# WIIIKI ENGINEER OF HAWAII

VOL. 47 NO. 1

**SERVING 2000 ENGINEERS & LAND SURVEYORS** 

MARCH, 2011

# **Engineering Mastery Celebrated**

Five construction projects in Hawaii were recognized for engineering mastery in the 2011 Engineering Excellence Awards sponsored by the American Council of Engineering Companies of Hawaii (ACECH), illustrating engineers' motto, "What we do is all around you."

First prize, the Grand Conceptor Award, was given to Hawaii Preparatory Academy and engineering firm Belt Collins Hawaii for the Big Island high school's new energy lab, which was designed as a science building dedicated to the study of alternative energy that would also function as a zero-net energy, fully-sustainable building.

Second place, the Excellence Award, was presented for the Keolu Drive and Wanaao Road sewer reconstruction project, engineered by Sato & Associates; Yogi Kwong Engineers and Bowers+Kubota Management. Honorable mentions were given for the University of Hawaii lower campus quarry wall stabilization project engineered by AECOM; the Kona Community Development Plan designed by Wilson Okamoto Corporation; and the Kapaa-Kealia Bike and Pedestrian Path engineered by Akinaka & Associates. Ltd.

#### **Energy Lab**

Hawaii Preparatory Academy's energy lab was designed to meet the Living Building Challenge standards that require 100% Forest Stewardship Council-certified lumber and a tight radius restriction on sourcing of materials. The lab's remote site made this challenging and created a tight project schedule.

During construction classroom work benches were created from leftover building materials; all excavated material was reused within the site area and vegetative matter was chipped for use as mulch. On the completed building, all water used is collected from the roof and stored for a net-zero water use system, making the building independent of the county water system. The entire construction project met a 90% waste reduction/diversion/recycling goal.

#### Sewer in Kailua

The reconstruction of 7,000 feet of a major trunk sewer in the middle of dense residential and commercial development in Kailua, Oahu, combined the often conflicting demands of environmentally sensitive wetlands; canal and stream crossings; poor soil conditions and concerns of neighboring homeowners and busi-

nesses. Yogi Kwong Engineers met these challenges by using innovations in trenchless technology.

#### Rocking the Wall

Sixty years of blasting and mining for "blue rock" University of Hawaii's Lower Campus Quarry created a potential rockfall hazard for people using the adjacent parking and athletic facilities. Engineering firm AECOM draped a wire mesh system reinforced with an interwoven cable and sculpted shotcrete for swales to convey storm water down the steep quarry wall face.

#### "Engineering" Kona's Vision

The Kona Community Development Plan, engineered by Wilson Okamoto Corporation, is a long-range plan through year 2020 encompassing арproximately 800 square miles of the districts of North and South Kona.

The plan coalesced concerns over Kona's rapid growth; alleviating traffic congestion; providing affordable housing;

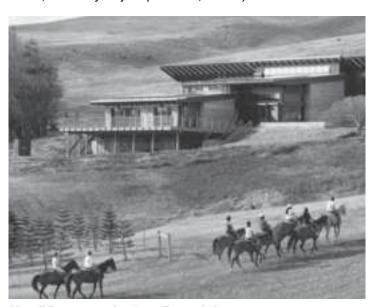
and Leadership in Energy and Environmental (LEED) design of buildings.

#### Off the Beaten Path

Akinaka & Associates, Ltd. and Jas W. Glover, Ltd. brought to life the County of Kauai's vision of a multi-use path for residents and visitors to engage in recreational activities along



left to right: David Raymond (President & CEO, ACEC), John Chung (Project Manager, Belt Collins) accepting the Grand Conceptor Award, and Sheryl Nojima (President, ACECH)



Hawaii Preparatory Academy Energy Lab.

the shore. The team faced extreme adverse weather conditions, encountered Hawaiian bones, ("iwi") and a land mine during construction.

The 4.3-mile long and 12-foot wide section of "Ke Ala Hele Makalae" (The Path that Goes by the Coast) is Americans with Disability Act-compliant and has made the area from Kapaa to Kealia accessible to all.



Published monthly by:

HAWAII COUNCIL OF ENGINEERING SOCIETIES

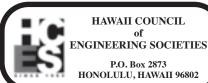
SERVICE PRINTERS, INC.

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

1526-C Pukele Avenue • Honolulu, HI 96816 Telephone: 768-3725

#### **WILIKI MAILING LIST**

Additions and/or corrections to the Wiliki mailing list should indicate the proper society, institution or association. Corrections to email addresses should be submitted to your society coordinator.



John Ramos

HOME PAGE: http://hces.us

#### 2010-2011 OFFICERS

Chair:

Vice Chair: Joseph Ting Secretary: Grant Torigoe Treasurer: Samuel Dannaway soc Representative Alternate T Taam AACF ACECH K. Hayashida APWA J. Cudiamat **ASHRAF** A. Hahn R. Babcock ASCE J. Kalani ASMF D. Kam J Ahern C. Papacostas EAH **EWBH** S. Holman E. Pineda **FALEA** S. Agraan W. Ing **HLSA** D. Hirota **HSPE** F. Ching K. Kunimine IEEE G. Torigoe ITE W. Yamamoto SAME B. Zachmeier SEAOH L. Kempers **SFPE** S. Dannaway SWE L. Thompson S.K. Choi UH(assoc)



# IEEE Hawaii Section 2010-11 Hawaii Section Officers

Section Chair: John Camery

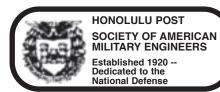
john.camery@.gmail.com Vice-Chair: Chris Russell

Treasurer: Marjorie Pearson

marjorie.pearson@twtelecom.com

Secretary: Grant Torigoe

Grant.Torigoe@hawaiiantel.com



P.O. Box 31218, Honolulu, HI 96817 Web page: www.samehonolulu.org

#### 2010-2011 Honolulu Post Officers

President COL Mark Bednar, USAF Vice Pres, Programs Bryan Zachmeier

Vice Pres, Sustaining

Membership Will Boudra Vice Pres,

Membership Jerry Matsuda, PE
Secretary CAPT David Stringer, USAF
Treasurer LCDR Jorge Cuadros, PE, USN
Dir at Large, Army COL Lawrence Sansone, USA
Dir at Large, Navy CAPT Paul Fuligni, USN

Dir at Large, Navy Dir at Large, Air Force Dir at Large,

COL Karl Bosworth, USAF

Coast Guard CAPT John Hickey, USCG Dir at Large, Civilian James Bersson, PE, US Army Corps of Engineers SAME Honolulu Now Accepting Applications for 2011 Scholarship Program

Each year, SAME Honolulu offers scholar-ships to deserving high school seniors and college students who will be or are currently enrolled at a university with an accredited engineering or architecture program. In 2010, thanks to the generous donations of the Honolulu Post's sustaining and regular members, SAME Honolulu was able to award six \$2,500 scholarships. Applications are now being accepted, and must be postmarked by April 15, 2011. Winners will be announced in mid-June 2011. For more information, contact Julie Chen at <a href="mailto:jchen@ecc.net">jchen@ecc.net</a>, or download the official application form from the SAME Honolulu website at <a href="https://www.samehonolulu.org">www.samehonolulu.org</a>.

