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‘A tall storey...but, a fact just the same’: The Red Road highrise as a black box

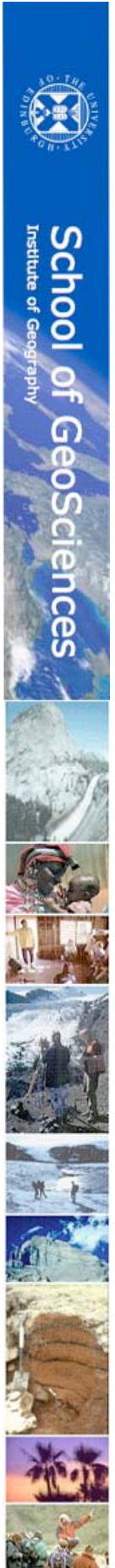
(to appear as part of a theme issue of Urban Studies on Supertall Living)

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Abstract

The advent of state-sponsored mass highrise housing in the post-war period brought into view a range of issues about the role of technology in everyday life. This paper draws on approaches in the study of science and technology in order to deepen our understanding of the socio-technical aspects of such highrise housing, past and present. We elaborate this thinking empirically by examining a 1960s highrise development, Red Road, Glasgow. The paper examines the inaugural phase of development, and the most recent phase of ‘redevelopment’, the first stage of which is demolition. The paper extends existing accounts of residential highrises generally, and Red Road specifically, as well as elaborating an alternate analytical framework for understanding highrise and supertall dwellings.

Keywords: highrise, mass housing, technology, black box, Red Road

Introduction

The aim of this paper is to delve into aspects of the socio-technical logics of the supertall building, using the analytical lens offered by studies in science and technology. We do so empirically through the example of the 28-31-storey 1960s public housing highrise development of Red Road, Glasgow (Fig. 1). In 2004 Red Road was earmarked for redevelopment, a process that will entail demolition of at least one of the eight highrises comprising the estate. Demolition is a fate that has befallen many highrises in the UK as social housing authorities deem them to be ‘unsustainable’. Our approach to Red Road is strategic and illustrative, rather than comprehensive. We examine two moments in the life cycle of this highrise development: in the first instance, aspects of the inaugural phase of planning and building; and, in the second, aspects of the recent phase in which redevelopment, including the plan to demolish, is underway. The policy framework that gave rise to highrise housing in post-war Britain has been insightfully analysed by Patrick Dunleavy (1981). Our return to the UK highrise is not to refute the necessity of such policy-based analysis, but to modestly enlarge the cast of actors (both human and non-human) that have come together to form the Red Road ‘public housing apparatus’ (Dunleavy, 1981, p. 9). Similarly, the story of the Red Road in the history of British

highrise housing provision has already been told in compelling detail by architectural historians Miles Glendinning and Stefan Muthesius (1994, and Glendinning, 1992). Our return to the archive of Red Road is not in order to challenge this existing history, but to supplement it conceptually and narratively by looking anew at forgotten aspects of its development and encountering events associated with its current demise.



Fig. 1: Red Road multi-storey flats in 2005. Authors' image.

The highrise and socio-technical relations

The shock of the new widely imputed in modernist cultural production, and manifest in twentieth-century urban life more generally, was experienced in a particularly intimate and conspicuous way in state-sponsored highrise mass housing. The commitment of state bureaucracies to provide highrise housing *en masse*, in high densities, and by way of new 'economies of scale' and innovative building technologies, meant an intensification of the role of technology in domestic life. The nexus between technology and domestic life was a central preoccupation of architectural visions of housing reform in the twentieth century. Parker and Unwin's interpretation of the Garden City idea, for instance, was enabled by technological innovations such as the railway, electricity, and telephone. Similarly, Frank Lloyd Wright's decentralized vision for living, evidenced in his proposal for Broadacre City, was predicated on the widespread use of the car enabled by an elaborate freeway infrastructure. Yet, in both models such technological catalysts were cloaked by the organically inspired housing forms and stood at odds to the nostalgic social worlds

envisaged. The architects' drawings for Letchworth and Broadacre City are telling in this respect: the former omits any reference to twentieth-century domestic technology, while the latter illustrates unrealized technology (futuristic cars and helicopters) in a fantastical, science-fictional style. Representationally speaking, both visions appear to be uncomfortable with the existing and emerging technological realities.

Sociologically speaking, they domesticate technology to fit conventional housing visions. The highrise, by contrast, was intended to be a pragmatic, technically driven housing solution that would radically re-structure the patterns and quality of domestic life. The architectural imagination that gave rise to this form of housing was motivated by the potentials – economic, formal, social, spatial – of new materials such as steel, innovative construction technologies such as rapid system-building, and mechanisms such as passenger lifts and integrated garbage handling systems. The highrise instituted new and unprecedented socio-technical configurations not only at the macro level of construction and delivery, but also through the micro patterns of daily life: accessing one's front door, removing garbage, insulating oneself from a neighbour's noise, or washing and drying clothes.

The intensified socio-technical relations that mass highrise housing wrought were a consequence of the intersection of European avant-garde architectural theory and the imperatives of post-war reconstruction and slum clearance (Dunleavy, 1981; Hall, 1988; Ravetz, 2001). The state housing and planning authorities that responded to such imperatives found sustenance in the theoretical speculations of such figures as Walter Gropius and Le Corbusier. In the context of the United Kingdom it was, as Dunleavy points out, Le Corbusier's contribution that 'made by far the greatest impact' (1981, p. 54). Le Corbusier's famous aphorism, 'a house is a machine for living in' makes perfectly clear that this avant-garde architectural vision boldly embraced the idea of technologised housing. In his book *Vers une Architecture* (1986 [1923]) [*Towards a New Architecture*] (where this aphorism originally appeared) Le Corbusier complained that his architectural contemporaries failed to 'see', let alone exploit, the machinic world that was manifest around them. For Le Corbusier contemporary architectural beauty depended upon embracing technological values: efficiency, rationality, standardisation, mass-production. In pursuit of this he drew inspiration from everyday contemporary objects of technical innovation, such as the

car, as much as he did conventional architectural templates. This technological orientation was given expression in mass highrise housing in his *La Ville Contemporaine* (1922) (reproduced in his *Urbanisme [The City of Tomorrow]* (1987 [1925])). Dunleavy shows how state agencies in the UK came to adopt, develop, and implement specific policies based upon the architectural avant-garde's 'ethos of optimism about technology' and its faith in the universal applicability of mass production building technologies. This vision came to 'link... high flats with technological advance' as 'a leitmotif' of post-war housing reconstruction (McCutcheon cited in Dunleavy, 1981, p. 59). In the UK in the period up to the 1970s this manifested most boldly in the integration of industrialized building systems with the provision of highrise housing (1981, p. 61).¹ This commitment was followed up with official specifications of standards for highrise housing, such that an acceptable quality was guaranteed. This is clearly illustrated in the 1961 publication *Homes for today and tomorrow*, otherwise referred to as the 'Parker Morris Report'. This report, written under the auspices of the then Department of the Environment's Central Housing Advisory Committee, sought to advise on 'standards of design and equipment applicable to family dwellings' (Parker, 1961, p. iv). It addressed family housing in general, but with the expectation that highrise housing would form an increasing proportion of future public housing stock. Motivated by an 'appreciation of the special needs of those who live on high density estates' (ibid, p. 28), and a desire to replicate in highrise housing the design standards of more traditional low-rise housing types, the report devoted a separate section to the highrise (ibid, p. 27). That section raised a range of design and space planning issues specific to the highrise, and each demonstrating the way in which it was explicitly framed as a housing form needing precise technological resolution: sound insulation, communal and private space standards, storage, lifts, balconies, indoor and outdoor space ratios, rubbish disposal, fire escapes, economical building systems.

