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# t e c h n i c a l   r e p o r t

8

## 8.1 CONTAINED SPACES

The design strategy of 'contained space' is used for different functions in the building. Some of these functions include the following:

- \_reception
- \_interactive work station and display
- \_toilets
- \_bookshop
- \_bathrooms in boutique hotel rooms
- \_outside seating for the café

The construction of these objects is based on the same principle: a steel structure layered with specific materials to accomplish its function,

The reception area in the Information Node is analyzed as an example in terms of the construction method and materials used.

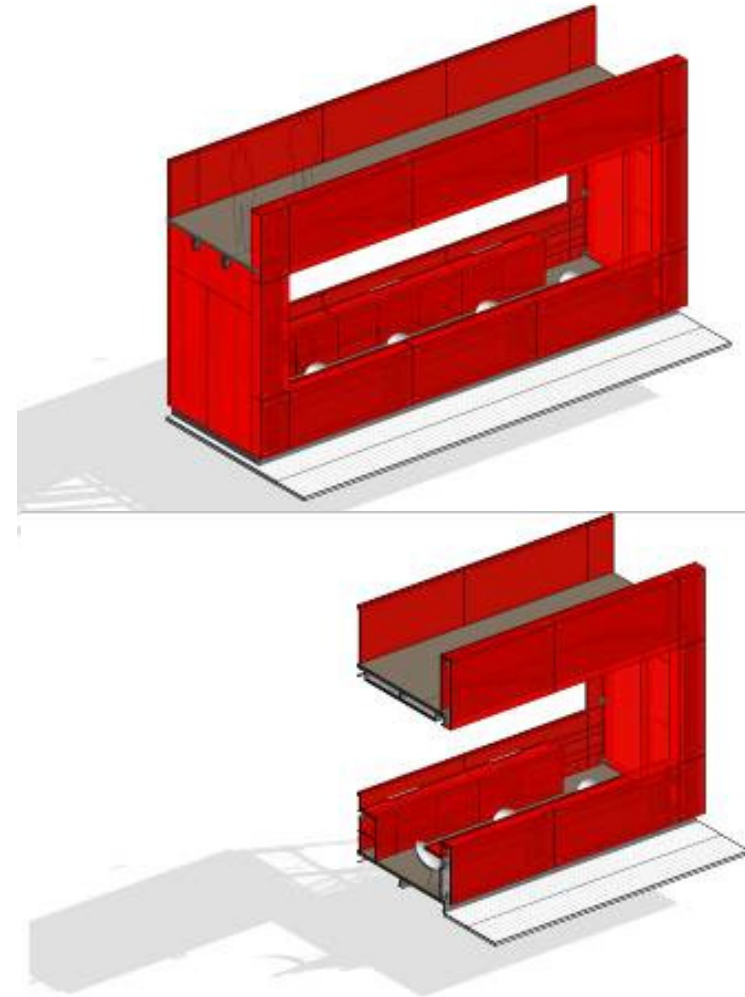
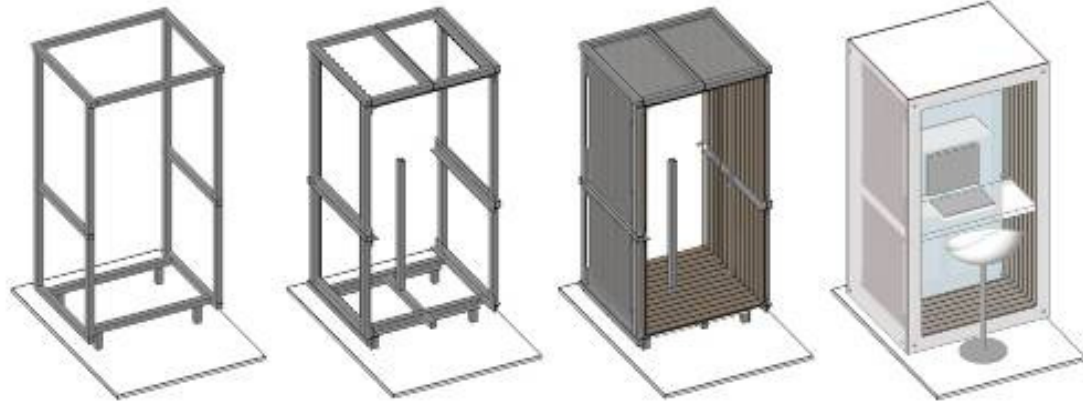


