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CHRISTER FUGLESANG SPACE CENTER -

- DESIGNING AND CONSTRUCTING A SUSTAINABLE SPACE CENTER

Cecilia Hertz, Founder and Managing Director, Umbilical Design

International Workshop on Environment and Alternative Energy

Madrid, November 13, 2015

CREW RETURN VEHICLE X38

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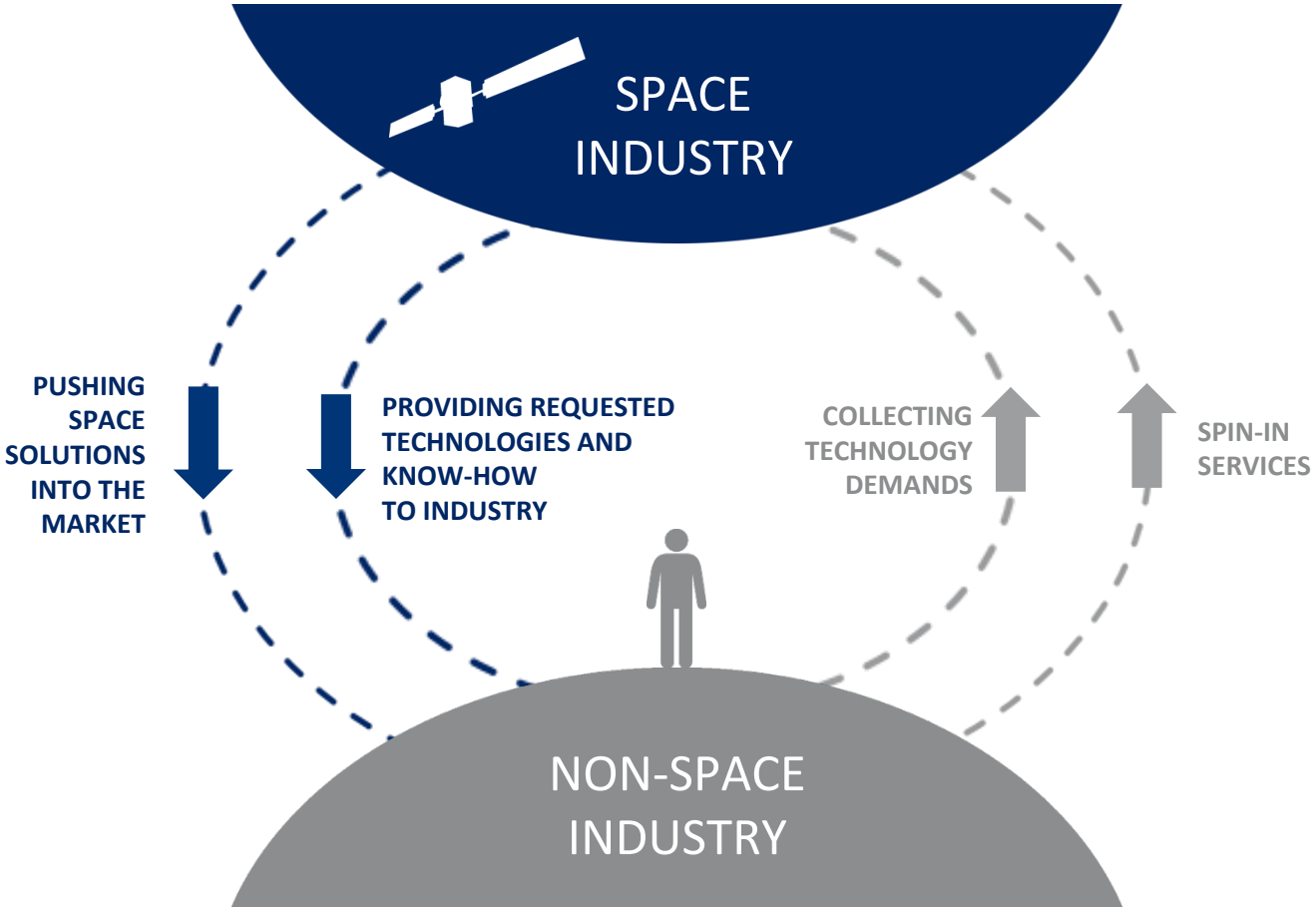
ESA PATENTS PORTFOLIO	BROKER NETWORK	AMBASADOR PLATFORM	BUSINESS INCUBATION	INVESTMENT SUPPORT
150 inventions covered by **450** patents	**14** BROKERS **280** TRANSFERS	**14** AMBASSADORS	**11** CENTRES **80** new start-ups p/y **250** SUCCESSES	Venture Capital Fund Investment Forums and training

