



2009 Environmental Scan: Issues and Trends Affecting Architects, Architectural Firms and the AIA

*Prepared by McGraw-Hill Construction for
The American Institute of Architects*

March 30, 2009

Overview

- **Gain insights into key trends facing the architectural industry**
 - For internal strategic planning purposes
 - For educating AIA members and the industry
- **Create a single resource collecting secondary research on design & construction industry**
- **Obtain a comprehensive collection of resources**

Areas of Investigation

- Political
- Economic
- Social / Cultural
- Environmental
- Technological
- Design & Construction Industry
- Architecture Profession

POLITICAL TRENDS

Political Trends

Issue I. Economic Policies at the Forefront

- **New White House economic team: Spearheaded by new Treasury Secretary Timothy Geithner believes in an aggressive approach in stimulus policies**
- **Regulation of banking industry: High priority for federal government**
- **Housing stabilization: Key to creating a healthier economy**

Political Trends

Issue II. Stimulus Package Demonstrates Spending Priorities

- **American Recovery and Reinvestment Act (ARRA): \$787 billion, signed February 19, 2009**
- **Infrastructure the engine for economic growth: \$130 billion allocation**
- **Transportation legislation critical to success: SAFETEA-LU (highways) and FAA authorization (airports) may lead to more open use of innovative project financing**
- **Boost to energy efficiency: \$\$ to buildings focused on retrofits, especially green ones**

Political Trends

Issue III. Climate Change Moves to the Forefront

→ **Key Goal for Administration:**

- Commitments to renewable energy: Doubling generation capacity annually
- U.S. to take more visible role at UN Climate Change Conference in December
- Smart-Grid: Important 'pet policy' of Obama

→ **Cap-and-Trade: The preferred policy mechanism for legislators in managing CO2 emissions**

→ **Local & state policies: Moving toward mandates and energy performance reporting**

→ **Green jobs: A major part of this Administration's economic recovery plans**

Political Trends

Issue IV. Obama Administration Ushers in a New Way of Doing Business

- **Policy Czars: Creating overarching leadership (that reports directly to the president) that oversee cross-cutting issues**
- **Transparency a key part of the new government operations model: Administration Developing an Open Government Mandate**

Political Trends

Issue V. Policy Trends: Administration and 111th Congress

- **Dedication to Science:** Energy Secretary Steven Chu
- **Expanded interest in Urban Policy with establishing key new positions, such as the Director of Urban Policy to work with EPA, HUD, Commerce and Transportation**
- **Healthcare reform still a priority:** Health Secretary Kathleen Sebelius
- **Worker protection and union support seem likely focus for feds:** Labor Secretary Hilda Solis
- **Immigration reform still taking shape:** Homeland Security Secretary Janet Napolitano
- **National security shifts to Afghanistan:** Defense Secretary Robert Gates stays in post
- **Financial relationship with China will continue to evolve**

ECONOMIC TRENDS

Economic Trends

Issue I. Credit Crisis Continues to Loom

- **Crisis came to a head in 2008: Lack of confidence in critical portfolio assets and panic effectively shut down the financial system**
- **Global credit markets remain vulnerable due to changes in lending approach**
- **Small businesses struggle to find credit**
- **Investment markets expected to continue to downturn; recovery, sluggish**
- **People expected to reduce debt: Good in long-term, Difficult in short-term with retraction of spending**

Economic Trends

Issue II. Economic Outlook Gloomy

- **Unemployment rate is highest since early 1980s: First time unemployment claims highest peak in 26 years**
- **Housing market essential for economic recovery: Not expected to start to turn upward until 2010**
- **Government intervention creating the market for mortgages in current grim environment**

Economic Trends

Issue III. Possible Silver Linings

- **Government bond market could strengthen**
- **Energy and green building expected to fair better than average: More appealing to financing institutions**

Economic Trends

Issue IV. Government Responses

→ Emergency Economic Stabilization Act of 2008 established the Troubled Asset Relief Program (TARP), but results yet to be determined

- Allotted \$700 billion to stabilize market
- \$250 billion made available to banks as equity
- \$350 billion in 2009 put into Obama Administration's new Financial Stability Plan

→ Auto bailout began with \$15 billion in emergency loans from TARP, but more support likely to be needed for firms to survive

→ The Federal Reserve will use federal funds rate and other tools to help economic stabilization

Economic Trends

Issue V. Recession is Global

→ Asia

- China: Economic slowdown; \$586 stimulus for infrastructure
- Japan: Taxpayer cash rebates and expanding credit while looking at cost-cutting

→ Europe

- England: \$52 billion bailout of major banks; interest rate cuts; \$3.3 billion package to boost auto industry
- Germany: \$67 billion stimulus for infrastructure, healthcare

→ South America

- Chile: \$4 billion stimulus to create 100,000 jobs
- Brazil: \$166 billion for businesses without international credit



