Design of a new Rehabilitation centre in Rotterdam

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STRUCTURE OF PRESENTATION

- brief of the assignment
- context
- building
- typological spaces
- building technology
Design of a new rehabilitation centre on the current location in Rotterdam

Program:
- collective functions
  (gym, pool, restaurant, library etcetera)
- 4 departments
- 120 patient rooms
- therapy rooms
- other relevant program editions

(total program approx. 18.000m2)
Rijndam Clinic on the Westersingel
CONTEXT
Museum Park area
Aerial view of location
Aerial view of location
Rijndam from Museum Park
Aerial view of location
Westersingel
BUILDING
Motivation of choice:

- creating space for a new entrance to the museum park

- interesting research for future health-care buildings due to efficiency

- clear and comprehensible building for mentally challenged patients
A new entrance to Museum Park
use of building mass
taking the park into the building
organizing atrium
PROGRAMMATIC ELEMENTS

Main functions within the program:

- collective functions
- poli-clinic
- in-patients rooms & therapy
ATRIUM

patients rooms & therapy
museum park

westersingel

collective functions
patient rooms
living rooms/
meeting place in-patients
TYPOLOGICAL SPACES
WATERFALL STAIRS
1 sun-protection glazing
\[ U = 1.1 \text{ w/m}^2 \text{ k} \]
10mm toughened glass + 16mm cavity + 14mm laminated safety glass

2 115/60 aluminium profile

3 3mm aluminium sheet, bent to shape on insulation panel

4 halogeen spotlight illuminating lightwell in evening

5 electronic automatic sunscreen, white nylon

6 4 22mm heat-piping preventing chill

7 Roof construction
   plastic sheeting
   170mm hard insulation
   200mm EPS insulation
   300mm reinforced concrete deck

8 clamp profile with 60/12mm aluminium cap

9 parapet
   3mm aluminium sheet
   2mm neopreen

10 brick panels
   20 mm brick laminated on concrete panels
   50 mm cavity
   waterproof foil
   200 mm insulation
   200mm concrete

11 fixed glazing
   6mm toughened glass
   16mm cavity
   6mm laminated safety glass

12 glare reducing rolling blind, automatic

13 gietvloer
   25mm impact insulation
   300mm reinforced concrete
   lowered ceiling

14 30mm steel structure beam

15 3mm aluminium profile

connecting living rooms
collective square in urban scale
collective square in urban scale
EXERCISE SPACES
route to exercise area
1 brick paving
20 mm sound insulation
400 mm reinforced concrete
2 20mm laminated safety glass
3 steel planel with laminated brick
4 halogen spotlight

DETAIL E

atmospheric light
c detail
PATIENT ROOM
Research public interiors on different rooms-types reflecting the diversity of patients and their ability to live the rooms self-sufficiently.
- 4 persons
- logia’s
- large bathroom

- 4 persons
  - (semi-detached)
  - living room
  - large bathroom

- 2 persons
- large bathroom

- 1 persons
- kitchen
- living area
- bedroom
- bathroom
collective room
double room
apartment
collective room

double room

apartment

construction

climate
FACADE
BUILDING TECHNOLOGY
TYPOLOGICAL ELEMENTS

plinth
1 sun-protection glazing
   U=1.1 w/m² k
   10mm toughened glass + 16mm cavity +
   14mm laminated safety glass
2 115/60 aluminium profile
3 3mm aluminium sheet, bent to shape on
   insulation panel
4 halogeen spotlight
   illuminating lightwell in evening
5 electronic automatic sunscreen,
   white nylon
6 4 22mm heat-piping preventing chill
7 Roof construction
   plastic sheeting
   170mm hard insulation
   200mm EPS insulation
   300mm reinforced concrete deck
8 clamp profile with 60/12mm aluminium
   cap
9 parapet
   3mm aluminium sheet
   2mm neopreen
10 brick panels
   20 mm brick laminated on concrete
   panels
   50 mm cavity
   waterproof foil
   200 mm insulation
   200mm concrete
11 fixed glazing
   6mm toughened glass
   16mm cavity
   6mm laminated safety glass
12 glare reducing rolling blind,
   automatic
13 gietvloer
   25mm inpact insulation
   300mm reinforced concrete
   lowered ceiling
14 30mm steel structure beam
15 3mm aluminium profile

