

# **The Next Industrial Revolution:**

A Model for Next Generation Urban R&D and Pilot Manufacturing

ARCH 4/584, Portland, Fall 2009

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## **Thesis:**

In an ever more constrained built environment and with limited natural resources, how we go about the business of manufacturing has become increasingly more important as it impacts both our lives and our environment. With growth in everything from data processing and the manufacture of microelectronic chips, emerging nanotechnology products to the fabrication of “green” technologies such as photovoltaic panels, how and where we “make” and deploy these products and functions has deep ramifications and implications relative to all of our communities, jobs and human health and well-being and, ultimately as they may effect climate change.

These kinds of facilities, their systems and the people who are engaged in the practice of designing, building and ultimately working within them are faced with increasing challenges in resolving the competing demands of available space, demanding environmental requirements and the support of emerging technologies applications. With an increasing programming, automation and complexity to manufacturing, the necessity for human interactions and collaboration is only increasing.

This studio will seek to create a model Next-Generation R&D and Pilot Manufacturing facility in which the needs and requirements of a specific product manufacturing process are balanced more holistically than is current practice with the aim of a establishing a symbiosis between occupants, the technological systems employed and the broader extant built and natural environments.

As part of the exploration of this project, students will be challenged with one of the most technically challenging building types. The building type will take into account space and adjacency requirements for long span structures, vibration isolation techniques, sophisticated air handling systems, process chemical delivery systems in addition to be designed to support and contribute to a vibrant urban environment.

## **The Studio:**

Participants in this studio will be responsible for the design of a Next-Generation Research & Development (R&D) and Pilot Manufacturing facility in the existing urban environment of Portland. A preliminary program will be developed by the studio from input from IDCA architecture and engineering staff and at a minimum, will include clear-span manufacturing spaces (“clean” & “dirty” spaces); incubation, testing and pilot-line manufacturing spaces,

R&D lab spaces including nanotechnology suites, supporting office and major training and conference spaces and supporting power, cooling and other facility infrastructure areas (Central Plant).

The Scope of this design studio effort will reflect and explore the range of design services and expertise that are typically required for a facility of this kind. Studio participants will be expected to conduct research and prepare illustrative documentation inclusive of everything from comparative site analysis diagrams and conceptual programmatic planning to presentation level rendering(s). Alternative subject sites have already been selected to be explored by the entire studio for final selection.

It is anticipated that the Scope of the final “product” of this studio will resemble what is called in the manufacturing business sector, a “Basis of Design” document, or “B.O.D.” This document would typically include, among other things, a site plan, massing and programming diagrams, floor plans, equipment layout plans, typical sections, typical detail sections, elevations and materials definition. An example of documents of this kind will be presented as one of the first of a series of studio presentations/talks for participant’s information and consideration.

### **Studio Organization:**

The studio will be led by Nathan Corser AIA, Design Principal of IDC Architects with support from Timothy Meier AIA, President of IDC Architects and Kenneth Lundgren AIA, Senior Architect of IDC Architects.

Nathan will be joined by a team of Senior Architects, Engineers and technologists from IDCA and CH2M HILL who are recognized as experts in their fields and industries. These participants will engage in studio work sessions, establishing the building program, presentations and reviews.

It is anticipated that there will be at least two off-campus trips; to walk and catalogue the proposed alternate sites and to tour one of the world’s most sophisticated high-technology manufacturing facilities in the Portland area.

Studio sessions will be conducted from 1:00-5:00, Monday, Wednesday & Friday

### **IDC Architects Team:**

IDC Architects is a part of the CH2M HILL Family of Companies and specializes in Planning and Design of High Technology Manufacturing Facilities, Research and Development Facilities and Critical Environments. We are based in Portland and are the third largest Architectural firm in the State. We offer to our clients and integrated architecture and engineering approach under one roof and we have an extensive portfolio of local and international work. Please visit our website at [idcarchitects.com](http://idcarchitects.com) for more information.

Nathan Corser AIA – Design Principal IDC Architects

Nathan Corser has a Bachelor and Master degree of Architecture from Tulane University in 1984 and Master’s Degree from Columbia University in 1988. Nathan has been with IDC Architects for 10 years and serves as Design Principal for the Portland office. Nathan

provides design direction to many project here in the United States and internationally including China, Taiwan, Vietnam, Korea, Mexico and Europe.

Timothy Meier AIA – President of IDC Architects

Tim Meier received his Bachelor's of Architecture from the University of Oregon in 1984 and serves as the President of IDC Architects providing strategic direction and client interface. Tim has significant experience and a project designer, project architect and project manager for many of the significant projects of the type proposed for the studio.

Kenneth Lundgren AIA – Senior Architect – IDC Architects

Ken Lundgren is a Senior Architect in our Portland office with over 35 years of experience in Architecture. Ken is a graduate of the University of Oregon and has played significant roles in the development of many of the high tech manufacturing projects here and overseas.