

21st OSCE ECONOMIC AND ENVIRONMENTAL FORUM

“Increasing stability and security: Improving the environmental footprint of energy-related activities in the OSCE region”

CONCLUDING MEETING

Prague, 11 – 13 September 2013

Session III

EEF.NGO/33/13

12 September 2013

ENGLISH only

Improve the environmental footprint

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How will we live tomorrow?

Cities are growing.



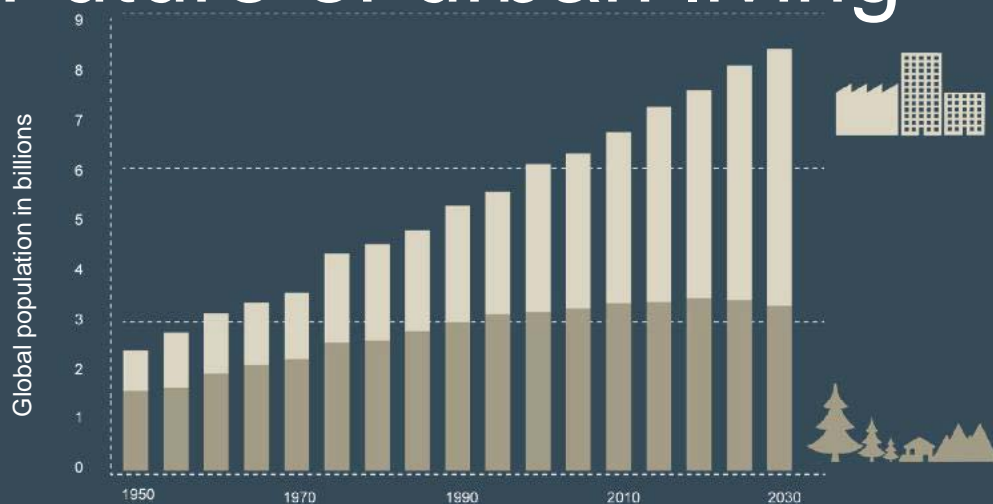
Over 50%

of the worlds population lives
in cities with more than 1 million residents.

Source: UN, United Nations World Population Report, 2008



Future of urban living



An aerial photograph of a city skyline, featuring the Burj Khalifa as the tallest building. The sky is filled with dramatic, dark clouds. The city below is a dense collection of skyscrapers and modern buildings, with a highway and other infrastructure visible in the foreground.

Further and further up to the sky?

Up to 800 meters high, the skyscraper characterizes the image of world cities.

An aerial photograph of a residential development built on a narrow coastal strip. The houses are arranged in a grid-like pattern, with a road and a canal or waterway running through the middle. The ocean is visible on the left side of the image.

Unsustainable situations



How do we build today?



40%
of the current resource and energy
consumption are caused by
the building industry.

How heavy is 1kg of copper ?

Or how heavy is 1kg of steel?
What kind of question is this?
1 kg weighs 1 kg. Does it?

What 1 kg „really“ weighs:



- STEEL

1 kg of steel weighs not only 1, but also 8 kg.

In order to produce 1 kg of steel it is necessary to remove approximately 8 kg of natural resources from the earth.



COPPER

1 kg of copper extracts 348 kg from the earth.

It is well known that we use a lot of these in our traditional buildings.

2012



If we continue our current lifestyle...

