

Update • European Appointment • Facilities • Dynamic Wind Load Testing P.1
Cladding Testing • ETAs for EWl • CE Marking Sealants P.2
EWl for Park Homes • Accreditation for Testing to BS EN 539-2: 2013
• CE Marking Ancillary Components P.3
Technical Report and Design Guidance for Porotherm Blocks
• 'Complying with ESOS' Breakfast Forum
• Lime in Mortar Technical Guide • EAE Membership P.4

CONSTRUCTION NEWSLETTER

WINTER • 2014

DID YOU KNOW ABOUT OUR VERSATILE PURPOSE-BUILT TESTING FACILITIES?...

- a large-scale laboratory
- a 300 anchorage strong-floor, each anchor having a 100 tonne capacity
- loading rigs with a 1,000 tonne capacity
- a lifting capability with 11m clearance
- hygrothermal testing - capacity for 8 walls



DID YOU KNOW?...

We now offer dynamic wind loading and wind uplift tests for walls, facades, rain screens, external wall insulation (EWI) systems, pitched and flat roofing, solar panels and veture kits. The new indoor electrical fan system enables products or systems to be directly loaded/uplifted by air of various speeds and tested to CWCT, ETAG 006, ETAG 017, ETAG 034 and EN 13830 standards.

For further information and/or to book your slot, please contact **DREW BENNETT**, Technologist - Construction: drew.bennett@lucideon.com or +44 (0)1782 764273

UPDATE FROM

Dr GEOFF EDGELL

DIRECTOR AND PRINCIPAL
CONSTRUCTION CONSULTANT



Welcome to Lucideon's CONSTRUCTION NEWSLETTER, an opportunity to both learn about the new developments across the business and get an insight into our key services.

Over the past twelve months, we've invested significantly in new facilities, services and colleagues.

To push forward with innovation, we've set up the Construction Technology Development Group (TDG) and recruited five post graduates to explore five specific areas - roofing and cladding, building physics, concrete, masonry and steel. The team is busy focusing on new materials, products and technologies, and investigating ways of using existing products and materials in light of environmental concerns and shortages.

Phil Noble, Business Manager for construction services, also joined us earlier in the year. Phil is responsible for driving our national and international growth, and specialises in the innovation, development and launch of new products and systems.

We're continually investing in new capabilities, most recently - a test rig for the freeze/thaw of tiles and natural stone, and for the EWl industry; hygrothermal testing and a dynamic wind load and wind uplift test rig for walls, roofing and cladding.

Read on to find out what our engineers, scientists and technical consultants can do to add value to your business...

EUROPEAN APPOINTMENT

Dr Andrew Smith, Head of Sustainability & Construction Materials at Lucideon, has recently been elected Chair of the European Technical Committee responsible for masonry products, CEN/TC125.

The committee is responsible for standards for masonry units of all materials, masonry and rendering mortars, and ancillary components for masonry, together with the associated test methods. Andrew's role will be to steer the introduction of more environmentally focused requirements such as Environmental Product Declarations and Regulated Dangerous Substances.

Need information?

Please contact

SISI LIU

Technical Sales - Construction, on

T +44 (0)1782 764249

M +44 (0)7539 795089 or

sisi.liu@lucideon.com

CE MARKING OF CONSTRUCTION SEALANTS

The harmonised standard series EN 15651 for construction sealants was released in 2012:

EN 15651-1:2012
Sealants for Facade Elements

EN 15651-2:2012
Sealants for Glazing

EN 15651-3:2012
Sealants for Sanitary Joints

EN 15651-4:2012
Sealants for Pedestrian Walkways

As of 01 July 2014, sealant manufacturers are required to apply a CE mark to their products that fall within the scope of the EN 15651 series; these products require testing by a Notified Body.



We are currently in the process of becoming a Notified Body for testing to the EN 15651 series of harmonised standards and expect to release a date for when this service will be available in the near future.

For further information, please contact JOHN TODD, Technical Sales:
john.todd@lucideon.com or
+44 (0)1782 764490

CASE STUDY SAFE CONFINEMENT AT CHERNOBYL NUCLEAR POWER PLANT



Reactor 4 at the Chernobyl Nuclear Power Plant, Ukraine, was destroyed by an accident in 1986. Shortly after the disaster, a shelter, also known as the sarcophagus, was erected to prevent the reactor wreck from leaking radioactive material into the environment. The sarcophagus deteriorated and was replaced by the New Safe Confinement (NSC), a sliding arch structure situated on tracks which was designed to: convert reactor 4 into an environmentally safe system; reduce erosion and weathering of the original shelter and reactor 4; lessen the consequences if the existing shelter or reactor 4 were to collapse; and facilitate the safe deconstruction of the unpredictable structures within the NSC.

