

# RISING DAMP: CAUSES AND TREATMENT



## **Donald Scott**

The Pratt Foundation/ISS Institute Overseas Fellowship

Fellowship supported by The Pratt Foundation



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# Executive Summary

The purpose of this Fellowship was to study at first hand the processes undertaken to accurately diagnose the causes, control and treatment of rising damp, particularly in heritage buildings.

A key component of the study was to investigate the English model of training professionals, artisans and tradespeople involved in conserving and repairing heritage buildings, and investigate strategies for communication between tradespeople and architects, heritage consultants and engineers, in a holistic approach.

In Australia, rising damp and salt attack are well understood by heritage organisations such as Heritage Victoria and the National Trust of Australia, together with conservation architects and heritage advisors. It is recognised that there are skill deficiencies and therein, a major shortage of skilled artisans and tradespeople with the knowledge to properly diagnose, treat and control the problem.

The Fellowship program in England included training courses, site visits and meetings, which were significant in providing information and inspiration.

There is widespread consensus among heritage professionals including architects, heritage consultants, surveyors and conservation officers for the need to adopt a 'back to basics' holistic approach to damp diagnosis rather than sales-led 'solutions'.

The overseas program was purposefully designed to explore the identified skills and knowledge deficiencies and obtain the information necessary to return to Australia equipped with the knowledge and ideas to enable the Fellow to advise, instruct, promote and improve the accurate diagnosis of the cause of rising damp and carry out appropriate treatment.

The information and knowledge obtained will be shared through workshops, conferences, education programs and publications.

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# *Abbreviations and Acronyms*

ACCVETP	Australia-China (Chongqing) Vocational Educational Training Project
AICCM	Australian Institute for the Conservation of Cultural Material
CPSISC	Construction and Property Services Industry Skills Council
DPCD	Department of Planning and Community Development
ICOMOS	International Council on Monuments and Sites
ISS Institute	International Specialised Skills Institute
ITAB	Industry Training Advisory Board
ITES	International Trades Education Symposium
OTTE	Office of Training and Tertiary Education (Skills Victoria)
SPAB	The Society for the Protection of Ancient Buildings
TAFE	Technical and Further Education
VET	Vocational Education and Training

# Acknowledgments

Donald Scott would like to thank the following individuals and organisations who gave generously of their time and their expertise to assist, advise and guide him throughout the Fellowship program.

## **Awarding Body - International Specialised Skills Institute (ISS Institute)**

**We know that Australia's economic future is reliant upon high level skills and knowledge, underpinned by design and innovation.**

The International Specialised Skills Institute Inc (ISS Institute) is an independent, national organisation, which has a record of nearly twenty years of working with Australian industry and commerce to gain best-in-the-world skills and experience in traditional and leading-edge technology, design, innovation and management. The Institute has worked extensively with Government and non-Government organisations, firms, industry bodies, professional associations and education and training institutions.

The Patron in Chief is Sir James Gobbo AC, CVO. The ISS Institute Board of Management is Chaired by Noel Waite AO. The Board comprises Franco Fiorentini, John Iacovangelo, Lady Primrose Potter AC and David Wittner.

Through its CEO, Carolynne Bourne AM, the ISS Institute identifies and researches skill deficiencies and then meets the deficiency needs through its *Overseas Skill Acquisition Plan (Fellowship Program)*, its education and training activities, professional development events and consultancy services.

Under the Overseas Skill Acquisition Plan (Fellowship Program) Australians travel overseas or international experts travel to Australia. Participants then pass on what they have learnt through reports, education and training activities such as workshops, conferences, lectures, forums, seminars and events, therein ensuring that for each Fellowship undertaken many benefit.

As an outcome of its work, ISS Institute has gained a deep understanding of the nature and scope of a number of issues. Four clearly defined economic forces have emerged out of our nearly twenty years of research. The drivers have arisen out of research that has been induced rather than deduced and innovative, practical solutions created - it is about thinking and working differently.

### **A Global Perspective. 'Skills Deficiencies' + 'Skills Shortages'**

Skill deficiencies address future needs. Skill shortages replicate the past and are focused on immediate needs.

Skill deficiency is where a demand for labour has not been recognised and where accredited courses are not available through Australian higher education institutions. This demand is met where skills and knowledge are acquired on-the-job, gleaned from published material, or from working and/or study overseas. This is the focus of the work of ISS Institute.

