited  
 Hawthorn Geddes Architects & Engineers Ltd  
 Hill Design Engineering Ltd  
 HLK Jacob Limited  
 Holmes Fire & Safety  
 Hugh Barnes Consultants Ltd  
 Independent Technology Ltd  
 JAWA Structures Ltd  
 JNG Engineers Ltd  
 John Snook Ltd  
 Jones Gray Partners Ltd  
 Joyce Consultants Ltd  
 Kerry Dalzell & Associates Limited  
 Kerslake & Partners  
 Kevin O'Connor & Associates Ltd  
 Knibb Gormezano & Partners  
 Knowles Consulting  
 Kordia Ltd  
 Lapish Enterprises  
 Lewis & Barrow Ltd  
 Lewis & Williamson  
 Lewis Bradford & Associates Ltd  
 LHT Design  
 Linear Design  
 M A Corkery & Associates Ltd  
 Macdonald Barnett Partners Ltd  
 Manktelow Consulting Engineers Ltd  
 Marino Consultants & Associates  
 Markplan Consulting Ltd  
 Martin Meyers Structural Engineer  
 Massey Design Ltd  
 Maunsell Ltd  
 Mechanical Technology Ltd  
 MEL Engineering Consultants  
 Metal Test Ltd  
 MH Design Ltd  
 Mighty River Power Limited  
 Milward Finlay Lobb Ltd  
 Mitchell Vranjes Consulting Engineers  
 Mobil Oil New Zealand Limited  
 MSC Consulting Group Ltd  
 MTEC Consultants Ltd  
 MWH New Zealand Ltd  
 Nagel Consultants Ltd  
 Nancekivell Cairn Ltd  
 Novare Design Ltd  
 OCEL Consultants NZ Ltd  
 O'Loughlin Taylor Spence Ltd  
 Opus International Consultants Ltd  
 Paul Gellatly Consulting Engineer  
 PB Power  
 Peter Walker Consultants Ltd  
 Peters and Cheung Ltd  
 PFP Systems (NZ) Ltd  
 Plant & Platform Consultants Ltd  
 Plumb Ltd  
 Pointload Ltd  
 Port of Tauranga Limited  
 Powell Fenwick Consultants Ltd  
 PR Consultants  
 Protocold Services Ltd  
 Q Designz Limited  
 R B Knowles & Associates Ltd  
 R D Sullivan  
 R J Nelligan & Associates Ltd  
 R W & V Roberts Consultancy  
 Radley Consultants Ltd  
 Randall & Associates  
 Redco NZ Ltd  
 Richardson Stevens Consultants (1996) Ltd  
 Robin Frengley Consulting Engineer  
 Romulus Consulting Group Ltd  
 RPH Consulting Limited  
 Ruamoko Solutions Ltd  
 Sawrey Consulting Engineers Ltd  
 Sigma Consultants Ltd  
 Silvester Clark Consulting Engineers  
 Sinclair Knight Merz Ltd  
 Spencer Holmes Ltd  
 Stephen R Mitchell Consulting  
 Stiffe Hooker Ltd  
 Stiles & Hooker Ltd  
 Structex Limited  
 Structure Smith Ltd  
 Thorburn Consultants NZ Ltd  
 Thorne Dwyer Structures  
 Tonkin & Taylor Ltd  
 Tony Tay Group  
 Transfield Worley Ltd  
 Transport Design & Certification  
 Transport Technology Ltd  
 Transtech Dynamics Ltd  
 TSE Group Ltd  
 Tse Taranaki & Associates Limited  
 TSV Consultants Ltd  
 Tyndall & Hanham Ltd  
 URS New Zealand Ltd  
 Verstoep & Taylor Ltd  
 W Stringer Consulting  
 Waikato Engineering Design Ltd  
 Waitakere City Council  
 Walker Group Ltd  
 Weber Consulting  
 Wellman Associates Ltd  
 WH NF Johnston Ltd

## Ordinary Other

Ballance Agri-Nutrients (Kapuni) Ltd  
 Intergrated Maintenance Group Limited  
 Mainzeal Property & Construction Ltd  
 MMB Engineering Ltd  
 Trustpower Ltd