In the UK the optimism that saw the rapid and large-scale construction of highrise housing in the 1960s was quickly tempered by a range of technical and social problems manifest therein. As Dunleavy observed, '[h]igh-flat building was the most extreme and conspicuous form of mass housing provision [and]...has since become one of the most widely proclaimed (if unstudied) "failures" of public policy in this

field' (Dunleavy, 1981, p. 3). In adjudicating 'why failure?' technology came to be given a determining force. For example, an influential critique of the highrise as a mass housing solution was provided by Dutch architect Nicolas Harbraken, in his book *Supports*. Published at the same time as the Parker Morris Report, it positioned technology in an entirely different way. Harbraken (1972, p. 46) accused architects and planners of being 'bewitch[ed] by partially-understood technical possibilities' which manifests in an 'automatism' and uniformity in housing design.

Social scientific accounts of highrise living often sought to 'test' the social effects of living in the novel highrise. We might think, by way of example, of the long tradition of post-occupancy studies in which resident satisfaction with highrise living is measured and charted. A good number of these studies evidence a technological determinism, in that it is the highrise form (and its novel technologies) that is called upon to explain the quality of life of life of residents within. We can see this determinism clearly at work in the 'science' of Oscar Newman's (1972) study of New York projects, and Alice Coleman's (1985) study of London multi-storey housing (see also Westergaard and Glass, 1964). In the context of Glasgow, Pearl Jephcott's study of resident views of highrise living, *Homes in high flats* (1971), drew explicitly (although not exclusively) on the case study of Red Road. It did so because the supertall character of Red Road meant it was a perfect field laboratory for observing problems residents might be experiencing with lifts, circulation systems and height. Each of these studies, directly or indirectly, built upon a binarised understanding of the relationship between technology and society in which technology was assumed to have a determining effect on quality of life.

Modernist architectural housing designs, the technocratic systems of housing governance that materialised them, and the early social sciences that commented upon them, replicated a very embedded structure for understanding technology in society. In each there was carried an assumption about the building technology and the occupant as distinct entities, with the technology, often as not, given a determining force. Indeed, in this selective sketch of the history of the highrise in the UK this structure of understanding manifested in both the vision of it as a housing 'solution', and the translation of it into a housing 'failure'. Various accounts of modernity

routinely exhibit a technological determinism, although not all of it as instrumental as those we have just rehearsed. For example, Heidegger, in his essay 'The Question Concerning Technology', saw technological 'enframing' as a negative symptom of modernity. For Heidegger technology had been transformed in the modern age from a truthful materialisation of human creativity, to an indifferent instrumental field. All earthly materials, including human beings, were, in his analysis, a mere a reservoir of raw material (the 'standing reserve') for technological appropriation (Heidegger, 1977, p. 5). Furthermore, he felt that modern technology was reshaping complex inter-subjective social relations, producing a measurable predictability and delivering the pre-conditions for control and regulation (see for a similar view Mumford, 1934). As Feenberg notes, for such thinkers modernity is characterised by a society-technology binary in which a 'unique form of technical action and thought' extends itself deep into social life, threatening apparently 'nontechnical values' (Feenberg, 2000, p. 295). More recent theorisations of the role of technology in society have challenged this type of thinking. Technology, it is argued, does not simply determine social life, rather it co-constitutes a relational field of society and technology. It is to some of this alternative thinking about the relationship between technology and society that we now turn.

Theorising the black box

The relationship between society and technology has preoccupied the field of science and technologies studies, which, among other things, has sought to understand the processes by which certain technologies stabilize, become ubiquitous, and effect change in society. Science and technology studies is a theoretically and empirically diverse field, and it is not our goal here to chart its scope (see Sorensen and Williams, 2002), nor even to account in detail for the range of studies that engage directly or incidentally with a technology that might variously be described as 'housing', 'building' or 'architecture'. This analytical field has produced numerous and diverse encounters with buildings of various types (e.g. Gieryn (2002) on a laboratory, Brain (1994) modernist housing, Jenkins (2002) on a commercial office, Jacobs (2006) on highrises, as well as studies of environmental innovation in housing technologies (e.g. Guy and Shove, 2000; Lovell, 2005) and studies of the consumption of domestic technologies (e.g. Barlow and Venables, 2004; Schwartz Cowan, 1989; Shove, 2002).

In addition, the leading thinkers within Actor Network Theory have, on occasion, illustrated theoretical points by recourse to building processes and housing technologies (see as an example Callon and Latour 1981).

Our first step in rethinking the society-technology nexus with regard to the highrise is to displace the binary structure sketched above. This is not about substituting a reductive technological determinism for a more detailed accounting of social or political determinants, as in the revisionist analytical frameworks of, say, Dunleavy's (1981) policy study, or Glendinning and Muthesius's (1994) architectural history. Nor is it simply about highlighting the way users or consumers appropriate housing technologies for their own ends (see, as examples, Chua, 1996; Miller, 1988). Similarly, recent 'social constructivist' styles of analysis (e.g. Jacobs, Kemeny, and Manzi, 2004) while useful for articulating more complex sociotechnical constellations still tend to retain the social as the primary determining force.

The analytical approach of Actor Network Theory attends more vigilantly to the 'seamlessness' of the socio-technical field (Bijker, 1993; Bijker, Hughes, and Pinch, 1989; Callon, 1980; Hughes, 1986). A good deal of the analytical labour of studies of science and technology has been spent understanding the way technologies and socialities co-produce the world. For Latour (2005, p. 81) this task involves tracing the history of technological artefacts, and often those that have 'receded into the background'.ⁱⁱ Actor Network Theory does not simply place the categories 'society' and 'technology' as equal 'actors' or equivalent 'determiners', but re-conceives the world as an assemblage of heterogeneous 'objects' that cannot, *a priori*, be categorised as technological or social. This conceptualization privileges terms such as 'network' (or assemblage), 'collective', 'symmetry' and 'heterogeneity'.

Within studies of science and technology two specific types of socio-technical assemblages have attracted much analytical attention: these being the technological 'success' and the technological 'failure' (Russell and Williams, 2002, p. 41). Latour (2005) articulates the heuristic value of this interest by arguing that successful technologies are significant because the socio-technical associations that hold them together are so seamlessly enmeshed they become 'invisible', while the significance

of failed technologies rests with the fact that previously invisible associations are, at the moment of failure, revealed. A specific study that has at its heart thinking about success and failure is Law and Callon's (1992) study of the 'life and death of an aircraft'. In it they show that the machine that fails is as interesting to technology studies as the machine that succeeds. For it is through the technology that fails that one can detect how 'objects, artefacts, and technical practices come to be stabilized' (Law, 1989, p. 111). And in that story, one comes to understand that context (those who make the machine) and content (what is inside the machine) cannot be distinguished, that they are part of the socio-technical 'coevolution' of the world.