SOCIAL / CULTURAL TRENDS

Social/Cultural Trends

Issue I. Population Shifts

- **U.S. population continues to expand: 82% from immigration**
 - Population to 438 million by 2050 (currently 303 million)
 - Immigration numbers hard to predict, policies will have impact
- **Due to financial crisis, some immigrants are returning home, particularly illegal immigrants working in professions—like construction—that were hit hard by the recession**
- **Cities are getting bigger: Urban issues will move to the forefront in future years**

Social/Cultural Trends

Issue II. Design Trends in Response to Shifting Populations

- **Transit-oriented design will increase**
- **Revitalization of industrial properties and urban waterfront occurring across U.S.: Creating new communities**
- **Coastal expansion: Energy and environmental implications could be severe**
- **Mega-region growth will create public health and infrastructure challenges**

Social/Cultural Trends

Issue III. Generational

→ Aging population creates new trends:

- Flexible housing arrangements emerging, including more focus on accessory dwelling units
- Age-in-place design
- New transportation vehicles to adapt to slower responses

→ Generation X taking over the boardroom

→ Millennial generation defined by reliance on technology and in favor of flexible work environments

Social/Cultural Trends

Issue IV. Design Trends in Response to Shifting Generational Demographics

- **Greater push by Generation Y for livable communities**
- **Shift to the four-day work week**
- **Obesity, diabetes and osteoporosis will impact workforce and healthcare costs and influence future design**
- **Mood-sensitive architecture and noise pollution reduction measures will become more important to address mental and developmental health**



ENVIRONMENTAL TRENDS

Environmental Trends

Issue I. Green Building and the Economy

- **Obama administration putting emphasis green economy, with push for green jobs**
- **Financial benefits becoming clearer with an increasing number of studies**

Environmental Trends

Issue II. Market Opportunity for Green Building

- **Despite downturn, green building activity expected to increase becoming a much more significant share of construction**
- **Green building expected to comprise up to 25% of new commercial and institutional construction and up to 20% of new residential construction (by value)**
- **Education and healthcare greatest opportunity for green building**
- **Green retrofits gaining traction to become the more influenced area for green building in the future**

Environmental Trends

Issue III. Residential Green Building

- **Green homes seen as an advantage in the current down market**
- **Green home remodeling and retrofit more appealing in today's economy**
- **Quality = green according to home builders**
- **Homeowners driven to buy green homes by savings and health**
- **Energy performance helping drive sales, but not premiums**

Environmental Trends

Issue IV. Green Building Performance

- **Sustainability challenges and targets, like AIA's 2030 commitment, are taking over the industry and spurring activity toward actionable results**
- **Climate change will become a major benchmark for green buildings of the future**
- **Studies to date show green buildings not providing the expected paybacks: Expected to result in more stringent attention to performance versus certification**
- **Monitoring of buildings—commercial and residential—will increase**

Environmental Trends

Issue V. Green Certifications & Assessment Tools

- **Carbon calculators to become a mainstay for green building projects**
- **Lifecycle assessment tools will gain popularity and lead to increasing debate and possible conflict about how to apply an LCA for comparative purposes**
- **Proliferation of green product verification and standards to increase: Confusion in the market will persist in short-term**
- **Government could intercede: Early indication of interest**

Environmental Trends

Issue V. Corporate Sustainability Commitments

- **Corporate commitments to sustainability are increasing rapidly: Environmental/sustainability annual reports becoming standard practice**
- **Corporations expecting increasing involvement by government, looking for early adopter advantage**
- **Firms moving to identify as a 'sustainability thought leader' versus just using green in PR and marketing**
- **Generation Y preferences indicate a growing socially conscious consumer**

Environmental Trends

Issue VI. Government Policies

- **Federal government extends tax incentives for green buildings and energy efficiency:** through TARP, Energy Independence & Security Act and ARRA
- **State government support for green building in 31 states, tripling between 2005 and 2008**
 - Policies shifting to focus on reporting building energy performance
 - Expansion of policies governing government-owned buildings to also apply to commercial—and even in some cases residential—buildings
- **Local government efforts increasing as rapidly**

Environmental Trends

Issue VII. Renewable Energy in Buildings

- **Global green building practitioners increasing use of renewable energy technologies in building design and construction: Largest growth in solar and wind**
- **U.S. market seeing similar increases across commercial and residential**

Environmental Trends

Issue VIII. Innovative Materials

- **Nanotechnology: Making materials stronger**
- **Biomimicry: Building with nature to create new products and design aesthetics**
- **Innovative solar energy systems: Addressing storage and power output through new product R&D**
- **Lead-free Steel: Shift to remove heavy metals from building materials**

Environmental Trends

Issue IX. Education & Profession

- **LEED Accredited Professional program changing to designate practitioners working on green building projects**
- **Continuing LEED AP credits will create an ongoing learning process around green building**
- **College commitments to sustainability increasing rapidly**

TECHNOLOGY TRENDS

Technology Trends

Issue I. Tools and Return on Investment

- **BIM will continue to transform the construction industry**
 - Contractors' increasing adoption of BIM will generate ROI
 - Owner demand will increase
 - Government will eventually require BIM on all projects
- **Software vendors for BIM will need to make packages interoperable**
- **Legal issues will remain a challenge to adoption of BIM for some users**

