

# ANNUAL REPORT 2010

"Being part of the Team is everything..."



**HERA**

Innovation in Metals

Heavy Engineering Research Association



### Who is HERA?

HERA is the Research Association for 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 600 industry members as their leading resource support centre.

### The HERA Executive for the Year 2009/2010 consists of:



(from left and for insets top-to-bottom with company affiliation and membership representation)

Peter Hutton (Deputy Chairman)	Fitzroy Engineering	Ordinary & Associate Members
Peter Herbert	SC Technik	Manufacturers & Exporters Association (MEA)
Prof Thomas Neitzert	Auckland University of Technology	Co-opted Research Providers
Dr Wolfgang Scholz	HERA Director	
Duncan Fraser	Acme Engineering	Ordinary & Associate Members
David Moore (Chairman)	Grayson Engineering	Ordinary & Associate Members
Terry Duff	Southern Cross Engineering	Ordinary & Associate Members
Evan Kroll	Stevenson Structural Engineers	Ordinary & Associate Members
Aaron Beer	BECA	Ordinary & Associate Members
Scott Fuller	NZ Steel	President NZ Steel
Noel Davies (Past Chairman)	Hydraulink Fluid Connectors	Heavy Engineering Educational & Research Association
John Frear	OneSteel	Ordinary & Associate Members
Tony Kerr	Manukau Institute of Technology	Ordinary & Associate Members

### For the Joint Message from the HERA Chairman and HERA Director

Page 3



#### About the Cover:

HERA members are making significant contributions towards realising New Zealand ambitions for a successful 2011 Rugby World Cup. This shot is from the lift of the roof trusses fabricated by Grayson Engineering for main contractor Hawkins Construction for the Dunedin Forsyth Bar Trust Stadium. It is the second largest enclosed stadium in the Southern Hemisphere.

## What does HERA do?

### Mission

The HERA mission is to achieve its industry vision by assisting the industry in accelerating its innovation and by strengthening its combined opportunities through the provision of research, education, marketing and advocacy functions.

## HERA KEY STRATEGIES

In fulfilling its mission, HERA applies seven key strategies:

### KEY STRATEGY 1

To work with industry and its stakeholders to encourage and foster business innovation and growth

**Page 5**

### KEY STRATEGY 2

To drive the development of technology, systems and products

**Page 7**

### KEY STRATEGY 3

To assist in the provision of quality workforce required for ongoing industry development

**Page 10**

### KEY STRATEGY 4

To develop and implement tools required for monitoring and enhancing industry growth and competitiveness

**Page 12**

### KEY STRATEGY 5

To improve the HERA organisation by enhancing services and improving cost/benefit ratio

**Page 13**

### KEY STRATEGY 6

To maintain and strengthen top class research and industry training capabilities

**Page 14**

### KEY STRATEGY 7

To work towards a more sustainable NZME industry

**Page 15**

### Vision

The HERA vision is to have an internationally competitive NZ Metals Engineering Industry who recognises HERA as the leading catalyst for innovation.

## Other items covered in this Report:

<b>Audited HERA Financial Report</b>	<b>Page 16</b>
<b>Heavy Engineering Educational and Research Foundation Report</b>	<b>Page 18</b>
<b>HERA Members</b>	<b>Page 19</b>
<b>HERA Divisions and Staff</b>	<b>Page 22</b>



*David Moore*

David Moore  
HERA Chairman

Welcome to this Annual Review of HERA-related activities.

**2009/2010 HERA Year in Review:**

- Recession continues to affect heavy engineering industry
- NZ Steel price development adjusts to world demand and settles at 2005 levels
- Imported fabricated steelwork increase noted and associated actions started
- HERA's increased industry advocacy role is being noticed
- HERA develops landmark cross-sector research proposal but misses out in contestable funding round
- Several success stories from the HERA divisions
- New HERA web site goes 'live' and reaches over 10,000 visitors per month
- HERA technical advice proves popular with membership
- Levy income shortfall largely compensated for by self-generated income and reductions in spending, resulting in only a small deficit
- Addressing stable base funding for industry R&D
- Outlook is set for relatively slow growth
- Tremendous industry support received in tough year
- Thank you to all who assisted

**Industry Activity Dampened by Recession**

As shown in the long term heavy steel volume chart, 2009/10 volumes dropped a further 2% as compared to the previous year. Therefore, overall steel throughput was down by some 35% compared to the 2007/08 peak year and at levels typical of the early 2000s. This reduction is despite a significant drop in steel prices back to pre-2005 levels as indicated in the Heavy Steel Import Values Index graph, where the base import value was set at 100% in January 2000.

Following the growth of recent years, where industry built considerable capacity and invested in more productive plant, the recession forced capacity adjustment and also some closure of workshops, which has impacted on HERA membership. Members reported a highly competitive environment with significantly constrained margins leading to little profits being made. Profits are essential for the future development of any company and seriously affect spending on innovation activities, including R&D.

However, as in the first year of the recession, there are also companies which worked at the limit of their capacity and often this involved the export side of the business. The Government's stimulus package helped in providing some infrastructure work, including bridge construction which alongside Rugby World Cup stadia work, has kept some steel construction workshops quite busy during an otherwise un-inspiring year.

Despite difficult trading conditions, HERA member companies continue to make an important economic and strategic contribution to New Zealand. Photos in this Annual Report document some inspirational achievements by member companies.

**Imported Fabricated Steelwork Increase Noted**

New Zealand always experiences a certain level of imported fabricated steelwork, particularly in

large projects where there are capacity and capabilities constraints.

However, with the global recession putting pressure on all steel fabricators, it was noted that fabricated steel was imported for the first time in the area of lower value, standard constructional steelwork. This caused concern in the industry and an *Imported Steelwork Committee* consisting of HERA and SCNZ members was set up to address the issue.

A research project was undertaken for the purpose of investigating the economic, social and risk-related impacts of imported fabricated steel, the results of which are pending release at the time of this report. The study confirmed an increase of imports in some areas and highlighted that if this trend should increase, there will be a significant economic impact on our industry and New Zealand's economic performance as a whole.

However, most noteworthy were the risk-related concerns highlighted by the study which exposed multiple cases of poorly-executed fabricated imports. In most cases, it was shown that significant remedial and other costs eventuated from repairs and delays. This confirmed that many imports actually added unscheduled cost at a level, which would have made local fabrication cost-competitive. An emerging practice was noted where remediation costs were hidden in increased ongoing maintenance, thereby significantly increasing the whole of life costs of the fabrication.

**HERA Focus on Advocacy**

The issues around imported steelwork highlighted again the importance of the HERA advocacy function, a role which was taken up last year officially in the HERA Strategy. A focus on the promotion of the benefits of local fabrication, on the capabilities and capacity of New Zealand's heavy engineering sector and on the questionable benefit of so-called Free Trade Agreements have been noted by stakeholders and HERA has received a significant level of

support and positive responses.

**HERA Research Roadmap and Government Funding**

Traditionally, HERA receives about 1/3 of its income from contestable Government research grants. In this year's application round into the *New Materials, Technologies and Services* portfolio, HERA developed a cross-sector research proposal with the title "*New Export Opportunities for Metal for Construction and Energy*" but was unsuccessful in what was a heavily oversubscribed funding round.

HERA is now pursuing other avenues to achieve export and industry transformation goals. With the substantial loss in forward income, HERA is forced to adjust and look for other methods of stable base funding to support the ongoing development of research capabilities for our industry.

**HERA 2009/10 Success Stories**

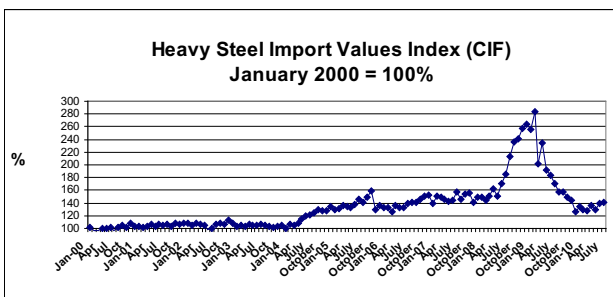
Achievements from each of the HERA divisions are listed in detail under each of the key strategies HERA pursues to achieve its mission and vision. Here are some highlights summarized:

**Heavy Engineering Industry Development**

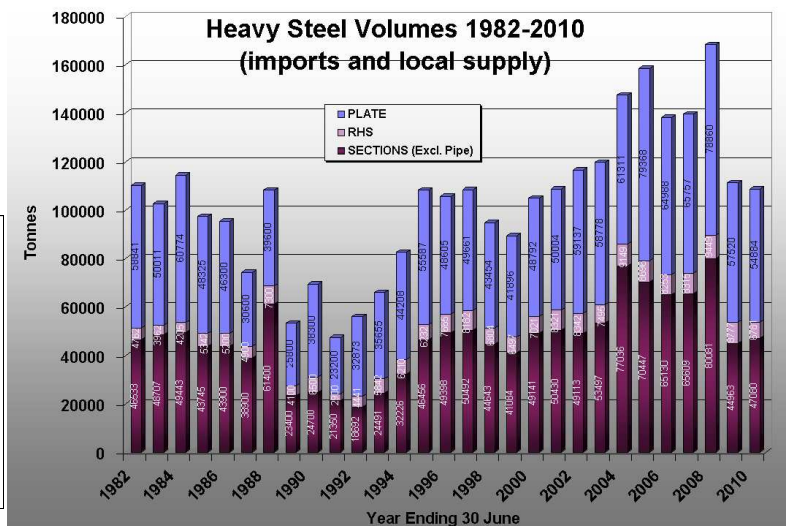
- Develops HERA Roadmap process for low enthalpy heat to electrical energy and for marine energy
- Leads renewable energy trade mission to Europe
- Research into optimising industry capability communication
- Performs imported steelwork study

**Structural Systems Division**

- NZS 3404 Part 1 revision released
- Steel Bridge Development Group progressed Steel/Composite Bridge Design Guide
- Coating application accreditation scheme progressed and *NZ Coatings Industry Checklist* published
- Composite Structural Assembly Research Group enters pre-commercialisation stage and establishes pilot plant for the fabrication of panels for testing



Source: Statistics New Zealand





and trial building  
- Floor deck research contributes to NZ products achieving international standards

- Peer review of Fabsec cellular beam software for application in New Zealand  
- Contributes to SCNZ steel structures and HERA/NASH light steel framing seminar

**NZ Welding Centre**

- Performs corrosion study of alternative lower-cost stainless steel grades which will influence future cost of welded fabrication

- Addresses welder qualification standard changes and runs well-attended seminar series across New Zealand.

- NZ-wide welding fatigue research seminar with international expert

- Productivity research programme started and NZ welding industry characterisation study completed

- First NZQA-approved welding supervisor courses held

- Standards Australia appoints HERA Welding Centre to manage review of joint Australian/ New Zealand stainless steel welding standard AS/NZS 1554.6

**Inspection & Quality Control Centre**

- Peter Hayward retires after 25+ years in industry, leaving a hard-to-replace gap

- Completes year with a record number in course attendance

**HERA Information Centre**

- New HERA web site comes to life and reaches over 10,000 visitors per month

- HERA News published in new web-based and HTML email formats

**Addressing Stable Base Funding**

As previously reported, the HERA Executive is addressing HERA's long-term base funding situation through a request to inflation adjust the Heavy Engineering Research Levy (HERL) via the amendment of its HERL Act. Following an extensive and supportive industry consultation during September/October 2009, the request for an amendment was put to the Minister for Research Science and Technology (MoRST), Dr Wayne Mapp, who confirmed putting the amendment on the 2010 Legislative Calendar.