There may be individuals or firms that have these capabilities. However, individuals in the main do not share their capabilities, but rather keep the IP to themselves; and over time they retire and pass way. Firms likewise come and go. If Australia is to create, build and sustain Industries, knowledge/skills/understandings must be accessible trans-generationally through nationally accredited courses and not be reliant on individuals.

Our international competitors have these capabilities as well as the education and training infrastructure to underpin them.

Addressing skill shortages, however, is merely delivering more of what we already know and can do to meet current market demands. Australia needs to address the **dual** challenge – skill deficiencies and skill shortages.

# Acknowledgments

Identifying and closing skills deficiencies is vital to long-term economic prospects in order to sustain sectors that are at risk of disappearing, not being developed or leaving our shores to be taken up by our competitors. The only prudent option is to achieve a high skill, high value-added economy in order to build a significant future in the local and international marketplace.

## The Trades

The ISS Institute views the trades as the backbone of our economy. Yet, they are often unseen and, in the main, have no direct voice as to issues which are in their domain of expertise. The trades are equal, but different to professions.

The ISS Institute has the way forward through its 'Master Artisan Framework for Excellence. A New Model for Skilling the Trades', December 2004. The Federal Government, DEEWR commissioned ISS Institute to write an Australian Master Artisan School, Feasibility Plan.

In 2006, ISS Institute Inc. set up a new ISS advisory body, the **Trades Advisory Council**. Members are Ivan Deveson AO; Martin Ferguson AM, MP, Federal Labor Member for Batman; Geoff Masters, CEO, Australian Council of Educational Research; Simon McKeon, Executive Chairman, Macquarie Bank, Melbourne Office; Richard Pratt, Chairman, Visy Industries and Julius Roe, National President Australian Manufacturing Workers' Union.

## Think and Work in an Holistic Approach along the Supply Chain - Collaboration and Communication

Our experience has shown that most perceive that lack of skills is the principal factor related to quality and productivity. We believe that attitudes are often the constraint to turning ideas into product and a successful business; the ability to think laterally, to work and communicate across disciplines and industry sectors, to be able to take risks and think outside the familiar, to share – to turn competitors into partners.

Australia needs to change to thinking and working holistically along the entire Supply Chain; to collaborate and communicate across industries and occupations - designers with master artisans, trades men and women, Government agencies, manufacturers, engineers, farmers, retailers, suppliers to name a few in the Chain.

## 'Design' has to be seen as more than 'Art' discipline – it is a fundamental economic and business tool for the 21st Century

Design is crucial to the economic future of our nation. Australia needs to understand and learn the value of design, the benefits of good design and for it to become part of everyday language, decision making and choice.

Design is as important to the child exploring the possibilities of the world, as it is to the architect developing new concepts, and as it is to the electrician placing power points or the furniture designer working with a cabinet-maker and manufacturer. As such, design is vested in every member of our community and touches every aspect of our lives.

Our holistic approach takes us to working across occupations and industry sectors and building bridges along the way. The result has been highly effective in the creation of new business, the development of existing business and the return of lost skills and knowledge to our workforce, thus creating jobs - whereby individuals gain; industry and business gain; the Australian community gains economically, educationally and culturally.

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# Acknowledgments

## Fellowship Supporter

The Pratt Foundation was established in 1978 by Richard and Jeanne Pratt with the shared vision of supporting charitable enterprises and adding value to philanthropy. The Foundation is now one of the largest private sources of philanthropy in Australia. In the words of its mission statement, it aims “*to enrich the lives of our community*” and, in the words of Jeremiah, it works to fulfil this aim in a spirit of “*kindness, justice and equity*”.

## Supporters

Scott would like to acknowledge the support of his employer, Holmesglen Institute of TAFE:

- Bart Sheen, Manager, Trowel Trades, Holmesglen Institute of TAFE

In addition, the following provided information and support:

- Peter Lovell, Lovell Chen Architects and Heritage Consultants
- Bryce Raworth, Conservation Architect
- Brian Thompson, Shamrock Brickwork, Heritage Tuck Pointers
- Heritage Victoria
- National Trust of Australia (Victoria)
- David Young OAM, ISS Institute ‘1996 Specialised Skills Training Fellowship’ winner