FIG 8.1:  
3D model of the reception counter,



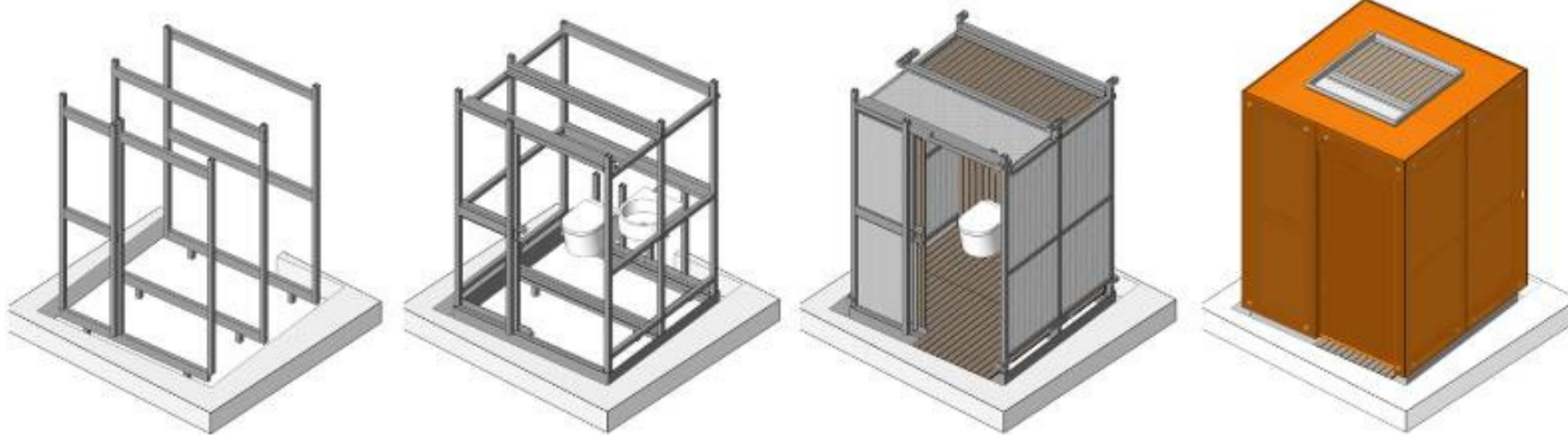
MAIN STRUCTURE

SUB-STRUCTURE

TIMBER AND  
ACOUSTIC  
PANNELING

CLADDING

FIG 8.2:  
3D model of the Interactive  
workstation concept



MAIN STRUCTURE

SUB-STRUCTURE

TIMBER AND  
ACOUSTIC PANNELING

CLADDING

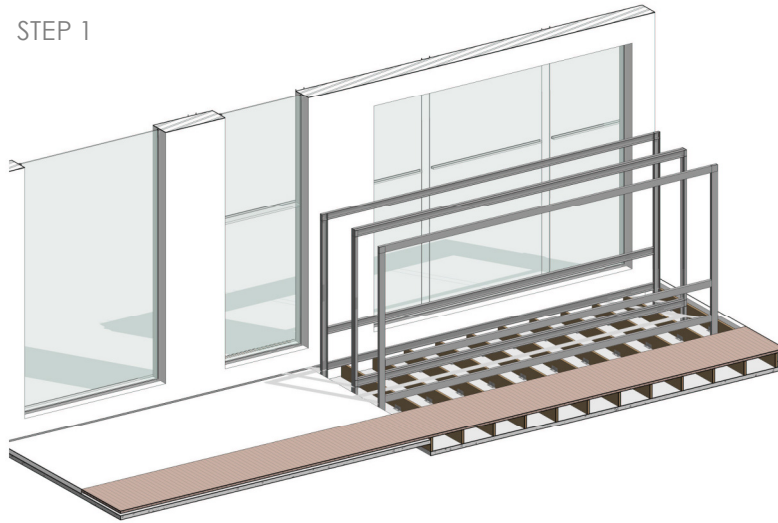
FIG 8.3:  
3D model of the Toilet  
cubicle concept

