



WElink/CNBM's Innovative Solution

Addressing The UK's Affordable Housing Needs

July 2016

Section I

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Who we are

BHS Partner Profiles



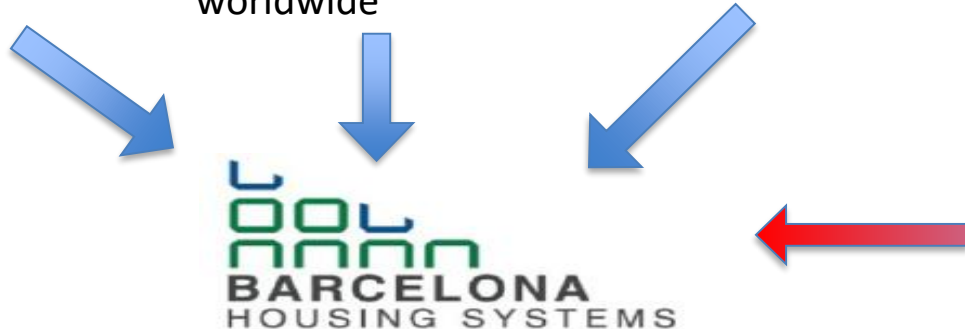
- Multinational firm founded in 2007, specialising in renewable energy and affordable housing
- 70+ team with significant industry experience and track record
- Well-established global strategic relationship with CNBM for renewable energy and affordable homes



- Leading Chinese SOE, listed on HK SE with assets in excess of \$55 billion
- World's largest provider of building materials and a Fortune 500 Company
- Extensive track record and experience in building materials, construction & infrastructure projects worldwide

Cesar Martinell & Associates

- 100-year-old leading European architectural firm
- Notable projects include the Guggenheim, Olympic Village (Barcelona)
- Extensive experience in large complex building projects



- Cooperation agreement for BHS project 3

Our Construction & Building Materials Partner



CNBM

- **China National Building Materials (“CNBM”)** is the largest construction materials group in the world – no. 1 in glass, cement and gypsum manufacture, and a leader in steel wood and composites
- **CNBM** is a Fortune 500 Chinese state owned company - is listed on the Hong Kong Stock Exchange with **total assets in excess of US \$55 billion**
- **CTIEC**—its engineering platform—is positioned as a leading international science, technology and engineering group with a strategy to follow emerging technologies and markets
- As such CNBM / CTIEC strive to secure **long-term strategic partnerships with major global companies:**



SIEMENS



In recent years, with CNBM's strategic focus on three **rapidly developing industries** (new building materials, new housing and new energy materials), CTIEC has **aggressively entered the “Affordable Housing” market:**

- Rapidly increasing it’s engineering & construction capability
- Strong balance sheet and financial backing to offer project based financial solutions
- Investing in technology for clean energy and energy efficiency





CNBM

▶ CNBM's Credentials:

- CNBM has participated in billions of dollars of construction & infrastructure projects across the globe – including Asia, Europe, and the Americas

▶ CNBM, BHS, WELink Energy, and British Solar Renewables: £1.1bn UK Framework Agreement

- In October 2015 BHS / WELink signed a master EPC framework contract with CNBM and BSR for the build-out of 300+ MW of UK PV projects' pipeline and up to 4,000 affordable homes in the UK
- The terms of the agreement provide a turnkey solution to the projects and include the provision of construction finance



Combining our unique approach to this global opportunity with a partner of the strength and experience of CNBM is one of our outstanding advantages to create a significant footprint in the affordable housing market going forward

Section II

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A UK Housing Solution

BHS: Addressing the UK Government Affordable Housing Challenge

GOVERNMENT REQUIREMENTS

- Initial target of 400,000 new homes not capable of being met by traditional industry (could be even larger opportunity given land availability)
- Policy to move to zero-carbon houses by 2019/2020
- Need to provide quality and appropriate standard of accommodation for UK
- Need to reduce energy dependence and mitigate grid requirements
- Need to create jobs from the housing and construction sector
- Need to provide certainty of delivering number of dwellings, affordability, quality targets

