

55/02 is a seminal building by the experimental research and design group sixteen*(makers), based at the Bartlett School of Architecture, University College London. The forest shelter is a collaboration in *design through production* with steel manufacturing firm Stahlbogen GmbH of Blankenburg Germany. The building has been widely praised for its celebration of digital and analogue craft, and was awarded an Royal Institute of British Architects annual prize in 2011 as one of the most distinguished new buildings of that year. As an accompaniment to the building, this book shares with the reader a series of explorative essays by the projects authors and their client that speculate on the works originality and significance. Should the reader wish to visit the building it can be found at these coordinates: 55° 11.30 N 02° 29.23 W



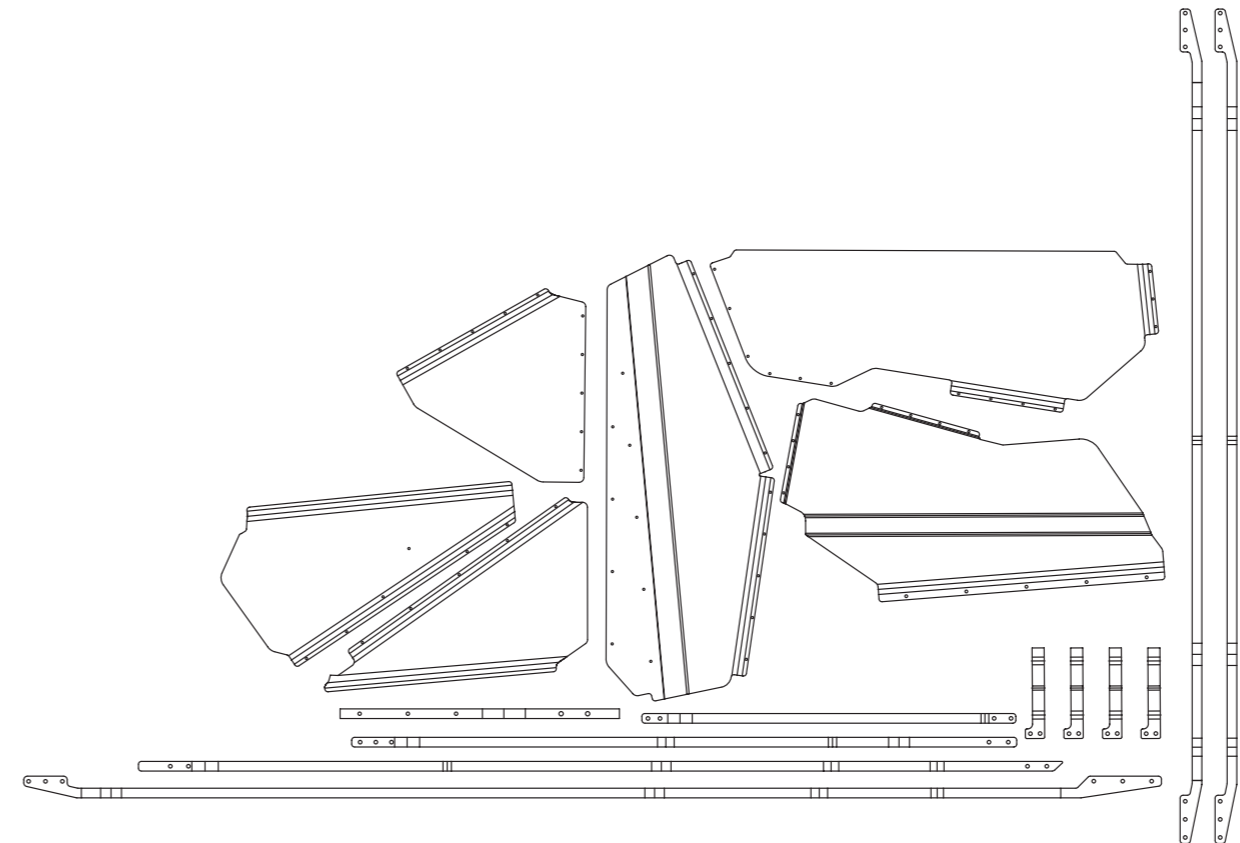
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55/02 A SIXTEEN*(MAKERS) PROJECT MONOGRAPH



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For their generous support and welcome influence on this project sixteen*(makers) owe sincere thanks to a long list of colleagues, friends and family, to whom this book is dedicated. Two individuals are worthy of additional specific mention. The first, Peter Sharpe of The Kielder Partnership, without whose fervent support 55/02 would never have happened, nor turned out the way it did. The second, our book designer Emily Chicken, whose elegant concept you are now holding. We thank her for her meticulous attention to detail, and her skill and care in capturing the evolution of an indeterminate project so well. Finally, we also wish to thank the Bartlett School of Architecture Research Fund for its generosity in support of this publication, and RAP for their enthusiastic and vital promotion of this and many other international projects by aspiring experimental designers.

