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# IVERGE Building Tomorrow Today

March 20, 2007



## The 2030° Challenge

One of the more recent movements in sustainable design is Ed Mazria's Architecture 2030 challenge.

Credible scientists give us 10 years to be well on our way toward global greenhouse gas (GHG) emissions reductions in order to avoid catastrophic climate change. Yet there are hundreds of coal-fired power plants currently on the drawing boards in the US. Seventy-six percent (76%) of the energy produced by these plants will go to operate buildings. As Architecture 2030 has shown,

buildings are responsible for almost half (48%) of all energy consumption and GHG emissions annually; globally the percentage is even greater. Immediate action in the Building Sector, and a concerted global effort, are essential if we are to avoid hazardous climate change.

Stabilizing emissions in this Building Sector, and then reversing them to acceptable levels over the next ten years, is key to keeping global warming to approximately a degree centigrade (°C) above today's level. To accomplish this Architecture 2030 has issued The 2030 °Challenge asking the global architecture and building community to adopt the following targets:

- That all new buildings, developments and major renovations be designed to meet a fossil fuel, greenhouse gas (GHG) emitting, energy consumption performance standard of 50% of the regional (or country) average for that building type.
- That at a minimum, an equal amount of existing building area be renovated annually to meet a fossil-fuel, greenhouse gas (GHG)-emitting, energy-consumption performance standard of 50% of the regional (or country) average for that building type (50% of the regional average through innovative design strategies, the application of renewable technologies and/or the purchase—20% maximum—of renewable energy).
- That the fossil fuel reduction standard for all new buildings be increased to:
  - 60% in 2010
  - 70% in 2015
  - 80% in 2020
  - 90% in 2025Carbon-neutral by 2030 (using no fossil-fuel GHG-emitting energy to operate)

To meet The 2030 °Challenge, we must not only design high-performance and carbon-neutral buildings and developments, but also advocate for incentives and actions that will ensure that all buildings and developments meet these targets as well.

In support of accomplishing the 2030 challenge The 2010 Imperative Global Emergency Teach-in was held on February 20th when over 250,000 listened in a the web broadcast. The 2010 imperative provides specific achievable strategies to transform the built environment. These strategies are designed to immediately stabilize emissions in the Building Sector, and then reverse them to acceptable levels over the next ten years.

### How will you respond to this challenge?

A great first step is through your association participation with organizations such as AIA, CSI, USGBC, ASHRAE and others. Start specifying your performance requirements to meet the goals of the architecture 2030 challenge.

Submitted by:

Paul R. Bertram, Jr. FCSI, CDT, LEED AP

Paul is president of PRB Connect and is a sustainable design strategist for the building team. He serves on the LEED MR TAG and is member of the Green Building Initiative Board of Directors. He can be reached at paul@prbconnect.com.

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with the Built Environment



### 2010 Web site links

<http://www.2010imperative.org/>

### Featuring:

#### A THREAT TO THE PLANET

Dr. James Hansen, Director, NASA Goddard Institute for

Space Studies

#### RESUSCITATING A DYING WORLD (2030 Challenge / 2010 Imperative)

Edward Mazria, AIA, Founder, Architecture 2030

#### DOING IS BELIEVING

Chris Luebke, Director, Global Foresight and Innovation Initiative, ARUP

The 3 1/2 hour archived broadcast education is available to hear at <http://www.2010imperative.org/>.

[http://www.aia.org/release\\_121905\\_fossilfuel](http://www.aia.org/release_121905_fossilfuel)

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1598>

<http://www.usgbc.org/News/PressReleaseDetails.aspx?ID=2893>

[http://www.csinet.org/s\\_csi/sec.asp?TRACID=&CID=30&DID=14026](http://www.csinet.org/s_csi/sec.asp?TRACID=&CID=30&DID=14026)

<http://www.architecture2030.org/news/targets.html>

[http://www.energystar.gov/index.cfm?c=new\\_bldg\\_design.bus\\_target\\_finder](http://www.energystar.gov/index.cfm?c=new_bldg_design.bus_target_finder)

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## BIM Doors

By Dennis J. Hall, FAIA, FCSI, SCIP

If all of the experts are correct, Building Information Modeling (BIM) will revolutionize the way architects and engineers work and change the entire construction industry in a way that we have never seen. So what is BIM and how does it work? BIM is data attached to graphic objects that contain all the properties of the real objects. The National Institute of Building Sciences (NIBS) along with many organizations, firms, and government agencies are working to create the National Building Information Model Standard (NBIMS) that will establish a standard that allows software vendors to create BIM objects that are "smart" objects. Let's examine one object as an example, the door.

What is a door? Well, it depends upon whom you ask. To some a door is only the wood, plastic, or metal operable panel in an opening. To others the door includes the door hardware (lockset, hinges, etc.) and to others it includes the frame. One of the greatest challenges in BIM is to clearly define the object. In our example, different companies generally manufacture the door, hardware, and frame, but they must be viewed as a complete entity for fire-resistance rating when compared with the wall construction in which it is located. Therefore, the components of an opening may need to be linked together as a work result and yet be able to be specified separately as products.

Specifications Consultants in Independent Practice (SCIP), the Construction Specifications Institute (CSI), and National Institute of Building Sciences (NIBS) are working together to establish standards for property sets of products, work results, and elements, that can be used by manufacturers and design professionals to enable BIM objects to have the intelligence necessary for building modeling and specifications purposes. The property set standards will then be incorporated into the NBIMS. Additionally, information evolves over the facility life cycle and the standard must also address what information is needed at difference phases of design, construction, and operation of the facility.

While most product manufacturers want to tell you why their products are different from their competitor's products, common property set definitions and values will allow real comparison, modeling, selection, and specification of the object in an electronic environment. In general, product property sets will include source information (i.e. manufacturer, model number, and cost), physical characteristics (i.e. size, weight, finish, and color), and performance characteristics (i.e. fire, thermal, acoustical, and strength). These property sets will address all information about the product including sustainable design properties and maintenance requirements.

Today, one of our greatest problems is not that we don't have enough information to make good design decisions, but that we have too much information. In fact, we as design professionals are often besieged with information. But, information without interoperability and tools for processing the information into knowledge, it is just becomes information overload. BIM will allow design professionals to control information rather than be controlled by it.

Building construction is a team sport and for BIM to work, it will require the participation of all segments of the industry. This integrated design process with design professionals, contractors, owners, building officials, and product manufacturers all contributing to design knowledge will produce the goal of bigger, faster, better, cheaper. And isn't that what we are all trying to do?

Dennis J. Hall, FAIA, FCSI, SCIP is founder and managing principal of Hall Architects in Charlotte, NC, President of Specifications Consultants in Independent Practice, and a member of the SCIP/CSI/NIBS BIM Specifications Committee. Dennis can be contacted via email: [dhall@hallarch.com](mailto:dhall@hallarch.com).



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