## 8.2

 CONSTRUCTION  
 METHOD

FIG 8.4:  
3D model of Reception's main structure

STEP 1

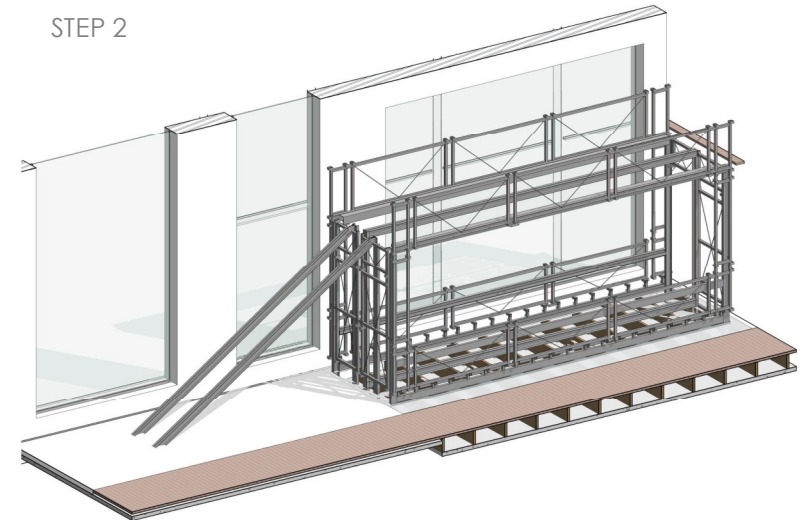


## MAIN STRUCTURE:

- \_Four mild steel channel frames are bolted to the original concrete floor.
- \_Timber rafters are bolted to the original floor to create a new level. This creates one floor level in the reception area that is accessible to everyone

FIG 8.5:  
3D model of Reception's sub structure

STEP 2

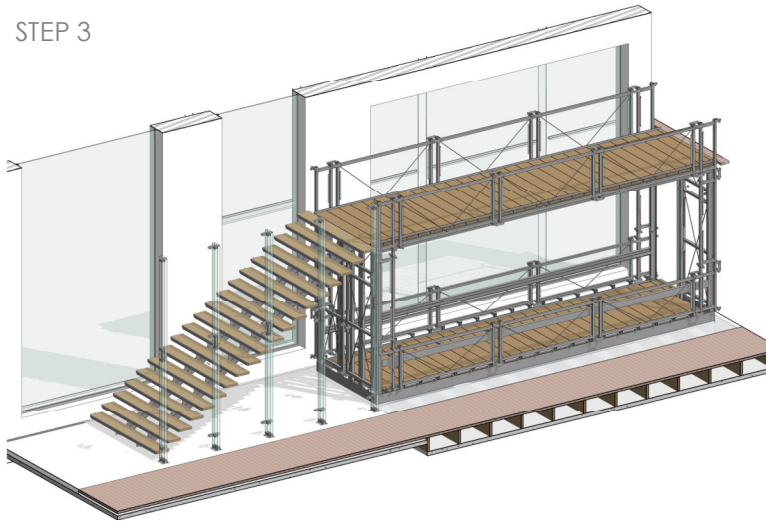


## SUB-STRUCTURE:

- \_Mild steel square hollow section frames (with a steel cross supporting structure) form the sub-structure.
- \_The sub-structure is bolted to the main channel structure.
- \_The staircase consists of two main M.S. steel channel structures bolted to the floor.
- \_Custom-made M.S steel T-brackets are bolted to each of the main staircase channels. They connect the two channels supporting the timber treads.

