

## University of California, Riverside (UCR)

As a principal Mechanical Engineer, Tony Ngo provided mechanical design for various projects at UCR campus. Sample of some recent projects are listed below:



### Genomic Building\*

*\*Personal Experience of Tony Ngo ( from 2004-2008)*

The mission of the University of California Riverside Genomics Institute is to develop and disseminate new scientific and technical knowledge that will benefit economic & social aspects to agriculture, the environment, and human health.

UCR Genomics will concentrate on plant, pest and microbial genomics. The institute will focus on the development of new products such as medicinal plants, safer and more nutritious foods, stress-resistant crops, foods with a prolonged shelf life, disease-resistant animals, and novel bio-based products.

Tony Ngo was the Mechanical Principal design engineer of record for this new 135,000 sf building. Tony and his design team members provided high level of mechanical and plumbing engineering services for various labs and support facilities for this building.



Special attentions were given to the selection of mechanical and plumbing system components to control cost. Special design consideration and energy saving ideas were also being pursued to qualify the building for LEED®'s (Leadership in Energy and Environmental Design) silver certification.

The UCR Genomics Building will provide specialized facilities for research in the following areas:

- Insect Genomics
- Plant Cell Biology/Genomics
- Microbial Genomics
- Mammalian Genomics
- Bioinformatics
- Center for Plant Cell Biology
- Impacts Center

The building consists of offices, laboratories, lab support and bioinformatic areas.

Estimated total project cost is about \$53,000,000.



## **Psychology Building**

UC Riverside's College of Humanities, Arts and Social Sciences, faced with increasing enrollment and needs for research space, has undertaken the construction of a new Psychology Building.

The new \$28M building will provide 86,525 sf of class laboratories, research laboratories and support space, academic offices, shared scholarly activity spaces, departmental office for the Department of Psychology and a 12,000 sf vivarium. The College has achieved a national and international reputation for excellence resulting in students who have received Guggenheim Fellows, and faculty who have been named fellows of the American Association of the Advancement of Science.

As part of the selected design team members, Tony Ngo provided high level of engineering services (Schematic Design & Design Development) to the planning and designing of MEP systems for the vivarium, wet labs and computer labs for this project.

Since public funds were being used for this project, attention to control costs and schedule were particularly important. Value engineering sessions were continuously held to control cost by adjusting design. Special consideration was given to the design of the vivarium facility to qualify it to be AAALAC certified facility.

For the vivarium lab, redundant air cooled chiller with emergency power support was designed to back up the central plant that provided chilled water systems. The MEP system was designed with the flexibility in mind to accommodate future changes in the research development.



## Physical Science Building

*\*Personal Experience of Tony Ngo (from 2001)*

As a Principal Mechanical Engineer on this project, Tony Ngo has involved with the planning and design of 160,000 sf recently completed Physical Sciences Building, with a projected cost of \$40M. This building is a multi-disciplinary facility within the chemical sciences. Key elements of project success considered in the design include—student and staff safety, energy efficiency, cost management and future flexibility. Uses within the building include:

- Classrooms
- Faculty offices
- Administration offices
- Conference Rooms
- Teaching Labs
- NMR room
- Chemistry Lab
- Hybrid Lab
- Optical Lab
- Synthetic Lab
- Instrument Lab
- Computer Lab



Because of the hot climate in the Riverside region, the HVAC systems have been designed to run efficiently during summer months when outside temperatures can reach 110°F. External Heat recovery, variable air volume hoods, and extensive daylighting are additional key design elements implemented to improve the overall energy efficiency of the new lab building, designed as the “Chemistry Lab of the Future.” One of the main feature of this building included Strobic fan exhaust system for about 150 fume hoods.

Because public funds were being used for this project, attention to control of costs and schedule were particularly important. The design team responded by providing the University with cost-effective engineering design solutions while at the same time shortening the already fast-track schedule. The project design took into account the fact that campus facilities are often renovated to meet the rapidly changing needs of science. Designing flexible systems that can accommodate future changes in use was a main feature of the MEP System.