# WIIIKI ENGINEER OF HAWAII

VOL. 41 NO. 10

**SERVING 2000 ENGINEERS & LAND SURVEYORS** 

DECEMBER, 2005

## May I Have the Envelope Please...

# **ACECH Engineering Excellence Honors Hawaii's Best**

Innovative design was the buzz at the Engineering Excellence Awards Gala held on November 19, 2005 at the Kahala Mandarin Oriental Hotel. Almost 200 people attended this event of the American Council of Engineering Companies of Hawaii (ACECH) celebrating the outstanding accomplishments of seven firms whose award-winning projects included not only work in every county of the state, but also stretched 2,300 miles away to Wake Island.

#### And the Winner is... Lincolne Scott Takes Top Honor

ACECH's Grand Conceptor Award, was awarded to Lincolne Scott, Inc. for its NELHA Gateway Distributed & Renewable Energy Center (HGEC) project on the Big Island of Hawaii. The Kona research and development campus focuses on demonstration, deployment, education, outreach, techno-tourism, ocean sciences, marine bio-products and workforce development.

In accordance with the NELHA mission "To develop and diversify the Hawaii economy by providing resources and facilities for energy and ocean related research, educational, and commercial activities in an environmentally sound and culturally sensitive manner", the facility attempts to showcase its vision, tech-



NELHA Gateway Distributed & Renewable Energy Center by Lincoln Scott, Inc.

nologies and unique asset, namely cold deep seawater.

By incorporating the diverse uses of cold deep seawater and sustainable design elements into the building itself, the center serves to raise community awareness about our environment. The project is an example of how much more we can do as an industry to minimize our impact on the environment without compromising our current needs.

By utilizing the elements that are abundant at the site (cold deep seawater and solar energy), Lincolne Scott developed a design that integrates mechanical and electrical systems within the building architecture. As a result of the design elements, the HGEC is projected to perform as follows:

- 81% reduction in energy consumption
- 74% reduction in potable water consumption
- 333% improvement in outside air ventilation Other design team members included: Architect: Ferraro Choi & Associates;, Civil Engineer: R.M. Towill Corp.;, Landscape Architect: LP & D Hawaii;, Structural Engineer: Libbey Heywood, Inc.

#### Rockfall Mitigation atn MP11, Route 360 Hana Highway Results in Excellence Award for Geolabs, Inc.

The challenge for Geolabs, Inc., was to protect the road and commuters from rockfalls at this location of the Hana Highway while maintaining the beauty of the site. The narrow road width precluded the creation of suitable catch-



Rockfall Mitiagation on Hana Highway by Geolabs, Inc.

(continued on page 6)



Published monthly by:

HAWAII COUNCIL OF ENGINEERING SOCIETIES

SERVICE PRINTERS, INC.

1829 Dillingham Boulevard • Honolulu, HI 96819 Telephone: (808) 841-7644 • Fax: (808) 847-1487 ADDRESS ARTICLES FOR PUBLICATION TO: WARREN YAMAMOTO

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#### **CALL FOR NOMINATIONS**

In 1997, the Hawaii Council Of Engineering Societies instituted the "HCES Lifetime Achievement Award" which is designed to recognize the lifetime achievements of retired engineers. This annual recognition is given to an individual who has contributed significantly to the development of engineering in the State of Hawaii and who has made a noteworthy impact on the local engineering community. The award is presented annually during the Hawaii Engineers' Week Banquet. The first HCES Lifetime Achievement Award was made on February 27, 1998.

#### **ELIGIBILITY**

The following criteria shall be applied when nominating a candidate for the award:

- The nominee shall be affiliated with an HCES member society as an active member.
- The nominee shall have lived and worked in Hawaii as an engineer or engineer-manager for at least 15 years.
- The nominee shall be 62 years or older at the time of nomination
- The nominee shall have taken retirement from public or private sector employment. The nominee could, however, be continuing employment or consultancy or other work after effective retirement.
- In the case of a nominee who was an entrepreneur who started his/her own company, the nominee shall have actively handed over control of the company to a successor. The nominee may continue to be involved with the company.
- Posthumous awards may be made provided the nominee was an active member of an HCES member society at the time of his/her passing away and fulfilled all the required criteria listed above.

#### NOMINATION

The following criteria shall apply to the method for nomination:

- Any person belonging to any HCES member organization may nominate a candidate.
- The nomination shall be accompanied by a citation that must effectively highlight, in narrative form, the engineering contributions of the candidate. Special emphasis shall be made on the nominee's contributions to Hawaii
- The nomination shall include a detailed resume of the nominee.
- The nomination package shall be submitted with a cover letter addressed to the HCES Chair.
- Multiple nominators may nominate a single nominee. The nominations submitted may be a joint or separate nomination. To be considered valid, each nomination package shall be complete.
- A single nominator may nominate multiple candidates. The nomination for each candidate shall be distinct and complete with all necessary documents.
- If the nominee has not been selected in a previous nomination, he or she may be nominated in subsequent years.

The HCES Selection Committee will select the recipient. Five copies of the nomination

shall be mailed to: 2006 HCES Lifetime Achievement Award, P.O. Box 2873, Honolulu, Hawaii 96802. Award nominations must be postmarked on or before December 17,

## 2006 ENGINEER OF THE YEAR AND YOUNG ENGINEER OF THE **YEAR AWARDS**

In conjunction with the activities of Engineers' Week 2006, the Hawaii Society of Professional Engineers (HSPE) is soliciting nominations for the Hawaii Engineer of the Year and the Hawaii Young Engineer of the Year Awards. HSPE will evaluate candidates for both awards. The selected engineer(s) will be announced at the 2006 Engineers Week Banquet. Completed nomination forms and letters of support must be received no later than Friday, December 17, 2005 at the following address (electronic submittals only):

#### Hawaii Society of Professional **Engineers**

c/o Kenneth Rappolt, P.E. ken@Lyonassociates.com Phone: (808) 536 6621

Each candidate shall be nominated on the following basis:

#### Candidate for Engineer of the Year (Nomination Form not to Exceed 8 Pages)

- 1. Shall be current practicing Licensed Professional Engineer in the State of Hawaii:
- 2. Shall be current State of Hawaii resident:
- 3. Need not be a member of HSPE or any other society; and
- Shall not be a State Officer or Director for HSPF

#### Candidate for Young Engineer of the Year (Nomination Form not to Exceed 6 Pages)

- 1. Shall be 35 years of age or less as of Jan. 1, 2006;
- 2. Shall be a current practicing Licensed Professional Engineer in the State of Hawaii;
- 3. Shall be a current State of Hawaii resident:
- 4. Need not be a member of HSPE or other society; and
- 5. Shall not be a State Officer or Director of HSPE.

