

Chartered Architectural Technologist
Professional and Occupational Performance Records

Unit I (Performance)

Unit I (Performance)

When preparing detailed designs it is essential that certain criteria is considered during the thought process. Factors such as building usage, life span, budget controls, environmental impact ground bearing conditions, site access and compliance with published data such as British Standards and Building Regulations must always be considered.

Building Orientation - My experience has found that many commercial clients tend to be quite persistent, and provide little opportunity to orientate a building to make maximum use of natural elements such a solar gain. Instead retail buildings tend to be orientated to attract the attention of passing public. Careful design considerations such as roof overhangs, insulation specification and glazing specifications can be useful when trying to work for example, to mitigate against excessive solar gains.

Domestic scale projects can usually be orientated to take full advantage of natural resources. Consideration is always given to the path of the sun, and the appropriate room usage selected to match where possible the path of the sun during hours of usage i.e. breakfast area would usually be located on a eastern / south eastern elevation, evening rooms on a southern elevation etc.

Material Selection - A sound building design must always take consideration for the technical performance of the materials chosen during the construction. In an ideal world scenario all materials within a building should have a matching life span performance. This can be difficult to achieve, however not impossible. One of my more recent projects has been to design and site manage a new build 1.5 million pound outlet referred to as (Appendix 15.0 & 15.1)). This project involved the demolition of an existing shop which had only been constructed in 1998 work on a principle that their buildings must be constructed to achieve a 15-20 year life span. The original shop had been constructed using materials that offered a complete mix of life expectancy. For this reason alone annual maintenance for this shop cost more than considered reasonable. Factors such as life expectance and poor building orientation confirmed to that it was more economical to demolish and rebuild rather than to repair & extend. When designing the new build specified external materials that offered a 15-20 year performance guarantee. Internal materials are generally specified to provide a 5-10 year performance guarantee. as tends to do major company refits every 5-7 years. This approach has provided with a cost effective design that meets all of their performance requirements. Consultation with manufacturer's technical data must always form part of any material selection process. tend to always us an Acheson Glover masonry block for the construction of external walls. Acheson Glover provide technical advice sheets to aid the correct use of their blockwork (Refer to Appendix 18.0 – Manufacturers Technical data sheets) Technical advice ranges for mortar selection to blockwork dimensions etc.

Fire Performance - Detailed designs must always ensure that fire performance within buildings complies with all relevant safety standards. Consultation with published data such a Building Regulation (Northern Ireland Part E 2000 edition Appendix 19.) and manufacturer's technical literature is essential to ensure that all elements within a building meet with the recommended fire ratings. This measured approach will ensure that fire protection and continuity is maintained at all times. Say for example the Building Regulations state that a compartment wall must separate two rooms to a 60 minute standard. The material for this wall must be chosen to ensure it can resist an intense fire for a 60 minute period. Once the wall design has be selected, our attentions should be focused on ensuring that other elements within the wall also meet a 60 minute standard i.e. fire doors, glazing, ceiling junction details and fire stopping etc. I have attached a drawing, door schedule and manufactures published data (Appendix 16.0) of a current project as an example for material and elemental specification to achieve a 60 minute fire protection between a retail shop floor and a 'Back of House' storage area.

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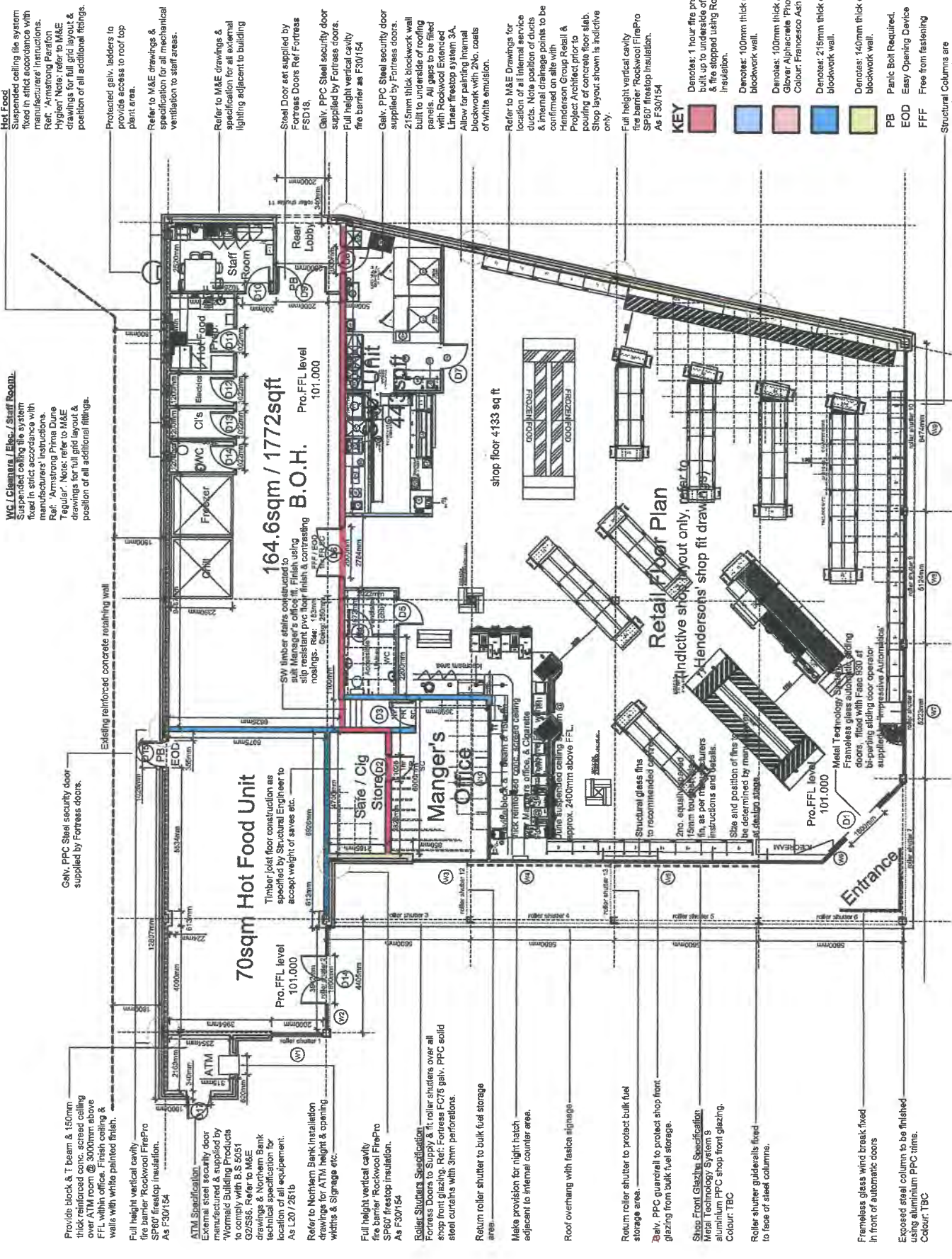
Health & Safety - Every designer should be aware of H&S issues when detailing designs. Factors such as hazardous material, working at height, lifting heavy materials etc. should always be considered. When working within existing building precautionary measure such as an asbestos survey (Appendix 17.0) should always be undertaken.