## Ordinary Fabricators

A & G Price	Gary Douglas Engineers Ltd	RACT Engineering
Acme Engineering Ltd	Gisborne Engineering Ltd	Red Steel Limited
Active Transport Engineers Ltd	Gray Bros Engineering	RNZN Fleet Repair Group
Active Welding Limited	Grayson Engineering Ltd	Roadrunner Manufacturing (NZ) Ltd
Allied Industrial Engineering Ltd	HSM Engineering Ltd	Robert Page Engineering Ltd
Amtec Engineering Ltd	J & R Slecht Limited	Robt Stone & Co Ltd
Atco Steel Developments Ltd	Jensen Steel Fabricators Ltd	Steel Fabrication Ltd
Auckland Steel 2000 Ltd	John Jones Steel Ltd	Steeltech (HB) Ltd
B W Murdoch Ltd	Kawerau Engineering Ltd	Steelworks NZ Ltd
Bas Manufacturing	Kraft Engineering Ltd	Steltech Structural Limited
BDC Engineering	Lyttelton Engineering Ltd	Tandarra Engineering Ltd
BLM Engineering Co Ltd	M J H Engineering Ltd	Tanker Engineering Specialists Ltd
Bromley Steel	Mainarc Engineering Services Ltd	Taymac Limited
Burleigh Engineering Ltd	Manukau Welders (1982) Ltd	Tenix Shipbuilding New Zealand Ltd
C & R Equipment Ltd	Martin Engineering	Titan Marine Engineering
CBC 2000 Ltd	McGrath Industries Limited	Toledo Construction 2004 Ltd
Chapman Engineering Ltd	McKenzie & Ridley (Kawerau) Ltd	Toll NZ Consolidated Ltd
Contract Engineering Limited	Mercer Stainless Ltd	Track Industries Ltd
Crusader Engineering Ltd	Metal Tech Education Ltd	Tranzweld
CSP Pacific	Morgan Steel	Turnco Engineering Limited
D & H Steel Construction Limited	Otahuhu Welding Ltd	United Engineering Services Ltd
Dexion New Zealand	P J Hindin Engineering	Universal Engineering Ltd
Dispatch and Garlick Ltd	Page & Macrae Engineering Ltd	VT Fitzroy Limited
Donovan Group NZ Ltd	Pakuranga Engineering Ltd	W Stevenson & Sons Ltd
Electric Furnace Company Ltd	Papakura Engineering Co Ltd	Waikato Steel Fabricators Ltd
Elite Innovations	Patton Engineering Ltd	Weatherford New Zealand
Energyworks Ltd	Pegasus Industrial Engineering Ltd	Weldrite Marine Fabrication Ltd
Equipment Engineering Ltd	PFS Engineering Ltd	Welds Engineering Ltd
Farra Engineering Limited	Price McLaren Ltd	Weldtrade Engineering Ltd
Fitzroy Engineering Group Ltd	Pryda Reid	WFM Limited
Fulton Hogan Ltd	R C R Easteel Energy System Limited	Wilkinson Transport Engineers

## Ordinary Product Suppliers

Akzo Nobel Coatings Ltd	H J Asmuss & Co Ltd	Pipes (NZ) Limited
Alpha Engineering Co Ltd	Independent Oilfield Inspection Services Limited	PPT
Altex Coatings Ltd	Juken New Zealand Ltd (Wairarapa)	Sandvik New Zealand Ltd
BOC Gases New Zealand Ltd	Lincoln Electric Co (NZ) Ltd	Smorgon Steel Recycling NZ Ltd
Coast Site Welding & Rigging (2003) Ltd	Marten Spars Limited	Speedfloor NZ
Combustion Control Ltd	Modern Maintenance Products Ltd	Supreme Steel Products Ltd
Corus New Zealand Ltd	New Zealand Steel Ltd	Traydec (NZ) Ltd
Crow Refractory Ltd	Onesteel NZ Limited	Vector Limited
Cuddon Ltd	Pacific Marine Engineering	Wattyl (NZ) Ltd
Digitalweld	Pacific Steel	Weldwell New Zealand
Dimond	Piletech NZ Ltd	
Forman Building Systems Ltd		

