



ESR 4

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Case study

Dalarnas Villa - Built Research Project Investigating Sustainability



Architect(s): Dalarna University
Location: Dalarna region, Sweden
Project (year): 2017
Construction (year): 2019
Housing type: Single-family housing
Construction system: Wooden system
Status: Built

A research living lab is a user-centred approach to test systems in real-life settings relying on sensors and iterative feedback. The Dalarnas Villa Living Lab is testing solutions for fire, housebreaking, dampness, and water-related damages in Swedish wooden houses. The villa is designed to minimize environmental impact, enhance energy efficiency, and provide a healthy indoor environment using eco-friendly materials and smart control systems. Life Cycle Costing studies show that while initial construction costs account for 75% of expenses over a 100-year lifespan, operational costs account for 25%, making it cost-effective for residents. However, it raises questions about who should bear increased construction costs. The project involved community participation, with funding from an insurance company, university students designing the house, and local businesses contributing smart energy and water solutions for scientific evaluations.

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“Housing studies are commonly dominated by economists, as discussed in the workshop roundtable. That’s why our Re-Dwell transdisciplinary research is bringing economics, politics, and architecture to work together to tackle the ongoing housing issues in Europe.”

Aya Elghandour, blog post “We might think we are helping, but [Through Sustainability Lens] we might not!”, October 2021



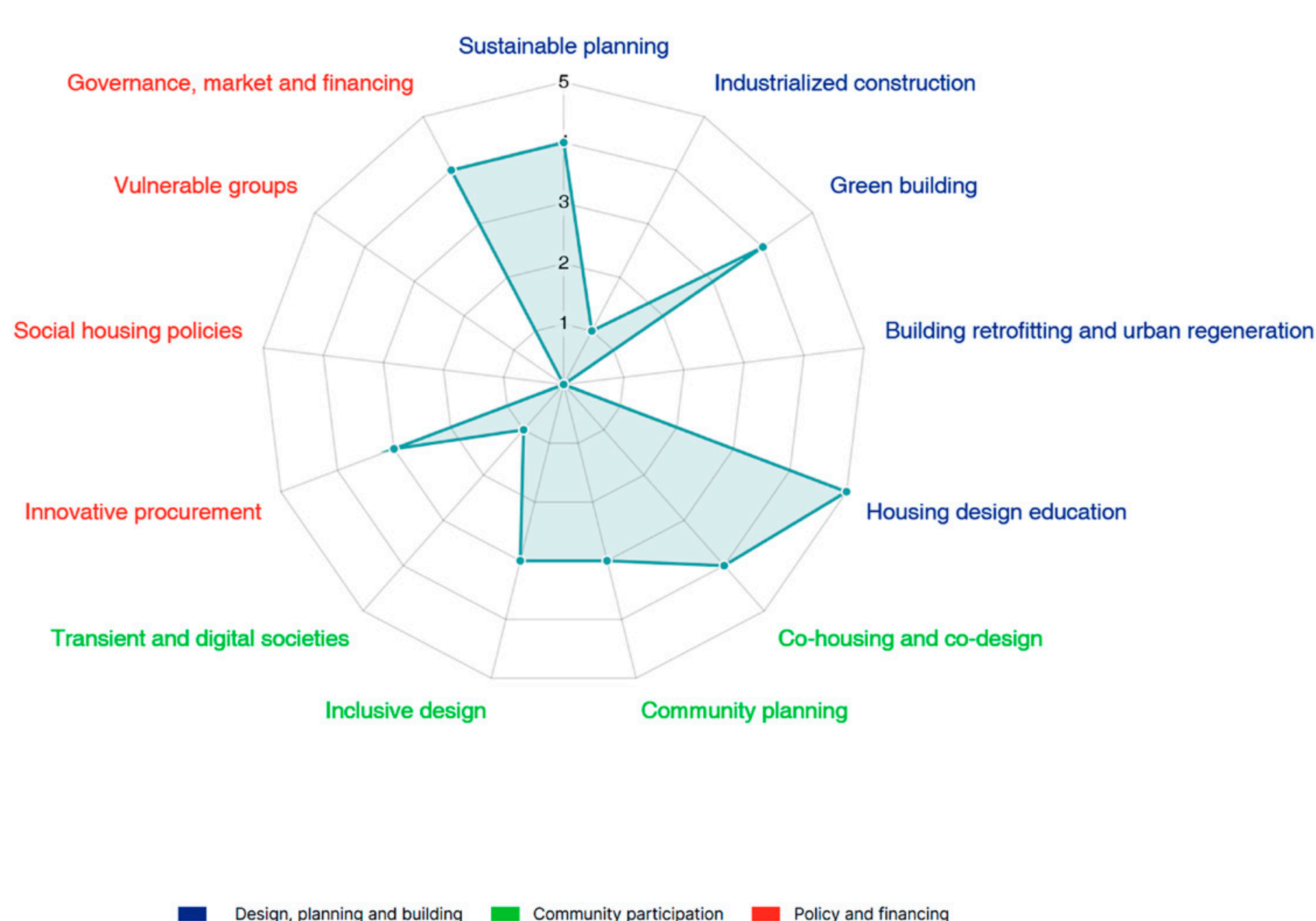
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“We want to build Passivhaus homes, but it takes time to build a supply chain that is capable of building Passivhaus homes”