In the theoretical vocabulary that social studies of technology have developed, the notion of the 'black box' has a special place. The idea of the black box is a focal point for understanding the question of socio-technical stability. Latour borrowed the term from cyberneticians who use it 'whenever a piece of machinery or a set of commands is too complex. In its place they draw a little box about which they need to know nothing but its input and output' (Latour, 1987, pp. 2-3). The cybernetician's black box, Latour argues, allows a range of conditions associated with the development of a given technology (for example, controversies that may have been attached to its invention) and its inner workings (its complexity, say) to be 'closed' off (ibid, p. 3). This closure is possible because a range of 'translations' (specifications, scientific studies, policy formulations, material forms, development targets, to name but a few) have variously worked to enrol a wide array of others to the technology such that 'none of them can desire anything else any longer' (Callon and Latour, 1981, 296). With the turbulence of its invention consigned to history, its mutability stabilised, it can acquire a kind of anonymity. As such, this 'anonymity' allows a set of additional transformations to occur. Firstly, its status can grow and it can be understood as a 'hard fact' and the work it does taken for granted (Latour, 1987, p. 139). Secondly, it can mesh with wider technological or social systems and grow 'big'. Finally, it can become 'mobile', for once stabilised a diverse range of end users readily accept and deploy it unquestioningly.

When the history of a black box is interrogated what is usually revealed is a mutable and controversial past, coloured by the risks individuals and institutions take in

developing it (risks to people's careers, financial risks, political risks), the claims and counter-claims that swirl around it, and the divergent trajectories of competing materials and technologies. This history leads Latour to claim that technological artefacts only ever make provisional claims on the status of black box. A black box technology is always susceptible to fresh problematisations, to renewed controversy, to unforeseen counter-claims. Scratch the recent history of any black box artefact and it usually reveals '[u]ncertainty, people at work, decisions, competition, controversies' that can be readily re-activated at any moment in the future (ibid, p. 4). Latour characterises this provisional state in economic terms. Black box stability depends upon a technological artefact being able to resist counter-claims and shed controversy. This state is achieved not simply because the technology is 'right', but because counter-claims are dissuaded by the escalating 'cost of disputing', (ibid, p. 83). In other words, a new technology achieves black box status when it becomes too expensive for rival institutions and agencies (speaking on behalf of rival technologies) to generate controversies around it.

In what follows we return to the Red Road highrise with an analytical tool kit based on the conceptual frames offered by this alternative (more hybrid, more symmetrical, more heterogeneous) model of the relationship between technology and society. As we flagged in our introduction, we are interested in two specific moments in the forty-year history of Red Road: the inaugural phase of development and the current phase in which it has been earmarked for demolition. By focussing on dimensions of the 'birth' and 'death' of Red Road we are self-consciously replicating a methodological strategy in which 'success' and 'failure' are viewed symmetrically, and equally relevant to understanding the ways in which socio-technical events work. A second feature of our strategy is that our analysis depends upon case materials gathered by way of quite distinct techniques. The evidence of the 'birth' of Red Road belongs now to the archive, and it is through the many inscriptions deposited there that we are able to follow the varied actors (be they visions, policies, building standards, press articles, social scientific studies, materials or people) that assembled in the making of Red Road. The 'death' of Red Road belongs to the present, and it is possible therefore to follow the heterogeneous actors involved in this process ethnographically. For the

purposes of this paper, we confine our attention primarily to a meeting held to rally residents to oppose the decision to demolish.

Part I: Black boxing Red Road

In this section we return to the archive of Red Road and examine some of the socio-technical assemblages that allowed it to be built. In so doing we are conceiving of Red Road as being produced within what Jorgensen and Sorensen (2002, p.198-199) describe as a 'development arena'. This is a dispersed space that incorporates a number of locations where action takes place, knowledge produced and visions dreamed, as well as artefacts, inscriptions and standards, human participants and materials. Our specific interest is in how Red Road garnered the many allies that worked to stabilise it, however tentatively and provisionally, as a housing 'black box'.

Building Red Road

On the 28th of October 1966 the then Secretary of State for Scotland, Mr William Ross (accompanied by his wife), formally 'opened' the first, and tallest, of the six 31-storey point blocks and two 26 to 28-storey slab blocks which were to be the Red Road housing estate. Its innovative construction consisted of steel frame, supporting 5" in-situ laid concrete floors, and asbestos-cement insulation board and fully compressed asbestos cement sheeting for the outer cladding of the building (Bunton and Associates, 1966). The first tower was of a height unprecedented for residential construction in Britain.

Red Road was far from finished when it was opened. Half the site was still under construction and the 1,350 dwellings would not be completed and ready to let until 1968. Pictures of the event show people surrounded by the unclad steel skeletons of highrises clearly still under construction. Controversies that had attached to the project in its conception and construction were effectively set aside that day such that the Red Road that was 'opened' was assumed to be a 'closed' black box. At the opening of that first block the then Scottish Secretary William Ross exhorted the project construction squads: 'Let's get on with it! Put everything you have into the completion of these blocks.... Remember what it is for...it is all for the ordinary people. It is your job to give them decent homes'. This entreaty, in Latoureaux (1987,

p. 129) terms, serves to stitch the many hands and tools of the workers into the machinic logics of a mass housing programme servicing Britain's post-war housing emergency.

The Glasgow Corporation's response to the post-war housing emergency was slowed by the lack of appropriate building sites. Led by Baillie David Gibson, convenor of Corporation's Housing sub-Committee on Sites and Buildings, the Corporation devised a scheme which was intended to shorten the period of planning between the selection of a site and the commencement of building on it. That scheme 'envisaged the pre-planning of a range of standardised designs for multi-storey flats which would be devised specifically with an eye to rapid construction and to making optimum use of the Building Department's own resources' (Baird Smith, Sinclair Gaudie, and Shankley, 1969, p. 4). If a site became available 'the appropriate plans could be selected from the ready-made range, thus curtailing the normal preliminaries of designing, detailing and costing' (ibid, p. 5). To realise its vision the Glasgow Corporation's Buildings Department needed to be furnished with a multi-storey housing 'black box': a fully mobile housing design template (or set of templates) whose internal spatial and technical specifications were so stable that it could be deployed on any site without local adjustments being necessary. By 1960 the Housing and Works Department of the Glasgow Corporation submitted to the Sub-Committee on Sites and Buildings a report detailing a possible arrangement for the generation of highrise design templates. In the same year, the local architectural firm, Sam Bunton and Associates, already experienced in the production of multi-storey housing in Glasgow, were commissioned to provide 'designs of standard types of multi-storey flats' or 'type designs' (ibid, pp. 5-6). It was expected that these 'type designs' would take advantage of the Housing and Works Department's existing resources, specifically its concrete-casting plant. There could be no clearer expression of a housing black box: a housing type that meshed seamlessly with existing socio-technical systems, could be deployed in a variety of places, service many users, and respond to changing circumstances without having its internal technological configurations challenged. Indeed, architect Sam Bunton was so certain of the stability of his housing vision that he saw it as having incredible durability such that in the future the frames might be re clothed 'with external walls, windows, internal

partitions and finishings using the exciting new materials and methods stemming from 100 years of progress' (*Glasgow Herald*, 1963a).