FIG 8.6:  
3D model of Reception's treads and light fittings

STEP 3

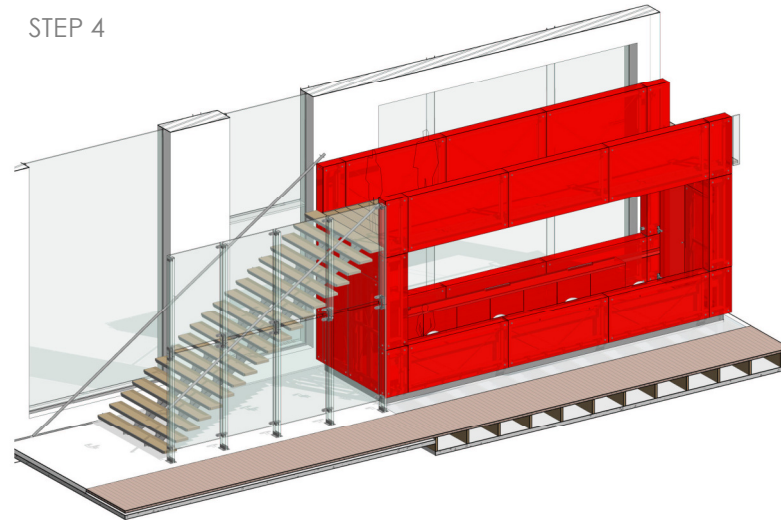


### TIMBER TREADS AND LIGHT FITTINGS:

- \_Eucalyptus timber treads are supported by a custom made T-shaped steel plate. This tread is bolted between the two supporting channel frames.
- \_Acoustic panelling and a timber boarding finishing layer are fixed underneath the timber treads.
- \_Light fittings that illuminate the panels from the inside are fixed to the square sections.
- \_The staircase screen consists of structural fins bolted to the floor.

FIG 8.7:  
3D model of Reception's cladding and staircase screen

STEP 4



### CLADDING AND STAIRCASE SCREEN

- \_3Form Chroma panels are bolted to the brackets on the substructure.
- \_Acoustic panelling is placed underneath the work counter.
- \_3Form panels are fixed between the structural fins to create the staircase screen.
- \_Stainless steel hollow circular section handrails are bolted to the wall and 3Form panels.

## 8.3

## MATERIALS

 RECEPTION BOX CLADDING  
 AND WORK SURFACES

3Form panelling is used to clad the steel sub-structure of the reception box. It is fixed to the sub-structure with bolts and brackets. With a light source incorporated between the 3Form layers, an illuminated red box is created that makes it a focal point, visible from the street.

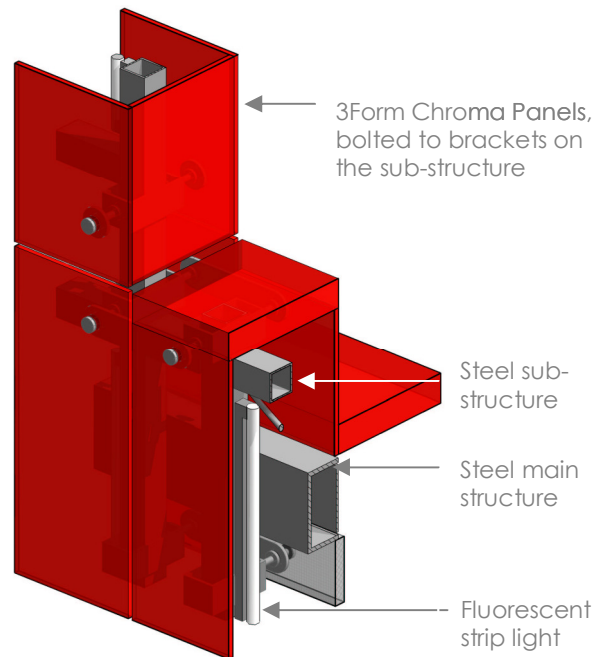


FIG 8.8:  
3D model of Reception's  
structure cladding

FIG 8.9:  
**3FORM CHROMA**  
CAST POLYMETHYL  
METHACRYLATE (PMMA)  
RESIN.  
COLOUR: CRANBERRY  
TEXTURE: RENEWABLE MATTE  
9 / 25 / 50 mm THICKNESS



This material makes use of aura colour infusion technology that creates a solid surface saturated with luminous colour. Either naturally or artificially illuminated, Chroma has a radiant, jewel-like colour. It has the same working properties as wood. The coloured resin panels are engineered to be resurfaced and re-coloured again and again. This prevents the Chroma material from entering the waste stream and allows each panel to be multi-cycled into new architectural installations. A durable finish and easy installation makes this material ideal for the reception box.



