

STEM in the News

The spread of Covid-19 has created a new challenge for developers and architects who are planning local projects: One of the pressing questions is how they can change designs to protect against the current pandemic as well as future ones. Covid-19 has certainly made many worry about the rise of future viruses and leave them hesitant in entering public buildings. However, many individuals have plans to help prevent these illnesses from spreading. For instance, Matt Rinka, a partner in the architecture firm, proposes antimicrobial coatings and finishes for doors and other common surfaces that people may touch. Elevators are also a hot-spot for the spreading of illnesses, so others have suggested to create a bigger space and to put down tape markers to tell people where to stand.

STEM Career Spotlight

Architectural engineers look at buildings and architecture differently than many others. They look at how they can make it better. An architectural engineer's job is to design buildings that improve lives for the better. They have to plan and design buildings in order for them to be structurally sound and safe. They make a median salary of \$86,640 per year.

Education: Bachelor's degree

"The technical man must not be lost in his own technology. He must be able to appreciate life, and life is art, drama, music, and most importantly, people." - Fazlur Khan

STEM in History

The first great civilization to emerge around the Mediterranean basin was that of Egypt (c.3100-2040 BCE). It developed a unique style of Egyptian architecture, largely consisting of massive burial chambers in the form of pyramids and underground tombs. Design was monumental but not architecturally complex and employed posts and lintels, rather than arches like in some other civilisations. Egyptian architecture had a huge influence on architecture around the world.

Resource: <http://www.visual-arts-cork.com/architecture-history.htm>

STEM Across the Curriculum

Math is undoubtedly present in the architectural engineering field. In this math activity, students design a building of their own using paper and pencil. They design the structure of the building and research how it is made. After that, students measure each individual shape and find out their areas. They can also find their perimeters, and how big the entire building is by adding all the areas together.

STEM Movies

The Walk (2015) is a biographical drama film based on the true story of 24-year-old French high-wire artist, Philippe Petit. Petit is shown as an ambitious and brave individual who does street performances such as juggling and wire walking. His main goal was to walk across a tightrope between the Twin Towers in New York, which he is able to achieve at the end of the movie. Architectural engineering is present in this movie through the buildings that Petit walks across. For instance, the Twin Towers are shown in their unfinished state, in which the viewers are able to see the structural design and how they were built.

“To build means to make architecture real on the borders of knowledge.” - Frei Otto

#STEM@ADM Spotlight

The Innovation Lab is a program in the media center at Alice Drive Middle School, where students develop and apply their skills in creation and invention. Engineering is utilized as students explore how to plan and build structures and machines. Particularly, architectural engineering is explored as students are able to design and construct models of buildings using Legos and K’Nex. Many inventive devices and designs are created in the Innovation Lab.

Famous STEM Person

Gustav Eiffel was an architectural engineer who is best known for the Eiffel Tower, which he built in 1889. He is also known for the numerous bridges he built, such as the Ponte Maria Pia Bridge.

STEM Challenge

STEM Jellybean Structure

Jelly beans + toothpicks = tons of engineering fun! The hard sticky inside of the jelly beans works better than marshmallows and makes some seriously stable creations. The best part of this activity is that there are no instructions to follow. Keep the activity open ended and be as creative as you want. Build several structures and then test which one is stronger by putting books on top of them. Enjoy learning about architectural engineering while having fun!

Resource: <https://thestemlaboratory.com/stem-jellybean-structures/>

STEM Puzzle

Reassemble the words to form famous pieces of architecture!

ifEffe Terow _____
oClsssoemu _____
nLodon Brdgie _____
mErpie Sttae Biludign _____
neLaing Twore fo Psia _____
Pryasmisd fo Gzia _____

Answers in order: Eiffel Tower, Colosseum, London bridge, Empire State Building, leaning tower of Pisa, pyramids of giza