ANNUAL REPORT 2009

HERA

Innovation in Metals

Heavy Engineering Research Association

HERA
Innovation in Metals

HEAVY ENGINEERING RESEARCH ASSOCIATION

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.

HERA Mission Statement

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

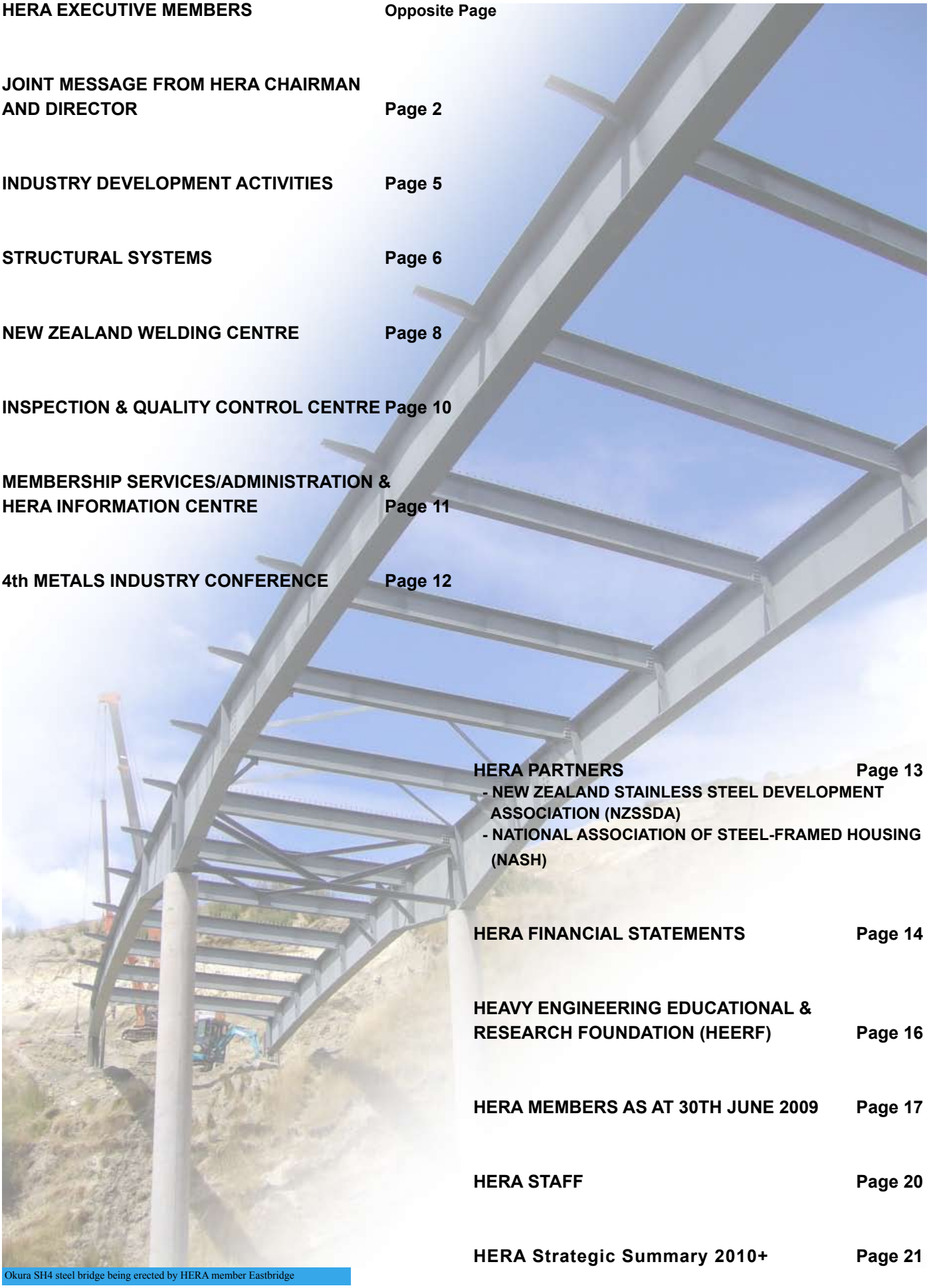
This mission is to be realised by pursuing the following three main goals:

- To accelerate innovation in the metals engineering industry
- To widen HERA's range of services and improve its cost-to-benefit ratio
- To position the NZ metals engineering industry as a responsible leader in the sustainability of our environment

HERA Executive for the Year 2008/2009

Name	Company	Representing
Mr D Moore (Chairman)	Grayson Engineering Ltd	Ordinary & Associate Members
Mr P Hutton (Deputy Chairman)	Fitzroy Engineering Ltd	Ordinary & Associate Members
Mr A Beer	Beca	Ordinary & Associate Members
Mr D J Fraser	Acme Engineering Ltd	Ordinary & Associate Members
Mr I Murray	Haden & Custance Ltd	Ordinary & Associate Members
Mr E Kroll	Stevenson Structural Engineers	Ordinary & Associate Members & SCNZ Exec Representative
Mr T Duff	Southern Cross Engineering	Ordinary & Associate Members
Mr J Frear	OneSteel NZ Ltd	Ordinary & Associate Members
Mr N Davies (Past Chairman)	Hydraulink Fluid Connectors	Heavy Engineering Educational & Research Foundation, Exec Officio
Mr S Fuller	New Zealand Steel Ltd	President, NZ Steel
Mr P Herbert	SpeCom Ltd	Manufacturers & Exporters Association
Prof T Neitzert	Auckland University of Technology	Co-opted Research Providers

From left: Peter Hutton, Peter Herbert, Prof Thomas Neitzert, Dr Wolfgang Scholz, Duncan Fraser, David Moore, Terry Duff, Evan Kroll, Aaron Beer and Scott Fuller. Inset: Noel Davies (top), John Frear (middle) and Ian Murray (bottom).



Okura SH4 steel bridge being erected by HERA member Eastbridge

JOINT MESSAGE FROM HERA CHAIRMAN AND DIRECTOR

Welcome to this Annual Review of HERA related activities.

2008/2009 HERA Year in Review:

- The recession has hit the heavy engineering industry hard but there are exceptions to learn from
- NZ steel price developments mirror world boom in first half year followed by slump in demand in second half
- HERA reviews its strategy and develops Research Road Map for 2010 and beyond
- 4th Metals Industry Conference held in Auckland with Theme "Building Sustainability"
- Heavy engineering industry development activity re-focused with new manager
- Structural Systems division with new manager gets traction
- Steel Bridge Development Group supported industry to tender successfully for landmark bridge projects and wins NZTA support to develop Steel/Composite Bridge Design Guide
- HERA divisions achieve targets despite some challenges and lower income streams (reports in divisional sections)
- Composite Structural Assembly Research Group enters commercialisation stage on its developments
- Developing a sustainable industry which makes an increased contribution to a sustainable New Zealand remains a challenge
- HERA "free" technical advice proved popular with membership
- HERA levy income 20% below budget and therefore HERA made a deficit covered from reserves maintained for this purpose
- The HERA network is contributing tremendously to its industry – a thank you to all who assist

Industry Activities

Up to December 2008 the monthly steel import statistics as well as the steel price index showed new records with previously placed orders still coming in to combat the rising price for steel and fill up steel storage capacity. However the local demand as a result of the recession has already slowed down with the first half of 2009 showing imports dropping to an all time low of 50% below the usual monthly figures. As the statistics for heavy sections and plate (above 4.75 mm) show, the heavy steel based industry had dropped to levels of the mid-1990s. Heavy steel plate, sections and RHS dropped by 34% to 111k tons as compared to the previous record year of 168k tons.

Steel Prices, as shown in the Heavy Steel Import Value Index graph, has undergone dramatic changes during the reporting year. If we set the base at July 2008 as 0, the value reached a peak increase of 52% in February 2009 and a low of -1.5% at the end of the year in June, effectively wiping out the increase experienced during the year. Due to the predicted subdued international market growth for the year ahead, the steel price itself is expected to remain without major changes.

Having built considerable industry capacity in recent years – the average yearly heavy steel consumption growth over the last 17 years was over 8% and considering this years downturn is now at 6% - the recession has forced an adjustment in capacity and a number of fabrication workshops have closed down, also affecting HERA membership. Many members have had to trim their workforce and as a result the demand for skilled metal fabrication workers has slowed. For the first time for many years, it appears workforce needs are being met as the current economic situation has released a number of highly-skilled workers into the marketplace.

However, there are also companies which work at the limit of their capacity, constrained mainly by the ability to attract a skilled workforce. The Rugby World Cup preparation work in the form of new stadia has helped as has the Government with the implementation of an accelerated infrastructure plan. The efficacy of this package, however, remains to be seen against the backdrop of cheap imported products, in some cases replacing locally made products.

Steel bridge construction is part of the infrastructure work and, thanks to the influential promotional and direct assistance of HERA's Steel Bridge Development Group, more steel composite bridge tenders have been won. In this context, it is also worth noting that consideration was given by contractors to the importing of structural steelwork, so HERA - in conjunction with its stakeholders - vigorously marketed the benefits of local steel fabrication over cheaper but risk-intensive imports, and also engaged in an advocacy role to government and its agencies to attain higher recognition of the material and industry.

HERA Strategy Review and Research Roadmap 2010 +

Following the stalling of the proposed Metals Institute of New Zealand (MINZ) development due to lack of government support for R&D funding via compulsory levy schedules for associated sector groups, HERA had to readjust its strategy in respect to its own commitment towards MINZ. The HERA Strategy Review reflected this with HERA strongly focusing back to its heavy engineering industry element but still maintaining a base commitment to the establishment of a sector overarching industry grouping.

In addition, and as a result of the MINZ development work, the Executive decided to play a stronger industry advocacy role by not only increasing dialogue with government and its agencies but also developing and maintaining consultation through a "*HERA Position on Government Policies*" document.

A summary of the HERA strategy, which forms the basis of the HERA activities performed through its different divisions, is shown on page 22.

For HERA, being defined in its Act of Parliament as the "research association of the NZ metals engineering industry", the maintenance of a forward-looking Research Roadmap is paramount. Developed by the HERA divisions in conjunction with its advisory panels, the HERA Executive endorsed the "*HERA/ Metals Industry Research Road Map 2010 and Beyond*" document, which is now the basis for the development of R&D applications for government and third-party funding.

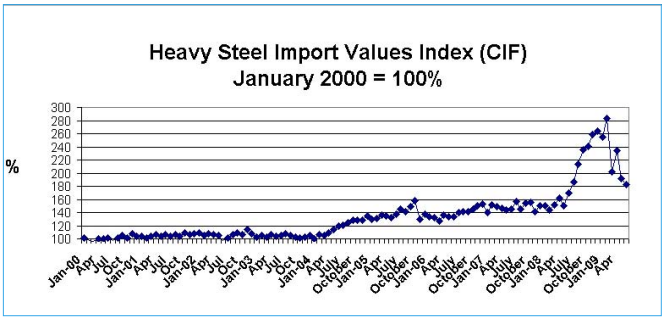
4th Metals Industry Conference with Theme "Building Sustainability"

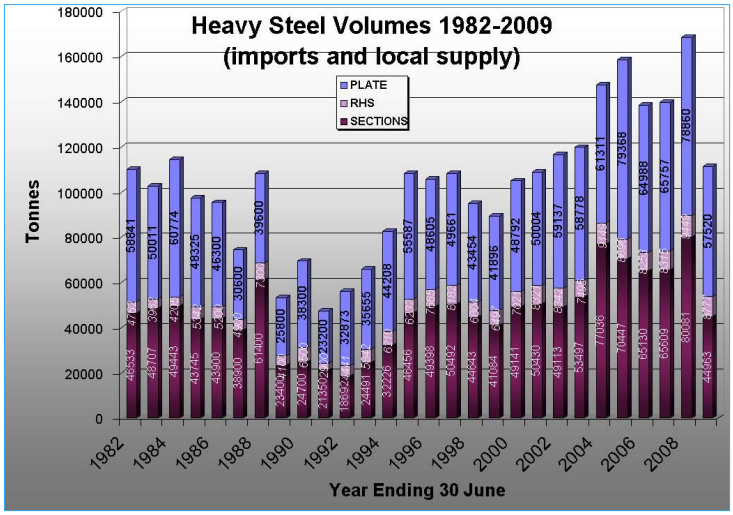
The 4th Metals Industry Conference was held at the end of October at the Sky City Convention Centre in Auckland. The theme '*Building Sustainability*' that was developed prior to the recession was aimed at being a transformational message, but understandably lost its attractiveness to the membership as the recession was starting to hit. In summary, the conference could be characterised as: first-class programme, fantastic social events with highlight Awards Gala Dinner in the Auckland War Memorial Museum, coupled with great sponsorship and industry partners' support but disappointing attendance in certain sessions.

HERA Research and Industry Development Activities

During the year, HERA put increased effort into performing a dedicated heavy engineering industry development role. This was separate to the well-established structural steel industry development activity performed in co-operation with SCNZ.

HERA Industry Development Manager, Bill Lovell, continued to connect to the HERA membership, industry clients and the





wider business network. He has since left HERA for a lifestyle change. In his place, we have appointed Nick Inskip who, with a background in metals engineering and market development, joined recently and has already demonstrated a deep understanding of HERA members' capabilities, while developing a realistic roadmap approach for the way HERA can assist the metals industry to win new business.

