LINDBÄCKS

Rationellt byggande.
Sunt boende.

Swedish Experiences on Modern Methods of Construction

Helena Lidelöw, Head of R&D

Helena Lidelöw

- Passionate about off-site, prefabrication, timber engineering, problem solving, innovation
- M.Sc. in Civil Eng, Ph.D. in Timber Eng and Ass.Prof. in Industrialised Construction
- 15 years of teaching building technology, structural engineering, computer-aided design
- 10 years working at Lindbäcks Bygg, Sweden's largest producer of timber-framed modules intended for multi-storey apartment buildings
- Frequent public speaker on modular and industrialisation of construction – visited USA, Japan, NZ, Australia, Scotland, Finland, Canada to study modular production, learn, and teach
- Strong view that Modern Methods of Construction support:
    - Production logic
    - Integration of trades
    - Supply Chain cohesion

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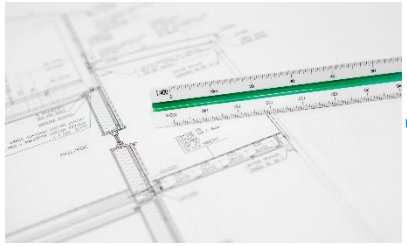
Industrialized production of multi-storey houses

Project development

Design < 32 weeks

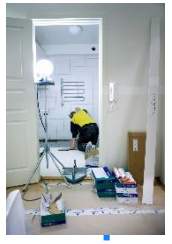


Production ≈ 4 weeks

Transport 0-800 miles

Assembly ≈ 4 weeks

Completion
≈ 6 months



Walls - floor- ceiling

Elements assembled

Assembly of modules

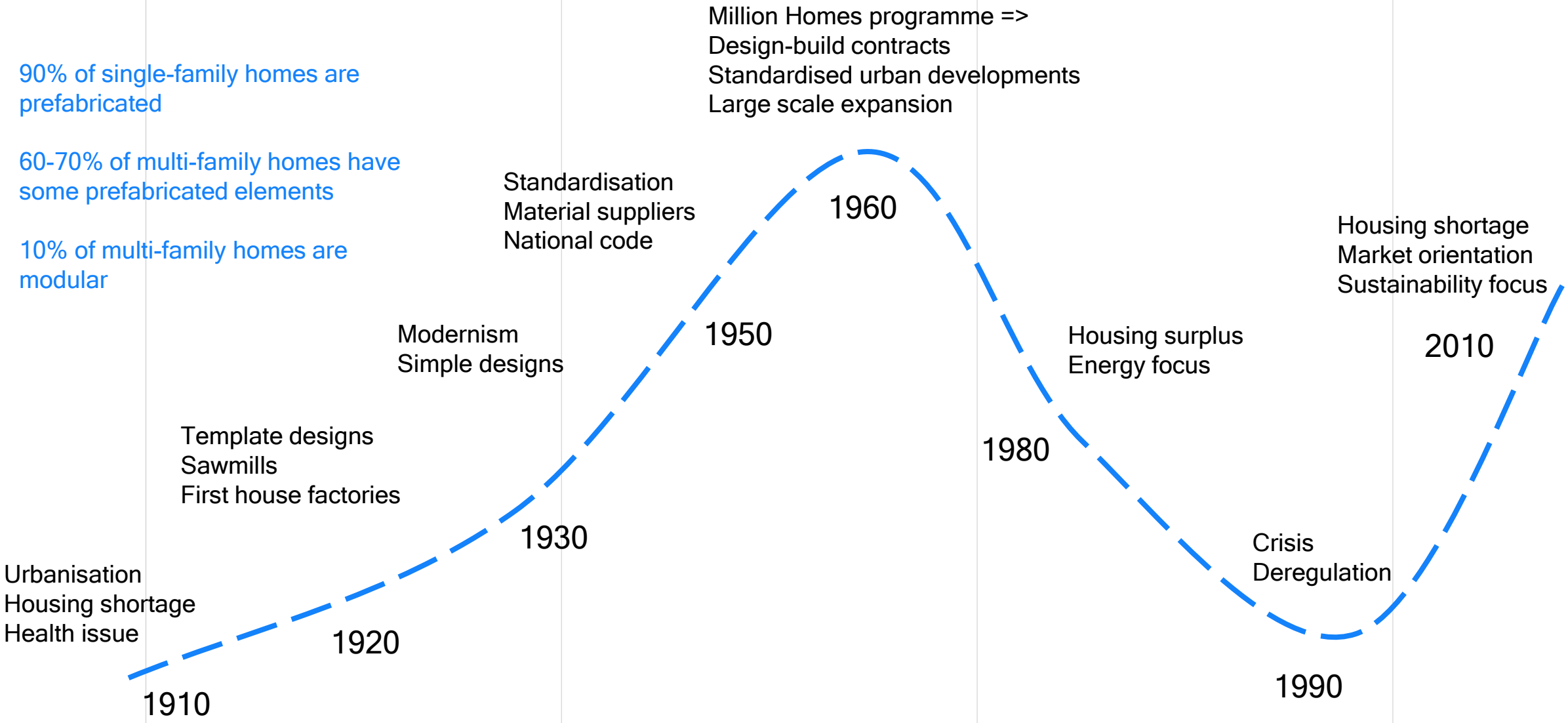
Completion of modules

Output 14 modules per 8h
Install 165 windows weekly
Use 8,000 m^3 of lumber annually
Employ 550 people
3,000 modules per year
60,000 m^2 per year

90% of single-family homes are prefabricated

60-70% of multi-family homes have some prefabricated elements

10% of multi-family homes are modular



Apart from construction skills with all the normal trades, such as:

- carpenters
- plumbers
- joiners
- electricians
- painters

… MMC also entices:

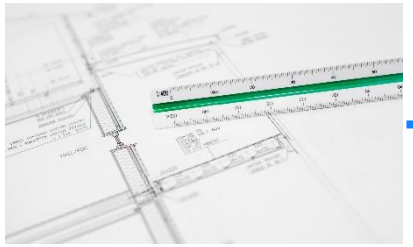
- logistics professionals
- factory specialists
- Lean consultants
- computer programmers

… and feeds precision and innovation in the supply chain:

- framing with high tolerances
- standard size windows, doors, and sheathing
- bathroom appliances
- surface materials

Project development

Design < 32 weeks



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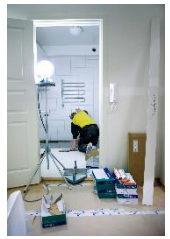


Optimize for production ----------> More work on site

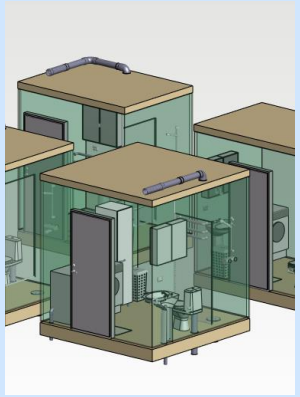
Design error ----------> Stop on assembly line

+ Increases moisture safety

- Increases design time and complexity

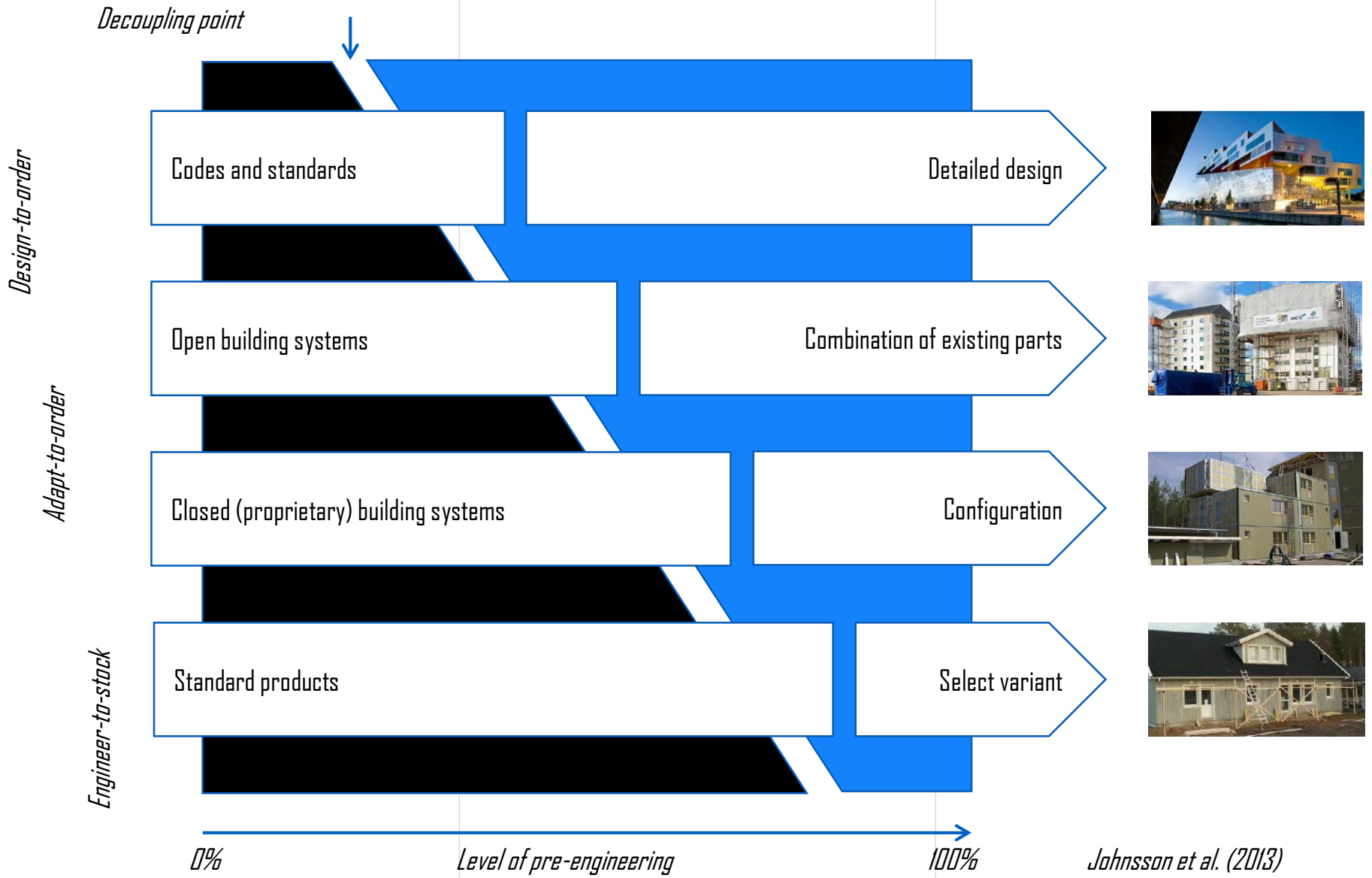
- Increases cost in purchasing

+ Decreases tact time by 2-4 hours



Does not affect transportation, assembly or completion

Modern Methods of Construction is a continuum



Johnsson et al. (2013)

Tack!

(Swedish for Thank you!)