## Australian Organisations Impacted by this Fellowship

- Australian Stone Advisory Association
- Australian Institute of Architects
- Australian Institute for the Conservation of Cultural Material (AICCM)
- Construction and Property Services Industry Skills Council (CPSISC)
- Department of Environment and Heritage, South Australian Government
- Department of Planning and Community Development (DPCD), Victorian Government
- Firms including stonemasons, bricklayers, heritage architects
- Heritage Council of Victoria
- Heritage Victoria
- Australia ICOMOS (International Council on Monuments and Sites)
- Local councils
- Master Builders Association
- National Trust of Australia (Victoria)
- NSW Heritage Office
- TAFE institutes such as Holmesglen Institute of TAFE
- Suppliers including brick companies
- Universities - architect and historic courses

# About the Fellow

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Starting out as an apprentice bricklayer, Scott has developed substantial experience in both domestic and commercial sectors over 34 years. While Scott works with both new builds and restorative projects, he has developed a passion for heritage buildings and decorative brickwork.

In 2005 and 2006 Scott worked in China (Chongqing) as a short term advisor (Construction) for the Australia-China (Chongqing) Vocational Educational Training Project (ACCVETP).

ACCVETP is a bilateral project funded by the Government of the Peoples Republic of China and the Australian Government to develop a Vocational Education and Training (VET) system.

Scott is currently teaching at Holmesglen Institute of TAFE where he teaches bricklaying and develops teaching and learning materials.

A father of three children, Scott's interests include travelling, gardening, building and renovating homes.

Scott is committed to help preserve our precious heritage buildings by educating, advising and sharing his knowledge and to take building care and conservation into the future.

# Aim of the Fellowship

The aim of this Fellowship was to gain first-hand experience of the processes undertaken to accurately diagnose the causes and control and treatment of rising damp, particularly in heritage buildings.

## **Specific Areas of Study**

- Investigate the English model of training professionals, artisans and tradespeople involved in conserving and repairing heritage buildings
- Investigate strategies for communication between tradespeople, architects, heritage consultants, and engineers that adopt a holistic approach
- Develop ongoing education programs through ISS Institute and other educational institutions
- Develop strategies to raise consumer awareness of causes of and appropriate treatment of dampness

# The Australian Context

Rising damp and salt attack in buildings is a worldwide problem, particularly in heritage buildings. It is a constant problem for many older and historic buildings in Australia and is frequently misdiagnosed and often treated incorrectly.

Heritage buildings in Australia are relatively young compared to those in Europe, however similar problems exist with the changing use and function of buildings worldwide.

Heritage buildings that may have survived in Australia for up to two hundred years in many instances have deteriorated significantly in recent decades, particularly masonry structures such as stone, brick and mortar.

One of the major causes of decay is rising damp and increasingly, salt attack. Since the mid 19th century rapid changes in construction methods occurred and a number of new building materials were introduced. Many of these materials are perfectly suitable for contemporary buildings, but have been found to be incompatible in old buildings.

Rising damp and salt attack are well understood by heritage organisations such as Heritage Victoria and the National Trust of Australia, together with conservation architects and heritage advisors. It is recognised that there are skill deficiencies and therein, a major shortage of skilled artisans and tradespeople with the knowledge to properly diagnose, treat and control the problem.

Consumer awareness of causes and treatment of rising damp appears to vary widely. It is generally recognised in the construction industry that the number one problem, or fault in buildings, is water penetration and dampness.

Modern buildings rely on keeping water out by a system of barriers, whereas the basic concept behind the construction of old buildings is that moisture entering the building should be able to evaporate.

An appreciation of how the basic construction of old buildings differs from that of modern buildings will help ensure appropriate remedial works are carried out and prolong the life of the building.

Owners and managers of more significant heritage properties, whether in public or private ownership, may apply for grants for repairs, which typically involve the advice or supervision of a heritage architect or heritage consultant. In these cases it would be expected that a thorough investigation of the underlying cause would be conducted and then appropriate remedial works carried out.

Many owners of older residential buildings with rising damp problems seek advice from their friends or peers with a similar property to discuss rising damp problems. Others may refer to the 'yellow pages' or the internet to seek information about rising damp and engage a contractor who may treat the symptoms of the rising damp. In many instances this may be simply masking the underlying cause of the problem.

The most common treatment for rising damp in Australia today is the use of chemical injection into the affected masonry. Chemical injection companies are often the first port of call for consumers and whilst chemical injection may occasionally be an appropriate treatment, all too often it appears to be recommended to an uninformed consumer when a far more effective and considerably cheaper alternative treatment is available.