However, the Minister also indicated that the process is lengthy and priorities may not permit completion of the amendment

during the year. As a result, the Executive looked at alternative funding options to secure the running of HERA core functions and explored the introduction of a voluntary levy on tubular sections used in steel construction as an interim measure, until such time as the HERL Act change becomes effective.

Feedback from affected members has been supportive and it is hoped that the scheme can commence in October 2010.

**HERA Levy Income Shortfall Largely Compensated for by Self-generated Income**

The HERA industry contribution derived from the levy on heavy steel and welding consumables is tied to industry activity as indicated in the Steel Volumes chart, and was also reduced due to low activity. Although the budget for the year was conservatively set and included HERA staff forgoing any CPI-related salary adjustments, the levy income was down by 8% as compared to budget.

In order to compensate for the levy shortfall and some non-budgeted spending as a result of preparing submissions for government research funding, HERA staff had to shift to more income generating activities. However, a drawback of this emphasis on income generation was the affect on HERA's coverage of core activities and an increase in the holiday pay provision as more holiday days have been left untaken.

The resulting deficit of income over expenses amounted to \$55,826, which is about the same amount as the levy shortfall.

**Outlook Remains Subdued**

Despite a continuous small increase in heavy steel volumes during the last year, the HERA Executive considers the recovery to be very slow with little signs for real growth particularly in construction. Therefore, it advised that the levy expected for the 2010/11 year should be set at the same level as the previous year. This will reflect on the ability of HERA to deliver its objectives and the focus to achieve the inflation adjustment of the HERA levy is paramount.

HERA and the industry must not lose sight of innovation and ongoing development of the industry's competitive position and needs to find the funds for this. We do hope that a Government believing in the need for R&D will support our industry by significantly increasing its contribution to R&D in facilitating the requested HERL Act Amendment.

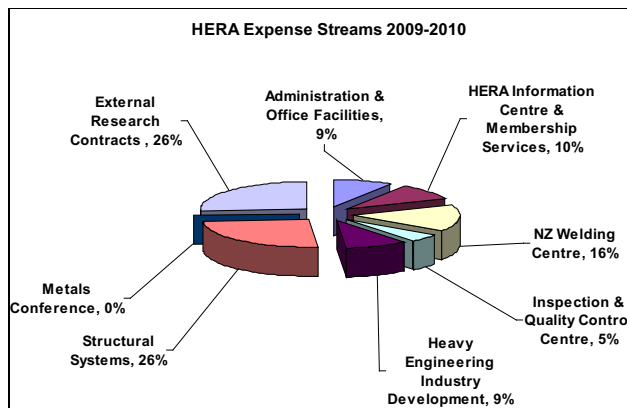
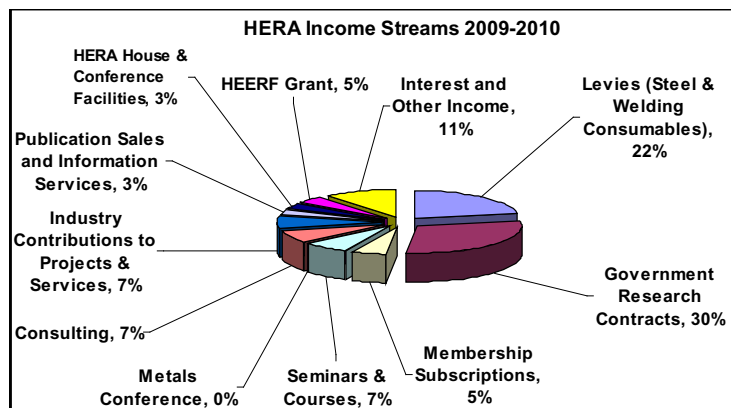
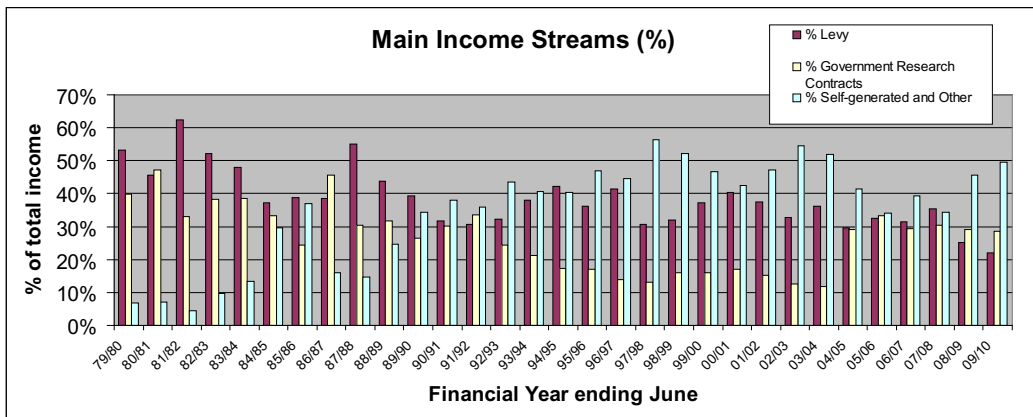
**Thank You**

It has been an extremely demanding year for all of us in industry and at HERA and it is acknowledged that generous contributions in time and funds are continued to be made in these times.

Both of the undersigned would like to express our sincere thanks to all those who make the HERA network tick. This applies equally to the professional staff at HERA, the Executive and the many contributors from our industry.



Wolfgang Scholz  
Director



**KEY STRATEGY 1**  
To work with industry and its stakeholders to encourage and foster business innovation and growth

**HERA Strategy Execution**

This year's discussion of strategy confirmed the ongoing relevance of the 2010 Strategy document, which included revisions performed in the previous year. The strategy was therefore adopted unchanged. The HERA Industry Research Roadmap document developed as part of the Strategy was applied when formulating the research funding application to the Foundation for Research Science and Technology (FRST). HERA divisions followed the strategic intent when developing and prioritising their annual programmes.

**Membership and Wider Stakeholder Communication**

This year, HERA has significantly improved the efficiency of its membership communication as a result of introducing a new web-based membership management system by Cyberglue called *Memberconnex*. Features relating to the delivery of HERA News, events announcement and web-based invoicing have been activated. Additional features such as online registration, credit card payment, online maintenance of HERA members' capability and membership surveying will be activated progressively during the coming year.

Associated with the new web site was the delivery from February 2010 onwards of an electronic version of HERA News, which is presented in a new web-based and HTML email format. Members' response to the new site and the electronic version of HERA News has been excellent with HERA website visitor numbers trending up and passing the 10,000 visitors per month mark.



Screenshot of new HERA web site home page

Following the decision to increase HERA's advocacy role, the active distribution of HERA editorials originally produced for HERA News saw a wide uptake in magazines such as Engineering News, The NZ Manufacturer, Construction News, and Builds & Contractors.

Due to financial constraints the HERA page in Engineering News has been discontinued. However, this has been revived in conjunction with an industry-sponsored arrangement in the following year. Also the free supply of the Australasian Welding Journal to HERA Ordinary members has been replaced by a fee-for-service arrangement in order to reduce costs.

Communication with the membership also includes the HERA Information Centre (HIC) with the library, publication and membership

administration roles. In this context, HERA wishes to acknowledge the long service of Publication Officer Pauline Hayward who retired after 25 years with HERA. We also wish to thank departing Librarian Sally Geard, and particularly retired Librarian Eleonore Bentley who assisted in the transition of introducing the new combined publication/librarian role.



HERA Director Dr Wolfgang Scholz farewells Peter and Pauline Hayward following 25 years of service to HERA and the engineering industry

**Work with Industry-related Organisations - SCNZ, NASH, NZSSDA, LAM-NZ, CTNZ, AWATEA**

HERA member companies use a wide spectrum of metals and fabrication technologies, and therefore HERA staff has wide cross-sector engagement. HERA is represented by staff at Executive or Board level in Steel Construction NZ (SCNZ), National Association of Steel-framed Housing (NASH), NZ Stainless Steel Development Association (NZSSDA), Light Alloys Manufacturing NZ (LAM-NZ) and the Aotearoa Wave and Tidal Energy Association (AWATEA) and PreFab NZ.

HERA provides the secretariat for the NZSSDA and accounting services for SCNZ, NASH, NZSSDA and LAM-NZ. HERA also leases office space to SCNZ, NASH and the Auckland representative of the Manufacturers and Exporters Association (MEA). The close co-operation with related organisations SCNZ and NASH in the construction industry sector was rejuvenated by the arrival of the new Structural Systems division Manager Stephen Hicks. Monthly co-

ordination meetings have been introduced between HERA and SCNZ, leading to joint seminar and research activities. His knowledge and experience in light gauge steel has also made him a valuable NASH research partner and NASH Executive member. The NZSSDA link is particularly close to the NZ Welding Centre, due to its coverage of stainless steel as a welding fabrication and material research topic.

**Metals New Zealand Prepared for Incorporation**

Casting Technology New Zealand (CTNZ), LAM-NZ, NASH, NZSSDA, and SCNZ were previously involved in exploring with HERA the establishment of the *Metals Institute of New Zealand*. As previously reported, this concept did not come to fruition due to the lack of an effective stable funding concept.



However, the group felt strongly about the benefits offered and this year established the constitution for Metals New Zealand as an incorporated society, a confirmed logo and everything prepared for a launch of the *Metals New Zealand Association* at the upcoming 5th Metals Industry Conference in April next year. The 5th Metals Industry Conference 2011 and the NZ Sustainable Steel Council (NZSSC) initiative are the first cross-sector projects of Metals New Zealand.

**HERA Position on Government Policy**

The HERA Director in conjunction with the HERA Executive is charged in the HERA Strategy to develop, maintain and communicate HERA's position on Government policy. As reported in the joint message, this role has particularly focused on promoting the benefits of local fabrication, manufacturing for export and R&D policy.

Multiple submissions have been made on issues where HERA is qualified to comment as an industry research association, such as the National Infrastructure Plan, the Research Science and Technology policy including the CRI Task Force and the Building Act Review. Special mention in this context is due for the NZTE/ICN draft guide for "Developing and Implementing Local Industry Participation Plans" - a document HERA is fully supporting and advocating to be made mandatory for all publicly-funded projects.

HERA represented the membership on numerous committees and boards such as the Construction Industry Council, Standards New Zealand Committees, University and ITO Advisory Boards and in making representation on events scheduled by Government and NGOs to influence policy making.







HERA Director Dr Wolfgang Scholz (right) meets with Prime Minister John Key at the opening of HERA member Ullrich Aluminum's new Ullex manufacturing plant in December 2009



Dr Stephen Hicks and Carl Davies, NASH General Manager, with His Excellency Shaikh Ibrahim Bin Khalifa Al Khalifa, Bahrain Minister of Housing



From left: Hugh Gray, Energy Minister Gerry Brownlee and Warren Arthur (the former and latter from HERA member Brightwater Engineering) at the launch of SCS' world's largest cone-crusher

**Coating Application Accreditation Scheme**

Metals-based products often rely on coating systems for dependable performance, and HERA works closely with the coating application industry. This year's focus was on the development of a *Coating Application Accreditation Scheme*.

The objective of the Scheme is to provide the client and designer with confidence that the specified coating system will perform as expected in service through the correct application of the coating system.

Part of the Scheme has seen the development of the "New Zealand Coating Industry Checklist". This Checklist outlines the required information that is needed for the correct specification, application and inspection of coating systems, which is referenced to the appropriate Standard. The Scheme will gradually be implemented, permitting all parties sufficient time to be acquainted and prepared for the Scheme requirements for becoming an Accredited Coating Applicator.