Summary

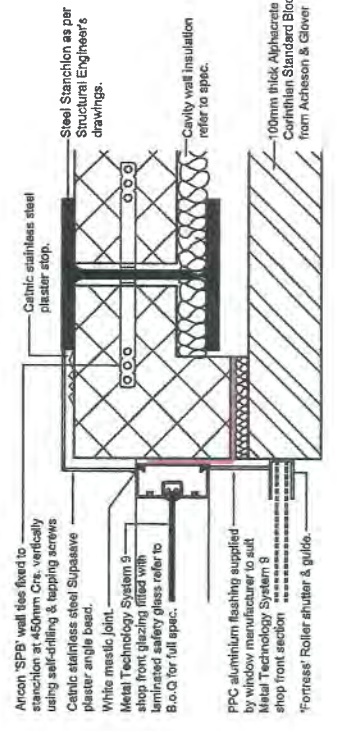
Evidence for Units I.1, I.2 & I.3 has been provided within the following attached appendixes:

- 15.0 & 15.1 *Example of a door schedule, finishes schedule & Manufacturer's Data*
- 16.0 *example of a door schedule, finishes schedule & Manufacturer's Data*
- 17.0 *Asbestos Survey*
- 18.0 *Manufacturers Technical data sheets*
- 19.0 *Northern Ireland Building Regulations*

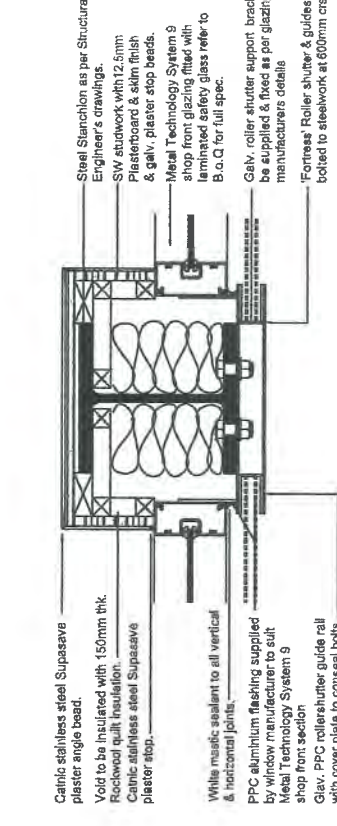
Appendix 15.0 & 15.1



Proposed Plan 1:100 Carrickfergus Milestone



Shop Front Jamb detail 1:5



Typical Roller shutter guide detail 1:5

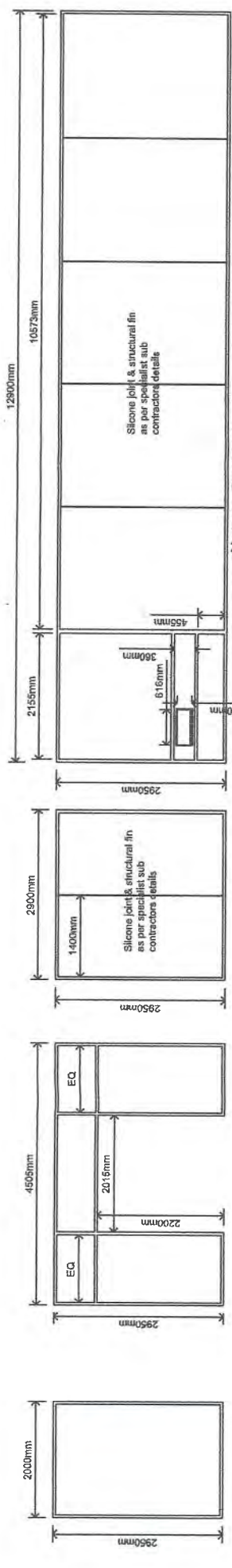
0.01 GENERAL NOTES

- All work to be carried out in accordance with the N.I. Building Regulations (1994) and subsequent amendments thereto. All work is to be to the total satisfaction of the local Building Control office.
- The Contractor shall submit at the necessary stages the completed Building Control notice cards, and so in good time as not to interrupt or halt the progress of the works on site.
- Workmanship and materials are to be the best available and to comply with the relevant British standards or codes of practice where applicable. Materials used as alternatives to specified items / components are to be approved by both Client and Building Control prior to being incorporated into the works.
- All structural steelwork to be C4, grade in accordance with BS 5950:2:1999, all vec-vec treated or equal, with preservative against woodworm and fungal attack. All cut timbers to be brush treated prior to fitting. All softwood used in external canopy, windows, external door frames, or anywhere exposed to external air, to be pressure preservative treated, or other equal and approved. All joinery timber to be treated on back end hidden edge before fitting.
- All dimensions and positions of existing services to be checked on site and any discrepancies brought to the attention of the client and the architect.
- All dimensions to be taken on site in preference to scaling off drawing.
- All dimensions to be checked on site.
- Assembly details to be compared with design details, and confirmed on site.
- Refer to Structural Engineers drawings, details and calculations.
- Refer to Mechanical Engineers drawings and details.
- Refer to Electrical Engineers drawings and details.

a r c h i t e c t s

Proposed

Proposed Floor Plan
 scale 1:100
 date 06-07 AL
 drawn WW
 checked WW
 N.T.S.
 0702-02
 d.rg. no.



Note to Contractor.
All opening dimensions to be checked & confirmed on site prior to ordering window sections. All dimensions shown are approximate only.

W5

W4

W3

W2

W1

Kingpan KS 1000 FLS Insulated 50mm thick cladding panel fixed to soffit. Allow for on site cutting & fabrication below roller shutter box.

PPC aluminium flashing trims.

Metal Technology to confirm with Architect all fixing and framing details at head and sill prior to order, manufacture or installation.

Structural glass fin supporting stop front designed by glazing manufacturer. Glazing manufacturer to confirm structural fixing points to steelwork.

Proposed Glazing Elevations 1:50

W6

W7

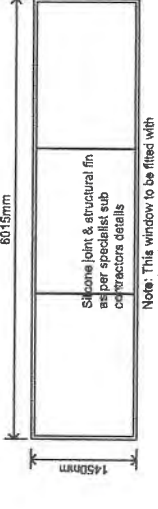
W8

W9

FRAME & GLAZING SPECIFICATION
Metal Technology Flush Glaze System 9
All profiles to be extruded from aluminium alloy with thermal break sections manufactured from glass reinforced nylon sections.

Polyester powder coated to BS6496 Colour from the RALBS colour range. Glazing to be single glazed 10.8mm laminated glazed units.

All dimensions to be confirmed on site prior to order and installation. Wind load calculations should be confirmed prior to manufacture.

