HERA is the Research Association of the New Zealand Metals Engineering Industry. Established in 1979 under the Heavy Engineering Research Levy Act of 1978 as a member-based, not-for-profit Research Association, HERA today serves around 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 New Zealand Metals Engineering Industry as a responsible leader in the sustainability of our environment

ABOUT THE COVER:
During the year, HERA has engaged with the industry to develop the Metals Industry sector element of the New Zealand Trade & Enterprises’ Manufacturing + Strategy. The theme of the NZ metals industry going global is reflected in the 3rd Metals industry Conference in Hamilton and organised by HERA, entitled “The NZ Metals Industry as a Global Player”.

HERA Executive at 30 June 2006

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<td>NZ Engineering Federation</td>
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<td>Mr D Turkington</td>
<td>Beca Carter Hollings &amp; Ferner Ltd</td>
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<td>Mr D Band</td>
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<td>Mr C Ford</td>
<td>New Zealand Steel Ltd</td>
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<td>Mr D R K Smith</td>
<td>Mobridge Ltd</td>
<td>Ex Officio, Chairman of HEERF</td>
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<td>Mr K C F Spring</td>
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![HERA Executive](hera_executive.jpg)

From left:
Kevin Spring  
Chris Ford  
Peter Hutton  
Greg Jensen  
Dale Turkington  
Duncan Fraser  
HERA Director  
Wolfgang Scholz  
David Moore  
HERA Chairman  
Noel Davis

Insets, from top:
John Frear  
David Band  
Keith Smith  
Ian Murray
Welcome to the 2005-2006 Annual Review of HERA-related activities.
This is the last of three reviews by Nick Davies as HERA Chairman. As we look back at a year which was full of visible activities, we must not lose sight of the behind-the-scenes long-term work aimed at positively influencing the future of the New Zealand metals industry.

To summarise, here are some of the highs and lows of the 2005/2006 HERA Year:

- Slowdown in industry activity as compared to last year's exceptional performance.
- Despite lower than budgeted levy income, HERA broke even financially.
- Steel Construction New Zealand incorporated as independent society.
- Significant progress made towards establishing the Metals Institute of New Zealand.
- Metals industry export strategy document established.
- Export-driven metals industry strategy document established.
- Recognition as International Institute of Welding (IIW) Approved Training Body.
- Metal forming research activities established.
- HERA divisions largely achieved their performance targets despite personnel constraints.

**Industry Activities**

As the statistics for heavy sections and plate (above 4.75 mm thickness) show, a significant reduction in imported and locally-produced tonnages has occurred over the last financial year (see Steel Volumes Figure). The good news is that over the last 4 months of the year, the 3-monthly rolling total figures have again shown a good upward trend.

The volume reductions were most noticeable in plate, where the volumes dropped from over 79,000 tonnes to 65,000 tonnes - a drop of about 18%. However, the total tonnage is still above the year 2004 figure of over 61,000 tonnes. Structural sections did slightly better, here the reduction went from just over 70,000 tonnes to 65,000 tonnes - a drop of about 8%.

No doubt, the exchange rate and the steel price increases of the previous year have not assisted our exporting industry members - but as can be seen from some of the photos in this annual report - there were again significant export successes to report. There is no doubt our members are able to attain world-class status and compete admirably on the world stage.

**HERA Activities**

Overall, the HERA activity level - without considering SCNZ activities and the income of the two-yearly Metals industry Conference - increased slightly to $2.4 million. This was due to a small increase in self-generated income and happened despite levy income being below budget expectation and some difficulties in having all staff positions filled with suitably qualified staff. Overall HERA as a members-based, non-for-profit research association is pleased to report that the commitment to use all the funds in focused efforts and achieve a balanced financial result has been met. End result is a small surplus of around $11,000 compensating for last years loss in the same order.

Mainly due to research staff shortages but also to the way research contracts are funded, the amount of funds for research commitments which had to be deferred into the next year has risen by $66,000 to app. $500,000 with about 2/3 of this commitment being with subcontracting research providers. Another deferred commitment is to the welding fabrication industry where the back-collected welding levy of over $200,000 will be allocated in the next year to dedicated projects agreed to in consultation with the welding fabrication and welding supply industry.

**Steel Volumes 1982 - 2006**

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

- Steel Construction New Zealand (SCNZ) Incorporated HERA would like to congratulate steel construction sector group SCNZ on achieving its independence from its parent organisation HERA at the start of the 2006/2007 financial year as its own incorporated association. Thanks to the vision and support of steel construction industry members, the HERA Executive and HERA staff, an organisation has been created with sound vision, business plan, governance and excellent staff migrating over from the previous HERA division. Therefore, this is the last HERA Annual Report where SCNZ is included. HERA through its Structural Division and its administrative network will continue to support SCNZ and hopes that in a co-operative spirit, the activities of both organisations will drive the fledging steel construction sector further ahead.

- Metals Institute of New Zealand Proposal launched In conjunction with HERA and wider NZ metals industry strategic planning and the proposed revision of the HERA Levy Act, the HERA Executive developed and endorsed a discussion document proposing a transfer of HERA into a wider metals industry association co-owned by participating sector groups with the working title "Metals Institute of New Zealand (MINZ)". The document has been well-received by sector associations, with the Executives of LAM-NZ, NASH, NZSSDA, and SCNZ committed to explore the opportunity in detail.

- Metals Industry Export Strategy developed In conjunction with New Zealand Trade & Enterprise’s (NZTE) Manufacturing + strategy...
development, HERA and an invited group of senior industry representatives have developed the metals engineering element of this national strategy. A large list of potential strategies and corresponding actions has been produced and HERA is now in the process of prioritising and finding champion organisations for their realisation.

- HERA achieves IWI Authorised Training Body accreditation
  HERA’s effort to become, in co-operation with Welding Technology Institute of Australia (WTIA), one of the providers of International Institute of Welding (IIW) qualifications made a great step forward with HERA becoming an Authorised Training Body under the IIW scheme, and WTIA performing the role of Approved National Body for New Zealand. The first courses for training towards the IWI Welding Specialist and examinations have been held during the year. Work towards NZQA accreditation of the HERA Training Centre continued.

- Metal forming research capabilities established
  As a spin-off from the comprehensive Composite Structural Assembly (CSA) research program, HERA - in co-operation with Auckland University of Technology (AUT) and industry partners - started the set-up of a research centre for sheet metals-based forming research at AUT comprising a small team of researchers and the provision of roll forming and press forming equipment.

- 3rd Metals Industry Conference planned
  Based on the success of the previous two Metals Industry Conferences in Rotorua and Christchurch, planning for the November 2006 event in Hamilton has started under the conference theme “The NZ Metals Industry as a Global Player”. With excellent sponsorship support and an exciting programme put forward by HERA in partnership with Competenz, LAM-NZ, NASH, NZSSDA, NZEF, NZTE and SCNZ, conference attendance of over 300 delegates is anticipated.

Outlook

For HERA, the outlook is excellent. Focused around the development of MINZ and in conjunction with the proposed HERA Levy Act amendment, HERA and the associated sector groups have to revisit their strategies and business plans. This will give rise to awareness of and the development of new opportunities to actively influence the prosperity and growth of the NZ metals industry. The time frame provided by MORST for the HERA Levy Act change is tight and challenging, and we would expect huge progress to be made during the new year.

For the metals industry itself the outlook is for another tight business year. Predictions at best are for no or only moderate industry growth. Exchange rate predictions should favour export-oriented businesses which have been hit hard in the last two years.

Thanks to individuals and teams

Lastly but most importantly we would acknowledge all those involved 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 and guidelines, reviewing the daily work and governing the organisation. As industry feedback indicates, this team-based approach works very well and we would like to thank all those contributing for their generous support.

Our special thanks is due to the dedicated and professional staff at HERA who make our association what it is today - The industry research and resource centre integral to the NZ Metals Industry.
Structural Steel Research

Several long-term research projects in the fire and earthquake areas came to successful conclusions with design guidance being accepted and first buildings going up incorporating the new seismic resisting systems.