When Red Road 'opened' it was not its ubiquity, but its novelty that gathered allies. Its unprecedented scale acted as a rallying point around which supporters swarmed. For example, it was seen as a flagship development in a wider modernisation vision for Glasgow. Now Glasgow could lay claim to the tallest building in Europe, and one whose height was 'exceptional even in [comparison to] local authority residential building in the United States' (*Glasgow Herald*, 1966a). In an *Evening Times* article entitled 'Glasgow's the tops!', Red Road was depicted as exhibiting 'space-age innovation'. And in an advertisement sponsored by The Corporation of Glasgow and appearing alongside a celebratory newspaper account of Red Road's 'opening', the 'Superblock', as it was dubbed, was one in a list of attributes (such as the motorway) that marked Glasgow as a 'forward-looking city' (*Glasgow Herald*, 1966b). Also drawn into the opening event were the many contractors, fabricators and suppliers who could proudly claim to have contributed materials and labour to the making of Red Road: Heatovent Electric (heaters), Turner Asbestos Cement (cladding and insulation), Scotcon ('True Flue' refuse chutes), A.I.R. Ltd. ('Airvent' ventilation systems); Stewart Plant (cranes, hoists, pumps and excavators), Weatherite Ltd. (aluminium fascias), Drysdale ('Pyromac' automatic fire fighting plant), Braithwaite and Co (water storage tanks), Bellrock (gypsum inner wall linings), and Veedip, supplier of the industrial gloves that covered the many hands that worked to build Red Road. And of course steel manufacturers were one of the strongest supporters. In an advertisement headed 'A tall storey...but fact, just the same', the Lanarkshire Steel Company Ltd attributed the acclaim Red Road enjoyed for being the tallest housing development in Europe to 'versatility and adaptability of steel'. (*Glasgow Herald*, 1966b).

We wish to take this housing, and the black box status it claimed, as a starting point for investigating the work that was required to stabilise it as a successful housing solution. Latour points out that the paradox facing 'fact-builders' (here those who are engaged in making this highrise housing solution) is that 'they have simultaneously to *increase* the number of people taking part in the action – so that the claim spreads, and to *decrease* the number of people taking part in the action – so that the claim spreads *as*

it is' (Latour, 1987, pp. 207-208, emphasis in original). In what follows we show how the Glasgow Corporation could neither control those who took part in the action of making Red Road, nor ensure it 'spread' as the design-type they envisaged. We encounter these difficulties through two instances in the conception and construction of Red Road. The first deals with the material components that were used to build the project, and the controversies they carried with them. The second deals with the way in which the plan for a highrise design-type was radically altered by the specificities of its materialisation.

Materialising Red Road

We noted earlier that beneath the surface of any black box is uncertainty, competition and controversy. We also noted that stability or 'success' in a technology is not simply about getting its internal workings 'right'. It is also about relevant social groups coming to see that the technology has no problems or doubt attached to it, that there are not 'dissenters' able to modify it (Pinch and Bijker, 1989, pp. 44-45). In this section we look at the way in which the ability of Red Road to lay claim to being a housing solution depended upon this kind of work. This work was not focussed, as one might expect, on the 'right' or 'wrong' of building high. In 1960s Glasgow it seemed there were few dissenters in relation to that vision. Rather, controversy emerged around the right way to build high: was it by using conventional building technologies like steel reinforced concrete, or was it by adopting new prefabricated methods in unison with structural steel framing?

The architect for Red Road had elected to proceed with structural steel. That decision was, he argued, a consequence of the very high density requirements (212 ppa) the Corporation had set for the relatively small ('postage stamp') site (Horsey, 1982, p. 177). The consequence of this, according to Bunton, was 'to rise to a height of over 30 storeys', well above the 'practical limitations' of conventional concrete cross-wall systems. And once compelled to build supertall, Bunton argued, it was 'necessary for total safety to turn over to a structural steel frame' (Bunton, 1969, p.1). Herein was established the central socio-technical alliance that materialised Red Road. In this moment the quest for a highrise design template, a local housing vision, an architect and a housing bureaucracy merged with industrialised production systems and the

very building materials such as steel. That socio-technical collective was itself a powerful force drawing others to the idea of Red Road as a housing solution.

There was much to be said in favour of using steel frame construction methods, some of it was articulated technically and some of it socially. When the Glasgow Corporation committed to building multi-storey flats with steel frames at Red Road, it was lauded by local construction engineers for providing a ‘progressive lead’ to steel-makers and steel-workers alike (*Glasgow Herald*, 1963b). As Bunton noted in a Letter to the Editor of the *Glasgow Herald* (1963c) advocating the adoption of high performance steel:

‘[it] is the best material available in the construction field since it brings into active participation an array of steel erectors, and the resources of an industry which is at present only working at...one third of its capacity’

The industry, in turn, was explicit in its support of steel in highrise construction. For example, in 1963 the North-east Coast and Scottish Heavy Steel Makers joined forces and advertised in the *Glasgow Herald* (1963d). The advertisement sought to reinforce the link between ‘new steel’ and highrise building programmes: ‘For multi-storey blocks of flats, choose steel....for its speed, its economy, its versatility, its improved fabrication and erection techniques’. It also offered information on where readers might acquire their ‘Plan to Build in Steel’ booklet, concluding that ‘STEEL IS RIGHT’ (Fig. 2).

For better housing faster plan with the **NEW STEEL...**

For multi-storey blocks of flats, choose steel – the stronger, more efficient *new steel* which has so many advantages. Choose it for its speed, its economy, its versatility, its improved fabrication and erection techniques. In the average-sized block all this may well mean families housed and rents coming in two to three months sooner. And, despite the steep increases in labour and practically all other costs, the price of an erected steel-frame is now nearly 20% lower than it was in 1957. Housing, schools, hospitals, factories, bridges – for almost any type of permanent structure, swiftly constructed and at a highly competitive price – steel is right.

Come up-to-date on structural steel:
 Ask for a copy of 'Plan to build with Steel', available from the Information Officer, North-East Coast and Scottish Heavy Steel Makers, New Exchange Buildings, Queen's Square, Middlesbrough.

... because STEEL IS RIGHT

Issued by the **NORTH-EAST COAST AND SCOTTISH HEAVY STEEL MAKERS**
 Appleby-Frodingham ■ Colvilles ■ Consett ■ Dorman Long ■ Lanarkshire ■ Skinningrove ■ South Durham

Fig. 2: Advertisement by the North East Coast and Scottish Heavy Steel Makers, *The Glasgow Herald*, 11 March 1963.