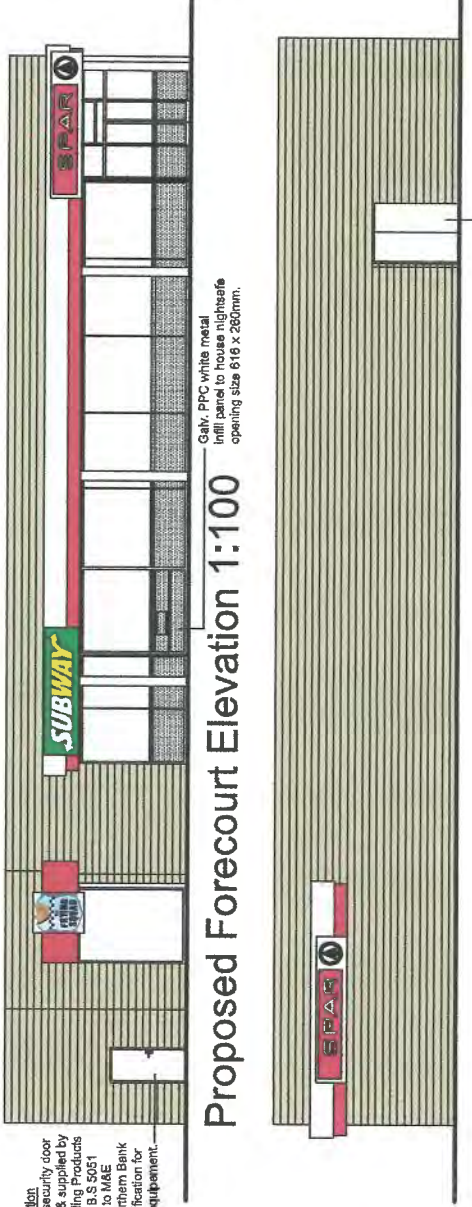


Silicone joint & structural fin as per specialist sub contractor details

Note: This window to be fitted with one directional mirror film as supplied by T6

W10

Proposed Rear Elevation 1:100



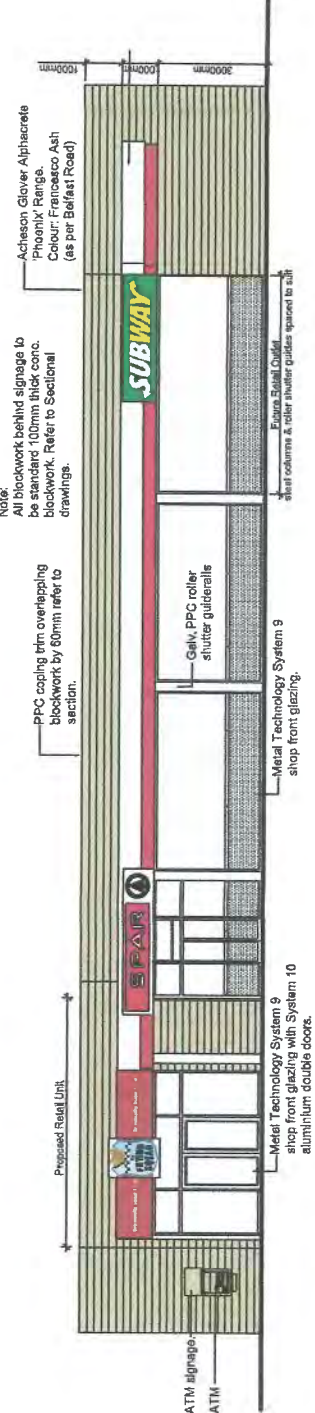
ATM Specification
External steel security door manufactured & supplied by Formed Building Products to BS 5001 G2/S98. Refer to MAE drawings & Northern Bank technical specification for location of all equipment.

GENERAL NOTES
All work is to be carried out in accordance with the N.I. Building Regulations (1994) and subsequent amendments thereto. All work is to be to the total satisfaction of the local Building Control office.
The Contractor shall submit at the necessary stages the completed Building Control forms, and do so in good time to allow the Building Control the progress of the works on site.
Workmanship and materials are to be the best available and to comply with the relevant British standards or codes of practice where applicable. Materials used as alternatives to specified items / components are to be approved by both Client and Building Control prior to being incorporated into the works.
All structural timber to be S.C.4, grade in accordance with B.S. 2266; pt 2: 1994, all vac. vac treated or equal, with preservative against woodworm and fungal attack.

Proposed Forecourt Elevation 1:100



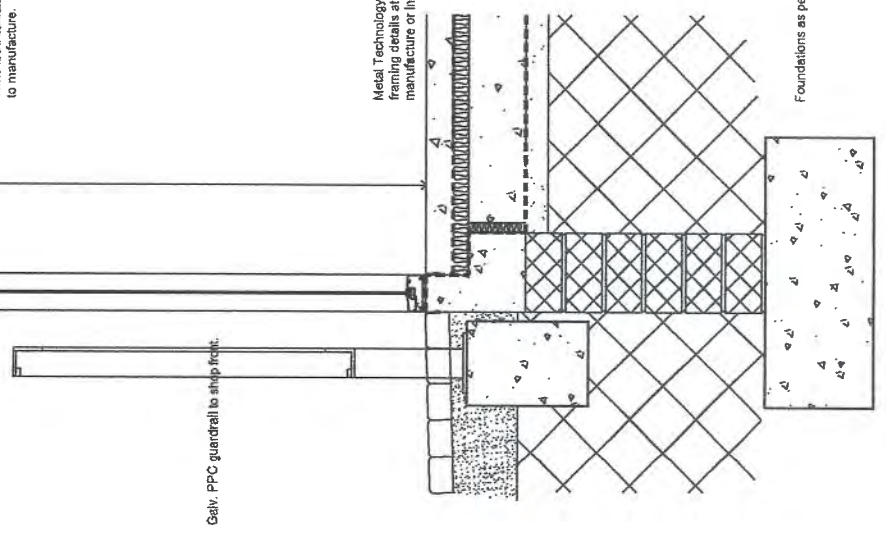
Proposed Side Elevation 1:100



Note: All blockwork behind signage to be standard 100mm thick conc. blockwork. Refer to Sectional drawings.

Foundations as per Structural Engineers details

Glazing Detail 1:10



architects

Proposed

Proposed Elevations
scale 06-07 AL
date 06-07 AL
client N.T.S
drawn WW
checked WW

0702-03

CAADW

Chartered Architectural Technologist
Professional and Occupational Performance Records

Appendix 16.0

Door Schedule
Finishes Schedule
Manufacturers Data

DOOR SCHEDULE

JOB NO. 0702 **JOB NAME:**

| DOOR NUMBER | DOOR TYPE | SIZE | STR. OPE | GLAZING | FIRE RATING | FRAME | STOPS | GENERAL |
|-------------|-----------|------|----------|---------|-------------|-------|-------|---------|
|-------------|-----------|------|----------|---------|-------------|-------|-------|---------|