The Structural Division under its new Manager, Dr Stephen Hicks, underwent a minor name change to **Structural Systems Division**, reflecting its wider field of work which includes not only structural steel but also steel-based composite structures and light steel-framing support work. Its Structural Advisory Panel reviewed its research strategy and has identified a challenging list of innovative research areas which will lead to improvements to Steel Construction Standards and Guidelines.

Following on from previous work, the **Steel Bridge Development Group** assisted industry to win bridge tenders but more importantly, worked towards providing advice and guidelines to inform the consulting industry on the benefits or steel bridge construction. A proposal for the production of a Steel/Composite Bridge Design Guide was developed and co-funding was secured from theNZ Transport Agency and industry partners.

The **NZ Welding Centre** covered research focusing on improving competitiveness of welding-based operations as commonly used in the metals industry. Projects included performance assessment of newly-developed and lower-cost (compared to the commonly used austenitic grades) stainless steels, aspects of cost effective weld preparation using carbon arc gauging, and design of welds for dynamic loading.

It also completed the preparation of new welding-related training material for supporting local training providers, and for delivering of the International Institute of Welding (IIW) qualification schemes. However, due to lack of industry interest in this essential but time-intensive training commitment, the planned course did not run. In its place, a series of shorter seminars wiith good attendance was held. More needs to be done to upskill the workforce to improve productivity and quality in welding fabrication.

The **Inspection & Quality Control Centre** had a pleasing level of attendance at courses and seminars, despite the generally low level of professional development shown by industry. During the year, a research project proposal was developed and approved, which complemented the requirement for implementation of the internationally-accepted quality system standard AS/NZS/ISO 3834. This system contains an underpinning application of lean manufacturing principles with the overall objective of raising the quality of welding fabrication and at the same time, reducing the cost of inspecting. This challenging programme will be started in the 09/10 financial year and will highlight a new commitment by the I&QC Centre to productivity improvement in the welding fabrication and quality control function.

The joint government/industry-funded **Composite Structural Assembly** (CSA) research project - a joint 6-year initiative between research providers HERA, the University of Auckland, AUT University and 5 industry member companies - has, with the start of the 09/10 financial year, now entered its final year and reached the early commercialisation stage.

A patent covering the conceptual principles of its research work has been granted in New Zealand and a worldwide IP assessment is being made. A first test building using the newly developed panel systems is under construction and partners for the manufacture of the developed products are currently being evaluated. Intensive efforts have been put into planning the commercial stage and continuation of the research effort post the current programme.

The **HERA Sustainability Strategy** under its steward Richard Green, is now in its second year with its main focus on construction. Main activities are being an active participant in this fast moving area, formulation of steel industry positions, making submissions to developments such as GreenStar, and just recently, being the leading catalyst to form a wider metals interest body likely to be called the 'NZ Sustainable Steel Council'.

"Free" Technical Advice – a Key HERA Member Service

As a result of receiving industry income in the form of a levy on steel and welding consumables (Associate membership is free for users of levied materials) and from Ordinary membership fees, HERA is able to provide an extensive advice service which is free to members for limited effort queries. This service is extensively used, as is the commercial technical advice from its divisions. For the first time, HERA has maintained an annual summary of free advice to members and associated organisations totalling close to 800 hours or half a man-year.

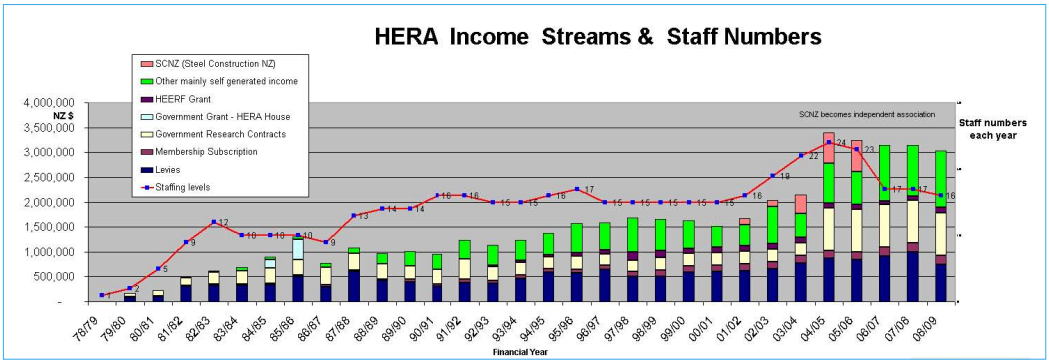
HERA Financial Performance

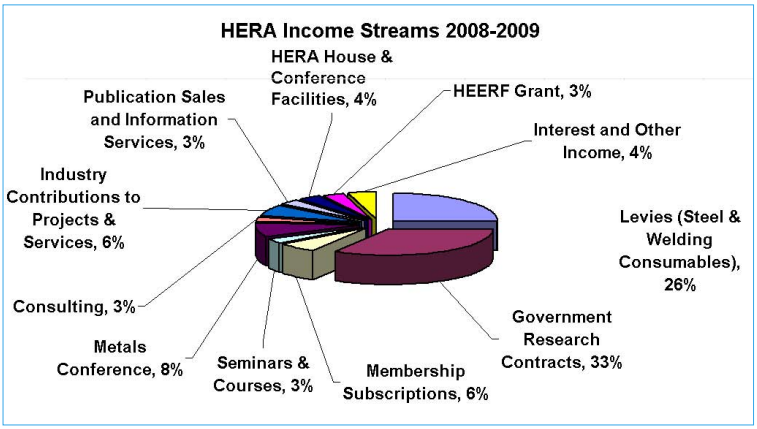
HERA received roughly one-third of its income from a levy on heavy steel and welding consumables. Linked to the drop in steel consumption, this resulted in a 20% drop of levy income against budget equating to a shortfall of $190k. Additionally, attendance and therefore income from the 4th Metals Industry Conference was below expectations. Together with higher than expected staff recruitment costs, these factors led to further increases in the HERA deficit for the year.

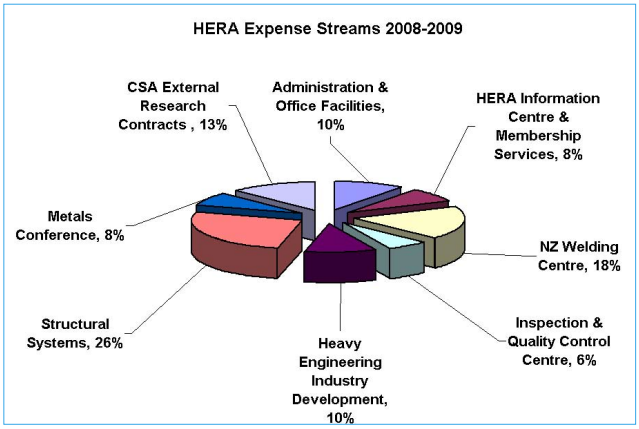
HERA responded to this unpredicted change in business activity by reducing costs and through seeking avenues for additional income generation. There have been a number of cost-saving efforts: We have not replaced some staff who have moved on and this has meant an increased workload for remaining staff and the adjustment of some priorities. All staff have forgone an annual bonus, which was usually available to reward the effort they put in during the year. The shortfall for the year was covered by the surplus held for cases such as this.

The economic climate was considered in setting the budget for the upcoming year with a conservative approach taken when budgeting levy income where possible. Cost savings included the staff accepting no salary adjustments for inflation. The Executive approved a slight loss-making budget covered by HERA reserves based on the rationale that R&D development needs to go ahead especially in recessionary times to secure future success of the industry.

In the context of the development of the HERA Research Roadmap, which highlighted industry and research development needs for the next 5 years+, the HERA Executive debated extensively the medium- to long-term funding requirements. It was decided to re-activate the 2002







David Moore
HERA Chairman

Heavy Engineering Research Levy increase request. The request had been put on hold as a result of the proposed Metals Institute of New Zealand (MINZ) development which was given higher priority at the time and now, in hindsight, may have slowed down potential industry progress. As this report is going to print, consultation with industry and the steel and welding consumable supply chain is taking place for an increase in the levy. However, this increase is not expected to take place before June 2011, and hopefully well into a recovery from the current recession.

Outlook

The HERA Executive considers it likely the current recession will go on for a longer period with a slow recovery. It therefore advised that the expected 2009/2010 year levy income budget should be reduced by 25% of the 2008/2009 year budget.

This new budget will include contingencies should further reductions in the levy income occur. This will reflect on the ability of HERA to deliver its objectives and a focus has to be on generating short-term wins for the industry.

However, HERA and the industry must not lose sight for the medium-to-long term, and of forward-looking research. In addition, skill development - especially for industry - must continue with high priority.

HERA's research for the year ahead is focused on productivity improvement with the aim of raising international competitiveness. It is hoped that industry supports us in this quest by approving the proposed increase of the HERA levy, and that the Government supports us in approving the proposed Heavy Engineering Levy Act Amendment to accommodate the increase.

Thanks to Individuals and Teams

Lastly, but most importantly, we acknowledge all those involved in running and contributing to our industry-owned and -governed organisation.

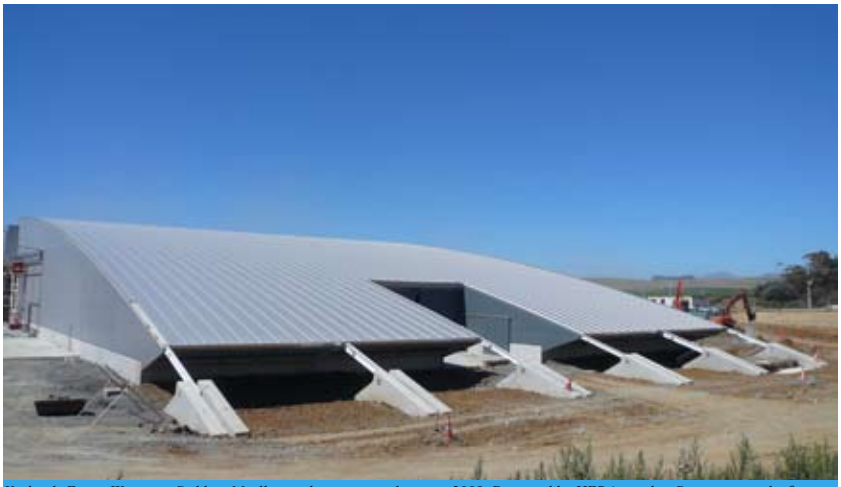
An extensive list of industry volunteers support and advise HERA on the different panels, committees and the Executive in preparing proposals, guidelines, reviewing the daily work and governing the organisation.

As industry feedback indicates this team-based HERA approach works very well, and we would like to thank all those contributing for their generous support. A special 'thank you' is due to the dedicated and professional staff at HERA which make our association what it is today.

Wolfgang Scholz
Director

An employee of HERA member Windflow Technology working on the hub of the Windflow 500 turbine, designed and assembled in Christchurch. The wind turbine has a 90% kiwi content with parts sourced from all over New Zealand.

Cellular beams fabricated by HERA member Grayson Engineering in use at the Britomart Transport Centre's East extension



Yealands Estate Winery in Seddon, Marlborough nears completion in 2008. Designed by HERA member Structex, it is the first winery in NZ to comply with the GreenStar NZ Industrial rating requirements.

Heavy engineering industry development activities include:
- Maintaining and promoting capabilities of the membership

- Providing advice on international, tariff and marketing issues of significance to the metals industry.

- Performing targeted business development initiatives for the heavy engineering sector

During the year, heavy engineering industry development activities within HERA received significant attention focused on matching HERA member capabilities with existing and emerging opportunities. Extensive efforts were made to visit HERA heavy engineering members to assess their capability and facilitate communication.

Opportunities for improvement in the member capability knowledge database were identified and a project commenced to assess the optimum path forward. This project is now well advanced and provides a blueprint for the collection and presentation of member capability information.

The year was a challenging one for HERA members exposed to the effects of the world recession, making the efforts of HERA industry development especially important with a particular focus on import replacement and export development.

HERA's Industry development encompassed three target opportunity areas:
- Infrastructure projects;
- Existing opportunity areas such as rail and defence; and
- Emerging opportunities, particularly in the renewable energy sector with specific attention to geothermal opportunities.

The activities undertaken to support HERA members included:
- Monitoring prospective projects
- Influencing project specifiers
- Liaising with project owners
- Assessing market opportunities
- Matching capability to opportunity
- Import tariff monitoring and input to tariff negotiations
- Industry promotion

The assessment of emerging market opportunities identified the need for a congruent process to guide the evaluation and realization of prospective opportunities. Cognizant of HERA's unique placement as a connector between research, member capability and market opportunities, a process was developed to ensure that market activities, capability development and research activities were effectively aligned. HERA industry development has also maintained valuable contact throughout the year with a number of key stakeholders including NZTE, ICN and the NPO.