BROKER ROLE


SPACE INDUSTRY
PUSHING SPACE SOLUTIONS INTO THE MARKET
PROVIDING REQUESTED TECHNOLOGIES AND KNOW-HOW TO INDUSTRY
COLLECTING TECHNOLOGY DEMANDS
SPIN-IN SERVICES
NON-SPACE INDUSTRY

ESA space solutions NETWORK

ESA Technology Transfer Network

LEGEND

- ESA Broker
- ESA Broker Prime Contractor

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ÅF – PARTNER UMBILICAL DESIGN

NORDIC LEADER IN TECHNOLOGY, CONSTRUCTION & INFRASTRUCTURE WITH 7000 CONSULTANTS

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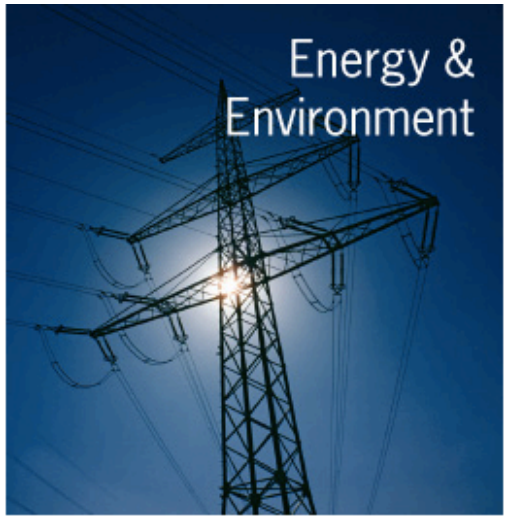

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ESA ROUNDTABLE

10+11 NOV 2014, STOCKHOLM - SWEDEN

Highlight of 2014: ESA Roundtable, co-organised by ESA and Umbilical Design. Participants from 6 countries in the space and non-space sector sharing insights on Sustainable Development.

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ESA ROUNDTABLE - FIELD VISITS

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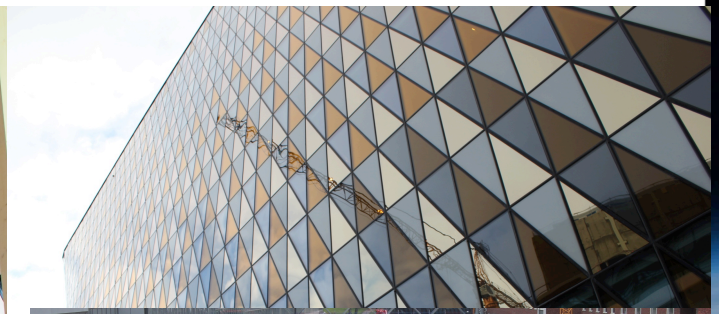
Aula Medica, Solna - **Award-winning building including prize for best Swedish building 2014.**



New Karolinska Solna, Solna. High-specialist hospital with its own energy production

