

Exercise Construction 4 - Non-traditional Facades

Pedagogical Context

- Reference lecture course : "Construction 4", 24 h in 4 AR.
- Duration of the exercise : 6 x 4 h (consultation) + selfstudy.
- Staff / student ratio : 1 / 60.
- Bibliography : syllabus, manufacturers' technical support, internet, general library reference literature.
- The exercise is compulsory for the entire group.

General Purpose

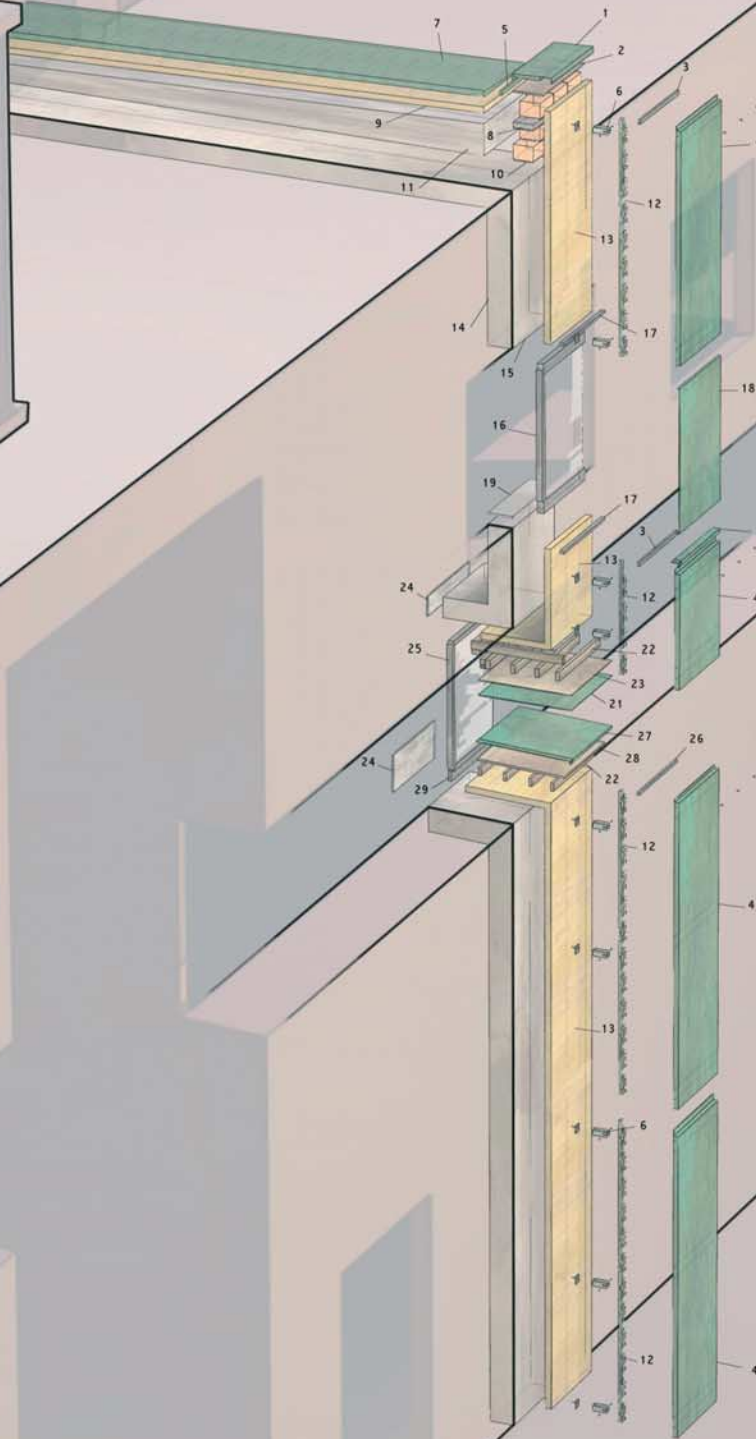
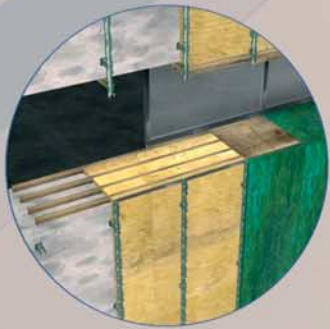
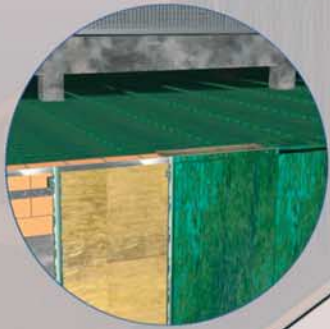
- The objective is to work out details of the facade of a non-housing (utility, public) building, composed with non-traditional materials.
- Students make groups of 3.
- The project to be worked out is chosen among realised buildings that you find in specialised international publications.
At least 2 elevations should be known, by means of drawings and/or photographs.
Order of proportion of the building : floor surface from 400 m² to 2000 m².
- The choice of the facade system is that of the realised project, if obvious. One can change it into another technique if you have some reasons to do so.