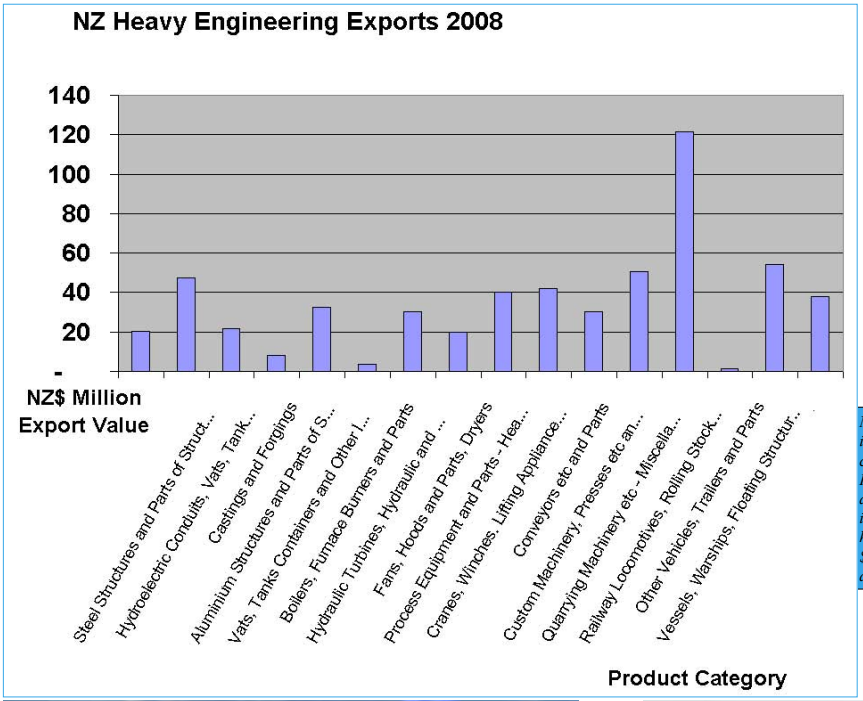
Industry Development Manager Bill Lovell left the role during the year. Bill had worked considerably on the renewable energy sector as well as the HERA membership. The role was subsequently filled by Nick Inskip, who has an extensive background in metals engineering and business development. Nick has been able to extend the scope of Bill's work to encompass other areas of industry development as well as concentrating on the HERA membership capabilities register.

Finally, a 'thank you' to long-time consultant on HERA's Wood Strategy, Norm Stannard, who has been working as consultant to the heavy engineering industry Business Development Group since 2003. Norm has contributed greatly to HERA and the industry in the areas of sustainability and renewable energy. Norm and his wife Pat also played a connection role on behalf of HERA to the University of Waikato, linking students to heavy engineering industry interests.

Nick Inskip
Industry Development Manager
(from March 2009)

Bill Lovell
Industry Development Manager (until February 2009)

Norm Stannard
(MQS Ltd)
Consultant



New Zealand's Heavy Engineering Industry makes a significant contribution to the NZ economy. In addition to meeting core domestic needs and engaging in import substitution, the industry is highly export-oriented, selling over $562m worth of products offshore during 2008

HERA member Allied Industrial Engineering won a contract from BAE Systems Australia to supply specialised componentry for the upgrades to ANZAC-class frigates to arm them with Anti-ship missile defence (ASMD) capability. Photo courtesy of Ministry of Defence, Australia

Staff from HERA member Fitzroy Engineering finalising installation of the 240 tonne MEG Regeneration Skid at the Kupe site in South Taranaki.

The Structural Systems division of HERA maintains a nationally and internationally recognised research and development centre supporting steel, composite and light gauge steel construction in buildings and civil engineering works.

Its activities include:
- Administering a Steel Research Panel, comprising representatives from the Universities, HERA and industry stakeholders which oversees and sets priorities for research activities in steel and composite construction.
- Undertaking applied research, which supports the use of steel and composite construction in buildings and civil engineering works, such as bridges.
- Providing input into the key documents for use in New Zealand's performance-based Building Control System
- Providing technology transfer to designers in the form of advice, and training together with specialist consultancy through Finite Element Analyses.

Dr Stephen Hicks
Structural Systems Manager

Raed El Sarraf
Structural Engineer

Strategic Objectives

The objective of the HERA Structural Systems division is to lead a research programme in heavy steel construction to support the NZ steel fabrication industry in the provision of highly competitive, sustainable and safe technical solutions and systems that will allow industry to significantly increase their market share in the building and civil engineering sector.

The Structural Systems division also fosters emerging technologies and products to facilitate the use of metals-intensive solutions in these important sectors. The division maintains a Steel Research Panel, which annually reviews its strategy and activities. The Structural Systems strategy is strongly aligned with the overall HERA strategic objectives that are outlined on page 21 of this annual report. The following reviews the key achievements against these objectives.

Key Strategy 1: To work with industry and other stakeholders to encourage and foster business innovation and growth

NASH

HERA has continued to support a variety of NASH initiatives over the last year, the most noteworthy of which was a full-scale shaking table test that was undertaken at the University of Melbourne. The performance of the test specimen exceeded target expectations at all levels of loading, and demonstrated that NZ light steel frames with brick veneer exhibit excellent earthquake performance, which removes a perceived barrier from this emerging technology in the residential sector.

Bridge Development Group (BDG)

The highlights of the year were the commencement of the 444m long multi-span ladder deck to the Contact Energy Bridge, and the 100m single-span network arch to the Waikato River Bridge. Both of these bridges are part of the Eastern Taupo Arterial By-pass and have a combined steel volume of over 1200 tonnes. Another important project that has been fast-tracked is the Kopu Bridge, which is currently undergoing optimisation to increase the New Zealand fabricated steelwork content through the BDG and NZ Steel working closely with the NZ Transport Agency (NZTA) and BECA.

Product Development and Assessment

As well as continuing to provide support to the industry through finite element analyses and durability assessments for specific projects, HERA's specialist consultancy activities have flourished over the last year. Recent activities have been assisting manufacturers in the development of their products, and ensuring that they satisfy international regulatory requirements; thereby leading to export opportunities for NZ metals-based manufacturers.

Key Strategy 2: To drive the development of technology, systems and products

Codes and Standards

HERA has actively been contributing to the full revision of the Steel Structures Standard, NZS 3404, over the last twelve months. Following the decision to divide NZS 3404 into seven parts, work has focussed on the development of Part 1 (NZS3404.1). As well as dealing with material selection, fabrication and erection considerations, NZS3404.1 gives provisions for corrosion protection by standardizing some of the guidance given in HERA Report R4-133. The main focus for the next 12 months will be the development of Parts 4 and 5, which will consider the design of composite members (NZS3404.4) and design for fire (NZS3404.5) respectively.

Fire Engineering Design Developments

Over the last year Prof. Tony Gillies has spent his sabbatical period from Lakehead University, Canada working on an update to the Slab Panel Method given in HERA Report R4-131. The work over this period has focussed on a detailed review of the original overseas theory, and extending the methodology to consider slabs with orthotropic reinforcement. It is anticipated that the new version of the guide will be available in 2010.

Seismic-Resisting Developments

Although light steel modular construction has gained popularity internationally, one of the barriers for its use in New Zealand is its performance in high seismic regions when used in multi-storey applications. Through a PhD research project, which is being supervised at the University of Auckland by Associate Prof. Charles Clifton, a seismic damage-resistant system is being developed that will remove this barrier. Work over the first 12 months has led to the development of a device that may be installed in new, or existing, modular buildings. The work over the next year will focus on prototype tests to evaluate the performance of the proposed product.

Composite Structural Assemblies Project

The Composite Structural Assemblies (CSA) Project team has developed a suite of wall, floor and roof products and associated connections that provide offsite and modular opportunities for a more efficient construction industry. A New Zealand Patent has been secured and a design is registered.

Following an active campaign to find a manufacturing organisation, key work is now directed towards the fabrication and commercialisation phases. This work includes preparation of a value proposition, construction cost modelling and refining manufacturing techniques. Linkages have been established with UK-based operations in a quest to evaluate productivity in construction, and to establish a potential collaborative network of users, researchers, product manufacturers and licensees.

On-going work with key construction industry players, both here and overseas, is aimed at achieving a more productive industry for New Zealand in the future, with an emphasis on steel-intensive offsite composite panel construction.

Clarkes Lane Cable-stayed pedestrian bridge ready for transportation

Full-scale light steel frame specimen prior to shaking table tests at the University of Melbourne

Key Strategy 3: To assist in the provision of the quality workforce required for industry development

Structural education and training

Dr Stephen Hicks co-presented at the 1-day nation-wide SESOC seminars entitled '*Fundamentals of Structural Steel Design*' in 2008. He also co-presented at a half-day Cellbeam New Zealand seminar in Auckland, which launched the long-span cellular beam concept that has become popular internationally in the multi-storey sector in Europe, USA and South Africa.

Key Strategy 5: HERA to provide enhanced services and improve cost/benefit ratio

Finite Element Analysis

A wide range of research and consulting activities have been undertaken over the last twelve months. Some of the more noteworthy Finite Element Analyses (FEA) that have been performed to date are: simulating the joining process of light steel elements through linear clinching; identifying potential resonance problems through modal analyses; FEA of several deck profiles for steel-concrete composite flooring applications; and heat transfer analyses of steel-concrete composite floors in fire conditions.

This year marks the beginning of a new capability within HERA, where the fatigue life of components and structures can be predicted through acquirement of FESAFE and Verity. The fatigue software, in conjunction with the ABAQUS finite element package, broadens the range of services that HERA can offer the New Zealand metals-based industries.

Key Strategy 6: To maintain and strengthen top class research and industry training capabilities

Publications

Two papers outlining the benefits of steel in bridges, including improving its sustainability via improved durability design, were presented by Raed El Sarraf at the 4th New Zealand Metals Industry Conference. The paper entitled '*Economical Steel Bridge Solutions for New Zealand*' has also been published in the SESOC Journal and the paper '*Sustainable Durability Design*' has been published as part of the 7th Austroads Bridge Conference Proceedings. A paper entitled '*The Performance of Through-deck Welded Stud Connectors in Full-scale Composite Beams*' by Dr Stephen Hicks was published in the SESOC Journal. Moreover, a paper on the same topic has been recently accepted for publication in Structural Engineering International (SEI), which is the quarterly Journal of the International Association for Bridge and Structural Engineering (IABSE).

Following an invitation received from the British Standards Institute, Stephen authored the section on steel-concrete composite design in their Structural Eurocodes Companion guide, which was published in March 2009 as a free online resource.

Bridge Development Group (BDG)

A proposal for the production of a steel-concrete composite bridge design guide was developed, and as a result, co-funding was secured from the NZTA and industry partners. The development of the Guide comes at an opportune time, since the revision to the composite design part of the Steel Standard NZS3404.4 is currently underway. Both of these publications will complement each other, thereby increasing New Zealand designers' confidence in this form of construction in the bridge sector.

Key Strategy 7: To work towards a more sustainable NZME industry

Sustainability Strategy

Now in its second year of activities, the recent focus has been on developing wider industry connections, and becoming further engaged with various groups in the Manufacturing, Construction, and Building sectors in response to accelerating interest in Sustainable Development. HERA has hosted the 4th New Zealand Metals Industry Conference entitled '*Building Sustainability*', and throughout the year has taken an active role in NZGBC Green Star NZ and Environmental Choice Certification debates. Moreover, HERA has established additional committee membership on various Government and NGO driven sustainability initiatives, and has been more widely consulted by HERA Membership, Industry Associations and Representative Groups on the topic. As a consequence of this, HERA has established a reputation in this field and, in turn, a wider sphere of influence. Owing to some confusion expressed by the various sustainability organisations regarding which body they should interact with when considering Metal/Steel Sector interests, HERA has recently been instrumental in assisting with the formation in a Metal/Steel Sector representative body. The intention of this body is to provide a single voice for various market groups and sustainability organisations. This initiative is gaining momentum and it is hoped that with continued support it will be in place by the end of 2009.

Outlook

In responding to the industry's needs that have been identified through the Structural Research Strategy, the main activities for the next 12 months will be to step-up the research activities in composite construction and support producers through product development activities. In addition, activities will increase in the area of Codes and Standards work in the development of the composite and fire part of the Steel Structures Standard NZS 3404.

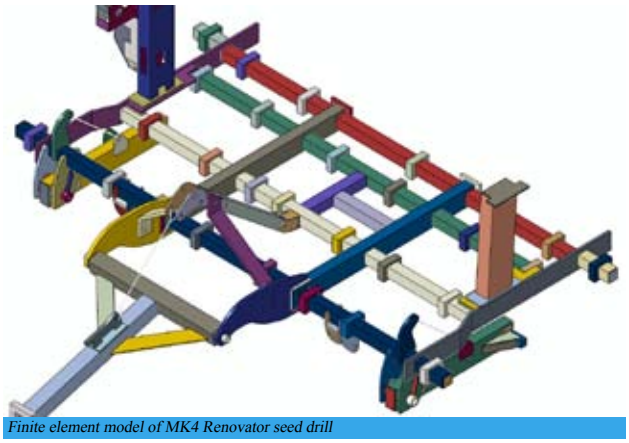
It is also anticipated that with the formation of the Metal/Steel Sector representative body, work in the broad area of sustainability will continue to expand. Finally, as well as bringing the CSA project to the commercialisation stage in its final year, the development of a new design guide on steel-concrete composite bridges will be produced to complement NZS3404, thereby providing opportunities to the metals-based industry in this important sector.