# 54th Hawaii State Science and Engineering Fair - Call for Volunteers

SAME Honolulu is looking for volunteers to assist with this year's Hawaii State Science and Engineering Fair on Tuesday, 29 March at the Hawaii Convention Center. This year there are several volunteer opportunities. Please visit the SAME Honolulu website at www.samehonolulu.org for the Call for Volunteers, Volunteer Responsibilities, and sign up form. For more information, please contact Lynn Fujioka at lynfujioka@gmail.com. Mahalo for your support of Hawaii's youth!

# Society of American Military Engineers (SAME) Honolulu Post Scholarship

**Award:** A **\$2,500** scholarship with a one-year SAME "Student" membership. (Note: Multi-year scholarships may be contemplated.)

#### Eligibility:

- A Hawaii high school senior planning to pursue a full-time undergraduate degree in engineering or architecture at a university with an accredited program or a current Hawaii undergraduate or graduate student enrolled at a university with an accredited engineering or architecture program
- 2. U.S. citizen
- 3. Minimum 3.0 GPA (the latest official transcript is required)
- Military affiliation or experience (i.e., SAME member or dependent, military dependent, Junior ROTC or ROTC) not required, but given preference

Requirements: Submit application information (complete the bottom of this application form) with the latest "official transcripts" and when applicable, "acceptance letters" as described below as well as the following documents (items 3 to 5) *typewritten and double-spaced*.

- 1. **For high school seniors** who will pursue undergraduate degrees in engineering or architecture a copy of the university acceptance letter.
- 2. **For college seniors** who will pursue graduate degrees in engineering or architecture a copy of the graduate program acceptance letter.
- 3. **Resume** of work experience, academic and extra-curricular activities (one page maximum).
- 4. **Essay** on "Describe an engineering or architecture event or accomplishment in the last decade that has had a major impact on the society." (one page maximum)
- One reference letter sent directly by a faculty (non-family) member describing the applicant's desire to pursue a career in the eligible programs (one page maximum).

Mail to: Julie Chen

Proposal & Marketing Manager, ECC 2969 Mapunapuna Place, Suite 220

Honolulu, HI 96819

Deadline: Postmark by April 15, 2011. Winners will be announced in mid-June 2011. For more information, contact Julie Chen at jchen@ecc.net.

Application Information (please write legibly):

Name:	Citizenship:	
Home Address:	City: State: Zip:	
Phone:	E-mail Address:	
School:	GPA:	
Major (if applicable):	Anticipated Graduation Date:	
Military Experience/Affiliation:	SAME Affiliation:	



#### 2010-2011 BOARD

#### **Executive Committee (Officers)**

President: Michael Chang
Pres-elect: Paul Scott
Vice Pres: Kevin Saito, P.E.
Secretary: Barry Jim On, P.E.
Treasurer: Paul Fukunaga, P.E.

#### **Board of Governors (Members)**

Albert Hahn, P.E. (Immediate Past Pres) Blake Araki, P.E.

Blake Araki, F Donna Kishi

Melek Yalcintas, PhD, P.E.

Scott La Beau William Lee, P.E.

#### ASHRAE Hawaii Chapter

Technical Seminar – March 11, 2011 (Friday)
University of Hawaii, East West Center,
Hawaii Imin International Conference Center
1777 East-West Road, Honolulu, HI 96848
From 7:30 am to 4:30 pm
\$125/ASHBAE Member \$150/quest \$5/stu-

\$125/ASHRAE Member, \$150/guest, \$5/student, \$5 parking pass available

# Hawaii Chapter Technical Seminar and Product Show

This year's Technical Seminar is titled "Controls as It Relates to Operation and Maintenance" and will feature educational workshop sessions as well as a panel discussion that will surely be enlightening and lively.

Workshop #1 – Sequence of Operations – "Basis of what should be" with Philip Smith.

An engaging discussion of a sequence of operations from a design perspective, and how they may be adapted to cover more than just standard equipment operation. Philip will cover topics such as sequence basics, power outage recovery, equipment self-test, and fault detection. This presentation will provide you with a broader view the of the sequence of operations for equipment and buildings.

Phil Smith has been a Product Manager at Alerton for over 4 years and works on many products in the Alerton portfolio including software and hardware. Phil is currently working on the Alerton Energy Dashboard among other projects. Phil holds a bachelor's degree in marketing and management from the University of Washington and resides in Seattle, Washington. Personal hobbies include classic cars, running, and electronics.

Workshop #2 - "Use of Control Systems During Operations and Maintenance" with Jay Garbarino, P.E.

An engaging discussion of monitoring based exception reporting to detect problems for early response and graphical system performance visualization tools.

Jay is the US Sales Manager for Delta Controls. After graduating from the University of Colorado Colleges of Engineering and Business, Jay started his controls career with a major manufacturer's branch in Los Angeles. His roles included: engineering, project management, construction and service sales, energy services, sales management and branch management in 4 different western locations.

Workshop #3 "Field Implementation of HVAC Commissioning in Hawaii, Panel Discussion

Moderation by our own Hawaii Chapter President Mr. Michael Chang and panelists:

- Keith Chan, P.E., Mechanical Engineer, President of Notkin Hawaii Inc.
- Ross Sasamura, P.E., Mechanical Contractor with Heide and Cook
- Gilbert Talavera, Facilities Manager, U.S. Army, Division of Public Works
- R.J. Ritter, Controls Contractor, Trane Controls
- Dan Kreitz, Controls Contractor, Johnson Controls

Join in the discussion at the East West Center – Keoni Auditorium on the Campus of the University of Hawaii, Manoa, starting at 7:30 am with continental breakfast, workshops and over 30 tables of product displays available during the breaks and much much more.

For immediate reservations go online to http://hawaii.ashraechapters.org or call Dean Borges, General Chair at 775-220-5051 for further details.



Website: http://sections.asme.org/hawaii

#### ASME-HI 2010-2011 Officers

0-2011 01110013	
Derek Sato	543-4108
derek.sato@heco.com	
Derick Kam	848-6966
kam@thermaleng.com	
Kory Ikeda	
kory.isamu@gmail.com	
Kevin Dang	737-1708
dangk001@hawaii.rr.com	
Edmund Chang	543-4227
change025@hawaii.rr.con	7
Derick Kam	
John Ahern	
	Derek Sato derek.sato@heco.com Derick Kam kam@thermaleng.com Kory Ikeda kory.isamu@gmail.com Kevin Dang dangk001@hawaii.rr.com Edmund Chang change025@hawaii.rr.con Derick Kam

# NEXT ASME-HAWAII SECTION GENERAL MEETING

Date: March 15, 2011 Time: 5:30 pm to 7:00 pm

Place: Hawaiian Electric Ward Avenue

Cafeteria

Agenda: Speaker: Charlie Issacs, Hawaiian

Dredging Construction Company (HDCC) Project Engineer – LEED Implementation based on experiences at HDCC Punahou K-1

project.

