World Sustainable Built Environment Conference 2017 Hong Kong
Transforming Our Built Environment through Innovation and Integration:
Putting Ideas into Action
5-7 June 2017

Registration ID: T000077

The Role of Stakeholders in Masterplan Regeneration Decisions

ABSTRACT

Brownfield sites often contain existing buildings and during regeneration the decision to demolish or adapt them should consider sustainability principles. This paper discusses decision-making criteria obtained through a literature review and primary research including 18 interviews, 2 workshops and 2 focus group discussions. The most frequently mentioned criteria including building condition; heritage value and capital costs are evaluated. Criteria are then analysed from different stakeholder perspectives and the paper identifies where stakeholder values align. The paper forms part of a three year research project which aims to develop a decision-making framework to assist with integrated and holistic decision making.

Keywords: urban regeneration; building adaptation; decision-making

1. INTRODUCTION

Worldwide there is an increasing population and a pressure for housing in a number of countries (Karantonis, 2008). In 2015, the UK Conservative Government's manifesto stated that brownfield land (previously developed) should be used as much as possible for new development (HM Government, 2016; Smith, 2016). When redeveloping brownfield land, independent of scale, the decision needs to be made to demolish or adapt the existing building(s). This should consider the benefits and drawbacks of adaptation and demolition; alongside several decision-making criteria and sustainability principles (Love and Bullen, 2009). In general, the decision is not made by one person as it is complex and requires the expertise of a range of stakeholders (Bullen, 2007; Kaklauskas et al., 2005). This paper discusses decision-making criteria identified through a literature review and supported by primary research methods including 18 interviews, 2 workshops and 2 focus groups. Criteria are then discussed from different stakeholder perspectives to show where stakeholder interests may align or differ. The research is beneficial as the paper forms part of an ongoing three year research project which aims to develop a decision-making framework for the adaptation or demolition of existing buildings on masterplan regeneration sites to assist with integrated and holistic decision-making.

2. LITERATURE REVIEW

2.1. Brownfield redevelopment, adaptation and demolition.

The decision to demolish or adapt is not 'black or white' (Baker et al., in press). There are different forms of adaptation and a building can be demolished in its entirety or part. Wilkinson et al. (2014) outlines the different options for decision-

makers including: demolish; strip out and maintain the building shell; maintain the building in a vacant state; part demolish and adapt; modify, refurbish and adapt; part extend; let all or part; or sell.

2.2. Decision-making criteria

Through an in-depth literature review, seventy criteria used to evaluate building's and whether they should be adapted or demolished have been identified, collated and 'mapped' into three separate tiers: an overarching theme, 1st tier and 2nd tier. The overall themes include: technical; planning; environmental; economics; masterplan design; legal; heritage value; corporate objectives and the construction process. The most commonly cited criteria in the 1st tier are displayed in Table 1 and the most frequently referenced criteria in the 2nd tier are in Table 2.

Technical criteria are regularly mentioned including the buildings' layout and dimensions; condition; regulations; structure and function. Baker et al. (in press) identified poor building condition as a key disadvantage of adaptation, thus favouring demolition because it can increase the capital costs of the project. Although problems affecting the condition can be identified in the structural appraisal stage, a key concern related to existing buildings in comparison to new-build is the risk of discovering unknown problems during construction (Bullen and Love, 2010; Remøy and Van der Voordt, 2006; Yung and Chan, 2012). Building regulations are regularly cited because of the safety of occupants and threat of prosecution if not met (Garrett, n.d.). Fire safety must always be adhered to (Table 2), whereas there is more lenience for other regulations such as the thermal performance (energy efficiency) of listed buildings, scheduled monuments and buildings in conservation areas to avoid irreversible damage to the buildings' fabric (Historic England, n.d.).

Wilkinson (2011) conducted a quantitative analysis of building permits to identify trends in previous adaptation projects and what features enable adaptation. For example, concrete frame buildings were found to be more adaptable than load-bearing brick, stone or concrete wall and the optimal building height was 11-20 storeys. Clark's (2001) case study investigation of historic naval buildings also found columnar structures to be more flexible because of their grids and larger spans. Building height is a factor related to land value and potential profits. Been et al. (2016) discuss that if buildings have low heights and low amenity values, the whole area should be redeveloped because it is not reaching its full potential.