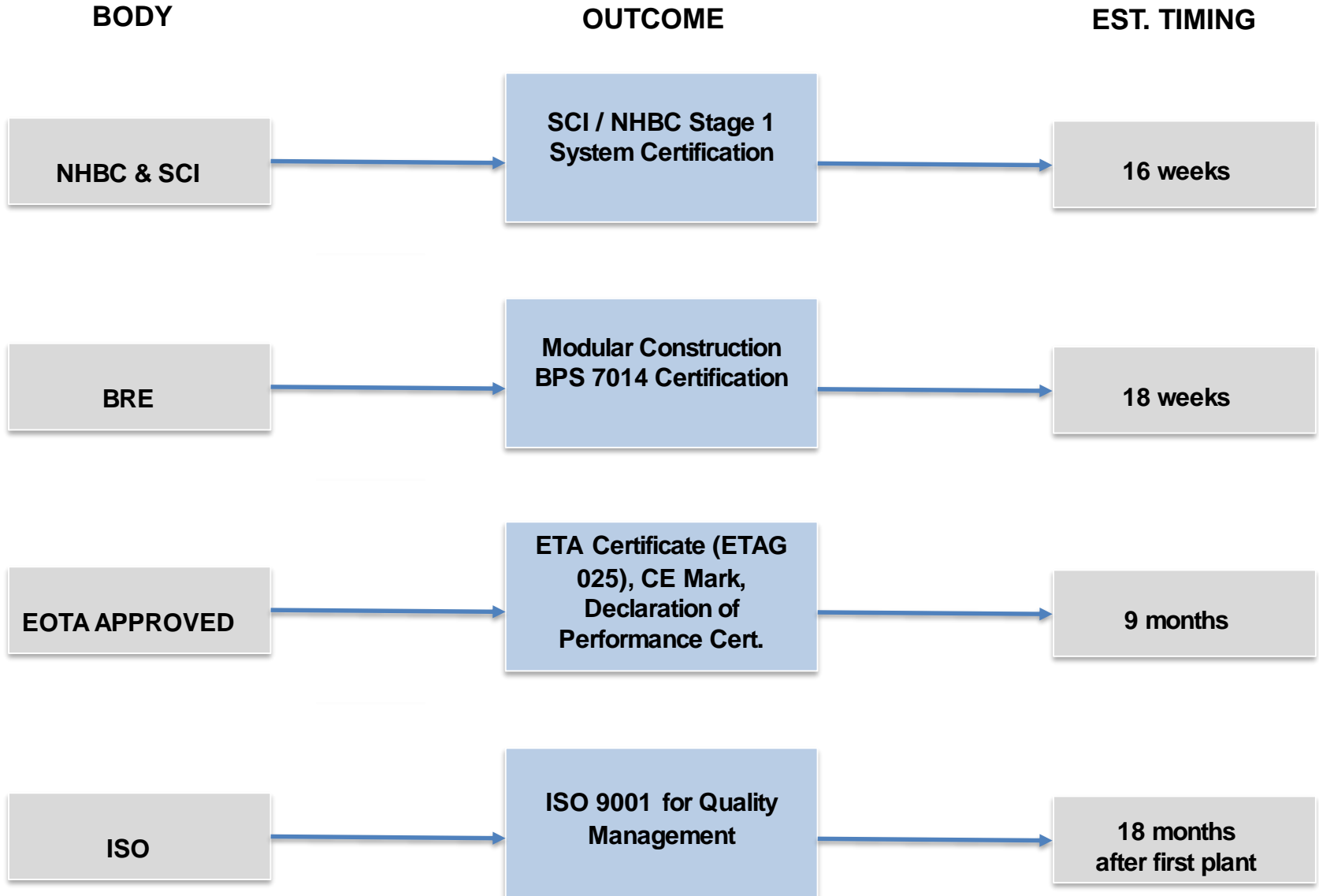
BHS SOLUTION

- BHS provides a fully-funded solution adopting an industrialisation approach that can be deployed quickly and in scale
- We have a near-zero carbon new home solution that is ready now
- We have factory-made precision-engineered finished home product ready to assemble on site that will meet all building regulations
- Our homes are 75% off-grid moving to 90-95% incorporating storage technology
- 200 local jobs created (unskilled and skilled) per factory and more during assembly.
- We bring the world's leading building material company CNBM with their industrial and financial strength

