Green Pathways

Transportation and Trades Division

August 20, 2009
Green Mission Statement

HCC’s Goal: To provide the State of Hawaii’s Green Industries with technical training, technical assistance, and resources.
Sustainability: To meet the needs of the present without compromising the ability of future generations to meet their own needs.

1. Triple Bottom Line
2. Closed Loop Cycles
3. Ecological Footprint
4. Zero Waste
5. Zero Energy
6. Local First
7. Self-sufficiency + Carrying Capacity (Ahupua’a’a)
SYSTEM SUSTAINABILITY WORKSHOP (6/09) RECOMMENDATIONS

• PROFESSIONAL DEVELOPMENT
• SUSTAINABILITY ACROSS THE CURRICULUM
• SERVICE LEARNING/COOPERATIVE EDUCATION
• COMMUNITY AND STUDENT ENGAGEMENT
Campus Sustainability Committee

✓ Chancellor driven
✓ Energy Efficiency (submetering)
✓ Recycling
✓ Curricular Development
✓ Student Projects/Coop/Learning Communities/
What are “Green” Job?

✓ Green Growth Occupations
  – Existing occupations expected to increase in demand due to the addition of greener processes. Some new skills are expected to be needed.

✓ Green Enhanced Occupations
  – Existing occupations that will experience significant change in work and worker skill requirements.

✓ Green New & Emerging Occupations
  – Unique new work and worker skill requirements. Will result in new occupations.
According to DOL, all of these occupations will exist in 12 industry sectors:

- Research Design & Consulting
- Manufacturing
- Renewable Energy Generation
- Green Construction
- Environmental Protection
- Transportation
- Government & Regulatory Administration
- Energy Efficiency
- Agriculture & Forestry
- Recycling & Waste Reduction
- Energy Trading
- Energy Carbon Capture
Types of jobs by occupation, by level of "green"  
(direct, indirect, or tangential, temporary vs. long term or other category)

<table>
<thead>
<tr>
<th>Job</th>
<th>Level of Green</th>
<th>Direct</th>
<th>Indirect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full Time</td>
<td>Part Time</td>
<td>Occasional</td>
</tr>
<tr>
<td>Electricians</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>AC</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Carpenters</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Equipment Operators</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Roofers</td>
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<tr>
<td>Insulation</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Steel Workers</td>
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<td></td>
<td>X</td>
</tr>
<tr>
<td>Sheet Metal</td>
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<td>X</td>
</tr>
<tr>
<td>Laborers</td>
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<td>X</td>
<td>X</td>
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<tr>
<td>Painters</td>
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<tr>
<td>Flooring</td>
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<tr>
<td>Glazers</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Masons</td>
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</table>
What are we doing now?

✓ Workforce Development
✓ Earth Day and Sustainable Workshops
✓ Recycling
✓ Curricular Innovation
✓ Stimulus Grants
✓ Apprenticeship and Training Coordinators Association of Hawaii (ATCAH)
✓ Campus Sustainability
OCET Tech 1

✓ Non-Credit Contract Training
✓ Green Certifications
✓ PCATT PV Installation & Training
**Memberships / Affiliations**

- USGBC
- Green Advantage
- National Home Builders Association
- USGBC Honolulu Chapter
- State Apprenticeship Council
- ATACH
- University of Hawaii & University of Hawaii Community College’s
- Pacific Center for Advanced Technology

**Partners**

- USGBC Honolulu Chapter
- State Apprenticeship Council
- ATACH
- University of Hawaii & University of Hawaii Community College’s
- Pacific Center for Advanced Technology
HCC Workforce Development

✓ HCC will begin offering Green Advantage Certification Training in Fall 2009
✓ HCC in partnership with the Honolulu Chapter of the USGBC will be offering LEED training beginning Fall 2009
✓ Other training is being developed and will be introduced during the Fall 2009
  – Green Building Maintenance
  – Energy Auditor Training
  – Building Commissioning
  – Train the Trainer (Apprenticeship)
HCC Workforce Development

✓ Tiered levels of certification (above and below foreman)
✓ Green Collar certification
✓ On-line certification services
  • Green Advantage Commercial Fall 2009
  • Weatherization Energy Auditor
  • Building/Home Energy Analyst
  • Certified Indoor Air Quality Manager

✓ Exam Proctoring
  • Pacific Center for Advanced Technology (PCATT)
Architectural Engineering & CAD

- AEC Advisory Board Recommended: Sustainable Technology Course
- AEC class designed “Green” Rail Transit Station
Sheet Metal & Plastics

✓ Reconfigure AC Ducts to generate electricity with fans connected to generators.
Welding: Virtual Welder Trainer
Developed by VRSim

Goal: Recreate the welding experience virtually:

✓ Real welding gun for input
✓ Measure movements
✓ Simulate the welding physics
✓ Create realistic visual / sound feedback
Who's using VR welding?

- General Dynamics Electric Boat
- Edison Welding Institute (EWI)
- US Army / Marine Corps
- South Dakota School of Mines and Technology
- 4Front Engineered Solutions
- Atscott Manufacturing Company
- Glenn Metalcraft Incorporated
- Lockheed Martin Corporation
- Northrop Grumman
- Schlagel Incorporated
- Team Industries
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Refrigeration & Air Conditioning

✓ Waste oil absorption system
✓ Recycling condensed air conditioner water
Construction Academy

✓ Green Pathways
Developed for High School Students

- In the Fall of 2009 we will be incorporating a Sustainability unit into our current curriculum. Through this we are preparing today's students to be tomorrow's green workforce.
- Students have already begun thinking green in our Drafting Program. This past school year students at Mililani High School designed and presented to DOE facilities a Green Portable Classroom.
Solar Decathlon

http://www.solardecathlon.org/
What can we do in the future?
✓ Reduce campus energy consumption
✓ Facilitate sustainability across the curriculum.
✓ Food system and waste sustainability
✓ Sustainable Coordinator for the Campus (on System-level Sustainability Council).
✓ Obtain funding for Campus Sustainability
✓ Create paid “green internship” program
Recycling at HCC

- Gregg Gruwell and Jerry Saviano loaded cardboard from the campus for recycling
Recycling at HCC

- Ken Johnson put up HI 5 bins in Bldg 5 Courtyard
Sustainable Curriculum at HCC

• Mike Ferguson incorporates sustainability and safety in chemistry lab courses as a part of the course grade. The courses are Chem 161L, 151L, 100L and 55. The labs are co-requisite with the lectures, so the lecture courses can be considered sustainability or environmental consciousness courses.
Sustainable Curriculum at HCC

- Ken Johnson created a SCI 193V Cooperative Education Course to give students an opportunity to develop knowledge and skills in Sustainability
Sustainable Curriculum at HCC

• Gopal recycles fish tank water for use in aquaculture garden for his SCI and OCEAN courses.
RFPs

• The sustainability committee is currently reviewing grant proposals for comprehensive energy conservation projects for HCC
System-Wide Committees

• HCC participates on a System-Wide Sustainability committee

• A team from UHM “Sustainable Saunders” Project is coming to HCC to assist us with sustainable projects

• We are developing a sustainable website for sharing information
What are you Doing?

• Send an email to Ken Johnson
  johnsonk@hcc.hawaii.edu