The Benefits of "Smart Construction"

- could accelerating the construction of specialist housing be one?

Nigel Ingram

Programme Lead- Retirement Solutions



Smart – Offsite & MMC

 Site-based MMC Innovative methods of construction used on-site. They include thin joint blockwork and insulated formwork



Sub-assemblies and components
 Larger components incorporated into new homes. They include roof and floor cassettes, prefabricated chimneys, porches and dormers, and I-beams



Volumetric construction
 Three-dimensional units which are fully fitted out off-site



Pods
 Pods are used in
 conjunction with another
 construction method.
 Examples are bathroom
 or kitchen pods

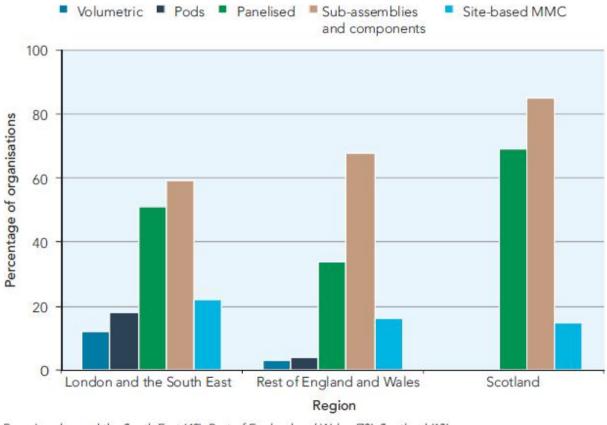


Panellsed systems
 Panels with timber or
 light steel framing,
 structural insulated
 panels (SIPS) or cross laminated timber (CLT)

Types of MMC



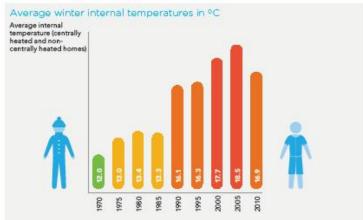




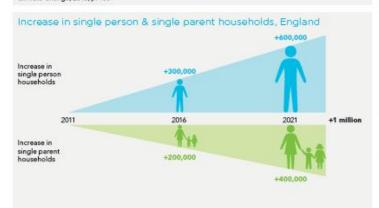
Base: London and the South East (49), Rest of England and Wales (73), Scotland (13).

Figure 7 Percentage of organisations using MMC at least once in 2015, by region





Source: United Kingdom housing energy fact file by Jason Palmer and Ian Cooper. Department of Energy & Climate Change, 2013, p. 136



Two key 21st century household demographic changes: projected growth in single person and single parent households. Both trends increase the housing need, but what kinds of housing should be created for each? Source: Household Interim Projections 2011-2021, Department for Communities and Local Government, 2013



Why is

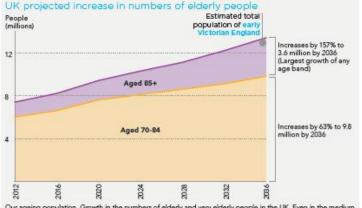
this

relevant

people

over 55

These indicative costs have been calculated by the Zero Carbon Hub



Our ageing population. Growth in the numbers of elderly and very elderly people in the UK. Even in the medium term, up to 2036, the projected changes are staggering

Source: National Population Projections, Office for National Statistics, 2013.



Smart Construction - Offsite - MMC

Keepmoat have built most systems: all with advantages and disadvantages:

- Volumetric or Modular (timber frame, lightweight steel, pods)
- Panelised (timber frame, CLT, SIPS, concrete, steel frame)
- Thin bed/single skin, insulated concrete formwork



Thin bed, single skin







Panelised: SIPS





Panelised: Concrete panel







Panelised: Steel Frame







Modular: Keepmoat have had our own factory before...







and pioneered high performing housing...





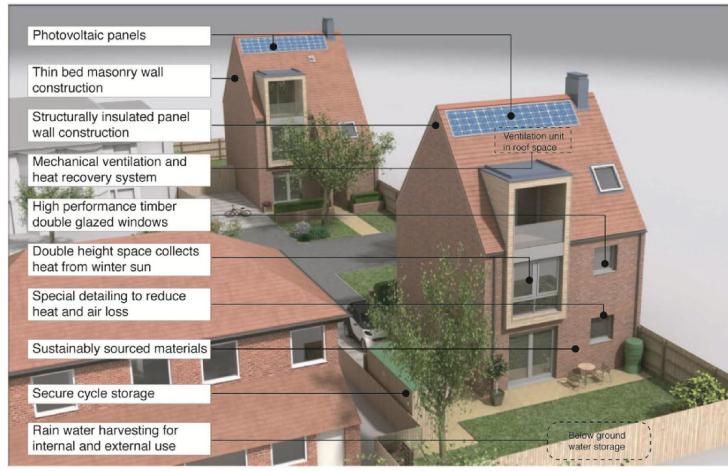














But...





Some people have natural concerns...