Alongside the technical criteria, qualitative values should be considered for holistic and sustainable decision-making (Bullen, 2007) and are regularly cited in the literature. Table 1 shows that heritage incorporates a range of intangible values including: aesthetics; historical importance and architectural significance. Baker et al. (in press) identified 'heritage value' as a key benefit of adaptation over demolition and that there is a growing appreciation for heritage retention because of concepts such as place-making and providing a sense of identity to the community.

Table 1: Most frequently cited criteria at 1st tier level.

Theme	1st Tier	References
Technical	**Layout and dimensions**	Been et al. 2016; Borst, 2014; Brennan and Tomback, 2013; Bullen and Love, 2011; Clark, 2001; Davison et al., 2006; Geraedts and Van der Voordt, 2007; Heath, 2001; Kutut et al., 2014; Lin and Low, 2012; Plimmer et al., 2008; Weber et al., 2006; Wilkinson et al., 2014.
	Building structure	Bullen and Love, 2011; Clark, 2001; Davison et al., 2006; Geraedts and Van der Voordt, 2007; Harun, 2011; Kim et al., 2010; Lin and Low, 2012; London Assembly, 2015; Natividade-Jesus et al., 2013; Plevoets and Van Cleempoel, 2011; Plimmer et al., 2008; Watson, 2009; Weber et al., 2006.
	Building regulations	Bullen and Love, 2011; Davison et al., 2006; Drury and McPherson, 2015; Geraedts and Van der Voordt, 2007; Heath, 2001; Kim et al., 2010; Lin and Low, 2012; Natividade-Jesus et al., 2013; Plevoets and Van Cleempoel, 2011; Van der Flier and Thomsen, 2006; Watson, 2009; Wilkinson et al., 2014; Yung and Chan, 2012.
	Building function	Borst, 2014; Bullen and Love, 2010; Clark, 2001; Geraedts and Van der Voordt, 2007; Heath, 2001; Kutut et al., 2014; Lin and Low, 2012; Palmer et al., 2003; Plimmer et al., 2008; Thomsen and Flier, 2009; Van der Flier and Thomsen, 2006; Wang and Zeng, 2010; Watson, 2009; Weber et al., 2006; Wilkinson et al., 2014; Yildirim, 2012; Yung and Chan, 2012.
	Building condition	Ball, 2002; Clark, 2001; Drury and McPherson, 2015; Dutta and Husain, 2009; Geraedts and Van der Voordt, 2007; Harun, 2011; Kim et al., 2010; Kutut et al., 2014; Lin and Low, 2012; London Assembly, 2015; Plevoets and Van Cleempoel, 2011; Thomsen and Flier, 2009; Van der Flier and Thomsen, 2006; Watson, 2009; Yildirim, 2012.
Heritage value	**Aesthetics**	Been et al., 2016; Bullen and Love, 2011; Drury and McPherson, 2015; Heath, 2001; Lin and Low, 2012; London Assembly, 2015; Mason, 2008; Palmer et al., 2003; Watson, 2009; Wilkinson et al., 2014; Yildirim, 2012.
	Historical importance	Ball, 2002; Bullen and Love, 2011; Clark, 2001; Drury and McPherson, 2015; Harun, 2011; Kim et al., 2010; Kutut et al., 2014; Mason, 2008; Plimmer et al., 2008; Wang and Zeng, 2010; Yildirim, 2012.
	Architectural value	Ball, 2002; Bullen and Love, 2011; Clark, 2001; Drury and McPherson, 2015; Harun, 2011; Kim et al., 2010; Kutut et al., 2014; Mason, 2008; Plimmer et al., 2008; Wang and Zeng, 2010; Yildirim, 2012.
Economic viability	**Capital costs**	Ball, 2002; Bullen and Love, 2011, 2010; Heath, 2001; Lin and Low, 2012; London Assembly, 2015; Palmer et al., 2003; Plimmer et al., 2008; Yung and Chan, 2012.
Planning	**Development trends in area**	Brennan and Tomback, 2013; Bullen and Love, 2011; Geraedts and Van der Voordt, 2007; Harun, 2011; Heath, 2001; Plimmer et al., 2008; Thomsen and Flier, 2009; Van der Flier and Thomsen, 2006.
	Planning policies	Bullen and Love, 2011; Clark, 2001; Geraedts and Van der Voordt, 2007; Kutut et al., 2014; Palmer et al., 2003; Plimmer et al., 2008; Van der Flier and Thomsen, 2006; Yung and Chan, 2012.

Table 2: Most frequently cited criteria at 2nd tier level.