The tone of this advertisement, its list of steel's attributes, its claim to the material's rightness, and its mention of 'choice', suggests that the use of steel at Red Road may not have been a settled matter. Indeed, for a few months in 1963 the pages of the

Glasgow Herald played host to a strident debate between Red Road architect, Sam Buntun, and the then Scottish manager of the Cement and Concrete Association, Peter Russell. Russell spoke on behalf of a more standard building technology, steel reinforced concrete.

The concrete industry was itself adjusting to changing fortunes, in its case those resulting from the turn away from on-site ‘muck and wheelbarrow’ construction to prefabricated techniques, including those involving steel frames. In an article that was responding to a previous article detailing recent innovations in the application of structural steel in building, Russell challenged steel’s very ‘rightness’. He did so by opening up the matter of fire risk, a risk that is based on steel losing its structural integrity when exposed to relatively low intensity fire. In conventional tall constructions of the time, steel was used in unison with concrete (steel reinforced concrete) to produce a fire resistant structure. Although Russell’s article does not mention Red Road explicitly, it does refer in general terms to Glasgow’s recent commitment to ‘build high’ and the ‘paramount importance of fire resistance’ in builds over 30 storeys (*Glasgow Herald*, 1963e).

It is unsurprising that Red Road’s architect should feel compelled to respond. In a Letter to the Editor Buntun attends at length to the ‘difficult to comprehend’ accusations about the fire risks of structural steel. In its defence he mobilizes the allies that reside, by proxy, in international construction industry standards, reminding readers that structural steel is always insulated against the spread of fire ‘in accordance with world-wide specificational requirements’ such that it is as ‘sound and fire proof as any concrete building’ (*Glasgow Herald*, 1963c). Furthermore any architect using structural steel in tall constructions is compelled, he points out, to work with fire specialists to determine satisfactory escape routes, the location of fire safety doors, and high-pressure water access. Responding to Buntun, in turn, Russell reiterates his concern about fire risk, even in structural steel that has insulation cladding (*Glasgow Herald*, 1963f). In doing so he too calls in allies, in this case facts produced by a ‘laboratory test’ of the fire resistance performance of steel reinforced concrete. In contrast, he has at hand only ‘strong doubts’ about the fire resistance of structural steel insulated with ‘light hollow casing’ (as was to be the case with Red

Road's asbestos casing). Bunton forcefully returns to the fray by relegating the argument about fire risk to the least factual of categories, that of the 'red herring'. His defence of steel as a construction material for highrise housing is addressed to the many others who, unlike Russell, appear to be swarming towards his vision of Red Road: 'It is...imperative to make it clear and categorical that his remarks are completely misleading, and that people who reside in tall steel-framed buildings protected and encased in fire-resisting materials do so in the maximum conditions of security and safety' (*Glasgow Herald*, 1963g).

In this set of exchanges about the technical merits of steel versus concrete, the material technology that was to guarantee the adequate fire resistance of structural steel is mentioned only in passing. To ensure the structural integrity of steel in this highrise housing context Bunton must combine it with another material, asbestos. Although today asbestos is known to pose serious dangers to human health, and so is deemed unsuitable as a building material, in 1963 this danger was not widely accepted and so it could still be mobilized as a powerful ally of steel.ⁱⁱⁱ As Bunton confidently reminds readers in an article featuring Red Road in *International Asbestos Cement Review*, '1 and 1/2 hours protection to the structural steel work' (Bunton, 1966, p. 26). Steel and asbestos in partnership with social others operate as the collective that stabilises Red Road and holds it together, albeit provisionally, as a viable safe housing solution.

Translating Red Road 1

The last of the completed dwellings in the Red Road development were handed over to the Glasgow Corporation in December 1968, some 5 years after piling had begun on site. But it was over a year earlier, in October 1967, and when only 40% of houses were complete, that a request was issued by Councillor Muir to the City Chamberlain to establish an Inquiry into Red Road. An Inquiry such as this had as its remit to enquire into the facts of a situation, in this case the overspend on construction and the failure of relevant parties to predict that overspend. Of course a more securely stabilised black box, effectively insulated from dissenting voices, would not require such scrutiny. In contrast, technologies that malfunction or fail very quickly attract scrutiny because the varied allies that had worked to hold them together demonstrably

stop doing so (see Law 2003, Jacobs 2006). When the Inquiry looked inside Red Road and found other facts, it began a process that opened it up again, transforming Red Road from a widely supported housing fact into a more fragile and vulnerable socio-technical entity. Under the scrutiny of the Inquiry even the use of steel, the material that seems so central to Red Road's black box status, came to be questioned.

In investigating the overspend of the project, the attention of the Inquiry came to settle upon the way the architect departed from his original brief, and the deficiencies in the Corporation's systems for commissioning and monitoring contracts. As noted above, Sam Bunton and Associates had been contracted by the Glasgow Corporation to produce a standard 'design type' for multi-storey flats, one that exploited existing building technologies controlled by the Corporation and served its needs to build quickly on a range of sites. The Inquiry found instead that Bunton produced something at Red Road that was anything but standard. Nor was it a 'natural outgrowth' of original contract to devise a standard type (Baird Smith, Sinclair Gauldie, and Shankley, 1969, p. 21). Rather Red Road had come to be a 'novel', 'unprecedented', 'experimental', 'speculative', 'singular' project, and its claims to offer a housing template that was efficient and economical deemed 'illusory' (*ibid.*, 1969, pp. 42, 49, 31, 33, 53, 60). Red Road was, the Inquiry concluded, produced in an 'atmosphere of improvisation' (*ibid.*, pp. 30). The facts that the Inquiry uncovered about Red Road's production translated it from a design type (standardised, stable, mobile) to a crafted object whose final form had been (excessively) influenced by the contingencies of its making.

The first of those contingencies was the Red Road site itself. It was only months after Sam Bunton and Associates had been engaged to produce a generically applicable highrise design type, that a 20-acre 'in-fill' building site become available at Balornock (*ibid.*, p. 7). It was at this point that a brief to generate generic highrise design template/s came to attach itself to the specificities of one particular site, a site that Bunton later complained was 'one of the worst building sites in the city (Bunton, 1969, p.4). It was also at this point that the usual sequence of building development (site-design-build) transformed into a far messier assemblage. One component in this rearrangement was the Glasgow Corporation which was involved in its own

experiments with a ‘package deal’ or ‘direct labour’ contract, whereby its Buildings Department (as opposed to the City Architect) established a design and construct contract with Sam Bunton and Associates (Baird Smith, Sinclair Gauldie, and Shankley, 1969, p. 20). As noted, the adoption of the ‘package’ model was intended to produce design and construction system that was both efficient and suited to the Department’s existing concrete plant. But, pressed by the specificities of Red Road (its size and the plot ratios required) Bunton abandoned the work already done on a design type using concrete cross-wall construction, increased the height of the proposal, and introduced steel as the primary structural material. In the end this contractual experiment resulted in the application of a novel construction method based on steel, for which the Corporation had few in-house resources and over which the City Architect had no control. As the Inquiry found, the density imposed on this site ‘destroyed the structural logic of the proposals that were being developed to suit the Department’s resources and plant’ (ibid, 1969, p. 20).

