

CENTRE for NET ZERO HIGH DENSITY BUILDINGS



LinkedIn profile

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WEB SITE
<https://cenz-highdb.ac.uk/>

UNIVERSITIES and EXTERNAL PARTNERS

CeNZ·HighDB



THE UNIVERSITY
of EDINBURGH



University of
Strathclyde
Glasgow

Edinburgh Napier
UNIVERSITY



BE—ST

Built
Environment
—
Smarter
Transformation



58 Partners

Industry: SMEs, Major Contractors, Utility Companies, Product Manufacturers, Innovators and Industry Organisations

Public Sector: Local Authorities, City Region Deals, Government Agencies (Enterprise, Housing, Heritage, Building Standards)

Skills / Training: Colleges (FE Sector), Training Academies & Upskilling

Networks: Industry, Housing, Net Zero, Retrofit, University Estates, Energy Efficiency, District Heating, Battery Technologies and Housing Associations

The Challenge – Net Zero for High Density Buildings



Highly Complex; Multi-Factorial; Modern & Historic; Existing Infrastructure Restrictions; Occupant Diversity

40% of Embodied Carbon from Construction; 22% of Emissions from Buildings;

Many Key Workers & Low Income Families Live in High Density Buildings – underpinning GREEN ECONOMY JUST TRANSITION

Centre for Net Zero High Density Buildings

About the Centre



- **CeNZ-HighDB** supports and develops **Net Zero solutions** for high density buildings and streetscapes in cities and towns.
- The Centre is funded by the UKRI as part of the **UK's Green Economy Centres**.
- **Led by the University of Edinburgh**, this research partnership combines the Universities of **Glasgow, Strathclyde, West of Scotland, Edinburgh Napier** and **BE-ST**: Scotland's construction innovation centre.
- The Centre **supports R&D, data analysis, pilot and demonstrator projects, archetype approaches, occupant needs and novel technologies** to deliver net zero or significant carbon reductions.
- Projects can **include retrofit of buildings, new net zero buildings, heat networks, innovative product developments, advanced materials, new software and tech approaches, new skills training content for the retrofit, new buildings, housing and non-domestic buildings.**

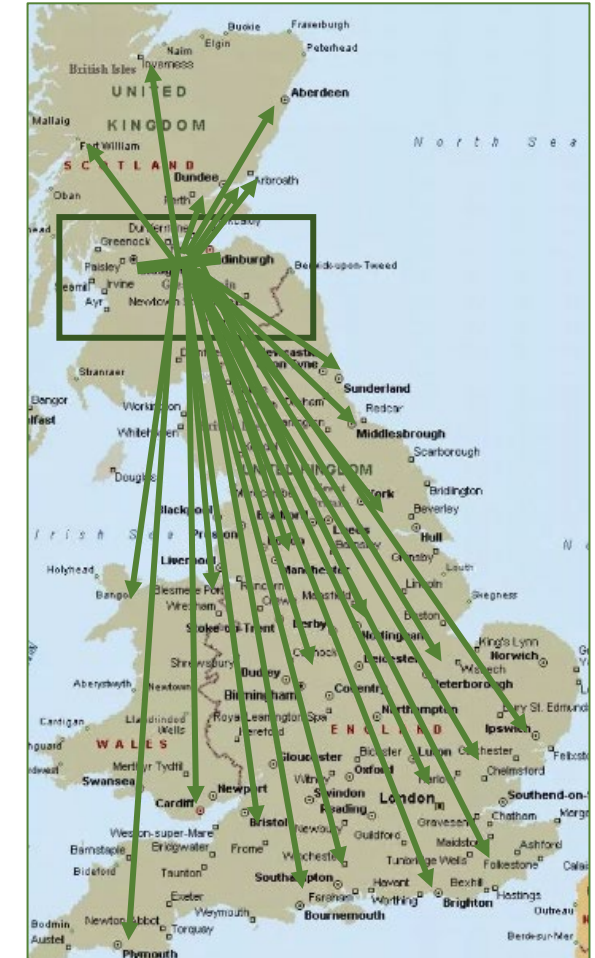
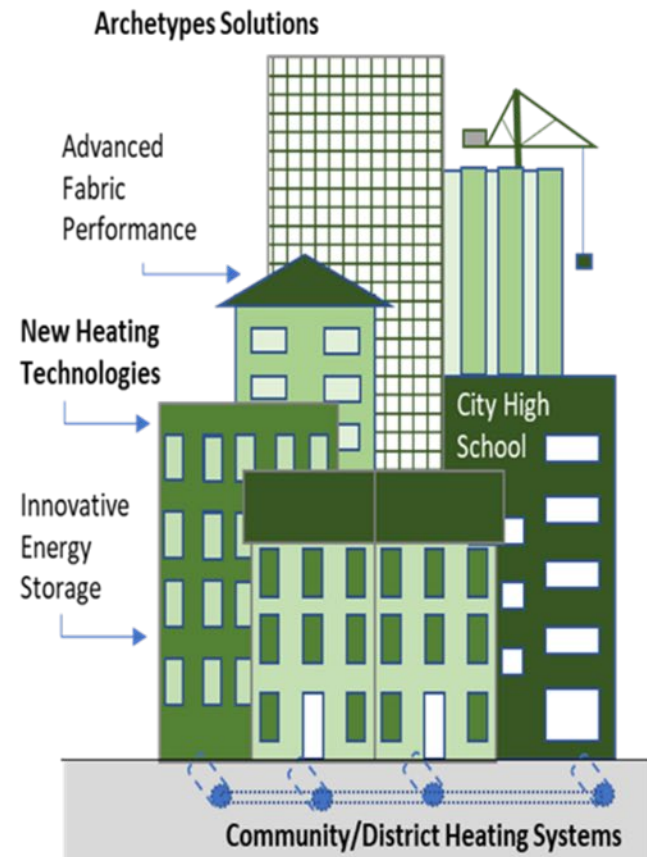
CENTRE for NET ZERO HIGH DENSITY BUILDINGS CeNZ-HighDB – The Vision