Output to Be Delivered

- A copy of the entire publication.
- General view : 2 elevations and (part of a) cross section on 1/50 scale, with indication of :
 - joints of panels
 - details and sections
- Details (about 10) with the intention to make clear a coherent area where the real problems of materials and their application are resolved.
- The junctions should not only consist of existing, routine solutions, already created by the manufacturer of the used materials, but one should elaborate the critical points, typical of the project.
- A short report to explain the difficulties experienced and the finally chosen solutions.

DETAILS 3D

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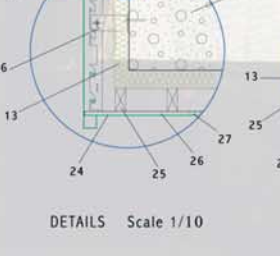
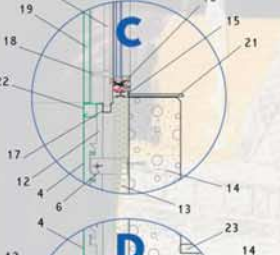
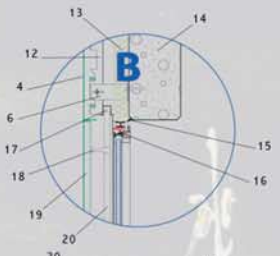
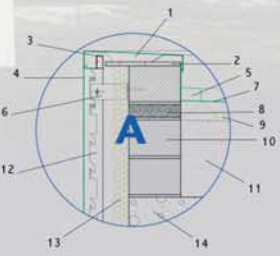


1. wallcovering: oxidated, patinated, copper 1mm
2. attachmentboard wallcovering: multiplex 18mm
3. steel SHS 30x50mm
4. facade element: ox., pat., copper 900x3000x50mm, 1.5mm
- border fixation
6. bracket U-section: galvanised steel 4mm
7. sheet copper roofing: ox., pat., copper 0.6mm
8. isolated brick: perinsul foamglass 1200x20x50mm
9. pressurestable: perliteboard 1200x600x70mm
10. masonry: perforated brick 290x190x140mm
11. inclination layer: sand-cement
12. crochet-on rail: steel 3mm
13. insulation: rockwool 60mm + foil coating: alu
14. concrete in situ
15. elastic joint seal: silicone
16. windowframe: steel, thermal interrupted, turn-kip
17. rail (system opening shutters): steel
18. movable shutters: ox., pat. copper 1300x900x1.5mm
19. windowsill: prefab concrete 900x200x10mm
20. leaking profile: geox., gepat: koper 1mm
21. finishing layer: ox., pat. koper, visible screwed, 0.5mm
22. beam: wood 80x40mm
23. bording: plywood 14mm
24. finishing layer: laminate 6mm
25. window frame: steel, thermal interrupted, fixed
26. steel SHS 30x20mm
27. finishing and leaking profile: ox., pat. copper, invisible screwed and pinched, 0.6mm
28. bording: plywood 18mm
29. framework: steel



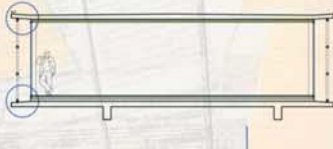
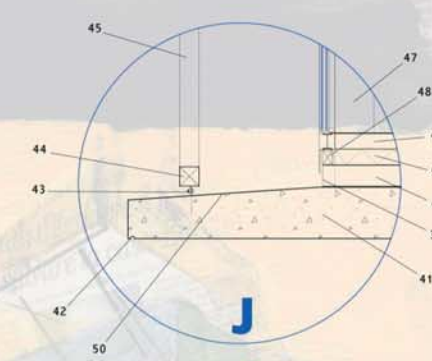
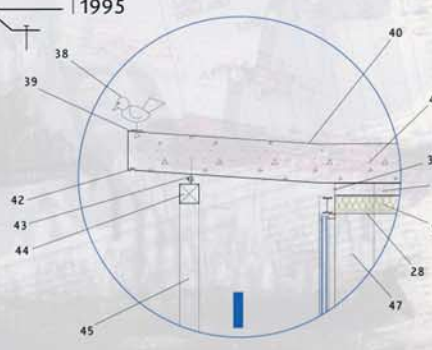
DETAILS SECTION

