CLIMATE SCIENCE & SERVICES ... IN ACTION

NOAA Helps the Construction Sector Build for a Changing Climate

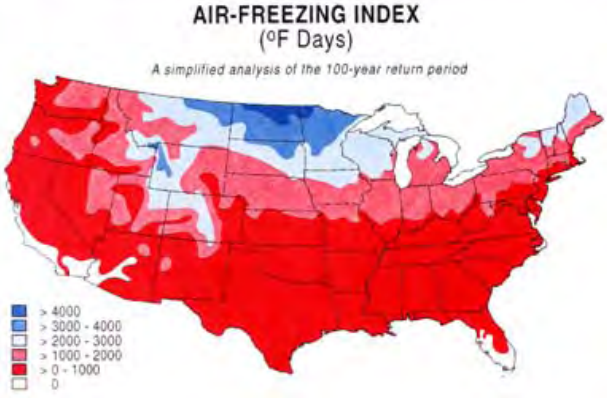
The construction industry is comprised of a wide range of business involved in engineering standards, building design, and the construction of various types of materials and structures. This sector is affected in many ways by climate change and variability as well as extreme weather events. Knowledge about short-term weather and longer-term climate conditions are essential to adequately design and successfully manage construction projects.

Long term climate impacts, such as sea level rise, coastal erosion, and drought; and short-term weather-related impacts, such as high winds and flooding influence the choice of site construction, building techniques, and materials construction workers use. The potential risk of inclement weather and climate conditions also influence planning and project completion timelines. Construction projects that require dry conditions - such as a laying roads or foundations - may be delayed indefinitely until the weather cooperates, which can cost contractors thousands of dollars per day, if not properly planned for in advance.

Facilities can be designed, built, operated, and regulated to withstand, manage, or harness the impacts of weather and climate. One way NOAA has served the construction industry is by providing air-freezing index data, which helps builders understand how much insulation is needed to protect a building foundation from frost. In the past, standard foundation depths were several feet, but using NOAA's data, builders used increased insulation to require only 16 inches of foundation. This resulted in greener building, less site disturbance, annual building cost savings of $330 million, and energy cost savings of 586,000 megawatt-hours.

Climate Information Reduces Construction Costs and Energy Consumption

NOAA provides air-freezing data to the home building industry, which in-turn developed new insulation standards for protecting building foundations from frost. This resulted in annual building cost savings of $330 million and energy cost savings of 586,000 megawatt-hours.



Examples of how NOAA's climate information is being used by the construction sector:

- Precipitation data to design and build natural gas pipeline trenches that will withstand saturated ground conditions
- Rainfall data to help determine optimal locations for building new outdoor sports arenas
- Temperature data to determine the optimal thermal characteristics of buildings for insulation purposes, and to determine heating, cooling, and ventilation requirements
- Precipitation data to develop erosion control procedures for construction projects
- Past hurricane information and related meteorological data to help in the construction of residential and commercial buildings, including floating docks in coastal regions
- Historical rainfall data to plan ahead for "rain days" – days in which no outdoor work can be conducted due to precipitation events – during construction projects
- Ice thickness and freezing rain data for engineering design consideration in the construction of certain structures that are subject to outdoor weather

For More information:
http://www.economics.noaa.gov/?goal=weather&file=users/business/construction
http://www.ncdc.noaa.gov/oa/userengagement/construction.pdf
http://www.ncdc.noaa.gov/oa/userengagement/civil-infrastructure.pdf

Having access to relevant and easily understandable weather and climate data is essential for strategic planning purposes, risk management, and assessing environmental footprints. A changing climate can lead contractors to build smarter structures that are more energy efficient and cost effective.

Collaboration between climate scientists and the construction community is essential in helping to build the necessary bridges that will transform climate science into information that is relevant and credible.

Authoritative, timely and reliable information about climate variability and change opens a world of possibilities to build resilient communities, infrastructure, and economies.

Knowledge about future climate conditions allows builders to design and construct buildings that are suitable for any given location. for adequate foundation and insulation.
http://www.ncdc.noaa.gov/oa/userengagement/construction.pdf

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As individuals and decision-makers across all sectors ask how they can best adapt to prepare their lives, communities and businesses for the impacts of a changing climate, NOAA, working with its partners, is providing reliable, easily accessible climate information to inform state, regional and national policy decisions.

From promoting more resilient communities and supporting energy, manufacturing and planting decisions, to envisioning a future with early warnings about sea level rise, infectious disease outbreaks and food quality, NOAA's climate information is essential to making informed choices in an uncertain world. For more information visit www.climate.gov or www.noaa.gov/climate.