Electronic files of the respective nomination forms are available for your use - contact Ken Rappolt at Lyon Associates, Inc or by Email: Ken@lyonassociates.com.

#### Criteria for Selection of Young Engineer & Engineer of the Year Awards

- 1. 30% Technical Accomplishment (Major Projects, Technical Awards, Papers & Presentations, etc.)
- 35% Professional History Contributions (Positions Held. Affiliations, Special Professional Contributions to Profession & Special Recognition, etc.)
- 3. 20% Civic & Community Contributions (Affiliations, Position Held, Special Recognition, etc.)
- 4. 15% Recommendation(s) (Why the individual is nominated) No more than 3 letters of support per candidate with maximum 2 page limit per letter.

### **ENGINEERS WEEK** 2006 DISPLAYS

#### INVITATION FOR STUDENT GROUPS TO PARTICIPATE

Each year during National Engineers Week, the Hawaii Council of Engineering Societies (HCES) organizes exhibits that help to increase public awareness and appreciation of the engineering profession. In 2005, several engineering and robotics clubs from local high schools and UH displayed projects that they had been working on and entering in competitions. It turned out to be a great success. Not only did we achieve the goal of public outreach, but students were able to practice their presentation skills and receive positive feedback from a range of people.

This year we are focusing on "the future of engineering". HCES is inviting student groups to participate in this event that will showcase their projects, allow interaction with the public and excite others about the engineering profession. The static portion of their display will be on display at Kahala Mall from February 18 to 25, 2006. Then on Saturday, February 25, the students will be able to talk to the public about their projects and perform demonstrations from 10 am to 2 pm (times are tentative).

If you are aware of any such student group, please encourage them to participate in this event. Please have then contact Cheryl Yoshida at FAX 945-7213 or cyoshida@ch2m.com to obtain further information.

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#### **December SAME Meeting**

December's SAME Meeting will beheld on 13 December 2005 at the Hale Ikena on Fort Shafter. Steve Philben, US Army Engineer Pacific Ocean, Division. Emergency Management, will iscuss the Corps of Engineer participation with FEMA and Disaster Relief Efforts in the Pacific. For more information, or to reserve your seat, please e-mail Major Matt Jefson, matthew.jefson@hickam.af.mil.

#### **Engineering Week Kickoff Luncheon**

The SAME Engineering Week Kickoff Luncheon will be held 21 February 2006 at the Hale Koa Hotel. More information can be found on the post website, www.same.org/hon-

#### **SAME Joint Northwest and Pacific Regional** Conference

The Society of American Military Engineers held a successful joint NW and Pacific regional conference in Portland Oregon from October 4 – 7, 2005. The conference was well attended by approximately 165 attendees from all sectors of the Federal Government - primarily the Department of Defense, State and local Government Agencies in the NW, and the commercial/industrial sector.

A large contingent from Hawaii attended representing the Honolulu Post. Rear Admiral Gary Engle, Pacific Regional Vice President and Naval Commander, Command, Facilities Pacific, Colonel (P) John Peabody, Commander, Army Engineers Division, Pacific Ocean, Colonel Bill Corson, The Deputy Civil Engineer, Headquarters, Pacific Air Forces, and Todd Barnes, 1st VP for Programs, Honolulu Post, lead the

contingent of representatives from all military services and the engineering commercial industry from Hawaii.

The theme of "The Future of the Pacific Rim" included key topics of interest: Environmental Issues in a Globalized Economy, Transportation Development in a Globalized Economy, Energy Development in a Globalized Economy, and Current issues in Military Construction. The challenges facing the Pacific Rim were briefed and examples presented on potential solutions and lessons learned from successful implementations in both the private and public sectors. A specific example of tackling some contentious environmental issues with a holistic approach and a lifetime cost analysis was presented by the City of Portland. They performed a "root cause" analysis and developed plans to provide solutions at the true source of some of their problems, rather than an immediate fix, repair, or cleanup without preventive measures. While more expensive in the short run, their approach reduces their costs and has a payback period of usually less than 10 years.

The military construction program in Hawaii, as well as Guam, mainland Japan, Okinawa, and the Republic of Korea are tremendously robust and a substantial challenge. More detail is provided in their presentations and could provide some opportunities for Hawaii contractors.

Plans are being drawn up for the next regional conference, most likely in the Spring of 2007 in Anchorage, Alaska.

The presentations are available until Feb 1, 2006 for viewing at the SAME, Portland Post web site: http://posts.same.org/portland/conference.htm.



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Website: www.sections.asme.org/hawaii

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#### **HAWAII SECTION CHRISTMAS PARTY**

Date: Saturday December 10, 2005

Time: 6:30 p.m. to 9:00 p.m.

Place: Golden Palace Restaurant, 111 N. King

Street, near Maunakea Street

Please contact Ray Liu or Kevin Dang for directions and for more information.

#### HIGHLIGHTS OF NOVEMBER 8, 2005 GENERAL MEMBERSHIP MEETING

Section members and guests attending last month's general membership meeting were treated to a special presentation provided by Alan Lloyd, P.E., ASME member, and a retired HECO engineer. Special guests in attendance included: Joseph Ting, P.E. and Henry Panalal, P.E., members of the Hawaii Chapter of ASHRAE; Curtis Omuro, P.E., a mechanical engineer from HECO; and the UH Department of Mechanical Engineering (UH-DME) ASME Student section officers, David Narahara, No'eau Camarillo and Sara Fong.

Lloyd's talk, entitled "Taking a Dual Train Combined-Cycle Power Plant to Sea", brought to life the intricacies of the dynamic propulsion systems utilized in the Royal Caribbean cruise ship "Serenade of the Seas." A facts sheet of the engineering specifications of the vessel was provided and a very lively and entertaining description of the propulsion system was given. The highlight of the presentation was when Lloyd described the system as "the ultimate in co-generation", the utilization of two (2) 25-MW diesel fueled GE LM2500 combustion turbines feeding two (2) heat-recovery steam generators to provide all the electrical power needed on the ship. Other systems discussed include the "azipod" drives of the propulsion system and a very entertaining description of the amount of food typically consumed on a one-week cruise and a vivid and humorous explanation of the ship's environmental waste system. In short, Lloyd provided a very interesting and entertaining presentation by sharing his experience and stories with the members.