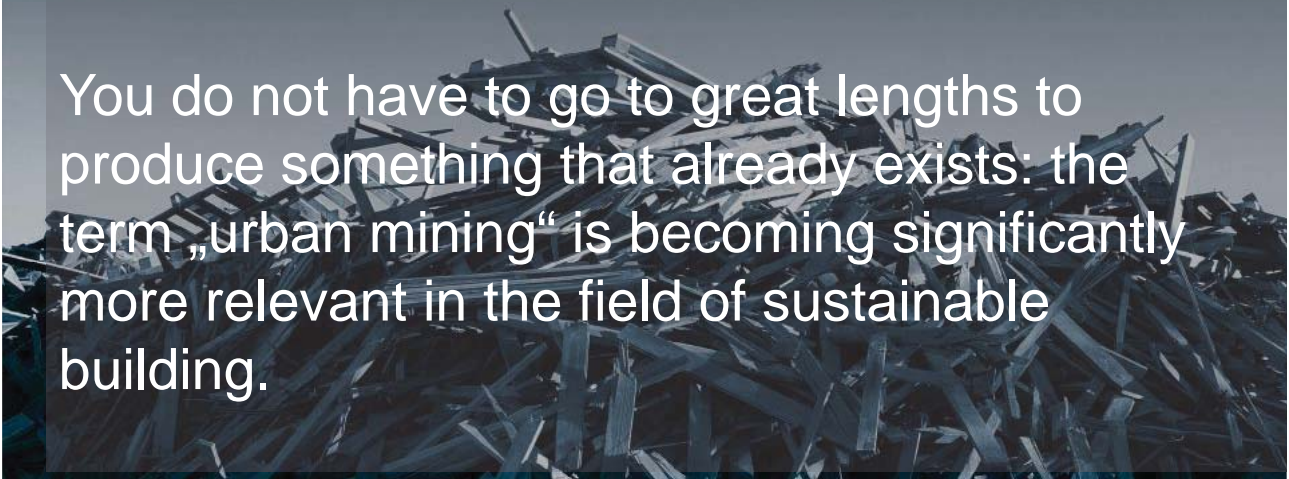
2030



...by 2030, at the very latest, we will need two planets to keep up our human demands for goods and services.

Urban mining: rubble is valuable

You do not have to go to great lengths to produce something that already exists: the term „urban mining“ is becoming significantly more relevant in the field of sustainable building.



Urban mining

- › We know the materials
- › We know how many materials have been used in the building – and where
- › We know how to make these materials reusable



How should we build in cities?

- › minimal consumption of resources
- › energy efficient
- › economical
- › fast
- › adequate space on a small footprint