Partnering & Reach:

- 5 regional universities
- 2 city regions
- 8 cities network
- 32 local authorities
- 14 industry networks
- 8 research alliances
- 5 major public bodies
- 7 regional colleges
- 20 colleges network
- 60 housing associations
- Multiple communities
- Pan-UK utility companies

Leadership & Co-ordination:

- 50+ partners
- 50+ projects
- Major archetype solutions
- Linking 2000+ supply chains
- 6500 jobs upskilled
- 2600 new jobs
- New manufacturing
- Archetype Retrofit Handbook
- Local to international reach
- Targeting £50M investment
- Underpinning £35B future retrofit pipeline



“A vital new Centre”

“extremely significant”

Centre for Net Zero High Density Buildings - CeNZ HighDB						
Centre Management	CORE: Green Materials & Technology			CROSS-CUTTING		
	TWG-I	TWG-II	TWG-III	TWG-IV	TWG-V	TWG-VI
Project Co-ordination (UoE-Smith)	Building Fabric & Performance (UoE-Bros-Williamson) (ENU-Hairstans)	Heating-Cooling & Energy Storage within Buildings (UWS-Gibson)	District / Community Heating-Cooling (UoG-Falcone)	Modelling & Data Analysis (UoS - Kelly)	Occupant Needs & Behaviour (UoS-McElroy)	EDI, Skills & Training (ENU-Hairstans) (UoS-McElroy)
UoE	UoE/UoS/UWS ENU(prefab)	UWS/UoG/UoS/ UoE/ENU	UoG/UoE/ UoS/ENU	UoS/ALL	UoS/UoG/UoE	ENU / ALL
 THE UNIVERSITY of EDINBURGH  THE UNIVERSITY of EDINBURGH  UWS  University of Glasgow  University of Strathclyde Glasgow  University of Strathclyde Glasgow  Edinburgh Napier UNIVERSITY						
 Centre - Industry Engagement Officer (Kaye Keenan) 						

The Team:



Centre Management



Prof Sean Smith
Chair in Future Construction
University of Edinburgh
Centre lead



Serena Lambley
University of Edinburgh **Centre Manager**



Amy Macpherson
University of Edinburgh
**Centre Administrator/
Finance Officer**

Academic Co-Investigators



Dr Julio Bros-Williamson
Chancellor's Fellow for Net
Zero Buildings
University of Edinburgh
Lead – TWG-I



Prof Des Gibson
Chair in Thin Film and Sensor
Technologies, University of West
of Scotland
Lead – TWG-II



Prof Gioia Falcone
Rankine Chair of Energy
Engineering
University of Glasgow
Lead – TWG-III



Dr Nick Kelly
Reader
Co-Director, ESRU
University of
Strathclyde
Lead – TWG-IV



Prof Lori McElroy
Chair in Smart Resilient Cities
University of Strathclyde
Lead – TWG-V



