

## Ten Industry Transformational Trends

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Patrick J. O'Connor, Jr., LEED AP  
Faegre & Benson LLP  
poconnor@faegre.com

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### Sustainability

- The A/E profession is beginning to embrace the concept that design must take into account broader interests so as to reduce global warming and conserve scarce resources
  - Advice on energy and environmental design an emerging standard of care
    - §3.2.3, §3.2.5.1 of AIA Document B101
      - Consider environmentally responsible design approaches
  - LEED certification program
  - Governmental efforts to encourage sustainable design

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### Collaborative and Integrated Project Delivery / Alliance Arrangements

- Design and construction is too fragmented. Delivery approaches that break down separate responsibility silos in favor of cross-disciplinary cooperation promise greater efficiency
- By closely aligning all major project participants' interests in shared outcomes rather than individual gains, it is expected that greater collaboration will result in better project outcomes.

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### **Building Information Modeling (BIM)**

- This technological innovation is an enabler to greater collaboration among the design and construction disciplines. Virtually building a structure before actually building it reduces design conflicts, RFIs, and disputes
  - RFID
  - GPS
  - Interoperability issues
  - Parametric modeling – who is the designer?

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### **Modularization**

- Technologies like BIM permit greater reliance on dimensioning information, which, in turn, allows for more construction to occur off-site where greater efficiencies can be achieved

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### **Globalization**

- Flattening of world economics presents immense challenges for the AEC industry. The rise of China as a major global presence (and growth of Chinese construction companies) creates competitive challenges for domestic players and further burdens already constrained resources.
  - Outsourcing (India)
  - Industry consolidation
  - Price escalation

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### Work Force and Resource Constraints

- The AEC industry suffers from severe labor shortages – at both the top (professional and managerial) and bottom (unskilled labor). Immigration policy complicates an already bleak picture. Moreover, the face of the industry’s workforce is changing, with foreign-born workers, many of them Hispanic, entering the industry. This places a premium on developing strategies for effective communication.
- Until recent economic downturn AEC industry subject to wildly-fluctuating price escalation in many critical raw (and manufactured) materials
  - Oil
  - Copper
  - Steel
  - Wall board

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### Organic Dispute Resolution

- The AEC industry continues to be plagued by disputes and inefficient mechanisms for resolving controversy. While mediation can be effective, it usually occurs after the parties have expended considerable resources disputing their differences. Arbitration has become more cumbersome and litigation is often worse. Disputes arise too often and are resolved too late. A more organic process is needed; where most disputes are resolved close in time to their origin by persons most knowledgeable about the circumstances.

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### Lean Construction Techniques

- Applying proven manufacturing efficiency principles of “just-in-time” delivery and Toyota management practices to cut waste and redundancy in the construction process holds great promise for enhanced efficiencies.
- Transformation of a profession into a business
- Driving efficiencies into a very inefficient industry

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### Public-Private Partnerships (PPP)

- As infrastructure ages and public coffers empty, a move toward more collaboration between public and private sectors will emerge.
- Energy
- Transportation

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### Rational Risk Allocation

- The AEC industry has grappled with fashioning coherent risk allocation models. Contract forms developed by industry organizations have helped, but dislocations still exist. There is a growing awareness that risk and reward must be more balanced.
  - **Top-down model where control exercised at top of contracting chain and risk flowed down is broken**
  - **Better and more efficient insurance models**

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### Sustainability Revisited

- Defining goals
- Developing yardsticks for measuring success/failure
- Managing expectations
- Core competencies
- Standard of care
- Incentives
- Liability
- Contract language

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