ÅF Headquarters, Solna, **Sweden's first Green Building**

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ESA SPACE SOLUTIONS NETWORK

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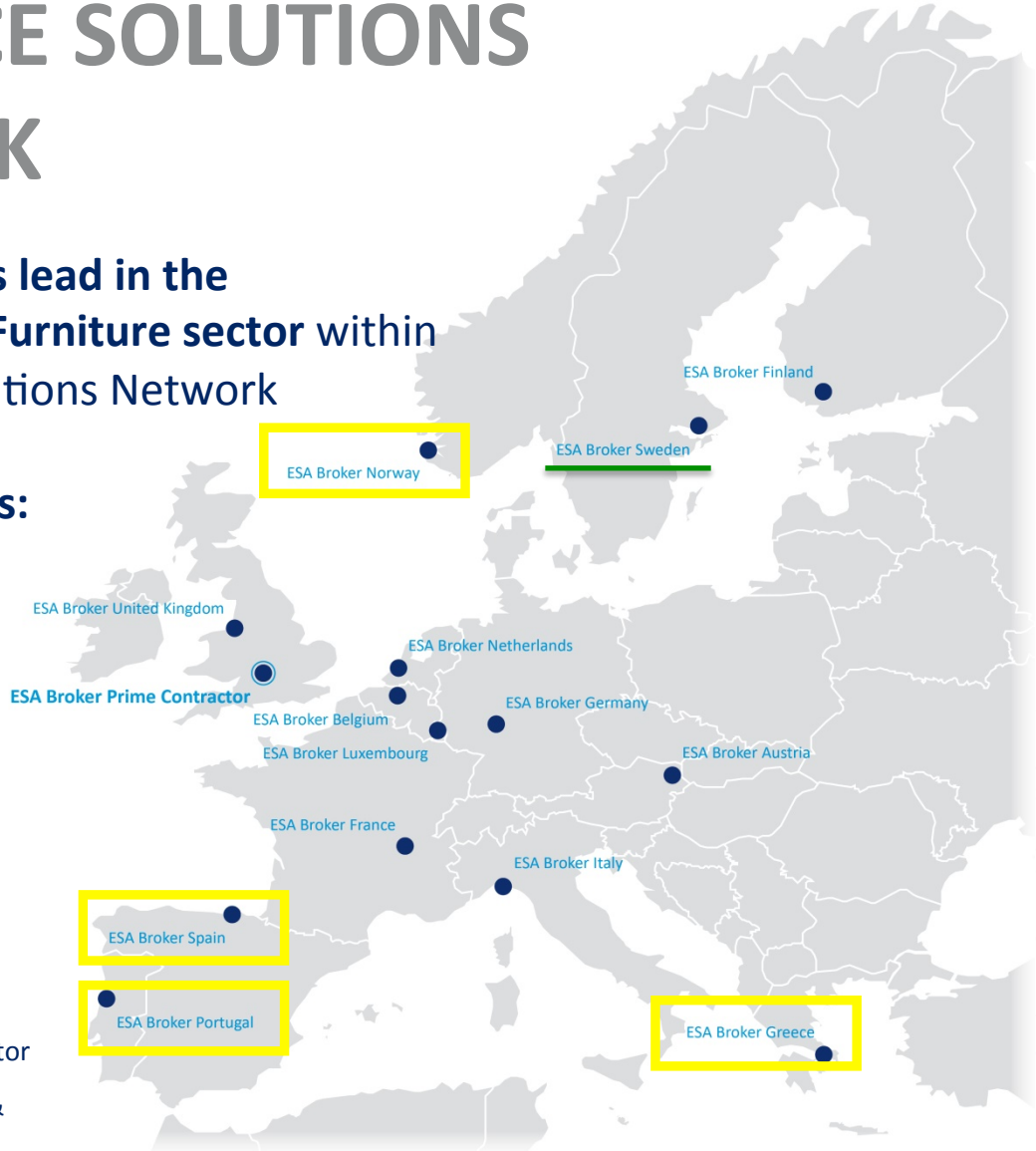
Umbilical Design is lead in the Construction and Furniture sector within the ESA Space Solutions Network

Supporting brokers:
- **IPN**, Portugal
- **KINNO**, Greece
- **Prekubator**, Norway
- **Tecnalia**, Spain



LEGEND

- ESA Broker
- ESA Broker Prime Contractor
- ESA Broker Construction & Furniture Responsible
- Supporting ESA Brokers in Construction & Furniture

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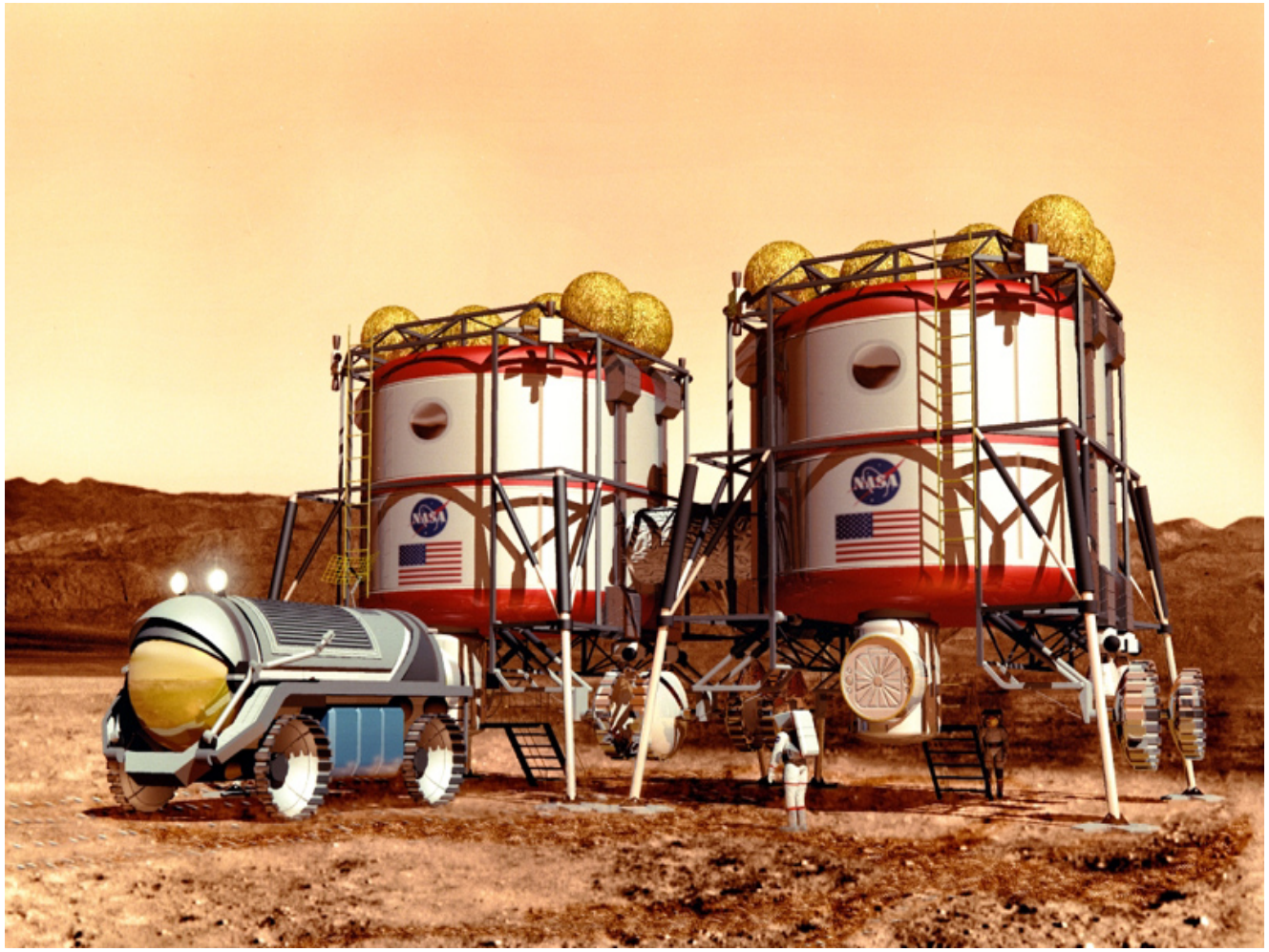
MARS HABITATION