HERA Report R4-134: Semi-Rigid Steel Bolted Joints for Moment-Resisting Steel Framed Seismic-Resisting Systems (MRSFS) was published in 2005, and completes a research project that began in 1995. Two new joint systems were developed in that research, both designed to provide considerable benefits in regard to damage resistance, ease of repair and greater design freedom than is possible from conventional strong column-weak beam MRSFS. Each of the systems has been incorporated into new buildings, with the University of Auckland Business School well underway by mid-2006. A further round of development on each joint is now underway, promising further advances in both systems.

In fire engineering completed was the publication of HERA Report R4-131: Design of Composite Steel Floor Systems for Severe Fires. This report and accompanying software presents the slab panel method of designing composite steel floor systems with some unprotected supporting beams for dependable inelastic response in severe fires. It completes a research project that commenced following the large building Cardington fire tests in the UK and has involved research at HERA, the University of Canterbury and BRANZ.

HERA Report R4-133: New Zealand Steelwork Corrosion Coatings Guide was also completed. For coated steelwork, this report provides the necessary guidance to allow an appropriate and cost-effective coatings system for structural steel to be selected and specified in a generic manner. If the steel is to be left unpainted, it allows the corrosion rate to be determined for a very wide range of exposure conditions and a design loss of material determined for a given design life.

The past year has seen increasing contributions to steel research and technical development from the University of Auckland and the University of Canterbury and research initiatives from several consulting engineers and included the following projects:
- Steelwork Partially Protected by Radiation Barriers, ME fire engineering project
- Sliding Hinge Joint for Steel Moment Frames, final year undergraduate project
- Development of new bridge decks
- End yielding criteria for steel beam-columns
- Suppression of axial shortening in steel beam-columns

The HERA Senior Structural Engineer gratefully acknowledges the vital and expanding role of groups and individuals contributing towards the ongoing development of structural steel in New Zealand.

Bridge Development Group

The BDG has provided guidance and technical support for a number of existing and new steel bridges around New Zealand. The Mercer to Longswamp weathering steel bridge was opened as part of the Mercer to Longswamp Expressway project south of Auckland, to which the BDG provided guidance and conducted preliminary design last year. This year HERA structural engineers conducted a site survey and checked the performance of the weathering steel.

As for new steel bridges around New Zealand, the BDG has conducted two preliminary design and gained an insight on the working of tender selection and other issues that may affect the selection of steel bridges.

CSA

The CSA Project has been running for close to 2 years and is now building momentum. Research is currently focused on the development of a prefabricated Composite Wall Panel System and a Prefabricated Hollow Rib Floor System for Residential, Industrial and Multi-Level Buildings. Good progress is being made in the development of prototypes, which are being tested. Market needs analyses are well under way across all the main building consent categories and a structured methodology for project work has been set up.

The following manufacturing concepts and processes are in the developmental phase, each one being the topic of focus by individual researcher groups: roll forming, press forming, welding, clinching and other joining technologies, lightweight concrete manufacturing technology, and composite steel panel manufacturing processes - formwork design and construction, panel assembly. Partner companies have contributed to testing materials, equipment fabrication, personnel and cash contributions towards contract employment of specialist professionals.

Projects to determine the various performance requirements of the products is under way, including materials and their combination, durability, fire resistance, load carrying capacity, acoustic and thermal performance. Relationships with industry bodies and other research organisations are being formed to ensure continuation of
the consortium initiatives beyond the FRST contract period.

**Seminars, Presentations and Papers**

As part of a joint Structural Steel seminar with SCNZ, Charles Clifton and Raed El Sarraf presented a half-day seminar on behaviour and design of multi-storey steel buildings for dependable response in fire.

Charles Clifton gave presentations on the Coatings Guide to the Auckland Chapter of the Australasian Corrosion Association and to the Wellington Structural Group.

Raed El Sarraf presented a paper entitled Recommendations for Shear Connector Design and Detailing for Interior and Exterior Secondary Composite Beams, written by Dr Tony Gillies of Lakehead University, Canada, and John Butterworth, University of Auckland, Raed El Sarraf and Charles Clifton of HERA at the 2005 Australasian Structural Engineering Conference. Following an invitation, a modified paper for publication in the Australian Journal of Structural Engineering and this has been done.

A paper entitled “Failure of Welded Moment Resisting Connections”, summarising the moment resisting connection research work undertaken over 2004 to 2006 by HERA, has been accepted for publication in the American Institute of Steel Construction’s Engineering Journal, 4th Quarter, 2006.

**Codes and Standards**

HERA represented the steel construction and general steel based building interest through membership and active participation in the Construction Industry Council (CIC). HERA also made submissions to publications, position papers, strategies and general developments where a metals based position is required.

Of particular note was the HERA Senior Structural Engineer’s representation on the following committees and working groups:

- P3404 Committee (which he is chairman of) developing Amendment No 2 to the Steel Structures Standard NZS 3404.
- Department of Building and Housing Working Group C6 on Airborne and Impact Sound, where we are providing input into the requirements for building performance in these areas and guidance on steel solutions to meet these requirements.
- Design and Construction Industry Advisory Group for Standards New Zealand

**Other Structural Division Activities Included:**

- Publication of DCB Issue No 78
- Development of a design procedure for eccentrically Loaded Cleats in Compression
- Participation in the Steelwork Call Centre
- Consulting work on a range of projects from fire engineering peer reviews to advising on joint failures
- Ongoing preparation towards the hosting of the next Pacific Structural Steel Conference to be held at the Waikato Resort Hotel in March 2007

**Advanced Finite Element Analysis**

HERA’s FEA efforts have been successful in terms of applied research through the CSA project and consulting services provided to the industry.

Several complex finite element analyses have been performed on various options/seedpod ideas of the newly-designed load bearing wall panels. Detailed understanding of the composite steel-lightweight concrete wall panel behaviour has been obtained through experimental testing and FEA by stretching the limits of the simulations.

Good working relationships have been established with the AUT and University of Auckland research teams with excellent contributions driving the multidisciplinary research/design work forward. Efficient use of the available hardware resource has been made with many of the jobs having average running times in the order of 24 hours.

It is encouraging to note that by year more companies use HERA for FEA advice. The powerful simulation tool is used to assist in optimising critical design tasks, support failure analyses and predict critical performance not just relating to static strength but also buckling, thermal performance, response to fire, explosion and different types of dynamic loading. The latest version 6.6-1 of the ABAQUS/Standard/Explicit/CAE advanced simulation tool used is a major release with many enhancements that offer access to more powerful finite element analysis functionality than ever before. No doubt the increased use of virtual prototyping tools will benefit the NZ industry in the coming years.
SCNZ - Chairman’s Report

The incorporation of SCNZ in June 2006 marked its coming of age. In the twelve months leading up to this important development, the society matured and grew stronger financially. I believe it is now very well positioned to look after the interests of the New Zealand steel industry.

I would like to acknowledge the roles played by the steel mills and steel merchants in securing the voluntary levy collections. Thanks are also due to HERA and its Director, Dr Wolfgang Scholz, for the support and encouragement given to SCNZ on its way to independence.

While this was taking place, the staff of SCNZ maintained a high work rate, which included several seasons of seminars that were well attended by both North and South Island audiences. The interest in the Smarter, Faster series was so high that an encore was called for.

But it wasn’t all work and no play, as members who participated in the Ambrose golf tournament and the jetboating on the Waimakariri will testify. Meanwhile, our profile as an industry has been raised with the publishing of three issues of the SCNZ Magazine.

In accordance with our Rules of incorporation, two members of the Executive Council have stepped down: Grant Bradford and Jamie Macredie. I thank them for their valued service. The two new members elected to the Council are Chris Ford and Russell Neal. The remaining Council members, John Frear (Vice Chair), Jon Gousmett, Mike Klemick, Evan Kroll, Dr Wolfgang Scholz and myself, welcome them on board. The Council, having approved a comprehensive and very ambitious Business Plan, is well pleased with the direction that SCNZ is taking.
Our ongoing building construction surveys of the Central Business Districts of Auckland and Wellington show that, after the bottoming out that began in 2005, there was a recovery in 2006 which saw steel making gains in its share of the market. This was especially so in Wellington, where use of steel frames has risen to 58% and metal-deck flooring systems to 34% by floor area in multi-storey buildings.