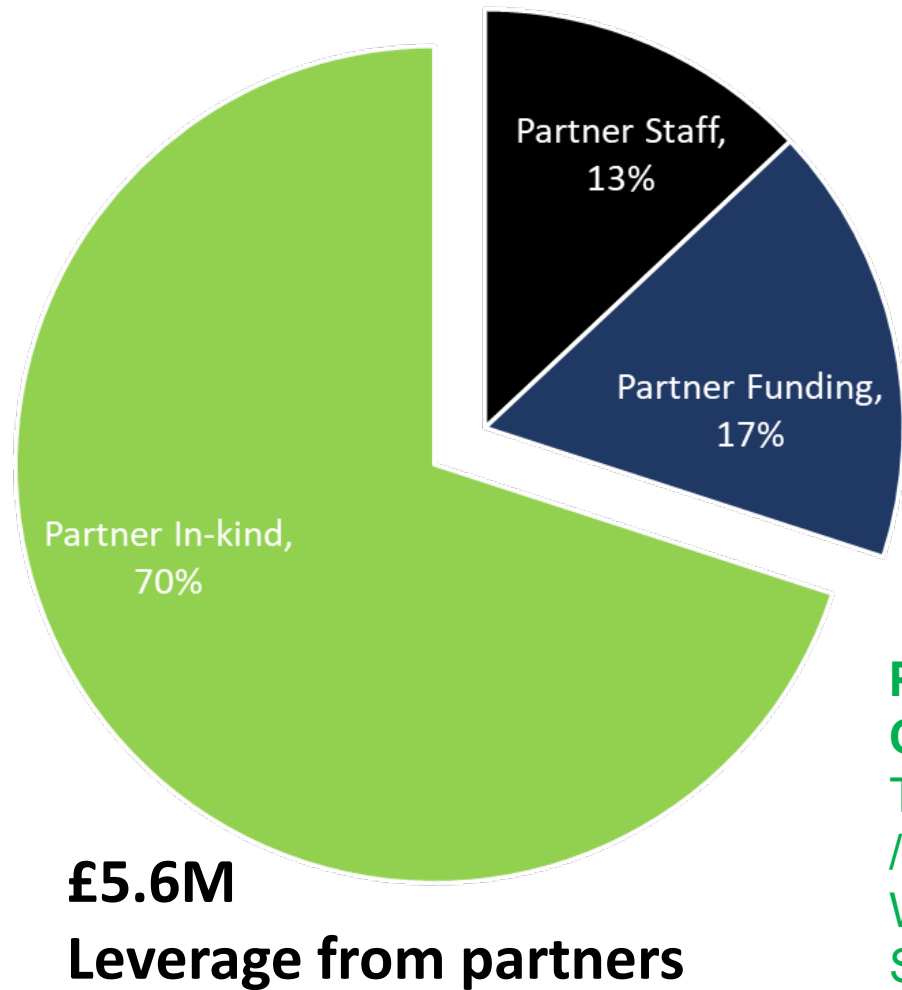
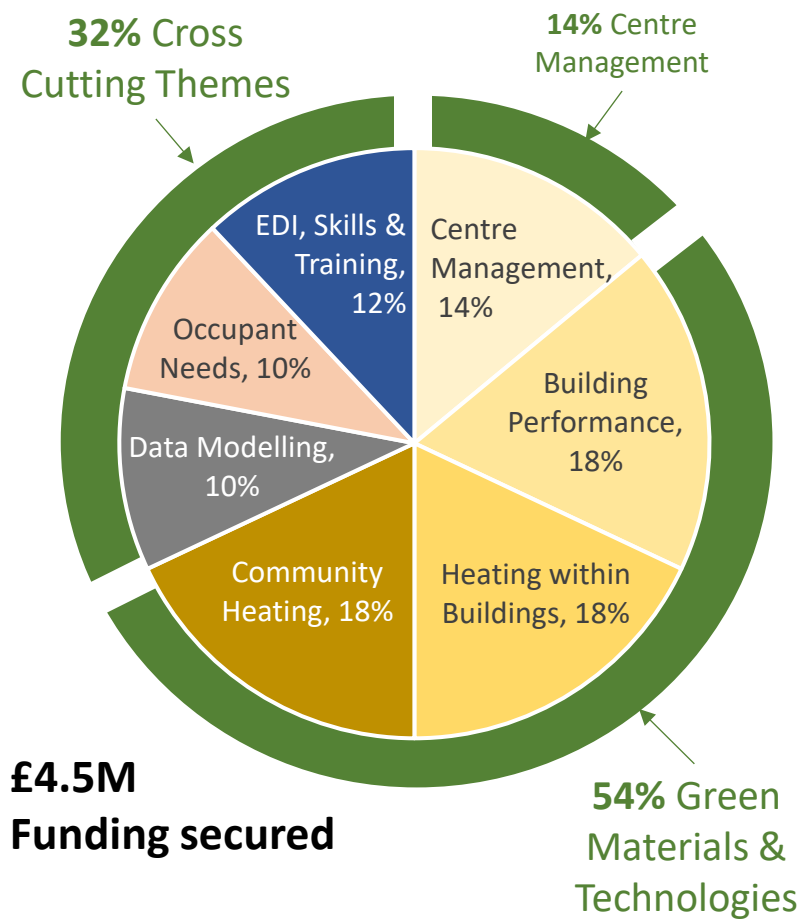
Prof Robert Hairstans
Chair in Offsite Construction
Edinburgh Napier University
Lead – TWG-VI