The ASME Hawaii Section is grateful to Alan Lloyd for providing a wonderful presentation to our section members. Although retired, Lloyd is very active and sought out program speaker with other professional societies such as the Engineers & Architects of Hawaii, ASHRAE Hawaii, The Navy League of Hawaii, USS Missouri Memorial Association and the Rotary Club of Windward Oahu. For pictures of the meeting more information on contacting Mr. Lloyd for speaking engagements, please visit www.sections.asme.org/hawaii.

#### PURPETUATING THE PROFESSION OF MECHANICAL ENGINEERING - CAREER FAIR AT KAILUA HIGH SCHOOL

As part of the ASME Hawaii section's purpose of perpetuating the profession of mechanical engineering, ASME Section members Edmund Chang, Chester Kaitoku, Jim Grogan and Raymond Liu and others participated in the Kailua High School's Career Fair held on November 22, 2005 at the school's gymnasium from 9:00am to 12:00pm.

This event provided the section members an opportunity to explain and promote to the students the mechanical engineering profession as one that is prestigious, challenging, rewarding and high in demand. Sitting at one of many volunteer tables, students also had an opportunity to ask difficult questions of the volunteers in trying to decide which career field to pursue.

Utilizing promotional material from ASME International as a guide, the members focused the interests of the students on the rewards and benefits of joining the profession. But most importantly, the students benefited from the one-on-one interaction with practicing mechanical engineers in our profession.

With the recent declining trend in U.S. engineering college graduates, these ASME section members are doing their part in ensuring the continuity and prosperity of our future generation of mechanical engineers. For pictures of the event, please visit www.sec-

tions.asme.org/hawaii.

#### **ALA MOANA PUMPING STATION**

The Hawaii Community Development Authority held a workshop on the future of the Ala Moana Pumping Station on Saturday, November 5, 2005 with about thirty people in attendance including Jim Grogan from the ASME. As reported in the Sunday issue of The Star Bulletin paper Jim proposed utilizing the facility as a Hawaii Engineering and Technology Museum. This was a follow up to the same proposal he made in 2003 to the agency. There was basic agreement between the participants on the need to preserve the building and proposed usages ranged from the engineering and technology museum, to combined arts and history museum, to restoring it to depict it as an old pumping station. There was also general agreement on making the area around the pumping station "a green and inviting gateway to Kakaako makai". However the three and a half acres site is zoned for high-rise and is on ceded lands creating some impetus for it to be income producing. The recent release of Kakaako land for high-rise construction was only briefly mentioned.

As an aside it was also mentioned that the site has an underground reservoir/tank approximately 150 feet square and 18 feet deep of arched brick construction. The tank is sealed off with concrete and no one in recent memory

(continued on page 11)



The Society of
FIRE
PROTECTION
ENGINEERS

www.sfpehawaii.org

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The SFPE Board of Directors has approved the revised position statement entitled **The Engineer and the Technician: Designing Fire Protection Systems.** 

kam@thermaleng.com

The purpose of this document is to "describe reasonable and prudent roles and responsibilities of engineers and technicians when designing fire protection systems for installation in the United States."

The distinction of these roles has been very controversial in the fire protection system design industry for many years. At one extreme there are certain engineers who feel that preparation of layout or shops drawings for fire protection systems constitutes the practice of engineering and as such those documents must be prepared by or under the direct supervision of a licensed engineer.

At the other extreme of the controversy is a small group of fire protection contractors who argue that the layout of fire protection systems

can be handled by their technicians without interference from an engineer.

As is usually the case in life, the truth lies somewhere in between. The SFPE position statement seeks to find this truth, which I believe it does, and manages to describe the proper balance between the engineer and the technician. Furthermore, the document is consistent with the NCEES position statement which includes the following recommendation to its member state boards:

NCEES recommends that Member Boards actively pursue enforcement of state statutes and rules with local permitting authorities having jurisdiction (AHJ) regarding engineering supervision over the specification, design, and calculation of fire protection systems. To implement the above, the following are recommended:

- #9830; Contract drawings should include a set of fire protection drawings that are sealed by a licensed professional engineer.
- #9830; Supervision by a licensed professional engineer is required in the review of fire protection installation shop drawings for compliance with the engineer's design and specifications.
- #9830; Oversight by a licensed professional engineer is required in the installation of an original permitted design.

The delicate balance between the engineer and technician can only work if we as engineering professionals endeavor to practice in our area of competence in accordance with our license and insist that other engineers do the same. We must also appreciate the valuable role played by the technician in the process. Technicians must understand their roles and responsibilities within the framework of the position statement and understand the value a competent engineer brings to the project.

For a full text of the article go to: http://www.sfpe.org/upload/sfpe\_position\_state ment\_october\_2005\_001.pdf



PO BOX 3348, HONOLULU, HI 96801 Web Page URL http://www.seaoh.org

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#### **General Membership Update**

On November 17th, Greg Crawford, Vice President, Operations, of the Steel Recycling Institute gave his presentation on current practices of recycling steel and its true environmental impact. With integrated steel mills using greater recycled content than traditional processes, the environmental footprint of steel is smaller than ever. Members and guests in attendance were treated to an informative seminar and a great buffet dinner at the Willows Restaurant. Please join your fellow LGSEA council members and Hawaii Pacific Steel Framing Alliance members as they celebrate their annual Christmas Party at 6pm on December 8th at Dave and Busters. Join us for a fun-filled evening with friends and colleagues. See you there!

#### HIGHLIGHTS OF BOD MEETING

November 09, 2005

## Corrections to Prior Highlights of BOD Meeting:

Correction to October 12, 2005 Highlights of BOD Meeting: Under New Business, Technical Seminars/Upcoming SEAOH Events, the title of the November 22, 2005 Seminar by speaker Mr. S. K. Ghosh was corrected to read "Seismic and Wind Design Considerations for Concrete Buildings".

#### **Committee Reports:**

Membership Committee: New membership applications were received from Karynn Niimi, Sato & Associates, Inc., Allied Member, and Jiaping Yang, Sato & Associates, Inc., Allied Member. Comments on the two (2) applications are being solicited from the general membership and shall be submitted to the Board of Directors before January 01, 2006.