Members and guests are invited. There will be free pizza and soft drinks as usual. Please contact Derek Sato or Kory Ikeda for directions and for more information, such as parking.

#### **JANUARY 18 MEETING HILITES**

Student Section report: There are several Senior Design projects that will compete in mainland competitions. Although it was reported that fundraising has been satisfactory, it was again suggested that the students set up a University of Hawaii Foundation account for their projects where donations can be sent for their fundraising. The students need to provide details of how to write the charitable deduction donation check and where to send it. The ASME-HI senior section would send an email notice of donation request to the membership, post request on the website, and include request in the Wiliki.

Meeting presentation: Derick Sato presented and demonstrated HECO's FLIR handheld instrument.

# ASME P.E. REFRESHER COURSE UPDATE FOR OCTOBER 2011 EXAM

The ASME Hawaii Section is currently accepting qualified applicants for the ASME sponsored P.E. refresher course for the Principles & Practices of Engineering Exam - Mechanical Discipline, scheduled for October 2011.

The section is currently compiling a list of qualified candidates for the October 2011 exam, and a minimum of 10 candidates is needed to finalize coordination with logistics such as instructional facilities, availability of instructors, instruction schedules and parking.

Qualified candidates include those that meet the criteria as stipulated by both the National Council of Examiners for Engineering & Surveying (NCEES) and the state of Hawaii engineering licensing board. The candidate is encouraged to visit the NCEES website at www.ncees.org and the state Professional & Vocational Licensing website at http://hawaii.gov/dcca/pvl for important information about applying for the exam.

Qualified candidates are encouraged to contact Raymond Liu @ email: liur020@ hawaii.rr.com for more information. For additional information about the format for the refresher course, please visit www.sections. asme.org/hawaii/pe.html.

#### **2011 BALLOTS & SURVEYS STATUS**

As of February 12, 2011, we had received 30 SurveyMonkey.com responses and zero hard-copy USPS responses. The deadline for turning in ballots & surveys is February 28. Initially, email-voting requests were sent to 207 email addresses, and hardcopy USPS ballots & surveys to 59 members without an email address. Only one hardcopy USPS ballot & survey was returned due to "not deliverable as addressed, unable to forward" USPS sticker.

For the tours and presentations survey question member Joseph Van Ryzin of Makai Ocean Engineering suggested and agreed on a meeting presentation on Ocean Thermal Energy – an alternative ocean energy source being developed for Hawaii. Van Ryzin also suggested a tour of the UH deep-water submarines located at the Makai research Pier, Makapuu. Member Brad Rockwell invited us to Kauai to visit his power facilities.

#### **FUTURE MEETINGS/TOURS**

May 17: Speaker Joseph Van Ryzin of Makai Ocean Engineering on Ocean Thermal Energy.



www.sfpehawaii.org

#### OFFICERS President

	harano@thermaleng.com	
Vice-Pres	Robert T. Bigtas, P.E.	526-9019
	Rbigtas-ssda@hawaii.rr.com	
Secretary	Derick Kam	848-6966
	kam@thermaleng.com	
Treasurer	Samuel S. Dannaway, P.E.	526-9019
	Sdannaway-ssda@hawaii.rr.d	com

Melvin K. Harano, P.E.

848-6966



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

### 2011 BOARD OF DIRECTORS OFFICERS & DIRECTORS

DINECTORS		
Position	Officer	Phone
President	Brian Ide_	536-2108
	brianide@allisonide.com	
Vice President	Wesley Segawa	935-4677
0 1	hilo@wrsa.biz	400 7570
Secretary	Grant Okunaga	488-7579
_	grant@mkellc.com	
Treasurer	Danny Fujioka	536-2626
	dannyf@nagamineokawa.com	
Director	Les Kempers	682-6000
	lkempers@gprmp.com	
Director	Kimo Scott	671-2886
	okhardwr@hawaiiantel.net	
Director	Aaron Erickson	591-2728
	aerickson@wje.com	
Director	Linda Moran	676-1963
	lmoran@hawaii.rr.com	
Past President	Ron Iwamoto	486-5202
	ron@iwamotollc.com	

#### HIGHLIGHTS OF BOD MEETING

February 2, 2011

#### **Committee Reports:**

General Membership Meetings/Technical Seminars/Events:

- ATC Disaster Seminar has been rescheduled to Feb. 28, 2011 at the Pagoda Hotel. This event will be sponsored by NAVFAC Hawaii.
- Joint ASCE-SEAOH meeting is scheduled for Mar. 31, 2011 at the Treetops Restaurant. The topic of the seminar will be on masonry. The following seminars are anticipated to be presented in 2011: Pre-Engineered Metal Buildings, Pre-Engineered Wood Trusses, Structural Steel Corrosion Coatings.

# Hawaii Council of Engineering Societies (HCES):

 Linda Moran volunteered to take over for Les Kempers as SEAOH's representative at future HCES meetings. Thank you to both Linda and Les.

#### Other Business:

The 2011 Installation Banquet was a success. Thank you to all donators and our guest speaker Wayne Yoshioka.

Possible venues for this year's annual convention include the Turtle Bay Resort and the Makaha Resort.

The SEAOH Board will issue a position letter opposing the State's decision to use money from the Hawaii Hurricane Relief Fund to end furlough days and stating the funds should remain intact to be used for its original purpose.

**New Member Applications:** New member applications from Alex Okamura (Tanimura & Associates) and Kimberly Hoo (Englekirk Partners) for the grade of Allied Member were received and are open for comments from the membership. Their applications will be voted on at the April 2011 board meeting. Please notify any SEAOH officer prior to the April 2011 board meeting if you wish to comment on these prospective members.

Missing Members: Please contact Membership Chairperson, Jiabao Chen (Ph: 791-3945 or email *jchen@kaihawaii.com*), or any of the SEAOH officers if you have a new mailing and/or email address.

The next SEAOH Board of Directors and Officers meeting will be held on Wednesday, March 9, 2011 at CCPI. Time has yet to be determined. Contact SEAOH President Brian Ide (536-2108, brianide@allisonide.com) for more information.



# engineers and architects of hawaii

po box 4353, Honolulu, Hawaii 96813

An association for Hawaii's Engineers and Architects WEB address: http://eahawaii.googlepages.com/home

#### **EAH 2010- 2011 Officers**

President	Aaron Erickson	591-2728
2nd VP	Howard Wiig	587-3811
1st VP	Geoffrey Paterson	261-6597
Treasurer	Tit Mun Chun	
Secretary	Gary Yamamoto	485-2777
Director	Dave Martin	543-4504
Director	Travis Hylton	
Director	Andy Keane	531-3017
Past Pres.	C. S. Papacostas	956-6538

EAH's new meeting location is at the Fort Street Grill in the Topa Tower (Ewa tower on Fort Street ) in the Topa Financial Center (Old AMFAC Bldg). Fort Street Grill closed in May so Lunch sandwiches will be provided by the Carrot Patch until other arrangements can be made for lunch. Parking is available (enter from Nimitz). The WEB site has been updated to provide directions and a Map. If you have questions please call Sam Gillie (543-4739).