Immediate Build Role-Out Plan

- GOVERNMENT TO IDENTIFY TOP 5 PRIORITY SITES WITH A VIEW TO BUILDING 200-400 UNITS IN EACH, FOLLOWED BY A FURTHER 1000-2000 UNITS PER AREA**
- INITIAL BUILD TARGET OF 40,000 UNITS WITH ENERGY INTEGRATION**
- CNBM/WELINK TO CREATE FACTORY SITES IMMEDIATELY, THEREBY CREATING LOCAL JOBS AND ADDRESSING SIGNIFICANT HOUSING NEEDS**
- STRATEGY FOR ACCELERATED FULLY FUNDED ROLL-OUT APPROVED AT CNBM BOARD LEVEL**

Regulatory Certification Timetable



What We Can Deliver

- ❑ **Fully funded construction** of affordable housing with energy-efficient solution
- ❑ Deliver **eco-friendly high quality, multi-family modular homes** at an **affordable price**
- ❑ A **rapid speed-to-market** product
- ❑ **Industrial approach** to scale and flexibility
- ❑ Latest **renewable technology** incorporating storage (reference enclosed Case Study)
- ❑ **Financial strength** to ensure deliverability and burden on Government is minimal
- ❑ **Provision of consumer/mortgage finance** through leading global bank
- ❑ **Substantial economic benefits** to local and regional communities
 - Job creation in excess of 200 per plant
 - Household cost savings due to efficient energy solution
- ❑ **Leading expertise in the sector** from around the world, from design to lock-up
- ❑ **A partnership approach** where the government **retains ownership of the land** and addresses its **affordable housing objectives**

Section III

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Overview of our BHS Solution