Nandor Mago
FEA Specialist

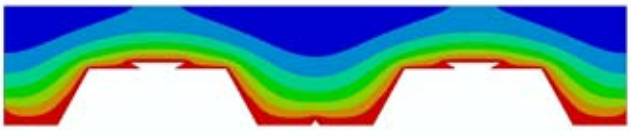
Rosemary Scofield
CSA Business Development Manager

Richard Green
CSA Technical Research Manager

Fabrication of the main girder for the Contact Energy bridge by HERA member Eastbridge



Finite element model of MK4 Renovator seed drill



Heat transfer analysis of a steel-concrete composite slab with trapezoidal decking at the fire limit state

HERA offers the following welding and joining related services through its New Zealand Welding Centre:

- Welding consultation including practical welding advice

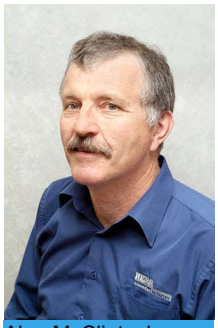
- Educational courses and seminars, including training leading to NZQA International Institute of Welding (IIW) qualifications

- Specialised welding and joining research including technology transfer to industry of new processes and techniques

- Providing input into national and international welding related standards

- Provision of educational material for welding-related training

Michail Karpenko
Welding Centre Manager



Alan McClintock
Senior Welding Engineer

Strategic Intent

The New Zealand Welding Centre (NZWC) division was established in 1986 with the specific aim to cover the advancement of welding and joining technology across the NZ metal fabrication industry. The Centre maintains an industry panel which annually reviews the NZWC's strategy and its activities. The NZWC follows the overall HERA strategic objectives as outlined in the Strategic Summary (page 21). The following reviews the key achievements against these objectives.

Key Strategy 1: To work with industry to encourage and foster business innovation and growth

Welding as a fabrication technology is applied in all sector groups of the HERA membership and Welding Centre staff therefore work across all sectors. An example is the co-operation with the NZ Stainless Steel Development Association (NZSSDA) where a jointly funded research project into the performance of newly developed stainless steel grades has been started.

Equally, two newly-developed research projects in welding productivity improvement and weld design against fatigue loading will reach across different sector groups such as steel construction, ship building and food processing equipment. As an ongoing commitment to spread the innovation message to the wider NZ metals industry, the NZWC published monthly articles in Engineering News and HERA News.

Key Strategy 2: To drive the development of technology, systems and products

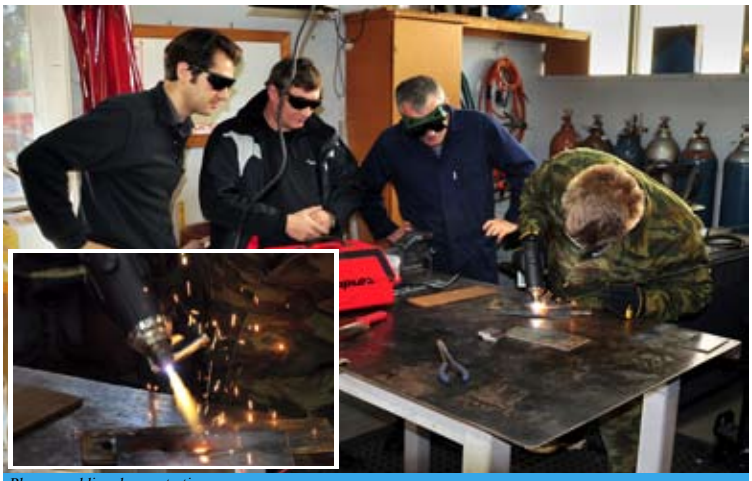
Welding and Joining Research

The NZWC continued its involvement with the industry supported Composite Structural Assemblies (CSA) project. Activities included welding, mechanical joining and forming research. Within the scope of the CSA project, a semi-automatic joining system has been developed and built, which is able to connect large steel-based panel elements using the resistance spot welding process. Linear clinching technology was also investigated with the outcome of building and testing an experimental linear clinching tool in co-operation with AUT University and industry partners, and further research towards commercialisation is now being explored.

In co-operation with the NZSSDA and Konstanz University, Germany, the NZWC started a research project covering fabrication and corrosion aspects of newly developed, lower cost stainless steel grades promoted as an alternative to the established grades. The cost effectiveness in industry application depends on knowing more about the performance of these alternative grades in the NZ environment. The project aims to provide this information.

Designing welded structures which stand up to the demand of dynamic loading remains an ongoing industry challenge. In co-operation with HERA's Structural Systems division, the NZWC has started a project using leading-edge weld fatigue design software to establish advanced weld design competence at HERA with the aim of assisting member companies. At present, the research work includes analysing representative product examples from member companies and in doing so building up the experience required, including its application in industry.

Responding to the requirement for increased international competiveness of our industry, the NZWC planned and received approval for a new research project that aims to lift productivity in the NZ welding fabrication environment. The project will be started in the new year by conducting a survey of industries where welding is a critical enabling technology such as construction, shipbuilding, pressure vessel, and food processing. The goal of the study is to gather baseline information needed to improve productivity and reduce welding-related expenditure taking into account principles of AS/NZS ISO 3834 and lean manufacturing.



Plasma welding demonstration

Welding Advice and Technical Consultation

A HERA strength is the accessibility of technical advice and this is also true for the NZWC. Its free - albeit with time restrictions - welding advice was in constant demand as was commercial specialist advice in the form of consultation services.

Welding-related Standards Development

The NZWC represents NZ welding fabricators on the joint AS/NZ Welding Standards Committee. This year the Welding Centre provided input into the review of the joint standards AS/NZS 1554 Parts 1, 4 and 5 as well as the NZ Steel Structures Standard NZS 3404.

Key Strategy 3: To assist in the provision of a quality workforce required for industry

Welding-related Education and Training

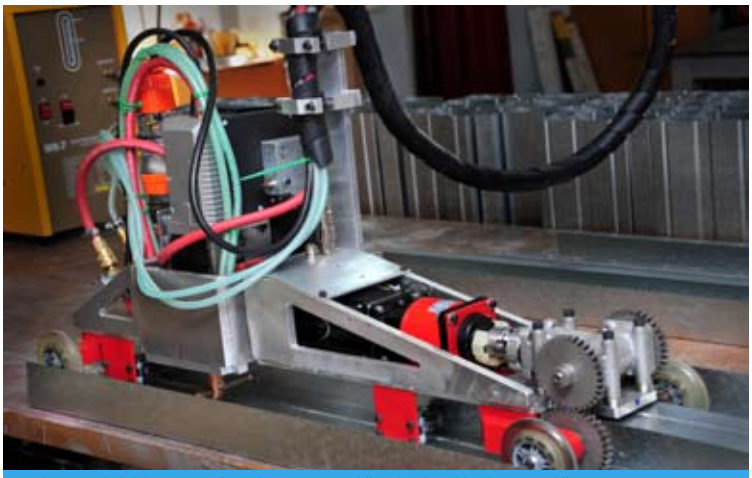
HERA is the accredited national body to provide welding-related training according to the rules of the International Institute of Welding (IIW). In 2008, HERA also achieved NZQA accreditation as Private Training Establishment (PTE) for welding-related training at levels 5 and 6. This will allow our students to obtain both International Welding Specialist (IWS) Diplomas and NZQA credits to acquire higher national trade qualifications. Considerable effort was made to develop and maintain the course resources.

The IWS Course , however, requires substantial time commitments - 5 weeks in-class training. As an alternative pathway to develop the required industry skills with less time commitment, a new one-week course was introduced leading to the AS 2214 qualification "Structural Steel Welding Supervisor". This also serves as a entry-level course for the IWS course.

A new 3-day course format entitled "Welding in Steel Construction - What Every Engineer Needs to Know" was developed by the NZWC in early 2008 for practising engineers. This course was tailored to meet the needs of professionals in the steel construction industry. The course took place in Auckland and Invercargill.

The American Welding Society President Mr. Gene Lawson visited New Zealand in October/November 2008. Together with the NZWC staff, a half-day joint HERA – AWS seminar series covering topics around welding economics, efficiency in flux cored arc welding and skills challenges was held across the country.

A one-day seminar entitled "Welding of Steel Structures" was developed by the NZWC to assist fabricators meet the requirements of Standards NZS 3404.1 and AS/NZS 1554 for steel construction. The seminar took



Semi-automatic joining system for resistance spot welding developed by the NZ Welding Centre

AWS President Gene Lawson with HERA staff and seminar attendees

place in Auckland and Christchurch in November 2008. In March, the NZWC presented a half-day seminar on weld design aspects for structural engineers to the Waikato Structural Group (SESOC) in Hamilton. Additionally, the NZWC manager gave a lecture on recent trends and developments in welding technology for IPENZ members in Hamilton and Tauranga in March 2009.

A one-day seminar "Structural Steel Welding" took place in Nelson, Napier and Auckland in May 2009. The seminar provided an overview of the key areas of welding fabrication including new requirements of NZS 3404.1 and AS/NZS 1554.

Development and Provision of Educational Materials for Welding-related Training
The NZWC developed welding training modules continue to be widely used by training providers across NZ as either hard copy or CD versions. To explore delivering welding training modules online, a web-based Self Training Application Resource (STAR) was developed by NZWC. The training resource has been made available to a number of organisations for appraisal, and awaits feedback and further refinement. The IWS training material, student notes and presentations, developed by NZWC continued to be used by the WTIA's OzWeld School for IWS training in Australia under a Licence Agreement with HERA. The Welding Centre continues to contribute to the ACC Metal Manufacturing Safer Industry Programme.

Key Strategy 4: To develop and implement tools required for monitoring and enhancing industry growth and competitiveness
The NZWC programme developed during the year and aimed at productivity improvement in welding will have a strong focus on measuring performance gains. The research programme will be of long-term benefit for our industry.

Key Strategy 5: To improve the HERA organization by enhancing services and improving cost/benefit ratio
The NZWC accepts the performance challenge placed on it in the higher-level welding training area, where no other NZ providers are available. The NZWC panel approved making welding levy resources for the promotion of this activity available and NZWC staff will continue exploring ways to ensure courses will be held successfully.

Key Strategy 6: To maintain and strengthen top-class research and industry training capabilities
To be able to effectively deploy joining technologies requires specialist skills and knowledge base that in New Zealand is only maintained by the NZWC. Its staff demonstrated also in the current year that it can make contributions to international welding technology development.

Research Publications
NZWC staff presented four conference papers at the 4th Metals Industry Conference covering aspects of aluminium and stainless steel welding, automation in welding and minimising welding distortion. The NZWC Manager became a co-author in a Springer's Handbook of Mechanical Engineering published in 2009. He wrote a chapter on trends in laser welding technology going back to his experience gained as a research fellow in Germany.

Links to and services for new business sectors
The NZWC, through its links to the joining of light gauge steel, continued to be involved with sheet metal engineering sector development. It played a co-ordination role for the AUT Metal Forming Centre and is employing PhD student Holger Heinzel who is researching the forming capabilities of NZ-sourced colour-coated light gauge steel.

International Collaboration
AWS President Mr. Gene Lawson was an international guest at the 4th Metals Industry Conference and the opportunity was used to reinforce links between HERA and AWS.

The Past President of the International Institute of Welding (IIW) and Executive Director of the Welding Technology Institute of Australia, Mr Chris Smallbone also visited HERA during the Conference and future co-operation around welding training and AS/NZS ISO 3834 certification was discussed.

Prof. Paul Guempel from the University of Konstanz, Germany visited HERA in November and current student projects as well as details of co-operation in the current Stainless Steel project were discussed. Michail Karpenko took part in the 61st IIW Annual Assembly in Graz, Austria in July 2008. He participated in the IIW working commissions, attended the associated welding conference and technical industry visits.

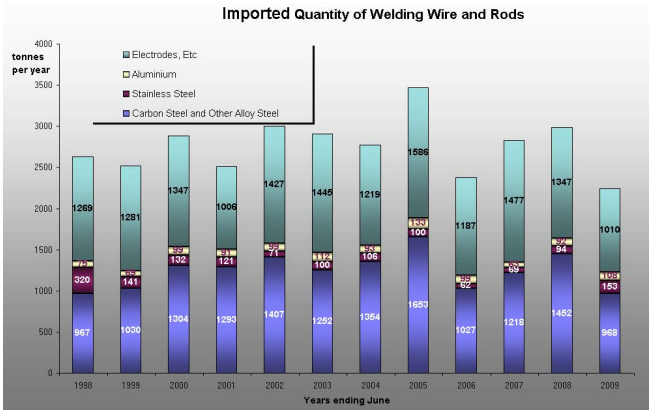
Key Strategy 7: To work towards a more sustainable NZME industry
Welding technology is an integral part of most manufacturing environments and therefore the need to operate in a sustainable and responsible manner is paramount. The NZWC contribution to moving our industry forward is in its work relating to improving health and safety in welding operations. The focus was on the development of online tools to be used by industry to train and monitor staff performance using the web-based system provider Star.

Outlook
Responding to recessionary requirements and the need to significantly improve the competiveness of our industry the NZWC will focus on productivity research and the translation of the results into industry application. A second focus will be on ensuring that the comprehensive course programme developed with the aim of training the supervisors of NZ's welding fabrication workshops will be implemented successfully.