**Light Steel Framing in Bahrain**

In an attempt to reduce the current waiting period of 15 years, the Ministry of Housing in the Kingdom of Bahrain considered replacing traditional low-income housing, using masonry walls and precast concrete slabs, with light steel framing.

Owing to New Zealand being one of the world-leaders in roll-forming technology for light steel framed housing, Mr Carl Davies of NASH and HERA's Structural Systems manager Dr Stephen Hicks were invited by the Ministry to deliver a presentation at the January 2010 launch of the International Smart Building Centre in Bahrain, organised by Eskan Bank in cooperation of the Investment and Technology Promotion Offices (ITPO) of the United Nations Industrial Development Organisation (UNIDO), together with the Islamic Development Bank.

To coincide with the launch, two prototype light steel frame buildings were opened to the delegates. The speed of construction using this technology was clearly demonstrated, as the two buildings only took 30-days to complete.



Deputy Prime Minister Bill English (left) and HERA member D&H Construction's Managing Director Mike Sullivan pose in front of the first welded beam for the Kupu Bridge



Efficiently erected light steel-framed house made from AXXIS Steel of HERA member NZ Steel



**KEY STRATEGY 2**

To drive the development of technology, systems and products

HERA's role in driving the development of technology, systems and products is addressed in developments for sector groups such as steel construction, material specific fabrication (e.g. for carbon or stainless steel) or more general for welding-based fabrication or in typically confidential developments for individual companies.

**Development of Standards and Guidelines**

Research related to sector groups usually ends up in guidelines, and national and international Standards; benefitting not just members but the larger engineering community and the end users. In pursuing this work, HERA staff members are represented on numerous national and international Standards committees.

One noteworthy achievement was the NZWC submission to Standards Australia for the revision process of the joint AS/NZS 1554.6 *Stainless Steel Welding Standard*. At the time of closing this report, HERA has been advised of being given project management and secretariat responsibility, confirming the confidence in the work performed by HERA.

**Revision to Steel Structures Standard**

In October 2009, Standards New Zealand published the *Steel Structures Standard: Part 1*



(NZS 3404.1:2009), which supersedes some of the provisions in NZS 3404 Parts 1 and 2:1997. The 2009 edition of Part 1 sets out minimum requirements for the selection of materials, corrosion protection systems together with the fabrication, erection and construction of steel

structures. The provisions for corrosion protection systems formalise the guidance given in HERA Report R4-133. In the next 12 months, HERA will be dedicating much of its time on the remaining six parts which, inter alia, will include revisions to the design provisions for fire, composite members, fatigue and earthquake resistance.

**Steel Bridge Development Group**

The HERA-led *Bridge Development Group* (BDG) continues supporting the industry in its quest to grow market share for steel-based bridge construction.

This year has seen the design, fabrication and completion of some of the most impressive and iconic steel bridges in New Zealand in recent years. Such bridges include the Taupo Eastern Arterial Contact Energy bridge (a ladder deck bridge), and the Waikato bridge (a network arch bridge); in combination, these bridges have more than 1,000 tonnes of steel. The Matahaura Gorge bridge is currently under construction and utilises a ladder deck bridge, whilst the iconic *Te Rewa Rewa* pedestrian bridge is an excellent example of the relationship of a bridge with the people of the area, the surrounding environment and local history.

This year's main BDG project focused on progressing the development of the *Steel-Concrete Composite Bridge Design Guide*. The Guide's development is being conducted in parallel to the revision of the *New Zealand Transport Agency Bridge Manual*. This will ensure that the Guide is up-to-date and complements the relevant design guidance when it is published in a year's time. Work also progressed on promoting and developing the capabilities of fabricators and designers servicing the bridge construction market.

**Identifying Key Technologies and Opportunity Areas**

Significant work was undertaken during the year to further develop the *HERA Industry Development Roadmap* process, which identifies emerging market opportunities, the companies which have an interest or potential to successfully operate in the market, and research that can support companies in developing products for the market. The process has been used to identify two broad areas for potential development for New Zealand heavy engineering.

The first of these is the *Low Enthalpy Heat to*

*Electrical Energy Conversion* area, which is a market driven by extensive global hydrothermal resources and the presence of significant energy in the form of waste heat, particularly in traditional legacy industries such as oil refining, steelworks and cement production. This potential market has a high number of niche sectors offering a range of opportunities for HERA member companies to consider. A programme of research has been developed as part of the Roadmap process and market studies undertaken which include the production of HERA reports: *Geothermal Market Analysis, R3-75 & Low Enthalpy Heat to Electrical Energy Market and Technology Assessment, R3-76*.

The second area identified through the Roadmap process is *Marine Energy*. This emerging opportunity area is being driven by governments' responses to climate change and the move away from fossil fuels for energy production. Leading research in this sector is being done in the UK, and HERA led a trade delegation of members to the UK to assess opportunities to work with UK technology



Kevin McGrath of Tangaroa Energy entering the Pelamis generation module during the HERA Trade Mission to the UK in May 2010

developers and to review the research being undertaken. New Zealand is well placed to manufacture and distribute marine energy devices throughout the Asia Pacific region and to develop marine energy projects, providing a range of opportunities for HERA member



Fantastic view of the Waikato river bridge, designed by HERA members Holmes Consulting Group and fabricated by Tenix Group



Geothermal heat exchanger loadout (photo courtesy of HERA member Fitzroy Engineering)





Pipes, vessels and cooling towers were fabricated locally by various HERA members for Mighty River Power's geothermal plant in Kawerau

companies.

**Performance Research into Lower Cost Stainless Steel**

Recent developments in the price of traditional stainless steel have stimulated interest in the application of alternative grades of stainless steels including less costly ferritic and manganese bearing grades, some of which are now available on the NZ market. The cost-effectiveness in industrial applications depends on knowing more about the performance of these alternative grades in the NZ environment.



A set of New Zealand stainless steel samples exposed on North Sea island of Helgoland, Germany



A demonstration of the strength of the CSA-built wall panels

Since 2009, the NZ Welding Centre has worked in close co-operation with the NZSSDA and Konstanz University, Germany, to investigate fabrication aspects and performance of these grades in the NZ environment. The study involves welding trials and subsequent corrosion and exposure tests. Evaluation of test results is ongoing.

**Fatigue in Welded Structures Research**

As demonstrated by the high number of industry queries, designing welded structures which stand up to the demand of dynamic loading remains an ongoing industry challenge. In cooperation with HERA's Structural Systems division, the NZ Welding Centre is progressing in establishing advanced weld design competence at HERA with the aim of assisting member companies.

The research work attempted to achieve a comparison between experimental results from the fatigue tests and fatigue life predictions based on the application of some advanced fatigue analysis software. The project has also been a valuable learning exercise as the using of the new software is a quite complex and demanding task. It is intended to extend the original project program to the other fatigue assessment and measurement techniques.

**Composite Structural Assemblies – Technology for the Future**

Combining the properties of different materials and making them perform in composite action will exceed the performance of each individual material. HERA, in partnership with industry and universities, has for years been engaging in leading-edge research for the creation of structural composites based on steel as the lead material.

The \$5.2M 6-year FRST-funded project to develop light steel-based prefabricated panels will reach the end of its contract in September 2010. The requirements of the project were to identify performance requirements for Composite Structural Assemblies (CSA), develop manufacturing concepts and processes, evaluate performance, conceptualise designs, outline pathways to market and to establish a sector group.

Industry contribution of over \$2M has enabled the project to reach a position where a prefabricated suite of structural panel products will be ready for assembly into a prototype building which is relocatable, demountable and reusable. HERA and its joint venture partners are inviting interested parties to join the project and take the ideas to the next stages of licensing IP, developing alternative configurations and finding a range of end users for the products.

**New Zealand Steel Floor Deck Products Achieve International Standards**

HERA Structural Systems, working closely with Tata Steel International (formerly Corus New Zealand), completed a comprehensive research and development programme on three new cold-formed steel floor products, which exploit the unique properties of New Zealand made light gauge high-strength steel.

To gain access to overseas markets such as the European Union (EU) and the European Free Trade Area (EFTA), the testing and evaluation of the design properties was conducted according to international harmonized Standards, EN 1990, EN 1993-1-3 and EN 1994-1-1, which will also facilitate CE Marking of the products in the future.

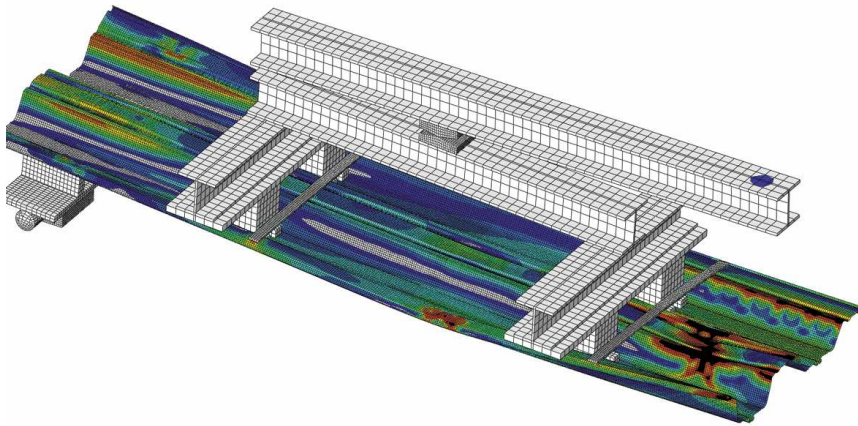
The physical testing of the deck products for both the bare steel and the composite stage were undertaken at the University of Auckland, whose expertise ensured the success of this aspect of the work. A novel approach compared to earlier overseas development programmes was followed, in that the theoretical models used in the structural reliability analyses were based on finite element models.

The benefits of this approach were clearly demonstrated through a 19% saving in steel weight compared to similar products that possess an identical spanning capability, thereby resulting in significant cost-savings to the client.



NZ Welding Centre-developed automatic resistance spot welding system in operation at the CSA pilot plant





FE predictions of the deformation of the floor deck specimen at maximum load including von Mises stress contours (half of test specimen modelled due to symmetry)



Deformation in the mid-span region of the floor deck test specimen at maximum load

**Peer-review of Fabsec cellular beams**

Over the last 10 years, Fabsec has been one of the market leaders in producing long-span cellular welded beams for the UK. Through innovative design software, engineers can optimize symmetric, asymmetric or tapered cellular beams in both the ambient temperature and fire conditions.

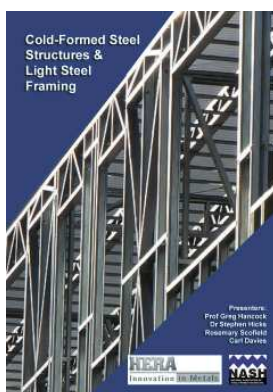


An example of Fabsec beams with intumescent coating applied off-site

Following D&H Construction obtaining the licence to manufacture Fabsec Custom Welded Beams, HERA Structural Systems, in collaboration with A/Prof. Charles Clifton of University of Auckland, peer-reviewed the Fabsec Cellular Beam design software for New Zealand conditions in February 2010.

**NASH Handbook**

Under contract to the National Association of Steel-framed Housing (NASH), HERA Structural Systems acted as the lead editor for the NASH Handbook entitled *Best Practice for Design and Construction of Residential and Low-Rise Steel Framing*.



The Handbook is intended to assist designers of light steel framing in the application of the NASH Standard, and provides guidance on roof, wall, floor and bracing systems together with information on durability. This publication also formed the

centrepiece for the HERA/NASH Cold-Formed Steel Structures seminars, which were held in May 2010.