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MEGA CITIES

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SWEDISH DELEGATION AT NASA AMES, JUNE 2013 AND OCTOBER 2015

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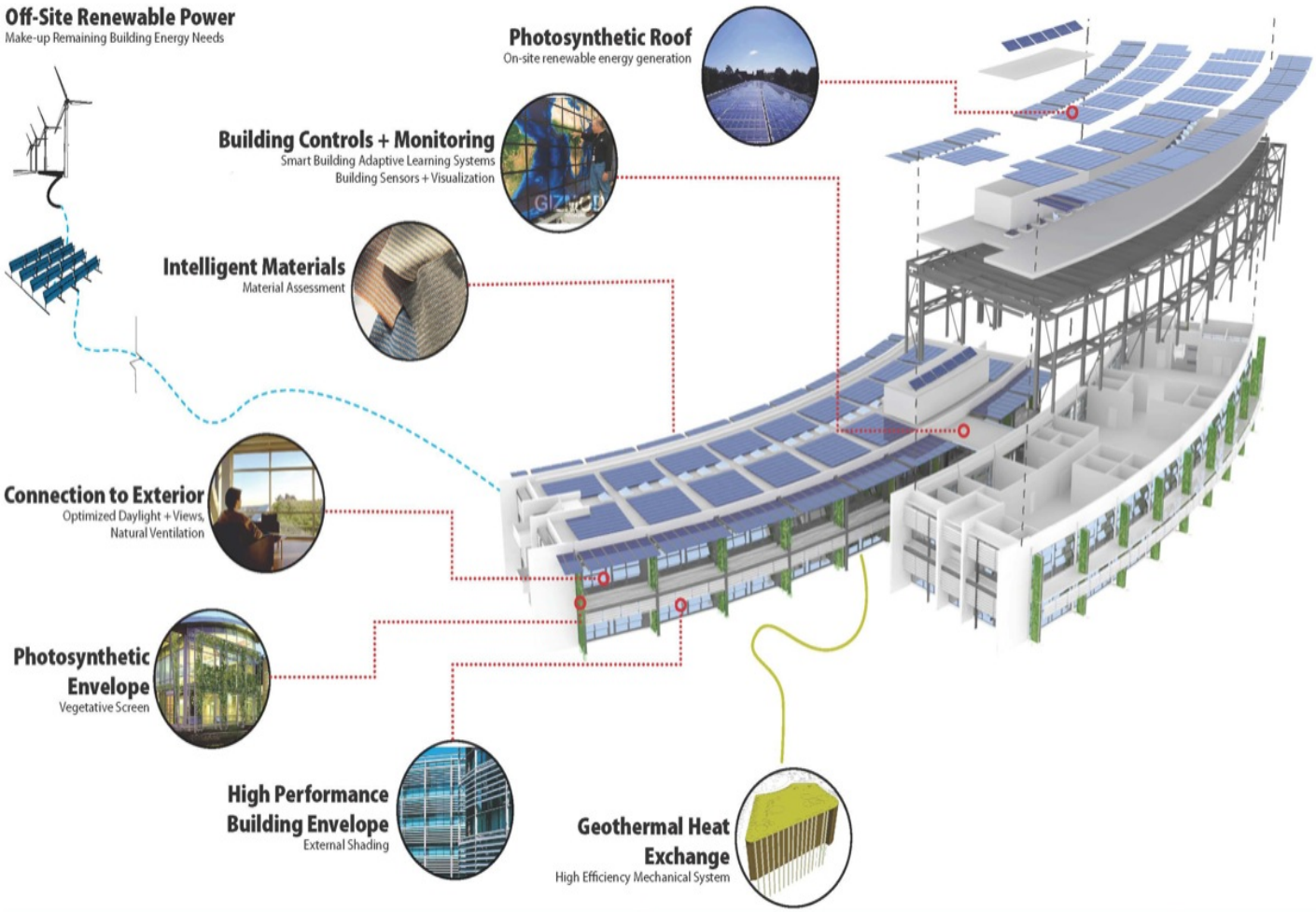
Sustainability Base, NASA Ames



