

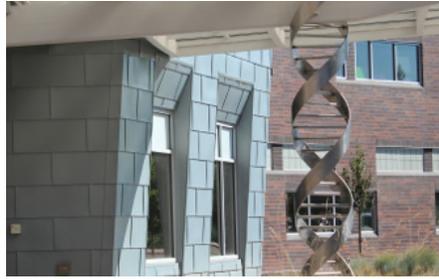
Institute of Science & Technology

SCIENTIFIC DESIGN FEATURES OF THE STEM BUILDING



ANALEMMATIC SUNDIAL

The sundial uses a person as a gnomon (the vertical marker) at the center of the sundial, allowing the shadow to track time. This type of sundial is more precise in that the location of the sun's shadow follows a complex curve called an analemma.



DNA COLUMN

The main entrance canopy is supported by a steel column shaped like a strand of DNA molecule. The rungs of the column represent the nitrogen base of nucleotides; it also has an outer spiral structure of sugar phosphate.



PHOTOVOLTAICS (PV)

A roof-mounted 17 kw photovoltaic array generates electric power to offset utility bills. Solar cells on the PV array convert solar radiation to direct current (DC) which is then changed to alternating current (AC) by an inverter.



CONSTELLATION CORRIDOR

The LED star field in the corridor, lobby, and reception ceiling corresponds with the northern hemisphere's night sky. Orion, Casseopeia, Hercules, and other constellations are replicated by the positions of the LED fixtures in the ceiling.



WALL OF FAME

These murals—some autographed—depict a select group of famous scientists, mathematicians, engineers, technologists, and other creative individuals. Each of the four murals is devoted to the discipline of laboratories in that wing: Biology, Engineering, Chemistry, and Physics.



FIBONACCI PLAZA

The Fibonacci series occurs naturally in our world and is expressed in a wide variety of forms. The lengths of the plaza windowpanes are based on this sequence: 1, 1, 2, 3, 5, 8, 13, 21....



ELECTROMAGNETIC SPECTRUM PLAZA

The electromagnetic spectrum illustrates frequencies of electricity that are encountered in the universe. In principle, the spectrum is infinite and continuous. The plaza illustrates the spectrum across 13 orders of magnitude.



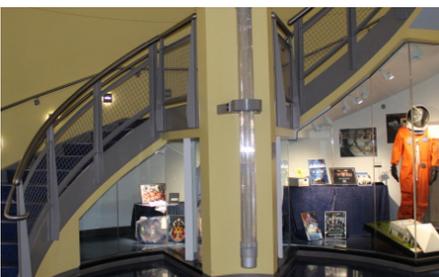
PRIME NUMBER PLAZA

A prime number is any positive integer greater than 1 and divisible only by 1 and itself. Prime numbers play a prominent role in number theory. The sequence begins with 2, 3, 5, 7.... The plaza arranges the numbers 1-47 in a circle, with each void representing a prime number.



DESTRATIFICATION FANS

When the large destratification is activated, warm air is pushed from the ceiling back down toward the floor when it is needed in the building; this saves energy used in the building. Additionally, ice is produced in the basement to help cool the building.



SUNDOLIER AND LIGHTPIPE

A Sundolier tracks the sun as it moves across the sky to maximize the harvesting of daylight. In the central stairway it provides a three-inch diameter beam of collimated light for optical experiments.



SQUARE IN A CIRCLE

The ceiling above the stair contains a series of squares inscribed in circles terminating with the final circle being the light shaft of the Sundolier. Squares are rotated 15° in a progression determined by aligning one edge of a square with the vertex of the next larger square.



BUILDING GEOMETRY

Distance along an arc is greater than its chord. The use of two back-to-back arcs in the form of the IST building allowed all classrooms to be configured in the available space while oriented within 20° of east/west for optimal access to daylight.