Holger Heinzel
Mechanical Engineer


Dave Wrightson
Materials Engineer
(until May 2009)


Performance evaluation of alternative stainless steel grades - testing of welded samples at Muriwai Beach testing site



INSPECTION & QUALITY CONTROL CENTRE

The HERA I&QC Centre supports businesses in meeting their inspection and quality control requirements through the provision of technical advice and training. Its activities include research and development of inspection procedures but also inspection industry related skills and business development and contributions to national and international standards and guideline development.

I&QC Centre training activities cover:
- Courses covering welding inspection and NDT inspection methods
- Elevated work platform, and pressure vessel inspection courses
- Inspection related seminars such as Management Appreciation in Quality Control and Inspection and Welding Codes and Standards.

Peter Hayward
I & QC Centre Manager

Strategic Intent
The Inspection & Quality Control (I&QC) Centre maintains a business plan through an industry panel selected from representatives of users and providers of inspection services across all engineering sectors.

The Business Plan identifies the following four Strategic Objectives:
Obj. 1: To assist in raising the culture, profile and recognition of the inspection industry
Obj. 2: To support provision of suitably-skilled inspection and quality control personnel
Obj. 3: To advance the development of inspection and quality systems
Obj. 4: To be cost-effective, recognised as the Centre for Inspection and Quality Control in New Zealand.

Achievements against Strategy
Obj. 1: To assist in raising the culture, profile and recognition of the inspection industry
The I&QC Centre manager regularly engaged with the industry stakeholders via frequent company visits to HERA members and associated inspection companies. He is a NZNDTA Board member, a member of the British Institute of NDT and the ASNT and works closely with the Welding Technology Institute Australia (WTIA). He also maintains multiple links to the different national and international bodies engaging in the inspection field such as CBIP, AINDT, CSWIP, PCN and WTIA.

The I&QC Centre informed its stakeholders by providing a monthly column in HERA News informing on quality control and inspection technology updates and industry issues. It has also prepared several information sheets on inspection and welding related issues which are widely circulated.

For the purpose of not only creating and maintaining an inspection industry capability register but also for the purpose of determining its training needs as required under Objective 2 a questionnaire was prepared and sent out. The returns show industry is interested in supporting training courses as required.

Obj. 2: To support provision of suitably-skilled inspection and quality control personnel
Training support of engineering business has been met through planning programmes for the HERA Training Centre and providing specialised training that falls under the scope of the I&QC Centre.

Industry feedback from the performed training needs analysis pointed to the requirement to develop courses in Non-destructive Testing meeting ISO 9712. This will require the development of significant additional training material and planning for this has started.

HERA's application to become an NZQA-approved training provider was successful and in September HERA became an accredited NZQA education and training body including the domain Mechanical engineering inspection to NZQA level 6.

However implementation of I&QC Centre courses under NZQA unit standards has not happened yet as the unit standards are out of synch with current industry requirements. A review of the NZQA unit standards is being carried out by the I&QC Centre under contract to Competenz with an envisaged completion date of November 2009. Following completion of the review, the I&QC Centre will offer courses and assess trainees to those unit standards.

Attendance at I&QC Centre Training Courses and Seminars was excellent with over 110 attendees registered during the financial year. Over the period 1998 to 2008 a total of 853 persons attended courses offered by the I&QC Centre. A new seminar on the use of the ASME Section IX has been developed and seminars held in Auckland and New Plymouth.

The I&QC Centre Manager as a holder of ASNT NDT Level III certification performed industry training and certification for member companies to help them meet and maintain their 'Written Practice' to ASNT SNT-TC-1A scheme requirements.

Technical support in the form of free advice and specialist consulting has been offered over a wide range of disciplines in fabrication, welding problems, quality control, inspection, non-destructive testing and preparing inspection and quality control procedures.

The objective to provide training and technical resource material has been fulfilled by work on a pocket guide embracing welding inspection and the preparing of training material for the International Institute of Welding (IIW). The latter is for Welding Inspector qualification in conjunction with the Welding Technology Institute of Australia (WTIA) and an IIW International Welding Inspector Basic (IWI-B) course is planned for the new financial year.

Obj. 3: To advance development of inspection and quality systems
Quality Control is an integral part of any metal working business and companies who wish to be internationally competitive must perform this function efficiently and cost-effectively. This year, the I&QC Centre developed and started a programme entitled *Maximising Business Opportunities via Competitive Systems in the Quality Control of Welding Fabrication*.

The first part of this project focuses on winning business by industry meeting international QA requirements such as AS/NZS ISO 3834 *Quality Requirements for Fusion Welding of Metallic Materials*. AS/NZS ISO 3834 has EN and BS status and is widely used in Europe and internationally where it is now a prerequisite for businesses who are involved with welding fabrications. Fulfillment of AS/NZS ISO 3834 provides a "one-stop-shop" to achieve global recognition of the fabricator's capability. At the end of the reporting year HERA member companies have been invited to participate in this programme and several companies have committed to a review of their QA system with the aim of working towards meeting the requirement of ISO 3834.

The second part, which focuses on researching ways to improve productivity and competiveness of the inspection process and introducing the principle of lean manufacturing into the NZ industry, will start in the new financial year and will be an ongoing theme for I&QC Centre R&D for years to come.

Maintaining Inspection Discipline is a key requirement to keep NZ industry in tune with international developments. The I&QC Centre represented the interests of the metals industry in welding, quality control and inspection disciplines on various joint committees with Standards Australia and Standards New Zealand.

The I&QC Centre Manager is the Chairman of the ME 001 – 15 Pressure Equipment – Welding and Brazing Qualification Committee and is a member of ME 001 Pressure Equipment, WD 003 Welding of Structures and MT 007 NDT of Metals and Structures, and a member of New Zealand Standards NZS 4711 Committee. There were activities during the year in all committees.

Obj. 4: To be cost effective, recognised New Zealand Centre for Inspection and Quality Control
The I&QC Centre held a meeting of its Industry Panel in which its Strategy and Activities against its Business Plan were reviewed. At the end of the year, the balance of income over expenditure was $24K behind budget. The challenge of developing a strategy for succession planning and meeting future personnel requirements has not been met and remains on the agenda for the next year.

Outlook
The I&QC Centre business plan will continue to be implemented in setting directions for sound long-term support for the inspection and fabrication industry.

In the coming year the focus will be on addressing the demand for skilled inspection personnel including the development of career paths and welding quality requirements. The project 'Maximising Business Opportunities via Competitive Systems in the Quality Control of Welding Fabrication' will gain momentum by involving businesses working towards implementation of AS/NZS 3834 system and participate in the process of improving their competitiveness.

The I&QC Centre will continue to assist industry in meeting any future requirements in trading with the rest of the world with regards to welding quality systems.

HERA Membership Declines
As of 30 June 2009, HERA membership stands at 634 members.

HERA Newsletters
HERA staff communicated with the membership through the monthly HERA News, which is available in electronic and printed formats. The HERA page in the Engineering News journal is continuing to be an excellent platform for HERA to reach wider audiences. Both newsletters have a strong emphasis on what's new for industry, new educational content, as well as raising awareness of the expertise and resources HERA has to offer. Courses, seminars and meetings conducted by HERA are also given prominence through the events calendar.

HERA Website
HIC is responsible for the maintenance of the HERA website and regularly provides for updates. The website is well used with between 9,000 to 10,000 visits per month for the past 12 months, and a high of 11,943 visits during the month of the 4th Metals Industry Conference in October 2008. However, as the supporting software is outdated and not able to keep up with the demands of modern web site and membership management, a decision was taken to replace the system.

HIC staff has been heavily involved with the revamp of HERA's website. A company specialising in web platforms for associations such as HERA, has been chosen as the provider of the new system for a new web site, database for membership management, events calendar with registration and payment capability, and client relations management software. The new website is planned to go live in September 2009.

Industry Statistics
The Information Centre continues to run a statistics service that supplies data on imported products such as heavy steel, stainless steel, aluminium, and welding consumables.

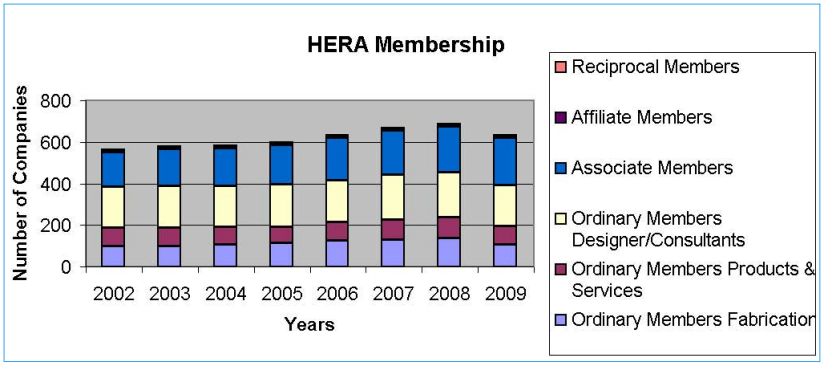
Library
The HERA library contains a large selection of books, standards, journal, CDs and Videos on all subjects related to metal fabrication. The subjects covered include welding, structural engineering, architecture, non-destructive testing, corrosion protection, finite element analysis, metallurgy and the use of stainless steel in architecture and construction. Standards relating to the activities of HERA and its members are held by the library. The Australian and New Zealand standards form the largest part of the standards collection but British, BS EN and ISO standards are also held. Sixty-seven standards have been added to the collection this year. Any standard or book not held by the library can usually be obtained through the Interloan system. The Library subscribes to a number of New Zealand and overseas journal. Articles from these journals can be copied o request. Technical papers from The International Institute of Welding are downloaded and archived on to CD-ROM.

Last year, the HERA Library loaned over 1,000 books and standards to members and arranged 100 inter-library loans. Requests can be made by mail, telephone, fax or email, and material borrowed will be sent by mail or collected from the library. Some IIW papers and journal articles can also be scanned and sent as PDF files and sent by email.

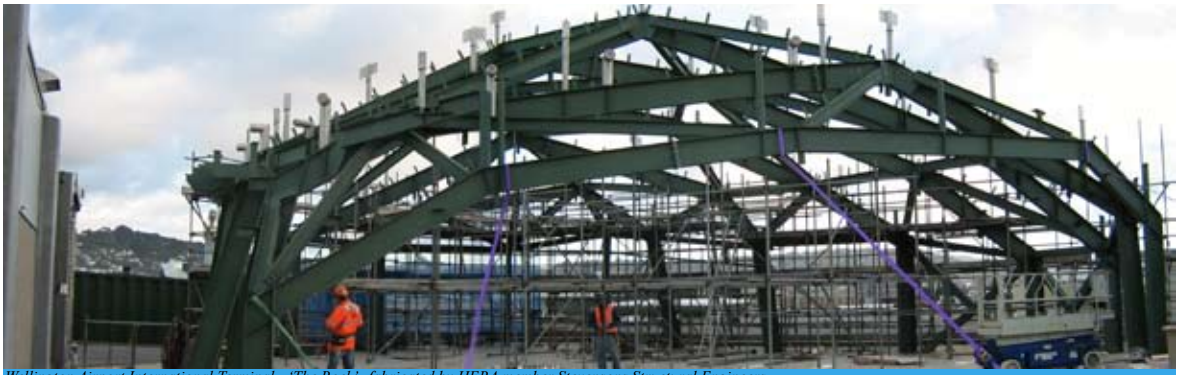
Publications
The HERA Information Centre continues to service requests from members for both HERA Reports and publications from overseas organizations. HERA is able to source publications and standards from organizations within New Zealand and overseas. Publications held in stock reflect HERA's involvement in structural steel and welding.

The HERA Information Centre (HIC) provides the communication link and information link to the HERA membership. It provides the following support services:
- Membership Administration
- Communication Programme (e.g. HERA News, Website, 3rd Party Publications)
- Industry Statistics
- Library and Publications Resource
- Organisation bi-annual New Zealand Metals Industry Conference

Brian Low
Information Centre Manager



Pauline Hayward
Publications Officer



Wellington Airport International Terminal - 'The Rock', fabricated by HERA member Stevensons Structural Engineers

Raewyn Porter
Receptionist / Administration

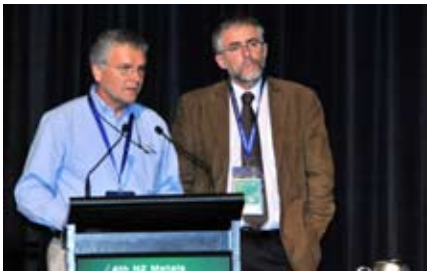
An aluminum bridge fabricated by HERA member Ullrich Aluminum

Duplex HP gas separator for Kupe gas field by HERA member Fitzroy Engineering

Sally Geard
Librarian (until April 2009)

The 4th NZ Metals Industry Conference - entitled **Building Sustainability** - was held in Auckland's SkyCity Convention Centre from the 29th to 31st of October 2008. The feedback has been uniform so far: That the programme was excellent - with over 90 quality presentations – and social events being first-class. The only criticism was that attendees were spoiled for choice and that there were too many sessions thus making attendance decisions difficult – though these are only reasons for supporting a "must attend" response to the Conference.