The decision to move to steel frame construction produced a range of unpredictable associations. In the first instance, the wind loads at Red Road transpired to be so great that Bunton’s clean steel frame construction methods could proceed safely only if concrete flooring was poured concurrently in-situ in order to stiffen the structure during erection (ibid, 1969, p.35) – the very material that Bunton had earlier eschewed, concrete, had been called back in to work in partnership with steel. And, furthermore, the construction of the steel frame ceased in the wet due to safety requirements. In all, the Inquiry found, ‘the lost time in steel erection due to bad weather added up to no less that 370 days (ibid, 1969, p.35). To this was added the architect’s insufficient understanding of the technical and contractual problems of providing adequate plant and crane facilities for eight buildings in excess of 300 feet (Bunton, 16 December 1969). As the Inquiry concluded: ‘The twin attractions of this experiment were speed and economy. In the event, unless the Red Road method can be profitably applied to future schemes, both these aims have failed’ (Baird Smith, Sinclair Gauldie, and Shankley, 1969, p. 33). If Red Road was Sam Bunton’s (and the Corporation’s) ‘experiment’ in producing a highrise black box, then in the end it was deemed to be based on very poor building ‘science’. Historians of the tower block in the UK were to subsequently describe Red Road as the most obvious

example of the ‘discrepancy between Modern ideals of technically and organisationally advanced building, and disorganised practice’ (Glendinning and Muthesius, 1994, p. 318).

Part II: The last allies

Some 40 years on any trace of the original vision of Red Road as offering a housing black box – the template for a ubiquitous housing solution – had entirely faded. On the 9th of March 2005, managers of the Glasgow Housing Association (since 2003 the registered social landlords for Red Road, and hereafter referred to as GHA) announced a ten-year £60m redevelopment strategy for the Red Road site. This included the demolition of 153/183/213 Petershill Drive, , a 26-28 storey slab block containing 312 flats, one of the largest of the Red Road highrises. Although no announcement has been made about the fate of the remaining highrises at Red Road, it is clear they no longer have a place within the new vision for the planned low-rise development. In this second empirical part of this article we look closely at the beginning of the end of Red Road. That end is not a dramatic ‘catastrophic failure’ but rather a long and slow demise. Our aim is not to account factually for why Red Road failed, but to give an account of how the fact of Red Road as a housing failure gained currency in the context of redevelopment visions. This fact secures itself by way of a range of translations of the socio-technical event that is Red Road: some of these sought to confirm that Red Road should be demolished, others sought to defend Red Road and return it to the system as a viable housing solution. We begin by analysing the announcement of the ‘regeneration scheme’ that entailed the demolition of Red Road and the way that event – through a range of inscriptions such as letters, media releases, and the location of the main media event – translated Red Road into a fact of failure. We then examine a meeting of tenants and housing campaigners, held in April 2005, whose aim was to generate a set of robust alternate facts about Red Road, so countering the official narrative of failure.

Demolishing Red Road

Some 12 months prior to the redevelopment announcement Red Road residents had their first official indication that there may be some truth to the rumours then circulating that their homes were to be demolished. In a letter from the GHA, residents were called into a consultation process around the topic of the ‘longterm future of MSFs [multi-storey flats]’ (GHA, Letter to Occupants, 19 May 2004). While stating that no decision had yet been made to demolish the highrises at Red Road, the

letter confirmed that their long-term viability was open to question. Included in this letter was a list of the ‘problems’ known to be associated with ‘MSFs’ generally: high cost of modernisation, low demand, high rents relative to other housing types, high maintenance costs, poor environment, lack of community facilities, ‘too many people in a small place’ (density), lack of suitability for children. To this list of generic problems was to be added a one final, compelling fact, Red Road’s non-traditional construction: ‘[t]hey were built using a steel frame which required the widespread use of asbestos to ensure adequate protection from fire’. Although posing no immediate health risks, the presence of asbestos in the building fabric made attempts to maintain and improve the standards of the flats particularly difficult, posing dangers to contractors and residents alike. For example, all prospective tenants are warned of the danger of asbestos-containing products, and are asked not to puncture wall panels, and some repairs require residents to be decanted. Asbestos will even determine the very method to be used in demolition (piece-by-piece ‘deconstruction’ as opposed to an explosion). As an un-named spokesperson for the GHA concluded: ‘I can’t see a situation where anyone could refurbish these houses’ (Evening Times online, 2005). The GHA letter is a small but significant inscription within the assemblage of objects that work to translate Red Road into a housing failure. It draws upon a wider range of inscriptions, including academic analyses (of, say, disinvestment, stigmatisation, residualisation), political statements, quantity surveys, each of which to consolidate this fact. As the GHA letter reveals, any attempt to complicate or contest the story of Red Road’s failure is easily short-circuited by recourse to one ‘irrefutable’ fact: the presence of asbestos in the building fabric.

A letter such as this helps produce, by disseminating, the fact of Red Road as a housing failure. In the media conference that announced the redevelopment several other inscriptions as well as the building itself were performatively called together to stabilise and harden that fact. The conference was held in an empty 23rd floor Red Road flat. During the event little was said about the ‘problems’ so clearly listed in the tenant’s letter. Attention was focussed instead on the redevelopment vision. While the GHA officials formally announced the redevelopment plans that day, they also counted on the decaying and tenantless flat to eloquently convey the case for demolition.^{iv} The announcement was further supplemented by a GHA-commissioned computer animation which showed a sequence in which the Red Road highrises progressively disappear from the Glasgow skyline (GHA 2005). In this further

inscription, the fact of failure has become so stable that even the messy matter of planning, financing, and physically demolishing this massive, asbestos-ridden building could be bypassed by a simple mouse click. The GHA officials, their inscriptions, and the very fabric of the building, conspired to translate Red Road as a housing failure, so bringing an ‘end to explanation...cutting off indefinite complexification... tidying things up’ (Law, 2003, p. 11).

While the media event and the reportage it generated spread the official claims about the failure of Red Road, it also served to embroil greater numbers of people in that fate. This inevitably heightened the risk to the GHA’s plans to demolish by exposing them to counter-claims. One such dissenting voice was the Red Road Save our Homes Campaign which was active for some months after the redevelopment announcement. We are not going to offer an account of its emergence or political efficacy here. Rather, we wish to deploy the theoretical lens we are working to show something of how those drawn together in the name of the Campaign comported themselves in relation to the ‘fact’ of Red Road as a housing failure. In particular, we account for the ways in which they sought to contest that fact and to translate Red Road back into a viable housing solution. The Campaign staged a public meeting held just one month after the redevelopment and demolition announcement in an old school hall on the Red Road estate, and attended by around 80 people (Fig. 3). The task that faced those gathered that night was a difficult one: how do they contest the fact of failure attached to the ‘Red Road multis’? How can they reshape the socio-technical assemblage that the redevelopment announcement had generated and avert the fate of demolition? And would the building technology of Red Road, along with the various translations of it, afford or forbid further claims for Red Road as viable housing?



Fig. 3. The Red Road Save Our Homes Campaign Meeting. Authors' image.