The Board voted to accept Andy Boyd, Rocky Mountain Prestress, as an Affiliate Member, Jason Emoto, Shigemura Lau Sakanashi Higuchi & Associates Inc., as a Member, and Donald Gresko, Sato & Associates, Inc., as an Allied Member.

SEAOH Nominating Committee: SEAOH would like to congratulate the officers-elect to the 2006 SEAOH Board of Directors.

President - Bennett Fung Vice-President - Gary Chock Secretary - Brandi Jim On Treasurer - Kevin Nakamoto Director - Clifford Lau Director - Akira Usami

2006 SEAOH Board of Directors Installation Banquet: The 2006 SEAOH Board of Directors Installation Banquet will be held on January 21, 2006 at the Hale Koa Hotel, Waikiki.

Building Codes
Committee: Mr. Gary
Chock reported that the
Uniform Building Code
Taskforce will be meeting to
discuss the final draft of the
recommendations that the
Taskforce will be making to
the State Legislature. A few
of the recommendations
noteworthy to SEAOH and
its members include:

- Establishment of Statewide Model Building Codes
- The Statewide Model Building Codes shall encompass all pertinent codes (i.e.: Building, Housing, Residential, Fire, Elevator, Electrical, Plumbing, Mechanical, Energy, Private Sewage Disposal).
- Statewide Model Building Codes shall be adopted within three (3) years.
- The Counties shall retain all current rights to make Code amendments and

to establish rules and procedures for permitting and enforcement of the Statewide Model Building Codes.

 The State of Hawaii shall waive its sovereign immunity and would be subject to the requirements of the Statewide Model Building Codes, with County amendments.
 2005 / 2006 Calendar of Events:

December 03, 2005 Forum: "Masonry Construction Practices Forum" POSTPONED (future date to be announced)

First Quarter 2006 Qrtly Meeting: Light gauge steel plant tour (tentative)

January 10, 2006 Seminar: AISC "Steel Design After College"

January 21, 2006 Banquet: SEAOH Board of Directors Installation Banquet

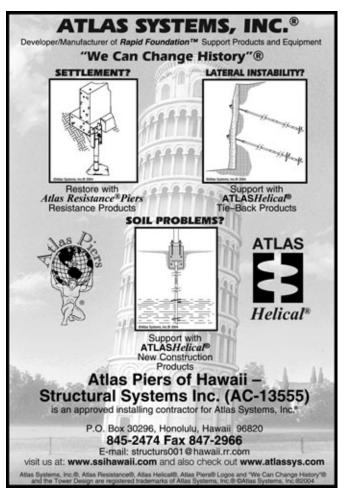
February 24, 2006 Banquet: Engineer's Week Banquet

Third Quarter 2006 Seminar: AISC "2005 AISC ASD & LRFD Unified Manual"



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#### EEA Winners, from page 1

ment zones for falling rocks and soil. Therefore, slope cutting or cantilever road section was initially planned to widen the road and provide the needed catchment zone along with a draped wire mesh placed over the hillside. These systems were costly and would require extended periods of road closure during construction. The appearance of the slopes would also be adversely affected.

The solution was to utilize slope a mitigation system never before utilized in Hawaii, an anchored wire mesh. Unlike passive systems used for rock fall mitigation, i.e., draped mesh, rock fall impact barriers, the anchored wire mesh system is an active system that reinforces the slope and restrains the soil and rocks, preventing rockfalls.

The anchored wire mesh system retained the natural beauty of the site, reduced the construction costs by 35%, improved hillside stability from shallow slides, and required less than one shift of road closures during construction.

## Earth Tech, Inc. Receives Engineering Excellence Award

Earth Tech, Inc.'s work on Wake Island earned a coveted Excellence Award in the competition. The project involved the design to repair critical access facilities on Wake Island, a coral atoll located 2,300 miles west of the Hawaiian Islands.

An unincorporated territory of the U.S., this remote Pacific site is a U.S. Army launch support facility operated under a caretaker permit from the U.S. Air Force and administered by the U.S. Army Strategic and Missile Defense Command

Earth Tech provided civil design and construction management service for the restoration of the airfield, wharf and marine bulkhead, all of which were built in the late 1940s and badly deteriorated. The work included reconstruction of a 10,000 foot runway with minimal disturbance to the surrounding environment and wildlife, including sea birds that use the island as a breeding ground.

This challenging project required the firm to work on the remote island with a limited budget and resources, difficult pavement foundation conditions, and an inadequate supply of



Military Construction program on Wake Island by Earth Tech, Inc.

potable water. Earth Tech's ability to efficiently plan, schedule, and coordinate this project was critical to its timely completion in a cost-effective manner.

In order to minimize disturbance to the bird life and environment, the project team worked in a narrow corridor and recycled and reused the old asphalt concrete to the extent feasible in order to minimize waste. The project was completed within a few months.

## Excellence Award for Parsons Brinckerhoff Quade & Douglas, Inc.

The Kalanianaole Highway Emergency Landslide Repairs Project at Castle Junction was a highly visible endeavor engineered by Parsons Brinckerhoff Quade & Douglas, Inc. To the Kailua community, access to Kalanianaole Highway at Castle Junction is crucial to their daily activities. The site provides a vital link to and from their neighborhoods

In the fall of 2003, following a period of heavy rainfall, several rockfalls and landslides occurred in the area, creating safety concerns for motorists as rocks and soil tumbled down the hillside and came to rest on the roadway. This particular location was identified as one of the most hazard-prone areas on the island based on geologic investigations. This

prompted State officials to fast-track a means to tame the deteriorating hillside.

In consideration of the community's desire to maintain its natural surroundings, implementing an innovative design that enhanced the existing features while eliminating the hazard was essential. In addition, the solution needed to be cost-effective and a long term solution. Removal of approximately 250,000 cubic yards of soil and rock and the additional landscaping resulted in a stabilized hillside, restored safety for motorists, and enhancement of the natural beauty of the area.

#### Brown and Caldwell Project on Maui Garners Honor Award

Maui County's Wailuku-Kahului Wastewater Facility Improvements Project, designed by Brown and Caldwell, earned an Honor Award in this year's competition. The project resulted in major energy and cost savings, treated water-quality improvements and reduced vulnerability to tsunami damage.

The project, the largest wastewater treatment facility modification that the County of Maui has constructed in the last five years, resulted in an energy savings of approximately 1.5 million kilowatt hours per year, for an annual cost savings of \$250,000. The plant's treatment efficiency also improved, due in large part to the addition of anoxic zones in aeration basins.