Technology Trends

Issue II. Faster, Cheaper, Better

- **Increase in model-driven pre-fabrication**
- **Artificial intelligence and robotics will have an increased role in the workplace and the design process**
- **New technologies focus on efficiency:** Chilled-beam technology, software analyzing energy benefits
- **New materials will expand design options**

Technology Trends

Issue III. Influence of Computer Technology

- **Internet evolution will lead to semantic web which is 'intelligent' data that can do collaborative filtering**
- **Increases in virtual reality and gaming by Generation Y will be applied to the workplace and educational process**
- **Computer power will continue to increase making further transformation & innovation possible**



DESIGN & CONSTRUCTION INDUSTRY TRENDS

Design & Construction Industry Trends

Issue I. Construction Market Activity Forecast

- **Construction industry will not see a recovery until 2010**
- **All sectors seeing declines this year, though long-term forecasts for healthcare and education seem strong**
- **All major markets are seeing a downturn, though interestingly, some large projects in Las Vegas are still seeking permits**

Design & Construction Industry Trends

Issue II. Housing Market

- **New policies may help stimulate the housing market**
- **Consumers shifting to smaller homes, expected to continue until economy in full recovery**
- **Home remodeling story is down, but homeowners are looking at improving existing homes versus buying**
- **Hurricanes and natural disasters have changed housing design and construction**

Design & Construction Industry Trends

Issue III. Materials & Labor Costs

- **Union contracts suggest construction labor costs will increase in 2009**
- **After brief spike, construction material prices fall in most markets and are expected to remain low in 2009**

Design & Construction Industry Trends

Issue IV. Infrastructure & Urban Development

- **Re-urbanization, density and transit-oriented design expected to increase: Driven by environmental concerns, demographic shifts of populations to urban areas**
- **Infrastructure demand will create need for creative financing, including public-private partnerships**



ARCHITECTURE PROFESSION TRENDS

Architecture Profession Trends

Issue I. Surviving the Economic Crisis

- **Firms will focus on strategies to survive economic times versus expansion**
- **Firms finding success in international markets, particularly South America and the Middle East where architects report has activity occurring**
- **For firms hiring, they are most often looking for senior-level 'catch-all' employees who have multiple strengths**

Architecture Profession Trends

Issue II. Workforce Shortages

- Shortages across the industry will continue to be a crisis, particularly when the economy improves
- Unique recruitment and education necessary to attract a younger, brighter worker
- Engineering pipeline drying up with enrollments down
- Skilled trades seeing dramatic decreases, as the negative reputation remains a hurdle to overcome
- Immigration policies that promote a foreign worker will be necessary to meet future needs

Architecture Profession Trends

Issue III. Integrated Project Delivery & Learning

- **Integrated project delivery is growing: Need to make process more efficient propelling growth**
- **Sustainability is moving into the classroom and within the firm as owners demand credentials for projects**
- **Interdisciplinary programs that teach both engineering and architecture will grow**
- **The Green Consultant is emerging as a niche profession**

Architecture Profession Trends

Issue IV. Diversity and Shifting Professional Needs

- **Women, minorities and immigrants creating a new workplace demographic**
- **Part-time, post-retirement professionals expected to increase and may lead to a different type of professional licensure**
- **Enhanced specialization may emerge, and require lifelong learning to adapt to specializations as they come and go**
- **Pro-bono and public interest work will increase, particularly as Generation Y enters the workforce**

Architecture Profession Trends

Issue V. Talent Retention

- **Nurturing young staff likely to pay off in the long run with competition fierce for architects with mid-level experience**
- **Money remains the most effective way to retain talent, particularly among top performers**



OVERARCHING TRENDS & IMPLICATIONS

Overarching Trends & Implications

- **The economic crisis overshadows all other trends. Several impacts from it will affect the industry for years to come.**
 - The industry will become more global, for business opportunity, future workforce and for funding.
 - Firms will be strategic about how they allocate resources.
 - Financing will continue to be challenging as banks become overly cautious about investments.
 - Government influence and role will remain for years to come.

Overarching Trends & Implications

→ **Sustainability and green design & construction are here to stay.**

- Government policies developed today will last for decades.
- Education and training at top design and architectural schools are incorporating sustainability into their curricula.
- Energy efficiency will outlast the economic downturn and remain a fixture in design in the future.
- Measurable performance is what owners are looking for.

Overarching Trends & Implications

→ Changing demographics will fundamentally affect buildings.

- Aging populations have special and diverse needs.
- Generational interests of the Millennials will need to be addressed as they become the largest, and eventually most influential generation as were the baby boomers before them.
- Explosion of mental health, disease and obesity will change design, just as the Americans with Disabilities Act did in the 1980s.

Overarching Trends & Implications

→ **Opportunity for innovation is now. Application of technology will continue at ever-increasing rates.**

- Contrary to popular thinking, much of construction innovation adoption occurs during economic shocks.
- Use of BIM and other electronic tools will rapidly increase as computing becomes more powerful, mobility becomes expanded and data becomes more ‘intelligent.’
- Global design and construction will also emerge long-term as a result of these expanded technological capabilities.