The Red Road Save our Homes Campaign meeting brings together a new arrangement of people: residents who might not have met before, neighbours from nearby highrise estates, local politicians and housing activists. That the instigator of this meeting could call the group gathered there the 'Red Road Save our Homes Campaign' gave stability to a collective where none existed. The work had yet to be done of ordering the people gathered there into active allies who would work towards another destiny for Red Road. In the first instance this labour fell to the instigator of the meeting (a Red Road resident and housing activist) and his invited speakers (other non-local housing activists and a Member of the Scottish Parliament (MSP)), all of who were seated, separately from the audience, at a table at the front of the hall. The right of those gathered at the table to speak on behalf of Red Road was by no means clear and much of the early part of the meeting was dedicated to establishing this. The designated speakers variously spoke about their credentials: as a concerned local resident (the meeting instigator), as housing activists who understood the political background, or as an elected representative with experience dealing with the GHA. They sought to galvanize their authority to articulate (translate) on behalf of tenants an alternate set of facts about Red Road. At one point a tenant stood up and challenged the speakers, accusing them of political interests and specifically of being there simply to support the political aspirations of the instigator of the meeting. The challenge required a response:

‘Concerning the political aspect I disagree entirely. The gentleman, who stood over there [pointing to the meeting instigator], lives in Red Road and has lived there all his life. He has actually stood as a candidate for the election...[but] he has never announced that [here]. So he is not here political. He is here because he cares about the people. And so is everybody else at this top table.’ (*Speaker B, audio campRR, 00:51:39*)

Additional work by the speakers gathered at the table was directed at establishing what exactly residents were up against – to make clear the ‘real’ reasons why Red Road was being demolished. One housing activist named the GHA and an agenda of privatisation:

‘They are saying ... they are going to build six hundred new homesWhat is it about? It is selling off the land for private housing development, and bringing in middle-income families and kicking out low-income families. That’s the real agenda by the Glasgow Housing Association Limited.’ (*Speaker A, audio campRR, 00:10:53*).

Another attached an academically defined term to the process: ‘There is a name for it. I think the academics use the name of gentrification’ (*Speaker B, audio campRR, 00:20:49*). A third speaker animated the enemy by linking the proposed demolition to a familiar ghost:

‘Scotland is actually been used as a laboratory by New Labour Tories in the same way as Margaret Thatcher attempted to use this country as a laboratory in an experiment...with the poll tax. Housing is gonna become the new poll tax.’ (*Speaker C, audio campRR, 00:32:23*).

We have seen how the media event and associated inscriptions operated to short-circuit any complications stemming from the designation of Red Road as a housing failure, so facilitating the demolition of the highrises. In contrast, spokespeople at the Campaign meeting sought to linger precisely on those complications, to coax them

into being, to enlarge them and to explore their potential to engender alternate points of view, and other facts, pertaining to the fate of Red Road. The more effective the Campaign was at elaborating such other facts, the more effectively they could destabilise the fact of Red Road as a housing failure, and the more compelling their alternate visions for the viability of Red Road could become.

Re-materialising Red Road

Establishing other facts about Red Road was a central part of the discussion that night. But in the course of the meeting the question of whether Red Road itself – its material fabric – was worth saving stubbornly persisted. The building itself, along with the professionals and amateur ‘experts’ who offered translations of it, remained a forceful actor and, consequently, continued to foreground the complex socio-technical character of the event. This is usefully illustrated by one woman’s intervention from the floor and the responses it generated. Prefacing her comments with the warning that ‘you might not like what I have to say’, and contesting a claim from another resident about the structural soundness of the highrises, the woman told the meeting a story:

‘I live 29up in the 213 block. My next-door neighbour is right here in front of me. I am 29 up. I had an inspector out from Allied Construction and he told me that the blocks were not structurally sound. There is structural damage my house suffers from. I mean you see the cracks in the walls opening and closing with winds, the high winds. What I was told was, don’t paint the walls put up wallpaper and hide it. And they came out with boxes of Polyfilla’ (*Audience A, audio campRR, 00:59:51*)

Rather than recruiting this woman as an ally to the Campaign cause, and transforming her into a housing activist, the meeting served as a forum for her to ‘question’ the building’s structural integrity and support the case for building failure. The speakers at the table tried to repair the situation:

‘I just want to say, people keep using this term structurally unsound. That isn’t a proper term. And if this buildings actually were structurally unsound... If they

actually were you would have an hour to pack and you could... and get out.’
(*Speaker D, campRR, 01:06:57*)

‘Now, that cannot be verified other than through professional independent opinion. If you have got professional independent architects, who are prepared to comment and have a look at those blocks and tell you if they were structurally sound. My suspicion would be that they are structurally sound. You know... In terms of multis people say, well multis have only got a limited shelf life. Well look at the Empire State Building. That’s been up for a fair long time. That does not show any sign of sort of collapsing in any time shortly.’ (*Speaker C, audio campRR, 01:04:41*)

In order to keep the idea of a Campaign valid, and the emergent collective tied together, the speakers at the table, in turn, transformed themselves into legal advisers and structural engineers. They try and repair the buildings by repairing what is known about the buildings. In so doing they place this woman, her cracked wall and her doubts, outside of the emerging Campaign collective. Suddenly it appears that the activists – most of whom do not reside at Red Road – care more about Red Road than she does. She challenges this arrangement:

‘Well I think you have taken what I have said the wrong way that I hate these flats. I love my flat. Don’t get me wrong. I do. I adore my flat. I have spent a fortune doing that flat up, and all on contract. But at the same time, I can’t afford to decorate every year because these walls are opening up.’ (*Audience A, 01:06:35*).

This resident gives perfect expression to the ‘uncertain fact’ that it at the heart of the meeting that evening, and of the controversy of Red Road (Callon, Lacoumes and Barthe (2001)).

Translating Red Road 2

Controversies compel other facts to be collected and solutions to be proposed. The organisers of the Red Road meeting sought to initiate a process whereby alternate

facts could be collected and around which a vision for Red Road that did not include demolition could be built. To do this work, those gathered at the table had to call upon the residents of Red Road. From the moment the GHA announced their plans to redevelop the Red Road site, those who opposed demolition of the Red Road highrises argued that residents' views had been discounted from the decision-making process. Speaking at the time of the demolition announcement, a Red Road housing activist complained that the:

‘consultation process could have been better. A small questionnaire was carried out last year but we wanted a social survey, which never materialised’
(Springburn Herald, 2005, p. 4).

Conducting a social survey became a primary preoccupation of the meeting that night, and the Campaign more generally. The hope of organisers was that a social survey would be the mechanism by which they could assemble a robust set of alternate facts . It was a view grounded in a specific style of housing activism, and which was presented to the residents assembled in the hall as a strategy with a track record of success based on the experience of residents in the neighbouring highrise estate of Sighthill, where ‘their own independent survey’ was understood to have been pivotal in the GHA’s decision to upgrade rather than demolish. That the collection of resident’s views, through the device of the social survey, was the right way to structure a campaign was never questioned during the meeting. As one speaker put it: ‘The survey – you’ve got to get behind it. It is not even a question to get behind it.’ (*Speaker D, audio campRR, 00:42:23*). The only question to be resolved at the meeting, it seemed, was how to best undertake it.