## FLOORING

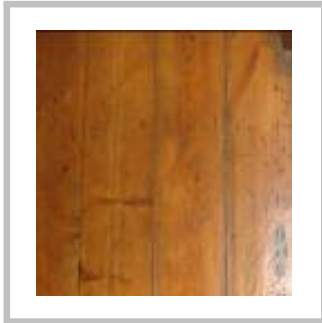


FIG 8.10:  
**ORIGINAL OREGON PINE FLOORING**  
RE-USED FOR THE MAIN WALKWAY

The original timber flooring is re-used to remind the user of its heritage value. It gives a rustic, weathered look that contrasts with the new materials. It also adds warmth to this huge open space

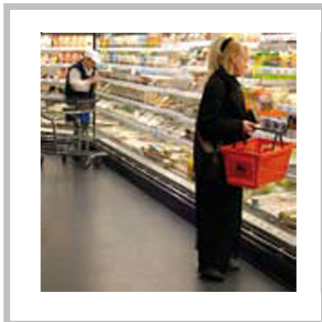


FIG 8.11:  
**B.A.S.F – MASTERTOP 1362**  
POLYURETHANE-BASED FLOOR  
COLOUR: CHARCOAL WITH WATERMARK GRAPHICS OF ORIGINAL WALL LAYOUT OF OLD FIRE STATION BUILDING

The product is self-levelling and crack bridging, with a seamless finish. It is ideal to use in a high-traffic area with properties of abrasion resistance and resilience, good impact sound insulation and comfort underfoot. It is easy to clean and maintain and UV resistant.



FIG 8.12:  
**3FORM: STRUTTURA COLLECTION: STAGE 40mm**

The Struttura collection has structural capabilities and is graded for exterior construction. Stage is a cellular technology that uses the concept of extruded core honeycomb. The product is ideal to use as flooring due to its structural strength and durable finish. A diffused light effect is achieved when this material is illuminated from underneath. It is used to emphasize the new elements (like the reception box) as free-standing objects.

The original timber floor is removed and reused to create the main movement route in the information space. It is contrasted with a highly finished industrial floor with watermark graphics of the original wall layout. The 3Form material is used as an illuminated floor to create the illusion of a floating reception box.

## LIGHTING

The quality of light is affected by the colour and textures of surfaces and their reflectivity. When using the 3Form Chroma panels with strip fluorescent back lights, a diffused red light will be reflected onto the service and work counters. Therefore tracks with halogen spot lights are placed inside the channels above the counters to produce the correct quality of bright light.

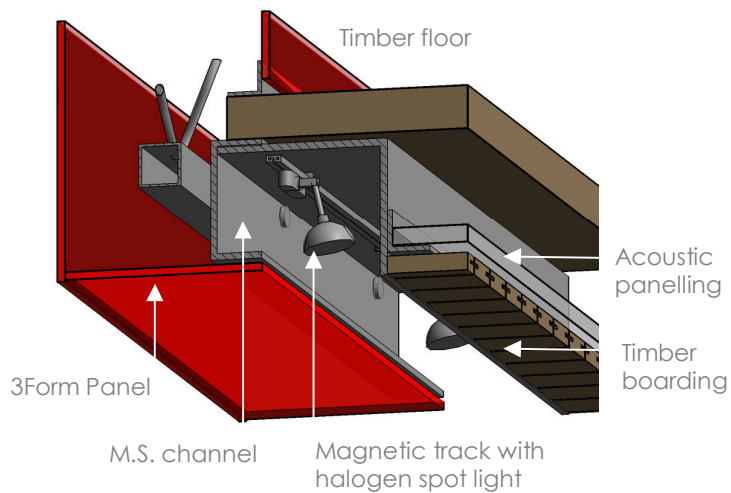


FIG 8.13:  
Magnetic track with  
halogen spot light

FIG 8.14:  
**MAGNETIC TRACK  
SPOT LIGHT**

RADIANT: GA01 TD  
GU5.3 HALOGEN  
MR16 DICHROIC  
REFLECTOR 12V 35W



FIG 8.15:  
**STRIP OR COUNTER LIGHT**

RADIANT: KD40  
FLUORESCENTS – 8W MINI 350 X  
40 X 20mm

RADIANT: KD22  
SLIMLINE LIGHT  
FLUORESCENTS – T4 – 20W  
620 x 45 x 20mm





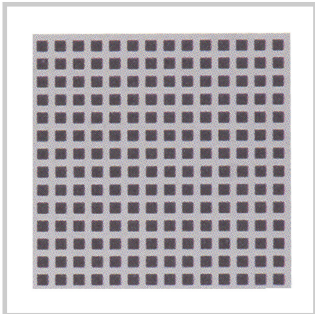


FIG 8.16:  
**LOW ACOUSTIC:**  
**ACOUSTIC PANELING**  
PERFORATED ALUMINIUM  
PLATE WITH SQUARE HOLES

This product provides a very good wide-band absorption effect, which is ideal if noise and reverberation problems occur over a large frequency spectrum.



