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Teräsrakenneyhdistys

Finnish Constructional Steelwork Association

Steel reuse and recycling -webinar

3.11.2022

Finnish Constructional Steelwork Association

Steel reuse and recycling

- Introduction

Timo Koivisto - TRY/FCSA

- What help can you get from prEN 17662?

Rutger Gyllenram – Kobilde & Partners AB

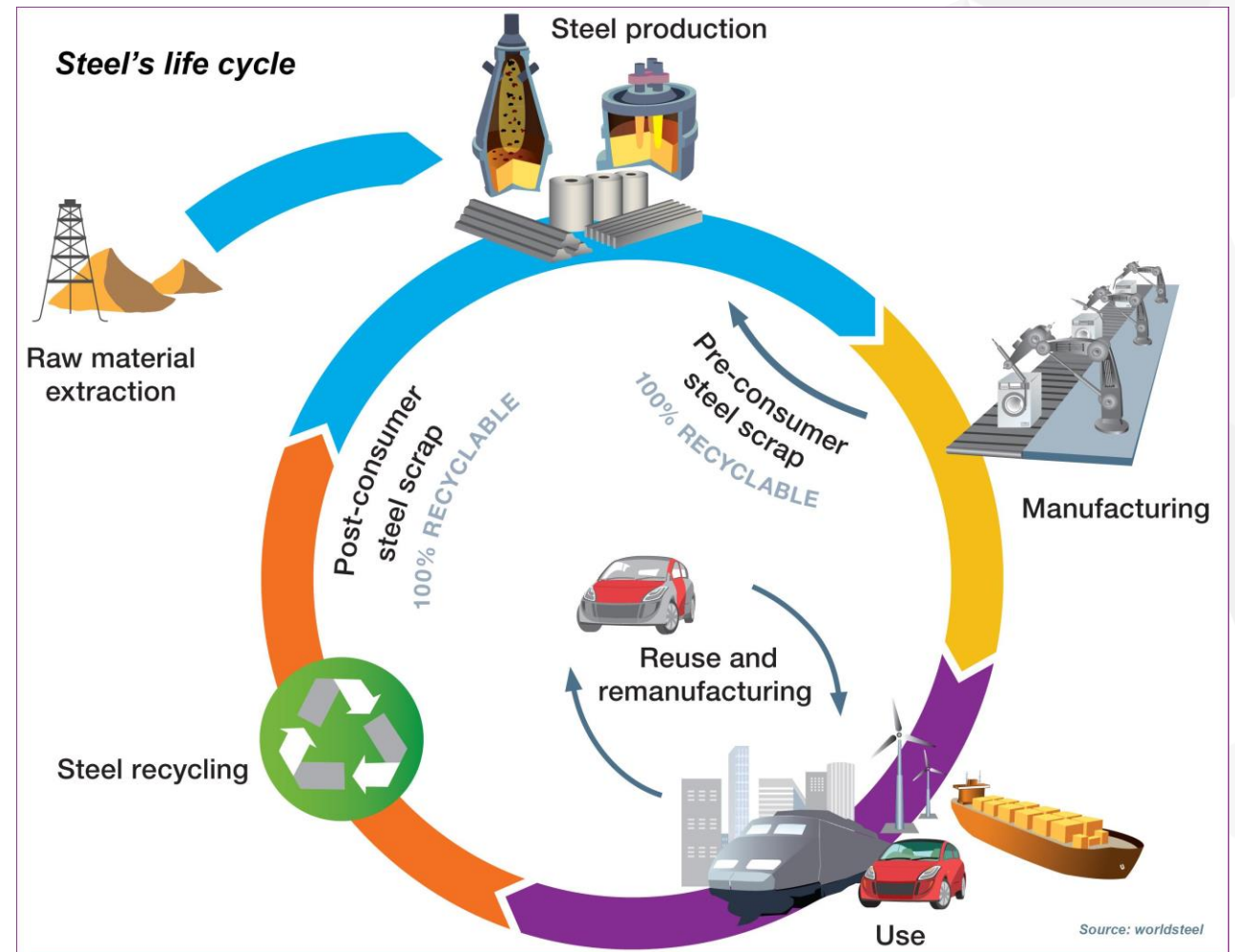
- 5 minutes break

- How can we ensure the quality of re-used steel components?