Surveying is a practice that unfolds in between the field and, what Latour (1987, pp. 215-257) has described as, a ‘centre of calculation’. A questionnaire has to be designed by the organisers in a survey centre (here a Campaigner’s home or a community hall), questionnaires have to be dispatched in the field (here through the doors of Red Road flats), interviews have to be carried out (with tenants), forms filled and collected (by volunteers), findings calculated and evaluated a in a centre of calculation (using tables, graphs and diagrams), and a final report produced and

publicised. Together these steps constitute a process of ‘translation’, allowing the final report and the ‘centre of calculation’ to speak on behalf of all those interviewed (Murdoch, 1997, p. 327).

Determining the details of that translation process, how the survey work was to be done, was a contentious issue for the meeting, not least because conducting a survey in a highrise building like Red Road, with its density and history of residualisation, produces specific socio-technical challenges. There are lots of doors to knock on, people are not always home, and those who are might not co-operate. Whether the survey should be conducted by a face-to-face, door-to-door method using volunteers was questioned by an unlikely source, the Campaign instigator. He spoke from personal experience:

‘We collectors we did get a lot of abuse from people when going door-to-door. So I am still not in favour of this going door-to-door. I am sorry I am saying that right now. We are not going from door to door.’ (*Campaign leader, audio campRR, 1:12:37*)

Refusing to undertake the survey face-to-face and door-to-door threatened the translation process that the Campaign organisers had already assumed was so essential. Without a ‘proper’ survey (with a good response rate), the ability of the Campaign to generate robust alternate facts about Red Road would be compromised. The meeting desperately canvassed for a solution that would allow the survey to proceed. Finally, it was agreed to designate a place where tenants could drop off completed forms. This strategy sought to stabilise the survey by changing the operators (volunteers collecting) and movements (how they collect) between the centre of calculation (a local office) and the field (the flats). But even this new system was questioned on the grounds that older residents might not be physically capable of returning their forms to a central office. Despite this, the Campaign instigator reiterated why a door-to-door system was not feasible:

‘Can I make my point? It was muggins that delivered survey forms to every flat in this estate: Me, on my own! So that’s one person that delivered all your

survey forms. We do not have the amount of [volunteers] that go to the doors even once, never mind two or three times. Forget it!’ (*Campaign organiser, audio campRR, 01:16:56*)

The disagreement about the survey method was not resolved that evening, rather a new problem emerged: how to get enough volunteers. The final call of the organisers was for members of the audience to sign on as volunteers, not to go door-to-door, but to become a member of a committee that could discuss how the survey should be done. Signing on to this list became an urgent matter for it was this inscription that would hold this disparate group together as a Campaign. It was this list that would translate residents into Campaigners, and it was this list that could be taken away from the meeting and used to initiate further action in defence of Red Road.

‘Can I just finishing by saying we are getting the names for the committee and also when the committee meets they can decide how they are going to approach the [survey]. And that’s the way how to do it.’ (*Speaker A, audio campRR, 01:23: 04*)

At the end of the meeting a group of disparate people that should have been transformed (through the meeting, the list, and the commitment to a survey) into a well-sized and powerful collective supporting Red Road, did not materialise. At the end of the meeting people stood up, not to fight demolition but to leave the building.

Conclusion

In this paper we have sought to put the Red Road highrise, past and present, in touch with analytical tools delivered by studies in science and technology. We argue that this enables the the socio-technical co-production of the world of highrise housing to come into view. This perspective solicits a more heterogeneous range of actors and forces (human and non-human) which is especially useful when considering the socio-technical assemblage produced by the highrise. As we have shown, the existing accounts of the highrise as a residential form have tended to follow either a technological determinism or a social constructivism, as if it is possible and necessary

to keep the social and the technical apart. Throughout this paper we have sought to keep the social and the technical in association and we have done so because we believe that this better accounts for the diverse forces at work in shaping and reshaping a housing event like Red Road. To take up this view does not mean that we ignore process more routinely labelled as ‘agency’ or ‘politics’ or ‘structure’, but it does mean that we are always interested in not assuming a force, or ordering of forces, *a priori*. In this sense, our task has been, to paraphrase Latour (2005), ‘to keep the [highrise] flat’, that is, to keep the social and the material (and, we might add, the micro and the macro) on the same explanatory plane.

The specific analytical tool we deployed in relation to Red Road, was the science and technology studies’ concept of the black box. This is especially relevant for understanding the highrise which, like no other housing type, was spawned out of an architectural and bureaucratic vision that wished to harness technological logics to the provision of a mass social housing solution. We show how the highrise was conceived of as a housing black box: a technology that would be ubiquitous, without controversy and which, because of an absence of dissenters, could spread to many users. In the case of Red Road, as with many other British translations, this was not to be the case. In the first instance, we explored this more messy trajectory historically, showing the socio-technical shaping of an avant-garde housing design, into a bureaucratic mass housing vision, and then into the specificities of a the Red Road building process. The result was not a black box, but a crafted object about which many questions could be (and were) asked. In the second instance, we explored this ethnographically, by looking in detail at the socio-technical drama of a Campaign to resist the planned demolition of Red Road. Through our account of the ‘birth’ of Red Road we saw the way in which the making of Red Road was a provisional stabilisation, drawing together a range of materials, institutions, people and knowledges around the idea of a highrise housing solution. In the ‘death’ of Red Road we saw the way in which its designation as a housing ‘failure’ and the announcement to demolish reassembles its socio-technical network, dropping away old allies and bringing in new ones, producing new translations of its worth, and intensifying efforts to variously ‘close’ or ‘open’ this leaky black box.

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ⁱ This said, Dunleavy (1981, p. 6) also notes that the rhetorical dependence upon justifying a commitment to highrises in terms of technological innovation belied the fact that the technology was not that new: what was 'new' was the linking of this technology to an emergent market. In the British context, Dunleavy (1981, p. 57) notes, technology came eventually to offer only a 'weak determinism' for highrise housing visions, and was drawn upon as a rationale selectively and interchangeably with social and economic arguments. This line of argument is mirrored in Reyner Banham's critique of Le Corbusier's loudly-proclaimed commitment to technology and mass production processes. He concluded that, in relation to Le Corbusier's own architectural output, 'most of his most celebrated "machine age" effects were achieved with very primitive building technologies, descending, in later designs, to plain fakery' (Banham, 1981, p. 41). A more academic investigation of the question of architecture, technology and domestic life, was Siegfried Giedion's (1948) book *Mechanization takes Command*, in which he charts the penetration of less spectacular, 'anonymous', technologies into all spheres of society.

ⁱⁱ This is akin Giedion's gleaning the sub-literatures of manufacturer's records, product catalogues and advertising leaflets to assemble his 'anonymous history' (1948, p. iv) of modern technology.

ⁱⁱⁱ Historians of asbestos exposure in Scotland have recorded a trade union official recalling going onto the Red Road construction site in 1966 to warn workers of the danger of working with asbestos. He was told to "'fuck off' and not interfere' (Johnston and McIvor 2000).

^{iv} Although redevelopment and demolition were not announced until March 2005, a policy of not re-letting for two years. By the time it was announced that 153/183/213 Petershill Drive was to be demolished it was estimated to be only 1/3 occupied.