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Assembling retrofit practice

Rethinking what retrofit is and what it might do

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Statement of Originality

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Abstract

Residential retrofitting provides multiple possibilities for effecting action and change in the home. Yet, current research and policy making has been dominated by analyses grounded in techno-rationalist thinking which emphasises the role of technology and information transfer in determining people's actions. This techno-rational focus bounds the means through which action and change are understood to occur. It simultaneously occludes and forecloses other existing and possible arenas of retrofit action and change. The aim of this thesis is to set out an extended conception of what retrofit *is* and what it might *do* from those commonly advanced under a techno-rational agenda. This thesis explores the different practices occurring at multiple scales, and the component systems, actors and relations that configure the use and provision of residential retrofits. This attention to these heterogeneous and relational associations begins to *unbound* the techno-centric, rationalistic and essentialist categories against which the contribution of retrofit is commonly assessed.

In this thesis, I draw together a socio-technical perspective with assemblage thinking as a basis for decentring the dominant techno-rational paradigm. The conceptual bearings of social practice theory provides an analytic that attends to the situated, socially-embedded and practiced constitution of retrofit across multiple practice bundles. The analytics of assemblage thinking provides an opportunity to extend the social practice analytical gaze to incorporate a multi-scalar imaginary, while also attending to the role of materiality and processes of formation and change in retrofit systems and practices. As a whole, this analytical orientation provides a means of exploring the socially and materially produced, practiced and distributed assembling of residential retrofit. It points to the indeterminate and fluid qualities of retrofitting as it is made and re-made through manifold practices. In doing so, it reveals practices of retrofitting to be vibrant and capacious, realised amid complex socialities, spatialities, materialities, desires, expectations and competences—all of which make up potential determinants of action and change.

This thesis documents how residential retrofitting is configured and reconfigured as part of the socio-material practices through which householders and professionals assemble retrofits in everyday life. I combine documentary analysis with (i) 23 semi-structured interviews with industry and building professionals and (ii) 20 observational walk-and-

talk interviews, photographs and diary entries with retrofitting householders in Newcastle, Australia. Through these I explore the multiple ways that retrofitting is practiced, assembled, experienced and manifest. The insights gained offer new ways of thinking through the possible terrains of retrofit intervention and how to support and nurture its transformative potentialities.

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Abbreviations

ABS	Australian Bureau of Statistics
ABSA	Association of Building Sustainability Assessors
ADS	Additions
ALTS	Alterations
ANAO	Australian National Audit Office
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ANT	Actor Network Theory
BASIX	Building Sustainability Index
BCA	Building Code of Australia
BOM	Bureau of Meteorology
CDC	Complying Development Certificate
CEO	Chief Executive Officer
COAG	Council of Australian Governments
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DA	Development Approval
DIY	Do-it-yourself
DPI	Department of Planning and Infrastructure
FACS	Family and Community Services
GHA	Green Homes Australia
GHG	Greenhouse Gas
GFC	Global Financial Crisis
HIA	Housing Industry Association
HIP	Home Insulation Program
ICANZ	Insulation Council of Australia and New Zealand
ICT	Information Communication Technology
HVAC	Heating Ventilation and Air Conditioning
LMCC	Lake Macquarie City Council
OEH	Office of Environment and Heritage

PCA	Principle Certifying Authority
LEAPR	Low Emissions Assistance Plan for Renters
MEPS	Minimum Energy Performance Standards
MURRS	Mapping Urban Resilience in Riverland Sydney
NFEE	National Framework for Energy Efficiency
NPEE	National Partnership Agreement on Energy Efficiency
NSEE	National Strategy on Energy Efficiency
NSW	New South Wales
NCC	Newcastle City Council
STS	Science and Technology Studies
SHWR	Solar Hot-Water Rebate
UK	United Kingdom
US	United States