## Ordinary Services Providers

4D Steel Detailing	Gulf Design Ltd	South Pacific Industrial
Advance Boiler Services NZ Ltd	Hawkins Construction Ltd	Southern Institute of Technology
Air Liquide New Zealand Ltd	ISSA Engineering	Southern Quality Assurance Ltd
Alpha Training & Development Centre Ltd	Land Transport New Zealand	Steel Drafting Ltd
Auckland City Environments	Les Boulton & Associates Ltd	Steel Pencil Limited
Auckland University of Technology	Machinery Services Ltd	Steeltech Services
Bay of Plenty Electricity	Manukau Institute of Technology	Stork Cooperheat New Zealand Ltd
BDS Steel Detailers	Mason Engineers (NZ) Ltd	Structurflex Limited
Bureau Veritas (NZ) Ltd	Materials & Testing Laboratories	Survey NZ Ltd
CadPro Systems Ltd	Matrix Applied Computing Ltd	Tank Test Laboratories Ltd
Christchurch Polytechnic Institute of Technology	McLeod Cranes Ltd	Transtech Certification
Contact Energy: Power Station	New Zealand Industrial Abseilers Ltd	UCOL
Coulter Engineering Services Ltd	New Zealand Refining Co Ltd	Unitec Applied Technology Institute
CSP Coating Systems	NorthTec	University of Auckland
D C Weld Ltd	NZ Army c/o Art GE	Victoria University of Wellington
Digital Insight Ltd	NZ Welding School	W J Cadzow & Associates
Dulux NZ Protective Coatings	Palmerston North City Council	WELTEC
Engineering Safety DOL	POBA International No 6024	WINTEC
Forman Insulation Limited	Porter Engineering Ltd	WITT
	SGS New Zealand Limited	X-Ray Laboratories Ltd

## HERA Staff

### Administration

Director	Dr Wolfgang Scholz	Dipl-Ing, PhD, EWE
Accounts Officer	Kam Subramani	B.Com

### Inspection & Quality Control Centre (I & QC Centre)

Manager	Peter Hayward	CWE, NDT Level 3, MINDT
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### HERA Information Centre (HIC)

Manager	Brian Low	BA, PSNZ
Publications Officer	Pauline Hayward	
Librarian	Sally Geard	BA, BSc, Dip-ILS (Level 5)
Receptionist	Raewyn Porter	

### Structural Division

Senior Structural Engineer	Dr Charles Clifton	BE (Hons), ME, PhD, FIPENZ, FZSSEE
Finite Element Analyst	Nandor Mago	BE, ME, MIPENZ, CPEng, NAFEMS Registered Analyst
Structural Engineer	Raed El Sarraf	BE, ME, GIPENZ.
CSA Business Development Manager	Rosemary Scofield	BArch, MArch, DipSBM, Reg Arch
CSA Technical Manager	Richard Green	SMSc, BSc, Dip. Env. Impact & Risk Assessment, Dip. Life Cycle Assessment & Sustainability

### New Zealand Welding Centre

Manager	Dr Michail Karpenko	Dipl-Ing, PhD, IWE
Senior Welding Engineer	Alan McClintock	NZCE, CWE, CWI
Welding Engineer	Rian Holdstock	BA Maths & Env. Science (Hon), MSc Pipeline, MSc Welding
Materials Engineer	David Wrightson	BE (Hons)

### Metal Forming

Metal Forming Engineer	Holger Heinzl	Dip-Ing.
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### Industry Development Support (under contract)

Management & Quality Services Ltd	Norm Stannard	C.Eng, MIMech, DMS, FIPENZ
Heavy Engineering Industry Development Manager	Bill Lovell	



#### Standing, from left:

Nandor Mago, Holger Heinzl, Pauline Hayward, Alan McClintock, Raed El Sarraf, Sally Geard, Rosemary Scofield, Richard Green, Kam Subramani, Raewyn Porter, Dave Wrightson, Rian Holdstock

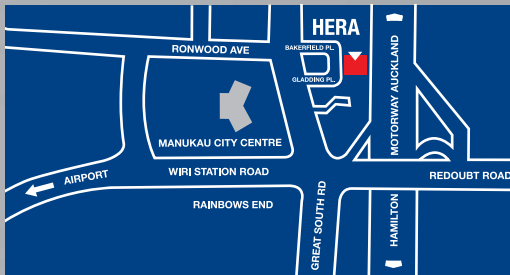
#### Sitting, from left:

Brian Low, Peter Hayward, Wolfgang Scholz, Charles Clifton, Michail Karpenko

# HERA

Innovation in Metals

# 2008?



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Website: [www.hera.org.nz](http://www.hera.org.nz)