SCNZ sponsored structural engineering research at both the universities of Auckland and Canterbury, and continued our support for engineering students with our steel design award and site visits.

This year, the ‘Steel in Architecture’ lecture was given by Russell Lee of the Australian-based Cox Group. Taking long-span steel structures as his theme, Russell addressed architects in Auckland, Wellington and Christchurch, giving vivid examples from exhibition centres and sporting stadia in several countries. SCNZ also took a stand at the annual conference of the Association of Consulting Engineers of New Zealand, held this year at Rotorua.

One of our standing objectives is to encourage young people to consider the career opportunities that exist across the entire steel sector. When Workchoice Day came along on May 16, we were able to provide support in the form of our ‘Careers in Steel’ booklet. We sent this to every secondary school, intermediate and polytechnic in the country and the positive response from students and careers advisors has been gratifying.

We have enjoyed tremendous support from our members during the year. The commitment and guidance from our various steering groups, chaired by Greg Jensen, Brendan Smith and Mike Klemick, have been invaluable in enabling the Council to build our unified success.
Industry Welding Activities Slowed

The New Zealand industry sector relying on welding as a joining process now doubt felt the pinch in the year reported on. From the record consumable import of 3,500 tonnes in the previous year, the imported consumable tonnages dropped by 31% to 2,400 tonnes, well short of the previous year’s averages.

As a result of the reduced industry activity, welding levy income for the year was also below budget expectation; however, a combination of good self-generated income and reduced staff cost due to staff leaving balanced the Welding Centre books.

As reported last year, an error in the implementation of the 2003 welding consumable levy increase by Customs led to the deferred collection of app. $214,000 of welding levy (see Note 13 in the Financial Statement). HERA has agreed with the representatives of the welding supply industry present at the December Welding Centre Panel Meeting to earmark this money for special developments for the welding fabrication industry. First proposals particularly around the promotion of careers, health and safety practices and training have been made and will be put to the Panel in the new year for approval.

Staff Changes

There was no let-down in demand on Welding Centre activities and output of the Centre was seriously constrained by availability of suitably-qualified staff. In June 2006, HERA welcomed the new manager of its New Zealand Welding Centre - Dr. Michail Karpenko. Michail took over the reigns from Dr. Wolfram Woerner who has returned to Germany after 5 years as Welding Centre Manager. Andrew Short also left the Welding Centre to take up a PhD research position in welding at Nottingham University.

Courses and Seminars

Following successful WTI/A accreditation as an approved IW Training Body, HERA ran International Welding Specialist courses in both Wellington and Auckland. The courses were very well supported by industry, assisting with site visits, demonstrations and providing lecturers for case studies.

In February/March 2006 the New Zealand Welding Centre enjoyed the support of Professor Wohlfahrt, an internationally recognized expert in the field of residual stresses and fatigue behavior of metals. Prof. Wohlfahrt presented one-day seminars on ‘Managing Welding Distortion and Residual Stress’ in Auckland, Tauranga, Dunedin, and New Plymouth.

In 2005 the focus was on the International Welding Specialist courses. However, a fundamentally important seminar series on “What every Engineer should know about welding” was also held in February.

Welding Training Modules, Unit standards

The welding training modules continue to be widely-used by training providers as either hard copy or CD versions. A review of the NZQA unit standards for welding has been undertaken under contract to Competenz. This involves all the existing units and the drafting of 2 new units specifically for 1st and 2nd year apprentices on block courses.

Imported quantity of wire and rods used for welding

(Source: Statistics NZ and HERA)

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(Source: Statistics NZ and HERA)
Research into Joining Coated Sheet Steels

The Welding Centre carried out a series of fundamental investigations into the joining of NZ-made coated steel sheet as part of its contribution to the Composite Structural Assemblies (CSA) project. The joining project focused on evaluation, testing and further development of technologies for connecting thin coated steel sheets.

Technical Advice, Consultancy, Industry Projects

The Welding Centre continues to provide a high activity level of free technical welding advice as part of its service to industry. Income-generating consulting enjoyed considerable usage.

Conferences, Papers, International Visitors

In 2005/06 the New Zealand Welding Centre has published/submitted 4 conference papers and 2 articles for technical journals. Acting American Welding Society (AWS) President Damian Kotecki visited HERA in October 2005 and gave an evening seminar on the welding of stainless steel. He discussed options to re-establish a regional Asian Pacific network to cooperate in welding related topics.

NZ Welding Centre manager, Dr. Woerner and his successor, Dr Karpenko represented New Zealand at the Welding for Engineering Conference in Sydney in June 06. The Conference is an annual event organised by the Welding Technology Institute of Australia (WTIA). They also participated in the 17th Meeting of WTIA Qualification and Certification Board and in the WTIA Annual General Meeting.

Additionally, a delegation from the Harbin Welding Institute visited HERA in July 2005. Options for co-operation were explored.

Standards

The Welding Centre has provided significant input into the review of the standards AS/NZS 1554.7 "Welding of cold formed steel structures" and AS/NZS 2980 "Qualification of arc-welders for welding of steels”.

Metals Forming Activities

As part of the CSA project the NZ Welding Centre is administering activities which eventually will lead to independent activity in sheet metal forming. The forming team, consisting of HERA metal forming engineer Holger Heinzel, and Auckland University of Technology’s (AUT) Head of School of Engineering Prof Thomas Neitzert and PHD student Florian Kern, together with industry partner New Zealand Steel, has been busy establishing forming research facilities at AUT.

Thanks to the support of the Heavy Engineering Educational Research Foundation and industry sponsors, roll and sheet metal forming equipment has been established at the new Sheet Metal Forming Centre at AUT and the first forming research packages have been started. Two additional researchers are intended to complement the team in 06/07.
The HERA Strategic Plan focused upon identifying and creating potential new business opportunities remains in place and again during the year HERA members have been invited to explore a range of potential newly arising technologies and market niches.

The cross sector relationships with the wood processing sector is mature and continuing to the benefit of both sectors.

One example of particular note was the Steering Group identification that wet sawdust and planer dust from over 250 plants is an expensive hazard. Drying wet sawdust is in many situations uneconomic and is a leach hazard in landfills. Its handling and disposal also creates health hazards. BE students at Waikato University have worked on this problem in the laboratory under Professor Alan Langdon and based upon their findings, a student spent time with HERA member Mount Steelcraft to build a prototype machine that combines the planner dust and wet sawdust to produce a compact low-moisture material that can be utilized for a variety of products.

One application is as fuel for a CHP plant and to this end was trialed in the market-ready Page and Macrae 3MW capacity woody biomass gasifier. The student’s prototype is operating at a Carter Holt sawmill and two students are currently working with Mount Steelcraft to produce the production model to be released to the industry in 2007. Both HERA members are to be applauded for their links with the training of the next generation of engineers and for their openness for trying new ideas.

The HERA Business Development Group took full advantage of the combined UK Government and NZTE offer of four places at the Aberdeen All Energy Conference in May, held in Scotland. Feedback was provided via the July HERA News. The resultant findings and contacts will form the base for future manufacturing, supply and servicing joint ventures beneficial to the NZ metals industry.

HERA continues to monitor for its membership duty tariff concession applications and objects to them where it can be demonstrated that local capabilities exist. This is an important function and requires ongoing input to demonstrate to potential importers that local capabilities exist and that these are worthwhile to consider at the early project planning stage.

This year the objections raised or negotiations performed without objecting but securing of NZ input demonstrated again the value of this work to our members. With the recently updated BERL report demonstrating that for every $1 million of import replacement spent 12 jobs are created, this is an effective strategy to create business in New Zealand.

As reported in the Director’s section, HERA has developed the metals industry sector part of NZTE’s Manufacturing+ Strategy, with the main focus on gaining export share. However in the coming year, HERA will also take a more strategic view on local activities in areas where NZ has a good competitive position and it is or strategic benefit for New Zealand to develop capabilities.