SIXTEEN*(MAKERS) 2012

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Edited by Bob Sheil
Copy editor: Wendy Toole
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A MANUFACTURED LANDSCAPE

NORTHUMBERLAND'S KIELDER WATER AND FOREST PARK HOSTS THE UK'S LARGEST COLLECTION OF PERMANENT CONTEMPORARY ART AND ARCHITECTURE COMMISSIONS.

AT 650KM², KIELDER IS ENGLAND'S LARGEST FOREST. IT SURROUNDS KIELDER RESERVOIR, THE COUNTRY'S LARGEST ARTIFICIAL RESERVOIR, AT 200 MILLION LITRES, WHICH PRIMES ENGLAND'S LARGEST HYDRO-ELECTRIC PLANT.

FIRST PLANTED IN THE 1920S AND LATER UPGRADED TO A STRATEGIC POST-WAR TIMBER SUPPLY, THE FOREST NOW CONTAINS OVER 150 MILLION TREES THAT ARE MANAGED BY THE FORESTRY COMMISSION.

MOST OF THE PRESENT FOREST IS PLANTED IN CONIFEROUS TREES, WITH 75 PER CENT OF THE AREA PLANTED IN SITKA SPRUCE, 9 PER CENT IN NORWAY SPRUCE AND LODGEPOLE PINE, AND THE REMAINING 16 PER CENT IN SCOTS PINE, LARCH, DOUGLAS FIR, BIRCH, ROWAN, CHERRY, OAK, BEECH AND WILLOW.

550,000M³ OF TIMBER IS HARVESTED ANNUALLY FOR PROCESSING INTO

CONSTRUCTIONAL GRADE TIMBER AND TIMBER FOR PALLETS, PACKAGING, FENCING, CHIPBOARD, PULP AND FUEL.

THE RESERVOIR WAS PLANNED IN THE 1960S TO SUPPLY WATER TO THE INDUSTRIAL ECONOMIES OF TYNESIDE, WEAR SIDE AND TEESSIDE, BUT BY THE TIME OF ITS OPENING IN 1981, IT WAS NO LONGER REQUIRED FOR ITS ORIGINAL PURPOSE.

IN THE MID 1980'S REGIONAL AUTHORITIES LOOKED FOR ALTERNATIVES TO SUPPORT THE LOCAL ECONOMY AND COMMISSIONED A TOURISM DEVELOPMENT ACTION PLAN WHICH LED TO ESTABLISHING THE KIELDER PARTNERSHIP IN 1994.

THE PARTNERSHIP REPRESENTS THE CALVERT TRUST, THE ENVIRONMENT AGENCY, THE FORESTRY COMMISSION, NORTHUMBERLAND COUNTY COUNCIL, NORTHUMBRIAN WATER, THE NORTHUMBERLAND WILDLIFE TRUST, AND LOCAL COMMUNITY GROUPS.

WITH SUPPORT FROM THE ARTS COUNCIL ENGLAND NORTH EAST, THE KIELDER PARTNERSHIP APPOINTED PETER SHARPE AS A FULL-TIME

CURATOR IN 1999 TO LEAD AND COORDINATE A PROGRAMME OF VISUAL ART AND ARCHITECTURAL COMMISSIONS AND RESIDENCIES.

TO DATE OVER TWENTY ART AND ARCHITECTURE COMMISSIONS HAVE BEEN INSTALLED COVERING AN AREA OF 16 SQUARE MILES. WORKS INCLUDE THE 'SKYSPACE' BY JAMES TURRELL, 'BELVEDERE' BY SOFTROOM AND 'THE OBSERVATORY' BY CHARLES BARCLAY ARCHITECTS.

THE INVITATION FOR SUBMISSION OF EXPRESSIONS OF INTERESTS TO DESIGN A SERIES OF SHELTERS ALONG THE LAKESIDE WAY, WHICH LED TO SIXTEEN*(MAKERS) AWARD WINNING PROJECT 55/02, WAS PUBLISHED IN LATE 2007.

BIOGRAPHIES AND PUBLICATIONS

SIXTEEN*(MAKERS)

Sixteen*(makers) is a collaborative group of industry practitioners and academics who share a common fascination with the concept of 'design through making' in all its forms. It is an assembly that is formed around mutual interests while individuals pursue parallel investigations that guide our collaborations. Its members include: Phil Ayres, Nick Callicott, Chris Leung, Bob Sheil and Emmanuel Verduyze. We each enjoy architecture as a fluid and dynamic discipline where a multitude of imposed and passive ingredients design its physical and tactile character. Central to our method is the production of speculative prototypes to discover, evolve and adapt ideas, some of which begin as a hunch or curiosity. In support of this pursuit, we are great believers in tacit knowledge and the often surprising expertise that is acquired through experience and practice. In recent years we have developed an intimate understanding of digital and analogue manufacturing processes, time-based realities, responsive systems, environmental behaviours and design that adapts to change. For more than two decades, our skills have evolved by adopting techniques from the hand-made to the digitally crafted. Outputs span across buildings, installations, furniture, research constructs and numerous international publications.