**New Publications and Reports**

Throughout the year, 220 library bibliographic records were added to its catalogue. Outgoing loans from HERA Information Centre totaled 750. Sixty-eight Standards were added to the collection over the year ranging from New Zealand Standards to Industry Standards Organization (ISO) Standards.

2009/2010 HERA reports were:

**HERA Report R3-75:** Geothermal market Analysis - Binary Energy Systems, L Obert.

**HERA Report R3-76:** Low Enthalpy Heat to Electrical Energy Market & Technology Assessment, R Wucherer.

**HERA Report R5-38:** Optimizing Industry Capability Communication, P Seemann.

**HERA Report R5-39:** HERA Industry Development Roadmap Process, N Inskip.

**HERA Report R5-40:** Economic, Social and Risk-related Impacts of Imported Fabricated Steelwork, M Gupta, T Neitzert, N Inskip, W Scholz.

**HERA/NZWC Report R8-29:** Characterising the New Zealand Welding Industry, C Bernon, M Karpenko

Other Publications with HERA Staff Contributions were:

The European Commission Joint Research Centre (JRC) together with the European Convention for Constructional Steelwork (ECCS) have published a guide entitled *'Design of Floor Structures for Human Induced Vibrations'* (right) of which Dr Stephen Hicks is a co-author.

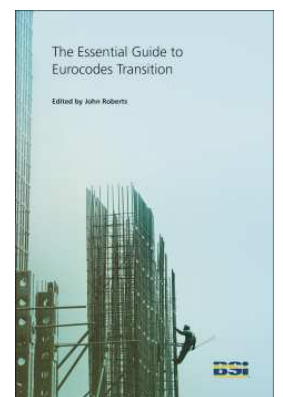


Rosemary Scofield co-authored the second edition of *Management for the New Zealand Construction Industry*. The book discusses the project, legal and business challenges that managers face in their working environments with a focus on the way the New Zealand construction industry operates in terms of general management principles and their practical application.



Along with a selection of international experts in building and civil engineering, Dr Stephen Hicks was invited to author a chapter on the design of composite steel and concrete structures for the British Standards Institution.

The chapter is contained within the book entitled *The Essential Eurocodes Transition Guide*, whose launch coincided with the withdrawal of the National Standards in Europe from March 2010.





**KEY STRATEGY 3**  
To assist in the provision of quality workforce required for ongoing industry development

HERA has the role to fill gaps in essential training not provided elsewhere by public or private training providers. HERA does this through its experts who fulfil dual roles in research and training. This year - pushed by recessionary pressures - a record number of well-attended courses across New Zealand were performed leading to a course-related income of 54% above budget.

**NZ Welding Centre Training**

HERA is the accredited national body to provide welding-related training, leading to International Institute of Welding (IIW) qualifications. HERA is also NZQA accredited for welding-related training at levels 5 and 6. This allows our students to obtain both International Welding Specialist (IWS) Diplomas and NZQA credits to acquire higher national trade qualifications.

In August 2009, the new NZQA registered welding qualification – AS 2214 Welding Supervisor was introduced. This qualification for those who are supervising structural steel fabrication designed to NZS 3404 and welded to AS/NZS 1554. The course duration was one week, which makes this attractive for meeting basic QA company requirements and is a stepping stone to the higher level IWS diploma offered. Two Welding Supervisor courses with 22 people attending have taken place in August 2009 and April 2010.

Prof. A. Hobbacher from the University of Wilhelmshaven, Germany and a leading weld fatigue expert, presented a seminar series across NZ on *Avoiding Fatigue in Welded Structures*. The NZWC Manager complemented the seminar by presenting NZ specific case studies. More than 120 industry professionals attended seminars

in Auckland, Hamilton, Wellington and Christchurch. High attendance numbers and subsequent discussions showed that fatigue in welding is a industry hot topic.



Co-President of the Bulgarian Welding Association Dr. Marin Beloev (far left) and George Beloev, visited HERA Chairman David Moore (middle), Welding Centre Manager Dr Michail Karpenko and senior welding engineer Alan McClintock (far right)

The pending replacement of the welder qualification standard NZS 4711 to AS/NZS 2980 provides a significant challenge for change to the NZ industry. The NZWC developed and conducted a seminar covering the topic comprehensively. In April/June 2010, seminars took place in Auckland, Hamilton, Napier, Palmerston North, Wellington, Nelson, Christchurch, Dunedin and Invercargill with more than 170 people attending. The seminar feedback was used to develop HERA recommendations on the transition issues, published in June and July editions of HERA News and as comments to Standards NZ.

Following the invitation

of the NZWC, The Co-Chairman of the Bulgarian Welding Society Dr. Marin Beloev visited HERA in March 2010. Dr Beloev gave a technical presentation to HERA members on welding technologies used in trunk pipelines, tank terminals and projects in the energy and chemical industries in Europe.

**Inspection & Quality Control Centre**

I&QC Centre Manager Peter Hayward retired at the end of March 2010 after nearly 26 years of engaging with the NZ heavy engineering industry; first as Technical Manager of the Certification Board for Inspection Personnel (CBIP), located at HERA and subcontracted to HERA to provide training and then from 2003, as Manager of HERA's Inspection & Quality Control Centre (I&QC).

The I&QC Centre is assisting both the fabrication and the inspection industry and has a key role in the provision of skilled inspection and quality control personnel. He has established and conducted many training courses in



Inspection & Quality Control seminar conducted by I&QC Centre Manager Peter Hayward



Prof. Hobbacher (front middle right with red tie) from University of Wilhelmshaven, Germany presented a successful seminar series on avoiding fatigue in welded structures. He is shown here with the seminar group from Auckland at HERA House



inspection disciplines and to-date, he has trained over 1,000 people. The I&QC Centre despite a shortened year due to Peter's retirement had an excellent performance both in terms of numbers of people attending courses and in consulting services performed.

However, replacing Peter has been a challenge. Candidates were mostly from overseas and at the end of an intensive screening process, two of the shortlisted candidates were unable to take up their positions. The search for a suitable candidate is continuing. Thanks to Peter's willingness to cover urgent technology requests and to continue to provide training in a part-time capacity, HERA has been able to maintain core services.

### Cold-Formed Steel Structures and Light Steel Framing Seminars

A joint HERA/NASH seminar series in May 2010 attracted a great deal of interest at the venues of Auckland, Taupo and Christchurch, which was evidenced by the attendance of 129 delegates. Prof. Greg Hancock of the University of Sydney provided an overview of the AS/NZS 4600 provisions, prior to the launch of the NASH Standard and Handbook by Dr Stephen Hicks and NASH General Manager Carl Davies, which provides guidance on the design of light steel framing.

The seminar was concluded by CSA Business Development Manager Rosemary Scofield, demonstrating how light steel framing can respond to differing architectural and planning demands.



Non-destructive testing by HERA member Southern QA for wind power project components (courtesy of Wade Engineering)



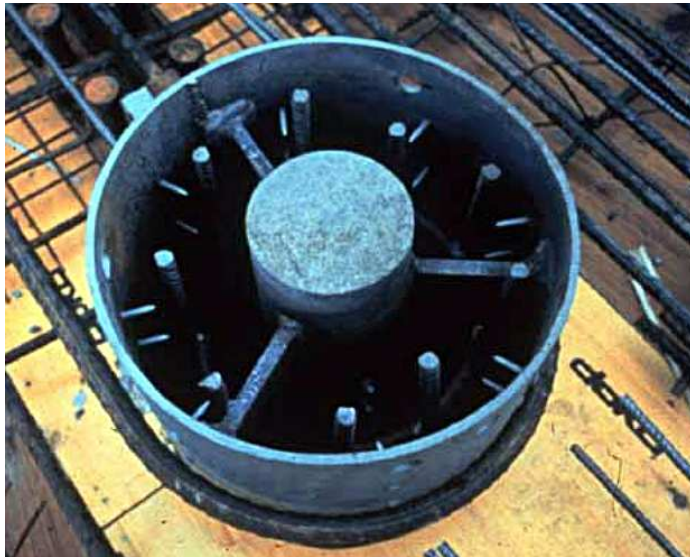
Prof. Greg Hancock Formerly Dean of Engineering and IT, and Bluescope Steel Professor of Steel Structures, University of Sydney



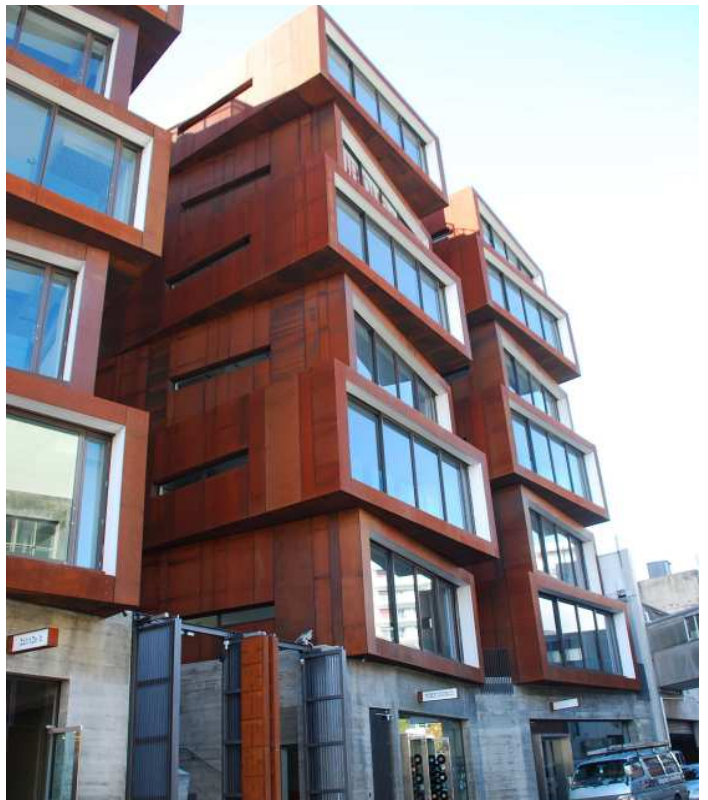
The successful HERA/NASH Cold-formed Steel Structures & Light-Steel Framing seminar in Auckland

### SCNZ Steel Structures Seminars

HERA provided support to SCNZ at a series of six national seminars on *Coatings, Composite Floor Construction & Braced Frames* in March 2010. Raed El Sarraf provided an overview on coatings design and the New Zealand Coating Industry Checklist initiative, whilst Dr Stephen Hicks presented guidance on designing composite columns using concrete-filled tubes. In addition, a presentation on advances in composite construction, such as using fibre-reinforced concrete in composite slabs was made.