| | | | | | | | | |
|----|--|-------------------|------------------------------------|--|---------------|-------------------------------------|---------|---|
| D1 | Automatic | - | - | Laminated Safety Glass | - | Aluminium | - | Door & frame as per Impressive Automatic's Specification |
| D2 | Plywood faced solidcore flush (painted finish) | 926 x 2040 x 44mm | 1014 x 2100 mm | N/A | 1HR F.R.S.C. | 126 X 44 Softwood timber Painted | Rebated | Lorient LP2004SS 1HR Intumescent Fire & Smoke seals |
| D3 | Plywood faced solidcore flush (painted finish) | 926 x 2040 x 44mm | 1014 x 2100 mm | N/A | 1HR F.R.S.C. | 126 X 44 Softwood timber Painted | Rebated | Lorient LP2004SS 1HR Intumescent Fire & Smoke seals & one way mirror film as L40/610 |
| D4 | Plywood faced solidcore flush (painted finish) | 926 x 2040 x 44mm | 1014 x 2100 mm | N/A | ½ HR F.R.S.C. | 100 X 44mm Softwood timber Painted | Rebated | Lorient LP150455 ½ HR Intumescent Fire & Smoke seal |
| D5 | Plywood faced solidcore flush (painted finish) | 926 x 2040 x 44mm | 1014 x 2100 mm | Pilkington Pyroshield Safety 30 min integrity 6 mm thick. | ½ HR F.R.S.C. | 100 X 44mm Softwood timber Painted | Rebated | Lorient LP150455 ½ HR Intumescent Fire & Smoke seal |
| D6 | Plywood faced solidcore flush (painted finish) | 980 x 2040 x 44mm | 2100 x 2063 mm approx. TBC on site | Pilkington (160 x 1200mm) Pyrostop 23mm thick 60 min Integrity & 60 min insulation | 1HR F.R.S.C. | 140 x 44 mm Softwood timber Painted | Rebated | Lorient LP2004SS 1HR Intumescent Fire & Smoke seals & one way mirror film as L40/610 |
| D7 | Plywood faced solidcore flush (painted finish) | 926 x 2040 x 44mm | 1014 x 2100mm | N/A | ½ HR F.R.S.C. | 100 X 44MM Softwood timber Painted | Rebated | Lorient LP150455 ½ HR Intumescent Fire & Smoke seal |
| D8 | Fortress Steel Door as NBS Spec. | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| D9 | Fortress Steel Door as NBS Spec. | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

DOOR SCHEDULE

| | | | | | | | |
|--------------------|------------------|-------------|-----------------|----------------|---------------------|------------------|----------|
| DOOR NUMBER | DOOR TYPE | SIZE | STR. OPE | GLAZING | JOB NO. 0702 | JOB NAME: | T |
| | | | | | | | |

| DOOR NUMBER | DOOR TYPE | SIZE | STR. OPE | GLAZING | FIRE RATING | FRAME | STOPS | GENERAL |
|-------------|--|------------------|---------------|---|---------------|------------------------------------|---------|---|
| D10 | Plywood faced solidcore flush (painted finish) | 926 x 2040 x44mm | 1014 x 2100mm | Pilkington Pyroshield Safety 30 min integrity 6mm thick | ½ HR F.R.S.C. | 100 X 44MM Softwood timber Painted | Rebated | Lorient LP150455 ½ HR Intumescent Fire & Smoke seal |
| D11 | Plywood faced solidcore flush (painted finish) | 926 x 2040 x44mm | 1014 x 2100mm | Pilkington Pyroshield Safety 30 min integrity 6mm thick | ½ HR F.R.S.C. | 100 X 44MM Softwood timber painted | Rebated | Lorient LP150455 ½ HR Intumescent Fire & Smoke seal |
| D12 | Plywood faced solidcore flush (painted finish) | 926 x 2040 x44mm | 1014 x 2100mm | N/A | ½ HR F.R.S.C. | 100 X 44MM Softwood timber painted | Rebated | Lorient LP150455 ½ HR Intumescent Fire & Smoke seal |
| D13 | Plywood faced solidcore flush (painted finish) | 926 x 2040 x44mm | 1014 x 2100mm | N/A | ½ HR F.R.S.C. | 100 X 44MM Softwood timber painted | Rebated | Lorient LP150455 ½ HR Intumescent Fire & Smoke seal |
| D14 | Plywood faced solidcore flush (painted finish) | 926 x 2040 x44mm | 1014 x 2100mm | N/A | ½ HR F.R.S.C. | 100 X 44MM Softwood timber painted | Rebated | Lorient LP150455 ½ HR Intumescent Fire & Smoke seal |
| D15 | Fortress Steel door as per NBS Spec. | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| D16 | Fortress Steel door as per NBS Spec. (ATM) | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

FINISHES SCHEDULE

| | | |
|-------------|-------------|----------------------------------|
| Tel: | Fax: | Job No.: 0702 |
| | | Job Name: Proposed New |
| | | DB: CB: |

| Room Name | Wall 1 | Wall 2 | Wall 3 | Wall 4 | Floor | Ceiling | Trims / Skirting / Cills | General |
|-----------------------------|---|---|---|---|--|--|---|--|
| Main Shop Floor | 2no. coats plaster to all exposed block walls next to Managers / Dis. WC /Lobby / B.O.H / Subway & wall @ GL6 to units & at Pier A6 Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: White RAL 9003 (Provisional Only TBC) : Spar Retail Space for internal signage, 100x38mm framing on 50x50mm batens faced with 12.5mm plaster board & skim finish, 1m deep over full length wall between GL A6 – Subway unit. | 2no. coats plaster to all exposed block walls next to Managers / Dis. WC /Lobby / B.O.H / Subway & wall @ GL6 to units & at Pier A6 Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: White RAL 9003 | 2no. coats plaster to all exposed block walls next to Managers / Dis. WC /Lobby / B.O.H / Subway & wall @ GL6 to units & at Pier A6 Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: White RAL 9003 | 2no. coats plaster to all exposed block walls next to Managers / Dis. WC /Lobby / B.O.H / Subway & wall @ GL6 to units & at Pier A6 Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: White RAL 9003 | Main Tile Polyflor Expona-tile 457 x 457 x 3mm Ref. Granite 7120 Random Spot Tile 457x457x3mm Ref. 7154 'Silver Grey' Grouting Strip Ref: 0115 | Suspended ceiling tiles 600 x 600 on 24mm grid Type: Armstrong Prima Tegular Dune | Frames, Architraves, Cills, Skirting and Trims Dulux dimensions 90gy 11/312 green RAL 6029. | 12.5mm Plasterboard & skim finish to internal exposed columns. Timber Skirting to exposed plastered walls & columns |
| Managers Office | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Polyfloor vinyl tile floor finish Colour: Light grey | Suspended ceiling tiles 600 x 600 on 24mm grid Type: Armstrong Prima Tegular Dune | Frames, Architraves, Skirting Cills: Timber Dulux dimensions 90gy 11/312 green RAL 6029. | |
| Cigarette Store | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Polyfloor vinyl tile floor finish Colour: Light grey | Suspended ceiling tiles 600 x 600 on 24mm grid Type: Armstrong Prima Tegular Dune | Frames, Architraves, Skirting Cills: Timber Dulux dimensions 90gy 11/312 green RAL 6029. | |
| Accessible Unisex WC | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Polyfloor vinyl floor slip resistant finish Colour: Light grey | Suspended ceiling tiles 600 x 600 on 24mm grid Type: Armstrong Prima Tegular Dune | Frames, Architraves, Cills: PVC Dulux dimensions 90gy 11/312 green RAL 6029. Skirting: 100mm PVC Coved skirting, set in with welded joints | |

FINISHES SCHEDULE

Tel:

Fax:

Job No.:
0702

Job Name:
Proposed New

DB:
CB:

| Room Name | Wall1 | Wall 2 | Wall 3 | Wall 4 | Floor | Ceiling | Trims / Skirting / Cills | General |
|----------------------------------|--|--|--|--|--|---|--|---------|
| Back of House | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish to all FF blockwork. Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish to all FF blockwork. Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish to all FF blockwork. Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish to all FF blockwork. Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Larsens concrete sealant applied to screed as per manufacturers written instructions. Class 'O' spread of flame | None | Frames, Architraves, and Trims Dulux dimensions 90gy 11/312 green RAL 6029 | |
| Rear Lobby | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish to all FF blockwork. Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish to all FF blockwork. Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish to all FF blockwork. Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish to all FF blockwork. Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Larsens concrete sealant applied to screed as per manufacturers written instructions. Class 'O' spread of flame | Timber joists & Multi board dry lined ceiling Prepare to receive 1no. priming coat plus 3no. coats eggshell finish | Frames, Architraves, Skirting and Trims: Timber Dulux dimensions 90gy 11/312 green RAL 6029 | |
| Staff Room | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Polyfloor vinyl floor slip resistant finish Colour: Light grey | Suspended ceiling tiles 600 x 600 on 24mm grid Type: Armstrong Prima Regular Dune | Frames, Architraves, Cills: Dulux dimensions 90gy 11/312 green RAL 6029. Skirting: 100mm PVC Covered skirting, set in with welded joints | |
| Hot Food Preparation Area | Spec. wall lining by Store Design, no plaster or paint. | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Polyfloor vinyl floor slip resistant finish Colour: Light grey | Suspended ceiling tiles 600 x 600 on 24mm grid Type: Armstrong Parafon Hygiene | Frames, Architraves, Cills: Dulux dimensions 90gy 11/312 green RAL 6029. Skirting: Not required | |

FINISHES SCHEDULE

Tel:

Fax:

Job No.:
0702

Job Name:
Proposed New

DB:
CB:

| Room Name | Wall1 | Wall 2 | Wall 3 | Wall 4 | Floor | Ceiling | Trims / Skirting / Cills | General |
|-------------------------|--|--|--|--|--|--|--|---------|
| Electrical Store | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Larsens concrete sealant applied to screed as per manufacturers written Class 'O' spread of flame | No Finish | Frames, Architraves. Dulux dimensions 90gy 11/312 green RAL 6029. | |
| Cleaners Store | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Polyfloor vinyl floor slip resistant finish Colour: Light grey | Suspended ceiling tiles 600 x 600 on 24mm grid Type: Armstrong Prima Tegular Dune | Frames, Architraves. Dulux dimensions 90gy 11/312 green RAL 6029. Skirting: 100mm PVC Coved skirting, set in with welded joints | |
| Staff WC | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | 13mm (2No. coats) Thistle multi finish plaster Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Polyfloor vinyl floor slip resistant finish Colour: Light grey | Suspended ceiling tiles 600 x 600 on 24mm grid Type: Armstrong Prima Tegular Dune | Frames, Architraves, Cills: Dulux dimensions 90gy 11/312 green RAL 6029. Skirting: 100mm PVC Coved skirting, set in with welded joints | |
| Lettable Unit | Finishes by others | Finishes by others | Finishes by others | Finishes by others | Finishes by others | Finishes by others | Finishes by others | |
| ATM | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish Colour: Pale Yellow Dulux dimensions 58yy 88/180 | Larsens concrete sealant applied to screed as per manufacturers written Class 'O' spread of flame | Prepare to receive 1no. priming coat plus 3no. coats vinyl emulsion finish | N/A | |



FIRE TEST SUMMARY
Timber Doorset
60 minutes Integrity and 60 minutes Insulation
REFERENCE: RF 05035



Pilkington Pyrostop™ in Timber Doorset

60 minutes Integrity and 60 minutes Insulation

Pilkington Pyrostop™ is a clear fire-resistant glass providing integrity and insulation with impact resistance for screens and doors.

Test reference:

RF 05035

Test station:

Chiltern International Fire Ltd

Test date:

19th April 2005

Test sponsor:

Pilkington Technology Management Ltd

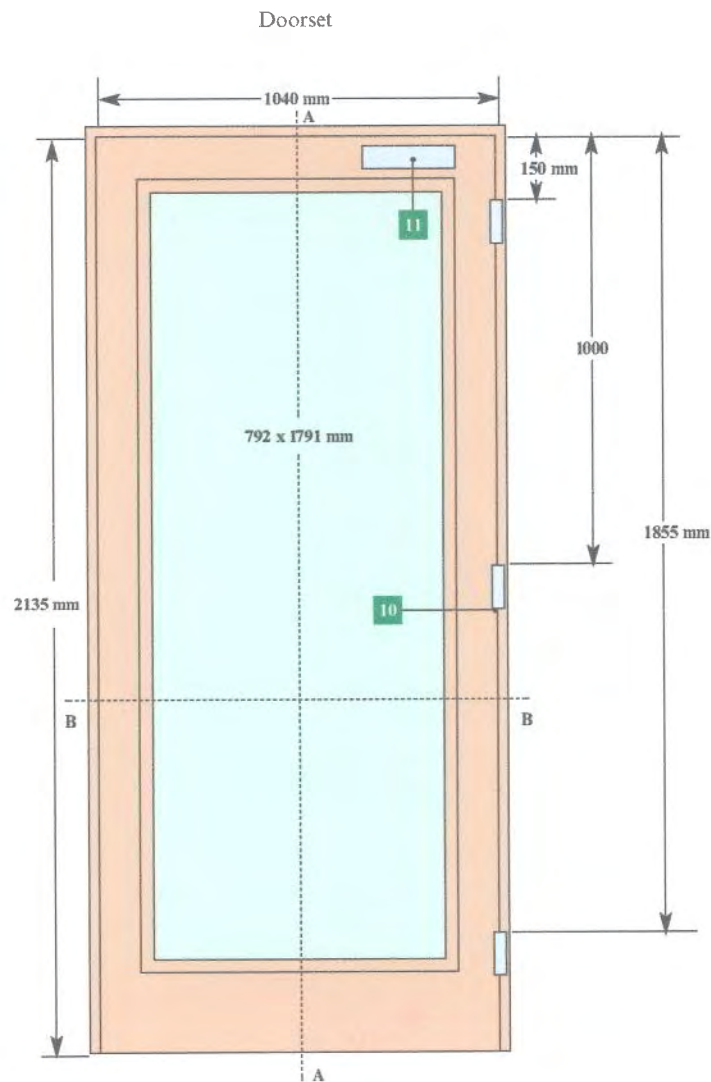
Test standard:

BS EN 1363 : Part 1 : 1999

BS EN 1634 : Part 1 : 2000

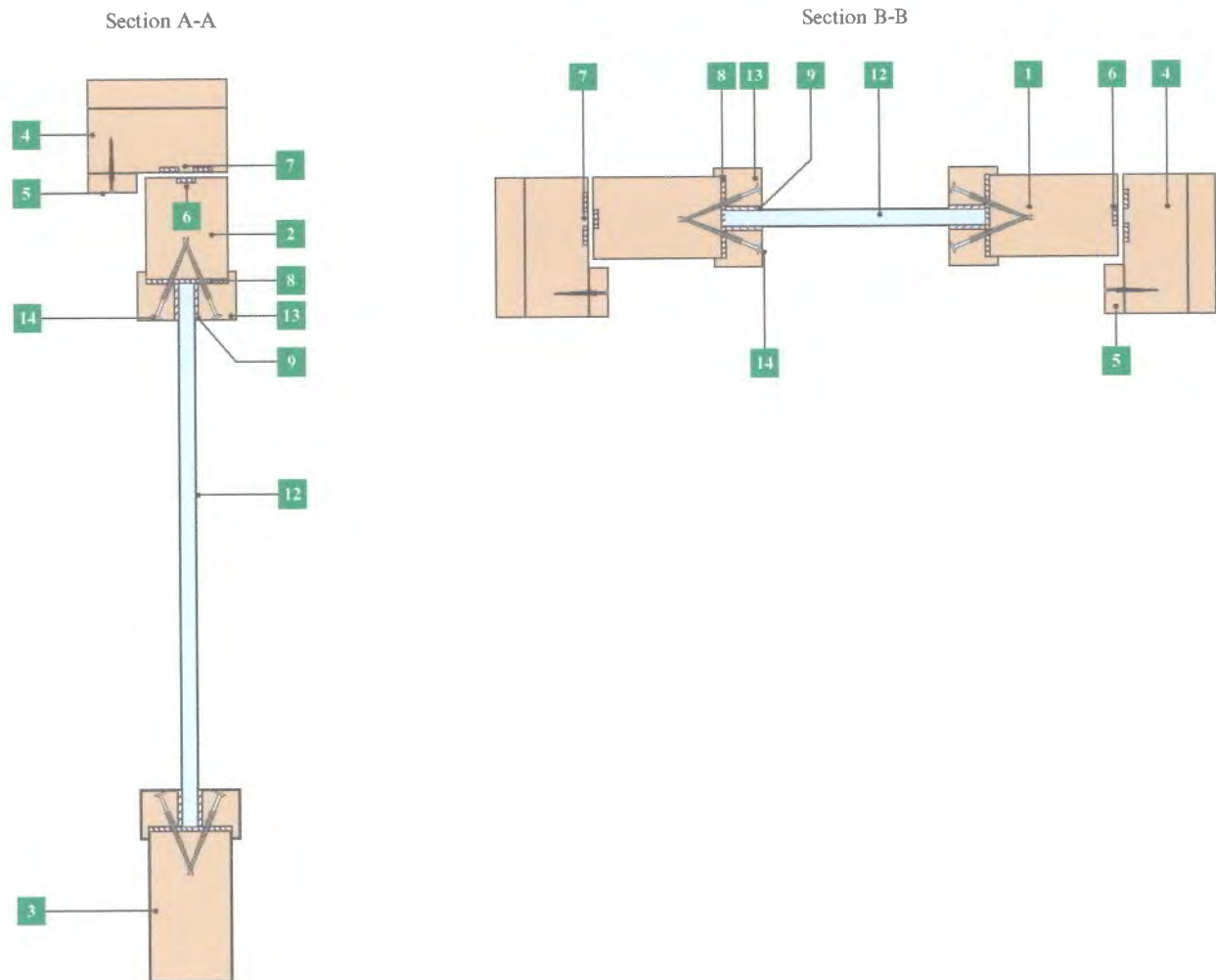
General description of the assembly

- 23mm Pilkington Pyrostop™ 60-101
- Single leaf, single acting glazed doorset
- Hardwood frame and door leaf
- Hardwood glazing beads
- Intumescent seals incorporated into the construction



Key to figures

- 1** Stiles Sapele 100mm wide x 54mm thick (nominal density 640kg/m³)
- 2** Rail Top – Sapele 100mm wide x 54mm thick (nominal density 640kg/m³)
- 3** Rail Bottom – Sapele 200mm wide x 54mm thick (nominal density 640kg/m³)
- 4** Heads & Jambs – Sapele 90mm wide x 44mm thick (nominal density 640kg/m³)
- 5** Stops – Sapele planted (pinned) 36mm wide x 13mm deep (nominal density 640kg/m³)
- 6** Door edge – Head and vertical edges – 1No Lorient Polyproducts Ltd LP1504 15mm x 4mm
- 7** Frame reveal – Heads & Jambs – 2 No Lorient Polyproducts Ltd LP1504 15mm x 4mm
- 8** Norseal Flexible Liner 50mm x 2mm
- 9** Hodgson Sealants Firestrip 60 20mm x 3mm
- 10** Hinges – 3 No Royde & Tucker Hi-load lift off type 100mm x 35mm (blade size) fitted 150, 1000 and 1855mm from the head of the leaf
- 11** Dorma Door Controls Ltd TS83 overhead type 293mm x 60mm
- 12** 23mm Pilkington **Pyrostop™** 60-101
- 13** Beading – Sapele 20mm high x 12.5mm deep with a 5mm x 5mm deep bolection return
- 14** Steel wood screws 60mm long, fitted 50mm from the corners 150mm apart, at 30° to the face of the glass



Scope

The results of this assessment only relate to the behaviour of the specimen of the element of construction under the particular conditions of the test. They are not intended to be the sole criteria for assessing the potential fire performance of the element in use nor do they reflect the actual behaviour in fires.

23mm Pilkington **Pyrostop™** 60-101 is classified as a Class A safety glass according to the impact performance requirements of BS 6206 : 1981, and has been tested in accordance with the fire test requirements of BS EN 1363 : Part 1 : 1999 and BS EN 1634 : Part 1 : 2000.

This publication gives a general description of the product and materials. It is the responsibility of the user to ensure that their use is appropriate for any particular application and that such application complies with all relevant local and national legislation, standards, codes of practice and other requirements.

Pilkington United Kingdom Limited hereby disclaim all liability howsoever arising from any error in or omission from this publication and for all consequences of relying on it.

Pilkington **Pyrostop™** is a trade mark of the Pilkington Group.

For technical advice please contact us on the number below.



Building Products - UK

Telephone

E-mail:

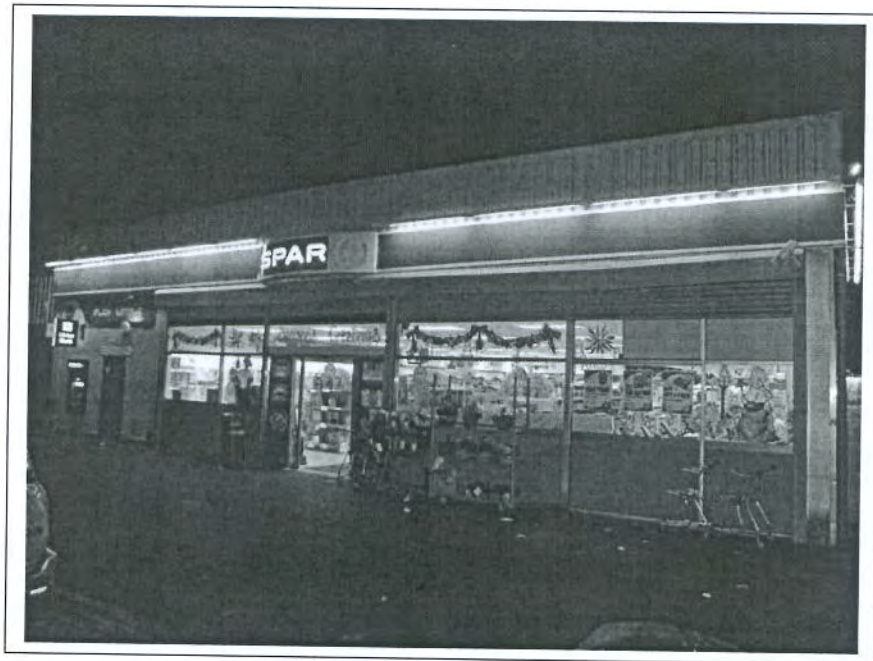
www.