Opening Ceremony was opened by Auckland Regional Council (ARC) Chairman Michael Lee



NIWA Director Dr David Wratt (right) with HERA Director Dr Wolfgang Scholz (left) giving an overview on the Climate Change Challenge and in particular what this means for New Zealand

Minister for the Environment Dr Nick Smith spoke amongst other things about the Emission Trading Scheme (ETS) and the Resource Management Act (RMA)

Scott Fuller, Vice President Marketing and Sales of New Zealand Steel gaving an overview on their sustainability activities since the 1970s

Political commentator Rod Oram pointing out threats and opportunities for our industry

Chris Smallbone from the Welding Technology Institute of Australia (WTIA) up-dating on Global and Australian trends in the welding fabrication industry

Peter White-Robinson, CEO of the Fitzroy Engineering Group sharing his experiences and fundamental principles of staying successful

The social highlight of the conference was the Metals Industry Awards Gala Dinner in the fabulous new Auckland War Memorial Museum's Events Centre courtesy of Platinum Sponsor New Zealand Steel. The following awards were presented:

NASH's Recognition Award went to Gordon Barrett from Frametek for service to the steel-framing industry and as Chairman of NASH.

NZSSDA's Best Presentation Award went to Catherine Houska, consultant to Nickel Institute USA.

• **HERA Award for Distinguished Service**
The award has been renamed the *Keith Smith Memorial Award for Outstanding Service* to the Metals Industry of New Zealand, or the 'Keith Smith Award' for short.

Distinguished Service Award winner and former HERA staff Dr G Charles Clifton (left) and HERA Deputy Chairman Peter Hutton

The Award was given to Dr G Charles Clifton, former HERA Senior Structural Engineer and now Associate Professor of Civil Engineering at the Department of Civil and Environmental Engineering of the University of Auckland.

• **New Zealand Metals Industry Exporter of the Year - *FrameCAD Solutions***

From left: FrameCAD Solutions' Mark Taylor, Paul Lowman and HERA Deputy Chairman Peter Hutton

• **New Zealand Metals Industry Innovation Award - *Windflow Technology***

Windflow Technology's John Arimond and HERA Deputy Chairman Peter Hutton (right)

Inaugural SCNZ Awards for Excellence in Steel Construction:

• **Buildings of up to three storeys**
Hawkes Bay Opera House Retractable Roof with:
Steel Constructor: Patton Engineering Ltd
Builder – Morgan Builders Ltd
Steel Modeller – Patton Engineering Ltd
Structural Engineer – LHTDesign Ltd
Architect – Shand Shelton Ltd
Developer/Owner – Hastings District Council

• **Buildings of more than Three Storeys**
Auckland University Business School with:
Steel Constructor: Grayson Engineering Ltd
Builder: Fletcher Construction Ltd
Steel Modeller: Cadtec Draughting Ltd
Structural Engineers: Beca Carter Hollings & Ferner Ltd
Architect: Francis-Jones Morehen Thorp (Aust.) + Archimedia Ltd
Developer/Owner: University of Auckland

• **Bridges and Infrastructure**
Stage 3A Arrivals Expansion Auckland International Airport with:
Steel Constructor: D&H Steel Construction Ltd
Builder: Hawkins Construction Ltd
Steel Modeller: D&H Steel Construction Ltd
Structural Engineer: Beca Carter Hollings & Ferner Ltd
Architect: Stephenson & Turner
Developer/Owner: Auckland Airport Ltd

• **Special Structures**
Auckland Museum's Grand Atrium Project itself with:
Steel Constructor: Grayson Engineering Ltd
Builder: Hawkins Construction Ltd
Steel Modeller – Cadtec Draughting Ltd
Structural Engineer – Holmes Consulting Group
Architect – Noel Lane Architects
Developer/Owner – Auckland Museum

Industry Awards Gala Dinner at Auckland Museum's events centre

Stainless NZ
New Zealand Stainless Steel Development Association

Barry Meijering
NZSSDA Chairman

The NZ Stainless Steel Development Association serves the interests of the Stainless Steel (SS) based fabrication industry. This report is from its current Chairman Barry Meijering.

The NZSSDA highlights for the past year were:
- NZSSDA Session at 4th Metals Industry Conference
- Planned Seminars
- Research on new grades of SS
- AS 1528 Standards Development

The 4th Metals Industry Conference was a major event for the Metals Industry and the NZSSDA organised its own dedicated session. 6 NZSSDA papers were presented. Dr Guy Littlefair from AUT University presented study results on Machining of Duplex Stainless Steel, Dr Michail Karpenko from HERA's Welding Centre outlined the welding aspects of the new alternative SS grades available in NZ; Les Boulton, Consultant from the Nickel Institute, outlined aspects for trouble free service of SS in Engineering and Construction. Catherine Houska, a Consultant for the Nickel Institute from the USA, presented two papers one on SS as a Sustainable Building Exterior and one on SS for Sustainable Architecture. Cliff Ellery, the Site Manager for NDA, introduced the workshop and production techniques required to perform competitively on the Global Stage. Russell Thorburn, Business Development Manager of Corus NZ presented the AS1528 specification, outlining the aspects to affect all NZ Industry in the coming years as the AS1528 is implemented.

Work continued on Seminar planning with the next one likely on methods of Pickling and Passivating SS, and the handling requirements with recently introduced new legislation.

With the introduction of new Ferritic, Duplex and 200 Series stainless steels, the NZSSDA - through the HERA NZ Welding Centre - is performing lab and field trials. The aim is to determine the suitability of these materials in different environments and comparing these new grades to the household names 304 and 316. This is ongoing and over the coming year these results will be available.

The standard for Tube and Associated Fittings AS1528 is still work in progress. The NZSSDA has approached Standards New Zealand to begin proceedings for a joint AS/NZS1528 standard and is now represented on the joint FT-027 committee. Due to Standards Australia working towards a new business model this progress has been very slow.

Finally the NZSSDA has been working on changes to the website, creating new links to associated organisations providing design and conceptual ideas. This will remain an ongoing project.

Catherine Houska, consultant for Nickel Institute USA, at the 4th Metals Industry Conference, SkyCity Auckland

Stainless Steel air filters in the Britomart Transport Centre, Auckland

NASH
NATIONAL ASSOCIATION OF STEEL-FRAMED HOUSING INC.

NASH is the representative body for Light Steel Framing in NZ. A variety of activities aimed at raising the awareness, benefits and profile of steel framing to architects, designers, specifiers and Government officials were undertaken this year.

The following highlights stand out:
- Steel Framing Day as part of the 2008 Metals Industry Conference well-received with 4 international speakers
- The new Minister of Building and Housing engaged with the industry and addressed the AGM
- World's first international research was carried out fully-funded by the Industry
- Membership of NASH grown to include all steel framing solutions providers in NZ
- NASH member NZ Steel launched AXXIS Steel for framing

Increased promotional activity was undertaken during the year, namely:

The NASH day at the 4th Metals Industry Conference attracted four International and various local speakers and was exceptionally well-attended. Larry Williams, CEO of the US Steel Framing Alliance, spoke of his experiences in the industry and his new role as Business Development Manager at World Steel, Brussels.

NASH's first "Service to Industry" award went to Chairman Gordon Barratt for his tireless work for the Association and industry as a whole. Engagement at major events included the Master Builders and Building Officials Conferences, Future Proof Building Roadshows in partnership with New Zealand Steel and presentations to Territorial Authorities. A NASH presentation at the Building Officials Conference was particularly well-received. Networking opportunities ncreased with NASH becoming a Construction Industry Council member.

In closely working with the Building Construction Industry Training Organisation (BCITO), NASH was invited to join a Strategic Advisory Group in its part for design of upskilling programmes, and building and construction-related apprenticeships. This is invaluable in ensuring apprentices are awareof steel framing, and maintaining consistent quality and competency standards for our industry. Technical development has continued in areas such as earthquake testing, building wraps, thermal breaks, claddings and fasteners. NASH 3405, a non-specific design and construction guide was reviewed. An application was prepared for the Department of Building and Housing (DBH) aimed at the development of a NASH Industry standard.

A world's first for Light Steel Framing resulted from laboratory tests undertaken at the University of Melbourne where a test house 2.6 x 2.8m in plan and 2.4m high was built with a brick veneer in accordance with NZ practice. The test house was subjected to earthquake motions based on El Centro regime and exceeded performance expectations at all levels of loading, hence demonstrating that light steel frames with brick veneer exhibit excellent earthquake performance. The Hon Maurice Williamson, Minister of Building and Housing spoke at the NASH annual general meeting where he stated he remained focussed on cutting red tape and making compliance easier.

NASH member and co-funder New Zealand Steel developed the Axxis® brand for steel framing which is to be supported by a trade and consumer advertising programme to promote the use of steel framing for residential building. In June, New Zealand Steel launched Axxis® to the trade at BUILDNZ. NASH members RFS and Impact Frames also had trade stands and feedback since the show has confirmed the strong industry presence made a significant impact on the 4,000+ attendees.

NASH NZ continues to work closely with NASH Australia, Steel Framing Alliance and World Steel. Much of its work could not possible without the cooperation of local industry. Interest from residential home builders has significantly increased over the last 12 months as a result of the CMS roadshows, television coverage of steel-framed homes, and a range of initiatives undertaken by NASH members and New Zealand Steel. The industry is set to grow from strength to strength.

Hon Maurice Williamson, Minister of Construction & Housing at the NASH AGM

NASH Chairman Gordon Barrett with NZ General Manager Carl Davies

Steel framing being erected in Ramarama in South Auckland

STATEMENT OF FINANCIAL PERFORMANCE FOR YEAR ENDED 30 JUNE 2009

Kam Subramani
Accounts Officer

	Note	2009	2008
Revenue		**$**	**$**
Levies (Steel & Welding Consum.)		743,091	995,359
Backdated Welding Levies	10	-	4,822
Government Research Contracts (GRC)		857,733	857,733
GRC-Deferred Income	10	23,170	44,332
Consultancy and Industry Project	10	324,860	244,863
Services to 3rd Party		15,083	18,576
Member Subscriptions		178,516	176,867
Interest		36,861	48,150
Other Income		25,150	55,545
Publications		48,745	46,559
Welding Modules		52,376	52,111
Rent		67,849	66,051
Metals Conference		237,804	-
R&D Tax Credit		44,170	-
Seminars & Courses		93,058	93,163
HEERF		116,110	89,435
Transfer from Backdated Welding Levy	10	40,183	28,000
Total Revenue		**2,904,759**	**2,821,566**
Expenditure			
Staff Expenses		1,282,319	1,304,004
Member Services		124,142	142,709
Office & Other Expenses		168,529	157,289
Seminar Expenses		21,615	24,102
Consulting Expenses		6,638	22,133
Metals Conference		229,458	-
PSSC Conference		-	-
External Research		844,507	772,452
HERA House Expenses		83,918	79,582
Rent Expenses		206,860	206,860
Depreciation Expenses		109,303	104,953
Total Expenditure		**3,077,289**	**2,814,084**
NET (Deficit) SURPLUS FOR THE YEAR		**(172,530)**	**7,482**
Equity beginning of Year		461,041	453,559
Equity at the End of Year		**288,511**	**461,041**

AUDIT REPORT

To the Members of New Zealand Heavy Engineering Research Association Inc and the Trustees of Heavy Engineering Education and Research Foundation

We have audited the summary financial report of New Zealand Heavy Engineering Research Association Inc and Heavy Engineering Education and Research Foundation for the year ended 30 June 2009.

Responsibilities of Board of Trustees and Auditor

The Trustees 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 Trustees.

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 and Heavy Engineering Education and Research Foundation.

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 completed our work for the purposes of this report on 16 September 2009.

CST Nexia Audit

CST Nexia Audit
Chartered Accountants

BALANCE SHEET AS AT 30 JUNE 2009

REPRESENTED BY	Note	2009		2008	
Assets			**$**		**$**
Current Assets					
Cash at Bank	2	116,809		125,321	
Term Deposits	3	436,525		572,904	
Accounts Receivable	4	130,877		311,093	
Inventory		8,502		8,675	
Other Prepayments	5	70,682		93,324	
TOTAL CURRENT ASSETS			763,395		1,111,316
Non Current Assets					
Fixed Assets	6	260,124		333,850	
TOTAL NON CURRENT ASSETS			260,124		333,850
TOTAL ASSETS			**1,023,519**		**1,445,166**
Equity & Liabilities					
Accumulated Funds					
Accumulated Funds	7		288,511		461,041
TOTAL EQUITY			288,511		461,041
Current Liabilities					
GST Payable		-		27,796	
Accounts Payable		121,059		143,425	
Holiday Pay Provision		20,613		18,187	
Income in Advance	10	593,336		794,718	
TOTAL CURRENT LIABILITIES			735,008		984,125
TOTAL EQUITY & LIABILITIES			**1,023,519**		**$1,445,166**

The specific disclosers included in the summary financial statements have been extracted from the full financial report dated ---------.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.

(The following is not necessarily in numerical order.)

1. Statement of Accounting Policies

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

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

(b) Particular Accounting Policies
The particular accounting policies, which materially affect the measurement of financial performance and the financial position, are:
The Association is exempt from income taxation and therefore there is no income tax liability.

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.