Wylliam Husson – ProDevelopment AB

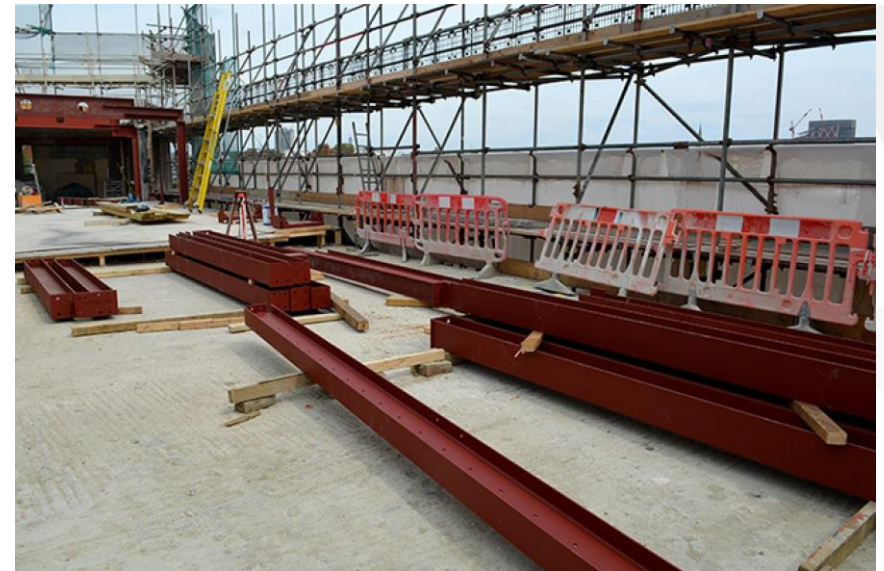
What is reuse in construction?

- The reuse of building products means that usable building parts and materials are identified and recovered from demolition or renovation sites and they are reused as such for the same purpose of use in other building site
- The utilization of building demolition materials is one of the central goals of the European Union and national construction guidance, which promotes the circular economy of construction. The goal is also to promote the reuse of construction products and thereby extend the life cycle of construction products and reduce the use of virgin raw materials

