
SENATE CONCURRENT 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
4

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
9

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
15

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
23

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



1 WHEREAS, current market demand for concrete in Hawaii is
2 primarily met through cement and asphalt imports, making
3 research and development to support innovative technologies in
4 basalt concrete composition and delivery an attractive and self-
5 sustaining alternative to continued reliance on cement and
6 bitumen imports; and

7
8 WHEREAS, new volcanic basalt and regolith based structural
9 materials can be created in-situ using sintering, sulfur
10 binding, polymer binders, thermite self-sintering, and synthetic
11 biology binders; and

12
13 WHEREAS, new robotic technologies and digital manufacturing
14 will allow three dimensional additive construction to be
15 conducted on a large scale; and

16
17 WHEREAS, the Pacific International Space Center for
18 Exploration Systems is one of four strategic partners that have
19 been invited by the National Aeronautics and Space
20 Administration to participate in a two to three year National
21 Aeronautics and Space Administration funded research program on
22 three dimensional additive construction using basalt regolith;
23 now, therefore,

24
25 BE IT RESOLVED by the Senate of the Twenty-seventh
26 Legislature of the State of Hawaii, Regular Session of 2014, the
27 House of Representatives concurring, that this body commends and
28 supports the Pacific International Space Center for Exploration
29 Systems' work in basaltic concrete and additive manufacturing,
30 in collaboration with the National Aeronautics and Space
31 Administration and various private industries; and

32
33 BE IT FURTHER RESOLVED that the State is requested to
34 collaborate with the Pacific International Space Center for
35 Exploration Systems, county agencies, and private industries to
36 explore opportunities for applications of basaltic concrete and
37 additive manufacturing to reduce Hawaii's dependence on imported
38 concrete; and

39
40 BE IT FURTHER RESOLVED that certified copies of this
41 Concurrent Resolution be transmitted to the Administrator of the
42 National Aeronautics and Space Administration, Director of the
43 Office of Aerospace Development, Director of Business, Economic
44 Development, and Tourism, and Chairperson of the Board of



- 1 Directors of the Pacific International Space Center for
- 2 Exploration Systems.