Interview with a housing provider in England, conducted by Aya Elghandour, 5 January 2023

“It is often in the worst place, and it has to be built as densely as possible while adopting minimum standards, which creates long-term wellbeing problems”

Interview with an architect from Manchester with more than 20 years of experience, conducted by Aya Elghandour, 14 January 2023



* This diagram is for illustrative purposes only based on the author's interpretation of the above case study



ESR 5

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Case study

Environmental Sustainability of Future Social Housing



Architect(s): DK-Architects
Location: Grassmoor, Derbyshire, East Midlands, England, United Kingdom
Project (year): 2014
Construction (year): 2020
Housing type: Multifamily housing (Semi-detached house)
Urban context: Suburb
Construction system: Timber frame
Status: Built

The North Wingfield Road social housing complex consists of 11 affordable homes developed on the eastern edge of Grassmoor, England. The question of how this case relates to the RE-DWELL project is answered in three folds. Firstly, the analysis of this case has provided insights into the design of green buildings and their development processes and helped the researcher to understand the principles of industrialised construction. In addition, this case is 100 per cent social housing, which requires compliance with building regulations and higher sustainability standards such as the Building Research Establishment Environmental Assessment Method (BREEAM) and Home Quality Mark (HQM). Secondly, this case helps to understand UK sustainability policy through the codes, standards and guidelines in place. Third: The results of this project are considered an example of inclusive design, as tenants play an essential role in maintaining the sustainability of the community and the environment.

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“Transdisciplinary is not an easy subject because we are living in academic tribes culture who adopt tribal thinking. If you talk to engineers, architects, social scientists they have their own we of thinking. When we as planners or architects sit with another people with different disciplinary backgrounds the first thing we say is: This is not how we do things”

Ashraf Salama, RE-DWELL Round-table no. 1, “Transdisciplinary Research for Affordable and Sustainable Housing”, 23 September 2021



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“The right to access to social housing must also include access to ‘sustainable’ social housing. Sustainability policies must go beyond its rigid and conventional meanings.”