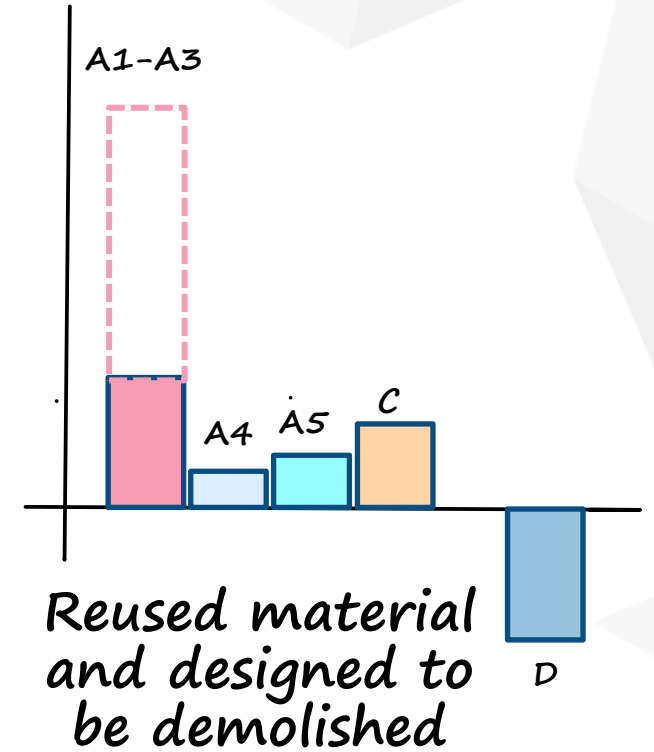
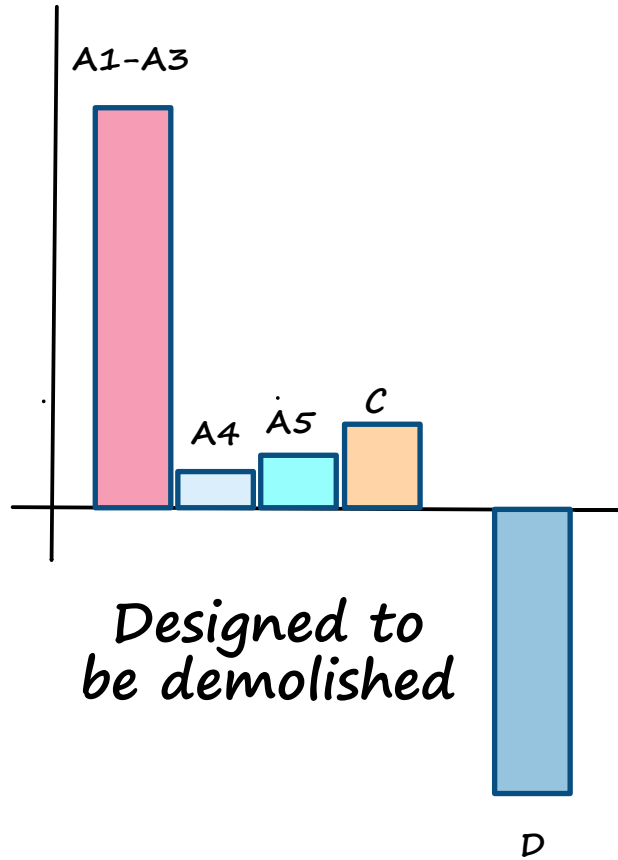
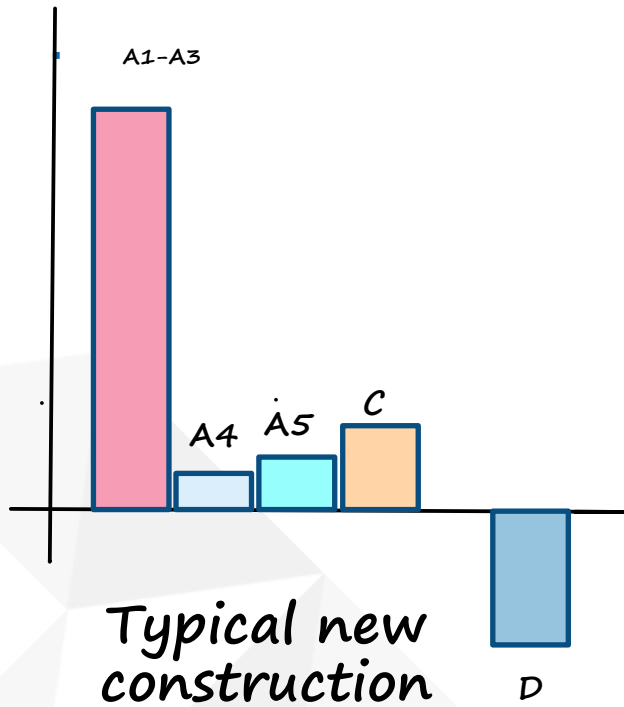


