The Kavli Institute for Particle Astrophysics and Cosmology is designed to facilitate collaboration between theoretical and experimental physicists working to explore current problems in particle astrophysics and cosmology. Located at the Stanford Linear Accelerator Center (SLAC), the 25,000 sq. ft. building provides offices, labs, and meeting rooms for the researchers as well as a state-of-the-art auditorium for lectures and conferences.

The building anchors the central SLAC quad with materials and massing sympathetic to existing buildings and provides a prominent image of SLAC to visitors entering the campus. Views to the Stanford Campus and the Bay are framed through large office windows and a double-height bay window at the east end.

Principles of sustainability and resource-efficiency are integral to the design. Proper solar orientation, sunshading, and spectrally-selective glazing control direct sun penetration while allowing for daylighting and views through large window openings. A mixed-mode mechanical system featuring an underfloor-air distribution system combined with natural ventilation provides heightened comfort and occupant control while significantly reducing energy use. Efficient lighting fixtures and occupancy sensors reduce lighting energy use.

The plan organization and a raised-access floor system allow for maximum flexibility to meet ever-changing research needs without costly modifications over time.

Energy Performance Data

Detailed energy modeling was not completed for this project. Since the chilled water used for cooling is drawn from a campus loop, it is extremely difficult to monitor actual energy performance. However various sustainable strategies incorporated into the building’s design promise exceptional energy efficiency and occupant comfort, including:

1.) Proper solar orientation and sunshading, which keeps the direct sun and heat out while allowing excellent daylighting.

2.) Underfloor air delivery (UFAD), which allowed the team to introduce air at relatively high temperatures and low velocity during cooling mode.

3.) Natural ventilation through operable windows and clerestories. This is not tied into the controls system and is mostly intended for use during the spring and fall when outside temperatures are appropriate.
Kavli Institute for Particle Astrophysics and Cosmology

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1 USER-CONTROLLED VENTILATION THROUGH RAISED ACCESS FLOOR
2 SUNSHADING
3 NATURAL VENTILATION
4 OPTIMAL SOLAR ORIENTATION
5 FULLY-DAYLIT INTERIOR
6 ACCESS TO VIEWS
7 EFFICIENT LIGHTING WITH AUTOMATIC DIMMING
8 HIGH-PERFORMANCE GLAZING AND ENVELOPE
9 ON SITE STORMWATER RETENTION
10 LOW-EMITTING MATERIALS FOR SUPERIOR INDOOR AIR QUALITY
Center for the Built Environment
Post-Occupancy Survey Rankings

Very Satisfied

MEAN SATISFACTION SCORE

0

PERCENTILE RANK

25%

50%

75%

100%

Very Dissatisfied

Kavli

Represents other surveyed buildings in the CBE database
Kavli Institute for Particle Astrophysics and Cosmology
STANFORD LINEAR ACCELERATOR CENTER
MENLO PARK, CALIFORNIA

Project Team

Architect of Record: EHDD Architecture
General Contractor: Devcon Construction
Structural: Rutherford & Chekene
Mechanical: Stantec (formerly Keen Engineering)
Electrical: JRA Electrical Engineering, Inc.
Civil: BKF Engineers
Acoustics: Charles M. Salter Associates
Cost: Oppenheim Lewis, Inc.
Landscape: GLS Landscape Architecture
Lighting/Daylighting: Benya Lighting Design
Soils: Lowney Associates
Waterproofing: Simpson Gumpertz & Heger

Photo Credit

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