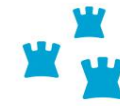


Use of Modern Methods of Construction to Expedite the Delivery of Irish Housing



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The Housing Crisis. How did it happen.....

There are numerous causes

- We are coming out of the longest & most severe recession in recent history
- Serious underfunding of Housing & Infrastructure for a prolonged period
- Lack of skilled tradespeople, design professionals
- Supply chain decimatedNAMA
- Homelessness on the rise even for people in paid work
- Rising population, demographics changes, divorce
- Change adverse, conservative towards methods of delivery
- Slow to adopt digitisation for various reasons

Why do we need to change

- Construction very labour intensive
- 30% of resources on building sites are wasted
- 40% of landfill is from construction
- Industry very fragmented and inefficient
- Trades often weather dependant
- Skills shortages at all levels as well as an ageing workforce
- Carbon emissions, pollution, noise, traffic congestion, transport
- Low productivity, low margins
- Poor industry image, difficulty in attracting new people
- Reduced risk of injury and accidents
- Creating more regional jobs away from large conurbations

Opportunities - Why Industrialise Construction

- Reduce costs
- Reduced errors and rework
- Reduce waste
- Reduce delivery time to site
- Reduced disruption to the local community during construction
- Improve quality, better acoustic performance
- Lower tolerances
- Reduce fuel poverty, higher comfort levels,
- Shallow foundations with minimal site works due to lightweight construction
- BIM & Digital Transformation
- Eco efficient performance
- Improved sustainability
- And a host more reasons

We need to embrace

- Prefabrication using better detailing , precision engineering
- Fourth industrial Revolution
- Off-site manufacturing - safer, controlled, quicker
- Just-in –time delivery
- Lean methods
- Use of cross laminated timber
- Use digital collaboration and processes (Paperless)
- Use of generative design where computer algorithms are used to generate designs options based on requirements collected by the user i.e. digital design
- Automation to help make pre-construction planning more accurate

Barriers to modern Methods of construction

- Ensuring a Pipeline of Projects, need scale
- How do you procure for value procurement Frameworks
- What standards are in place , certification, regulation
- Its new, its innovative , still a need for research & development
- Digital agendaan important enabler of off- site construction
- Sharing Knowledge & Best Practice
- Risk

DCC are looking at Modern Methods of construction as a means of delivering more housing

- It started with the Modular Homes demonstration in East wall in 2016
- Followed by a Rapid build programme (2017/2018)
- The City Architects have commenced on a phased programme of delivering volumetric construction. 2019/2020
- Circa 900 units are earmarked for construction in various bundles between now and the end of 2020

Proposed volumetric units



Publications/online resources surrounding our topic include:

- Farmer Report <http://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2016/10/Farmer-Review.pdf>
- London Assembly. (2017). Designed, sealed, delivered: The contribution of offsite manufactured homes to solving London's housing crisis. London, UK.
- McGraw-Hill Construction Research and Analytics. (2011). Prefabrication and Modularization: Increasing Productivity in the Construction Industry. Bedford, Mass.
- Employment Opportunities and future Skills Requirements for surveying Professions Dr. Roisin murphy June 2011
- Construction Transformation Alliance
<https://transformingconstruction.org.uk/>

Publications/online resources surrounding our topic include:

- HOUSE OF LORDS Science and Technology Select Committee

2nd Report of Session 2017–19 HL Paper 169

Off-site manufacture for construction: Building for change

<https://publications.parliament.uk/pa/ld201719/ldselect/ldsctech/169/169.pdf>

- Build Offsite Property Assurance Scheme (BOPAS)

<https://www.bopas.org/>

- BPS 7014 Standard for Modular Systems for Dwellings

https://www.bregroup.com/wp-content/uploads/2018/04/Overview-of-DRAFT-BPS-7014-Standard-for-Modular-Systems-for-Dwellings_24.04.18.pdf

Publications/online resources surrounding our topic include



- Department of Housing, Planning and Local Government. (2017). Lifting our Cities: Minister Murphy unveils initiative to increase apartment output and urban renewal in cities by easing parking and height requirements and encouraging more build-to-rent projects. Dublin: Department of Housing, Planning and Local Government
- Brandon, S. (2018). Modelling the future.
- McGraw Hill Construction Research and Analytics. (2014). The Business Value of BIM for Construction in Major Global Markets: How Contractors Around the world are Driving Innovation with Building Information Modelling (pp. 4- 5). McGraw Hill Construction Research and Analytics.