Industry Sector Engagement



Kaye Keenan
Built Environment Smart
Transformation (BE-ST)
Impact Manager

Funding & Partners Contribution



£10.1M Combined

Partner Contributions to Centre - Pilot Net Zero Test Buildings / Equipment / Facilities / Prototypes / Workshops/Green Skills Support/ Materials

Core Support from CeNZ-HighDB

- R&D support
- Archetype solutions
- Heat networks
- New technologies
- Testing on sites / products / systems
- Technology & Energy Assessments
- Building occupant studies (POE)
- Data analysis / modelling
- Strategy / Policy support

	Category 1	Category 2	Category 3
ORGANISATIONS	Charities	Housing Associations, Industry Networks, Membership Organisations or Sector Federations	Large Companies / Government Departments
	Community Groups	Local Authorities, Chambers of Commerce, Public Funded Organisations	
	Micro / Start Up Companies	Small / Medium Size Companies	
CeNZ-HighDB - request limits of PDRA/Staff resource + Specialist Funding	Max £10k limit of Support per project	£10k-£50k	£10k-£80k
MATCH CONTRIBUTION	No match required	Match min 50%	Match min 50%
		Can be in-kind and/or cash	25% cash + 25% in-kind

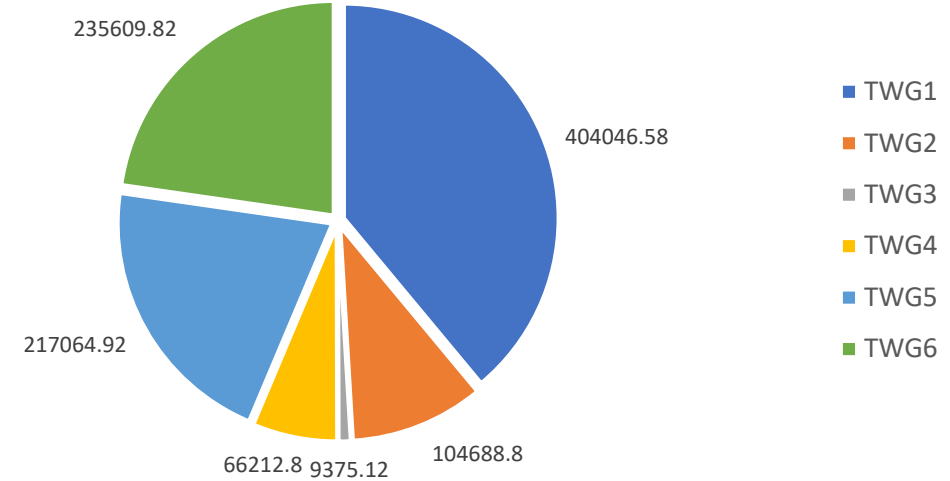
External partner In-kind can include - staff time, assets value for access, equipment, prototypes, materials etc..

Current Projects & Total Value

(by mid-September 2025)

Thematic Working Group (TWG)	No. of Projects Approved	Total Project Value (Centre & External)
TWG1 – Building Fabric and Performance	6	£404,046.58
TWG2 – Heating-Cooling & Energy Storage within Buildings	6	£104,688.80
TWG3 – District & Community Wide Heating-Cooling	1	£9,375.12
TWG4 – Modelling & Data Analysis	1	£66,212.80
TWG5 – Occupant Needs & Behaviours	3	£217,064.92
TWG6 – EDI, Skills & Training	6	£235,609.82
Total	23	£1,036,998.04