Appendix 17.0

**ASBESTOS
MANAGEMENT
SERVICES**

SHOPPING CENTRE



SURVEY TYPE : Type 3 Pre demolition Survey

SURVEY DATE : Tuesday 5th December 2006

SURVEY REF. No. : T3 RSCRRB 1206

SURVEYED BY : &

SURVEY TYPE : **Type 3 Refurbishment**

SURVEY REF. No. : **T3 RSCRRB 1206**

LEAD SURVEYOR : **Mr.**

SUPPORT SURVEYOR : **Mrs.**

REPORT ORIGINATOR : **Mr.**

SIGNATURE : _____

CHECKED BY : **Mrs.**

SIGNATURE : _____

DATE : _____

11/11/2011

ier:

e-mail :

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SUMMARY – Shopping Centre.

A copy of the laboratory test certificate for the samples analysed can be found at the rear of this report. Items sampled and found not to contain asbestos have been designated No Asbestos Detected (NAD). Other non sampled items suspected of containing asbestos materials are either Presumed or Strongly Presumed to contain asbestos. Where the reference “As Per Sample (APS) ___” is used, the material has been sampled in a previous location and the corresponding laboratory analysis test result applies. The “Licensed Work” column indicates whether a competent contractor (C) or an HSE licensed asbestos removal contractor (L) needs to be appointed to carry out any recommended actions other than simple labelling of ACM’s.

| Item | Location | Description | Identification | Action | Approx. Quantity | Licensed Work |
|------|------------------------------|---------------------------------|-------------------------|----------------|------------------|---------------|
| 1 | Main high level flat roof | Roofing material | Presumed | Label & Manage | 270 m2 | C |
| 2 | Small low level flat roof | Roofing material | Presumed | Label & Manage | 160 m2 | C |
| 3 | Main building external walls | Profiled metal cladding coating | 1 – Chrysotile (white) | Label & Manage | | C |
| 4 | Male WC | Cistern | 2 – Amosite (brown) | Remove | 1 | C |
| 5 | Female WC | Cistern | APS 2 – Amosite (brown) | Remove | 1 | C |
| 6 | Female WC | Bunny burner heating strip | 4 – Chrysotile (white) | Remove | 1 | C |
| 7 | Staff kitchen | Sink underpad | 3 – Chrysotile (white) | Remove | 1 | C |
| 8 | Large kitchen | Sink underpad | 5 – NAD | NAR | | |
| 9 | Managers office | Vinyl floor tiles | 6 – NAD | NAR | | |
| 10 | Main store room | Electrical enclosures | Strongly presumed | Remove | Various | C |

INTRODUCTION

A limited type 3 major refurbishment asbestos survey was conducted on Tuesday 5th December 2006 in the [redacted] at the request of [redacted]. The levels of intrusiveness employed in this type 3 survey were limited as the premises were to be left in an operational condition subsequently fit for business. The purpose of the survey was to identify any asbestos containing materials (ACM's) within the building prior to a proposed major internal refurbishment programme of works commencing in 2006.

As agreed with the client, an overall survey sampling strategy was adopted to minimise the number of samples taken and hence the associated costs of their laboratory analysis.

The survey was conducted in accordance with the guidelines and requirements laid out in the Health and Safety Executive (HSE) document MDHS100 Surveying, Sampling and Assessment of Asbestos Containing Materials. Under the guidelines contained within this document relating to type 3 pre-demolition surveys, it is not necessary to provide scorings for Accessibility, Material Damage or Surface Treatment. Hence no overall material assessment scores have been derived for the items recorded.

Additional background information on asbestos survey types and material risk assessment parameters are provided in the report appendix.

Whilst best endeavours were made to determine the quantities of any ACM's' detected, it would be prudent to ensure any asbestos removal contractors base their tender submissions on their own measurements and calculations.

TYPE 3 SURVEY - SPECIFIC EXCLUSIONS

The purpose of a type 3 asbestos survey is to locate in a potentially destructive manner, the presence and extent of any suspected asbestos containing materials in a building, as far as reasonably practicable. Although all areas within the designated building were accessed and inspected as far as reasonably practicable, the following additional limitations should be noted.

1. This limited type 3 survey was conducted in the specific rooms and external areas of the designated building as instructed by the client prior to the survey.
2. It is recommended that bulk samples be taken at the required density from all materials that upon visual inspection appear likely to contain asbestos. However, the sampling density has been reduced as agreed with the client to minimise the overall survey costs.
3. Materials referred to as Asbestos Insulating Board (AIB) or Asbestos Cement (AC) are based on their visual appearance. Density checks on such materials have not been carried out unless otherwise stated.
4. In the absence of written confirmation that all incoming electrical supplies had been disconnected by the utility, no access was made to the electrical enclosures found in the building.
5. Asbestos materials can be introduced into the fabric of a building by sub-standard construction practices, e.g. poor housekeeping, unauthorised material substitution from original specifications, etc. Despite best endeavours, detection of such materials may only be possible either by chance or complete demolition of a building. Consequently, AMS accept no responsibility for the presence of any additional ACM's which could not reasonably have been detected through good survey practices and the guidelines detailed in HSE document MDHS100.
6. As detailed in our standard tender terms and conditions, no investigations for the presence of asbestos were conducted below the building finished floor level other than the opening of a representative number of manhole covers, where present and reasonably accessible, in the vicinity of the building. Consequently Asbestos Management Services accept no responsibility for any asbestos containing materials subsequently found below ground either in the form of specific products or waste materials.

METHODOLOGY

All internal and external areas of the building were systematically accessed and inspected as far as reasonably practicable for the presence of asbestos containing materials, taking into consideration the structural fabric of the building. This included floor coverings, ceilings, ceiling voids, insulation materials, pipe lagging, roof coverings, rain water goods and any other materials suspected of containing asbestos where readily accessible.

Representative samples of suspected ACM's were collected and placed in sealed labelled containers. Where appropriate, the surfaces around the sample points were sealed to prevent possible further asbestos fibre release.

All samples were analysed by a United Kingdom Accreditation Service (UKAS) laboratory in accordance with MDHS 77. The samples were prepared and examined by low power microscope. Fibres found in the samples were mounted onto glass slides in specific refractive index liquids chosen to match individual asbestos staining types and examined using polarised light and dispersion staining microscopy. Fibres were identified by comparison of the optical properties with those of standard reference minerals and published data.

