Provisions for Greater Reuse of Steel Structures

Webinar 2
Design of new single‐storey steel buildings for reuse
Thursday 14th May 2020

https://www.steelconstruct.com/eu-projects/progress/workshops/
Context

• 50% of all resources attributable to construction
• Global floor area predicted to double by 2060
• 2°C scenario requires steel sector to reduce GHG emissions by 65% by 2050
• Current consumption patterns are unsustainable
We have to change and do things differently

LINEAR ECONOMY
- Resource Extraction
- Production
- Distribution
- Consumption
- Waste

CIRCULAR ECONOMY
- Economic Section
- Design and Manufacture
- Use
- Recycling
- Remanufacture
- Economic Section

The future?
Construction sector needs to improve its resource efficiency

Waste management hierarchy

Circular economy concepts

Going beyond recycling to reuse

Recycling

500m tonnes pa = 30% global production
> 95% structural steel is recycled
Going beyond recycling to reuse

Recycling  Reuse

500 m tonnes pa = 30% global production
> 95% structural steel is recycled

€1130 per tonne
≈ 5% structural steel is reused

Although steel reuse does happen......

......there are many barriers in currently-configured supply chains
• **Provisions for Greater Reuse of Steel Structures**
• Jointly funded by the European Commission’s RFCS programme, Ruukki Construction, Jernkontoret, Ramboll, Peikko and project partners
• 36-month project – ending 31.05.20

• Reuse of existing and new **single-storey buildings**
• Scope includes primary, secondary structure and envelope

**Why single-storey buildings?**

• Represent a large proportion of the EU steelwork market
• Easiest building type to deconstruct and reuse
• Relatively short-life buildings
• Applicable to a board range of building sectors
• Existing reuse market in some sectors, e.g. agriculture
Two reuse scenarios

Reuse today

Future reuse

The challenges and the solutions for each scenario are very different

Future reuse

Solutions:
• Design for deconstruction and reuse
• Digital information
Demolition v Deconstruction
Recycling v Reuse

Demolition of a steel structure
Deconstruction of a steel structure

PROGRESS dissemination

- A core part of PROGRESS
- 7 formal workshops/events
  - Across 7 EU countries
- 16 additional dissemination events by partners
- Final 3 workshops cancelled
  - Netherlands, France, Belgium
- In their place, 4 free webinars organised by

PROGRESS awarded 1st prize at the Barcelona Building Construmat May 2019
PROGRESS webinars:

- **Webinar 1**: Reusing existing, single-storey steel buildings  
  _7th May_
- **Webinar 2**: Design of new single-storey steel buildings for reuse  
  _14th May_
- **Webinar 3**: Life cycle and reusability assessment of single-storey steel buildings  
  _21st May_
- **Webinar 4**: Overview of the EU project PROGRESS  
  _28th May_

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**Webinar 2** - Design of new single-storey steel buildings for reuse

*Design of new single-storey steel buildings for reuse* – Ricardo Pimental (SCI)

*Demountable and reusable envelope systems* - Kevin Janczyk (RWTH)

*BIM for circular economy, deconstruction, reuse and recycling* – Tarja Mäkeläinen (VTT)
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Questions and answers

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