
HOUSE RESOLUTION

COMMENDING AND SUPPORTING THE PACIFIC INTERNATIONAL SPACE CENTER FOR EXPLORATION SYSTEMS' COLLABORATIVE WORK WITH THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AND PRIVATE INDUSTRIES IN THE AREAS OF BASALTIC CONCRETE AND ADDITIVE MANUFACTURING AND REQUESTING COLLABORATION TO EXPLORE OPPORTUNITIES FOR APPLICATIONS OF BASALTIC CONCRETE AND ADDITIVE MANUFACTURING.

1 WHEREAS, this body has been a strong supporter of the
2 Pacific International Space Center for Exploration Systems since
3 the Center's inception; and

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5 WHEREAS, the Pacific International Space Center for
6 Exploration Systems has gained substantial visibility at the
7 National Aeronautics and Space Administration and various
8 international space agencies; and

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10 WHEREAS, the Pacific International Space Center for
11 Exploration Systems has entered into research and development
12 alliances with various private industry partners, including
13 HoneyBee Robotics, Ontario Drive Gear, and Shackleton Energy;
14 and

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16 WHEREAS, as a result of the similarity of Hawaii's volcanic
17 dust and lava to the regolith on the surface of the Moon and
18 Mars, the Pacific International Space Center for Exploration
19 Systems is assuming a global leadership role in the development
20 of technologies that potentially will support the manufacture of
21 concrete and other materials that may be used to construct
22 facilities on other planetary bodies; and

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24 WHEREAS, despite Hawaii's abundance of basalt in lava
25 fields that could be used as a sustainable substitute for
26 conventional concrete, almost all of the concrete used
27 throughout the State is imported; and

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29 WHEREAS, current market demand for concrete in Hawaii is
30 primarily met through cement and asphalt imports, making
31 research and development to support innovative technologies in



1 basalt concrete composition and delivery an attractive and self-
2 sustaining alternative to continued reliance on cement and
3 bitumen imports; and
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5 WHEREAS, new volcanic basalt and regolith based structural
6 materials can be created in-situ using sintering, sulfur
7 binding, polymer binders, thermite self-sintering, and synthetic
8 biology binders; and
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10 WHEREAS, new robotic technologies and digital manufacturing
11 will allow three dimensional additive construction to be
12 conducted on a large scale; and
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14 WHEREAS, the Pacific International Space Center for
15 Exploration Systems is one of four strategic partners that have
16 been invited by the National Aeronautics and Space
17 Administration to participate in a two to three year National
18 Aeronautics and Space Administration funded research program on
19 three dimensional additive construction using basalt regolith;
20 now, therefore,
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22 BE IT RESOLVED by the House of Representatives of the
23 Twenty-seventh Legislature of the State of Hawaii, Regular
24 Session of 2014, that this body commends and supports the
25 Pacific International Space Center for Exploration Systems' work
26 in basaltic concrete and additive manufacturing, in
27 collaboration with the National Aeronautics and Space
28 Administration and various private industries; and
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30 BE IT FURTHER RESOLVED that the State is requested to
31 collaborate with the Pacific International Space Center for
32 Exploration Systems, county agencies, and private industries to
33 explore opportunities for applications of basaltic concrete and
34 additive manufacturing to reduce Hawaii's dependence on imported
35 concrete; and
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1 BE IT FURTHER RESOLVED that certified copies of this
2 Resolution be transmitted to the Administrator of the National
3 Aeronautics and Space Administration, Director of the Office of
4 Aerospace Development, and Chairperson of the Board of Directors
5 of the Pacific International Space Center for Exploration
6 Systems.
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HS
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Nicole E. Loran

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