Tsunami safety was an important driver for the \$11.9 million project. A new aeration blower building was constructed above the predicted 100-year tsunami elevation. This building also houses a new standby electrical generator that can support plant operations if electrical power is lost during emergencies.

The operators also wanted a reliable system that would allow them to perform required maintenance without altering or interrupting the treatment process. By providing one new aeration basin and retrofitting two existing basins, the upgrade enables operators to remove a basin from operation for maintenance without impacting treatment.

Construction of the upgrade was challenging because the new aeration basins and aeration blower system needed to be integrated with the existing system, which was being taken



Kalanianaole Highway Emergency Landslide Repairs Project at Castle Junction by Parsons, Brinckerhoff Queade & Douglas, Inc.

offline and decommissioned one piece at a time. Backup power sources were provided at all times and, thanks to careful planning and coordination with the owner and contractor, the transition from the old system to the new system was successful.

The Phase IIA Modifications were completed under budget and within two months of the scheduled completion date, a significant achievement considering the project size and scope. The completed facilities better balance risks, costs, and economics and are performing as or better than expected with respect to energy savings, reliability and performance.

#### Kuhio Highway Plan Proves to be an Honor Award Winner for Belt Collins Hawaii

Belt Collins Hawaii was contracted by the State Department of Transportation, Highways Division, to prepare a long-range comprehensive roadway corridor plan for Kuhio Highway (Route 560) - the first project of its kind in the state to recognize the historic value of a roadway corridor and its status as a site listed on the National and State Registry of Historic Places. Belt Collins performed civil engineering studies and analyses, as well as environmental and cultural evaluations to identify existing conditions and resources.

During the study process, Belt Collins reviewed the roadway corridor and assessed its conditions and deficiencies, and reviewed improvement needs to meet standard requirements. Solutions to those needs, however, called for design elements that must be consistent with current roadway standards, if federal or state monies are to be used. Those standards would require the replacement of the existing one-lane bridges with two-lane bridges, installation of new sidewalks, widening of existing shoulders, and replacement of historic timber and masonry walls with modern steel guardrails. Such changes were unacceptable to the community and would have severe negative consequences to the historic character of the road.

Belt Collins was able to bring together public officials, agency representatives, community leaders, and interested stakeholders to arrive at a resolution to help move forward a historic road concept for Route 560, and, moreover, to establish a clear framework for decision-making and long-term agency actions on the State right-of-way. The effort resulted in strong community support in Hanalei for the plan and a policy document that is a product of context sensitive design and representative of the community's long-term aspirations for the highway.

#### SSFM Receives Honor Award for DOE Project

SSFM International, Inc. was contracted by the State of Hawaii Department of Education (DOE) to plan, design and develop the programming and successful deployment of DOE's Facilities Project Management Tracking Database System (FACTRAK). The recently completed system is completely web-based, permits effective management of facilities, and produces information for both capital improvement projects and repair and maintenance projects for over 250 schools statewide. Data pro-

(continued on page 11)



Wailuku-Kahalui Wastewater Facility Improvements Project for Maui County by Brown and Caldwell.



Long-Range Comprehensive Roadway Corridor Plan for Kuhio Highway by Belt Collins Hawaii.



Facilities Project Management Tracking Database System (FACTRAK) for State of Hawaii Department of Education by SSFM International, Inc.



## 2005-2006 ASCE Hawaii Section Executive Committee

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Past Pres	Keith Niiya	533-3646	526-1267	
	email: kniiya@atahawaii.com			

#### 2004-2005 YMF Officers

President Florence Ching Vice President Scott Jennings Secretary Lisa Takushi Treasurer Morgan Branch Past President Paulette Ujimori

#### **JANUARY DINNER MEETING**

The next ASCE Hawaii Section dinner meeting is tentatively scheduled for January 19, 2006. Details, including program information, will be announced in the January Wiliki. (There will be no dinner meeting in December.)

## EXECUTIVE COMMITTEE MEETING

December 1, 2005

## ASCE HAWAII SECTION STUDENT SCHOLARSHIPS

Please help us increase our scholarship endowment so that we can recognize those deserving students. We continue to accept tax deductible donations with the goal of increasing the annual scholarships. Make your check payable to 'ASCE Hawaii Section' and mail to ASCE Scholarship Committee, P.O. Box 917, Honolulu, HI 96808. If you have any questions, please contact Keith Niiya at 533-3646, or kniiya@atahawaii.com.

#### **ASCE JOB LISTINGS**

The following employers have openings they would like to fill:

- Austin Tsutsumi & Associates, Inc. (Civil Engineer - Honolulu and Wailuku, Land Surveyor - Honolulu)
- Bills Engineering Inc. (CADD Technician)
- Brown and Caldwell (Civil or Mechanical Engineer - Honolulu, Project Manager – Maui)
- Community Planning & Engineering, Inc. (Civil Design Project Engineers/Managers)
- Fewell Geotechnical Engineering (Geotechnical Engineer - Honolulu)
- Fukunaga & Associates (Civil and Civil/Environmental Engineers - Honolulu)
- GeoEngineers, Inc. (Senior Engineer)
- Jacobs Engineering Group Inc. (Civil Engineers and more)
- Towill, Shigeoka & Associates, Inc. (Licensed Professional Land Surveyor, Computer/Draftsperson (CAD), experienced Party Chiefs and Rodpersons for Oahu and Kona)
- Warren S. Unemori Engineering (Project Engineer and Civil Engineer - Wailuku)
- Zapata Engineering (Geotechnical Engineer)
   For more information on these job listings,
   please visit the ASCE Hawaii Section website

at http://www.ascehawaii.org/jobs/jobs.html.

#### **ASCE WORKSHOPS**

The following workshops will be coming to Honolulu in early 2006:

- HEC-HMS Computer Workshop, January 12-13, 2006, Radisson Hotel Waikiki. Topics to be covered include: Hydrologic Modeling Overview, HEC-HMS Capabilities, Basin Delineation, Precipitation Methodology, Rainfall Abstractions (Losses), Runoff Transformations, Stream Routing, Reservoir Routing, Model Execution, Analysis of Results, Dam Break and Special Topics, and Introduction to HEC-GeoHMS.
- Financial Management for the Professional Engineer, February 9-10, 2006, Radisson Hotel Waikiki: Topics to be covered include: How to Understand Financial Statements, Key Performance Measures, Company Budgeting, Project Management, Finding Your Firm's Value, and Cash Flow – Your Firm's Lifeblood.