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…could become a sister building to NASA Sustainability Base.

Possible Sweden – US space cooperation for the future adding knowledge from the ESA Technology Transfer Network!

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Christer Fuglesang Space Center - Vänföreningen

För inspiration och lärande.

Christer Fuglesang Space Center

For Inspiration and Learning

A space center with ambitions!

Purpose of the future CFSC:

1. Show how **advanced technology developed from the space sector improves everyday life**, products and services, and helps solve global challenges.

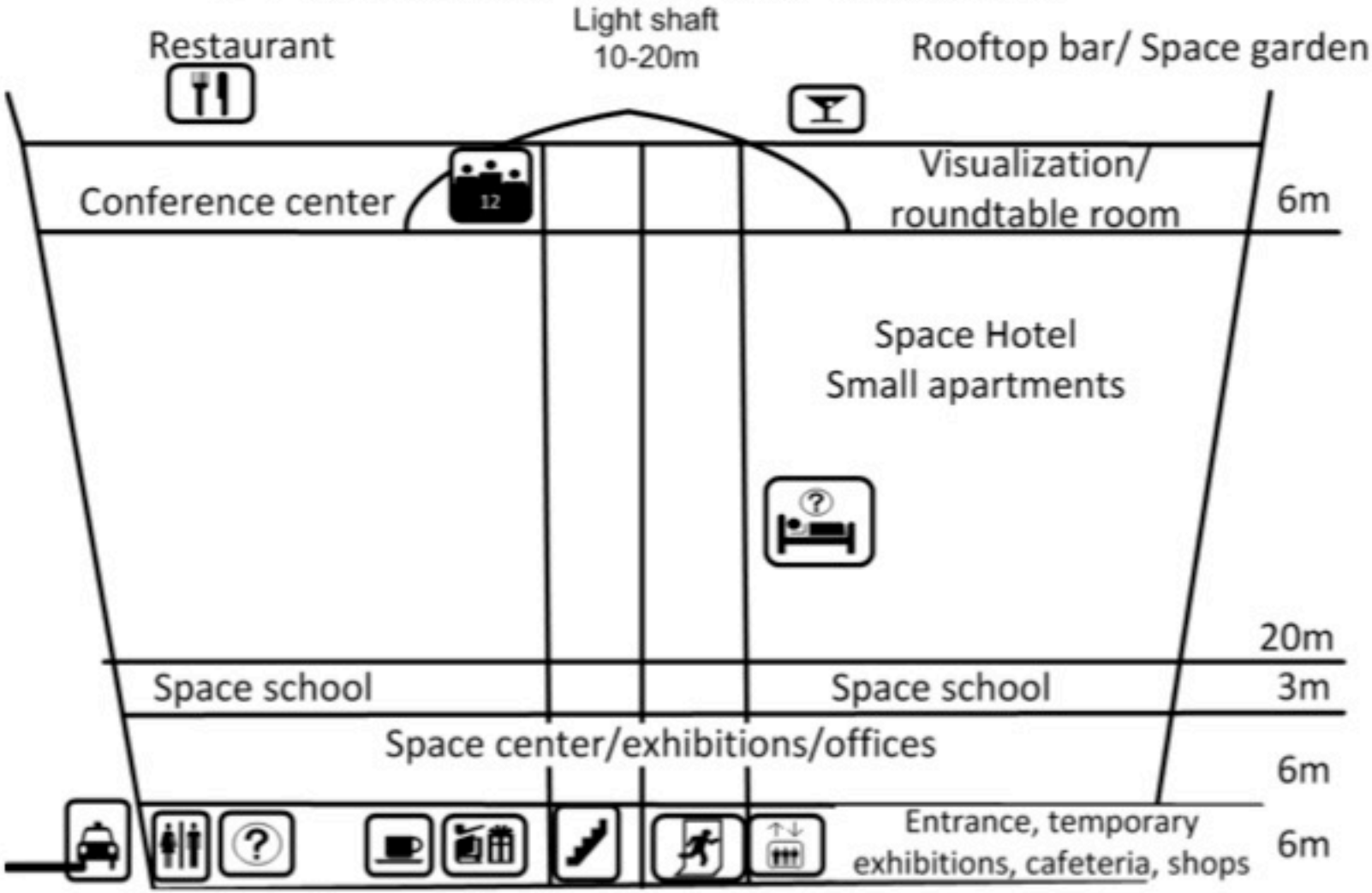
2. Help concretizing "highflying" knowledge with down-to-earth activities and **function as a platform for national and international cooperation.**

3. **Open the door to the young generation** who are interested in exploring and pass the borders of our knowledge of a sustainable environment, space and natural sciences.