Prior to the construction of the NSC, the uniquely designed roof structure

needed both its materials and structural properties testing to ensure it met stringent and crucial project requirements and to demonstrate how the components would interact within the system. The NSC is an arch-shaped tubular steel structure with an internal height of 92.5m, span of 245m, and length of 150m. The external cladding arrangement consists of two distinct assemblies; the outer and inner cladding.

With extensive facilities and experience in roof testing, we were commissioned to test the individual cladding system components and design and build the rigs to test the entire cladding system.

We assembled and tested each individual component and system layer for: Wind-uplift loads (including Tornado Class 3 loads), imposed loads, impact resistance (including a novel 25kg snowball test), fatigue, air leakage, radiation stability, lightning strike resistance, and trolley loading.

From the rigorous testing, we were able to confirm that the chosen material and structural properties of the arch cladding exceeded the specification for the performance of the roofing system. The testing programme provided detailed reports, including: Data analysis, in-depth measurements, observations, photographic documentation and videos.

ETAs FOR EXTERNAL WALL INSULATION SYSTEMS

Do you need an ETA for your external wall insulation?

European Technical Assessments (ETAs) allow construction products that lack a harmonised European standard (hEN) to obtain a CE mark, which in turn grants access to all EU markets.

We are able to provide ETAs for External Wall Insulation (EWI) systems. The service incorporates product development, testing to ETAG 004 requirements and Factory

Production Control (FPC) certification*. Once all of these factors have been fulfilled, the information is processed through a Technical Assessment Body (TAB) and, if all the criteria are satisfied, an ETA is issued.

To find out more, visit
www.lucideon.com/eta

* Provided by Lucideon CICS Limited.

TESTING THE SUITABILITY OF EWI SYSTEMS FOR THE REFURBISHMENT OF PARK HOMES



We've recently begun testing External Wall Insulation (EWI) systems to ascertain their suitability for park home refurbishment.

Fitting EWI improves both the aesthetic appearance and thermal performance of park homes.

The majority of EWI systems are currently designed and tested to ETAG 004 guidelines; these guidelines do not encompass the performance requirements of park home substrates.

PACKAGE 1

Compliance Upgrade

This package applies to products that have previously been tested to ETAG 004 for masonry substrates, and involves gap analysis, testing and compliance certificate.

Find out more about the EWI test specification, packages and system compatibility, contact JOANNE BOOTH, Technical Manager - Structures and Facilities:
joanne.booth@lucideon.com or
+44 (0)1782 764410

Using our extensive experience of testing EWI systems and knowledge of product failure, we have designed, in conjunction with industry and insurers, an EWI test specification to ensure systems are 'fit for use' on park homes. The test specification has been evaluated by Ofgem. Once tested, systems that demonstrate conformance can be guaranteed by Kinnell ECO**.

System testing requirements are dependent upon the extent of testing already performed. To accommodate all testing situations, we offer two specification packages:

PACKAGE 2

Full Compliance Testing of New System

This option is for systems that have not previously been tested and incorporates all of the necessary procedures, from specification tests through to the certificate of compliance issuance (subject to the system passing the specification tests).

** For guarantee purposes Kinnell ECO have produced risk acceptance criteria for park homes. The criteria is available from NICK EDGELL:
+44 (0)1524 793371 or
nick.edgell@kinnell-holdings.co.uk

UKAS ACCREDITATION FOR FROST RESISTANCE TESTING OF CLAY ROOF TILES

We are pleased to announce that we have been accredited to BS EN 539-2: 2013 by UKAS to test clay roofing tiles for frost resistance.

The testing is performed on a recently installed frost resistance test rig. The new rig has been designed and built to specifically meet the test method requirements of BS EN 539-2: 2013, but also has the capability to test to existing natural stone durability standards. We are the only UKAS accredited laboratory testing clay roofing tiles for frost resistance in the UK.

We will remain accredited to the previous test standard (BS EN 539-2: 2006) for frost resistance, to enable the comparison of new tiles with historic data.

For information about UKAS accredited testing of clay roof tiles, contact KAREN ALLRIGHT, Technical Sales Correspondent:
+44(0)1782 764344 or
karen.allright@lucideon.com

CE MARKING OF ANCILLARY COMPONENTS FOR MASONRY

Did you know that the 2013 specifications for masonry ancillary components (EN 845-1, 2 and 3) have recently been included in the Official Journal of the European Union?