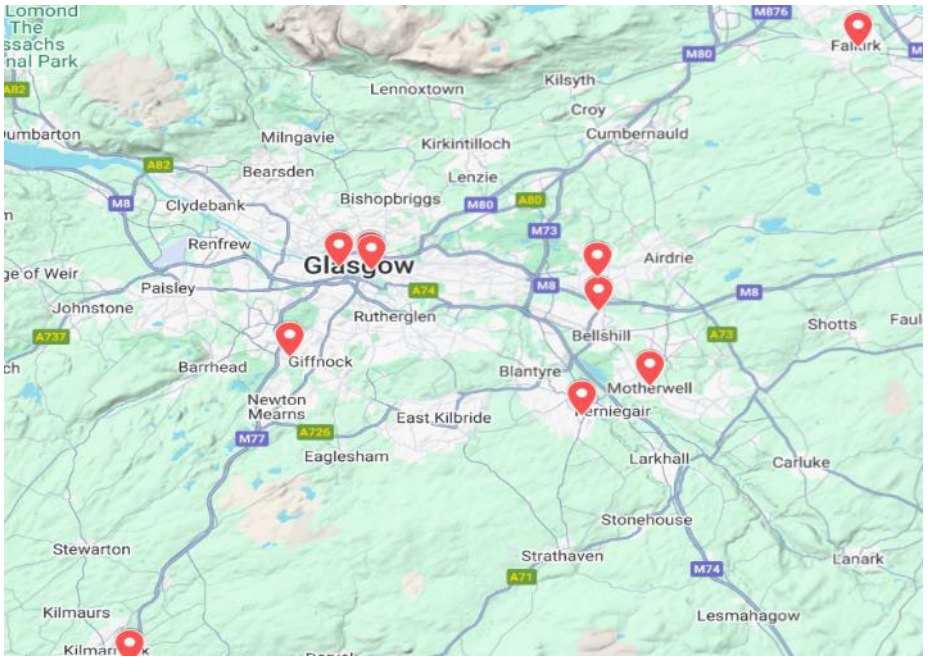
Total Value of All Projects



Since March 2025 (first 7 months)

- 23 projects
- 38 external partners
- 12 original of initial 58 (over 4 years)
- 26 new partners into Centre projects
- Partners invested £0.5M

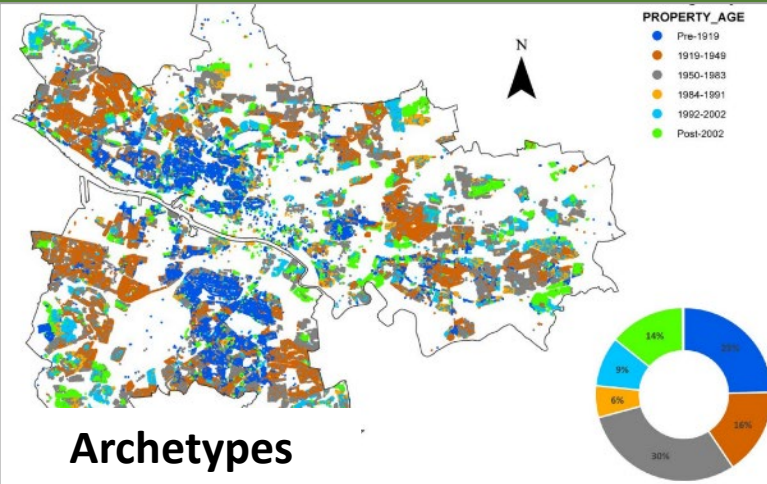
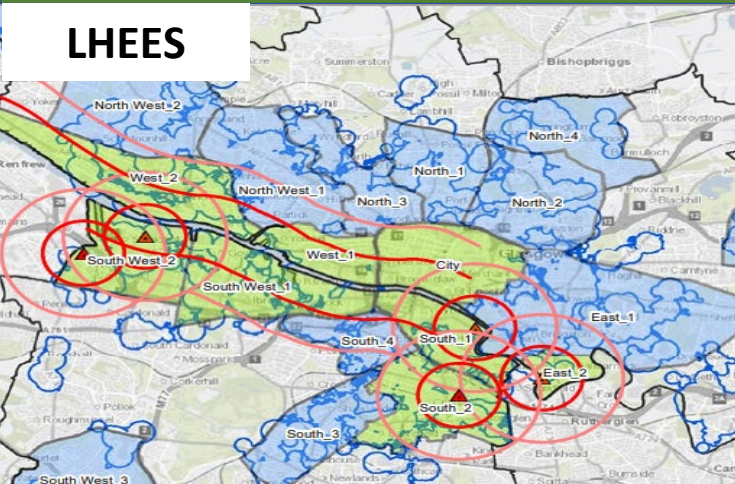
Location
of
**External
Partners**
on projects
so far...



The Combined Impact Opportunities & Engagement

CeNZ-HighDB

LHEES



Archetypes



£35 Billion



Regional
SKILLS
Net Zero Accelerator Hub

- 25 workshops with industry & public partners
- Annual major knowledge exchange events
- Community workshops

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End of Presentation

Thankyou for Listening