Composite column using concrete filled tube with additional inner profile providing high bearing and fire resistance



Iron Bank in Auckland with weathering steel supplied by HERA member Bluescope Steel



**KEY STRATEGY 4**  
To develop and implement tools required for monitoring and enhancing industry growth and competitiveness

HERA maintains and publishes a comprehensive set of industry statistics and performs research projects relevant to describing industry performance. This year's research programme included:

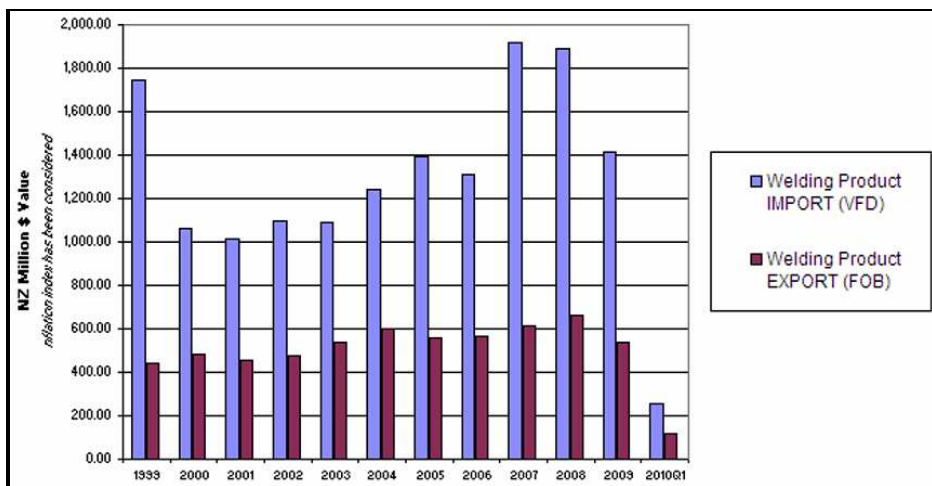
**Industry Capability Research Programme**  
Building on the research presented in the HERA report: *Optimizing Industry Capability Communication*, R5-38 a project was undertaken to map and document the interfaces required for the recommendation of the report to be implemented. This involved assessing the member database features of HERA's Memberconnex software and identifying an integration pathway. The outcome of the project included splitting the implementation of the R5-38 recommendations into three phases with the first to include development and population of the capability database, the second to include enhanced member communication features, followed by a capability/opportunity matching process in phase three. Software development has been scoped and phase one has commenced with completion projected to take approximately 12 months.

**Imported Steelwork Study**  
Increasing evidence of 'cheap' imported steelwork flooding the New Zealand market resulted in the development of a joint HERA/SCNZ working group to consider the issue. As a result, a study was undertaken to identify issues and effects arising from imported steelwork. The study includes documentation of a number of case studies which highlight issues of poor

quality that typically result in additional costs for project owners from repairs and project delays. The influx of 'cheap' imports seems to be driven by two factors, pressure on project procurement staff to cut costs and the increase in steel production in China during a period when global market forces were causing steel producers in the rest of the world to cut production and close plants. The report, which is extensive, is pending release as HERA Report: *Economic, Social and Risk Related Impacts of Imported Fabricated Steelwork*, R5-40.

**Welding Industry Productivity Research**  
Responding to the requirement for increased

international competitiveness of our industry, the NZWC has started a research programme that aims to lift productivity in the welding fabrication environment. The project goal is to gather baseline information needed to reduce welding-related costs and to further improve welding productivity. As a first step, the project work has focused on analysing welding and metals fabrication-related statistics needed to understand the welding fabrication industry in NZ. The results of this initial research are summarised in NZWC Report R8-29 *Characterisation of the New Zealand Welding Industry* available to member companies.



NZWC productivity research: Value of welded products imported and exported for the last 10 years



Wind turbines at Te Rere Hau fabricated by HERA member Windflow Technology

**Productivity Improvement in the Construction Industry**  
Productivity is a key concern at a national, governmental and strategic industry level. Prefabrication is identified as one of the approaches to improve efficiency, effectiveness and productivity in the design and construction sector. Metals-based fabrication lends itself to modular construction and prefabrication provides competitive advantages for our sector.

HERA, through its Structural Systems division, and in particular its CSA project, engaged in progressing productivity in the construction industry. Through its CSA Business Development Manager Rosemary Scofield, HERA actively supported the formation of PrefabNZ ([www.prefabnz.com](http://www.prefabnz.com)) as a newly-formed Incorporated Society to act as a hub for prefabricated construction in New Zealand.

HERA is a proud member of



### KEY STRATEGY 5

To improve the HERA organisation by enhancing services and improving cost/benefit ratio

The annual development and evaluation of key performance indicators, including staff development, has been completed as part of HERA's staff performance evaluation system. The level of staff development activities has been somewhat reduced due to financial constraints.

The HERA Information Centre has been restructured combining the role of Librarian and Publications Officer following staff movements and improvements in technology.

A monthly management staff meeting has been introduced to set and co-ordinate HERA's organisational development.

As noted under membership communication, the most significant change was the introduction of the web-based membership management system Memberconnex and the introduction of the associated new content managed HERA web site.

The introduction required a substantial effort in time and commitment but the resulting promotional outcomes and efficiency gains justify the effort. HERA staff have been very pleased with the web site's performance and the positive feedback received from members.

Planning for the refurbishment of the HERA House atrium has been progressed and building consent has been achieved in co-operation with Heavy Engineering Research and Educational Foundation (HEERF) who owns HERA House (see HEERF section on page 18).

However, in view of HERA's financial constraints noted and the fact that the HEERF reserves are considered part of the HERA backup funding, the decision to commence refurbishments has been delayed until more stable long-term HERA funding has been secured.



Site visits are a common practice for HERA staff to stay connected to members, industry and the latest developments. An example here is HERA staff visiting at HERA member D&H Construction's expansive new facilities in West Auckland.



HERA Industry Development manager Nick Inskip (left) with Kevin McGrath leading the Renewable Energy Trade mission to the UK



HERA Director Dr Wolfgang Scholz presenting the HERA Prize for Best Final Year Student Project Involving Metals to the winners - Engineering students Daniel Young and Matthew Buswell, both from the Engineering School, University of Auckland



**KEY STRATEGY 6**  
To maintain and strengthen top-class research and industry training capabilities

**Research Capabilities Available and Accessible to Metals Industry**

In conjunction with its industry research roadmap and in its role as a research management company, HERA is concerned about development and maintenance of relevant research capacity and capability across New Zealand. Because of New Zealand's small size it is critical that co-ordination amongst and across resources is effective.

The development of the cross-sector HERA research funding application to FRST necessitated a review of the research links which HERA maintains with New Zealand research providers and in particular with universities. As a result, new links to the Auckland University Business School and Canterbury University Engineering Department have been formed. The link to BRANZ has been renewed with input into the BRANZ Research Strategy, and HERA has been advocating to BRANZ for it to play a stronger cross-industry, sector-wide role.

HERA has been an active member of IRANZ (Independent Research Association of NZ) which advocated in favour of undertaking activities aimed at creating a positive operating environment for independent (i.e. non-government owned) research organisations. HERA and IRANZ believe that through effective end-user engagement, independent research organisations will make vital contributions to innovation and offer an important complement to university-based and Crown Research Institute research.

HERA is a proud member of



**Link to International Research and Industry Associations**

HERA actively participates in international research development and in the process main-

tains links with numerous leading technical organisations throughout the world. This year's active projects included collaboration with the Australian Steel Institute (ASI), the Steel Construction Institute (SCI) in the UK; the University of Applied Technology of Konstanz, Germany and the Welding Technology Institute of Australia (WTIA).

**HERA Support for Development of Industry Training Capability**

One of the strategic roles that HERA plays is providing advisory services to ITO's and training providers, and making contributions to career development and NZQA unit standards. This year's achievements included involvement in a working committee for the development of a CNC Centre of Excellence, Advisory Board roles at the Mechanical Engineering Department of the University of Auckland, the Engineering School of University of Auckland, and the Competenz Sector Advisory Group. A major achievement this year was the completion and issue of the NZQA Level 5 Welding Supervisor Qualification by Competenz and the NZQA. The NZ Welding Centre made a major development contribution to this qualification and held the first courses to the corresponding unit standard with 15 students looking forward to registering completion.

Apart from its role as IIW- and NZQA-approved training provider, HERA plays a major role in advancing national and international training capability, including the education of trainers. It continually develops new courses, develops and provides educational material to academic and private training providers, and runs its courses in co-operation with other providers, in particular NZ polytechnics.

Special mention goes to the NZWC-developed Practical Welding Training material, which continues to be used by training providers across New Zealand. Another NZWC development was the IWS training material also used in Australia by the WTIA's OzWeld School under a licence agreement with HERA. The NZWC also continued to contribute to the ACC Metal



AUSTRALIAN STEEL INSTITUTE  
Some of the organisations HERA co-operated with during the year

Manufacturing Safer Industry programme's development.

**Closer Co-operation with Australian Steel Institute**

In the interests of enhancing the benefits to the structural steel supply chain, together with increased cooperation and sharing of resources, HERA and SCNZ have strengthened their relationship with the Australian Steel Institute (ASI). A first exchange of resources in the area of imported steelwork from ASI and from the HERA/SCNZ Imported Steelwork Working Group has been provided, as well as data relevant to Environmental Assessment of steelwork.

Moreover, a collaborative project on the performance of multi-storey buildings in fire is underway with the HERA Structural Systems division, where it is hoped that the results will provide enhancements to the development of the new fire part of the *Steel Structures Standard, NZS3404 Part 5*.



CSA panel undergoing a loaded fire test to EN 1365-1: 1999 at BRANZ. The panel achieved a 53 minute fire rating under a 75kN/m load



Industry-sponsored press forming equipment at AUT metal forming centre

### KEY STRATEGY 7

To work towards a more sustainable NZME industry

The Structural Systems division continued to manage and implement the HERA Sustainability Strategy. This involved:

- Observing dynamics of sustainability practice adoption within building and construction industries, and amongst associations, NGOs and other research organisations.
- Monitoring of metal industry players and competing products to benchmark metal industry's sustainable development performance.
- Reporting on HERA attendance at sustainability themed Conferences and Seminars ( NZGBC, NZSSES, LCHANZ ).
- Renewed memberships of NZ Green Building Council ( NZGBC ), NZ Sustainability Scientific and Engineering Society ( NZSSES ),

Life Cycle Assessment NZ ( LCHANZ )

- Attendance at Material and Product Workshops associated with NZGBC *Green Star NZ* and *Residential Rating Tool* to uphold metals industry's status and profile within Building and Construction Environmental Credit Rating tools.
- Submissions to Green Star NZ in respect of enhancing metals industry Materials Category Credit Ratings.
- Implementation of Sustainable Steel Council (SSC) group. HERA co-ordination of Group activities and support of SSC web site. SSC pending launch at end of 2010, with current membership of 20 industry organisations.
- Dialogue with NZ Steel, NASH and SCNZ on sustainability criteria.

Sustainability aspects have been an increased consideration also in the technical research work performed across the HERA divisions. Examples are the development of new products which are to meet current international best practice, such as the CSA project. Additionally, also have the focus on a more sustainable use of our world's resources such as the development of business opportunities for renewable energy.

Another example is the coatings and stainless steel research programme aimed at providing industry with data to reliably predict product performance and improve a product's life cycle while reducing cost.



The iconic Te Rewa Rewa pedestrian foot bridge frames the sunset-lit Mt Taranaki. HERA member Fitzroy Engineering fabricated the bridge which has received wide-spread praise for its use of local content as well as innovative and pleasing design by HERA member Novare Design.