# The Australian Context

Examples can be identified where chemical injection treatment practitioners have clearly installed the chemical barrier in the wrong location. This method not only does nothing to solve the rising damp problem, but may rather compound the dampness problem and cause other associated problems, ie: conditions conducive to termite infestation.

Whilst it must be clearly recognised that most chemical injection companies in Australia are reputable and adopt good business ethics, it appears to be common practice by some to recommend the installation of a chemical barrier as a 'cure-all' treatment. This practice may be influenced by either a desire to sell their proprietary product and services, or lack of knowledge of causes of dampness.

The consequence of either misdiagnosed, inappropriate or partial treatment can often mask the root cause of the dampness, resulting in a 'ticking time bomb' dampness problem which will cause extensive deterioration to the building fabric and expensive repair.

The introduction of cement as a building material in Australia at the start of the 20th century transformed construction techniques. Whilst cement is a very important construction material in modern buildings and valued for its engineering strength, the use of cement in repairs to masonry in older buildings can often inhibit the ability of the building to 'breathe', resulting in extensive damage and expensive repairs.

Many building professionals are trained and experienced only in modern building construction methods and generally this makes them unable to deal with an old building satisfactorily.

The knowledge amongst tradespeople of traditional construction methods and materials used in old and heritage buildings has deteriorated over the last half century to the point where very few have an understanding of the damage they are causing these priceless buildings by using inappropriate materials when carrying out repairs.

Examples of modern inappropriate repairs to old masonry buildings include bricklayers and stonemasons using cement based mortars when re-pointing mortar joints and plasterers using cement based render.

More damage can be caused to old buildings by unskilled tradespeople using incorrect materials in several short years than the buildings' history of 120 years plus.

In order to prevent further deterioration and damage to precious heritage buildings, it is essential that repairers have a thorough knowledge of possible causes of dampness, including rising damp, so as appropriate remedial works can be performed.

# Skills Deficiencies

Heritage buildings in Australia are relatively young and fewer in number compared with those in Europe.

Within the area of heritage buildings the basics of rising damp are reasonably well understood by conservation practitioners, however there is a major gap in the availability of skilled artisans and tradespeople to assess issues and undertake work.

These skill and knowledge deficiencies include:

- Understanding the range of causes of rising damp
- Analysing and assessing the causes of rising damp
- Understanding the effect and treatment of salt attack
- Understanding the appropriateness and implications of different treatments
- Understanding the need for associated works
- Lack of awareness or understanding of the Burra Charter when repairing or conserving heritage buildings
- Understanding the high importance of traditional masonry construction methods and materials in heritage buildings

## Current Education and Training

At the present time there is very little training delivered anywhere in Australia dealing with the causes and treatment of rising damp other than limited specialist courses offered by some TAFE institutes to tradespeople. In addition, there is some in-house training given by companies, but often limited to the application of their proprietary products, ie: chemical injection. Whilst their treatment in many cases may be appropriate, there needs to be a more holistic approach taken in thoroughly diagnosing the cause, appropriateness and implications of various treatments and to understand the need for associated works. Further consideration needs to be given to the use of their proprietary products, eg: chemical injection methods.

The University of Canberra offers an 11 day summer school – *The Conservation of Traditional Buildings*, which is co-ordinated by David Young OAM (ISS Institute '1996 Specialised Skills Training Fellowship' winner, sponsored by AMF, the Palladio Foundation and the University of Canberra, Cultural Heritage Research Centre<sup>1</sup>).

If the skill deficiencies are not addressed, and tradespeople and artisans are therefore not empowered with the knowledge of the construction principles of old buildings, then our priceless heritage buildings will not simply crumble over time; their demise will be rapidly accelerated.

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<sup>1</sup> David Young OAM is a heritage consultant specialising in building materials conservation. With a background in geology he has been involved in the diagnosis and repair of historic buildings and sites for over twenty five years. In addition to the the University of Canberra summer school, he undertakes a range of other teaching and training activities. He has contributed to international courses on wood conservation in Norway, and has run short courses on building conservation in South Africa and New Zealand. He was convenor of the Australia ICOMOS working group that undertook major revisions to the Burra Charter in 1995-1999. He has chaired a Heritage Advisory Panel for the Port Arthur Historic Site and the New South Wales Heritage Council's Technical Advisory Group. He is a member of the Heritage Council of Victoria's Technical Advisory Committee.