There are many opportunities for nationally significant projects such as Kupe Gas (see schematic), wind farms, distributed energy and large infrastructure construction, and our member companies will no doubt be able to make cost-effective contributions.
HERA membership has increased this year by 32 members, reflecting the industry’s need for networking, resource- and information-gathering.

**Pacific Trade Expo 2006**

HERA set up an exhibition stand at the Pacific Trade Expo 2006 held between the 13th and 14th of February at the TelstraClear Pacific Events Centre in Manukau City. The Expo was a huge success for the organisers, the Pacific Business Forum. The aim of the HERA stand was to raise the profile of the NZ metals industry among the Pacific Islands, letting them know that the NZ metals industry has capabilities that these island nations may not be aware of. Over 20 enquiries were received which were then passed on to relevant HERA members to follow up.

HERA played host to a small number of guests at the inaugural NZ Engineering News Industry Dinner which was held in conjunction with this year’s EMEX Show. HayleyMedia, the publishers of Engineering News, invited HERA along with over 300 people who attended the dinner. Both guest speaker Mike Moore and the presentation of the Competenz ‘Knowledge in Action’ Awards were the crowd pullers. HERA’s motivation to host guests at a table was to use the event as a networking opportunity with related metals industry organisations. HERA is currently reviewing its strategic direction and this was an ideal opportunity to share some of the industry-strategic thoughts with members of the different sector groups.

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

The 3rd NZ Metals Industry Conference planning proceeded at fast pace to confirm the venue of the Kingsgate Hotel, and Hamilton Gardens Pavilion as the venue for the Conference Gala Dinner on Friday night. Various speakers and companies were also confirmed for both the Conference and Industry Tours respectively.
Library

The HERA Library contains a wide collection of books, CDs and videos on all subjects related to heavy engineering, reflecting the projects undertaken by the various departments within HERA. The subjects covered include welding, structural engineering, architecture, non-destructive testing, corrosion protection, finite element analysis, metallurgy and the use of steel and stainless steel in architecture and construction. HERA also holds the proceedings of a number of conferences on these subjects.

Standards relating to HERA activities are also held in the library. While the majority of these are New Zealand and Australian standards, relevant standards from other organisations are also held. Any not included in the Information Centre’s collection can usually be borrowed from other libraries, as HERA belongs to the New Zealand interlibrary loan network. All HERA members have full access to library publications and services, including literature searches, reference enquiries, borrowing and interlibrary loans.

The library subscribes to a number of New Zealand and overseas journals on heavy engineering topics, and articles from these journals can be copied on request. Additionally, the library downloads and archives all technical papers from the International Institute of Welding, and has back issues going back several years. Although the majority of these are in printed form, those from 2003 onward have been written to CD-ROM, and older papers are gradually being transferred to this format as time permits.

Last year, the HERA Library loaned a total of 610 books and 757 standards to members, arranged 200 interlibrary loans, and purchased 50 new books and 89 new standards. We also agreed to house the collection of the Australasian Corrosion Association (ACA), a set of books and papers on a wide variety of aspects of corrosion and protection, which is also available to HERA members on request.

Requests can be made using mail, telephone, fax or email, and material borrowed will be sent by mail or can be picked up at the borrower’s choice. IWW papers, journal articles and miscellaneous documents may also be scanned and sent as PDF files by e-mail.

Publications

In addition to its own technical publications, HERA is able to offer a selection of publications from the Australian Steel Institute (ASI) and the Welding Technology Institute of Australia (WTIA) from stock. Publications and Standards from other organizations in New Zealand and overseas can be obtained upon request.

Instructor and student modules for the NZ Modular Training Scheme for the Joining of Metals, developed by the New Zealand Welding Centre, are available from the HERA Information Centre.

Reports published this year including those published in conjunction with SCNZ:

R4-131
Design of Composite Steel Floor Systems for Severe Fires

R4-134
Semi-Rigid Joints for Moment-Resisting Steel Framed Seismic Resisting Systems

R4-133
New Zealand Steelwork Corrosion Coatings Guide

R4-136
Smarter, Faster Steel Construction Seminar

R4-139
Steel Structures Seminar: Earthquake, Wind and Fire
The HERA Inspection and Quality Control Centre (I & QC Centre) support businesses in their training, inspection and quality control requirements. Successful business support has been accomplished through planning programmes for the HERA Training Centre and providing specialised training that falls under the scope of the I & QC Centre. Attendances of I & QC Centre training courses were excellent with 82 attendees registered during the financial year. New seminars held were on Inspection of Elevating Work Platforms and Welding Defects.

Support has been offered in a consultation capacity embracing fabrication, welding problems, quality control, inspection, non-destructive testing and preparing inspection and quality control procedures. This support has included assisting aircraft maintenance companies develop reliable inspection procedures plus a number of additional consulting projects.

The I & QC Centre has provided significant input into the standards committees for a range of standards and will continue to represent the interests of the metals industry in welding, quality control and inspection disciplines. It contributed to the HERA effort to grow both WTIA accreditation as an IIW authorised training provider, and NZQA accreditation as an approved training provider.

The outlook for the I & QC Centre is positive and will continue its services to meet industry and business needs. In the coming year a panel will be formed to represent the industry expectations and participation in particular the fields of expertise in which the I & QC Centre operates. The implementation of a management business plan and policy for the I & QC Centre will be prepared and put to the panel for agreement.
HERA provides secretariat services to various metals industry sub-sector groups.

New Zealand Stainless Steel Development Association (NZSSDA)

The following is adapted from the NZSSDA Chairman’s report by Russell Thorburn:

During the 2005-6 year, the NZSSDA’s activities focused on providing seminars and workshops to fabricators / key specifiers, and worked towards the results requested during last year’s members survey. The highlight of the year was without doubt the architectural workshops conducted in Auckland, Wellington, and Christchurch. These workshops were presented by Ms Catherine Houska (TMR Consulting / Nickel Institute - USA) and Mr Les Boulton (Les Boulton & Associates / Nickel Institute - NZ).

Ms Houska is a recognised expert in the use of stainless steel within the architectural / construction sector. The NZSSDA was able to obtain one of the highest points accreditations from the NZ Institute of Architects towards their members’ Continuing Professional Development program. 112 architects attended these full-day workshops, with over 1300 publications and CDs being distributed. As a result of the Auckland workshop, an article on the use of stainless steel was published in the “Progressive Building” magazine. While in Wellington, a case study on the Michael Fowler Building renovations was conducted.

Other seminars NZSSDA were involved with included:
- Dr Damien Kotecki (president of the American Welding Society) - “What not to do in Stainless Welding”, “Stainless Steel in the Infrastructure in the USA”, and “Trends and Developments in the AWS”.
- Mr Les Boulton – “Stainless Steel Fabrication in the Water Industry”

The NZSSDA also reviewed membership classes, fees structure, and member benefits. Preliminary discussions took place with a group of Wellington-based businesses with a view to setting up a local committee to assist us in delivering better value to the area. Many thanks to the attendees for giving valuable time and ideas. The intent was for members of the executive committee to represent all sectors of our industry, from suppliers, fabricators, to manufacturers, etc. In recent years, however, there has been a noticeable reduction in the involvement from fabricators on the committee. This is a worrying trend as ultimately our activities benefit fabricators and our future direction needs input from them. We will only get out what we invest, and an investment of time and opinions is a great start.

National Association Steel-framed Housing (NASH)

NASH is an association of organisations working on the commercialisation of technology developed for the use of steel framing particularly in residential applications. HERA hosts the manager of NASH at HERA House, and provides full support services.

The members of NASH have been active in the market with a number of promotional activities as well as getting the ground work in place with a number of technical and training initiatives. This year saw the launch of NASH 3405, a non-specific Design and Construction Guide for steel framed buildings. This is effectively the steel equivalent to NZS 3604, a common document in wide use in New Zealand as a code of practice in building, and is available from NASH.