For more information and registration, go to http://www.asce.org/conted/seminars/.

#### MEMBERSHIP DRIVE

ASCE counts on our members to help us grow every year by actively participating in the Member-Get-A-Member Drive. All you have to do to be eligible to win is refer a colleague, and you will be entered into quarterly drawings. Prizes range from iPods, to gift cards, to cash. This is a great time to help out your colleagues while also helping ASCE find new members. Take a minute to think about the people in your professional life who could benefit from membership. Visit www.ASCEDrive.org to refer them and you could be a winner in the next drawing! Please contact our membership chair, Lori Nishida, at 533-3646 or Inishida@atahawaii.com for further information.

## SIGN-UP FOR THE ASCE HAWAII SECTION'S WEBMAIL LIST

If you would like to receive e-mail notices of upcoming meetings or activities please signup for the ASCE Hawaii Section's webmail list at http://www.ascehawaii.org/emailform.html. You may also help the ASCE Hawaii Section reduce operating costs by receiving your monthly issue of the Wiliki via e-mail, please contact Joanna Seto at 586-4329 or jseto@ascehawaii.org.

#### **KNOW YOUR ASCE HISTORY**

by C.S. Papacostas

#### "LEAKS LIKE A SIEVE"

"That thing leaks like a sieve," Prof. Peter G. Nicholson, past-president of the Hawaii Section of the American Society of Civil Engineers (ASCE), said to reporter Karen Blakeman according to the October 23, 2005 issue of "The Honolulu Advertiser" (HA). "That thing" is the Nu`uanu Dam No. 4 which is currently owned by the Honolulu Board of Water Supply, a City and County entity established by the 1929 Territorial Legislature.

As chair of national ASCE Geo-Institute Committee on Embankments, Dams and Slopes, Peter was the team leader for the assessment of the performance of New Orleans levees after Hurricane Katrina hit Louisiana on August 29, 2005. It was judicious, I think, for the newspaper reporter to also ask about the state of earth dams in Hawaiii.

Peter was the right person to ask because he had been involved in many dam safety inspections over the years, including one of Nu`uanu Dam No. 4 which he undertook with Ernest K. Hirata and Mehran Esmaili in 1992. Their findings are documented in a 1993 report issued to the Hawai`i Department of Land and Natural



Hawaii Section — Younger Member Forum Web site: http://www.ascehawaii.org/ymf.html

#### **2005-2006 YMF OFFICERS**

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#### **Next YMF General Meetings**

The next two YMF general meetings are scheduled for Tuesday, December 6, 6:00 p.m., at Gordon Biersch Brewery Restaurant at Aloha Tower Marketplace, 599-4877, and Tuesday, January 3, 6:00 p.m., at Brew Moon Restaurant and Microbrewery at Ward Centre, 593-0088. If you are interested in attending to find out what the YMF is all about and how much fun we have, please call Florence Ching 227-4704.

#### A & E MIXED SOFTBALL LEAGUE

If you are interested in SLOW PITCH SOFT-BALL, the ASCE Younger Member Forum will be participating in the Architects & Engineers Softball Mixed League (Spring). This coed league will run from March to May 2006. Games are once a week, Monday, Tuesday,

Thursday or Friday (7:00 or 8:00 p.m.). Games are usually held at Aiea, Kamamalu or Cartwright. Please contact Stuart Ujimori (#220-4913 or *ujimori@yahoo.com*) if you are interested in playing.

#### Spring 2006 PE Refresher Course

Dates: Saturdays, January 28th to April 1st, 2006, 9:00 A.M. to 12:00 P.M.

Location: To be announced.

Cost: \$300 Early Registration Fee for ASCE

Hawaii Section Members

\$375 Early Registration Fee for Non-ASCE Hawaii Section Members

Early Registration Deadline is December 31, 2005. Add \$50 late fee to registration fee if payment is postmarked after December 31, 2005. Class size is limited and registration is done on a first-come first-served basis. Prices are subject to change after class begins.

Topics covered include Transportation, Environmental, Geotechnical, Water Resources and Structural. Class attendees will receive a copy of Michael R. Lindeburg's Civil Engineering Reference Manual for the PE Exam (10th Edition), copies of lecture notes, and study supplies. Attendees will also have the option of ordering additional reference material at discounted prices.

To sign up for the Spring 2006 ASCE Hawaii Section YMF P.E. Refresher Course or for more information please visit http://www.asce-hawaii.org/ymf/PErefresher.html or contact Lori Nishida at 533-3646 or Inishida@atahawaii.com.

Resources by the Soils and Foundation firm of Ernest K. Hirata & Associates, Inc.

By happenstance, while compiling information for an article about the Kohala Ditch on the Big Island that appeared in this column in March 2004, I had uncovered a fascinating reference to the Nu`uanu Dam next to a June 13, 1906 front-page story in "The Pacific Commercial Advertiser" (PCA) announcing the opening of the ditch. It was a story entitled "Concealing Bad Work - Serious Charge About Nuuanu Dam Methods," the opening sentence of which went like this: "Assistant Inspector Patterson claims that an attempt is being made to cover up part of the work at the Nuuanu reservoir No. 4 before examination can be made by Engineer H. Clay Kellogg, who has been summoned from California...

Thinking of this discovery as possibly the loose end of an unraveling yarn, I checked to see what "The Hawaiian Star" (HS) of the time had to say about it. And this is what I found under the title "Fears of Flood From the Big Dam," on page 1 of the June 5, 1906 issue:

"A revival of misgivings about the safety of the big reservoir dam in Nuuanu Valley has been the cause of protests to the governor, and a commission will probably be appointed to examine the report upon the dam.

A related HS story on the next day asserted, "Bringing an engineer here from the mainland to make a thorough investigation of the Nuuanu dam and give an authoritative opinion as to its safety, is the latest suggestion...

Fear of dam failures was truly real in 1906 Hawai'i. For instance, a Hawaiian Star story from Wailuku dated April 23, 1906 started thus: "About 2:30 a.m. on Thursday, the new Emmesly reservoid [sic] above Waikapu, broke its embankment and rushed madly down the steep hill to the vegetable and taro lands below where a number of Japanese were peacefully sleeping, five of whom were to awaken only for a moment before beginning the great sleep that must come to all.