#### MARCH MEETING SPEAKERS

March 4 - Chris Duque, Detective HPD (ret.).

"Cybercrime and Computer Forensics, How to avoid identity theft and other crimes, including cyber terrorism"

March 11 - Sean M. Costello, ME, Hawaii Energy Consultants LLC.

"Alternative Energy Innovations for Hawaii"

March 18 - Richard Beall, Beall & Assoc., Consulting Mechanical Engineers. "The Energy Loop, Energy reclaim for commercial and residential projects"

March 25 - no meeting, holiday.

Meetings are held every Friday (except Holidays). Meetings start at NOON and have ended PROMPTLY at 1:00 pm for 70 Years.

Program schedule may be adjusted, call Sam Gillie to confirm speaker 543-4739 Fax 203-1335.

\$10.00 Members, \$12.00 Guest (All Welcome), Students Free, Bring Your Own Lunches Welcome, Drink Refreshments are compliamentary. A \$3.00 donation is very gratefully appreciated!!



Association for the Advancement of Cost Engineering

HAWAII SECTION

#### **OFFICERS**

President – Kurt Bendler Vice President – Paul Brussow Director – Amarjit Singh Director – Maelyn Uyehara Past President – Stephen Jacobson Treasurer – Guia Lasquete Secretary – Kevin Mitchell



Our new state-of-the-art plant maintains Tileco's position as the State's leading concrete block manufacturer.

www.tilecoinc.com

ph. 682-5737





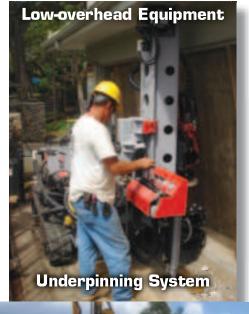
# STRUCTURAL SYSTEMS, INC.

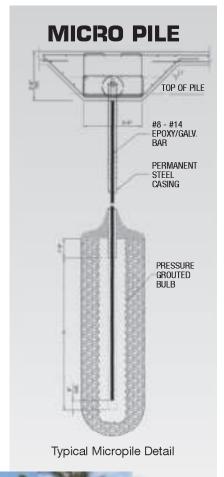
# General Engineering • Foundation Systems • Micro Piles

MICRO PILES As defined in FHWA-RD-96-016 "Micro-piles are small diameter drilled and grouted reinforced piles used for both structural support and insitu earth reinforcement." Typically less than 10" in diameter, allowable design capacities frequently exceed 100 kips and our crews have performed testing in excess of 225 kips or over 100 tons. Micro-piles are frequently used where a deep foundation system is required in difficult substrata conditions, or where driven piles or large diameter systems are impractical due to subsurface obstructions, or limitations presented by existing buildings at or adjacent to the project site.

# Capabilities, Benefits & Advantages

- Limited Access and Low-overhead Equipment
- Design/Build Projects
- FHWA Compliant
- High Bearing & Tension Capacities (100 Tons)
- New Construction
- Cased or Un-cased Systems
- Hollow-bar Injection Anchors
   & Piles
- Atlas & Chance Helical Piers
- Remedial Underpinning
- Foundation Releveling
- Load Transfer
- Soil Nails. Gunite
- Slope Stabilization
- Compaction Grouting
- Uretek, Slab Releveling







Since 1985 in Hawaii, Structural Systems and its allied company Kelikai have compiled decades of experience installing deep foundation systems. Our experience includes a range of piling systems for bearing support, and a selection of differing anchor systems for tension applications. Additionally, we are authorized installers of the Atlas and Chance brands of pre-engineered foundation systems for both new construction and remedial/underpinning applications. Hawaii has widely variable and difficult subsurface conditions. With their experience, our staff and field crews are peerless in their ability to address all the differing geotechnical conditions unique to Hawaii.



P.O. Box 30296 Honolulu, HI 96820 Telephone: (808) 845-2474 Fax: (808) 847-2966 Email: structurs001@hawaii.rr.com website: WWW.SSIHAWAII.COM



#### 2010-2011 OFFICERS

 Office
 Name
 Phone

 President
 Roger Babcock
 956-7298

 email: rbabcock@hawaii.edu

 Pres-Elect
 Dawn Barsana-Szewczyk
 943-1133

 email: dawn.barsana@ch2m.com

 Vice-President Ian Arakaki
 596-7790

email: ian@tlcghawaii.com

email: jeff@yogikwong.com

Secretary Brian Enomoto 388-5559 email: benomoto@ascehawaii.org

Treasurer Glenn Miyasato
Past President Jeff Kalani 596-2928

#### MARCH DINNER MEETING

Program: Structural Technical Committee; SEAOH Joint Meeting.

David T. Biggs, P.E., Distinguished Member ASCE, Principal, Biggs Consulting Engineering will make a presentation on "Hybrid Masonry Seismic Structural Systems". Conceived for low seismic applications, hybrid masonry utilizes reinforced concrete masonry infill panels to brace a conventional steel frame. In 2009, an NSF-Network for Earthquake Engineering Simulation (NEES) sponsored research project was initiated to study the system performance in high seismic applications. The system development has received industry support

from both AISC and the masonry industry. The research is being led by Prof. Dan Abrams of the University of Illinois. Prof. Ian Robertson is leading a significant research effort at the University of Hawaii, and analytical work is being performed at Rice University. Mr. Biggs will provide an introduction to the system as both a designer of existing systems and as a leading member of the research team.

Date: Thursday, March 31, 2011 Location: Treetops at Paradise Park,

Manoa Valley

Time: 5:30 p.m. - Social Time 6:30 p.m. - Dinner 7:00 p.m. - Program 8:45 p.m. - Adjourn

Menu: Multi-entree buffet
Cost: \$25.00 for ASCE Hawaii Section

members

\$28.00 for Non-ASCE Hawaii Section members and Guests \$11.00 for UH Manoa Student

Chapter members

Please make checks payable to ASCE-Hawaii Section and mail to Glenn Miyasato, ASCE Treasurer, MKE Associates, LLC, 99-205 Moanalua Road, Suite 205, Alea, Hawaii 96701 postmarked by Friday, March 24, 2011. Reservations for the dinner meeting to Glenn Miyasato by Monday, March 28, 2011, by phone at 488-7579 or email at glenn@mkellc.com.

