HOUSE OF REPRESENTATIVES TWENTY-SEVENTH LEGISLATURE, 2014 STATE OF HAWAII

H.C.R. NO. 193

HOUSE 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.

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

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

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

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

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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WHEREAS, current market demand for concrete in Hawaii is 1 primarily met through cement and asphalt imports, making 2 research and development to support innovative technologies in 3 basalt concrete composition and delivery an attractive and self-4 sustaining alternative to continued reliance on cement and 5 bitumen imports; and 6 7 WHEREAS, new volcanic basalt and regolith based structural 8 materials can be created in-situ using sintering, sulfur 9 binding, polymer binders, thermite self-sintering, and synthetic 10 biology binders; and 11 12 WHEREAS, new robotic technologies and digital manufacturing 13 will allow three dimensional additive construction to be 14 conducted on a large scale; and 15 16 WHEREAS, the Pacific International Space Center for 17 Exploration Systems is one of four strategic partners that have 18 been invited by the National Aeronautics and Space 19 Administration to participate in a two to three year National 20 Aeronautics and Space Administration funded research program on 21 three dimensional additive construction using basalt regolith; 22 now, therefore. 23 24 BE IT RESOLVED by the House of Representatives of the 25 Twenty-seventh Legislature of the State of Hawaii, Regular 26 Session of 2014, the Senate concurring, that this body commends 27 and supports the Pacific International Space Center for 28 Exploration Systems' work in basaltic concrete and additive 29 30 manufacturing, in collaboration with the National Aeronautics and Space Administration and various private industries; and 31 32 BE IT FURTHER RESOLVED that the State is requested to 33 collaborate with the Pacific International Space Center for 34 Exploration Systems, county agencies, and private industries to 35 explore opportunities for applications of basaltic concrete and 36 additive manufacturing to reduce Hawaii's dependence on imported 37 38 concrete; and 39 BE IT FURTHER RESOLVED that certified copies of this 40 Concurrent Resolution be transmitted to the Administrator of the 41 National Aeronautics and Space Administration, Director of the 42 43 Office of Aerospace Development, and Chairperson of the Board of



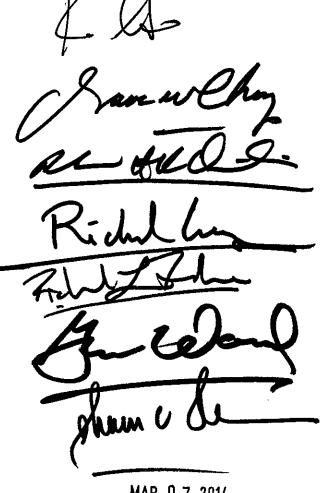


Directors of the Pacific International Space Center for 1

Exploration Systems. 2

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