Young is the author of *Salt attack and rising damp: a guide to salt damp in historic and older buildings*, published by the Heritage Council of NSW • Heritage Victoria • South Australian Department for Environment and Heritage • Adelaide City Council, November 2008. Topics include rising damp and salt attack. The report is aimed at architects, artisans, conservators, heritage advisers and tradespeople.

[http://www.heritage.nsw.gov.au/docs/HVC014\\_Salt\\_Damp\\_tech\\_guide\\_FA\\_web.pdf](http://www.heritage.nsw.gov.au/docs/HVC014_Salt_Damp_tech_guide_FA_web.pdf)

# The International Experience

The overseas program was purposefully designed to explore the identified skills and knowledge deficiencies and obtain the information necessary for Scott to return to Australia equipped with the knowledge and ideas to enable him to advise, instruct, promote and improve the understanding of the understanding of causes and treatment of rising damp in heritage buildings to those in the trades.

## Program Content

The Fellowship program encompassed visits to many establishments in England. Activities were planned prior to departure. The following training course, site visits and meetings were significant in providing information and inspiration.

## Training Course: The Repair of Old Buildings

### A Course of Lectures and Visits

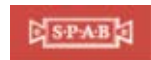
*The Society for the Protection of Ancient Buildings, (SPAB) Spitalfields, London*

*To repair old buildings well, they must be understood. Appreciation of a building's particular architectural qualities and a study of its construction, use and social development are all enlightening. These factors also help us to see why decay sets in and how it may be put right.*

(Reference: [www.spab.org.uk/what-is-spab/spabs-purpose](http://www.spab.org.uk/what-is-spab/spabs-purpose))

*The SPAB was nicknamed "antiscrape", and this remains an essential part of its approach to the care of old buildings, whether cottage or cathedral. By limiting work to what is essential, and using well proven repair methods, the Society's approach helps to protect the characteristics that make each old building unique and special. "We are only trustees for those who come after us", wrote William Morris (founder of SPAB in 1877) and SPAB-minded conservative repairs help to ensure that old buildings are handed on to future generations unharmed.*

(Reference: [www.spab.org.uk/supporting-the-spab/legacies](http://www.spab.org.uk/supporting-the-spab/legacies))



Participants of this course included architects, surveyors, structural engineers, planners, conservation officers, builders and craftsmen. A total of 50 participants attended the six day training course.

The objective of the course was to illustrate by lectures and practical examples, the manner in which the conservative repair of old buildings can be achieved. The methods demonstrated include those evolved and proved by the Society over almost 130 years.

The lecturers were all practicing architects, approximately fifteen in total, with various backgrounds, and other experts with extensive experience in this field of practice.

Subjects covered included:

- Principles of repair and conservation
- Damp
- Lime – the material and its use in repair
- Traditional masonry

# The International Experience

- Structural repair – an engineer's view
- Plasters and renders – repair and conservation
- Conservation and repair of stone and brickwork
- Timber – it's nature, decay mechanisms and remedial treatment
- Various case studies
- Site visits

The two day tour and other site visits formed an integral part of this course and provided the opportunity to examine work in progress on 'live' projects first-hand, involving a wide variety of historic buildings.

Sites visited in the Somerset, Devon and London tour included the following locations.

## **Site Visit: Taunton Castle** *Taunton, Somerset*



Taunton castle was built of stone in the 13th century. However, the castle was continually developed so that parts of the sites are as recent as the 20th century.

Major work is underway to conserve Taunton Castle and modernise the Somerset County Museum located within it.

# The International Experience

Key defects of the castle buildings as identified by the consulting architect, T Greensmith included:

- The presence of rising/penetrating damp, together with the risk of associated decay and beetle infestation to concealed timbers, including timber panelling
- Stone decay/failure and the presence of dense, impermeable mortars and plasters.

## Site Visit: **Whitestaunton Manor** *Whitestaunton, Somerset*

Whitestaunton Manor is a grand residential property constructed in the 15th century and was considerably enlarged in the 16th, 17th and 19th century.

Key defects of the buildings as identified by the consulting architect, J Hibbert, included:

- Stone decay/failure and the presence of dense, impermeable mortars and plasters.