#### **EXECUTIVE COMMITTEE MEETING**

Last held: February 17, 2011 Next meeting: TBD

Architects of Hawaii were hosted by the Honolulu Board of Water Supply (BWS) at the Waihe'e water supply tunnel in Kahalu'u on the windward side of O'ahu. The Waihe'e tunnel is a unique civil engineering structure, the tunnel extends into the mountains approximately 1700 feet, the tunnel splits and has two bulkheads at approximately 1500 feet. These bulkhead structures restore water-tightness of the naturally occurring rock dikes (a unique feature) and allow the water in the mountain to be

stored and utilized during dry periods. A pres-

sure gage in the outlet pipe is how the BWS monitors how much water is stored within the mountain. The system does not require outside power and utilizes the potential energy due to gravity stored in the system to operate. The Waihe'e tunnel was built in 1951, for the Suburban Water System, that later merged with the BWS. After sloshing through the tunnel, those that could stick around enjoyed delicious grilled food, cold beverages, and some social interaction. Stay tuned for the next YMF field trip! Contact YMF field trip committee chair Aaron Erickson aerickson@wie.com if you have any field trip

ideas etc.

# REGIONAL LEADERSHIP CONFERENCE PARTICIPATION

Several ASCE members from Hawaii attended concurrent regional meetings in Costa Mesa, California in February. Our Hawaii Section President-Elect, Dawn Szewczyk attended the 2011 Region 8 Spring/Winter Planning Meeting on February 10th. Secretary, Glenn Miyasato attended the 2011 Region 8/9 Workshop for Section and Branch Leaders (WSBL) on February 11th and 12th. Eric Arakawa, Laura Karamatsu and Kurt Nagamine attended the 2011 Region 8/9 Western Regional Younger Member Council (WRYMC) meeting. And UH Students Sean Cagadas and Megan Ueno attended the Workshop for Student Chapter Leaders (WSCL).

# VOLUNTEERS NEEDED TO SPEAK AT SCHOOLS ABOUT ENGINEERING

The ASCE Hawaii Section Outreach Committee needs you! We need volunteers to speak to students at school career days. Please contact the Outreach Committee Chair Cey Murakami at (808) 448-2877 to let him know that you want to help.

# ASCE HAWAII SECTION STUDENT SCHOL-ARSHIPS

Please help us increase our scholarship endowment so that we can recognize those

continued on page 9

#### **CIVIL PROJECT ENGINEER**

#### MINIMUM REQUIREMENTS:

Current Hawaii Professional Engineer License

5 years of civil and/or environmental engineering experience Design experience on public, military, and private sector projects

2 years of professional engineering experience (with PE license)

Strong written, oral, and interpersonal communication skills

#### DESIRABLE QUALIFICATIONS:

Civil 3D LEED AP

Ability to lead multidisciplinary project teams

Salary commensurate with experience. Send resume to email@grayhongnojima.com. Inquiries phone 521-3051.

# ASCE American Society of Civil Engineers Hawaii Section — Younger Member Forum

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

Phone

#### 2010-2011 YMF Officers

President: Eric Arakawa 478-6540
earakawa@ascehawaiiymf.org
Vice-President: Javis Carino 256-8554
jcarino@ascehawaiiymf.org
Secretary: Jason Sugibayashi 721-3117
jsugibayashi@ascehawaiiymf.org
Treasurer: Lara Karamatsu 694-3213
lkaramatsu@ascehawaiiymf.org
Past President: Troy Ching 697-6233
tching@ascehawaiiymf.org

#### **ASCE YMF March Golf Outing**

The American Society of Civil Engineers (ASCE) Hawaii Section Younger Member Forum (YMF) will be having a golf outing:

Where: Waikele Country Club Date: Saturday, March 12, 2011 T-Time: 6:58 AM (1st of 5)

Dust off the clubs and join us for a relaxing day away from the office, on the golf course. Following the round we will be meeting for some good food, drinks and company at Waikele Country Club's 19th hole restaurant, "Sushi Ten." All are welcome. Please RSVP to Ryan Tanaka be e-mail (rtanaka@ascehawaii.org) or call Ryan at 387-5728 for more information. Please respond by Friday March 4 if you are interested. Space is limited to 5 foursomes, so reserve your spot early.

#### Waihe'e Tunnel Field Trip

By Aaron Erickson, Field Trip Chair

On January 6, 2011, ASCE YMF members and a few members of the Engineers and





We had our first social of 2011 at Ocean's 808 on Friday January 28th. A few YMF members and other fellow engineers joined in on the fun. It was a nice way to unwind and relax after a work week.

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

by C.S. Papacostas

#### AND THEN THEY WERE THREE!

Readers of last month's (i.e., February 2011) story have asked me why those who derided Holmes Hall at the University of Hawaii back in the early 1970s chose to call it "the red, white and blue elephant;" specifically why those particular colors, they asked. The answer is embedded in several of my previous articles in this series.

Red (a bright shade of it, in fact) was the original color of the Liberman sculpture on the front lawn as well as the rails and balustrades of the building, blue was the color of its windows and doors, and white was the color of most internal and external walls.

By now, the sculpture's color has been transformed into a faded orange hue and the rails, along with the window trim of the building's facade on the Dole Street side, have been "toned down" (as one reader put it) to a brownish shade!

When first opened, the building was criticized for cost overruns, for a deficiency of adequate classroom, laboratory and office space, and for its low percentage (43%) of assignable space.

The principal counter-arguments to these negative appraisals centered around the fact that office and classroom space and a college auditorium were planned for inclusion in a second (but never realized) building, whereas the open lanais, I've heard repeated often, were a design element selected by the architectural firm of Skidmore, Ownings & Merrit to impart a "Hawaiian sense of place" to the complex.

At any rate, and however realized, severe space limitations prevented the engineering faculty from moving into the new building all at once, some room having been allocated to affiliated units outside of engineering to boot. For some time, newly hired faculty members, such as my colleague Peter H. P. Ho and I, led a nomadic life, so to speak, being shuffled between temporary places!

Coupled with severe budget restrictions and hiring freezes, those were strained circumstances, to say the least. At the risk of my being indiscreet, I offer you a small example from my own experience as I recall being loudly belittled as "the peasant from the middle east" by a furious senior professor whose highly coveted and valued office complex space I was assigned by the Assistant Dean to share! I cannot claim an aristocratic descent, mind you, and my birthplace, Cyprus, is not that far away from the middle east (in fact, some maps I've seen include it as part of the middle east), but it was the hostile tone and the lack of collegiality of it all that was bothersome to me!

Attempting to "do the best with what it had," the college resorted to scavenging space, carving it out of existing areas such as the hydraulics and structures laboratories in a less than ideal state of affairs that persisted into the 1990s, long after Peter left for a successful career at the Honolulu Department of Transportation Services.

It was not until 1997, when the Pacific Ocean Science and Technology (POST) building was dedicated, that any space were added to the growing college. Housing mostly the School of Earth Science and Technology (SOEST), the POST building occupies part of the lot where the second engineering building was to be erected decades ago.

According to college archives, when Holmes

Hall opened in 1972, the college consisted of Civil, General, Electrical, Mechanical and Ocean Engineering, the latter being strictly a graduate-level program established in 1966; a small Center for Engineering Research (CER) had been morphed out of an inactive "paper organization" called the Hawaii Engineering Experimental Station to support the college's ever growing research agenda. General Engineering was dissolved a year later, its faculty and resources transferring to other departments within the college.