Our Comprehensive Solution

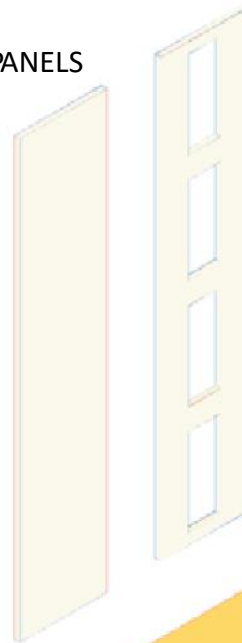


BHS: Modular Approach

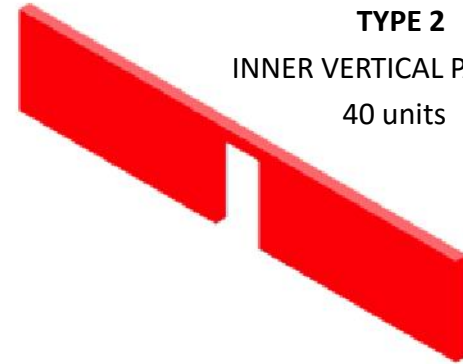
The Lego Concept



TYPE 4
OUTER VERTICAL PANELS
30 units



TYPE 2
INNER VERTICAL PANELS
40 units



TYPE 1
HORIZONTAL PANELS
100 units



TYPE 3
INSTALLATION PANELS
32 units



BHS: State-of-the-Art Factory

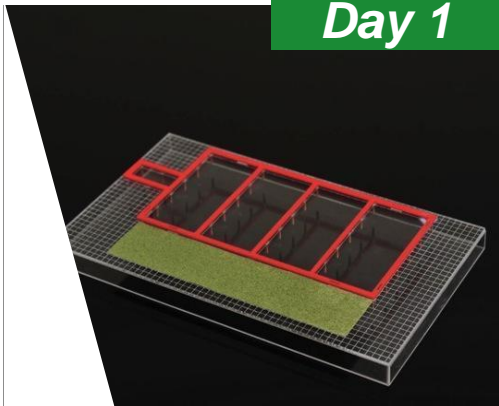


BHS: On-Site Construction

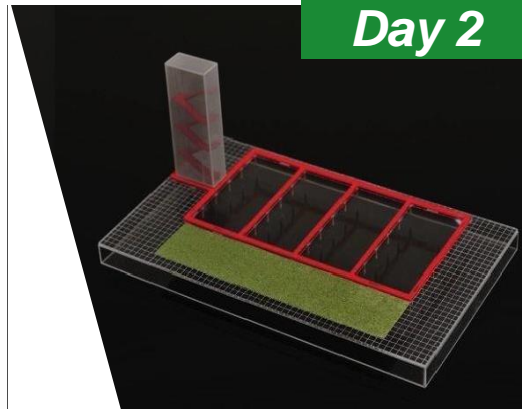


BHS: On-Site Assembly Schedule

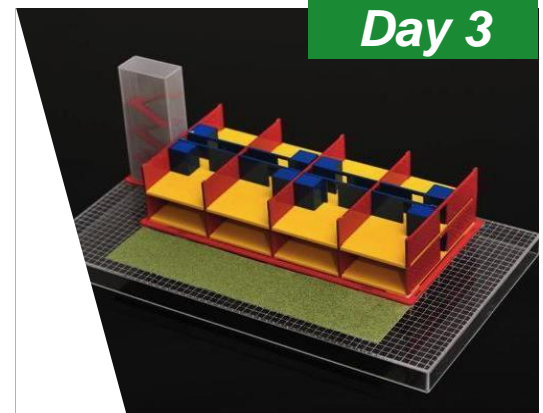
Day 1



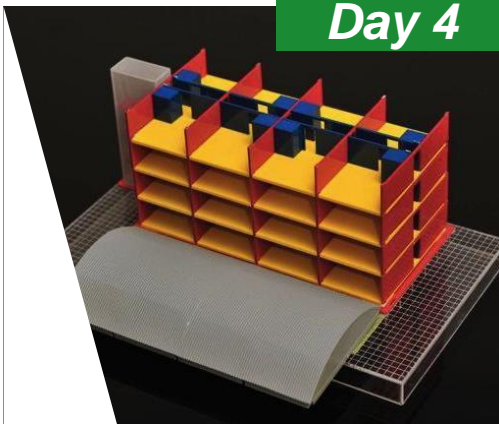
Day 2



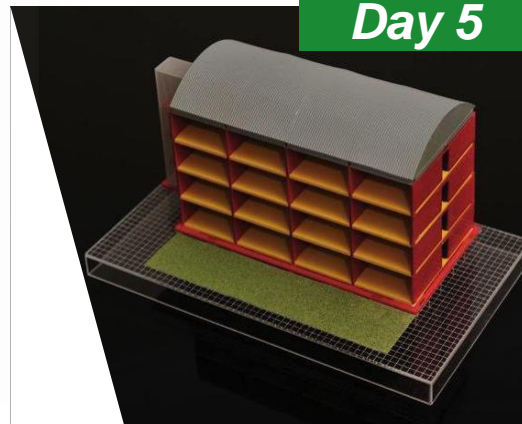
Day 3



Day 4



Day 5



Day 6



Our “Greentown” Solution

WE ARE BUILDING THE NEW COMMUNITIES OF THE FUTURE



Benefits of Our “Greentown” Solution



- ECONOMICAL
- ECO-FRIENDLY
- MODULAR & SCALABLE
- FAST COMPLETION
- OFF GRID
- LARGE SCALE
- HIGH QUALITY
- SOCIAL DEVELOPMENT
- LOCAL NON-SKILLED EMPLOYMENT
- PROVIDE SAFETY

Within the unit high quality feel



Very modern exterior to units



BHS Building Performance Passive Design Solutions

MATERIALS

- recycled materials
- no waste , no cement , no water

LIGHT STEEL PANELS

Horizontal and vertical panels with fireproof boards and insulation

TERRACES

Freestanding terraces as optional element on the west / east side

ROOF

Light metallic roof with MW sandwich panel with low U-value ($0,20 \text{ W/m}^2\text{K}$)

WINDOWS

PVC windows with very low U-value ($1,1 \text{ W/m}^2\text{K}$)