	2009	2008
2. Cash at Bank		
Current Account	80,512	43,185
CSA	36.297	82,136
	116,809	**125,321**
3. Investment		
Call Account	5,630	174,240
Term Deposits-National Bank	302,385	279,276
Term Deposits – BNZ	128,510	119,388
	436,525	**572,904**
4. Accounts Receivable		
Trade Receivable	133,690	311,092
Less Doubtful Debt	**2,813**	**-**
	130,877	**311,092**
5. Other Receivables & Prepayments		
Accrued Income	26,327	82,182
GST	186	-
Prepayment	-	11,142
R&D Tax Credit	44,170	-
	70,682	**93,324**

6. Fixed Assets 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	111190
Motor Vehicles	156,980	89,847	67,133
Office Equipment	206,761	159,761	47,000
Training Equipment	86,037	70,782	15,255
	712,522	**452,398**	**260,124**

2008	**COST**	**ACCUM. DEPRECIATION**	**NET BOOK VALUE**
Metallurgy Equipment	12,430	12,430	-
Office Furniture	20,306	16,515	5,209
Fixtures & Fittings	82,955	57,263	25,692
HERA House Refurbishment	147,053	21,157	125,896
Motor Vehicles	151,789	76,679	75,110
Office Equipment	197,030	121,930	75,100
Training Equipment	84,759	57,917	26,842
	696,322	**362,473**	**333,850**

7. Accumulated Funds		
Opening Accumulated Fund	461,041	453,559
Net Surplus	(172,530)	7,482
	288,511	**461,041**

8. Operating Lease Commitment	**2009**	**2008**
The commitments are as follows:		
Current	$11,436	$11,436
Non Current	$5,718	$17,154
Total payable for the lease contract	**$17,154**	**$28,590**

9. Related Party

Heavy Engineering Educational and Research Foundation (HEERF) is a related party to the Association. It is related by the administrative and management expertise the Association provides to the Foundation, in the form of grants provided to the association for the research projects it undertakes. It is also the Association's landlord, owing HERA House. In 2007, only the portion of HEERF Grant paid to HERA is included in the financial statements.

10. Income in Advance

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. $40,183 (2008:$28,000) has been used in the financial year for dedicated welding projects. Therefore the unspent balance of $129,718(2008:$169,901) backdated welding levy has been treated as income received in advance.

Industry Project

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.

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 $93,608 (2008:$231,050) industry projects has been treated as income in advance this is stated under "income in advance" in the Statement of Financial position.

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 $369,102 (2008:$392,272) has been treated as income in advance.

Other

The balance of income in advance totalling $908 represents membership for 09/10 paid by members in 08/09 financial year (2008:$1,495)

11. BNZ Bank Account

The Association has a Visa credit card facility with BNZ. The limit on all cards is $33,000. (2008:$21,000)

12. Audit Fees

Audit fees have been included in office and other expenses to the value of $5,000 (2008:$5,000). There was no other remuneration paid to the Auditors.

13. Capital and Other Commitments

As at 30 June 2009 there were no outstanding capital commitments. (2008: $nil)

14. Contingent Liabilities

As at 30 June 2009 there were no outstanding contingent liabilities. (2008: $nil)

HEERF Chairman

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 found created in 2005/06 receiving donations from those interest to support the HEERF objectives.

In 2008/2009, the Foundation has again contributed significantly to HERA's research and industry development efforts through the support of engineering students, visiting experts and promoting careers in metal fabrication and engineering.

The Trustees of the Foundation decided - in recognition of Keith Smith's outstanding service to our industry and the bequest made - to re-name the HERA Award for Distinguished Services to *The Keith Smith Memorial Award for Outstanding Services to the Metals Industry of New Zealand*, or the Keith Smith Award for short. As Keith Smith's bequest has been invested for only a short period of time, the Foundation trustees decided to top up the Award's prize money to $2,000. As noted under the 4th Metals Industry Conference report, the Award went to former HERA staff Dr Charles Clifton.

During the year, HEERF have engaged Strachan Group Architects to provide plans and consent to refurbish the HERA House atrium. Consent is expected to be received in September 2009, and a decision to go ahead with the actual refurbishment is expected to be made at the HEERF AGM.

An exciting research and visiting scholar programme has already been outlined to the Trustees for the 2009/2010 year, and we are looking forward to ongoing top-class research supporting the future of our New Zealand metals engineering industry.

Statement of Financial Performance for Year Ended 30 June 2009

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 2009

	NOTE	2009 $		2008 $	
ACCUMULATED FUNDS					
Equity funds at start of year		1,896,170		1,763,574	
Net surplus for the year		103,494		132,596	
Equity funds at end of year			1,999,664		1,896,170
REPRESENTED BY					
Current Assets					
Bank		21,499		80,605	
Call Account		37,902		76,149	
ShortTerm Deposit		583,182		427,356	
GST Receivable		20		-	
Endowment Fund		435		429	
Accrued Income		2,041		3,514	
K.Smith-Bequest		27,106		25,000	
			672,185		613,053
Total Fixed Assets	4		1,341,242		1,320,068
TOTAL ASSETS			2,013,427		1,933,121
Current Liabilities					
Accounts Payable		13,763		10,350	
Received In Advance		-		25,000	
GST Payable		-		1,601	
TOTAL LIABILITIES			13,763		36,951
NET ASSETS			1,999,664		1,896,170

Income & Expenditure for year ended 30 June 09

	2009 $	2008 $
INCOME		
Rent	206,860	206,860
Interest	39,284	32,320
Bequest Income	25,000	-
Endowment Fund	-	300
Scholarship Refund	-	22,828
Total Income	**271,144**	**262,308**
EXPENDITURE		
Blding Maintenance	855	1,800
Blding Managmt Fee	6,000	6,000
Trust Administration	10,000	10,000
Grants to HERA/ SCNZ	103,436	75,659
Bank Charges	95	22
Lost Rent	11,034	-
Audit Fees	1,200	1,200
	132,620	**94,681**
Depreciation	35,030	35,031
Total Expenditure	**167,650**	**129,712**
Net Surplus/ (Deficit)	**103,494**	**132,596**

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 2009. (2008: nil)

There were no capital commitments as at 30 June 2009. (2008: 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. (2008:$nil)

6. Bequest

A bequest of $25,000 was received from Mr K.Smith in 2008.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 during the year.

4. Fixed Assets

	COST $	ACCUM. DEP. $	BOOK VALUE $
Land	244,602	-	244,602
Land Development	24,489		24,489
Capital Work in Progress*	67,466		67,466
Building Upgrade	151,019	58,490	77,428
Air Condition Units	157,300	46,198	111,102
Building	1,049,091	232,936	816,155
	$1,639,967	**352,725**	**1,341,242**

HERA Innovation in Metals

Affiliate Members

C J Wallis Pty Ltd
EDL Fasteners Limited
Fletcher Easysteel (Auckland)
Fulton Hogan (North Civil)
Steel & Tube Holdings Ltd
TBS Farnsworth Ltd
Vulcan Steel Ltd
Welding Technology Inst of Australia

Associate Members

A & S Engineering Ltd
ABB Power Ltd
Accurate Engineering Limited
Advanced Training Academy
Aimecs Ltd
Airwork (NZ) Ltd
All Steel Services Ltd
Alloy Yachts International Limited
ALRO Truck Smash Repairs
Alstom Northern Wagons
ANDAR-ADM Group Ltd
APV New Zealand Ltd
ATCO Controls Ltd
ATI Engineering Ltd
Awesome Awnings Ltd
Axiam Engineering Limited
Bailey Engineering Ltd
Baker Cranes Ltd
Bay of Plenty Polytechnic
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
Canco Engineering Ltd
Centracast Westside Engineering Ltd
Century Resources Ltd
CFM Engineering Ltd
Clough Agriculture Ltd
Consolidated Engineering Company Ltd
Contract Connections Ltd
Courtney Engineering
Croucher & Crowder Engineering Co Ltd
Culham Engineering Co
D R Howells Engineering Co Ltd
Dan Cosgrove Ltd
Dawn Group Ltd
Domett Trailers
Donovan Group NZ Ltd
DSK Engineering Ltd
Eastbridge Ltd
Eastern Institute of Technology
Ede Engineering
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
Fisher & Paykel Production Machinery Ltd
Flotech Services Limited
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
Hino Distributors (NZ) Ltd
Howick Engineering Ltd
Iain Codling Stainless Steel
Ipsco Ltd
Irwin Industrial Tool Company Ltd
J & D McLennan Ltd
J J Niven Enginering Ltd
J P Marshall & Co Ltd
Jay Cee Welding Ltd
Jetweld Engineering
Keith M J Adams
Kernohan Engineering Ltd
Kopu Engineering Ltd
Lakeland Steel Products Ltd
Laser Welding Ltd
Leighs Construction Ltd
Leonard Products Ltd
Longhare Engineering Ltd
Mace Engineering Ltd
Machine Part Welding Ltd
Maskell Productions Ltd
McCarthy Engineering 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 Consultants
Napier Engineering & Contracting Ltd
NDA Group
Necklen Engineering Ltd
Nelson Reliance Eng Co Ltd
Nelson Stud Welding Ltd
Nepean Engineering Ltd
Niemac Industrial Ltd
NZMP Kauri
Otahuhu Engineering Ltd
OTENZ Group
Pacific Timber Engineering Ltd
Parr & Co Limited
Patchell Industries Ltd
Pearson Engineering Ltd
Piako Transport Engineering
Pilcher Engineering Ltd
Pipework Specialties Ltd
Port of Napier Ltd
ProFab Stainless Ltd
Progressive Hydraulics
Pyramid Engineering
Quality Stainless Fabricators
R & R Contractors Limited
Red Steel Limited
Reel Stainless
Refrigeration Engineering Co Ltd
Renold New Zealand Ltd
Rex Barnes Engineering
Roadmaster Trailers Ltd
Rocktec Ltd
ROTIG Ltd
Royal New Zealand Air Force
Ruakaka Engineering
SAFE Engineering
Salthouse Boatbuilders Ltd
Sensation Yachts Ltd
Service Engineers Ltd
Sharland Engineering
Sheetmetals (1983) Ltd
Ship Constructors Ltd
Snorkel Elevating Work Platforms
Soanes & Vision Eng Ltd
South Fence Machinery Ltd
Southern Cross Engineering Limited
Southern Equipment Centre
Specialised Container Services
Specialist Energy Engineering Developments
Spirax Sarco Limited
Stafford Engineering Ltd
Stainless Down Under
Stainless Engineering Co Ltd
Sta-Tec Manufacturing
Steel Structures Ltd
Steelbro NZ Ltd
Steelfort Engineering Company Ltd
Steelpipe Limited
Stevensons Structural Engineers Ltd
Stewart & Cavalier Ltd
Street Marine Ltd
Stud Welding New Zealand Ltd
Superior PAK
Tasman Engineering Company
Technical Welding Services (1998)
The 4711 Training Centre
Tidd Ross Todd Ltd
Transfleet Equipment Ltd
Trident 2000 Ltd
Trimtech New Zealand Ltd
Truweld Engineering Kerikeri 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 IT Ltd
Weld Fabrication Engineering Ltd
Weld Tests Hawkes Bay
Wells & Boe Ltd
Whangaparaoa Engineering
Wilson Bros Engineering Ltd
Wilson Precast Construction Ltd
Windflow Technology Ltd
Windsor Engineering
Wormald Technology NZ
Wyma Engineering NZ Ltd
Zealsteel Ltd

ORDINARY CONSULTANTS

Abacus Engineering Ltd
ABB Maintenance Service Kinleith
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
Bonniface 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 Crabtree Partnership
Cameron Gibson & Wells Ltd
CDT Consultants Limited
Chambers Consultants Ltd
Chapman Oulsnam Speirs Limited
Charles Consulting
Chester Consultants Ltd
CHP Wellington Ltd
Chris W Howell & Associates Ltd
City Solutions
Civil Engineering Tokoroa
Clendon Burns & Park Ltd
Compusoft Engineering
Coulter Engineering Services Ltd
CPG New Zealand Ltd
Dainty Alderton & Associates
David Smart Consulting Ltd
Davidson Partners Ltd
Davis Ogilvie & Partners Ltd
Day Consultants
DBCon Ltd
Design Engineering (SI) Ltd
Design Management Consultants Limited
Dick Joyce Consultants Ltd
Dobbie Engineers Ltd
Don Thompson Consulting Engineers Ltd
Dunning Moore & Associates
Dunning Thornton Consultants Ltd
East Coast Steelwork Ltd
Eastern Consulting Ltd
EMC
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
Garry Newton Ltd
Geoff Kell Consulting Ltd
GHD Ltd
Hadley & Robinson Ltd
Hanlon & Partners Ltd
Harrison Grierson Consultants Limited
Hawthorn Geddes Engineers & Architects Ltd
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
John Snook Ltd
Jones Gray Partners Ltd
Joyce Consultants Ltd
Kerslake & Partners
Kevin O'Connor & Associates Ltd
Kirk Roberts Consulting Engineers
Knibb Gormezano & Partners
Knowles Consulting
Lapish Enterprises
Lewis & Barrow Ltd
Lewis Bradford & Associates Ltd
LHT Design
Linear Design
Lough Downey Ltd
M A Corkery & Associates Ltd
Macdonald Barnett Partners Ltd
Manktelow Consulting Engineers Ltd
Marino Consultants & Associates
Markplan Consulting Ltd
Marriott Consultng Engineers
MEC Engineering Consultants
Mechanical Technology Ltd
Metal Test Ltd
MH Design Ltd
Mighty River Power Limited
Milward Finlay Lobb Ltd
Mitchell Vranjes Consulting Engineers
Mobil Oil New Zealand Limited
MSC Consulting Group Ltd
MTEC Consultants Ltd
MWH New Zealand Ltd
Nagel Consultants Ltd
Nancekivell Cairn Ltd
Norfolk Projects Ltd
Novare Design Ltd
OCEL Consultants NZ Ltd
O'Loughlin Taylor Spence 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
Pointload Ltd
Powell Fenwick Consultants Ltd
PPT
PR Engineering Consultants
Protocold Services Ltd
Q Designz Limited
R B Knowles & Associates Ltd
R D Sullivan
R J Nelligan & Associates Ltd
R W & V Roberts Consultancy
Randall & Associates Ltd
RCR Energy Systems Ltd
Redco NZ Ltd
Richardson Stevens Consultants (1996) Ltd
Robin Frengley Consulting Engineer
Ruamoko Solutions Ltd
Sawrey Consulting Engineers Ltd
Sigma Consultants Ltd
Silvester Clark Consulting Engineers
Sinclair Knight Merz Ltd
Spencer Holmes LtdStephen R Mitchell Consulting
Stiffe Hooker Ltd
Stiles & Hooker Ltd
Strata Group Consulting Engineers Ltd
Structex Limited
Structure Smith Ltd
Sullivan Hall Ltd
TH Consultants Ltd
Thorburn Consultants NZ Ltd
Thorne Dwyer Structures
Tonkin & Taylor Ltd
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