The market for steel framing for housing continues to look very attractive. The industry is in a good position to capitalise on the opportunities with the support of organisations such as New Zealand Steel and HERA.
## STATEMENT OF FINANCIAL PERFORMANCE FOR YEAR ENDED 30 JUNE 2006

### Income

<table>
<thead>
<tr>
<th>Note</th>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Levis (Steel &amp; Welding Consum.)</td>
<td>811,684</td>
<td>872,616</td>
</tr>
<tr>
<td>Backdated welding Levies</td>
<td>176,812</td>
<td>-</td>
</tr>
<tr>
<td>Government research Contracts (UWL)</td>
<td>857,733</td>
<td>857,733</td>
</tr>
<tr>
<td>UWL - Deferred income</td>
<td>433,648</td>
<td>-</td>
</tr>
<tr>
<td>Consultancy</td>
<td>227,032</td>
<td>199,878</td>
</tr>
<tr>
<td>Member Subscriptions</td>
<td>153,122</td>
<td>150,082</td>
</tr>
<tr>
<td>Interest</td>
<td>24,845</td>
<td>22,504</td>
</tr>
<tr>
<td>Other Income</td>
<td>66,675</td>
<td>69,423</td>
</tr>
<tr>
<td>Kent</td>
<td>43,804</td>
<td>44,084</td>
</tr>
<tr>
<td>Metals Conference</td>
<td>-</td>
<td>230,636</td>
</tr>
<tr>
<td>Seminars &amp; Courses</td>
<td>123,868</td>
<td>114,764</td>
</tr>
<tr>
<td>HERA Trust Projects</td>
<td>96,501</td>
<td>47,292</td>
</tr>
<tr>
<td>SCNZ</td>
<td>138,033</td>
<td>665,657</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td>3,246,166</td>
<td>3,396,927</td>
</tr>
</tbody>
</table>

### Expenditure

<table>
<thead>
<tr>
<th>Note</th>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Staff Expenses</td>
<td>1,131,362</td>
<td>1,356,989</td>
</tr>
<tr>
<td>Member Services</td>
<td>151,109</td>
<td>173,120</td>
</tr>
<tr>
<td>Office &amp; Other expenses</td>
<td>182,823</td>
<td>186,989</td>
</tr>
<tr>
<td>Seminar expenses</td>
<td>35,170</td>
<td>43,839</td>
</tr>
<tr>
<td>Consulting expenses</td>
<td>15,197</td>
<td>14,491</td>
</tr>
<tr>
<td>HERA House Costs</td>
<td>82,069</td>
<td>81,704</td>
</tr>
<tr>
<td>Rent</td>
<td>174,220</td>
<td>174,220</td>
</tr>
<tr>
<td><strong>Total Expenditure</strong></td>
<td>2,448,700</td>
<td>2,867,141</td>
</tr>
</tbody>
</table>

### Net (Deficit) Surplus for the Year

<table>
<thead>
<tr>
<th>Note</th>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td><strong>Net (Deficit) Surplus for the Year</strong></td>
<td>11,567</td>
<td>(10,719)</td>
</tr>
</tbody>
</table>

### Equity Funds at Beginning of Year

<table>
<thead>
<tr>
<th>Note</th>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Accumulated Funds - HERA</td>
<td>407,321</td>
<td>395,754</td>
</tr>
<tr>
<td>Accumulated Funds - SCNZ</td>
<td>341,554</td>
<td>278,877</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>748,874</td>
<td>674,631</td>
</tr>
</tbody>
</table>

### Total Current Assets

<table>
<thead>
<tr>
<th>Note</th>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td>821,550</td>
<td>839,183</td>
</tr>
</tbody>
</table>

### Total Liabilities

<table>
<thead>
<tr>
<th>Note</th>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td>935,247</td>
<td>660,987</td>
</tr>
</tbody>
</table>

### Net Assets

<table>
<thead>
<tr>
<th>Note</th>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td><strong>Net Assets</strong></td>
<td>748,874</td>
<td>674,631</td>
</tr>
</tbody>
</table>

---

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

Majority of Revenue in Advance represents income in advance from various agencies including the Government, which funds the Association for research and services. The Funding received for programmes (projects) that were completed during the year is recognised as revenue in that year.

The part of the funding that relates to incomplete parts of projects at year-end is deferred to the next period. This is stated under “Revenue Received in Advance” in the Statement of Financial Position.

3. Related Party

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

In 2006, only the portion of HEERF Grant paid to HERA is included in the financial statements. In addition, HEERF has made a grant of $9,000 to SCNZ.

4. Audit Fees

Audit fees have been included in office and other expenses to the value of $4,700 (2005:$4,700). There was no other remuneration paid to the Auditors.

5. Fixed Assets

<table>
<thead>
<tr>
<th>Year</th>
<th>COST</th>
<th>ACCUM. DEPRECIATION</th>
<th>NET BOOK VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>12,430</td>
<td>12,430</td>
<td>-</td>
</tr>
<tr>
<td>Office Furniture</td>
<td>25,510</td>
<td>17,935</td>
<td>7,575</td>
</tr>
<tr>
<td>Fixtures &amp; Fittings</td>
<td>82,955</td>
<td>34,269</td>
<td>48,686</td>
</tr>
<tr>
<td>HERA House Refurbishment</td>
<td>69,015</td>
<td>3,451</td>
<td>65,564</td>
</tr>
<tr>
<td>Motor Vehicles</td>
<td>145,291</td>
<td>72,987</td>
<td>72,304</td>
</tr>
<tr>
<td>Office Equipment</td>
<td>237,914</td>
<td>167,796</td>
<td>70,118</td>
</tr>
<tr>
<td>Training Equipment</td>
<td>11,844</td>
<td>4,086</td>
<td>7,758</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>651,999</strong></td>
<td><strong>339,439</strong></td>
<td><strong>312,560</strong></td>
</tr>
</tbody>
</table>

6. Investments

<table>
<thead>
<tr>
<th>Year</th>
<th>National Bank TB</th>
<th>BNZ Term deposits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>$242,913</td>
<td>$307,099</td>
</tr>
<tr>
<td>2005</td>
<td><strong>$214,630</strong></td>
<td><strong>$214,630</strong></td>
</tr>
</tbody>
</table>

7. Capital and Other Commitments

As at 30 June 2006 there were no outstanding capital commitments.

8. Contingent Liabilities

At 30 June 2006 there were no outstanding contingent liabilities.

9. Operating Lease Commitment

A lease agreement was entered into on 20 December 2005 for a photocopier. The commitments are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Current</th>
<th>Non Current</th>
<th>Total payable for the lease contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>$11,436</td>
<td>$12,590</td>
<td>$40,021</td>
</tr>
<tr>
<td>2005</td>
<td><strong>$8,046</strong></td>
<td><strong>$0</strong></td>
<td><strong>$8,046</strong></td>
</tr>
</tbody>
</table>

10. HERA Administration of SCNZ

HERA holds funds in trust for Steel Construction Industry New Zealand (SCNZ). The financial affairs of SCNZ are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>SCNZ Levy income</th>
<th>HERA Grant</th>
<th>Senior Publications, Others</th>
<th>Total Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>$548,007</td>
<td><strong>$48,223</strong></td>
<td><strong>$87,415</strong></td>
<td><strong>$644,422</strong></td>
</tr>
<tr>
<td>2005</td>
<td><strong>$485,316</strong></td>
<td><strong>$46,000</strong></td>
<td><strong>$87,415</strong></td>
<td><strong>$590,731</strong></td>
</tr>
</tbody>
</table>

11. Accounts Receivable SCNZ

The amount owing to SCNZ may vary subject to foreign exchange fluctuations and bank charges.

12. BNZ Bank Account

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

13. SCNZ Salary

From October 05 SCNZ salary were paid directly from SCNZ bank.

5. Fixed Assets

<table>
<thead>
<tr>
<th>Year</th>
<th>COST</th>
<th>ACCUM. DEPRECIATION</th>
<th>NET BOOK VALUE</th>
</tr>
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<td><strong>339,439</strong></td>
<td><strong>312,560</strong></td>
</tr>
</tbody>
</table>

The fixed assets totalling $33,995 in Net Book Value will be transferred to SCNZ on 01 July 2006.