During this time frame, the CER began to make strides toward some large scale initiatives. For example, in collaboration with Prof. Augustine Furumoto of the Hawaii Institute of

Geophysics, it proposed a joint U.S., Japan effort to address the potential of geothermal energy, according to a story in the June 9, 1972 edition of the Honolulu Advertiser. About a year later, on December 3, 1974, the same newspaper reported that a study sponsored by the City and County of Honolulu and conducted by the Director of CER, Donald Grace, identified wind as a potential nonpolluting energy source. With Dean John W. Shupe's support, these initiatives led to the establishment of the Hawaii Natural Energy Laboratory (HNEI) within the College in 1974, an interdisciplinary enterprise that generated significant attention and external funding.

continued on page 9

# Concrete Workability Enhanced!

#### Workability

Concrete is easier to place with less effort, responding better to vibration to fill forms more completely.

#### **Ease of Pumping**

Pumping requires less energy and longer pumping distances are possible.

#### Improved Finishing

Sharp, clear architectural definition is easier to achieve, with less worry about in-place integrity.

#### Reduced Bleeding

Fewer bleed channels decrease permeability and chemical attack. Bleed streaking is reduced for architectural finishes.

#### **Reduced Segregation**

Improved cohesiveness of fly ash concrete reduces segregation that can lead to rock pockets and blemishes.





## www.hcflyash.com

Hawaiian Cement, Cement Division • 99-1300 Halawa Valley St. • Aiea, HI 96701 O: 808-532-3400 • F: 808-673-4221 • E: George.Stewart@hawaiiancement.com





http://www.HLSA-hawaii.org

#### Officers for 2010

Artie Sevigny President: Vice Pres: Gavin Hirano Secretary: Debbora Robertson Treasurer: Winston Ing Director: Iopa Maunakea Darryl Cadiz Director: Artie Sevigny Past Pres: NSPS Gov: Kevin Kea

#### TRIG-STAR PROGRAM REPORT

by Kevin Kea, PLS

The 2011 high school math competition is off to a great start. We have 30 schools who have signed up to participate this year from across Oahu, the Big Island, Maui, Kauai, and Molokai. Last year we had 20 schools signed up so the program is definitely growing, so is the excitement. The great thing I like about the Trig-Star program is the fact that we get to introduce the teachers and students to the world of surveying. They quickly learn that the math and trigonometry learned thru their high school years does indeed have practical application for a surveying profession which is obtainable. The program is also complimented by a \$3,000 HLSA scholarship fund for all participants who wish to pursue a degree in land surveying, then followed up by a \$5,000 NSPS scholarship fund. The goal is to reach as many schools in our state and get them involved, like I mentioned we're off to a great start. HLSA is looking for sponsors for this program to support one school the cost \$300.00, please contact myself at kkea@acelandsurvey.com for more details on how you can be a part of this great program.

#### NSPS SURVEYING USA

by Kevin Kea, PLS

A surveying USA event will take place on March 19, 2011. This event is put on by the National Society of Professional Surveyors and its main purpose is to promote and make aware to the general public our profession and the many contributions we have made throughout the years. It is a fun event that will take place simultaneously across the country in all 50 states, Guam and Puerto Rico. Here are just a few of the details:

- All states should be set up and start observing Saturday, March 19, 2011 at 11 a.m. Montana Time
- Occupy ANY point you want or set one yourself. Remember, this is mostly for recognition of NSPS and Land Surveyors. It can be your states initial point, a historical monument, a flag pole in a school yard... etc. etc. etc. If you are observing a point for NGS or Height Modernization there will be specific directions forthcoming.
- Occupy for a minimum of 1/2 hour (more is always better if you want to be noticed)
- After your time is up send Lat/Longs (in degrees, minutes, seconds) along with description of point occupied and name of person observing to your NSPS Governor (Kevin Kea)

To sign up for this event and receive more

details please contact Kevin at *kkea@aceland-survey.com*. We need interested surveyors and volunteers to make this a successful event and represent Hawaii.

Once again *Congratulations* to our **2011** Surveyor of the Year, Andy Harada and our Associate of the Year, Felicia Provencal, thank you for all your hard work and support for the surveying community over the years.

#### ALOHA TO APWA



Jason H. Lau, P.E.

#### 2011 Officers

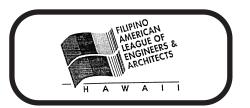
President

	,	
	jason@tlcghawaii.com	
Vice-Pres	JoAnne Hiramatsu	954-4262
	jhiramatsu@oceanit.com	
Treasurer	Jeoffrey S. Cudiamat, P.E.	488-5000
	engineer@structuralhawaii.d	com
Secretary	Ken C. Kawahara, P.E.	836-1900
,	kck@akinaka.com	
Past Pres	John Lamer, P.E.	768-8808
	jlamer@honolulu.gov	
Directors		
Membership	Robert Primiano	768-3500
	rprimiano@honolulu.gov	
Education	Rodney Haraga, S.E.	543-7431
	rodney.haraga@heco.com	
Publicity	Trevin Chang, P.E.	356-1251
*	tchang@ssfm.com	
Awards	Jimmy Kurata, P.E.	586-0732
	james.k.kurata@hawaii.gov	
Awards	Clyde Kumabe	586-0414
	clyde.k.kumabe@hawaii.go	V
Chap Del	Rouen Liu, P.E.	543-7245
	rouen.liu@heco.com	
Alt ChapDel	Ken Morikami	543-7819
	ken.morikami@heco.com	
Chap Hist	Lester Fukuda, P.E.	697-6200

The American Public Works Association (APWA) Hawaii Chapter is honored to be a new member of HCES. APWA aims to educate agencies and companies about local, state and federal-related public works topics. We hope this partnership benefits both the members of APWA and also members of other organizations within the HCES ohana that get involved in the arena of public works. events: Our first General Membership Luncheon Meeting of 2011 was held at Tsukiji Fish Market on February 17th. James Stone of Group 70 presented the award-winning Kaupuni Village development which incorporates sustainable living, self-sufficiency and cultural preservation in a "net-zero" energy community. The single-family residential development also consists of aquaculture fish ponds, agriculture plots for farming and a story/meditation garden.

les.fukuda@hdrinc.com

APWA would like to invite you to participate in our 18th Annual Education Fund Golf Tournament to be held at Ala Wai Golf Course, on Friday, April 8th. Last year's tournament was relaxing and stress free... the perfect break from a busy week at the office. Save the date and join us! Please contact our golf chair Rouen Liu at 543-7245 or e-mail rouen.liu@heco.com for more information.