Reuse in EU and Finland

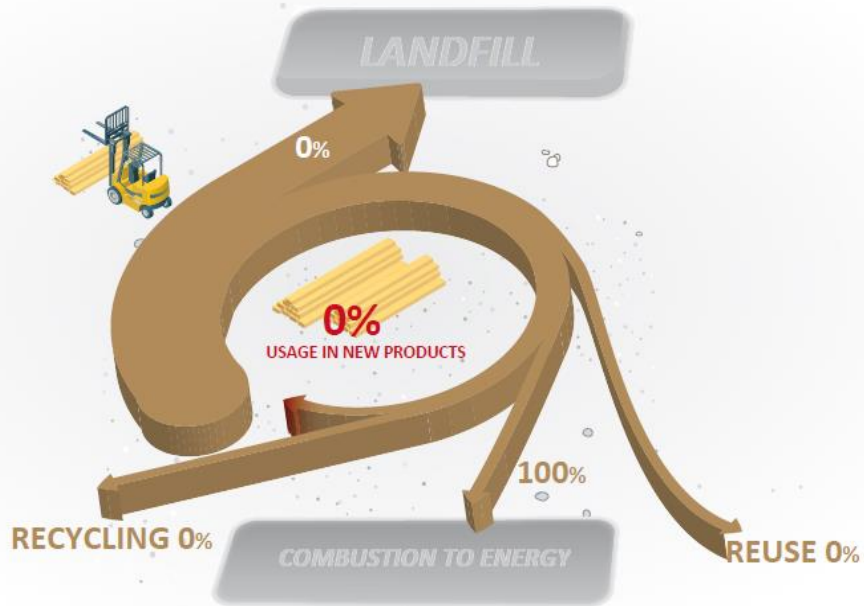
- The EU Construction Product Regulation (CPR), which is currently being reformed, aims to have an even stronger impact on reducing the environmental impact of construction and promoting the circular economy. The draft for the new construction product regulation published on spring also covers reusable construction products. The CPR will require that buildings must be designed and implemented so that structural parts can be reused or recycled. Standardization is also being prepared for reuse in the European Committee for Standardization (CEN).
- The reform of the Building Act currently underway in Finland also aims to promote the circular economy. The law draft proposes a new obligation to prepare a construction and demolition materials report in connection with the building permit process. This would support markets for the utilization of demolition materials. There are also two delegated acts under review (Climate Declaration and Material Passport)



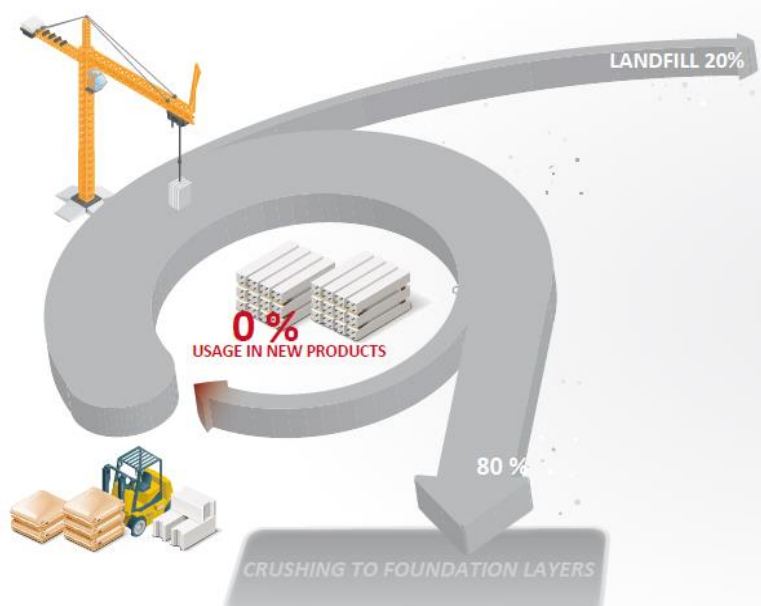
Clients will drive the construction towards the reuse and recycling => whole lifecycle carbon will make the difference