4. Enhance and elevate Sweden as an **attractive location both on a national and global level.**

From outer space to nanospace

A house full of space



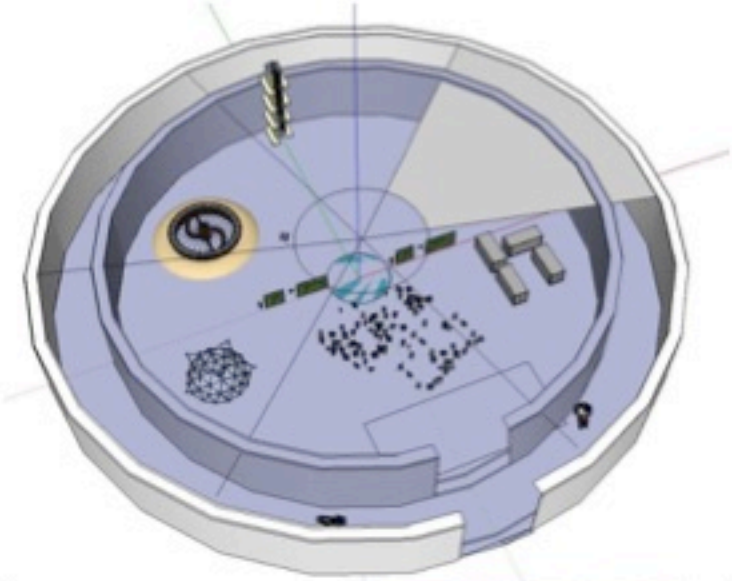
Sustainable building and energy positive

The building utilizes lessons learnt from space explorations…

…and could become a sister building to NASA Ames Sustainability Base

Entrance

• Café and restaurant	800m^2+ 100m^2(outdoors)
• Information/amenities	200m^2
• Shop(s)	400m^2
• ”Space travel”	400m^2
• Entrance of the Space Center	800m^2
• **Total:**	**2 700m^2**