FIG 8.17:  
**ACOUSTIC PANELING**  
GIVEN TWO COATS OF  
BLACK ACRYLIC PAINT.  
PLACED UNDERNEATH  
TIMBER BOARDING



FIG 8.18:  
**TIMBER BOARDING**

The eucalyptus timber boarding slides into the custom made aluminium profile brackets. No screws or nails are visible with this fixing system. The timber boarding will be spaced so as to allow maximum sound absorption by the acoustic panelling underneath.

## ACOUSTIC WALL & CEILING PANELING

Acoustic panelling is placed inside the reception box to create a comfortable sound environment with adequate sound absorption levels. Acoustic panels are placed underneath the work counter where they will be unobtrusive.

The ceiling consists of layered acoustic panelling, with a finishing layer of timber boarding. The most important physical characteristic of the acoustic qualities of an area is its reverberation time, which is determined by the absorption qualities of the room – the walls, floors, ceiling, contents and volume.

Room area acoustic conditions can be considered optimal if the people within feel comfortable. Offices and conference areas benefit from an improved conversation atmosphere when noise is decreased and the audibility of the spoken word is improved.



## CEILING & WALL COVERINGS

With the walls on the first floor of the Old Fire Station building being demolished, the ceiling over the new double volume space needs to be replaced. The ceiling will be curved in the same way as the timber ceiling in the original hall. It connects the two spaces visually, and enhances the new interpretation of the existing with the use of new technology and materials.

Graphics can be printed onto the fabric and used for ceiling or wall coverings. The entire system is no more than 10 mm thick and no fixings are visible. It is ideal to use for branding and as information sources (like maps and photographs), and can be changed over time.

### FIG 8.19: ALYOS CEILING AND WALL SYSTEM

THIS SYSTEM CONSISTS OF A COVERING MATERIAL OF POLYESTER FABRIC COATED WITH POLYURETHANE

The lightweight system is suitable for all ceilings. The covering material is stretched from wall to wall and is held in position by special profiles attached to the perimeter of the room. The type of material and the quality of the coating allow optimal tension to be achieved without joints, seams or suspension brackets. It is ideally suited to renovation projects as it leaves no mess, has a short installation time and gives off no fumes.



## ADDITIONAL MATERIALS USED IN THE DESIGN



FIG 8.20:  
**3FORM CHROMA:**  
**CAST POLYMETHYL  
METHACRYLATE RESIN.**  
COLOUR: VITAMIN C  
TEXTURE: RENEWABLE MATTE  
9 / 25 / 50 mm THICKNESS



FIG 8.23:  
**3FORM STRUTTURA:**  
**CAST POLYMETHYL  
METHACRYLATE RESIN.**  
DUE CRYSTAL  
6 / 16mm THICKNESS



FIG 8.21:  
**3FORM STRUTTURA:**  
**CAST POLYMETHYL  
METHACRYLATE RESIN.**  
PEP TOPAZ  
19 mm THICKNESS

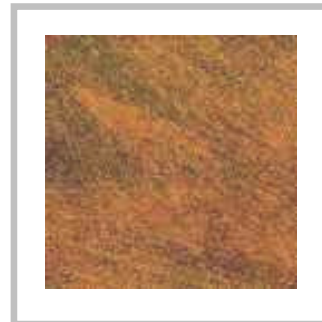


FIG 8.24:  
**IRON PAINT**  
CONTAINS IRON FILLINGS WHICH  
CREATES A METALLIC FINISH ON  
FEATURE WALLS



FIG 8.22:  
**3FORM VARIA:**  
**CAST POLYMETHYL  
METHACRYLATE RESIN.**  
ORGANIC: TING TING  
3 - 25 mm THICKNESS

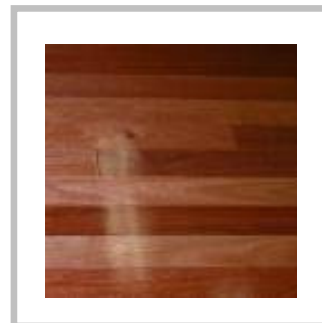


FIG 8.25:  
**EUCALYPTUS SALIGNA.**  
INDIGENOUS AFRINCAN TIMBER  
Moderately durable timber that  
is used in general construction  
and flooring