*Metal = infinite sustainability: This was the logo for the 4th Metals Industry Conference with the theme "Building Sustainability". The message of sustainability in building materials and construction practices has been consistently pushed by HERA and sister association Steel Construction NZ (SCNZ). A wide-range of experts from ACC to the Green Building Council were engaged to bring the message of sustainability - notably in building materials such as structural steel, stainless steel and steel framing - to the Conference audience composed of industry and academia.*



*Metal engineering supporting sustainable timber as demonstrated by HERA member Windsor Engineering who produced the world's first steam-heated continuous drying kiln (CDK) early this year*



## STATEMENT OF FINANCIAL PERFORMANCE FOR YEAR ENDED 30 JUNE 2010

	Note	2010	2009
<b>Revenue</b>		<b>\$</b>	<b>\$</b>
Levies (Steel & Welding Consum.)		658,311	743,091
Government Research Contracts (GRC)		857,733	857,733
GRC-Deferred Income	10	340,263	23,170
Consultancy and Industry Project	10	444,702	324,860
Services to 3rd Party		14,713	15,083
Member Subscriptions		160,519	178,516
Interest		10,450	36,861
Other Income		12,585	25,150
Publications		36,287	48,745
Welding Modules		50,669	52,376
Rent		74,246	67,849
Metals Conference		-	237,804
R&D Tax Credit		-	44,170
Seminars & Courses		210,493	93,058
HEERF		136,048	116,110
Transfer from Backdated Welding Levy	10	-	40,183
<b>Total Revenue</b>		<b>3,007,019</b>	<b>2,904,759</b>
<b>Expenditure</b>			
Staff Expenses		1,302,644	1,282,319
Member Services		96,379	124,142
Office & Other Expenses		149,256	168,529
Seminar Expenses		62,704	21,615
Consulting Expenses		71,667	6,638
Metals Conference		-	229,458-
External Research		1,013,524	844,507
HERA House Expenses		75,049	83,918
Rent Expenses		206,860	206,860
Depreciation Expenses		84,763	109,303
<b>Total Expenditure</b>		<b>3,062,845</b>	<b>3,077,289</b>
<b>NET (Deficit) SURPLUS FOR THE YEAR</b>		<b>(55,826)</b>	<b>(172,530)</b>
Equity beginning of Year		288,511	461,041
<b>Equity at the End of Year</b>		<b>232,685</b>	<b>288,511</b>

## BALANCE SHEET AS AT 30 JUNE 2010

REPRESENTED BY	Note	2010	2009
<b>Assets</b>		<b>\$</b>	<b>\$</b>
<b>Current Assets</b>			
Cash at Bank	2	51,743	116,809
Term Deposits	3	154,017	436,525
Accounts Receivable	4	187,228	130,877
Inventory		8,696	8,502
Other Prepayments	5	55,815	70,682
<b>TOTAL CURRENT ASSETS</b>		<b>457,499</b>	<b>763,395</b>
<b>Non Current Assets</b>			
Fixed Assets	6	188,281	260,124
<b>TOTAL NON CURRENT ASSETS</b>		<b>188,281</b>	<b>260,124</b>
<b>TOTAL ASSETS</b>		<b>645,780</b>	<b>1,023,519</b>
Equity & Liabilities			
<b>Accumulated Funds</b>			
Accumulated Funds	7	232,685	288,511
<b>TOTAL EQUITY</b>		<b>232,685</b>	<b>268,511</b>
<b>Current Liabilities</b>			
Accounts Payable		191,477	121,059
Holiday Pay Provision		50,504	20,613
Income in Advance	10	171,114	593,336
<b>TOTAL CURRENT LIABILITIES</b>		<b>413,095</b>	<b>735,008</b>
<b>TOTAL EQUITY &amp; LIABILITIES</b>		<b>645,780</b>	<b>1,023,519</b>

## AUDIT REPORT

We have audited the summary financial report of the New Zealand Heavy Engineering Research Association Inc aka HERA, and the Heavy Engineering Education and Research Foundation aka HEERF for the year ended 30th June 2010.

## Responsibilities of Executive and Auditor

The Executive members are responsible for the preparation of a summary financial report in accordance with generally accepted accounting practice in New Zealand; It is our responsibility to express to you an independent opinion on the summary financial report presented by the Executive.

## Basis of Opinion

Our audit was conducted in accordance with New Zealand Auditing Standards and involved carrying out procedures to ensure the summary financial report is consistent with the full Annual Report on which it is based. We also evaluated the overall adequacy of the presentation of information in the summary Annual Report against the requirements of FRS-39: *Summary Financial Reports*.

Other than in our capacity as auditor, we have no relationship with or interests in the New Zealand Heavy Engineering Research Association (HERA) and Heavy Engineering Education and Research Foundation (HEERF).

## Unqualified Opinion

In our opinion, the information reported in the summary annual report on relevant pages complies with FRS-39: *Summary Financial Reports* and is consistent with the full Annual Report from which it is derived and upon which we expressed the unqualified audit opinion referred to above.

We have completed our work for the purposes of this report on the 10th of September 2010.



CST Nexia Audit  
Chartered Accountants  
Manukau City

The specific disclosures included in the summary financial statements have been extracted from the full financial report dated 20/08/2010. The summary financial statements cannot be expected to provide as complete an understanding as provided by the full financial statements. A full set of the audited financial statements is available on request from HERA.

## NOTES

### 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.

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.

	2010	2009
<b>2. Cash at Bank</b>		
Current Account	43,514	80,512
CSA	8,229	36,297
	<b>51,743</b>	<b>116,809</b>

### 3. Investment

Call Account	154,017	5,630
Term Deposit - National Bank	-	302,385
Term Deposit – BNZ	-	128,510
	<b>154,017</b>	<b>436,525</b>

### 4. Accounts Receivable

Trade Receivable	187,228	133,690
Less Doubtful Debt	-	2,813
	<b>187,228</b>	<b>130,877</b>

### 5. Other Receivables & Prepayments

Accrued Income	55,236	26,327
GST	579	186
Prepayment	-	-
R&D Tax Credit	-	44,170
	<b>55,815</b>	<b>70,682</b>

2010	COST	ACCUM. DEPRECIATION	NET BOOK VALUE
Metallurgy Equipment	12,430	12,430	-
Office Furniture	20,306	17,954	2,352
Fixtures & Fittings	82,955	74,066	8,889
HERA House Refurbishment	147,053	50,569	96,484
Motor Vehicles	156,980	117,344	39,636
Office Equipment	196,917	163,331	33,586
Training Equipment	86,037	78,703	7,334
	<b>702,678</b>	<b>514,397</b>	<b>188,281</b>

2009	COST	ACCUM. DEPRECIATION	NET BOOK VALUE
Metallurgy Equipment	12,430	12,430	-
Office Furniture	20,306	16,728	3,578
Fixtures & Fittings	82,955	66,987	15,968
HERA House Refurbishment	147,053	35,863	111,190
Motor Vehicles	156,980	89,847	67,133
Office Equipment	206,761	159,761	47,000
Training Equipment	86,037	70,782	15,255
	<b>712,522</b>	<b>452,398</b>	<b>260,124</b>

### 7. Accumulated Funds

Opening Accumulated Fund	288,511	461,041
Net Surplus	(55,826)	(172,530)
	<b>232,685</b>	<b>288,511</b>

### 8. Operating Lease Commitment

	2010	2009
The commitments are as follows:		
Current	5,718	11,436
Non Current	-	5,718
Total payable for the lease contract	<b>5,718</b>	<b>17,154</b>

### 9. Related Party Transaction

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 2010, only the portion of HEERF Grant paid to HERA is included in the financial statements.

### 10. Income in Advance

Majority of Revenue in Advance represent income in advance from various agencies, 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.

### Industry Projects

The part of the funding that relates to incomplete parts of projects at that year-end is deferred to the next period.

There for the unspent balance of \$8,570 (2009:\$93,608) industry projects has been treated as income in advance this is stated under "income in advance" in the Statement of Financial position.

### Backdated Welding Levies

The Association has been advised in June 2005 by NZ Customs Service that the new levy rate set in March 2003 of 5 cents per kg of welding consumables has not been applied for imported welding consumable. Therefore only the old rate of 2 cents per kg was collected.

As advised by the NZ Customs service, the total backdated consumables levy amount owed to HERA was \$214,399. In 05/06 year \$176,812 was received, in the year \$31,193 has been received and in the year 07/08 an additional \$4,822 has been received.

The remaining amount of \$1,572 is written off as the importer went into receivership. HERA has agreed with the welding supply companies that the backdated welding levy will be exclusively for welding industry purpose and only following consultation with the NZ Welding Centre panel and welding supply industry. \$NIL (2009:\$40,183) has been used in the financial year for dedicated welding projects. Therefore the unspent balance of \$129,718 (2009:\$129,718) backdated welding levy has been treated as income received in advance.

### Composite Structural Assemblies

The project concerned with funding from FRST is the Composite Structural Assembly (CSA) project which started late due to staff resource constraints. FRST pays equal amount every year over the total period, while expenditure varies due to changing projects tasks, resulting in large portion of funding being deferred to next year based on percentage of project complete. Therefore the unspent balance of \$28,839 (2009:\$369,102) has been treated as income in advance.

### Other

The balance of income in advance totalling \$3,987 represents membership for 10/11 paid by members in 09/10 financial year (2009:\$908)

### 11. BNZ Bank Account

The Association has a Visa credit card facility with BNZ. The limit on all cards is \$29,000. (2009:\$33,000)

### 12. Audit Fees

Audit fees have been included in office and other expenses to the value of \$5,000 (2009:\$5,000). There was no other remuneration paid to the Auditors.

### 13. Capital Commitments

As at 30 June 2010 there were no outstanding capital commitments. (2009: \$nil)

### 14. Contingent Liabilities

As at 30 June 2010 there were no outstanding contingent liabilities. (2009: \$nil)





*Noel Davies*

Noel Davies  
HEERF Chairman

**Chairman's Report**

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 to support the HEERF objectives.

In 2009/2010 the Foundation contributed close to \$84,000 to HERA's research and industry development efforts through the support of engineering students, visiting experts and promoting careers in metal fabrication and engineering. HEERF have engaged Strachan Group Architects to provide plans and to obtain consent to refurbish the HERA House Atrium. The consent was obtained in February 2010 and the Trust indicated its willingness to start with the \$800k project during the year. However, as the HEERF trust funds are intended as part of the HERA reserves in case of financial hardship, the HERA Executive recommendation was accepted to delay the refurbishment start until HERA has achieved a more stable base funding situation. It is hoped that this more stable situation will be achieved during 2010 and refurbishment can commence in the year ahead.

A HEERF Endowment Fund Framework developed during the year with the aim to identify captive projects that would raise sufficient awareness amongst HERA members or industry associated individuals to make donations or bequests. It is certainly the intention to actively seek donations and

bequests once the current financial climate conditions improve. I am delighted to report that this document has been used for the first time to assist in the making of a significant bequest by an individual close associated with our industry. An exciting research and visiting scholar programme has already been outlined to the Trustees for the 2010/2011 year and we are looking forward to ongoing top class research supporting the future of our NZ metals engineering industry.