## Site Visit: **Silverton Park Stables** *Silverton, Devon*



Silverton Park Stables, together with Silverton Park Farmhouse, was partly constructed from 1830-45. The immense Grecian palace and stables were never completed and the main house was demolished in 1900. The remaining stables consist of a neo-classical style quadrangular plan with four porticos and are constructed of brick with Portland stone dressing and hipped slate roofs. For many years the stables were used as a farm, with a house in one corner. In 1986 they were purchased by the Landmark Trust which is now currently adapting the building.

# The International Experience

The project raises some interesting philosophical issues – not least whether or not the rough brickwork should be given a render finish in line with the original design intention, or whether the exposed brickwork remain as a ‘snapshot of the history of an incomplete structure’.

The SPAB principle of ‘repair not restoration’ and the philosophy behind the Burra Charter may strengthen the case for leaving the exposed façade of the building.



*This photo shows exposed brickwork on ‘incomplete’ façade of Silverton Park Stables*



*A section of lime mortar repointing and mould from leaking drain down pipe*

## Site Visit: Dunster Castle *Dunster, Somerset*



The original Dunster Castle was built in the 11th century, and the gatehouse erected in 1420. No trace of the original Norman castle remains. The present castle buildings were thoroughly reconstructed from circa 1617 onwards and then refurbished in the 18th century.

# The International Experience



Major roofing work is currently taking place with about 35% of the main castle scaffolded and the roof removed of its coverings.

**Site Visit: The Tower of London** *Tower Hill, London*



# The International Experience

Her Majesty's Royal Palace and Fortress (more commonly known as the Tower of London) is located on the north bank of the River Thames. The White Tower was built by William the Conqueror in 1078. The Inmost Ward, the Inner Ward and the Outer Ward were built in the 13th century.



*Tower of London, inner ward structure*



The Tower of London is undergoing repairs to masonry and re-pointing of lime mortar joints. Decayed and damaged masonry is being replaced with similar. Lime mortar used for pointing, utilising traditional materials and allowing the building to continue to 'breathe'.

## **Site Visit: Copped Hall** Essex



Copped Hall is an ancient hunting park and rural estate, dating from the 12th century. The present mansion was built in the mid 18th century. The house was gutted by fire in 1917 and remained in a dilapidated condition until 1993, when the Copped Hall Trust was formed and purchased the property. The property is being restored for community and educational benefit.

# The International Experience

The vines on the wall's surface (photo on previous page) have no relationship to rising damp. The building has been without a roof since being gutted by fire in 1917, leaving the building in a derelict state since that time.

## **Some Closing Comments on SPAB**

It is the Fellow's view that the philosophy of SPAB is reflected in the Burra Charter and broadly speaking, recommends using traditional materials and techniques, replacing 'like with like' and doing "as much as necessary and as little as possible" to maintain the essential fabric of heritage buildings.

The objective of undertaking the SPAB course was to obtain further skills and knowledge of masonry repairs in heritage buildings and further understanding the causes of rising damp and appropriate treatments. The role and working relationship between the 'specifiers' (architects, heritage consultants and surveyors) and the tradespeople and artisans is also an important relationship to understand.

The guest lecturer, Philip Hughes, chartered building surveyor, MRICS (building surveyor of Philip Hughes and Associates), on the subject of dampness, rejected the term 'rising damp' out of hand. He stated that genuine rising damp is a misnomer, with genuine rising damp so rare that the condition should simply be referred to as dampness.

Hughes did go on to emphasise the importance to conduct a thorough investigation of the causes of dampness in old buildings and treating it accordingly.

Through presentations and conversations, the Fellow was made aware that there are differing understandings of the term rising damp.

## **Industry Meeting: Graham Coleman**

*Independent Consultant, Rising Damp and Timber Infestation, Remedial Technical Services, Consultancy and Laboratory Services, Dorset*

Coleman has over 30 years of investigations and laboratory experience. Remedial Technical Services provide evaluation of damp/condensation, timber infestation and dry rot/wet rot infestation in buildings. Investigations may be just investigatory, for disputes or for expert witness purposes in litigation.

Remedial Technical Services also provide specialist training courses in dampness and timber decay/infestations for surveyors, local authorities, housing associations and anyone with an interest in timber and dampness problems in buildings.

Coleman is widely respected for his knowledge as an investigator into dampness in old and contemporary buildings. He is much in demand as an expert witness in litigation cases typically involving incorrect dampness treatments, poor quality workmanship and incorrect remedial practices often carried out by tradespeople with little or no knowledge of the fabric of old buildings, resulting in the accelerated deterioration of the structure.