55/02 received an RIBA Award in 2011

WWW.SIXTEENMAKERS.COM

PHIL AYRES

is an architect and educator. He recently joined the ranks at CITA (Centre for Information Technology and Architecture, Royal Academy of Fine Arts, Copenhagen) after a decade of teaching and research at the Bartlett School of Architecture in London, and completing his PhD in Denmark at the Aarhus School of Architecture. He has been a partner of sixteen*(makers) since 1998. As a self-taught computer programmer, skilled machinist and maker, his work searches to construct complementary potentials between the worlds of the digital and the analogue. His teaching and research allow him to bridge the realms of representation, fabrication and interaction, and feed into his interest in developing exploratory design techniques that are often computer mediated, but always lead to physical output. Much of this work has been published internationally.

NICK CALLICOTT

is a Director of Stahlbogen GmbH, a founder member of sixteen*(makers) and former Director of Computing at the Bartlett School of Architecture, UCL. He is the author of *Computer Aided Manufacturing for Architecture – The Pursuit of Novelty* (Architectural Press, 2001). He began his teaching career in 1995 in the Bartlett workshops and led BSc design unit six with Sheil between 1997 and 2003. Callicott was responsible for first introducing digital fabrication technology to the school, and was the founder of the Bartlett's CAD/CAM facilities. In 2003, he left London to establish Stahlbogen GmbH with Kristina Ehlert in Blankenburg, Germany, where they live with their two children

Martha and Magnus. By merging their extensive experience in advanced design technologies with those of digital manufacturing, Callicott and Ehlert exploit the evolving threshold between complex 3D design and robust industrial methods.

CHRIS LEUNG

is an architect who has worked in private architectural practice and environmental engineering for ten years. He has worked on funded research projects at the Bartlett UCL that investigated innovative technology for low-energy and passive buildings. He has been involved in two inventions with patents pending for devices that integrate building fabric with passive responsive systems. His research explores how buildings and their envelopes can have dynamic responses to changes in the physical environment that surrounds them. His research work is pursued in a doctorate at the Bartlett sponsored by Haque Design + Research Ltd due for completion in 2010. He has been a partner in sixteen*(makers) since 2001.

EMMANUEL VERDUYZE

is a designer, fabricator and educator. Having previously studied furniture design in Belgium, Emmanuel completed his Diploma and Masters Degree at the Bartlett School of Architecture. He is currently running the CAD/CAM fabrication facility and is Diploma Unit 23 tutor at the Bartlett. Emmanuel's research work explores narratives of landscape and notions of wilderness through exploratory drawing and intuitive modes of design and fabrication. His work has been

published in a number of journals. Emmanuel's passion for hand-drawing combined with an in-depth knowledge of both traditional and digital fabrication techniques developed into preoccupation with the role of the digital as an augmentation of the analogue, and he continues to explore the production of highly crafted architectural elements designed intuitively through a combination of drawing, craft and digital technology.

BOB SHEIL

is an architect, founder member of sixteen*(makers), and Senior Lecturer at the Bartlett School of Architecture UCL, where he is Director of Technology and Computing, and has taught for over 17 years. He was programme director of the Graduate Diploma/ MArch in Architecture between 2005 and 2009, and runs GD/MArch Unit 23 with Emmanuel Vercruyse. He has edited two editions of *Architectural Design*, firstly *Design through Making* in 2005, and *Protoarchitecture* in 2008. On behalf of the Bartlett he won a £0.5m grant in order to set up UCL's first Digital Manufacturing Centre in 2008, and in 2011 he co-chaired the International Conference FABRICATE at UCL. In 2012 he will be publishing a reader on prototyping and architecture with 18 essays by world-leading pioneers in the field, which will be titled *Manufacturing the Bespoke*. In collaboration with his colleagues in sixteen*(makers), his teaching partners, research assistants and students, his work explores the evolving relationships between the role of the designer, the processes of production, digital technologies and craft. He has published a number of international

peer-reviewed papers, and has lectured outside UCL extensively. His ongoing research is to lead another full-scale prototypical fabrication project, on this occasion to develop an experimental mobile performance space for the Central School of Speech and Drama in London.

PETER SHARPE

is a curator responsible for the art and architecture programme at Kielder Water & Forest Park in Northumberland. After graduating from Cardiff College of Art in 1982 he practised as a sculptural ceramicist, then taught in Gateshead following a move to the North of England. Since 1999 he has worked for the Kielder Partnership to deliver a series of high-profile commissions that investigate the overlap between art and architecture and the landscape, including James Turrell's Kielder Skyspace and Charles Barclay Architects' Observatory. A recent series of projects on the theme of shelter have included contributions from David Adjaye, sixteen*(makers) and American arts collective SIMPARCH. He contributes to the Arts Council's Turning Point Advisory Group and is also a member of their artistic assessment team.

55/02: PUBLICATIONS/ARTICLES/ EXHIBITIONS TO JULY 2010 / 55/02

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