FACADE

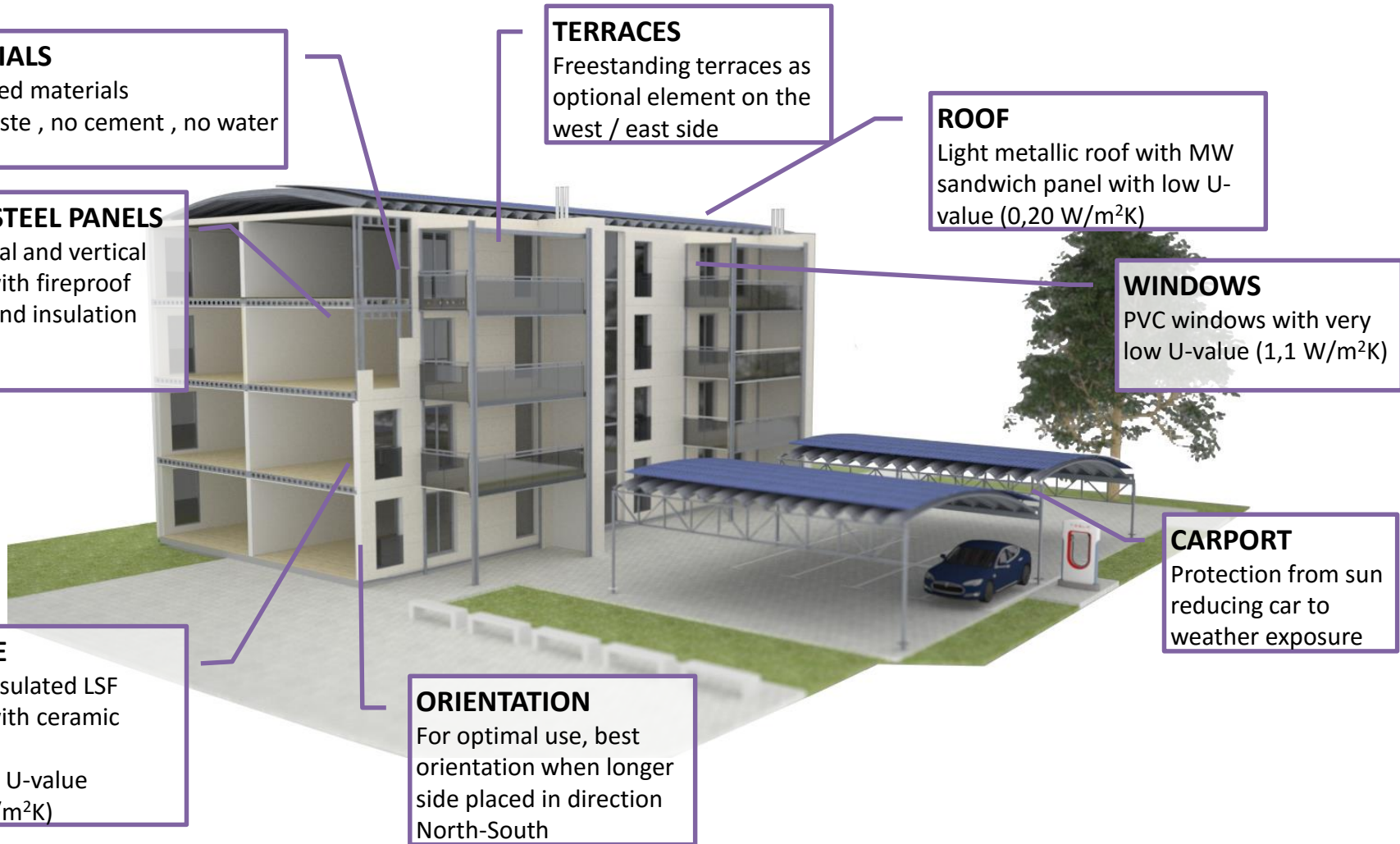
Highly insulated LSF panels with ceramic finish with low U-value ($0,25 \text{ W/m}^2\text{K}$)

ORIENTATION

For optimal use, best orientation when longer side placed in direction North-South