Theme	1st Tier	2nd Tier	References
Planning	Development trends in area	**Housing pressure in area**	Bullen and Love, 2011; Geraedts and Van der Voordt, 2007; Heath, 2001; Plimmer et al., 2008; Thomsen and Flier, 2009; Van der Flier and Thomsen, 2006.
Environmental	Energy & carbon	**Energy efficiency**	Ball, 2002; Bullen and Love, 2011; Geraedts and Van der Voordt, 2007; Palmer et al., 2003; Plevoets and Van Cleempoel, 2011.
Economic viability	Capital costs	**Cost per m^2**	Ball, 2002; Lin and Low, 2012; London Assembly, 2015; Palmer et al., 2003; Plimmer et al., 2008; Yung and Chan, 2012.
Technical	Building structure	**Façade adaptability**	Davison et al., 2006; Drury and McPherson, 2015; Geraedts and Van der Voordt, 2007; Heath, 2001; Natividade-Jesus et al., 2013; Plevoets and Van Cleempoel, 2011.
	Building regulations	**Means of fire escape and resistance**	Davison et al., 2006; Drury and McPherson, 2015; Geraedts and Van der Voordt, 2007; Heath, 2001; Lin and Low, 2012; Natividade-Jesus et al., 2013; Plevoets and Van Cleempoel, 2011.
	Building function	**Fit for purpose/new use**	Borst, 2014; Bullen, 2007; Geraedts and Van der Voordt, 2007; Lin and Low, 2012; Palmer et al., 2003; Plimmer et al., 2008; Thomsen and Flier, 2009; Watson, 2009.

2.3. Stakeholder roles in the decision-making process

Mok et al. (2015) discuss the complexity of mega-construction projects including the involvement of numerous decision-makers who will have different interrelationships and conflicting viewpoints. The Engineering Council's inter-

institutional guidance on sustainability (Bogle, 2010) says that engineers should "*seek multiple views to solve sustainability challenges"* (Ashley, n.d.). This is applicable to other decision-makers to ensure integrated decision-making. Wilkinson (2011) identifies decision-makers as: investors; producers; marketeers; regulators; policy-makers; developers and users, which then have a range of sub-categories. The general public may be stakeholders or decision-makers dependent on their influence and power in the process (Langston and Smith, 2012; Yang et al., 2014).

The criteria identified in Section 2.2 can be integrated into frameworks as decision-makers go through different processes to assess adaptation and demolition. There is inevitably a difference between the ways an engineer would assess a structure to a heritage consultant, but both processes need to be considered for holistic decision-making. For example, engineers are often responsible for analysing the building's condition and the Institute of Structural Engineers provide guidance and flow charts to show the suggested paths of appraisal, which include various stages of qualitative and quantitative analysis (IStructE, 2008). Heritage consultants aim to understand the contribution of various heritage values but these are often critiqued because of their perceived subjectivity. To try and overcome this, Historic England have recently published guidance on conservation principles and polices to ensure there is consistency between decision-makers (Drury and McPherson, 2015, p.38).

Fundamental decision-makers include the building owners and developers. Geraedts and Van der Voordt (2007); Langston and Smith (2012) and Wilkinson et al. (2014) have created tools for asset owners to assess a portfolio of office buildings with the aim of determining what intervention is required. An analysis by Baker et al. (in press) using case study sites found that adjustments are required if using the tools on masterplan sites rather than individual buildings.

3. METHODOLOGY

3.1. Thesis overview

This paper forms part of an ongoing three year research project, which aims to understand the decision to demolish or adapt existing buildings on masterplan regeneration sites. Results from the 1st year are outlined in this paper. The objective was to identify key decision-making criteria through general interviews with different stakeholders. During the second year of research these preliminary results will be used to assess case study sites, with the overarching aim of developing a holistic framework to assist in decision-making. During the 1st year, the use of social research methods, such as interviews and focus groups, was informed by previous studies (referenced in the literature review) regarding adaptation. As shown by Bullen and Love (2011, p.35), an interpretive research approach "*can capture information about the beliefs, actions and experiences of stakeholders involved"*.

3.2. Interviews

The participants for the 'general interviews' were chosen through opportunistic and purposive sampling methods (Given, 2008). Interviews conducted so far represent: property consultants, heritage societies, building surveyors, engineers,

private planners, local authority planning officers and conservation officers – see Table 3. Once the interviews were transcribed, they were analysed through a coding software called HyperResearch. The initial set of codes established through the literature review were used as an introductory guide.