6. Investments

<table>
<thead>
<tr>
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<th>BNZ Term deposits</th>
</tr>
</thead>
<tbody>
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<tr>
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<td><strong>$48,223</strong></td>
<td><strong>$87,415</strong></td>
<td><strong>$644,422</strong></td>
</tr>
<tr>
<td>2005</td>
<td><strong>$485,316</strong></td>
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HEAVY ENGINEERING EDUCATIONAL & RESEARCH FOUNDATION

STATEMENT OF FINANCIAL PERFORMANCE FOR YEAR ENDED 30 JUNE 2006

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 2006

<table>
<thead>
<tr>
<th>Note</th>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACUMULATED FUNDS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity at start of year</td>
<td>1,611,535</td>
<td>1,350,775</td>
</tr>
<tr>
<td>Surplus for the year</td>
<td>45,042</td>
<td>40,468</td>
</tr>
<tr>
<td>Equity funds at end of year</td>
<td>1,656,577</td>
<td>1,611,535</td>
</tr>
</tbody>
</table>

**REPRESENTED BY**

- Current Assets:
  - Cash | 35,195 |
  - Call Account | 110,710 |
  - Term Deposits | 133,818 |
  - GST Receivable | 280,647 |
- Total Fixed Assets | 1,377,280 |
- Total Assets | 1,657,927 |

**Income & Expenditure**

**INCOME**

<table>
<thead>
<tr>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent</td>
<td>$174,220</td>
</tr>
<tr>
<td>Goods &amp; Services</td>
<td>45,042</td>
</tr>
<tr>
<td>Management Fee</td>
<td>6,000</td>
</tr>
<tr>
<td>Inust admin. fee</td>
<td>10,000</td>
</tr>
<tr>
<td>Honorary</td>
<td>3,000</td>
</tr>
<tr>
<td>Building Maintenance</td>
<td>1,184</td>
</tr>
<tr>
<td>Grants to HERA/SCNZ</td>
<td>96,911</td>
</tr>
<tr>
<td>Bank Charges</td>
<td>121</td>
</tr>
<tr>
<td>Audit Fees</td>
<td>1,200</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td>$198,489</td>
</tr>
</tbody>
</table>

**EXPENDITURE**

<table>
<thead>
<tr>
<th>2006</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honoraria</td>
<td>3,000</td>
</tr>
<tr>
<td>Depreciation</td>
<td>35,031</td>
</tr>
<tr>
<td><strong>Total Expenditure</strong></td>
<td>153,447</td>
</tr>
</tbody>
</table>

**NET SURPLUS (deficit)** | 45,042 | 40,467 |

1. Statement of Accounting Policies

   (a) General Accounting Policies

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

   The Foundation follows Generally Accepted Accounting Principles (GAAP) recognised as appropriate for the measurement and reporting of earnings and financial position on historical cost basis. 

   (b) Particular Accounting Policies

   - The particular accounting policies have been applied on a basis consistent with previous years.

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

   Fixed Assets

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

   Differential Reporting

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

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

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

   (c) Changes in Accounting Policies

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

2. Capital Commitments & Contingent Liabilities

   There are no capital commitments or contingent liabilities as at 30 June 2006 (2005: nil).

   There were no capital commitments as at 30 June 2006 (2005: nil).

3. Related Parties

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

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

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

   K Smith is the Chairperson of HEERF. He is the Principal of DRK Smith & Associates, which provided professional services of $3,000 (2005: $3,000) to HERA during the year. All transactions are approved by the Board and at arms length.

4. Fixed Assets

<table>
<thead>
<tr>
<th>COST</th>
<th>ACCUM, DEPRECIATION</th>
<th>BOOK VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>244,602</td>
<td></td>
</tr>
<tr>
<td>Land Development</td>
<td>24,489</td>
<td></td>
</tr>
<tr>
<td>Building Upgrade</td>
<td>151,019</td>
<td>28,286</td>
</tr>
<tr>
<td>Air Condition Unit</td>
<td>157,300</td>
<td>19,470</td>
</tr>
<tr>
<td>Building</td>
<td>1,049,090</td>
<td>201,464</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$1,626,500</td>
<td>$249,220</td>
</tr>
</tbody>
</table>

Audit Statement

The accounts as published are extracted from the financial statements audited by CST Nexia, Chartered Accountants, an unqualified audit opinion as expressed at 25 August 2005. A full set of the audited financial statements is available from HERA on request.
Ordinary Members - Fabricators
A & G Price
Acme Engineering Ltd
Active Transport Engineers Ltd
Active Welding Limited
Allied Industrial Engineering Ltd
Amtec Engineering Ltd
Atco Steel Developments Ltd
Auckland Steel 2000 Ltd
B W Murdoch Ltd
Bas Manufacturing
BDC Engineering
BLM Engineering Co Ltd
C & R Equipment Ltd
CBB 2000 Ltd
Chapman Engineering Ltd
Contract Engineering Limited
CSP Pacific
D & H Steel Construction Limited
Department of Conservation
Dispatch and Garlick Ltd
Donovan Group NZ Ltd
Electric Furnace Company Ltd
Elite Innovations
Energyworks Ltd
Equipment Engineering Ltd
ET Engineering
Farra Engineering Limited
Fitzroy Engineering Group Ltd
Gary Douglas Engineers Ltd
Gisborne Engineering Ltd
Gray Bros Engineering
Grayson Engineering Ltd
Hamilton Perry-Dexion
HSM Engineering Ltd
Intergated Maintenance Group Limited
Internetch Ltd
J & S Sleight Limited
J Two E Weld Ltd
J Ahnie Steel Fabricators Ltd
J ohn Jones Steel Ltd
Kawerau Engineering Ltd
Lyttelton Engineering Ltd
M J H Engineering Ltd
Mainarc Engineering Services Ltd
Manukau Welders (1982) Ltd
Martin Engineering
McGrath Industries Limited
McKenzie & Ridley (Kawerau) Ltd
Mercer Stainless Ltd
MMB Engineering Ltd
Morgan Steel
Mulligan Engineering Co Ltd
Otahu Welding Ltd
P J Hindin Engineering
Page & Macrae Engineering Ltd
Pakuranga Engineering Ltd
Papakura Engineering Co Ltd
Patton Engineering Ltd
Pegasus Engineering Ltd
PFS Engineering Ltd
Price McLaren Ltd
Production Solutions
Pryde Reid
R C R Easteel Industries Ltd
RACT Engineering
Red Steel Limited
RNZN Fleet Repair Group
Roadrunner Manufacturing (NZ) Ltd
Robert Page Engineering Ltd
Rob J Stone & Co Ltd
Speedwell (NZ) Ltd
Steel Fabrication Ltd
Steltech Structural Limited
Storage Handling Limited
Storey Engineering Ltd
Tandarra Engineering Ltd
Tanker Engineering Specialists Ltd
Taymac Limited
TDC Sawmills Ltd
Tenix Shipbuilding New Zealand Ltd
Titan Marine Engineering
Toledo Construction 2004 Ltd
To NZ Consolidated Ltd
Track Industries Ltd
Tranzweeds
Trimco Engineering Limited
United Engineering Services Ltd
Universal Engineering Ltd
W Stevenson & Sons Ltd
Wakatipu Steel Fabricators Ltd
Weatherford New Zealand
Welding & Engineering Services Ltd
Weldrite Marine Fabrication Ltd
Welds Engineering Ltd
Weltrade Engineering Ltd
Wellman Associates Ltd
WFM Limited
Wilkinson Transport Engineers