Space Center floor 1 & 2

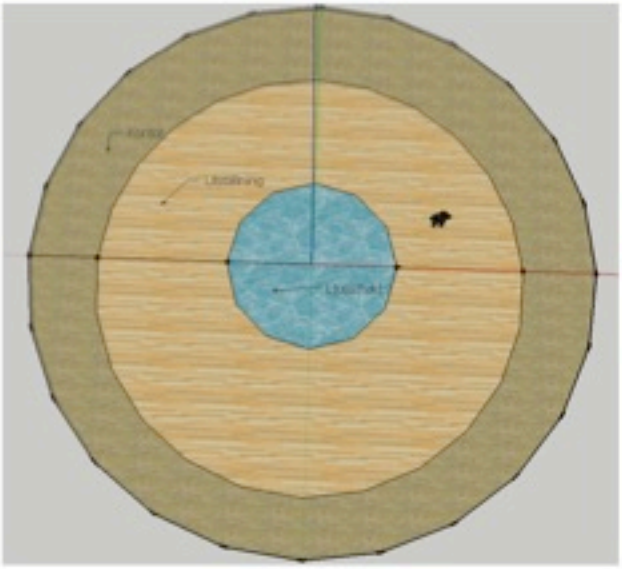
Floor 1

- Inspiration and learning/exhibition(s) 2 500m^2

Floor 2

- Offices in the surrounding corridor 1 500m^2

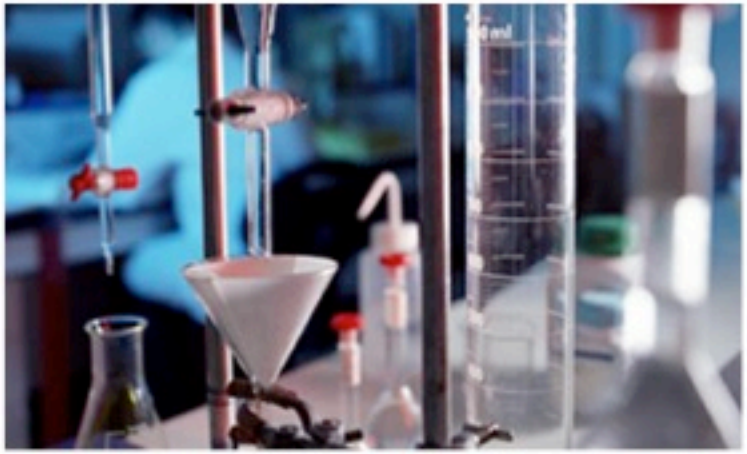
Total: 4 000m^2

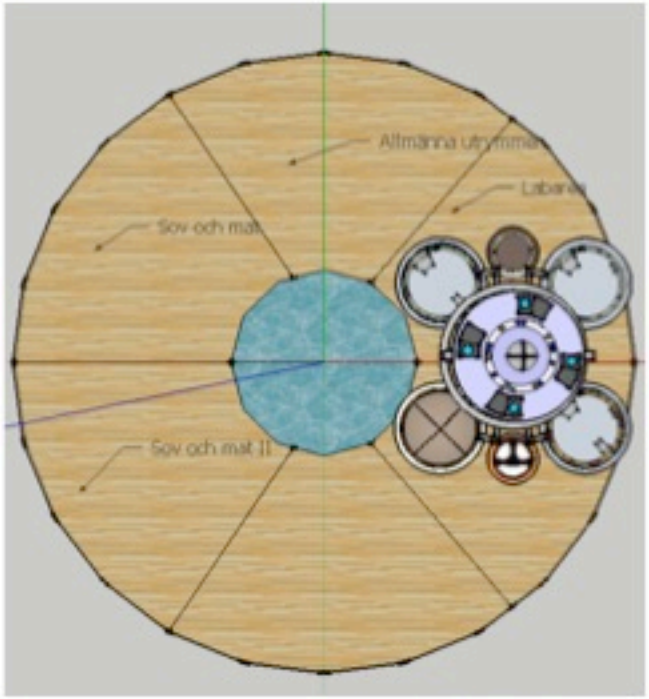


”Space school”, floor 3

Education:

- Lecture/meeting rooms
- Physics/Chemistry/Biology labs
- Dining rooms and common areas
- Study/work rooms
- Bedrooms
- Showers/toilets





”Space hotel”, floor 4-8

Different room types:

- Hotel rooms (25m^2)
- Apartments (50m^2)

Total (incl common areas):
~13 000m^2

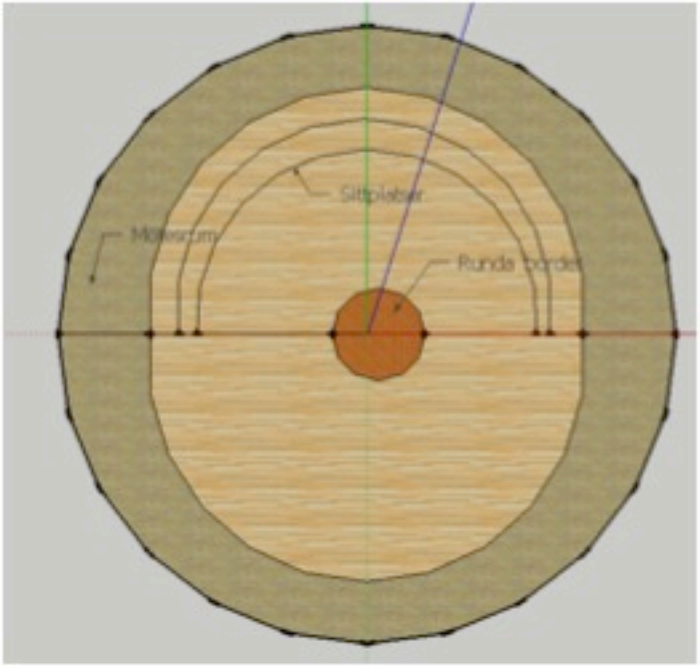
Conference Center, floor 9-10

Organised meetings, big and small

- Conference hall/visualization center 2 400m^2
- Meeting rooms 600m^2

Total: **~ 3 000m^2**

- **Room for around 1000 people**



Roof top restaurant and bar, space garden, floor 11

Space adventure

- Rooftop bar & restaurant 200m^2
- Space garden 2 300m^2
- Shaft 300m^2

- **Total: 2 800m^2**

Meeting place for education and research

The center will communicate the benefit of space research and its practical applications

Offices for companies and researchers (with access to laboratories close to the working place), room for temporary exhibitions.