Table 3: Interviews conducted to date

Stakeholder	Number of interviews
Engineers & building surveyors	4
Heritage societies	7
Property consultants	4
Town planners & conservation officers	3

3.3. Focus Groups & Workshops

Two focus groups, containing eight people from academia and industry discussed "*How can embodied energy be incorporated in the decision to demolish or retain existing buildings*?" as part of an Embodied Energy Symposium. Conversations were recorded, transcribed and coded in the same way as the interviews. In addition, two workshops were hosted with post-graduate and undergraduate students on courses related to the built environment. Classes were separated into stakeholder groups of four to five people (design team; planners; end-users and developers) and asked to determine what criteria were important from their stakeholder's perspective. These were recorded in Excel and mapped to the codes identified in the literature review.

3.5. Limitations

The current results should be treated as preliminary findings. Further iterations of coding analysis are required to refine the criteria being used as only one iteration has been completed to date. The research currently does not represent all stakeholders in the decision-making process and there is a higher representation of heritage societies, which may create a bias.

4. RESULTS

4.1. Decision-making criteria

Error! Reference source not found. displays the decision-making criteria extracted from the interviews, focus groups and workshops and the number of people mentioning them.

Table 4: Criteria identified from interviews and focus groups: Theme, 1st tier and 2nd tier.

Ws = no. of stakeholders groups from workshops (n=9). **In** = no. of respondents from interviews (n=18). **Fg** = no. of focus groups (n=2)

Theme	1st Tier	2nd Tier	Ws	In	Fg
Technical	Layout & dimensions	**Floor area**	2	**6**	1
		Floor to ceiling height	-	**4**	**2**
	Building services	**Service provision**	**4**	1	**2**
	Building function	**Fitness for purpose & finding a use**	**8**	**6**	1
	Building condition	**General condition of building**	**4**	**5**	1
Economic viability	Capital costs	**Cost per m^2**	**5**	**7**	**2**
	General risk	**General risk**	-	**5**	-
Planning	Designations	**Listed building**	1	**9**	**2**

Theme	1st Tier	2nd Tier	Ws	In	Fg
		Conservation area	-	**4**	1
Planning (cont.)		**Public benefit through demolition**	-	**4**	-
		Effect on setting	-	**5**	-
Environment	Environmental conditions	**Remediation**	**4**	-	-
	Energy & carbon	**Energy efficiency**	2	**5**	**2**
Criteria below only contain theme & 1st tier					
Corporate objectives	**Overall corporate vision**	-	-	**6**	-
Construction Process	**Time**	-	**4**	1	-
Masterplan design	**Accessibility**	-	**6**	-	-
	Phasing & future expansion	-	**4**	1	-
	Density & land efficiency	-	2	**4**	-
Heritage value	**Community viewpoints**	-	-	**5**	-

The most frequently mentioned technical criteria were those related to the building's condition; layout and dimensions; services and function. The building condition was regularly mentioned, similar to the literature review because of the effect it can have on costs. One interviewee stated: "*If you are an asset owner - it's all about capital costs and running costs*". Alongside this, four interviewees discussed unforeseen problems occurring during the construction process and issues associated with warranty.

It is vital for a building to have a use: "*without a use, there is no point regenerating these buildings*". The feasibility of adaptation is affected by floor areas, floor to ceiling heights and service provisions. If a building needs to have specialised floor-plates it may be more complex to adapt. Whereas, a factor which emerged during the interviews was the desirability of start-up companies and knowledge economies to accommodate within existing buildings. One building surveyor stated that "*Groovy start-ups want to go into groovy little buildings*". These businesses do not necessarily require open floor spaces and can utilise the "*nooks and crannies*".

One of the most commonly mentioned criteria in all three methods was whether or not a building was designated. If a building is listed in the UK, interviewees suggested that the de-listing process can be time-consuming and increase the risk of not obtaining planning permission. Despite some of the interviewees stating that retention was not dependent on designations and that non-designated heritage assets can still be desirable, one conservation officer said: "*it's much harder when you're talking about undesignated assets*".

Although embodied energy is a commonly cited benefit of building retention in the literature (Baker et al., in press) and was recognised as a benefit of retention in the interviews, the overall perception was that it is currently not a major factor to consider in the decision-making process because "*it doesn't appear on balance sheets*". During the focus groups, the general consensus was that for embodied energy to be considered in the decision-making process there needed to be tax incentives or legislation in place. At the moment this is difficult due to uncertainties associated with the measurement. This emphasises an important point - what is

currently done, is not necessarily what should be done from a sustainability perspective. Future research will establish what should be changed in the decision-making process and which criteria should have a higher weighting of consideration.