CARPORT

Protection from sun reducing car to weather exposure



BHS Building Performance Active Technologies

ROOF
Solar water heating

ROOF
Solar PV – 31.8 kWp
combined with storage
capacity 72 kWh

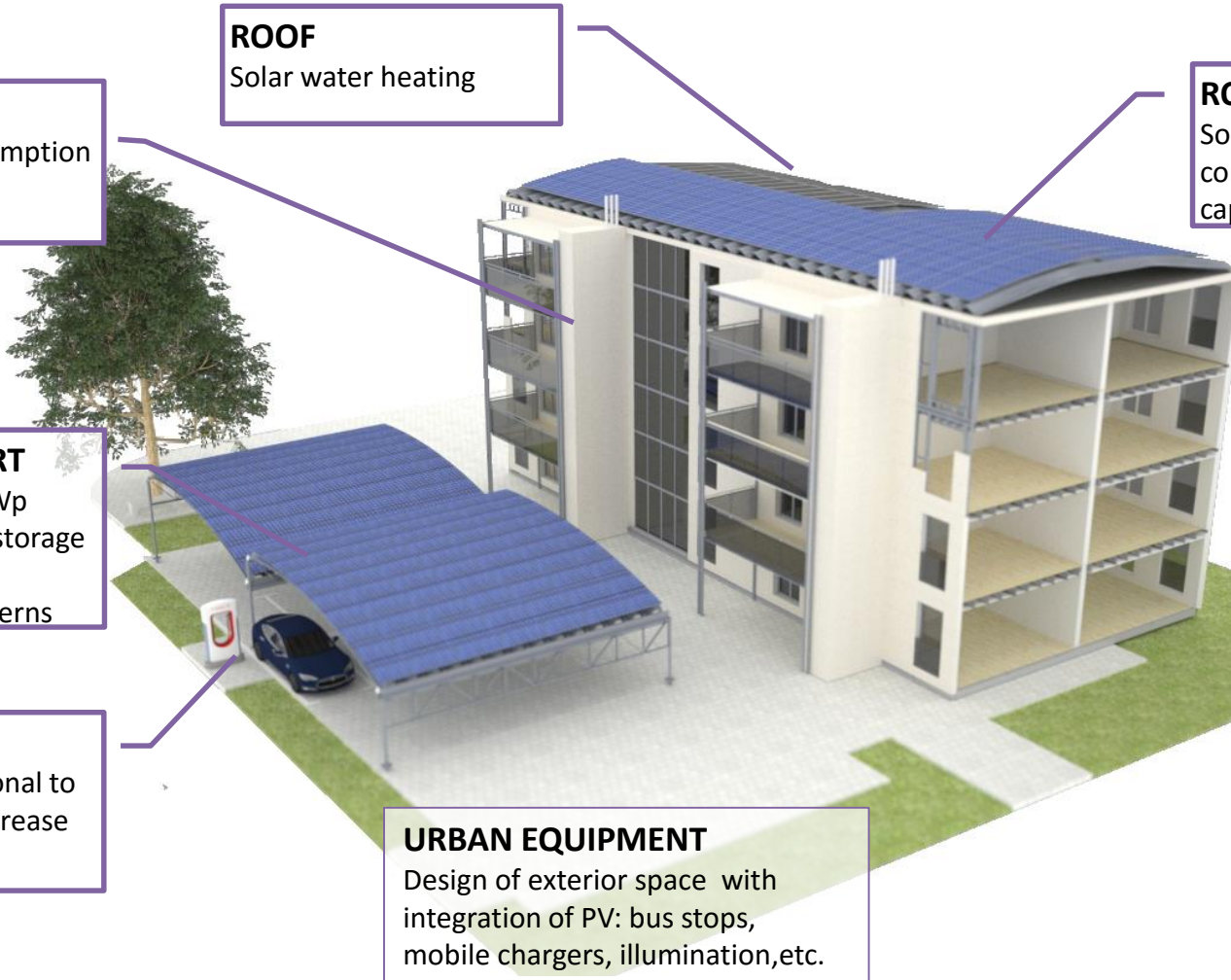
HVAC
Low energy consumption
HVAC systems

SOLAR CARPORT
Solar PV – 32.5 kWp
combinable with storage
according to
consumption patterns

EV CHARGER
May be bi-directional to
allow V2G and increase
storage capacity

URBAN EQUIPMENT
Design of exterior space with
integration of PV: bus stops,
mobile chargers, illumination, etc.