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1. wallcovering: oxidated, patinated, copper 1mm
2. attachmentboard wallcovering: multiplex 18mm
3. steel SHS 30x50mm
4. facade element: ox., pat., copper 900x3000x50mm, 1.5mm
5. border fixation
6. bracket U-section: galvanised steel 4mm
7. sheet copper roofing: ox., pat., copper 0.6mm
8. isolated brick: perinsul foamglass 1200x20x50mm
9. pressurestable: perliteboard 1200x600x70mm
10. masonry: perforated brick 290x190x140mm
11. inclination layer: sand-cement
12. crochet-on rail: steel 3mm
13. insulation: rockwool 60mm + foil coating: alu
14. concrete in situ
15. elastic joint seal: silicone
16. windowframe: steel, thermal interrupted, turn-kip
17. rail (system opening shutters): steel
18. swivelling arm: steel
19. movable shutters: ox., pat. copper 1300x900x1.5mm
20. hinge bar: steel
21. windowsill: prefab concrete 900x200x10mm
22. leaking profile: geox., gepat. koper 1mm
23. chappe: sand-cement
24. finishing layer: ox., pat. copper, visible screwed, 0.5mm
25. beam: wood 80x40mm
26. boarding: plywood 14mm
27. ventilation
28. finishing layer: laminate 6mm + vapour paper
29. window frame: steel, thermal interrupted, fixed
30. steel SHS 30x20mm

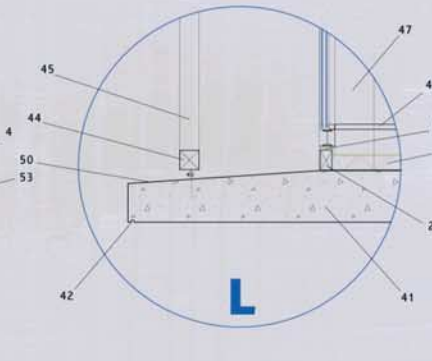
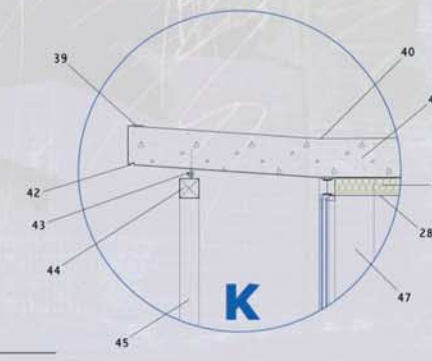
31. finishing and leaking profile: ox., pat. copper, unvisible screwed and pinched, 0.6mm
32. boarding: plywood 18mm
33. framework: steel
34. birdstop - ventilation grating
35. nubbed mat: PE
36. nubbedclaw: PE
37. finishing floor: concrete polished
38. sparrow: organic, adult
39. endprofile: inox, screwed
40. roof sealing layer: EPDM
41. concrete prefab
42. leaking profile
43. anchoring: steel
44. lath: wood 70x70mm
45. post: wood 70x70mm
46. ventilation profile: steel
47. structural glazing
48. lath: wood 50x35mm, opgespoten met PUR
49. computerfloor
50. sealing layer: coating
51. lath: wood
52. doorpost: steel, thermal interrupted
53. framework: steel
54. paving: concrete tile 300x300x30mm
55. stabilizer: sand-cement



variation 1



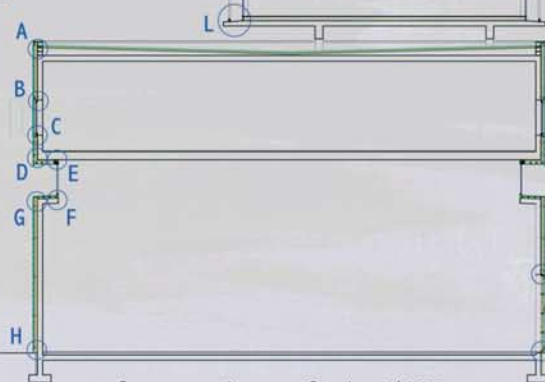
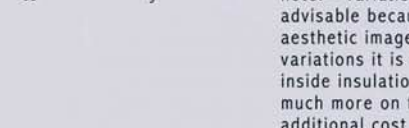
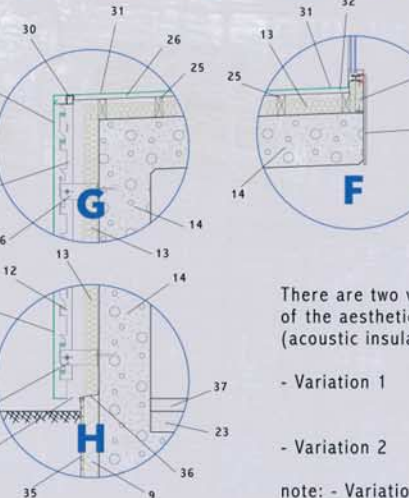
variation 2



DETAILS Scale 1/10



Crossection Scale 1/100



Crossection Scale 1/100

There are two variations of the boxvolume, because of the aesthetical image and the radio-studio function (acoustic insulation on the inside):

- Variation 1 internal insulation with ventilated crevice
- Variation 2 internal insulation with vapour paper

note: - Variation 3 Insulation on the outside is not advisable because it is difficult to achieve the right aesthetic image. And compared with the previous variations it is very expensive. Taking the acoustic inside insulation into account, one should insulate much more on the outside. Which would be an additional cost.

