Renovation of De Beursgebouw
Heritage & Architecture
Adapting 20C Heritage

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P5 presentation
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Yu Li
I. What?
II. Why?
III. How?
I. What kind of building De Beursgebouw is?

II. Why is De Beursgebouw worth conserving?

III. How can De Beursgebouw help the city achieve a better future while maintain its values?
I. What kind of building De Beursgebouw is?

II. Why?

III. How?
I. What
   -- Site
   -- Structure
   -- Skin
   -- Space
   -- Scheme
   -- Position

II. Why?

III. How?
What

De Beursgebouw
Residential area

Office area

City center

Spatial Joint

Isolated Island
I. What

II. Why is De Beursgebouw worth conserving?

III. How
Why

De Beursgebouw
<table>
<thead>
<tr>
<th>Indifferent Value</th>
<th>Medium Value</th>
<th>High Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HISTORICAL VALUE</td>
<td>ARTISTIC VALUE</td>
<td>USE/ECONOMIC VALUE</td>
</tr>
<tr>
<td><strong>SITE AND SURROUNDING</strong></td>
<td>Designed to be part of city traffic infrastructure.</td>
<td>2004, Ground parking.</td>
</tr>
<tr>
<td><strong>BUILDING</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SKIN</strong></td>
<td>Curved window frame.</td>
<td>Contract of material of different parts.</td>
</tr>
<tr>
<td><strong>STRUCTURE</strong></td>
<td>Main structure is in good condition.</td>
<td></td>
</tr>
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</table>

Non-Commemorative Value (View From Train)
<table>
<thead>
<tr>
<th>Social Value</th>
<th>Residential area</th>
<th>City center</th>
<th>Office area</th>
</tr>
</thead>
</table>

### SITE AND SURROUNDINGS
- The building was the first office building in Shenhua Blvd.

### BUILDING
- Designed to be part of city traffic infrastructure.
- Central parking.
- On the junction of residential and office zones.
- Part of city skyline, first building on the train.

### SKIN
- Curtain window frames.
- Content of material of different parts.
- Prefabricated facade components in good condition. Lighting, thermal, acoustic performance are great.

### STRUCTURE
- Main structure is in good condition.
- Large spans and column free.
<table>
<thead>
<tr>
<th>Indifferent value</th>
<th>HISTORICAL VALUE</th>
<th>AESTHETIC VALUE</th>
<th>USE/ECONOMIC VALUE</th>
<th>SOCIAL VALUE</th>
<th>NON-INTENDED COMMENCIATIVE VALUE</th>
<th>PARITY VALUE</th>
<th>ARCHITECTURE VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>High value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SPACE PLAN**

- Different space type (hight, open)
- Multi-direction entrance of building
- Interior space offers communication opportunities
- Glass parts of the building provide communication space for offices
- Designed to be part of city infrastructure
- Integral communication with professional working

**SERVICE**

- Heat wheels on the roof represent honesty design and are the symbol of the building
- Radial shape of heat wheels aligns to the building
- Ventilation piping system has been removed
- Heat wheel on the roof is not efficient anymore
- Heat wheels on the roof and the pipe in the space create mechanical sense of the building. And HOMEST.

**STUFF**

- Echo to the round theme of building
- Most of the stuffs are removed. The controlled ones are broken and outdated
<table>
<thead>
<tr>
<th>Aesthetic Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indifferent value</strong></td>
</tr>
<tr>
<td>Medium value</td>
</tr>
</tbody>
</table>

The building was the first office building in Shenzhen Blvd.

**BUILDING**

- **SKIN**
  - Curved window frames.
  - High-quality materials and craftsmanship.
  - CAD

- **STRUCTURE**
  - Steel structure is in good condition.
  - Large span and column free.

- **HISTORICAL VALUE**
  - Designed to be part of city traffic infrastructure.

- **SOCIAL VALUE**
  - On the junction of residential and office areas.

- **PARITY VALUE**
  - Part of city skyline, first building on the train.

- **ARCHITECTURE VALUE**

- **USE/ECONOMIC VALUE**
  - PLAY A LEADING ROLE IN CITY CONSTRUCTION WITH PROPOSALS GENERATING DIVIDENDS.
<table>
<thead>
<tr>
<th>Site and Surrounding</th>
<th>Historical Value</th>
<th>Aesthetic Value</th>
<th>Socio-Economic Value</th>
<th>Non-Intended Commemorative Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Banquehouse was the first office building in Brussels.</td>
<td>Designed to be part of city traffic infrastructure.</td>
<td></td>
<td>Part of city skyline, first building on the train.</td>
<td></td>
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</table>

**Building**

- Curve window frame.
- Reflective facade components in good condition.
- Lighting, thermal, acoustic performance meet.

**Skin**

- Popular architectural style of the era.
- Contrast of material of different parts.