EN 845 parts 1, 2 and 3 are applicable to ties, tension straps, hangers, brackets, lintels and the bed reinforcement of steel meshwork.

At present, products can still be CE marked to the 2003 (as amended in 2008, where relevant) standards; however this period ends on 08 August 2015. After this date, all products will need to conform to the 2013 standards. Testing to the new standards is required to support CE marking.

We are able to test all of the products within the EN 845 specifications to ensure that you conform with the latest standards and CE marking requirements.

For further information, contact SISI LIU, Technical Sales - Construction:
+44 (0)1782 764249 or
sisi.liu@lucideon.com

TECHNICAL REPORT AND DESIGN GUIDANCE FOR THE USE OF POROTHERM BLOCKS IN THE UK

We've developed the third edition (SP 148) of the 'Technical Report and Design Guidance for the Use of Wienerberger Porotherm Blocks in the UK'.

Porotherm*** masonry has a long history of successful use in mainland Europe and was launched into the UK market in 2008.

Although Porotherm blocks comply with the relevant product standard BS EN 771-1 and carry the CE mark, guidance on their use was limited.

In order to meet the requirements of the Building Regulations, we developed the first edition of the technical report and guide. This edition demonstrated that Porotherm masonry can be designed to incorporate an equivalent level of design safety to BS 5628, the code current at the time.

The third edition includes the means of demonstrating compliance with the Building Regulations using Eurocode 6, the National Annexes to

it and the Published Document, PD 6697. Although Porotherm masonry is within the scope of Eurocode 6, the detail is limited and there was a need for supplementary guidance which is given in SP 148.

SP 148 includes new test data on products and their suitability for use in Porotherm masonry is confirmed. As compliance with the Building Regulations is by design, independent certification is not relevant. Some of the components may be certified by e.g. BBA or BRE. The technical report and guide has been drafted in a similar way to a Code of Practice and much of the terminology should be familiar. The complete Lucideon reports are available from Wienerberger.

Download the free technical report and guide at:
www.lucideon.com/construction

*** Porotherm is a Wienerberger Group brand.

BREAKFAST FORUM

MATERIALS IN EXTREME ENVIRONMENTS

You are invited to attend our free breakfast forum, 'Materials in Extreme Environments' on Friday 12 December, at our headquarters in Stoke-on-Trent.

Often materials are limited in their behavior by the environment in which they are expected to operate or perform. Extreme operational

environments such as very high or very low temperatures, high pressures, exposure to radiation, abrasive and corrosive conditions, all curtail the performance of many materials. The forum will examine how different materials behave at the limits of their performance whilst subjected to extreme conditions.

Topics will include:

- High Performance Coatings for Demanding Industries and Environments
- Inorganic Materials as Protective Drug Delivery Systems
- Research Approaches for Applications in the Oil and Gas Industry
- Materials in Demanding Environments - A Perspective from Innovate UK
- Defeating Ballistic Threats with Ceramics

The forum will run from 8:00 - 11:30am and include a buffet breakfast, presentations, Q&A session, and networking opportunities.

For further information and/or to register interest, visit
www.lucideon.com/forum

www.lucideon.com/construction

+44 (0)1782 764428
enquiries@lucideon.com

TECHNICAL GUIDE FOR THE EUROPEAN LIME ASSOCIATION

Although lime has been used in mortars since Roman times in much of Europe, there has been little direct research into how and why lime improves the properties of mortar, both during mixing and whilst in service. Hence, the European Lime Association (EuLA) commissioned Lucideon to produce a technical guide, 'LIME IN MORTARS: HYDRATED LIME - BENEFITS OF THE USE IN MORTARS'.

The recently launched guide provides a review of the scientific literature around the benefits of using lime in cement-based mortars, in both the fresh (as mixed) and hardened state. The guide also evaluates existing information and highlights the direct benefits to mortar in general use, and specifically the durability and performance characteristics of mortar in service.

Download the free technical guide at
www.lucideon.com/construction

EUROPEAN ASSOCIATION FOR ETICS MEMBERSHIP

We're now a Member of the European Association for External Thermal Insulation Composite Systems (EAE).

Founded in 2008, in Baden-Baden, Germany, the EAE represents about 85% of Europe's market (associations, suppliers and supporting companies) for External Thermal Insulation Composite Systems (ETICS). The EAE shares one common objective: To increase the use of well approved ETICS on both new and existing buildings.

Find out more about the EAE at
www.ea-etics.eu