Mail Online



Ministers are planning a new wave of 100,000 prefab 'modular homes' in attempt solve the housing crisis

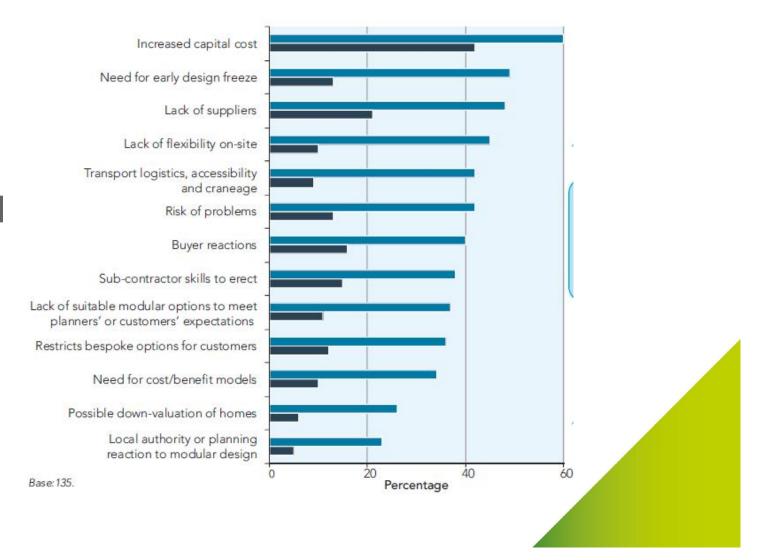


Some people have natural concerns...





What are some of the Issues associated with Offsite

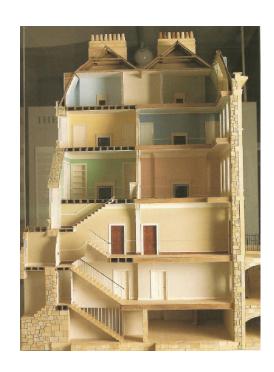


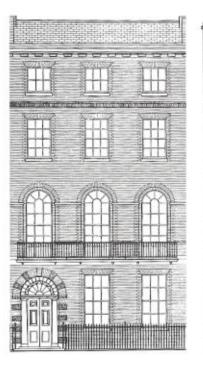


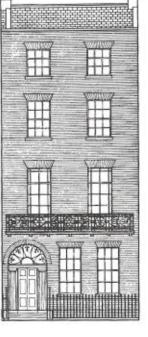
But... Some of the most beautiful streets...

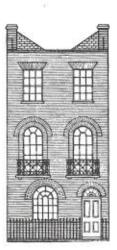


... are boxes behind a beautiful façade



















Evolve nouse types - Streetscape 5 - Georgian Regency - 7/3 bed terrace

3 BED

2 8ED

2 BED



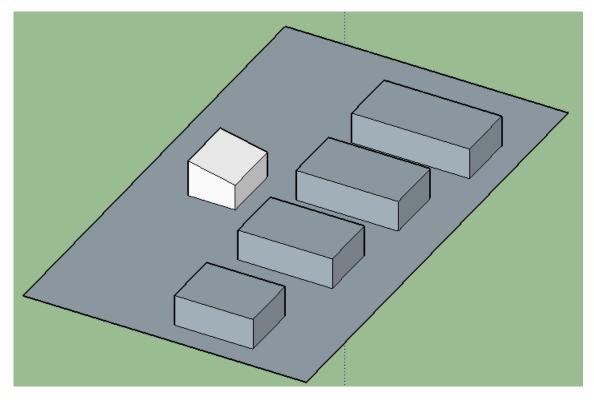


3 BED

2 BED

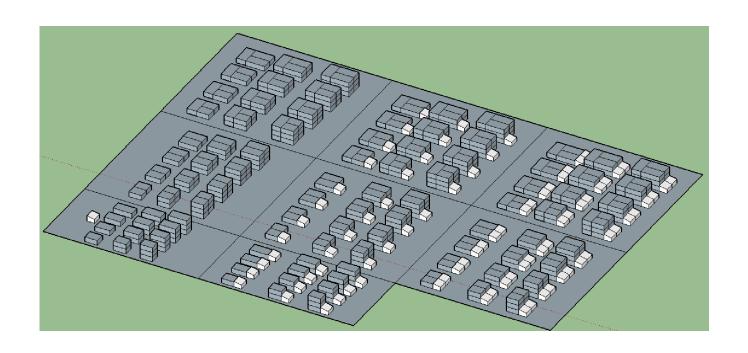
Evolve house types - Streetscape 3 - Rural Tudor style - 2/3 bed terrace

From a limited number of platforms...





100+ archetypes, 10,000+ layouts, 1bn+ variations





Can we re-create beautiful streets in modular?











Can we re-create beautiful streets in modular?











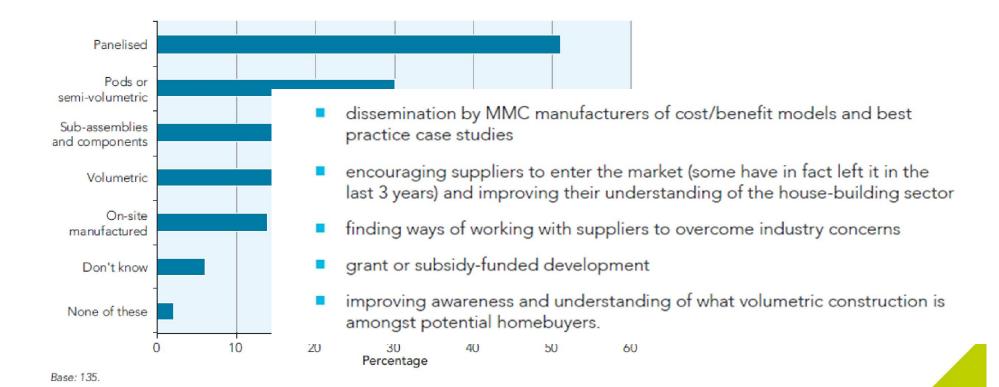


Figure 25 MMC approaches considered most likely to grow in use in new build over the next 3 years



Would you buy a car built in a field?







The Benefits of "Smart Construction"

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