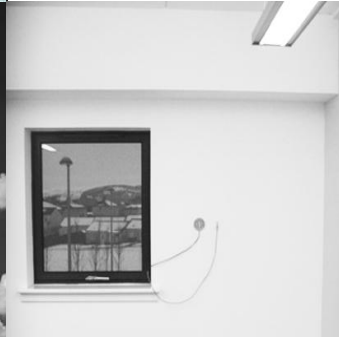
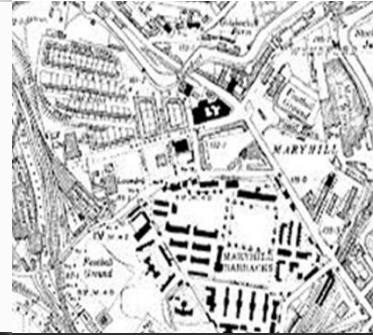
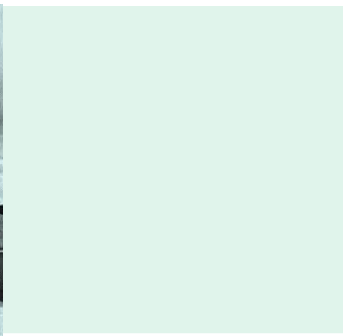


**MACKINTOSH
ENVIRONMENTAL
ARCHITECTURE
RESEARCH UNIT
THE GLASGOW
SCHOOL OF ART**



167 Renfrew St
Glasgow
G3 6RQ

General Enquiries:
0141 353 4654



MEARU

The Mackintosh Environmental Architecture Research Unit (MEARU) was established in 1986 within the Mackintosh School of Architecture. MEARU undertakes strategic and applied research into a wide range of aspects of sustainable environmental design, responding to a growing commitment to user-centred, low energy, eco-sensitive architecture in the context of increasing global concerns.

Recent work has led to the significant expansion of MEARU, widening its portfolio of expertise to include: health and wellbeing in buildings; indoor air quality; energy efficient refurbishment; and building performance evaluation.

The unit is well networked with similar European partners, is represented on the International Energy Agency, ISES Europe and publishes regularly at the Eurosun, PLEA, Healthy Buildings and WREC conference circuits. This activity contributes greatly to the learning and teaching culture of The Glasgow School of Art and has also established the Centre as a significant global research player in scientific and architectural circles.

MEARU
Mackintosh School of Architecture

167 Renfrew St
Glasgow
G3 6RQ

General Enquiries:
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Energy Audit	Low carbon housing	Building Performance evaluation	Occupant well being
Durational monitoring	Health + Well being	Quantitative data	Thermography assessment
Indoor Air Quality	Post occupancy evaluation	Retrofit	Qualitative assessment
Energy efficiency	Lighting, acoustic and CFD modelling.	Ventilation	Technical innovations

Team

Centre Director

Prof. Tim Sharpe

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Associates

Dr Deng Li

Visiting Professor

Barbara Lantschner

KTP Associate

The team at MEARU is a combination of practising architects, building services engineers and academic researchers all with a particular passion for low energy buildings and healthy indoor environments. In addition to their research work, MEARU staff also contribute to teaching both in undergraduate and postgraduate courses at the Mackintosh School of Architecture.