Ordinary Members - Product Suppliers, Service Providers and Others
4D Steel Detailing
Advance Boiler Services NZ Ltd
Air Liquide New Zealand Ltd
Akzo Nobel Coatings Ltd
Alpha Engineering Co Ltd
Alpha Training & Development Centre Ltd
Apoxy Coatings Ltd
Aquaheat Industries Ltd
Auckland City Environments
Auckland University of Technology
Balance Agri-Nutrients (Kapuni) Ltd
BDS Steel Detailers
BDC Gases New Zealand Ltd
Bureau Veritas (NZ) Ltd
Burleigh Engineering Ltd
CadPro Systems Ltd
Christchurch Polytechnic Institute of Technology
Combusht Control Ltd
Contact Energy: Power Station
Corus New Zealand Ltd
Crow Refractory Ltd
CSP Galvanising
Cuddon Ltd
D C Weld Ltd
Delta Expertise Inc
Digital Insight Ltd
Digitalweld
Dimond
Dulux Protective Coatings
Engineering Safety DOL
Forman Building Systems Ltd
Forman Insulation Limited
Gulf Design Ltd
H J Asmuss & Co Ltd
Independent Oilfield Inspection Services Limited
ISSA Engineering
J uken New Zealand Ltd (Wairarapa)
Land Transport New Zealand
Les Bolton & Associates Ltd
Lincoln Electric Co (NZ) Ltd
Machinery Services Ltd
Manukau Institute of Technology
Marten Spars Limited
Mason Engineers (NZ) Ltd
Materials & Testing Laboratories
Mobridge Ltd
Modern Maintenance Products Ltd
New Zealand Industrial Abseilers Ltd
New Zealand Steel Ltd
North Shore City Council
Northtec
NZ Army c/o Art GE
NZ Fasteners Stainless Ltd
NZ Welding School
Onesteel NZ Limited
Open Polytechnic of New Zealand
Pacific Steel
Palmerston North City Council
Piletech NZ Ltd
Pipes (NZ) Limited
POBA International No 6024
PPT
Progressive Engineering Co Ltd
Resene Paints Limited
Rudolphs
Sabra Engineering Ltd
Sandvik New Zealand Ltd
SGS M & L Ltd
Smorgon Steel Recycling NZ Ltd
Smorgon Steel Tube Mills
South Pacific Industrial
Southern Institute of Technology
Southern Quality Assurance Ltd
Speedfloor NZ
Steel & Tube Stainless
Steel Detailing Services Ltd
Steel Drafting Ltd
Steel Pencil Limited
Steeltech Services
Supreme Steel Products Ltd
Survey NZ Ltd
Tank Test Laboratories Ltd
TOFT Inspection Services Ltd
Traytec (NZ) Ltd
UCOL
Unitec Applied Technology Institute
University of Auckland
Vector Limited
Victoria University of Wellington
VT Fitzroy Limited
W J Cadzow & Associates
Wakatipu Institute of Technology
Walker Group Ltd
Watty (NZ) Ltd
Weldwell New Zealand
Wellingtin Institute of Technology
Western Institute of Technology at Taranaki
X-Ray Laboratories Ltd
Ordinary Members - Engineering Consultants

Abacus Engineering Ltd
Abuild Consulting Engineers
AC Consulting Group Ltd
Airey Consultants Ltd
Alan Raye Consultants Ltd
Allan Escourt Ltd
Antro Enterprise Limited
Apex Consultants
APR Consultants
Arnold & J ohnstone Ltd
Babbage Consultants Ltd
Base Consulting Engineers Ltd
Beca Carter Infrastructure Ltd
Belcher Industries Ltd
BHC Consulting
Blobex Burnett & Olliver Ltd
Blueprint Consulting Limited
Brian Carter Consulting Engineer Ltd
Brian J ones Engineering Ltd
Brian Wilson Consulting Engineer
Broadcast Communications Ltd
Brown & Thomson
Bruce Wallace Partners Ltd
Bruce White Consulting
BSK Consulting Engineers Ltd
Buchanan & Fletcher Ltd
Bucher-Alimentech Ltd
Buller George Engineers Ltd
Bycroft Petherick Ltd
C L C Consulting Group Ltd
Cameron Gibson & Wells Ltd
CDT Consultants Limited
Chambers Consultants Ltd
Champion Oulsnam Speirs Limited
Champion Sanders Consultants
Charles Consulting
Chester Consultants Ltd
CHP Wellington Ltd
Chris W Howell & Associates Ltd
City Solutions
Civil Engineering Tokoroa
Clearwater Construction
Clendon Burns & Park Ltd
CompuSoft Engineering Ltd
Connell Wagner Ltd
Creative Design & Draughting
Dainty Alderton & Associates
Davidson Partners Ltd
Davis Oglivie & Partners Ltd
Day Consultants
Derek Booth Consultancy Ltd
Design Engineering (SI) Ltd
Design Works (HB) Ltd
Dick J oyce Consultants Ltd
Dobbie Engineers Ltd
Dodd Civil Consultants
Don Thomson Consulting Engineers
Duffill Watts & King Ltd
Dunning Moore & Associates
Dunning Thornton Consultants Ltd
E Cubed Engineering Ltd
Emc2
EMPA Group Consultants Limited
Engineered Cold Systems Ltd
Engineering Design Consultants Limited
ETS Engineers Ltd
Fairclough and King Consultants Ltd
Fairley Engineering Ltd
Fletcher Construction - Engineering
Flo-Dry Engineering Ltd
Forbes Consultants
Fraser Thomas Limited
Frederick R Smith
Fulghum Limited
Garry Newton Ltd
GHD Ltd
Grant D Crook
Hadley & Robinson Ltd
Hanlon & Partners Ltd
Harding Consulting Engineers Ltd
Harrison Grierson Consultants Limited
Hawthorn Geddes Architects & Engineers Ltd
Hill Design Engineering Ltd
HLK | Jacob
Holmes Fire & Safety
Hugh Barnes Consultants Ltd
Independent Technology Ltd
| H L Little & Associates
| JAWA Structures Ltd
| NG Engineers Ltd
| John Snook Ltd
| Jones Gray Partners Ltd
| Joyce Consultants Ltd
| Kerry Dalzell & Associates Limited
| Kerslake & Partners
| Kevin O’Connor & Associates Ltd
| Knowles Consulting
| Lapish Enterprises
| Lewis & Barrow Ltd
| Lewis & Williamson
| Lewis Bradford & Associates Ltd
| Lyall Green Consultants Ltd
| M A Corkery & Associates Ltd
| MacDonald Barnett Partners Ltd
| Mainzeal Property & Construction Ltd
| Marino Consultants & Associates
| Markplan Consulting Ltd
| Martin Meyers Structural Engineer
| Massey Design Ltd
| Materials Engineering Services Ltd
| Matrix Applied Computing Ltd
| Maunsell Ltd
| Mechanical Technology Ltd
| Metal Test Ltd
| MHI Design Ltd
| Mighty River Power Limited
| Milward Finlay Lobb Ltd
| Mitchell Vranes Consulting Engineers
| Mobil Oil New Zealand Limited
| MSC Consulting Group Ltd
| MTEC Consultants Ltd
| Murray Jacobs Ltd
| MW Hamilton Ltd
| MWH New Zealand Ltd
| Nagel Consultants Ltd
| Nancekivell Cairn Ltd
| Novare Design Ltd
| OCEL Consultants NZ Ltd
| O’Loughlin Taylor Spence Ltd
| Opus International Consultants Ltd
| OSA Silvester Clark Ltd
| Paul Gallatly Consulting Engineer
| PB Power
| Peter Radley Consultants Ltd
| Peter Walker Consultants Ltd
| Peters and Cheung Ltd
| PFP Systems (NZ) Ltd
| Plant & Platform Consultants Ltd
| Plumb Ltd
| Port of Tauranga Limited
| Powell Fenwick Consultants Ltd
| Protocold Services Ltd
| Q Designz Limited
| R B Knowles & Associates Ltd
| R D Sullivan
| R J Nelligan & Associates Ltd
| R W & V Roberts Consultancy
| Ralph Gillard Consulting Co Ltd
| Randall & Associates
| Redco NZ Ltd
| Richardson Stevens Consultants (1996) Ltd
| Robbin Frengley Consulting Engineer
| Romulus Consulting Group Ltd
| RPH Consulting Limited
| Ruamoko Solutions Ltd
| Sawrey Consulting Engineers Ltd
| Sigma Consultants Ltd
| Sinclair Knight Merz Ltd
| Spencer Holmes Ltd
| Stephen R Mitchell Consulting
| Stiffle Hooker Ltd
| Stiles & Hooker Ltd
| Structex Limited
| Structure Smith Ltd
| Structureflex Limited
| Thorsburn Consultants NZ Ltd
| Thorne Dayer Structures
| Tonkin & Taylor Ltd
| Tony Tay & Associates Ltd
| Transfield Worley Ltd
| Transport Design & Certification
| Transport Technology Ltd
| Transitech Dynamics Ltd
| Truebridge Callender Beach
| TSE Group Ltd
| Tse Taranaki & Associates Limited
| TSV Consultants Ltd
| Tyndall & Hanham Ltd
| URS New Zealand Ltd
| Verstoep & Taylor Ltd
| W Stringer Consulting
| Warkato Engineering Design Ltd
| Waitakere City Council
| Weber Consulting
| WH NF J ohnston Ltd
| William George Cassidy
| Ziglani Engineering Limited
Associate Members