Digital Planetarium/
Conference room/
Dome cinema
Real time space updates
"TED" talks

Exhibition of Swedish Space History and Christer Fuglesang in Space

- Swedish space history from its start already in 1959 with space research and rockets from Norrbotten, and up to recent international cooperations with ESA and NASA
- Sweden's role in space history
- Exhibition on Christer Fuglesang, how to become an astronaut and how to live in space

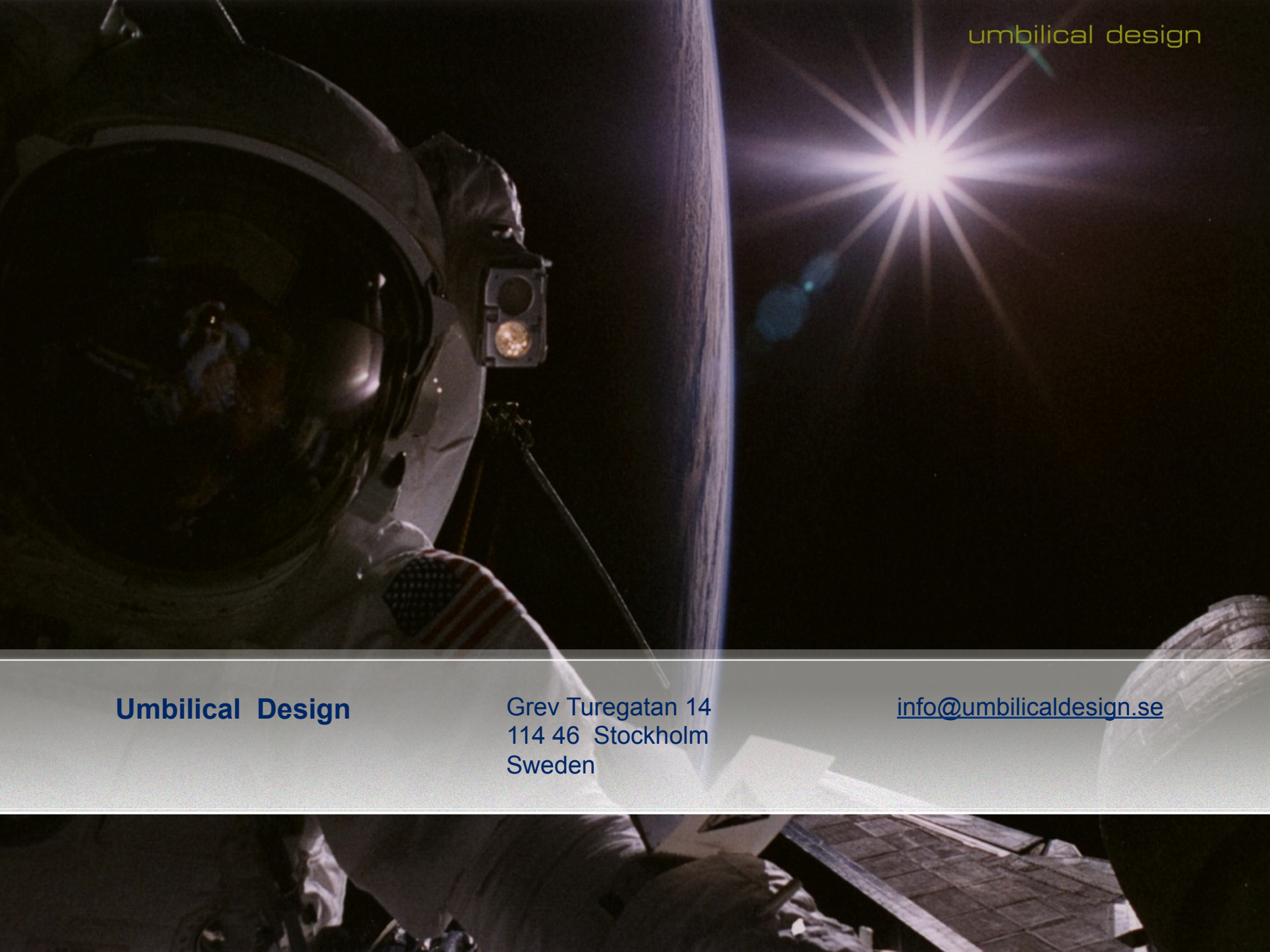
Christer Fuglesang Space Center - Vänföreningen

CFSC - Vänföreningen

The board

- **Ulf Johannisson** (Chairperson), MBA HHS, management consultant, urban planning
- **Ann Lindegren Westerman** Architect & Tekn Dr (Ph D) KTH, Man Dir Albatross
- **Lisa Fuglesang** MSc KTH, spouse
- **Sven Grahn** MSc & HonDr KTH, Swedish Space "grand-old-man", formerly SSC
- **Cecilia Hertz** MSc Industrial Design, Lund, founder/owner of Umbilical Design
- **Peder Jonsson** MSc KTH, communication senior partner, Kreab
- **Christer Persson** MSc KTH, Project Mgr for visionary projects, Business Coach
- **Heike Schneider** Physicist, SU, SSC, Cosmonova, The National Museum of Science and Technology

Thank you!



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