4.2. Criteria in a masterplan context

Decision-making criteria may be considered differently for buildings in a masterplan context rather than individual buildings. In some situations it would not be economically viable to retain an individual building, however this may change within a larger site. This was discussed by a property consultant who said "*when you look at the benefit of knocking that building down and replacing it in the scheme of the masterplan, it's miniscule…any space that we could have grabbed by knocking it down, we could catch up with elsewhere".* When considering the economic viability of a large scheme, it is important that the phasing of the development is considered. For example, the perception of three interviewees was that the scheme at Kings Cross, UK was successful because the historic buildings were completed first which created a hub of activity early on within the process. However, this may not always be possible as raising the funds to adapt existing buildings can be more complicated than new build because of the associated risks and uncertainty. Both the accessibility and the density on site were regularly mentioned as it is vital individual buildings work within the masterplan vision and this includes their location on site and if they are easy to access.

4.3. Stakeholder viewpoints

The primary research showed that there are differences in opinion between stakeholder groups and even within them. Currently there have not been enough interviews to conclude a criterion is only important to one stakeholder group, but it is interesting to acknowledge where stakeholder interests may align.

During the workshops the criteria mentioned by all stakeholder groups were building function and accessibility but were important for different reasons. For example, developers wanted to establish if a building was fit for purpose (1st tier = building function) to ensure development was economically viable. The design team were concerned with function as they are responsible for "*space-planning*" and designing the building for the intended use. The end-users were interested in whether the "*space was practical*" and "*whether there were enough toilets and cafes*" to meet their needs and the planners had a general interest to ensure the area is effectively used. The workshops emphasised that there can also be a difference of opinion within stakeholder groups. In the first workshop, the students chose to be 'social developers', whereas in the other they chose to be 'profit-driven', which meant they had different attitudes towards the scheme.

In the interviews, the criteria identified within all stakeholder groups (Figure 1) included: designations, planning policies, capital costs, building structure and building condition. As would be expected, engineers & building surveyors were interested in technical criteria as their role is to assess the robustness of the structures. Property consultants were interested in the technical aspects as they affect the cost of a project, whilst heritage societies and town planners recognised that non-economic viability can sometimes be used to justify demolition. This has to

be balanced with heritage values. Designations were regularly mentioned because of the protection they can offer. Although property consultants recognised that heritage could add value (economically and socially), they did express concern regarding constraints caused by designations which can lead to delays and extra costs.

