Industrialized construction for the built environment
Industrialized construction – why now?

- Material waste
- Labor shortages
- Increased demand
- Government & Owner demand
Benefits of industrialized construction

- Improved productivity and quality
- Reduced health, safety, and environmental impacts
- Increased emphasis on realizing clients’ vision
- Support for innovation
- Reduce cost
- Increase predictability
Introduction to Industrialized Construction

Amy Marks
VP of Industrialized Construction Strategy and Evangelism
Amy Marks
Vice President of Industrialized Construction Strategy and Evangelism

Queen of Prefab
Industry thought leader on Industrialized Construction
Alumna of Harvard Business School and graduate of the UF
Ambassador of Advancing Prefabrication Conference
Trainer for Mechanical Contractors Association of America (MCAA)
Singapore Govt. Panel of Experts on Construction and Productivity
Worked on six of the seven continents consulting on large-scale projects to optimize Industrialized Construction
Industry Convergence
- e.g. Industrialized Construction

Process Convergence
- e.g. Design ↔ Build ↔ Operate

Business Model Convergence
- e.g. GCs incorporating design/manufacturing

Technology Convergence
- e.g. melding of Telco, computing, consumer electronics

Source: Unsplash
Industrialized Construction

The application of manufacturing techniques in the built environment
DATA
Design
for Manufacturing and Assembly (DfMA)
Prefabrication vs. Productization

Photo Credit: H T Lyons
The Future is “Product” Led and Informed Design

Data Reuse & Platform Optimization
100% increase in global building floor area by 2060 owing to population growth and rapid urbanization.

40% of solid waste comes from the construction industry.

50% of all global material consumption comes from the building sector.

Sustainable Construction
Maximizing Quality, Safety, Schedule and Cost Control while Winning More Work
Transformation Framework

STRATEGY FOR TRANSFORMATION

OUTCOMES DRIVING ADOPTION

1. Foundational
   - Culture, Skills, Tools, Technology and Processes
2. Productization
   - Mindset change to drive data reusability
3. Digitization
   - Enable automation and connected processes
4. Connection
   - Platform thinking, enabled by the cloud
5. Optimization
   - Enhance capabilities (Gen Design, Digital Twins, IC)
6. Circularity
   - Digital and physical reuse

The New Possible for AECM-O

First Steps

Certainty  Business Growth  (Holistic) Sustainability  Schedule  Risk Reduction  Safety  Create Better Products
Autodesk IC Strategy

Enable Data for Manufacturing & Assembly

Connect Autodesk platform for the ecosystem using to make IC easier

Create a collaborative knowledge center for IC to share best practices
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Connect with me!

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Industrialized Construction curriculum preview
WELCOME TO THE AUTODESK DIGITAL CONSTRUCTION SUMMER SCHOOL

Anil Sawhney
Director of the Infrastructure Sector
Royal Institution of Chartered Surveyors (RICS)

- Based in Boston, MA
- Construction and infrastructure leader with a background in research, education, thought leadership
- Co-author of Construction 4.0: An Innovation Platform for the Built Environment
- Visiting professor at several institutions
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Industrialized Construction Curriculum

Principles of Industrialized Construction

Course objectives

Introduce the megatrends encapsulated in Industrialized Construction

Explain concepts, strategies, and principles that are important for ongoing transformation of the construction industry

Prefabrication
Additive manufacturing
Robotics
Big data, AI, and Predictive Analytics
Internet of Things
Industrialized Construction Curriculum
Principles of Industrialized Construction

Learning Outcomes

- Define Industrialized Construction and the megatrends
- Demonstrate the potential benefits of Industrialized Construction concepts, strategies, and principles
- Create high-level strategies for the implementation of Industrialized Construction at construction organizations at the organization and project level
- Describe the convergence of trends and technologies of Industrialized Construction
- Illustrate working knowledge of production, manufacturing, lean principles, sustainability, and other topics during the project's life cycle and process
### Industrialized Construction Curriculum

#### Course modules

| 1  | • Introduction to Industrialized Construction (IC) |
| 2  | • Productization, DfMA, and Sustainability          |
| 3  | • Rise of MEP Assembly                             |
| 4  | • Prefab Readiness and Lean Manufacturing in IC    |
| 5  | • Artificial Intelligence, Automation and Robotics in IC |
| 6  | • Convergence of megatrends Product Platforms, and Digital Platforms |
| 7  | • Future of Work                                    |
Download Autodesk whitepapers

FUTURE OF WORK IN CONSTRUCTION

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