P.O. Box 4135, Honolulu, Hawaii 96812 Website: http://www.falea.org

#### Officers/BoDirectors' for 2010-2012

VP/Pres Elect: Secretary: Treasurer: Ass't Treas: Auditor: Bus. Manager: Press Rel.Off: Past President: HCES Rep: Alternate: Directors:

596-7790

President:

Elvi B. Pineda Jeoffrey S. Cudiamat Maritez Marquez Nicolo A. Orense Jojo A. Lopez Eugene N. Calara Suzie S. Agraan Joey G. Resurreccion John C. Ramos Suzie S. Agraan Elvi B. Pineda Napoleon Q. Agraan Ramon B. Bonoan, Jr. Frank Cruzata Vergel G. Del Rosario Marcelino C. Labasan Angelie L. Legaspi

# HIGHLIGHTS BoD MONTHLY MEETING 02-03-11

Committee Reports: MEMBERSIP – New Member applicant John Cabulisan was approved by the Board for FALEA membership. He has a Bachelors Degree in Civil Engineering, and works for Leigh Diversified Construction, Inc. in Ewa Beach. He has also signed up for the FE Review Course.

FE REFRESHER COURSE – Attendance has been steady. The Review Course is on schedule, and the Facility is excellent with its centralized location in Pearl City, and spacious environment. The Committee is very appreciative of all the volunteer help in assisting the instructors and attendees during sign-in, preparing/bringing food/snacks, and cleaning up at the end of the day.

INFORMATION & PUBLICATION - The Young Engineer of the Year for 2011 is Dawn Barsana Szewczyk, PE. FALEA was in charge of the selection committee. Suzie also is reserving two tables for the Engineers' Banquet on February 26.

ANNUAL GOLF TOURNAMENT – The Golf Committee will be busy in the coming weeks getting ready for our 4th Annual Scholarship Golf Tournament to be held at the Kapolei Golf Course on April 15. The Committee which will start its weekly meeting soon, reported that Nan, Inc. will be the Title Sponsor this year. Check the FALEA Website for more information

Next Meeting:  $5:30\ PM\ Thursday$ , March 3, at APB's.



Engineers Without Borders - Honolulu http://www.ewbaloha.org

#### 2008-2009 Officers

President Shannon Holman 593-1116
shannon\_holman@urscorp.com
Vice Pres Alexi Remnek 586-4343
alexiremnek@yahoo.com
Secretary Bryce Toyama 521-8408

Secretary Bryce Toyama 521-8408 btoyama@swinerton.com
Treasurer Brannon Pang 521-3051

brannon.pang@m-e.aecom.com



state society of the National Society of Professional Engineers
P.O. BOX 3774 HONOLULU, HAWAII 96812

WEB SITE www.eng.hawaii.edu/~hspe

#### 2010-2011 Officers and Directors

President: Majella Stevenson, P.E. majella.stevenson@navy.mil

Pres. Elect: Kurt Kunimune, P.E.

kkunimune@bowersandkubota.com

Vice Pres.: Vacant

Secretary: Marc Botticelli, P.E. mbotticelli@wrsa.biz

Treasurer: Nathan Yuen, P.E. Nathan.yuen@heco.com

Past Pres.: Florence Ching, P.E. Florence.ching@navy.mil

#### **Chapter Directors:**

Oahů: Enrique Che, P.E.
enrique.che@heco.com

Maui: Darren Okimoto, P.E.
dokimoto@wsue.com

Big Island: Galen Kuba, P.E.
gkuba@co.hawaii.hi.us

Kona-Kohala: Dave Ross, P.E.
services@rekona.com

Thank you to all of those who helped recognize Sheryl E. Nojima, PhD, PE, of Gray Hong Nojima & Associates, Inc., as the HSPE 2011 Engineer of the Year! Sheryl was recognized in the February issue of the Wiliki as well as at the 2011 HCES Engineer's Week Banquet at the Hale Koa Hotel on February 26, 2011. Congratulations Sheryl!

On a separate note, the 2011 Mathcounts competition was held on February 12, 2011 for the HSPE Maui Chapter, and was held on February 19, 2011 for the HSPE Oahu Chapter.

The respective qualifiers from each island will meet for the State Mathcounts championship on Oahu at Iolani School on Saturday, March 5, 2011. The State winners will go on and represent Hawaii at the National Mathcounts competition, in the late Spring, 2011.

# Wiliki Advertisers Wanted

#### ASCE HISTORY, continued from page 7

When, as one of the top priorities of the University's President Albert J. Simone, several research-oriented units were consolidated into SOEST in 1988, both the Ocean Engineering Department (now known as Ocean and Resources Engineering) and HNEI were absorbed within the new school.

Ironically, when nearing its completion, the POST building that houses much of SOEST has been criticized for experiencing cost overruns, ending up with inefficient use of space, and deficient laboratories. A story in the September 7, 2000 edition of the now defunct Star Bulletin said "original construction costs of \$37 million have climbed to nearly \$52 million," that "only four of the eight floors were completed," and that there were "blunders" in constructing the laboratories. Tracing what actually happened and why is clearly beyond our scope here, but I think this repetitive kind of theme is what in music and literature is known as "leitmotif!"

Currently, Civil (renamed Civil & Environmental), Electrical, and Mechanical Engineering are the remaining academic units within the College of Engineering. All three departments offer the Bachelor's, Master's and Doctoral degrees. Added to these are the research-oriented Hawaii Center for Advanced Communications and the research and education oriented Hawaii Space Flight Laboratory.

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 <code>csp@wiliki.eng.hawaii.edu</code>). Previous articles in the series may be found at the Section's web site. Just point your browser to <code>http://www.ascehawaii.org</code>.

#### ASCE, continued from page 6

deserving students. We continue to accept taxdeductible 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 Jeff Kalani at 754-5501, or Jeff@yoqikwong.com.

#### **CONTINUING EDUCATION**

ASCE National holds more than 275 seminars and computer workshops each year on a wide variety of technical, management, and regulatory topics. These seminars are held in more than 45 cities across the U.S. In addition, ASCE offers customized on-site training and many distance learning programs, including live interactive web/teleconference seminars, online courses and courses on CD, videotape, and audiotape. Please visit www.asce.org/conted/ for complete details.

#### **ASCE JOB LISTINGS**

For information on how to advertise job openings in your company on the ASCE Hawaii Section website, please visit <a href="http://www.asce-hawaii.org/jobs.htm">http://www.asce-hawaii.org/jobs.htm</a>.



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

#### Officers for 2010-11

Exec Dir ·

President: Sheryl Nojima, PhD, PE 521-0306 Pres. Elect: Douglas Lee, PE 523-8499 Terrance Arashiro, PE 536-3646 Treasurer: Mike Street, PE 836-7787 Secretary: Past Pres.: John Katahira, PE 596-7790 Nat. Dir.: Jon Nishimura, PE 944-1821 Beverly Ishii-Nakayama, PE 942-9100 Directors: Joel Yuen, PE 521-3773 Robin Lim, PE 841-5064

Ginny Wright 74<sup>-</sup> Email gwright@acechawaii.org

741-4772

#### **ACECH ANNUAL MEETING**

ACECH will hold its Annual Meeting on March 10th at the Honolulu Country Club. The meeting will get started at 8 AM. Continental breakfast and lunch will be served. Potential topics will include State of Hawaii procurement issues, how the Design Professional should preserve their contractual rights, and a Legislative update. Please mark your calendars. More information will follow.