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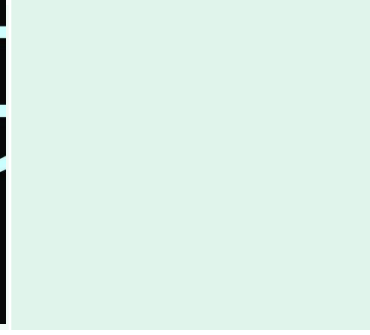
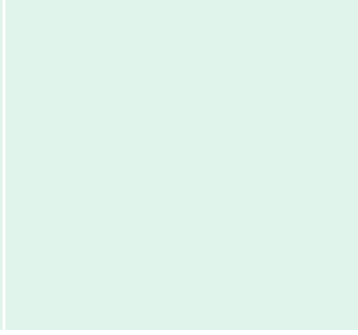
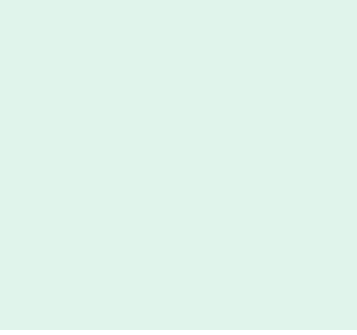
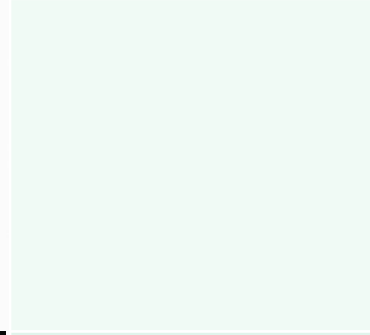
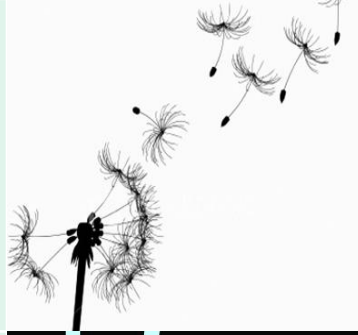
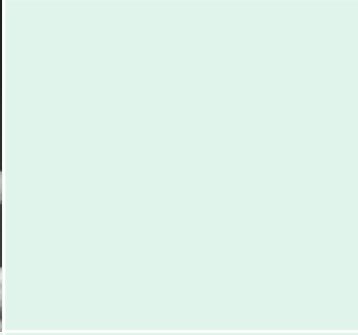
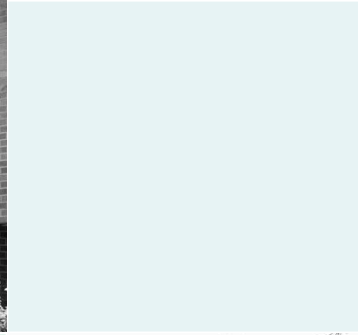
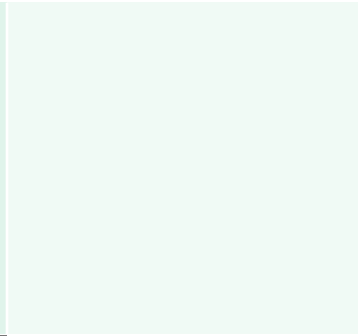
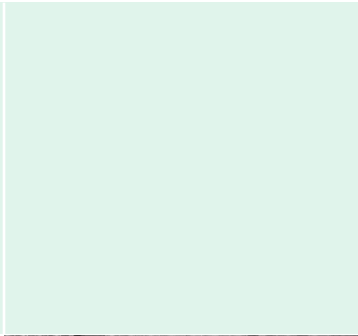
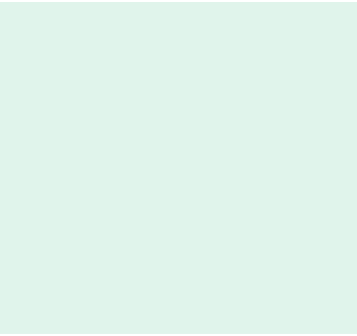
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Consultancy

MEARU provides sustainable environmental design consultancy and assessment services, independently and through collaborative research opportunities. On going and previous projects include the following services:

- Undertake building performance evaluation including durational monitoring of CO₂, humidity and temperature to assess indoor air quality and building performance.
- Undertake qualitative assessment through questionnaires, surveys and interviews with building users as part of post occupancy evaluation.
- Provide energy efficiency advice both on the upgrading of existing housing stock and on proposed new build construction. Advise on energy auditing of housing via SAP calculations and NHER rating certification.
- Advise on options for renewable energy production and technical innovations into in new and existing buildings.
- Provide strategies in the design of comfortable and healthy indoor environments.
- Advise on day lighting and passive solar design strategies to improve both energy efficiency and health and well being.
- Provide building thermography assessment to identify building defects impacting thermal performance.

Clients

MEARU has completed a number of research-based consultancy contracts with corporate clients, private architectural practitioners and public sector organisations including local authorities and housing associations.

Glasgow City Council
Glasgow Housing Association (GHA)
Scottish Government
Architecture and Design Scotland (AD+S)
Energy Savings Trust (EST)
Communities Scotland
Cube Housing Association
Queens Cross Housing Association
Tenants First Housing Association
Hanover Housing Association
Easthall Park Housing Co-operative
Dumfries and Galloway Housing Partnership
John Gilbert Architects
Anderson Bell Christie Architects
Assist Architects

Partners + Funders

UK Technology Strategy Board (TSB)
Building Standards Division (Scottish Govt)
Engineering and Physical Sciences Research Council (EPSRC)
The Arts and Humanities Research Council (AHRC)
Knowledge Transfer Partnership (KTP)
Building Research Establishment (BRE)
Construction Improvement Club (CIC Start)
SUST- Scottish Government Architecture Policy Unit
Zero Carbon Hub

Facilities

MEARU currently operates from offices in The Mackintosh School of Architecture's Bourdon Building. Facilities include offices and studios, computer suites for CAD, Energy, Lighting, acoustic and CFD modelling. There are also technical workshops for computer and physical modelling.