brick panels
filtered panels
bronze windows & details
integrated sun-screening

materialization
1 sun-protection glazing
  U=1.1 w/m² k
  10mm toughened glass + 16mm cavity + 14mm laminated safety glass
2 115/60 aluminium profile
3 3mm aluminium sheet, bent to shape on insulation panel
4 halogen spotlight
  illuminating lightwell in evening
5 electronic automatic sunscreen,
  white nylon
6 4 22mm heat-piping preventing chill
7 Roof construction
  plastic sheeting
  170mm hard insulation
  200mm EPS insulation
  300mm reinforced concrete deck
8 clamp profile with 60/12mm aluminium cap
9 parapet
  3mm aluminium sheet
  2mm neopreen
10 brick panels
  20 mm brick laminated on concrete panels
  50 mm cavity
  waterproof foil
  200 mm insulation
  200mm concrete
11 fixed glazing
  6mm toughened glass
12 glare reducing rolling blind,
  automatic
13 gietvloer
  25mm inpact insulation
  300mm reinforced concrete
  lowered ceiling
14 30mm steel structure beam
15 3mm aluminium profile
1. Sun-protection glazing
   - U=1.1 w/m² k
   - 10mm toughened glass + 16mm cavity + 14mm laminated safety glass

2. 115/60 aluminium profile

3. 3mm aluminium sheet, bent to shape on insulation panel

4. Halogen spotlight illuminating lightwell in evening

5. Electronic automatic sunscreen, white nylon

6. 4 22mm heat-piping preventing chill

7. Roof construction
   - Plastic sheeting
   - 170mm hard insulation
   - 200mm EPS insulation
   - 300mm reinforced concrete deck

8. Clamp profile with 60/12mm aluminium cap

9. Parapet
   - 3mm aluminium sheet
   - 2mm neoprene

10. Brick panels
    - 20 mm brick laminated on concrete panels
    - 50 mm cavity
    - Waterproof foil
    - 200 mm insulation
    - 200mm concrete

11. Fixed glazing
    - 6mm toughened glass
    - 16mm cavity
    - 6mm laminated safety glass

12. Glare reducing rolling blind, automatic

13. Gietvloer
    - 25mm impact insulation
    - 300mm reinforced concrete
    - Lowered ceiling

14. 30mm steel structure beam

15. 3mm aluminium profile
1. Sun-protection glazing
   U=1.1 W/m² K
   10mm toughened glass + 16mm cavity +
   14mm laminated safety glass
2. 115/60 aluminium profile
3. 3mm aluminium sheet, bent to shape on
   insulation panel
4. Halogen spotlight
   Illuminating lightwell in evening
5. Electronic automatic sunscreen,
   White nylon
6. 4 22mm heat-piping preventing chill
7. Roof construction
   Plastic sheeting
   170mm hard insulation
   200mm EPS insulation
   300mm reinforced concrete deck
8. Clamp profile with 60/12mm aluminium cap
1 parapet
3mm aluminium sheet
2mm neoprene
2 brick panels
20 mm brick laminated on concrete panels
50 mm cavity
waterproof foil
200 mm insulation
200mm concrete
3 fixed glazing
6mm toughened glass
16mm cavity
6mm laminated safety glass
4 glare reducing rolling blind, automatic
DETAIL C

1 gietvloer
25mm impact insulation
300mm reinforced concrete
lowered ceiling
2 30mm steel structure beam
3 3mm aluminium profile
1 brick panels
20 mm brick laminated on concrete panels
50 mm cavity
waterproof foil
200 mm insulation
200 mm concrete
10 mm plaster
2 perforated brick-panels
openable window
6 mm toughened glass
16 mm cavity
6 mm laminated safety glass
3 3 mm aluminium profile
1 gietvloer
25mm impact insulation
300mm reinforced concrete
lowered ceiling
2 10mm steel structure beam
3 3mm aluminium profile
4 brick panels
20 mm brick laminated on concrete panels
50 mm cavity
waterproof foil
200 mm insulation
200mm concrete
10mm plaster
prefab construction
- 10m, 8m span
- floor slabs
CLIMATE SYSTEM:

Heating:
- floor heating (heat pump -1)

Ventilation:
- mechanical ventilation
SCHAFTS

- central duct B:
  - rooms
  - therapy
  - gym

- central duct A:
  - rooms
  - therapy
  - gym

- ducts:
  - sewage
  - floor heating
THANK YOU!