ORDINARY FABRICATORS

A & G Price
Acme Engineering Ltd
Active Transport Engineers Ltd
Active Welding Limited
Allied Industrial Engineering Ltd
Alpha Engineering Co Ltd
Amtec Engineering Ltd
Atco Steel Developments Ltd
B W Murdoch Ltd
Bas Manufacturing
BDC Engineering
BLM Engineering Co Ltd
Bromley Steel
Bucher-Alimentech Ltd
Burleigh Engineering Ltd
Calibre Engineering NZ
Chapman Engineering Ltd
Coldicutt Engineering
Consortium Enginering Services
Contract Engineering Limited
Crusader Engineering Ltd
CSP Pacific
Cuddon Ltd
D & H Steel Construction Limited
D C Weld Ltd
Dexion New Zealand
Dispatch and Garlick Ltd
Electric Furnace Company 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
Intergrated Maintenance Group Limited
ISSA Engineering
J & R Slecht Limited
J Steel Australasia
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
Manukau Welders (1982) Ltd
Martin Engineering
Mason Engineers (NZ) Ltd
MaxiTRANS Industries (NZ) Pty Ltd
McGrath Industries Limited
McKenzie & Ridley (Kawerau) Ltd
Mercer Stainless Ltd
Metal Tech Education Ltd
Metso Minerals (Matamata) Ltd
MGE Engineering Ltd
MMB Engineering Ltd
Morgan Steel
Otahuhu Welding Ltd
P J Hindin Engineering
Page & Macrae Engineering Ltd
Pakuranga Engineering Ltd
Patton Engineering Ltd
Pegasus Industrial Engineering Ltd
PFS Engineering Ltd
Porter Engineering Ltd
Price McLaren Ltd
R C R Easteel Energy System Limited
Rist Engineering
RNZN Fleet Repair Group
Robert Page Engineering Ltd
South Pacific Industrial
Speedfloor NZ
Steel Fabrication Ltd
Steel Masons Engineering Ltd
Steel Pencil Limited
Steeltech (HB) Ltd
Steeltech Services
Steltech Structural Limited
Tandarra Engineering Ltd
Tank Test Laboratories Ltd
Tanker Engineering Specialists Ltd
Taymac Limited
Tenix Robt Stone
Tidal Power NZ Ltd
Toledo Construction 2004 Ltd
Track Industries Ltd
Tranzweld
Turnco Engineering Limited
United Engineering Services Ltd
Universal Engineering Ltd
VT Fitzroy Limited
W Stevenson & Sons Ltd
Waikato Steel Fabricators Ltd
Welds Engineering Ltd
Weldtrade Engineering Ltd
Wilkinson Transport Engineers

ORDINARY PRODUCT SUPPLIERS

Akzo Nobel Coatings Ltd
Altex Coatings Ltd
Ballance Agri-Nutrients (Kapuni) Ltd
BOC Gases New Zealand Ltd
BWS Ltd
Combustion Control Ltd
Corus New Zealand Ltd
Crow Refractory Ltd
Digitalweld
Forman Building Systems Ltd
H J Asmuss & Co Ltd
Independent Oilfield Inspection Services Limited
Independent Technology Ltd
Lincoln Electric Co (NZ) Ltd
Mainzeal Property & Construction Limited
Modern Maintenance Products Ltd
New Zealand Steel Ltd
Onesteel NZ Limited
Pacific Steel
Piletech NZ Ltd
Pipes (NZ) Limited
Roadrunner Manufacturing (NZ) Ltd
Sandvik New Zealand Ltd
Southern Spars Limited
Supreme Steel Products Ltd
Traydec (NZ) Ltd
Trustpower Ltd
Vector Limited
Wattyl (NZ) Ltd
Welding Engineers NZ Ltd
Weldwell New Zealand

ORDINARY SERVICES PROVIDERS

Abseil Access Ltd
Air Liquide New Zealand Ltd
Alpha Training & Development Centre Ltd
Auckland City Environments
Auckland University of Technology
Bay of Plenty Energy Ltd
BDS VIRCON
Bureau Veritas (NZ) Ltd
CadPro Systems Ltd
Chapman Sanders Consultants
Christchurch Polytechnic Institute of Technology
Contact Energy Limited
CSP Coating Systems
Dulux NZ Protectitve Coatings
Engineering Safety DOL
Engineering Technical Resource Ltd
Forman Insulation Limited
Hawkins Construction Ltd
HSM Engineering Ltd
Les Boulton & Associates Ltd
Manukau Institute of Technology
Manukau Institute of Technology
Materials & Testing Laboratories
Matrix Applied Computing Ltd
McLeod Cranes 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
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

HERA STAFF 2009

Administration		
Director	Dr Wolfgang Scholz	Dipl-Ing, PhD, EWE
Accounts Officer	Kam Subramani	B.Com
HERA Information Centre (HIC)		
Manager	Brian Low	BA
Publications Officer	Pauline Hayward	
Librarian (until April 2009)	Sally Geard	BA, BSc, Dip-ILS (Level 5)
Librarian (from April 2009)	Eleonore Bentley	
Receptionist	Raewyn Porter	
Heavy Engineering Industry Development		
Manager (from March 2009)	Nick Inskip	
Manager (until February 2009)	Bill Lovell	
Management & Quality Services Ltd (under contract until May 2009)	Norm Stannard	C.Eng, MIMech, DMS, FIPENZ
Inspection & Quality Control Centre (I & QC Centre)		
Manager	Peter Hayward	CWE, IIW IWT, IIW IWI(C), Professional NDT Level 3, MINDT
Structural Systems		
Manager	Dr Stephen Hicks	BEng (Hons.), PhD (Cantab.)
Finite Element Analyst	Nandor Mago	BE, ME, MIPENZ , CPEng, NAFEMS Registered Analyst (Advanced)
Structural Engineer	Raed El Sarraf	BE (Civil), MEng Studies, ME Civil (Hons.), GIPENZ
CSA Business Development Manager	Rosemary Scofield	BArch, MArch, ANZIA, Dip SmBusMgmt, Reg Arch
CSA Technical Manager/HERA Sustainability Steward	Richard Green	MSc, BSc, Dip. Env. Impact & Risk Assessment, Dip. LCA & Sustainability
New Zealand Welding Centre		
Manager	Michail Karpenko	Dipl-Ing, PhD, IWE
Senior Welding Engineer	Alan McClintock	IIW IWT, IWI, CWI
Materials Engineer (until May 2009)	David Wrightson	BE (Hons.), GIPENZ
Metal Forming		
Post-graduate Research Student	Holger Heinzel	Dipl-Ing (ME)

Standing, from left: Holger Heinzel, Philipp Seemann, Moritz Eigner, Kam Subramani, Raed El Sarraf, Simon Schneider, Rosemary Scofield, Pauline Hayward, Richard Green, Raewyn Porter, Alan McClintock
Sitting, from left: Brian Low, Nick Inskip, Peter Hayward, Dr Wolfgang Scholz, Dr Stephen Hicks, Dr Michail Karpenko, Nandor Mago

HERA Strategic Summary 2010+

HERA is:

The industry owned research association of the NZ metals engineering industry

We have the Vision:

To have an internationally competitive NZ Metals Engineering Industry who recognises HERA as the leading catalyst for innovation

And the Mission:

To achieve this vision through assisting the industry in accelerating its innovation and by strengthening its combined opportunities through the provision of research, education, marketing and lobbying functions

In the process we are applying the following Strategies

Strategy 1	Strategy 2	Strategy 3	Strategy 4	Strategy 5	Strategy 6	Strategy 7
To work with industry and its stakeholders to encourage and foster business innovation and growth	To drive the development of technology, systems and products	To assist in the provision of the quality workforce required for ongoing industry development	To develop and implement tools required for monitoring and enhancing industry growth and competitiveness	To improve the HERA organisation by enhancing services and improving cost/benefit ratio	To maintain and strengthen top class research and industry training capabilities	To work towards a more sustainable NZME industry

With corresponding Objectives

1A: Develop and implement strategies and systems capable of achieving business innovation and growth 1B: Develop identity and focus on generating dynamic product sector specific business groups 1C: Work with stakeholders such as government and related industry organisations to increase their engagement and support (lobbying function)	2A: Identify key technologies and develop strategies for their introduction 2B: Identify product sectors with potential for local and export markets 2C: Optimise R&D efforts and outputs for industry	3A: Identify workforce and skill issues critical to industry growth and provide strategies to overcome the limitations 3B: Review regularly the existing HERA and associated industry skills programmes with a view to meeting industry demand more appropriately 3C: Work with the training provider stakeholders to develop and support their education programmes and activities	4A: Define parameters and systems suitable to measure industry growth and competitiveness 4B: Implement above measurement system to monitor industry performance	5A: Establish and maintain systems to enhance the performance of HERA and its staff 5B: Review services and funding streams and implement relevant actions 5C: Evaluate potential new areas for HERA expertise (e.g. sheet metal, aluminium, composites, casting technology, offsite construction, sustainability assessment) 5D: Develop HERA facilities to cater for future needs	6A: Develop and maintain sector research roadmaps 6B: Develop, submit and where appropriate co-fund competitive research proposals 6C: Strengthen national and international linkages with research providers and industry support service 6E: Become a recognised research and training provider	7A: Build an understanding and awareness of benefits and environmental impact of the lifecycle of metal products 7B: Develop and implement long-term strategies relevant for NZME industry 7C: Be a leading catalyst of bringing the NZME and NZ research providers together to formulate relevant programmes 7D: Practise what you breach and run a HERA specific program to improve HERA's footprint
	2A1: NZ Welding Centre Program focusing on productivity in welding fabrication 2A2: Inspection and Quality Control Centre with focus on training and quality control advice 2B1: Heavy Engineering Industry Development Program 2B2: Structural Systems Program focusing on steel construction including steel bridge development 2B3 Composite Structural Assembly (CSA) research program and business development 2C1 Assistance in setting up NASH research program					

And Activities

1A1: Maintain HERA strategy and execute assigned actions 1B1: Membership communication program, 4th Metals Industry Conference 1B2: Related sector group engagement such as with SCNZ, NASH, NZSSDA, LAM-NZ 1B3: Metals Institute of NZ (MINZ) development 1C1: Maintain comprehensive networking activities 1C2: Develop, maintain and communicate HERA position on government policy		3A1: Careers in welding fabrication program 3A2: Careers in welding inspection industry program 3B: HERA training program development and delivery (Courses, Seminars) 3C1: ITO and training provider advisory work 3C2: NZQA unit standard development contributions	4A: Development of HERA Certificate Program in Competitive Manufacturing 4B1: Maintenance and further development of Industry Statistics 4B2: Capability Register Research Program	5A1: HERA staff performance evaluation 5A2: HERA staff professional development program 5B1 Heavy Engineering Research Levy Act Amendment with aim to raise research levy 5C: Development of expertise in sheet metal engineering, metals based composites, offsite construction, and sustainability assessment 5D: HERA House refurbishment program	6A1: HERA 2010 + research road map 6A2: Sheet metal engineering research road map 6B: Steel Bridge Design Guide Development proposal to NZTA 6C: Conference (e.g. Metals Industry Conference) and direct contacts to internationally recognised research providers 6D: Active shared research programs and networking engagements 6E: NZQA accredited PTE	7A1: Sustainability Steel Construction Website 7A2: Submissions to Greenstar and other sustainability drivers 7B: Maintaining HERA Sustainability Strategy 7C: Work towards establishing NZ Sustainable Steel Council

HERA

Innovation in Metals

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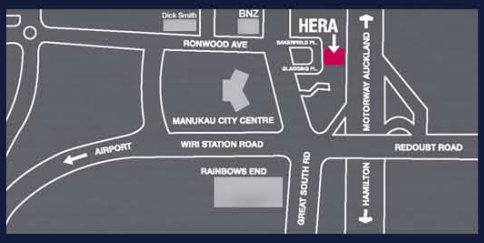

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