MEARU have the following facilities and expertise in energy auditing which have been applied in recent and on going projects:

Durational CO₂, humidity and temperature sensors with radio controlled data loggers to assess air quality and building performance.

Handheld monitoring devices to take instantaneous environmental CO₂, humidity and temperature readings.

Co-heating test equipment to assess the heat loss through the thermal envelope of a building.

Heat flux meters to measure in-situ U values.

Thermographic camera to identify problems in existing buildings.

Sound level meters to undertake acoustic evaluations.

Lux level meters to measure daylight levels.

Power flow hood to measure air flow rate from mechanical ventilation systems.

VOC sensor kit to detect air borne particulates and formaldehydes.

Projects

TSB Building Performance Evaluation Projects (2012-2014)

Highland Housing Expo, Inverness - AD+S

Tigh-Na-Cladach, Dunoon, Passive House - Fyne Homes

Dormont Park Housing , Dumfriesshire- Dormont Estate

Bloom Court, Livingston- Hanover Housing Association

Murray Place, Barrhead- Hanover Housing Association

Garscube Road- Queens Cross Housing Association

Ore Valley Business Centre, Lochgelly

Knowledge Transfer Partnership (KTP)

Cartwright Pickard Architects

John Gilbert Architects

Consultancy + Research

The Glasgow House, Glasgow Housing Association

Environmental Impact of Domestic Laundering, EPSRC

Occupier Influence on Indoor Air Quality, Scottish Government (Building Standards Division).

The Quick Start User Guide for New Homes, Home Log Book Company

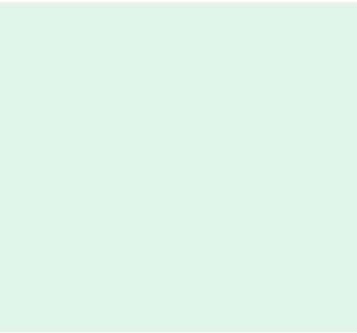
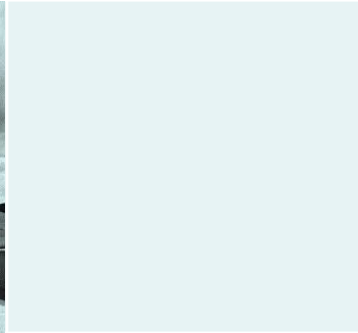
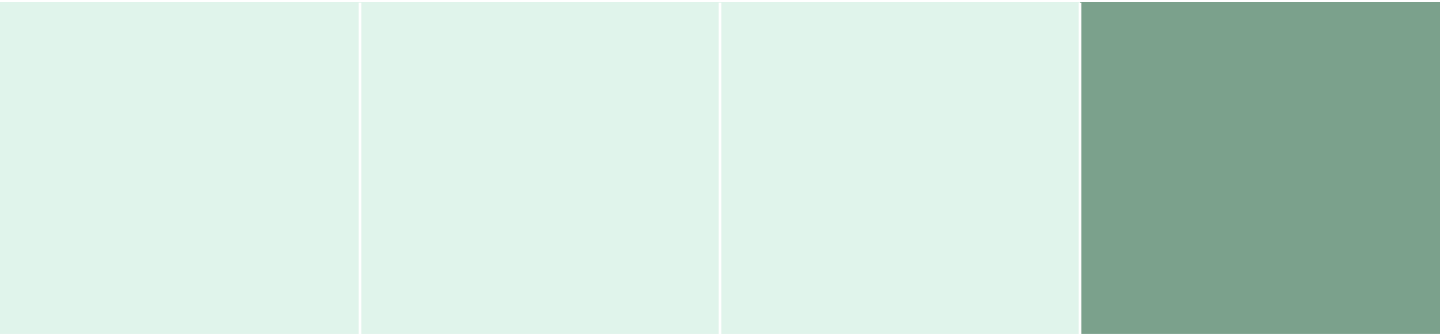
Gilmours Close, Edinburgh- Building performance evaluation

Wyndford Estate- Energy upgrade feasibility study, Cube HA

Sunshine, Health and Wellbeing, AHRC

MVHR Meta Study





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