Jean Smith, wife of the late Keith Smith, receives a note of thanks from HEERF Trustee Dr John Meikle (right) and Dr Wolfgang Scholz (left)

**Statement of Financial Performance for Year Ended 30 June 2010**

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 2010			Income & Expenditure for year ended 30 June 10		
NOTE	2010	2009	2010	2009	
	\$	\$	\$	\$	\$
<b>ACCUMULATED FUNDS</b>					
Equity funds at start of year	1,999,664	1,896,170			
Net surplus for the year	102,391	103,494			
Equity funds at end of year		<u>2,102,055</u>	<u>1,999,664</u>		
<b>REPRESENTED BY</b>					
Current Assets					
Bank	46,909	21,499			
Call Account	38,313	37,902			
ShortTerm Deposit	658,194	583,182			
GST Receivable	-	20			
Endowment Fund	441	435			
Accrued Income	1,316	2,041			
K.Smith-Bequest	33,536	27,106			
		<u>778,709</u>	<u>672,185</u>		
<b>Total Fixed Assets</b>	<b>4</b>	<u>1,332,554</u>	<u>1,341,242</u>		
<b>TOTAL ASSETS</b>					
		<u>2,111,263</u>	<u>2,013,427</u>		
Current Liabilities					
Accounts Payable	5,944	13,763			
GST Payable	3,264				
<b>TOTAL LIABILITIES</b>		<u>9,208</u>	<u>13,763</u>		
<b>NET ASSETS</b>		<u>2,102,055</u>	<u>1,999,664</u>		
<b>INCOME</b>					
Rent		206,860	206,860		
Interest		26,578	39,284		
Bequest Income		5,000	25,000		
Endowment Fund		-	-		
Scholarship Refund		-	-		
<b>Total Income</b>		<u>238,438</u>	<u>271,144</u>		
<b>EXPENDITURE</b>					
Blding Maintenance		-	855		
Blding Managmt Fee		6,000	6,000		
Trust Administration		10,044	10,000		
Grants to HERA/					
SCNZ		83,708	103,436		
Bank Charges		65	95		
Lost Rent		-	11,034		
Audit Fees		1,200	1,200		
		<u>101,017</u>	<u>132,620</u>		
Depreciation		35,030	35,031		
<b>Total Expenditure</b>		<u>136,047</u>	<u>167,650</u>		
<b>Net Surplus/ Deficit</b>		<u>102,391</u>	<u>103,484</u>		

**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 Practice (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.

**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 2010. (2009: nil)

There were no capital commitments as at 30 June 2010. (2009: Nil)

**3. Related Parties**

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

**5. Post Balance Date Events**

There were no significant post balance date events. (2009:\$nil)

**6. Bequest**

The income from the bequest is to be applied to a prize which shall be given biannually subject to the term set by the late Mr K.Smith. This bequest is deposited with BNZ. This bequest has been recognised as income.

**4. Fixed Assets**

	COST	ACCUM.	BOOK VALUE
	\$	DEP.	\$
		\$	
Land	244,602	-	244,602
Land Development	24,489		24,489
Capital Work in Progress*	93,808		93,808
Building Upgrade	151,019	88,693	62,326
Air Condition Units	157,300	55,636	101,664
Building	1,049,091	243,426	805,665
	<u>1,720,309</u>	<u>387,755</u>	<u>1,332,554</u>

## HERA MEMBERS

Total HERA membership as of June 30 2010 was 590 members

**AFFILIATE MEMBERS**

C J Wallis Pty Ltd  
EDL Fasteners Limited  
Fletcher Easysteel

Fulton Hogan Ltd  
Steel & Tube Holdings Ltd  
TBS Farnsworth Ltd

Vulcan Steel Ltd  
Welding Technology Institute of Australia

**ASSOCIATE MEMBERS**

A & S Engineering Ltd  
A W Trinder Ltd  
ABB Power Limited  
Accurate Engineering Limited  
Advanced Plasma Technology  
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  
Bantrans Engineering Ltd  
BBC Technologies Ltd  
Bedford Engineering Ltd  
Best Bars Ltd  
Bill Baillie Engineering Ltd  
Bitumen Equipment Ltd  
BOP Gear Cutters Ltd  
Bradken Dunedin  
Bridgeway Steel Ltd  
Brightwater Engineers Ltd  
C J Saunders Engineering Ltd  
Calder Stewart Steel  
Cambridge Welding Service (1953) Ltd  
Campbell Tube Products Ltd  
Canco Engineering Ltd  
CAS Enterprises Ltd  
CFM Engineering Ltd  
Christian Church Community Trust  
Clough Agriculture Ltd  
Consolidated Engineering Company Ltd  
Contract Connections Ltd  
Cook Brothers Construction  
Courtney Engineering  
Croucher & Crowder Engineering Co Ltd  
Culham Engineering Co  
D R Howells Engineering Co Ltd  
Dan Cosgrove Ltd  
Dawn Group Ltd  
Dimond  
Domett Trailers  
Donovan Group NZ Ltd  
DSK Engineering Ltd  
Eastbridge Ltd  
Eastern Institute of Technology  
Ede Engineering  
Electropar  
Energy Hydraulics Ltd  
Engineering Contractors Ltd  
Enterprize Steel  
Eric Paton Ltd

Etech Industries NZ Ltd  
Fairbrother Industries Ltd  
Fairfax Industries Ltd  
Farmex Hawkes Bay Ltd  
Felix Research Labs  
Flotech  
Fraser Fire & Rescue  
Fruehauf Limited  
G T Liddell Contracting Ltd  
Gamman Industrial Componentry Ltd  
General Engineering North Shore  
George Grant Engineering  
Gisborne Development Incorporated  
Gray Construction  
Greymouth Petroleum  
Harford Greenhouses  
Hayes International  
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  
Kerry Dines Ltd  
Kopu Engineering Ltd  
Lakeland Steel Products Ltd  
Laser Welding Ltd  
Leighs Construction Ltd  
Leonard Products Ltd  
Linear Design  
Longhare Engineering Ltd  
Mace Engineering Ltd  
Machine Part Welding Ltd  
Maskell Productions Ltd  
MB Century Ltd  
McEwan Engineering  
Mecal Ltd  
Michael Harris (NZ) Ltd  
Mike Christie Sheetmetals Ltd  
Millers Mechanical (NZ) Ltd  
Mobridge Ltd  
Modern Transport Engineers Ltd  
Mooloo Stockcrates Ltd  
Morgan Engineering & Marine Ltd  
Morgan O'Shea Engineering  
Morrow Equipment Co (NZ)  
Mouats Engineering Ltd  
MSC Engineering  
Mulcahy Engineering Ltd  
Murray Landon  
Napier Engineering & Contracting Ltd  
NDA Group  
Necklen Engineering Ltd  
Nelson Reliance Eng Co Ltd

Nelson Stud Welding Ltd  
Nepean Engineering Ltd  
Niema Industrial Ltd  
NZMP Kauri  
Otago Polytechnic  
Otahuhu Engineering Ltd  
Pacific Timber Engineering Ltd  
Parr & Co Limited  
Patchell Industries Ltd  
Pearson Engineering Ltd  
Peninsula Engineering Ltd  
Piako Transport Engineering  
Pilcher Engineering Ltd  
Port of Napier Ltd  
Pyramid Engineering  
R & R Contractors Limited  
Red Steel Limited  
Reel Stainless  
Refrigeration Engineering Co Ltd  
Renold New Zealand Ltd  
Rex Barnes Engineering  
RNZAF  
Roadmaster Trailers Ltd  
Rocktec Ltd  
ROTIG Ltd  
Ruakaka Engineering  
SAFE Engineering  
Salthouse Boatbuilders Ltd  
Sensation Yachts Ltd  
Service Engineers Ltd  
Sharland Engineering  
Ship Constructors Ltd  
Snorkel Elevating Work Platforms  
Soanes & Vision Engineering Ltd  
South Fence Machinery Ltd  
Southern Cross Engineering Limited  
Southern Equipment Centre  
Specialised Container Services  
Specialist Energy Engineering Developments  
Sta-Tec Manufacturing  
Stafford Engineering Ltd  
Stainless Down Under  
Stainless Engineering Co Ltd  
Steel Structures Ltd  
Steelbro NZ Ltd  
Steelfort Engineering Company Ltd  
Steelpipe Limited  
Stevensons Structural Engineers Ltd  
Stewart & Cavalier Ltd  
Street Marine Ltd  
Stud Welding New Zealand Ltd  
Superior Pak Ltd  
Tasman Engineering Company  
Technical Welding Services (1998)  
The 4711 Training Centre  
The School of Welding  
Tidd Ross Todd Ltd  
Transfleet Equipment Ltd



Trident 2000 Ltd  
 Trimtech New Zealand Ltd  
 Truweld Engineering Kerikeri Ltd  
 Twig Industries  
 Ullrich Aluminium Co  
 Verissimo Engineering Ltd  
 W M Ross Engineering Ltd  
 Wade Engineering Ltd  
 Wainuiomata Training Centre  
 Waratah NZ Limited  
 Warner & Mould Construction Ltd  
 Webforge NZ  
 Weld Fabrication Engineering Ltd  
 Weld Tests Hawkes Bay  
 Welding Technology Ltd  
 Wells & Boe Ltd  
 Whangaparaoa Engineering  
 Whangarei Engineering Company Ltd  
 Wilson Bros Engineering Ltd  
 Wilson Precast Construction Ltd  
 Windflow Technology Ltd  
 Windsor Engineering  
 Wyma Engineering NZ Ltd  
 Zealsteel Ltd

#### **ORDINARY CONSULTANTS**

Abacus Engineering Ltd  
 ABB Maintenance Service Kinleith  
 ACH Consulting Limited  
 AECOM  
 Airey Consultants Ltd  
 Alan Reay Consultants Ltd  
 Allan Estcourt Ltd  
 Antro Enterprises Limited  
 Aurecon New Zealand Ltd  
 Babbage Consultants Ltd  
 Base Consulting Engineers Ltd  
 Batchelar McDougall Consulting Ltd  
 Beca Carter Hollings & Ferner Ltd  
 Belcher Industries Ltd  
 BHC Consulting  
 Bill Cassidy & Associates  
 Bloxam Burnett & Olliver Ltd  
 Blueprint Consulting Limited  
 Boniface Consulting  
 Brian Carter Consulting Engineer Ltd  
 Brian Jones Engineering Ltd  
 Brown & Thomson  
 BSK Consulting Engineers Ltd  
 Buchanan & Fletcher Ltd  
 Buller George Turkington Ltd  
 Bycroft Petherick Ltd  
 C L C Consulting Group Ltd  
 Cameron Gibson & Wells Ltd  
 Chambers Consultants Ltd  
 Chapman Oulsnam Speirs Limited  
 Charles Consulting  
 Chester Consultants Ltd  
 Chris W Howell & Associates Ltd  
 City Solutions  
 Civil Engineering Central Ltd  
 Clendon Burns & Park Ltd  
 Compusoft Engineering  
 Coulter Engineering Services Ltd  
 CPG New Zealand Ltd  
 David Smart Consulting Ltd

Davidson Group Ltd  
 Davis Ogilvie & Partners Ltd  
 Day Consultants  
 DBCon Ltd  
 Design Engineering (SI) Ltd  
 Design Management Consultants Limited  
 Dick Joyce Consultants Ltd  
 Dobbie Engineers Ltd  
 Dodd Civil Consultants  
 Don Thomson Consulting Engineers Ltd  
 Dunning Moore & Associates  
 Dunning Thornton Consultants Ltd  
 East Coast Steelwork Ltd  
 Eastern Consulting Ltd  
 EMC-2  
 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  
 Geoff Kell Consulting Ltd  
 GHD Ltd  
 Hadley & Robinson Ltd  
 Hanlon & Partners Ltd  
 Harrison Grierson Consultants Ltd  
 Hawthorn Geddes Engineers & Architects  
 HFC-Harris Foster Consultants Ltd  
 Hill Design Engineering Ltd  
 HLK Jacob Limited  
 Holmes Fire & Safety  
 Hugh Barnes Consultants Ltd  
 JAWA Structures Ltd  
 JNG Engineers Ltd  
 Jones Gray Partners Ltd  
 Kerslake & Partners  
 Kevin O'Connor & Associates Ltd  
 Kirk Roberts Consulting Engineers  
 Knowles Consulting  
 Kordia Ltd  
 Lapish Enterprises  
 Les Boulton & Associates Ltd  
 Lewis & Barrow Ltd  
 Lewis Bradford & Associates Ltd  
 LHT Design  
 Lough Downey Ltd  
 M.A. Corkery & Associates Ltd  
 Macdonald Barnett Partners Ltd  
 Manktelow Consulting Engineers Ltd  
 Marino Consultants & Associates  
 Markplan Consulting Ltd  
 Marriott Consulting Engineers  
 McDowall Structures  
 MEC Engineering Consultants  
 Mechanical Technology Ltd  
 Metal Test Ltd  
 Mighty River Power Limited  
 Milward Finlay Lobb Ltd  
 Mitchell Vranjes Consulting Engineers Ltd  
 Mobil Oil New Zealand Limited  
 MSC Consulting Group Ltd  
 MTEC Consultants Ltd  
 MWH New Zealand Ltd  
 Nagel Consultants Ltd