In a mental flush flood I realized that the dam controversy had a longer chronology than I initially thought, but I had to set it aside for some time, pursuing instead the subject of the Kohala Ditch, but, all along, intending to get back to it at some future date.

When I saw Peter Nicholson giving an interview on a TV news program about levees and dams and after reading the HA story where he also said "this dam is leaking badly, and has been for nearly 100 years," I knew the future

So I walked the 70 or so feet from my office to his to find him absorbed in finalizing the testimony he was about to give on November 2, 2005 to the U.S. Senate Committee on Homeland Security and Governmental Affairs on behalf of ASCE. He did take the time to talk to me excitedly about the 1992 inspection of the Nu'uanu Dam and particularly about a layer of permeable scoria that ran diagonally for a distance on one end of the dam. He also pointed me to the 1993 Hirata report that, fortunately, I located at the University of Hawaii Hamilton Library.

The report includes a short history of the dam, appropriately emphasizing its design aspects that were relevant to the safety inspection from an engineering perspective. The general history began with the following sentence: "Construction of a dam at the present location of the Nuuanu Dam No. 4 was first proposed during 1882-1884, by Major A. S. Bender, in a preliminary report regarding the water supply of the City of Honolulu."

This meant that, to unravel the rest of the story, I'd have to engage in the tedious task of searching old documents that have not as yet been systematically indexed!

I am on my way, I promise...

Do you know of a civil engineering accomplishment or event that your fellow ASCE members might find interesting? Please send a brief description to C.S. Papacostas (fax 956-5014, email csp@wiliki.eng.hawaii.edu). Previous articles in the series may be found at the Section's web site. Just point your browser to http://www.ascehawaii.org.



www.eng.hawaii.edu/~hspe

Maui

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**IEEE Hawaii Section** 

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## **Next Deadline for** Wiliki

Leslie Fife

is December 15th

## WILIKI ADVERTISERS NEEDED

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5" x 2" − (10□) \$64.00

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25/16" x 21/2" (6□) 7½" x 5" − (37½□) \$40.00 1/2 page - \$240.00 47/8" x 25/16"  $(11\square)$ 25/16" x 11/4" \$72.00 \$20.00

The price for the ads will be based on a 11/4" x 25/16" module size which is 1/24th of the page, and be \$20.00 per month with a 15% DISCOUNT for a 6-MONTH RUN.



http://www.eng.hawaii.edu/~hals/hals\_001.htm

#### 2005 HALS BOARD

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Membership: 192 regular, 21 sustaining, 2 honorary,

5 life, 41 governors

#### Schedule of meetings:

Thursday December 8, 2005 (General) Thursday January 12, 2006

Thursday-Friday February 2-3, 2006, Annual Surveying Conference

#### Future Workshops & Conferences:

A "nuts to soup" GPS to finish product Autocad workshop by Felicia Provencal is being planned for this spring. One will be held on Maui, where Felicia resides and another to be held on the big island.

The Annual Surveying Conference will be on February 2-3, 2006 at the RADISSON WAIKIKI PRINCE KUHIO (formerly the Outrigger Prince Kuhio Hotel), 2500 Kuhio Ave. In conjunction with our Surveying Conference, "Vendors Day" will be on February 1, 2006. Information on our Conference and Vendors Day will be constantly updated on our 2006 Surveying Conference Update Page.

#### **NSPS FALL MEETING REPORT**

The NSPS Fall business meetings were held in Arlington, Virginia from October 21st through the 25th, 2005. The following are some of the items worked on:

ALTA STANDARDS: The new 2005 ALTA Standards for Land Title Surveys were approved by the NSPS Board of Governors and the NSPS Board of Direction. They will take effect on January 1, 2006 at which time all previous versions will be superceded.

CST PROGRAM: The Certified Survey Technician program is taking off. Several state DOTs as well as many business are now using the CST Certification to qualify employees for advanced positions. The certification exam is now administered online in addition to the standard "paper" test.

SPEAKERS' KIT: NCEES has appropriated an additional \$25,000 for the NSPS Speakers' Kit that NCEES developed with NSPS last year. Additional CDs and brochure are available from ACSM. Anyone planning to give a talk on surveying and mapping can contact HALS for materials and PowerPoint presentations.

**EMERGENCY FUND:** The NSPS Foundation has collected \$40,000 for hurricane relief and is currently working to get aid to those surveyors in need of help in areas recently devastated by Katrina and Rita.

LIBRARY OF CONGRESS MAP EXHIBIT: The national map exhibit opened in September and is a great success. It is in the basement of the Madison Building in the corridor fronting the LOC Map Library. Curt Sumner, NSPS Executive Director is working with the LOC to create a permanent surveying and mapping exhibit to be placed with other permanent exhibits at the Jefferson Building. The new exhibit will be set up after the present one ends in January of 2007.

SHORELINE WORKING GROUP: The 2005 Legislature passed Senate Concurrent Resolution 51 creating a working group to consider and make recommendations concerning the shoreline certification process. HALS was an active participant in the working group which has completed its meeting schedule and its final report is being completed by the DLNR for submittal to the Legislature in time for the next session.

INTERNATIONAL FEDERATION OF SUR-VEYORS (FIG): Three of the ACSM member organizations (MOs) that have interests in FIG created the ACSM FIG Forum at the recent Fall meetings. The forum is made up of two representatives from each of the participating MOs and will be designating new delegates to the 10 FIG Commissions as well as a Head of Delegation. The new delegates will begin their duties in Munich, Germany in October 2006 at the FIG XXIII Congress.



po box 4353,honolulu,hawaii 96813 An association for Hawaii's Engineers and Architects WEB Address http:community.hei.com/eah

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Past Pres	Bob Morrissey	521-4711

WEB Site: http://community.hei.com/eah/

#### **December Meetings**

December Program Chair: Travis Hylton December 2nd, Speaker: TBA See EAH WEB page

December 9th, Speaker: Frank Hays, Pacific Director of the National Parks Service. Topic: "The Manzanar Japanese Internment Camp Memorial in California"

December 16th, Speaker: TBA See EAH WEB

December 23th, No Meeting Christmas Eve December 30th. No Meeting New Years Eve

Meetings held every Friday at YWCA room 205 on Richards Street downtown. Parking at Alii Place off Alakea Street for \$1.00 per hour. Meetings start at NOON and end promptly at 1:00 pm.