A & S Engineering Ltd
ABB Power Ltd
Accurate Engineering Limited
Advanced Training Academy
Ammes Ltd
Airwork (NZ) Ltd
All Steel Services Ltd
Alloy Yachts International Limited
ALRO Truck Smash Repairs
Akton Northern Wagons
ANDAR-ADM Group Ltd
APV New Zealand Ltd
ATCO Controls Ltd
ATI Engineering Ltd
Awesome Awnings Ltd
Axiam Engineering Limited
Bailey Engineering Ltd
Baker Cranes Ltd
Bay of Plenty Polytechnic
Bedford Engineering Ltd
Best Bars Ltd
Bill Bailey Engineering Ltd
Blumen Equipment Ltd
Bradken Dunedin
Bridgeway Steel Ltd
Brightwater Engineers Ltd
Bromley Steel
C J Saunders Engineering Ltd
Calder Stewart Steel
Cambridge Welding Service (1953) Ltd
Cameron Bros Engineering Co Ltd
Campbell Tube Products Ltd
Canco
Canco Engineering Ltd
CCL Barber Ltd
Century Resources Ltd
CFM Engineering Ltd
Clough Agriculture Ltd
Colgate-Falmoive Ltd
Consolidated Engineering Company Ltd
Contract Connections Ltd
Contra-Shear Separation Technologies Ltd
Courtney Engineering
Croucher & Crowder Engineering Co Ltd
Culham Engineering Co
D A Ireland (1990) Ltd
D R Howells Engineering Co Ltd
Dan Cosgrove Ltd
Dave Smith Structural Steel
Dawn Group Ltd
Domett Trailers
DSK Engineering Ltd
Eastbridge Ltd
Eastern Institute of Technology
Ede Engineering
Enterprise Steel
Eric Paton Ltd
Etech Industries NZ Ltd
Fairbrother Industries Ltd
Fairfax Industries Ltd
Farmex Hawkes Bay Ltd
Fisher & Paykel Production Machinery Ltd
Flotech Limited
Fruehauf Trailers
Fuequip Services Ltd
G T Liddell Contracting Ltd
Gamman Industrial Componentry Ltd
General Engineering North Shore
George Grant Engineering
Gilles Foundry
Gisborne Development Incorporated
Gray Construction
Hayes International
Hino Distributors (NZ) Ltd
Howick Engineering Ltd
Iain Codling Stainless Steel
Ipsco Ltd
Irwin Industrial Tool Company Ltd
J & D McLennan Ltd
J & J Niven Engineering Ltd
J P Marshall & Co Ltd
J ay Cee Welding Ltd
J etweld Engineering
Keith M J Adams
Kenneth Engineering Ltd
Kupu Engineering Ltd
Lakeland Steel Products Ltd
Leighs Construction Ltd
Leonard Products Ltd
Longhare Engineering Ltd
Mace Engineering Ltd
Machine Part Welding Ltd
McCarthty Engineering Ltd
McEwan Engineering
Mecal Ltd
Metso Minerals (Matamata) Ltd
Mike Christie Sheetmetals Ltd
Millsen Mechanical (NZ) Ltd
Modern Transport Engineers Ltd
Moooloo Stockcrates Ltd
Morgan O’Shea Engineering
Morrow Equipment Co (NZ)
Mouats Engineering Ltd
MSC Engineering
Mulcahy Engineering Ltd
Mullan and Noy Ltd
Murray Landon
Naldner & Biddle Group Ltd
NAPIER Engineering & Contracting Ltd
NDA Engineering Group
Necklen Engineering Ltd
Nelson Reliance Eng Co Ltd
Nelson Stud Welding Ltd
Nepean Engineering Ltd
Nemac Industries Ltd
NZMP Kauri
OTENZ Group
P & C Stainless Steel
Pacific Timber Engineering Ltd
Parr & Co Limited
Patchel Industries Ltd
Piko Transport Engineering
Piicher Engineering Ltd
Pipework Specialist Ltd
Progressive Hydraulics
Pyramid Engineering
R & R Contractors Limited
Reels Stainless
Refrigeration Engineering Co Ltd
Renold New Zealand Ltd
Rex Barnes Engineering
Roadmaster Trailers Ltd
Rocktec Ltd
Royal New Zealand Air Force
SAFE Engineering
Salhouse Boatbuilders Ltd
Sensation Yachts Ltd
Service Engineers Ltd
Sheetmetals (1983) Ltd
Ship Constructors Ltd
Snorkel Elevating Work Platforms
South Fence Machinery Ltd
Southern Cross Engineering Limited
Specialised Container Services
Specialist Energy Engineering
Developments
Spirax Sarco Limited
Stafford Engineering Ltd
Stainless Down Under
Stainless Engineering Co Ltd
Sta-Tec Manufacturing
Steel Structures Ltd
Steelbro NZ Ltd
Stevensons Structural Engineers Ltd
Stewart & Cavalier Ltd
Street Marine Ltd
Stud Welding New Zealand Ltd
Tasman Engineering Company
The 4711 Training Centre
Tidd Ross Todd Ltd
Transfleet Equipment Ltd
Trintechn New Zealand Ltd
Truweld Engineering Kerikeri Ltd
Twig Industries
Ulrich Aluminium Co
Verissimo Engineering Ltd
Wade Engineering Ltd
Waratah NZ Limited
Warner & Mould Construction Ltd
Webs Industrial Group
Webforge NZ
Weld IT Ltd
Weld Fabrication Engineering Ltd
Weld Tests Hawkes Bay
Wells & Boe Ltd
Wilson Bros Engineering Ltd
Wilson Precast Construction Ltd
Zealsteel Ltd

Affiliate Members

C J Walls Pty Ltd
EDL Fasteners Limited
Fletcher Easysteel
Steel & Tube Holdings Ltd
TBS Farmsworth Ltd
Vulcan Steel Ltd
Welding Technology Inst of Australia

Reciprocal Members

American Welding Society
Australian Steel Institute
British Constructional Steelwork Association (BCSA)
Canadian Inst of Steel Construction
Competenz
DVS - German Welding Society
NZ Institute of Economic Research
New Zealand Engineering Federation
Power Crane Association of NZ
Steel Construction Institute (UK)
### HERA Staff

#### Administration
- **Director:** Dr Wolfgang Scholz
- **Accounts Officer:** Kam Subramani
- **Inspection & Quality Control Centre (I & QC Centre) Manager:** Peter Hayward

#### HERA Information Centre (HIC)
- **Manager:** Brian Low
- **Publications Officer:** Pauline Hayward
- **Librarian:** Sally Geard
- **Receptionist:** Raewyn Porter

#### Structural Division
- **Senior Structural Engineer:** Dr Charles Clifton
- **Finite Element Analyst:** Nandor Mago
- **Structural Engineer:** Raed El Sarraf

#### New Zealand Welding Centre
- **Manager:** Dr Mikhail Karpenko
- **Welding Engineer:** Alan McClintock
- **Materials Engineer:** David Wrightson
- **Mechanical Engineer:** Holger Heinzel

#### Steel Construction New Zealand (SCNZ)
- **Manager/Structural Engineer:** Clark Hyland
- **Communications Officer:** Roy Kane
- **Senior Structural Engineer:** Alastair Fussell
- **Structural Engineer:** Xiao Huantian

#### Industry Development Support (under contract)
- **Management & Quality Services Ltd:** Norm Stannard

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**Attendees of the International Welding Specialist course at HERA House**

**Training is a key HERA function**