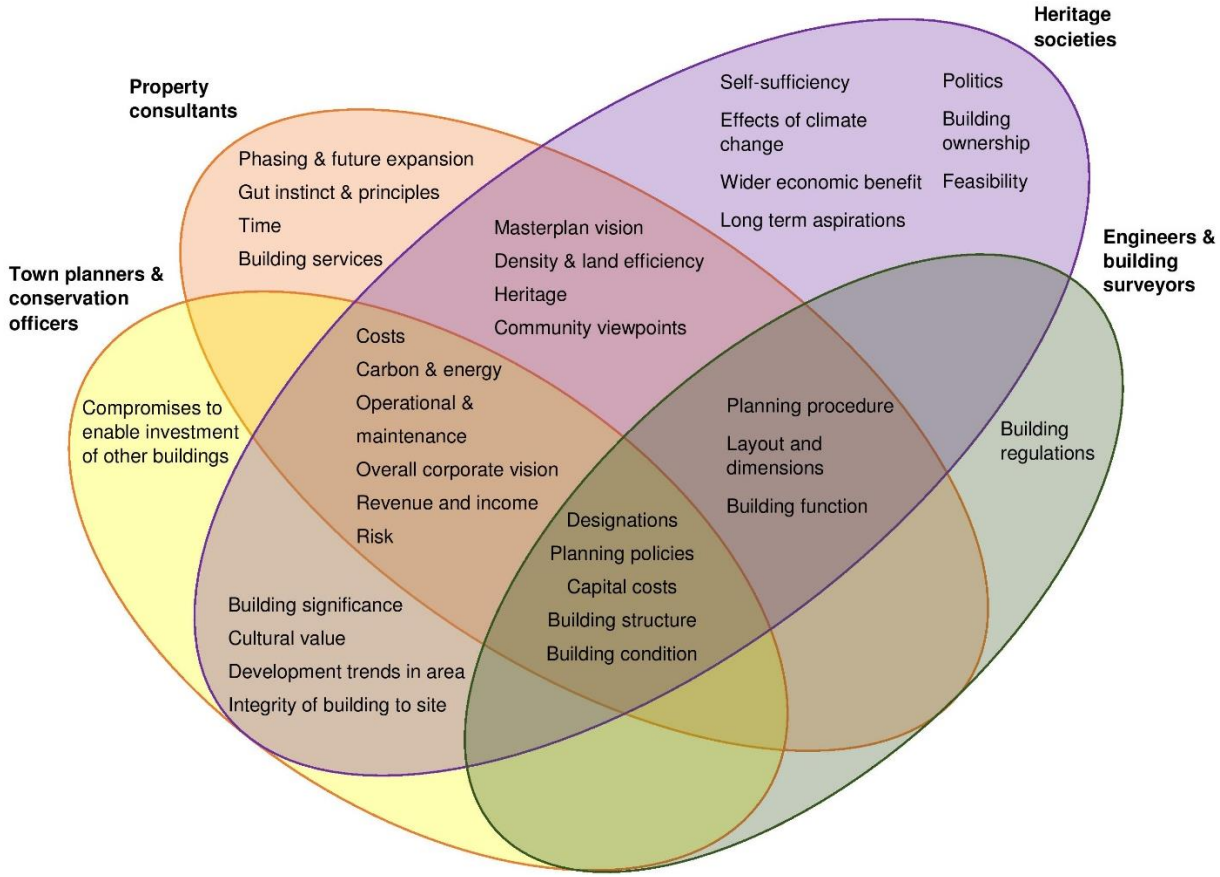

Figure 1: Criteria mentioned by stakeholder groups in the interviews

5. CONCLUSION

This paper has identified criteria currently used in the decision to demolish or adapt existing building on masterplan regeneration sites through a literature review, interviews, focus groups and workshops. Frequently mentioned criteria include: technical issues such as building function, condition, layout & services; economic viability; designations; and issues specific to masterplan sites, for instance accessibility, density and phasing.

Different stakeholder attitudes to the same criteria were discussed and the findings begin to show that it is vital to consider these differing viewpoints in the decision-making process. This includes a diversity of opinions between and within stakeholder groups. For example, an engineer may be concerned with designations for a different reason to heritage societies. The criteria outlined show an understanding of what currently happens when making adaptation and demolition decisions. Future work will establish if this is the most sustainable way of thinking and what needs to be changed. The criteria will be refined and contribute towards a

decision-making framework which will aid holistic decision-making and collaboration between stakeholders.

REFERENCES

Ashley, R., n.d. The role of the civil engineer in society: engineering ethics and major projects. Eng. Nat. Way.

Baker, H., Moncaster, A., Al-Tabbaa, A., In press. Decision-making for the demolition or adaptation of buildings. ICE - Forensic Eng. Urban Renov. - Themed Issue

Ball, R.M., 2002. Re use potential and vacant industrial premises: revisiting the regeneration issue in Stoke-on-Trent. J. Prop. Res. 19, 93–110. doi:10.1080/09599910210125223

Been, V., Ellen, I.G., Gedal, M., Glaeser, E., McCabe, B.J., 2016. Preserving history or restricting development? The heterogeneous effects of historic districts on local housing markets in New York City. J. Urban Econ. 92, 16–30. doi:10.1016/j.jue.2015.12.002

Bogle, D., 2010. Briefing: UK's Engineering Council guidance on sustainability. Proc. Inst. Civ. Eng. - Eng. Sustain. 163, 61–63. doi:10.1680/ensu.2010.163.2.61

Borst, J.I.M., 2014. NOW HIRING, wanted: user of tomorrow for space of the future: (Masters). Delft University of Technology.

Brand, S., 1994. How Buildings Learn: What Happens After They're Built. Viking.

Brennan, T., Tomback, D., 2013. Heritage Works - The use of historic buildings in regeneration. Historic England, London, UK.

Bullen, P.A., 2007. Adaptive reuse and sustainability of commercial buildings. Facilities 25, 20–31. doi:10.1108/02632770710716911

Bullen, P.A., Love, P.E.D., 2011. A new future for the past: a model for adaptive reuse decision-making. Built Environ. Proj. Asset Manag. 1, 32–44. doi:10.1108/20441241111143768

Bullen, P.A., Love, P.E.D., 2010. The rhetoric of adaptive reuse or reality of demolition: Views from the field. Cities 27, 215–224. doi:10.1016/j.cities.2009.12.005

Clark, C., 2001. Degrees of physical adaptation: current uses of historic naval building types. Trans. Built Environ. 55, 15.