Members-\$7.50 Guests-\$8.50

Program schedule may be adjusted. Call Secretary to confirm speaker. Anyone wanting a weekly email meeting notice please send your email address to Sam Gillie at saillie@hei.com.

#### Meeting Notes for October 21st, 2005:

Windell Wen, a Geologist with Earthtech and Dave Martin, a Senior Environmental Engineer (also a Geologist) with Hawaiian Electric Company were both voted in as new EAH members with all rights and privileges.

Speaker: Maria Tome. Energy Engineer, Hawaii State Energy Division

Subject: "Ethanol in Your Gas Tank" During Maria's introduction Kai noted that she has been recognized for being the DBEDT "Employee of the Year" for her work on rule adoption for the 10% ethanol in gasoline Legislative mandate, Wind Energy Working Group, biomass program, and the solar energy project with UH, among other projects. Maria started by saying that starting in April 2006 all gasoline in Hawaii will be mixed with 10% Ethanol. Ethanol is the same stuff that is beer, Wine, Vodka without the water and flavor. It has been used in vehicles since they were invented. Recently it was first used as a volume extender, then used as an octane booster and is now used also as an oxygenate in areas that have air quality problems. 41 States have had ethanol in their gasoline for over 10 years. Initially ethanol will likely be shipping into Hawaii; however, there several companies in the design phases for local ethanol production

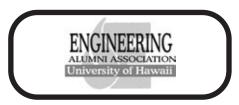
The sound recording of this meeting will be posted to EAH's WEB site.

#### Meeting Notes for October 28th, 2005:

Speaker: Dr. Alfred A. Yee, President, Applied Technology Corp.

Subject: "Kwik Slab Pre-Cast Concrete Paving System" Dr. Yee explained his early experiences with pre-cast/ pre-stressed concrete mass production facilities and how he developed innovative structural concepts and construction techniques utilizing pre-stressed/ pre-cast concrete units for the construction of building structures and marine concrete vessels. The Kwik Slab was developed to allow the quick repair of heavily used roadways. Multiple pre-cast concrete slabs can be joined together with quick setting grout that develops over 5,000 psi of strength in 5 hours. Dr. Yee is expecting DOT to start specifying these slabs for repair work next year. Dr. Yee worked with Grace-Pacific to develop the system. Dr. Yee also mentioned that he is working with past president Hans Krock on developing a concrete floating Ocean Thermal Energy Project. The meeting was well attended by over thirty members and guests.

The sound recording of this meeting will be posted to EAH's WEB site.



Po Box 12204 Honolulu, HI 96828 Website: www.eaauh.org

#### 2005-2006 Officers

President: Vice Pres: Secretary: Treasurer: Directors:

Marian Nakama Ryan Sugamoto Matthew Fujioka James Ibanez Lloyd P.C.W. Lee Michael Magaoay Wayne H. Nakamura Martin Nakasone

836-1900 x664 956-3357 836-1900 x668

#### ASME, from page 4

has ever seen the tank. It may be the more historical/interesting structure, although this was not discussed at the workshop.

Jim Grogan will continue to propose using the site as an engineering and technology museum but it may be necessary to share it with some other activity.

## ENGINEERING GRADS TODAY MORE QUALIFIED THAN THOSE 10 YEARS AGO

A three-year study commissioned by ABET and conducted by the Pennsylvania State University's Center for the Student of Higher Education found that engineering students graduating in 2004 were better qualified to enter the profession than were their counterparts who graduated in 1994. The study attributes much of the improvement in changes to ABET's accrediting standards.

"In all nine engineering knowledge and skill areas emphasized by the new standards, the 2004 graduates in the aggregate have significantly, and often substantially, higher skill levels than did their counterparts from a decade earlier," according to Dr. Lisa R. Lattuca, study director and assistant professor and research associate in the Center. The skills examined include basic math and science, design and problem solving, experimental skills, engineering science applications, technical and interpersonal communications, as well as working in teams and life-long learning. The 2004 graduates also have greater knowledge of societal and global issues, as well as ethics and professional standards.

Patrick T. Terenzini, distinguished professor of higher education at Penn State and co-principal investigator on the project, said "All of the changes we observed can be statistically linked in a temporal sequence from ABET's introduction of its new outcomes-based accreditation criteria, to changes in what and how programs and faculty educate their students, to the kinds of experiences engineering students have, and finally to what students report they are, in fact, learning. All these changes and increased learning outcomes are consistent with what one would expect if EC2000 was having an impact." Terenzini noted that the 2004 graduates also score higher than the 1994 graduates in foundational math and science, a finding that appears to be especially good news for America's colleges of engineering.

The above article is from the November 2005 issue of "ASME Capitol Update."

#### **EEA Winners**, from page 7

vided includes project status, costs and schedules, as well as location and site information through a Geographic Information System (GIS).

The biggest challenge of the project was the very short time frame in which the DOE needed the first phase of the project up and running in order to generate school facilities reports mandated by the legislature. SSFM's design and programming team initiated the planning phase with a series of facilitated workshops with the DOE. From these workshops, user requirements and goals were established, programming and development ensued, and the project was completed within budget and ontime with an accelerated schedule of only a few months

The project demonstrates that with careful planning and design, technological solutions that are user friendly are very possible. Most significant is that information which at one time may have taken days or weeks is now easily available through the web, and accessible 24/7 to the schools, community members and the public

The FACTRAK site can be accessed at: http://doe.ssfm.com.



P.O. Box 88840 Honolulu, HI 96830 Website: www.acechawaii.org

#### 2005 OFFICERS

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The Filipino American League of Engineers and Architects (FALEA) held its 12th anniversary and induction of Officers and Directors on Saturday, November 5, 2005 at the Hibiscus Ballroom, Ala Moana Hotel, Honolulu, Hawaii. The 2005-2006 Officers and Directors are as follows:

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The event included the awarding of a \$1,000 each scholarship to Lareina Cajigal and Brent Labasan who are currently enrolled in undergraduate engineering. Ms. Cajigal is taking up Civil Engineering at UNLV and Mr. Labasan is taking up Computer Engineering at the University of Washington, in Seattle. Outstanding members in the field of engineering and architecture were also recognized and the recipients were Mr. Ernie Bello and Rey Quemado, respectively.

The officers, directors and members of FALEA would like to thank all the sponsors, donors and guests for all their invaluable and continued support of our organization's activities.

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