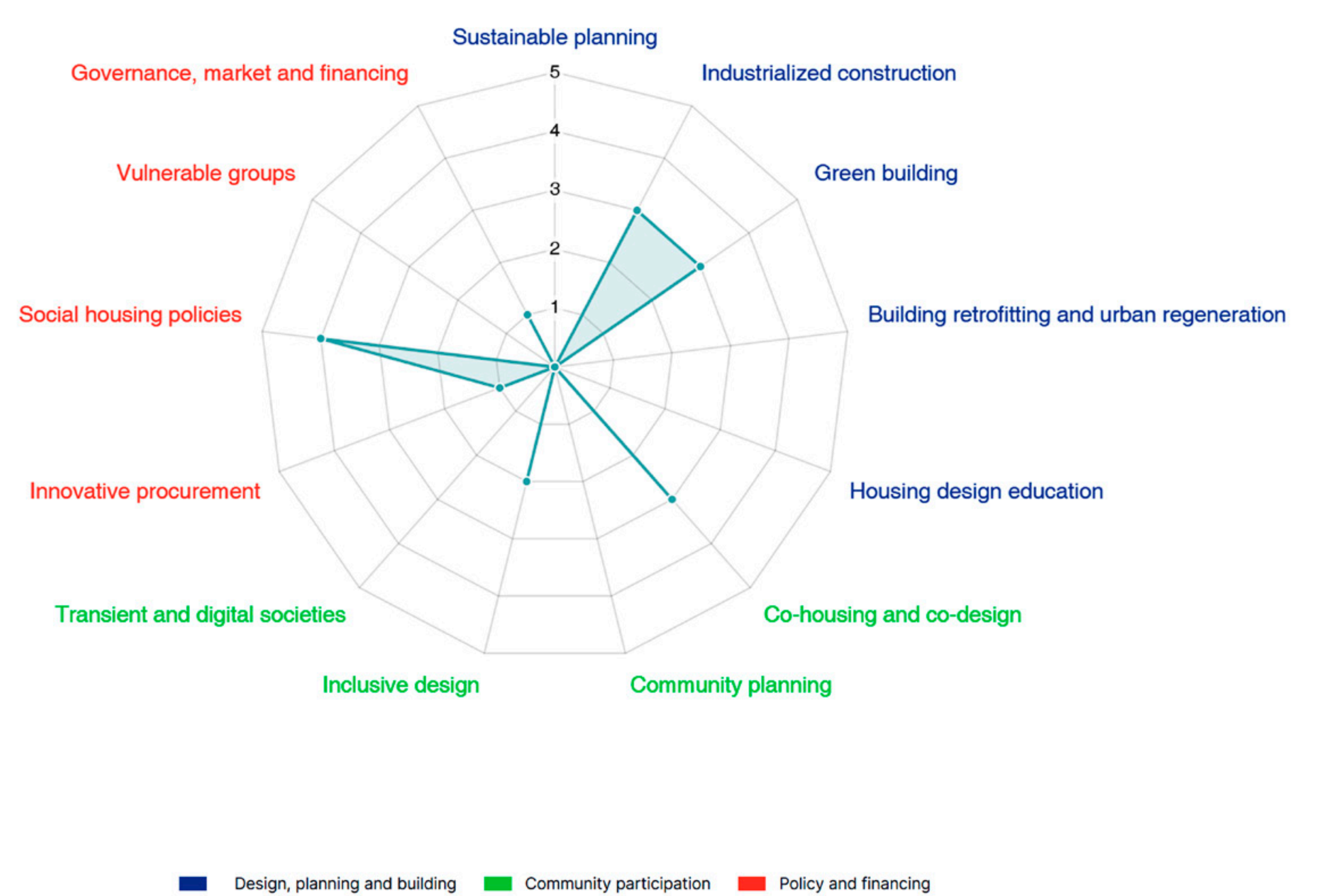
Mahmoud Alsaeed, from Housing studies Association Annual Conference 2023

“Social housing in this country is an institution, a reference point, it is one of these words that has more meaning to it.”

Interview with assets and development manager of a UK housing association, conducted by Mahmoud Alsaeed on 23 February 2023

“Housing policy remains an ambiguous term that requires an examination of its basic meanings and structure”

Clapham, D. (2018) Housing theory, housing research and housing policy. Housing, Theory and Society, 35 (2), pp. 163- 177. ISSN 1403-6096



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