Nancekivell Cairn Ltd  
 Norfolk Projects Ltd  
 Novare Design Ltd  
 O'Loughlin Taylor Spence Ltd  
 OCEL Consultants NZ Ltd  
 Optimech International Ltd  
 Opus International Consultants Ltd  
 Orica Powder & Industrial Coatings  
 Paul Gellatly Consulting Engineer  
 PB Power New Zealand Ltd  
 Peter Walker Consultants Ltd  
 Peters and Cheung Ltd  
 PFP Systems (NZ) Ltd  
 Plant & Platform Consultants Ltd  
 Plumb Ltd  
 Pont Consultants  
 Powell Fenwick Consultants Ltd  
 PR Engineering Consultants  
 Protocol Services Ltd  
 Q Designz Limited  
 R B Knowles & Associates Ltd  
 R D Sullivan & Associates  
 R J Nelligan & Associates Ltd  
 R W & V Roberts Consultancy  
 Randall & Associates Ltd  
 RCR Energy Systems Ltd  
 Redco NZ Ltd  
 Richardson Stevens Consultants (1996)  
 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  
 Strata Group Consulting Engineers Ltd  
 Structex Limited  
 Structural Concepts Ltd  
 Structure Smith Ltd  
 Sullivan Hall Ltd  
 Tangaroa Energy Rakaia Amps Ltd  
 TH Consultants Ltd  
 Thorburn Consultants (NZ) Ltd  
 Thorne Dwyer Structures  
 Tonkin & Taylor  
 Transfield Worley Ltd  
 Transport Design & Certification  
 Transport Technology Ltd  
 Transtech Dynamics Ltd  
 Tse Taranaki & Associates Limited  
 TSV Consulting  
 URS New Zealand Ltd  
 Verstoep & Taylor Ltd  
 W Stringer Consulting  
 Waikato Engineering Design Ltd  
 Weber Consulting Ltd  
 Wellman Associates Ltd  
 WH NF Johnston Ltd  
 Wilkinson Transport Engineers

#### **ORDINARY FABRICATORS**

A & G Price  
 Acme Engineering Ltd  
 Active Transport Engineers Ltd



Active Welding Limited  
 Advance Boiler Services NZ Ltd  
 Allied Industrial Engineering Ltd  
 Alpha Engineering Co Ltd  
 Amtec Engineering Ltd  
 Atco Steel Developments Ltd  
 B W Murdoch Ltd  
 Babcock Fitzroy Ltd  
 BDC Engineering  
 BLM Engineering Co Ltd  
 Boden Pipe Ltd  
 Bromley Steel  
 Bucher-Alimentech Ltd  
 Burleigh Engineering Ltd  
 Chapman Engineering Ltd  
 Consortium Engineering Services  
 Contract Engineering Ltd  
 Crusader Engineering Ltd  
 CSP Pacific  
 Cuddon Ltd  
 Cylinder Testing NZ  
 D C Weld Ltd  
 D&H Steel Construction Limited  
 Dexion New Zealand  
 Dispatch and Garlick Ltd  
 E B McDonald Ltd  
 Energyworks Ltd  
 Equipment Engineering Ltd  
 Farra Engineering Limited  
 Fitzroy Engineering Group Ltd  
 Gary Douglas Engineers Ltd  
 Gisborne Engineering Ltd  
 Gray Bros Engineering  
 Grayson Engineering Ltd  
 Haden & Custance Ltd  
 Hornell Industries Ltd  
 HSM Engineering Ltd  
 Intergrated Maintenance Group Limited  
 J & R Slecht Limited  
 J Steel Australasia Pty Ltd  
 Jensen Steel Fabricators Ltd  
 John Jones Steel Ltd  
 Juken New Zealand Ltd (Wairarapa)  
 Kawerau Engineering Ltd  
 KiwiRail Limited  
 Kraft Engineering Ltd  
 Lyttelton Engineering Ltd  
 M J H Engineering Ltd  
 Mainarc Engineering Services Ltd  
 Martin Engineering  
 MaxiTRANS Industries (NZ) Pty Ltd  
 McGrath Industries Limited  
 McKenzie & Ridley (Kawerau) Ltd  
 McLaren Stainless Ltd  
 Mercer Stainless Ltd  
 Metso New Zealand Limited  
 MGE Engineering Ltd  
 Morgan Steel  
 New Zealand Steel Ltd  
 NZ Strong Group Ltd  
 Otahuhu Welding Ltd  
 P J Hindin Engineering  
 Page & Macrae Engineering Ltd  
 Pakuranga Engineering Ltd  
 Patton Engineering Ltd  
 Pegasus Industrial Engineering Ltd  
 PFS Engineering Ltd

Powerhouse Forestry Ltd  
 Pro Steel Engineering Ltd  
 RCR Energy Systems Ltd  
 RNZN Fleet Repair Group  
 Roadrunner Manufacturing (NZ) Ltd  
 Robert Page Engineering Ltd  
 Southern Spars Limited  
 Speedfloor NZ  
 Steltech Structural Limited  
 Tanker Engineering Specialists Ltd  
 TATA Steel International (Australasia) Ltd  
 Taymac Limited  
 Tenix  
 Tidal Power NZ Ltd  
 Toledo Construction 2004 Ltd  
 Track Industries Ltd  
 Tranzweld  
 Traydec (NZ) Ltd  
 Turnco Engineering Limited  
 United Engineering Services Ltd  
 Universal Engineering Ltd  
 W Stevenson & Sons Ltd  
 Waikato Steel Fabricators Ltd  
 Weld IT Ltd  
 Welds Engineering Ltd  
 Weldtrade Engineering Ltd  
 Whakatiki Engineering (1984) Ltd

#### **ORDINARY PRODUCT SUPPLIERS**

Air Liquide New Zealand Ltd  
 Akzo Nobel Coatings Ltd  
 Altex Coatings Ltd  
 Ballance Agri-Nutrients Ltd  
 BOC Gases New Zealand Ltd  
 Combustion Control Ltd  
 Crow Refractory Ltd  
 Digitalweld  
 Forman Building Systems Ltd  
 H J Asmuss & Co Ltd  
 Independent Oilfield Inspection Services Ltd  
 Lincoln Electric Co (NZ) Ltd  
 Mainzeal Property & Construction Ltd  
 Modern Maintenance Products Ltd  
 New Zealand Steel Ltd  
 Onesteel NZ Limited  
 Pacific Steel  
 Piletech NZ Ltd  
 Pipes NZ Limited  
 PPT  
 Sandvik New Zealand Ltd  
 TATA Steel International (Australasia) Ltd  
 Traydec (NZ) Ltd  
 Trustpower Ltd  
 Vector Limited  
 WattyI (NZ) Ltd  
 Welding Engineers NZ Ltd  
 Weldwell New Zealand

#### **ORDINARY SERVICES PROVIDERS**

Advanced Training Academy  
 Alpha Training & Development Centre Ltd  
 Altex Coatings Ltd  
 Aoraki Polytechnic  
 Auckland City Environments

Auckland University of Technology  
 Bay of Plenty Energy Ltd  
 Bay of Plenty Polytechnic  
 BDS VIRCON  
 Bureau Veritas (NZ) Ltd  
 CADPRO Systems Ltd  
 Chapman Sanders Consultants  
 Christchurch Polytechnic Institute of Technology  
 Contact Energy  
 CSP Coating Systems aka CSP Galvanizing  
 Dulux NZ Protective Coatings  
 Engineering Technical Resource Ltd  
 EverEdge IP Ltd  
 Forman Building Systems Ltd  
 Forman Insulation Limited  
 Hawkins Construction Ltd  
 Independent Oilfield Inspection Services  
 Manukau Institute of Technology  
 Materials & Testing Laboratories  
 Matrix Applied Computing Ltd  
 McLeod Cranes Ltd  
 Meridian Energy Ltd  
 Metal Tech Education Ltd  
 Metal Test Ltd  
 New Zealand Refining Co Ltd  
 New Zealand Transport Agency  
 NorthTec  
 NZ Army-Trade Training School  
 NZ Welding School  
 Palmerston North City Council  
 Port of Tauranga Limited  
 SGS New Zealand Limited  
 Southern Institute of Technology  
 Southern QA Ltd  
 Steel Drafting Ltd  
 Stork Cooperheat New Zealand Ltd  
 Structurflex Limited  
 Survey NZ Ltd  
 Techlogic NZ  
 Technical Support Services Dept of Labour  
 UCOL  
 Unitec Applied Technology Institute  
 University of Auckland  
 Victoria University of Wellington  
 Waikato Institute of Technology  
 Weatherford New Zealand  
 Wellington Institute of Technology  
 X-Ray Laboratories Ltd

#### **RECIPROCAL MEMBERS**

American Welding Society  
 Australasian Corrosion Association  
 Australian Steel Institute  
 British Constructional Steelwork Association  
 Canadian Institute of Steel Construction  
 Competenz  
 DVS - German Welding Society  
 Steel Construction Institute  
 Steel Construction New Zealand  
 National Association of Steel Framed Housing  
 National Library of New Zealand  
 NZ Institute of Economic Research  
 Power Crane Association of NZ (Inc)



### HERA STRUCTURE

The Association is based at HERA House in Manukau City. Within HERA House are the offices of HERA and associated organisations such as NASH and SCNZ, and a conference facility which can cater for up to 120 participants.

HERA incorporates the activities of the New Zealand Welding Centre (NZWC), Inspection & Quality Control Centre (I&QC Centre), Structural Systems division including the Composite Structural Assembly joint venture and its Information Centre.

Due to the specialist nature of its activities, HERA also fulfils an important training provider role in areas not covered by the public education systems. HERA is an accredited training provider under NZQA and the International Institute of Welding (IIW) guidelines.

Research is selected on the advice of subject-specific industry advisory panels, and is usually of applied nature with short- to medium-term implementation. HERA's research activities encompass the areas of structural steel, light gauge steel and composite action, welding/joining, industry capability and marketing.

### HERA STAFF 2010

#### Administration

Director Dr Wolfgang Scholz  
Accounts Officer Kam Subramani

#### HERA Information Centre (HIC)

Manager Brian Low  
Resource Officer (from April 2010) Gillian Casidy  
Receptionist Raewyn Porter

#### Heavy Engineering Industry Development

Manager Nick Inskip

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

Manager (till March 2010) Peter Hayward

#### Structural Systems

Manager Dr Stephen Hicks  
Finite Element Analyst Nandor Mago  
Structural Engineer Raed El Sarraf  
CSA Business Development Manager Rosemary Scofield  
CSA Technical Manager/ Richard Green  
HERA Sustainability Steward

#### New Zealand Welding Centre

Manager Dr Michail Karpenko  
Senior Welding Engineer Alan McClintock

#### Metal Forming

Post-graduate Research Student Holger Heinzl



Standing, from left: Nandor Mago, Raed El Sarraf, Holger Heinzl, Rosemary Scofield, Raewyn Porter, Gillian Casidy, Richard Green, Alan McClintock, Kam Subramani  
Sitting, from left: Brian Low, Nick Inskip, Dr Wolfgang Scholz, Dr Stephen Hicks, Dr Michail Karpenko,



# HERA

Innovation in Metals



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Fax +64 9 262 2856  
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website [www.hera.org.nz](http://www.hera.org.nz)