Davison, N., Gibb, A.G.F., Austin, S.A., Goodier, C.I., Warner, P., 2006. The multispace adaptable building concept and its extension into mass customisation. © CIB.

Douglas, J., 2006. Building Adaptation, Second Edition, 2 edition. ed. Routledge.

Drury, P., McPherson, A., 2015. Conservation Principles, Policies and Guidance. Historic England, London, UK.

Duffy, F., Henney, A., 1989. The changing city. Bulstrode Press.

Dutta, M., Husain, Z., 2009. An application of Multicriteria Decision Making to built heritage. The case of Calcutta. J. Cult. Herit. 10, 237–243. doi:10.1016/j.culher.2008.09.007

Garrett, J., n.d. Building Regulations - Failure to comply with Building Regulations [WWW Document]. URL https://www.planningportal.co.uk/info/200187/your_responsibilities/38/building_regulations/3 (accessed 5.1.16).

Geraedts, R., Van der Voordt, T., 2007. A tool to measure opportunities and risks of converting empty offices into dwellings, in: W11 – Metropolitan Dynamics: Urban Chan G E, Marke T and Governance. Presented at the Sustainable Urban Areas, Rotterdam, p. 22.

Given, L.M., 2008. The SAGE Encyclopedia of Qualitative Research Methods. SAGE Publications.

Gosling, J., Sassi, P., Naim, M., Lark, R., 2013. Adaptable buildings: A systems approach. Sustain. Cities Soc. 7, 44–51. doi:10.1016/j.scs.2012.11.002

Harun, S.N., 2011. Heritage Building Conservation in Malaysia: Experience and Challenges. Procedia Eng., 2nd International Building Control Conference 20, 41–53. doi:10.1016/j.proeng.2011.11.137

Heath, T., 2001. Adaptive re-use of offices for residential use: The experiences of London and Toronto. Cities 18, 173–184. doi:10.1016/S0264-2751(01)00009-9

Historic England, n.d. Building Regulations Compliance: Listed Buildings and Other Heritage Assets | Historic England [WWW Document]. URL https://historicengland.org.uk/advice/hpg/compliantworks/buildingregs/ (accessed 5.1.16).

HM Government, 2016. Housing and Planning Act 2016 [WWW Document]. URL http://www.legislation.gov.uk/ukpga/2016/22/part/6/crossheading/permission-in-principle-and-local-registers-of-land/enacted (accessed 8.9.16).

IStructE, 2008. Guide to surveys and inspections of buildings and associated structures - Articles - The Institution of Structural Engineers. The Institution of Structural Engineers, London, UK.

Karantonis, A.C., 2008. Population growth and housing affordability in the modern city-Sydney a case study. Presented at the 14th Pacific Rim Real Estate Society Conference, Pacific Rim Real Estate Society, pp. 1–16.

Kelly, G., Schmidt III, R., Dainty, A., Story, V., 2011. Improving the design of adaptable buildings through effective feedback in use. Presented at the CIB Management and Innovation for a Sustainable Built Environment, Amsterdam, Netherlands.

Kim, C.-J., Yoo, W.S., Lee, U.-K., Song, K.-J., Kang, K.-I., Cho, H., 2010. An experience curve-based decision support model for prioritizing restoration needs of cultural heritage. J. Cult. Herit. 11, 430–437. doi:10.1016/j.culher.2010.03.004

Kutut, V., Zavadskas, E.K., Lazauskas, M., 2014. Assessment of priority alternatives for preservation of historic buildings using model based on ARAS and AHP methods. Arch. Civ. Mech. Eng. 14, 287–294. doi:10.1016/j.acme.2013.10.007

Lacovidou, E., Purnell, P., 2016. Mining the physical infrastructure: Opportunities, barriers and interventions in promoting structural components reuse. Sci. Total Environ. 557–558, 791–807. doi:10.1016/j.scitotenv.2016.03.098

Langston, C., Smith, J., 2012. Modelling property management decisions using "iconCUR." Autom. Constr., Planning Future Cities-Selected papers from the 2010 eCAADe Conference 22, 406–413. doi:10.1016/j.autcon.2011.10.001

Lin, G., Low, S., 2012. Influential Criteria for Building Adaptation Potential from the Perspective of Decision Makers. Presented at the 48th ASC Annual International Conference, Birmingham, UK, p. 9.