# **Professional Directory**



HAWAII COUNCIL OF **ENGINEERING SOCIETIES** P.O. Box 2873 Honolulu, Hawaii 96802

RETURN SERVICE REQUESTED

Presorted Standard U.S. Postage Paid Honolulu. Hawaii Permit No. 9434

# **Professional Directory**



**AARON UNO**Industrial Precast Products Department



91-059 Hanua Street Kapolei, Hawaii 96707 Office: (808) 673-2310 Fax: (808) 673-3355

> Suite 200 Honolulu, HI 96813 info@BillsEngineering.com



BILLS ENGINEERING INC.

www.atahawaii.com Tel: 808.792.2022 Fax: 808.792.2033 CALDWELL 1124 Fort Street Mall

Maui - Honolulu brownandcaldwell.com

Y. Ebisu & Associates

1126 12th Avenue, Room 305 Honolulu, Hawaii 96816

Austin Tsutsum

## **CUMMING CORPORATION**

WWW. BELT COLLINS .COM

**Cost and Project Management Services** (808) 947-4525 www.cummingcorporation.com



Engineering Concepts, Inc. Civil/Environmental/Sanitary Engineers

1150 South King Street, Suite 700 • Honolulu, Hawaii 96814 Phone: (808) 591-8820 • Fax (808) 591-9010 Email: eci@ecihawaii.com

## S. S. DANNAWAY ASSOCIATES, INC. 720 lwilei Road, Suite 412, Honolulu, Hawaii 96817 Tel: (808) 526-9019 Fax: (808) 537-5385 Email: ssda@ssdafire.com

BC BOWERS + KUBOTA CONSULTING

• Project Management • Planning •

• Architectural/Engineering Design • Construction Management •

94-408 Akoki Street, Suite 201-A · Waipahu, Hawaii 96797

Phone: 808.836.7787 • Telefax: 808.834.4833

Building Code Consulting • Performance Based Design/Fire Modelir Plan Review/Code Checking • Fire Protection Special Inspectio Code Negotiation • Fire Protection System Design • Fire Protection Engineering Surveya/Audits/SOC s • Fire Protection Master Plannir Fire Protection Water Supply Analysis/Fire Hydrant Flow Tests

Kennedy/Jenks Consultants

MASA FUJIOKA & ASSOC.

A PROFESSIONAL PARTNERSHIP

1132 Bishop Street • Suite 1003

Honolulu, Hawaii 96813-2830

Phone: (808) 524-3771 • Fax: (808) 538-0445

Website: www.hdrinc.com

NAGAMINE OKAWA ENGINEERS INC.

CONSULTING STRUCTURAL ENGINEERS

1003 Bishop Street • Suite 2025

Honolulu, Hawaii 96813

Phone: (808) 536-2626 • FAX: (808) 536-3926

Pacific Geotechnical Engineers, Inc.

Soils & Foundation Engineering Consultants

94-417 Akoki Street
Waipahu, Hawaii 96797
(808) 678-8024 FAX (808) 678-8722
E-mail: pge@pacificgeotechnical.com

**Engineers & Scientists** 

186-1258 Keenumanu Street | Sules 254

Pearl City ( House 9879) p: 909.489 0477 | 1 809.489.0779

#### YOUR AD COULD APPEAR HERE FOR \$235 A YEAR



1320 NORTH SCHOOL STREET

#### (808) 735-1634 Esaki Surveying and Mapping, Inc.

Lihue, Kauai, Hawaii Ph. (808) 246-0625 • Fax (808) 246-0229 esmap@hawaiian.net

ENGINEERS · SURVEYORS Established 1979



#### **Fewell** Geotechnical Engineering, ltd.

OAHU: 96-1416 Waihona Place • Pearl City, Hawaii 96782-1973 (808) 455-6569 • FAX (808) 456-7062 MAUI: (808) 873-0110 FAX (808) 873-0906

## ENVIRONMENTAL • GEOTECHNICAL • HYDROGEOLOGICAL CONSULTANTS M<sub>FA</sub> 98-021 Kamehameha Highway, Suite 337 Aiea, Hawaii 96701-4914 Phone 808 484-5366 • Fax 808 484-0007

Hawaii Pacific Engineers

#### FUKUNAGA & ASSOCIATES, INC.



1357 Kapiolani Blvd., Suite 1530 Honolulu, HI 96814 Ph: 944-1821 • Fax: 946-9339 office@fukunagaengineers.com www.fukunagaengineers.com

#### GEOLABS, INC. Geotechnical Engineering and Drilling Services

2006 Kalihi Street Honolulu, Hawaii 96819 Phone: 841-5064 Fax: 847-1749

#### HIDA, OKAMOTO & ASSOCIATES, INC. CONSULTING CIVIL ENGINEERS







94-025 Farrington Hwy. Waipahu, Hawaii 96797 808/676-0205



PACIFIC GUARDIAN TOWER 1440 Kapiolani Boulevard, Suite 1120 Honolulu, Hawaii 96814 Fax: (808) 947-7546



Hirata & Associates, Inc. Geotechnical Engineering 808.486,0787

www.hirata-hawaii.com

Creative People, Practical Solutions.®



moffatt & nichol

Marine & Transportation Planners and Engineers 808.533.7000 www.moffattnichol.com





864 S. Beretania Street Honolulu, Hawaii 96813 Telephone: 537-9971



Phone: (808) 961-3727 / Fax: (808) 935-8033

Civil Engineering • Structural Engineering Land Surveying

# NAKAMURA, OYAMA AND ASSOCIATES, INC.

CONSULTING ENGINEERS ELECTRICAL/TELECOMMUNICATIONS/FIRE PROTECTION 1314 South King St., Suite 401 Honolulu, Hawaii 96814-1939 Telephone (808) 591-8887 Fax (808) 596-2383



SUITE 1500, PACIFIC PARK PLAZA
711 KAPIOLANI BOULEVARD
HONOLULU, HAWAII 96813
TELEPHONE: (808) 593-1676
FAX: (808) 593-1607
EMAIL: paren@pareninc.com

#### □dba park engineering

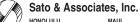
Engineers, Surveyors, Planners

#### 1000 THE LIMITACO CONSULTING GROUP CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

680 lwilei Road, Suite 430 ● Honolulu, Hawaii 96817 Tel (808) 596-7790 ● Fax (808) 596-7361 ● tlcghawaii.com



Tel: (808) 244-8889 Fax: (808) 244-8422



HONOLULU 2046 South King Street Honolulu, HI 96826 Tel: (808) 955-4441 Fax: (808) 942-2027

MAUI 2115 Wells Street Wailuku, HI 96793

CONSULTING ENGINEERS · CIVIL & STRUCTURAL