At the time of time of visiting, Coleman was investigating the cause of water penetrating through the cavity wall of a residential property. The owners had commenced a civil action against the builder for £40,000 to rectify alleged poor quality repairs for a dampness problem.

# The International Experience

From conversations with Coleman it appears that, on occasion, there arises litigation in the United Kingdom, particularly involving local councils who are responsible for administering repairs to their vast property holdings. Many of these civil actions involve incorrect treatment for dampness and subsequent associated building damage.

If Australia is to prevent unnecessary litigation and a waste of money on preventable legal processes, it is imperative that tradespeople have the knowledge and skills necessary to repair old buildings.

## Industry Meeting: Dr Gerard Lynch

*Internationally acclaimed and highly respected historic brickwork consultant, master bricklayer, educator and author. Gillingham, Dorset.*

Lynch is widely respected as an expert on heritage brickwork. He is well known for emphasising the importance of tradespeople involved in repairs to masonry on old buildings, having a thorough knowledge and understanding of the materials and construction techniques.

Whilst Lynch does not claim to be an expert on rising damp treatments, including chemical treatment, his knowledge on heritage brickwork is second to none.

Lynch is passionate in his belief of the value of skilled training from apprentice progressing to tradesman to master tradesman and artisan. Further information is available on his website: <http://www.brickmaster.co.uk/index.htm>

An extract of a speech by Dr Lynch (*Putting Value Back Into Craft Education – ITES Keynote Speech, 6 October 2005*) is reproduced below.

*“A craft is learned and refined through years of dedicated study and relevant full-time practice, observing and being surrounded by those more proficient – learning through participation. This teaches the correct selection and use of tools, equipment, and materials and develops the ability to know what they are, and are not, capable of in the production of first-class work.*

*Quality craft education and training ensures a sound understanding of what underpins all craftsmanship – traditional and modern materials, tools, equipment, technology, and the skills of how to prepare and correctly apply them. It develops an enquiring mind that seeks to evaluate work and to reason – through the inevitable problems in the pursuit of quality work. Craft students need clearly defined high standards and ideals to aspire to, so that ultimately they will be capable of producing work that is equal to that created by their historic forebears. If made aware of these objectives from the outset of learning a craft and to readily see that this is realistically achievable, most will recognise the value of dedicated study and practice”.*

Lynch stated that other than those skilled in the area of masonry repairs to heritage buildings, many tradesmen, including bricklayers, plasterers and tilers have little understanding of the fabric of older buildings and the importance of correct repairs. He further added this lack of knowledge frequently results in incorrect repairs and subsequent damage to the buildings.

Lynch believes that the skills of tradespeople working on heritage buildings is typically acquired on site with little or no formal training available. This lack of skills training often results in inappropriate and damaging repairs.

# The International Experience

## Outcomes

There is unanimous consensus among heritage professionals including architects, heritage consultants, surveyors and conservation officers, for the need to adopt a 'back to basics' holistic approach to damp diagnosis rather than sales led 'solutions'.

A thorough investigation of damp buildings should include the usual suspects and either eliminate or identify the cause of the dampness. Appropriate treatment can then be carried out. Different categories and causes of dampness include:

- rising damp – caused by ground moisture absorbed into masonry walls
- falling damp – resulting from defective roofing and plumbing such as leaking gutters, flashings or pipes
- horizontal penetrating damp – caused by bridging of damp proof course and render, ground level adjacent to damp proof course raised higher than damp proof course, defective brick walls or incomplete mortar joints
- condensation – caused by inadequate ventilation or large variation between internal and external temperatures or humidity
- poor site drainage

In the *Recommendations* section following is a detailed listing of skills and information on the current course codes.

# Knowledge Transfer: Applying The Outcomes

Through the Fellowship opportunity Scott has gained valuable insights about how heritage building maintenance is carried out in the United Kingdom in regard to rising damp. In terms of knowledge transfer the Fellow has already passed on information and experience to various groups through the following:

- Conference: Ten Years On: The Great Lime Revival Conference, featuring Bob Bennett, MBE, United Kingdom. Rising Damp: presentation with discussion and questions.  
Date and location: 19 October, 2007 Como House, South Yarra.
- Workshop: Rising Damp in Heritage Buildings  
Short course run by Holmesglen Institute of TAFE, Short Courses. Course advertised each term and delivered according to demand.
- Published articles in newspapers (renovating/handyman) to inform general public/property owners/managers of potential causes of dampness in buildings.
- The Fellow is available for meetings with the relevant Industry Skills Council: the Construction and Property Services Industry Skills Council (CPSISC), for discussion on how the skills learned as a result of the Fellowship can best be integrated into the existing training packages.