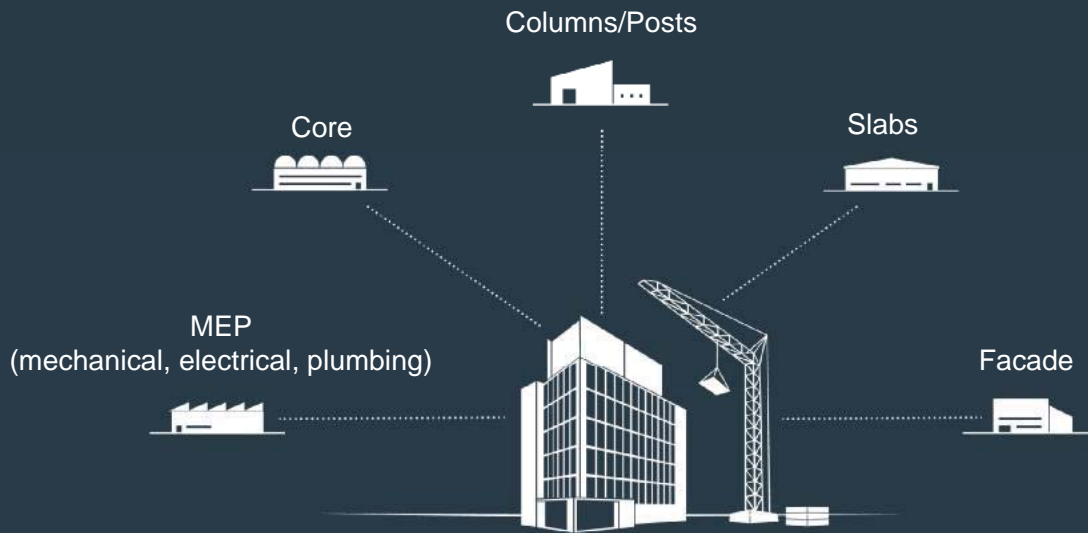
Wood:
a natural renewable
material



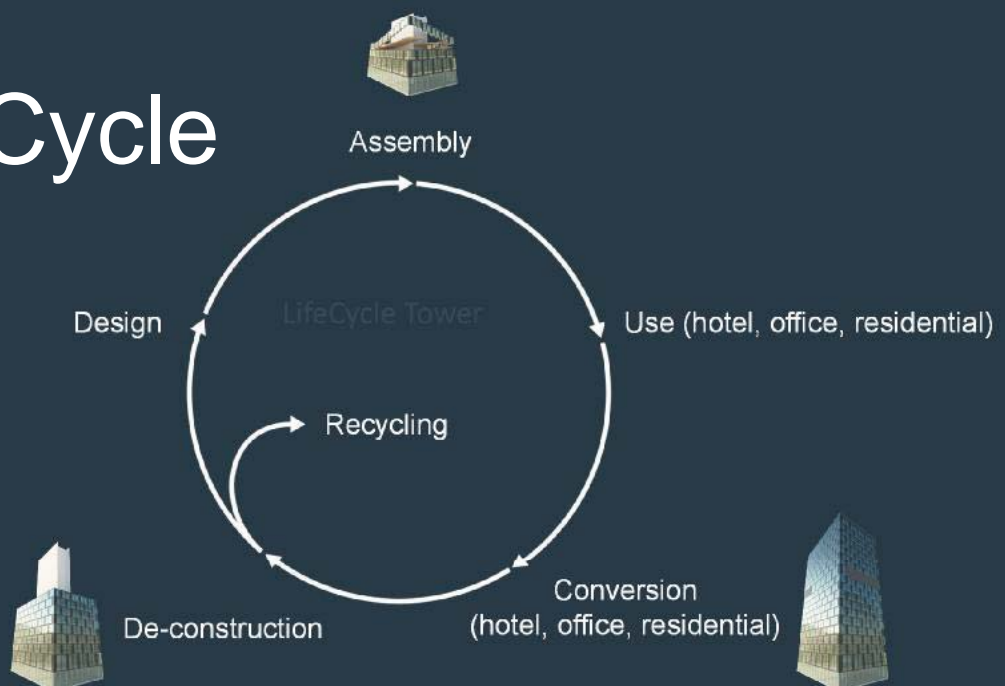
LifeCycle Tower

- › up to 30 storeys
- › a hybrid-timber construction system
- › 90% improved CO₂-balance
- › lower dust/noise disruption during
- › short construction period

Prefabricated System



Life Cycle





Fire protection

Wood burns. Right.
But wood burns „safely“.



LCT ONE

Location: Dornbirn/Austria

Client: Cree GmbH

Start: September 2011

Completion: July 2012

Dimensions: length 24 m,
width 13 m, height 27 m

Stories: 8

Floor space: ca. 2.500 m²

Cubage: ca 7.500 m³

Day 1



Day 2



Day 3



Day 4



Day 5



Day 6



Day 7



Day 8





LCT-One Dornbirn

- Demonstration Building in the project CEC5 of the Leadpartner Regionalentwicklung Vorarlberg
- Evaluated with the CESBA tool for a sustainable building
- Exhibition on 3 floors
 - Floor 1 - sustainability of construction and regional economic cycles
 - Floor 2 - facility management
 - Floor 3 - the role model of public building
- www.cesba.eu, www.projectcec5.eu



This project is implemented through the CENTRAL EUROPE Programme co-financed by the ERDF.