**Structure**

- Main structure is in good condition.
<table>
<thead>
<tr>
<th>Site and Surrounding</th>
<th>Building</th>
<th>Skin</th>
<th>Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Beangpo House was the first office building in Xiamen.</td>
<td>Designed to be part of city traffic infrastructure.</td>
<td>Classic window frame.</td>
<td>Main structure in good condition.</td>
</tr>
<tr>
<td>Ground parking.</td>
<td>Ground parking.</td>
<td>Contrast of material of different parts.</td>
<td>Most of the walls are removed. The remanied ones are broken and cracked.</td>
</tr>
<tr>
<td>Different space type (height, space).</td>
<td>Flexible layout.</td>
<td>Perforated liquid components in good condition.</td>
<td>Lighting, thermal, acoustics performance are good.</td>
</tr>
<tr>
<td>Multi-direction entrance of building.</td>
<td>Ventilation piping system has been removed.</td>
<td>Grilles and pipes of the heating system is in good condition.</td>
<td>Most of the walls are removed. The remanied ones are broken and cracked.</td>
</tr>
<tr>
<td>Interior state offers communication opportunities.</td>
<td>Stair wheelchair on the roof is not efficient anymore.</td>
<td></td>
<td></td>
</tr>
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<td>Designed to be part of city infrastructure.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Integrate communication with professional working.</td>
<td></td>
<td></td>
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</table>
I. What

II. Why
   -- Commemorative Value
   -- Social Value
   -- Aesthetic Value
   -- Use Value

III. How
I. What

II. Why

III. How can De Beursgebouw help the city achieve a better future while maintain its values?
I. What

II. Why

III. How
   -- Program
   -- Site
   -- User
   -- Space & Structure & Skin
   -- Scheme
How

Program
Infrastructure (7th)  

Culture infrastructure (49th)
Insufficient Arrangement and interaction

No Cultural Identity
Create cultural identity
Creation generator

Art Colony

Improve Cultural Atmosphere
How

Site
Section With Street
How

User
- Professional artists and student artists prefer to separate their working and living.

- Interactions between artists can be achieved not only by sharing facilities in common labs but also by arranging periodic meetings and events among them.
How

User & Space
Value-Mapping

- High
- Medium
- Indifferent

Strategies
Overall Program
How

Space & Structure & Skin
Introverted Corridor Facade
Passing wood copper window

Wood flooring (recycled)
Heating pipes clipped to Lignatur floor
Sand concrete dry mix 1:8
9mm morter board
Lignatur floor 100mm
Insulation
Glued-laminated timber beam

Aluminium alloy mullion blade (imitation wooden grain coating)
Wood passive window

25mm Acoya cladding
Water resisting layer
8mm Triplex
Tertiary beam
Rubber beam
Detail 8 1:5
How Scheme
Zero - Energy Building | De Burengbouw

Efficient Building and Site
1. High Performance Envelope
2. Passive Windows
3. Interior Corridor Facade
4. Natural Ventilation & Daylighting
5. Community Connectivity
6. Public Transit Access
7. Bicycle Facilities
8. Floor Heating

Electrical Energy Production
1. Building Integrated Solar Panels
2. BIPV - 'Facial' Solar Panels
3. Cogeneration

Rain Water Collection & Reuse
1. Landscape Design
2. Green Roofs
3. Rainwater Harvesting
4. Recycled Wastewater

Linked Thermal Energy Systems
1. Borehole Thermal Energy Storage (BTES)
2. Solar Hot Water
3. Heat Recovery (Ventilation)
4. Heat Recovery (Kiln's Waste Heat)
5. Cogeneration
Climate Strategy

Summer

Heat recovery ventilation system is stored in the building. The remain "coolth" in the exhaust air is recovered and used to pre-cool the fresh air.

Solar thermal panels installed on roof provide hot water for the dwelling.

Greenroofs prevent the dwelling from overheating. And the air tightness roof reduce the heat transmission from exterior to interior.

Long narrow building floorplan maximize cross ventilation in the dwelling.

Outer windows of the interior corner facade are opened during the summer. Corridor façades connect neighbouring double-skin façade elements in order to permit staggered ventilation of the space between the two skins.

Floor cooling is applied to the building. Combined with mechanical ventilation together to further lowering the room temperature.

Photovoltaic panels installed on roof and on the windowill of the original facade. Can fully cover the electricity use of the building and even for the neighbourhood.

Shutters are placed on the dwelling facade. Extra daylight will reflect by the shutters to the exterior. The overheating phenomenon is improved.

Long lasting daylight reduce artificial lighting demand.

Heat pump is used to condense the "coolth", to make it coolder and able to cool the building by the pipes placed in floors.

The extra heat gained from ventilation is stored in BTES for heating in winter.
Climate Strategy

Winter

Heat recovery ventilation system is stored in the building. The heat in the exhaust air is recovered and used to pre-heat the fresh air.

Building is fully insulated from roof to foundation by brightness roof, passive windows and interior insulations.

Outer windows of the interior corridor facade are close during the summer. The air cavity of the corridor produces are served as the thermal buffer to the outside.

Floor heating is applied to the building. The heating system only demand low temperature hot water as the heating resource.

Heat pump is used to condense the heat, and increases ground water in to certain temperature. The heated water is the heat resource for the floor heating.

Photovoltaic panels installed on roof and on the windowsill of the original facade. It can only cover part of the electricity use of the building. Extra renewable energy is needed.

Shutters are placed on the dwelling facade. The angle of the shutters allow low daylight directly cast to interior.

Remain heat of the slabs is recovered by the heat exchanger and is used to re-heat the ventilation air.

“Coolth” is stored in the Borehole Thermal Energy Storage (BTES) during winter.
Floor Heating Ventilation
I. What?

II. Why?

III. How?

IV. Why?
Why I
West elevation

Reference
(Hotel Vincci Gala Barcelona
/ TBI Architecture & Engineering)
Original Skin
(View on the train)

Current Skin
(View on the train)
THANK YOU