# Recommendations

It is refreshing that heritage professionals in Australia adopt a far more conciliatory approach to examining causes and treatment to dampness in buildings than their English counterparts.

It was not the objective of the Fellow to analyse the effectiveness of various dampness treatments. That analysis is for others to explore and debate.

There are many examples in England and Australia of unnecessary and inappropriate treatments for dampness in heritage and modern buildings.

A more holistic approach to investigating all potential causes of dampness in buildings would in many cases result in the identification of the moisture source and the defect responsible, before the most cost-effective solution can be determined.

The misdiagnosis of rising damp and the general application of particular products and techniques, without considering the consequences, leads to the unnecessary waste of the increasingly limited budgets available for maintenance.

It is imperative that traditional construction materials, methods and skills are understood by all tradespeople engaged in maintenance and repairs to old and heritage buildings.

## Government

In view of the findings, The Australian Federal Government, State Governments and Local Governments are encouraged to:

- Fund research into effective techniques of treating dampness and salt attack in heritage buildings.
- Provide adequate funding for the treatment of dampness and salt attack in heritage buildings – either publicly or privately owned.
- Include Heritage Conservation as a unit of competency in National Training Packages for construction trades involved in dampness repairs.

## Industry

It is in the interests of heritage professionals to have a pool of knowledgeable and skilled tradespeople who carry out specified repairs.

The creation of a preferred contractors list acknowledging tradespeople trained in heritage construction skills would encourage more tradespeople to up-skill their knowledge in the heritage trades.

## Professional Associations

Professional associations, including remedial treatment companies, should be encouraged to undertake training in dampness in heritage building courses in addition to any in-house training courses for proprietary products. This may discourage inappropriate or partial treatments and reduce the risk of possible civil litigation as experienced in the United Kingdom.

# Recommendations

## Education and Training

There has been a decline over the last four decades in the knowledge of tradespeople when it comes to the repair of heritage buildings to the point where very few have the necessary skills to carry out these works.

This knowledge and skills deficiency is partly due to a lack of education of the basic construction techniques, building fabric and materials used in heritage buildings.

The vast majority of construction workers are employed in the residential, commercial and industrial sectors with very few exposed to the small heritage market.

The only reference to rising damp in the current Certificate III Bricklaying/Blocklaying BCG30698 training package are included in '*BCG3107A: Carry out masonry veneer construction*' and '*BCG3108A: Carry out solid brick construction*'. These modules relate to modern buildings using modern building materials and construction methods, and in the current era which focuses on 'on-site' training and assessment, is not the appropriate context to incorporate the unique characteristics of rising damp in heritage buildings.

All tradespeople/artisans in construction trades associated with heritage buildings should be taught a basic understanding of the materials and construction techniques and unique fabric of heritage buildings.

The topic of rising damp in heritage buildings could be delivered either as a new module or a stand alone short course and offered to bricklayers, stonemasons, solid plasterers or other tradespeople/artisans involved in heritage building repairs. Such a course should include an understanding of the Burra Charter, an understanding of the building materials and construction techniques used in heritage buildings and in particular the need for old buildings to 'breathe'.

The up-skilling of tradespeople involved in heritage building repairs will ensure a knowledgeable and skilled workforce and ensure that our precious heritage buildings will remain intact. It will reduce the risk of litigation against unskilled tradespeople who carry out defective repairs.

As already mentioned, the Fellow is available for meetings with the relevant Industry Skills Council: the Construction and Property Services Industry Skills Council (CPSISC), for discussion on how the skills learned as a result of the Fellowship can best be integrated into the existing training packages.

## Community

Many older buildings are in private ownership and it is imperative that the broader community be informed of the importance of having dampness problems investigated by independent practitioners to ascertain the most appropriate cost effective treatment. This information could be circulated by articles in newspapers or magazines (home renovations, etc).

## How ISS Institute can be Involved

The International Specialised Skills Institute has the potential to utilise its many contacts to attract funding and work with TAFE Institutes to assist in providing certification courses in heritage construction skills training.