LCT TWO: IZM

Location: Montafon/Austria

Client: Vorarlberger Illwerke AG

Start: March 2012

Completion: August 2013

Dimensions: length 120 m,
width 16 m, height 21 m

Stories: 6

Floor space: ca. 11.500 m²

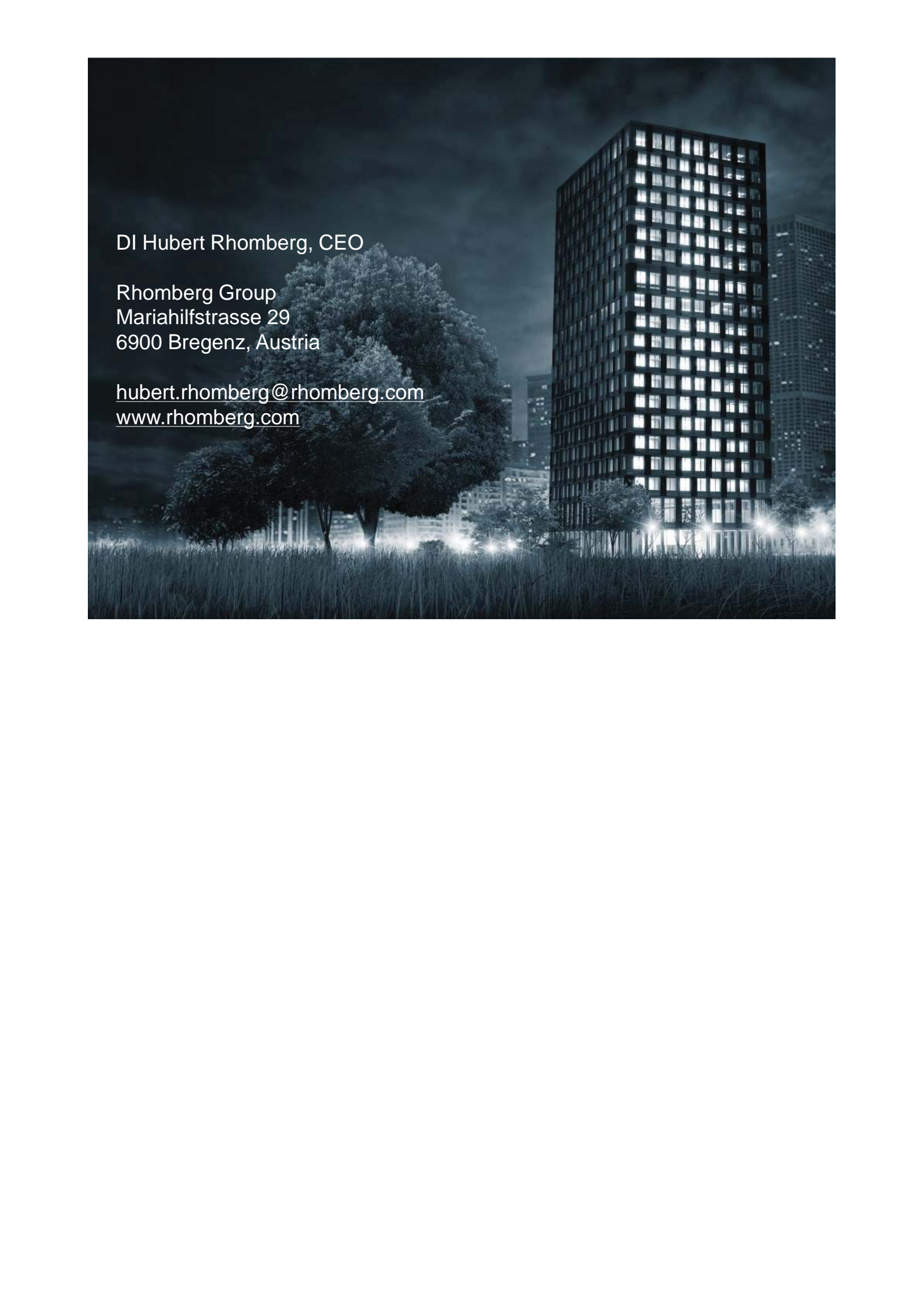
Cubage: ca 45.000 m³



Change is needed

- › reduction to carbon dioxide
- › usage of CO₂-storage technology
- › adaption of laws and regulations
- › first mover approach for public institutions & buildings
- › sharing know-how and duplicate system for different markets





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