

MAR 07 2014

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# 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  
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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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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, and Chairperson of the Board of



# S.C.R. NO. 83

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

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OFFERED BY: Will Eyo

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