Active
technologies
that will
deliver &
optimize the
little energy
consumption
to reduce the
bills



Addressing the Energy Crisis and Fuel Poverty

Near-Zero Building Case Study

Comparing BHS and standard apartment consumptions:

▶ Average UK apartment (70 sq m):

Electrical consumption per apartment with electrical heating:

105 kWh / m² year -> 7350 kWh / year

- Approx. 50% corresponds to heating

▶ BHS apartment (70 sqm):

Electrical consumption with high efficiency heat pump heating:

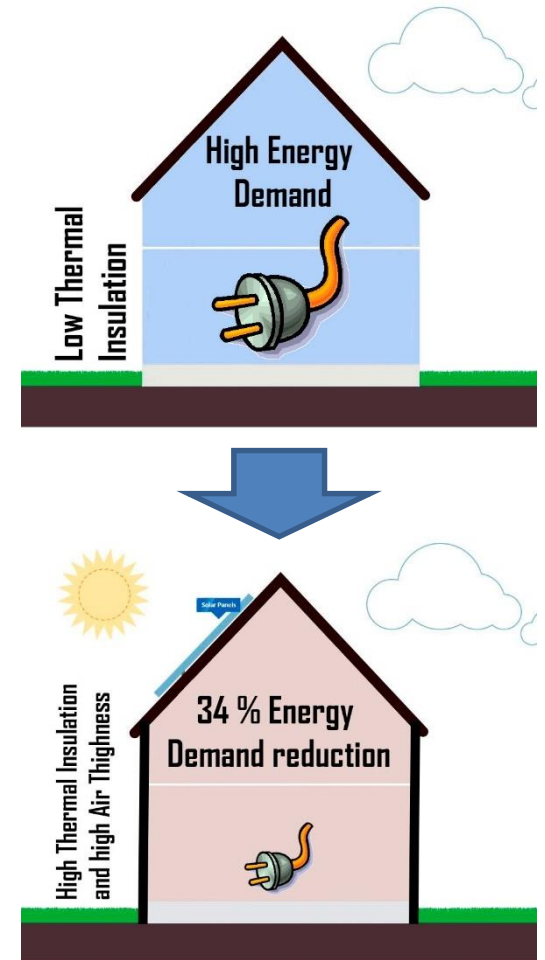
69.6 kWh / m² year -> 4872 kWh / year

- Approx. only 24% corresponds to heating

Savings in Overall Electrical Consumption 2,478 kWh/year (34%)

PV Generation fr: 2356 kWh/y (Roof) + 945 kWh/y (Solar Carport)

**BHS solution -> Near Zero / Low Carbon
Energy Building**



BHS advantages vs traditional construction systems

TRADITIONAL CONSTRUCTION SYSTEM

VS

BARCELONA HOUSING SYSTEMS



100 MT

Cement needed to construct an UBA size building



0 MT

No cement needed

TRADITIONAL CONSTRUCTION SYSTEM

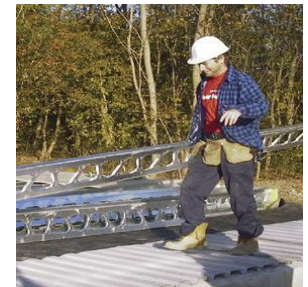
VS

BARCELONA HOUSING SYSTEMS



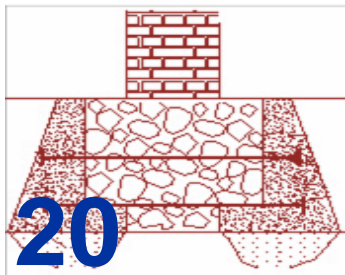
1350 MT

Weight of an traditional UBA size building



195 MT

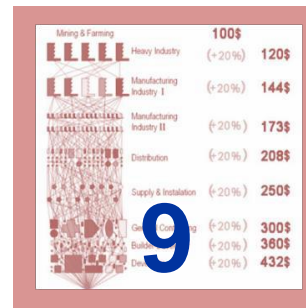
Weight of a BHS UBA size building



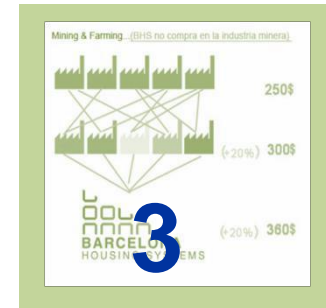
20 Days* Labor intensive
Uses cement and water rigid foundation