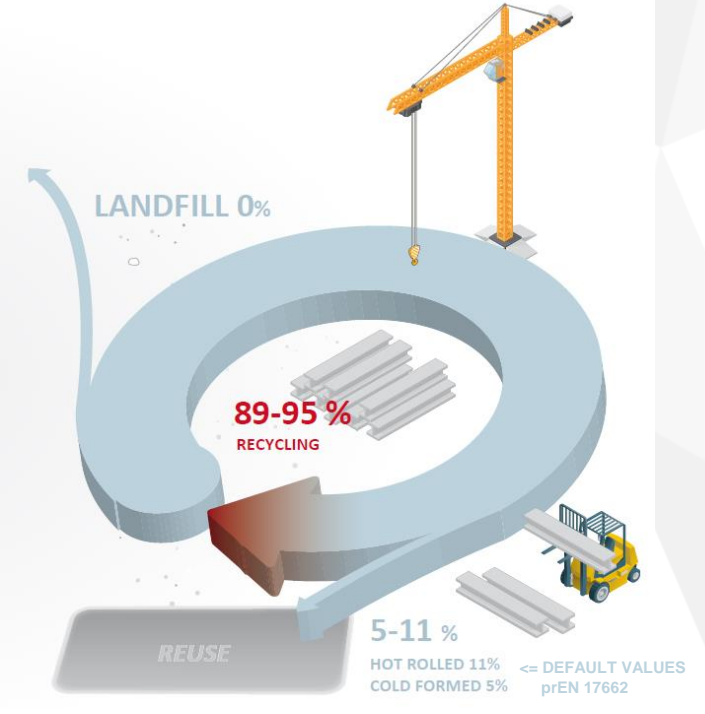
What happens to building frame after demolition?



Timber frame



Concrete frame



Steel frame

According to the reports, practically all wood waste from construction and demolition is used in Finland for energy production, i.e. wood is burned for energy. It is estimated that part of the demolition waste also ends up in the final disposal along with other demolition waste.

Contamination and quality problems of demolition waste limit the possibilities of diverting waste for reuse and recycling.

Most of the dismantled concrete frame is crushed and used as a filler for earthworks. This is "downcycling", i.e. a secondary use that does not have the same value as the first one. The demolition material could be used cleaned again in the production of new concrete, but for cost reasons it is not profitable. The estimate is that the uncrushed part of the dismantled frame, unsuitable for earthworks, will be disposed of

Reuse of concrete elements is also primarily limited by the cost of transportation

Steel benefits from having a high recycling value in euros, which is supported by a developed and efficient metal collection infrastructure. It can be recycled at the end of its life to form products that are of the same or better quality than the original material

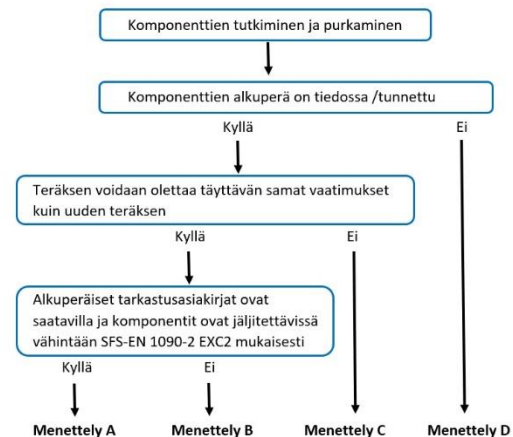
The potential of reuse with standard profiles with mechanical joints is high, but currently the standard solutions for frame reuse are still in the development phase.

Steel Structures Reuse -project

- Some European countries have already published guidelines and summary documents for the reuse of steel structures, but there are none in Finland. Finnish Constructional Steelwork Association considers it important to compile and publish an information package on this topic for the needs of the Finnish construction industry
- The goal of the project is to produce a instruction document and information package on the reuse of steel structures for structural designers, building control authorities and clients/developers

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Thank you!