London Assembly, 2015. Knock it Down or Do it Up? The challenge of estate regeneration. Greater London Authority, London, UK.

Mason, R., 2008. Be Interested and Beware: Joining Economic Valuation and Heritage Conservation. Int. J. Herit. Stud. 14, 303–318. doi:10.1080/13527250802155810

Mok, K.Y., Shen, G.Q., Yang, J., 2015. Stakeholder management studies in mega construction projects: A review and future directions. Int. J. Proj. Manag. 33, 446–457. doi:10.1016/j.ijproman.2014.08.007

Natividade-Jesus, E., Coutinho-Rodrigues, J., Tralhão, L., 2013. Housing evaluation with web-SDSS in urban regeneration actions. Proc. Inst. Civ. Eng. - Munic. Eng. 166, 194–207. doi:10.1680/muen.12.00022

Palmer, J., Platt, S., Fawcett, W., Baker, N., Brown, A., de Carteret, R., 2003. Report to the Energy Savings Trust. REFURBISH OR REPLACE? CONTEXT REPORT. Cambridge Architectural Research Ltd, Cambridge, UK.

Plevoets, B., Van Cleempoel, K., 2011. Adaptive reuse as a strategy towards conservation of cultural heritage: a literature review. pp. 155–164. doi:10.2495/STR110131

Plimmer, F., Pottinger, G., Harris, S., Waters, M., Pocock, Y., 2008. Knock it down or do it up? Sustainable housebuilding: New build and refurbishment in the Sustainable Communities Plan. BREPress.

Remøy, H., Van der Voordt, T., 2006. A new life: transformation of vacant office buildings into housing. Presented at the CIBW70 Trondheim International Symposium, Norwegian University of Science and Technology, Trondheim, Norway, p. 10.

Schmidt III, R., Eguchi, T., Austin, S., Gibb, A., 2010. What is the meaning of adaptability in the building industry? Presented at the CIB 16th International Conference on Open and Sustainable Building, Bilbao, Spain, p. 10.

Smith, L., 2016. Planning Reform Proposals (Briefing Paper No. 6418). House of Commons Library, London.

Thomsen, A., Flier, K. van der, 2009. Replacement or renovation of dwellings: the relevance of a more sustainable approach. Build. Res. Inf. 37, 649–659. doi:10.1080/09613210903189335

Van der Flier, K., Thomsen, A., 2006. Life Cycle of Dwellings: Analysis and Assessment of DEmolition by Dutch Housing Associations. Presented at the ENHR Conference "Housing in an expanding Europe: theory, policy, participation and implementation," Ljubljana, Slovenia, p. 18.

Wang, H.-J., Zeng, Z.-T., 2010. A multi-objective decision-making process for reuse selection of historic buildings. Expert Syst. Appl. 37, 1241–1249. doi:10.1016/j.eswa.2009.06.034

Watson, P., 2009. The key issues when choosing adaptation of an existing building over new build. J. Build. Apprais. 4, 215–223. doi:10.1057/jba.2008.39

Weber, R., Doussard, M., Bhatta, S.D., Mcgrath, D., 2006. Tearing the City down: Understanding Demolition Activity in Gentrifying Neighborhoods. J. Urban Aff. 28, 19–41. doi:10.1111/j.0735-2166.2006.00257.x

Wilkinson, S., 2011. The Relationship between Building Adaptation and Property Attributes (PhD). Deakin University, Australia.

Wilkinson, S.J., Remøy, H., Langston, C., 2014. Sustainable Building Adaptation: Innovations in Decision-making, 1 edition. ed. Wiley-Blackwell, Chichester, West Sussex, United Kingdom.

Yang, R.J., Wang, Y., Jin, X.-H., 2014. Stakeholders' Attributes, Behaviors, and Decision-Making Strategies in Construction Projects: Importance and Correlations in Practice. Proj. Manag. J. 45, 74–90. doi:10.1002/pmj.21412

Yildirim, M., 2012. Assessment of the decision-making process for re-use of a historical asset: The example of Diyarbakir Hasan Pasha Khan, Turkey. J. Cult. Herit. 13, 379–388. doi:10.1016/j.culher.2012.01.018

Yung, E.H.K., Chan, E.H.W., 2012. Implementation challenges to the adaptive reuse of heritage buildings: Towards the goals of sustainable, low carbon cities. Habitat Int. 36, 352–361. doi:10.1016/j.habitatint.2011.11.001