1 Day automated process
No use of cement or water



9 Steps = 100%
Too many operators

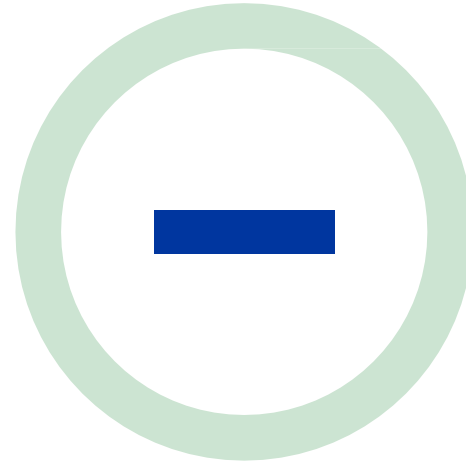
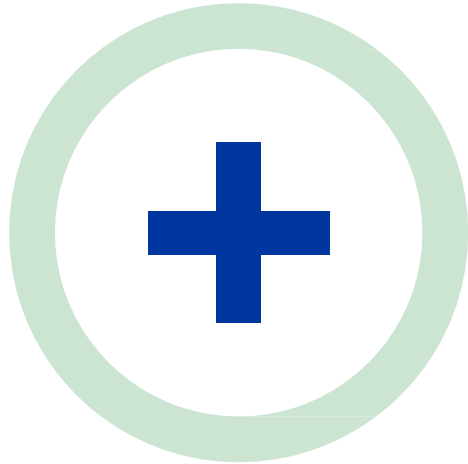


3 Steps = 100%
Strictly the number of operators needed

* Days needed for foundation in an UBA sized building

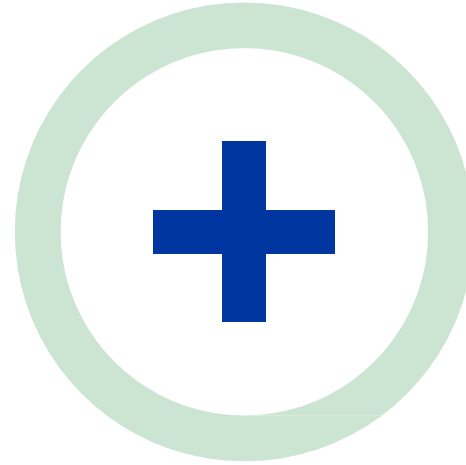
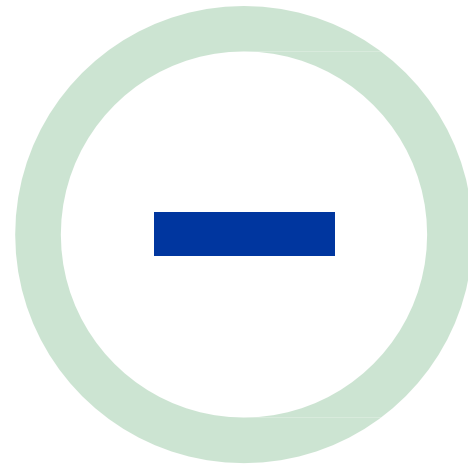
BHS: Value Proposition

QUALITY



TIME

PRICE



SAFETY*

**Greater hurricane, quake, and flood-resistance*

Section IV

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Copiapo, Chile BHS Case Study

1. Foundations



Assembly
sequence



2. Stairs



Assembly
sequence

1

2

3

4

5

6

7

3. Horizontal Panel



Assembly sequence



4. Vertical Panel



Assembly sequence



5. Façade Panel



Assembly
sequence

1

2

3

4

5

6

7

6. Utilities Panel



Assembly sequence



7. PV Roof



Assembly
sequence

1

2

3

4

5

6

7

7. PV Roof



Assembly
sequence



7. PV Roof



Assembly
sequence





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OOL
nnnnn
BARCELONA
HOUSING SYSTEMS**

We are building the future



WElink/CNBM's Innovative Solution

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