ASBESTOS WORK NOT NORMALLY REQUIRING A LICENCE

This section is not intended to be a detailed synopsis of the current legislation, but merely draws the readers attention to the fact that work with certain specific asbestos materials does not require the possession of an asbestos licence issued by the HSE. Such work is detailed in a separate HSE Approved Code of Practice (ACOP) entitled “Work with asbestos which does not normally require a licence”. Essentially, this allows work or disturbance of asbestos containing materials including:

- Any work with asbestos cement (AC) including the cleaning, repairing, painting or removal of AC materials and the dismantling or demolition of buildings containing AC.
- Any work with bitumen, plastic, resins or rubber which contain asbestos for which the thermal and acoustic properties of the asbestos are incidental to the products main purpose.
- Minor works involving thermal insulation, asbestos insulating board (AIB) and asbestos coatings due to their limited duration and extent. E.g. removal of a single panel of AIB, minor damage repairs, drilling a small number of holes.

It is important to note that as already stated, although work with these materials does not normally require an HSE asbestos licence, such activities still falls under The Control of Asbestos at Work Regulations 2002 which requires the dutyholder to ensure all such asbestos related works are carried out using appropriate work methods and equipment. If there is any doubt as to the suitability of personnel being appointed to carry out such work, guidance should be sought from the HSE. Further background guidance and information can be obtained from the following HSE publications:

- The Management of Asbestos in Non-Domestic Premises ACOP – ISBN 0717623823
- Work With Asbestos Insulation, Asbestos Coating and Asbestos Insulating Board ACOP (4th Edition) – ISBN 071762563X
- Work With Asbestos Which Does Not Normally Require a Licence ACOP (4th Edition) - ISBN 0717625621

- A Comprehensive Guide to Managing Asbestos in Premises – ISBN 0717623815
- Asbestos Essentials Task Manual – ISBN 0717618870
- Introduction to Asbestos Essentials – ISBN 071761901X

FIXED & PORTABLE ELECTRICAL EQUIPMENT

Electrical installations and items of equipment can contain various asbestos products such as fuse pads, rope seals, small sections of asbestos insulating board, etc. There were a number of electrical items of unknown age, including both portable and fixed electrical equipment, observed whilst carrying out the survey. Such items were not inspected internally due to current health and safety legislation, the specialist nature of such work and the possibility of compromising the functional integrity of these items by doing so. Any individuals having reason to access these items or carry out maintenance on them, should be warned in advance of the possible presence of asbestos materials and implement appropriate measures to manage the associated hazards.

AREAS NOT ACCESSED

No access to the areas behind the main retail area wall shelving – accessing these areas would have caused excessive disruption.

No access to self contained cold store – this is a stand alone unit considered outside the scope of this survey.

FINDINGS

Within this report, each suspected asbestos containing material (ACM) detected has been given a separate sample page indicating whether it was sampled, presumed or strongly presumed. Additional comments and qualifications where appropriate, have been included with sampled or presumed asbestos materials found during the survey. Due to the relatively small number of suspected ACM's detected and the relative ease with which they can be located, no roof or floor plan sketches have been deemed necessary.

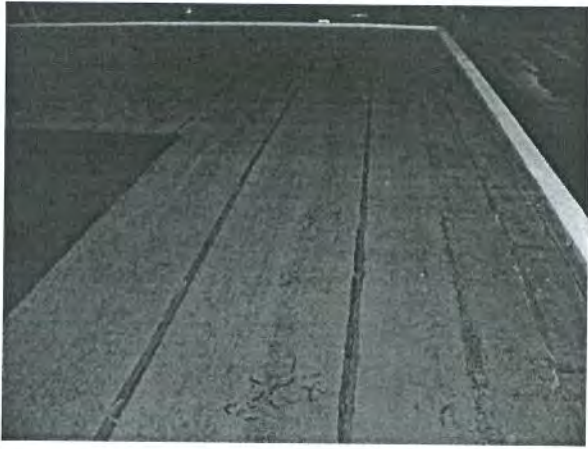
As outlined in MDHS 100, the condition of any asbestos containing materials detected is not normally assessed and therefore no overall material assessment scorings have been provided within this report. The "Licensed Work" column indicates whether a licensed asbestos removal contractor needs to be appointed to carry out any necessary removal works. Where appropriate, further recommendations for action to be taken have been outlined at the rear of this report. Material assessment scores have been provided for the main flat roofs and the external wall cladding which based on information provided, is not to be disturbed as part of the proposed refurbishment works.

The age of the building is not known, but is estimated to have been constructed circa 1970's. It is of single storey construction with two flat roofs covered in felt based systems presumed to contain asbestos and draining via PVC downpipes. Asbestos was detected in the coating on the high level profiled metal wall cladding present along the front and car park side elevations. Similar non-profiled material is also used as flashing around the remaining elevations of the building. No materials suspected of containing asbestos were detected around the roller door assembly on the front elevation. No materials suspected of containing asbestos were detected in the car park side elevation external wall cavity.


Internally, the retail area has modern cellulose based suspended ceiling tiles with fibreglass insulation on top of them, above which is a second suspended ceiling using foil backed plasterboard ceiling tiles. The flat roofs are supported by uncased steel roof trusses, with the rear stores area open to the underside of the flat roof steel deck.

Fibreboard ceilings are present in the kitchen, male and female WC's with fixed plaster present in the large kitchen and managers office. All internal walls are a mix of solid, stud plaster and timber. No asbestos was detected in the vinyl floor tiles in the managers office. Asbestos was detected in the male and female WC cisterns, the small staff kitchen sink underpad and the heating / sealing strip on the female WC hygiene unit. There are two unlagged metal water tanks resting on timber located above the staff WC / kitchen and a large unlagged plastic water tank above the large kitchen. Asbestos is strongly presumed to be present in at least some of the electrical enclosures within the building, particularly those located beside the managers office door and adjacent to the rear main loading bay door.

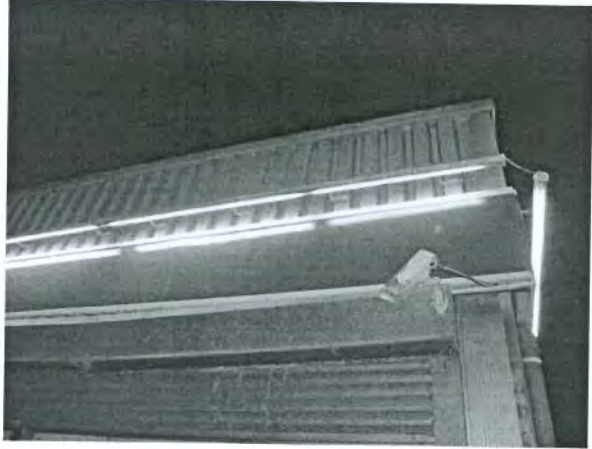
ASBESTOS MANAGEMENT SERVICES

| | | | | | | |
|---|--|-----------------------|---------------------------------------|--|------------------------|----|
| Building | | Survey Ref No. | T3 RSCRRB 1206 | | | |
| Location | Main high level flat roof | Survey Date | Tuesday 5 th December 2006 | | | |
| Item 1 | Roofing material | Sample No. | Presumed | | | |
|  | | | | | | |
| Product Type | Reinforced composites, Paints, Finishes, Cement | 1 | | Quantity (m / m² / m³) | 270 m2 | |
| | AIB Board, Rope, Textiles, Gaskets, Paper, Felt | 2 | 2 | Accessibility (Restricted / Semi Restricted / Open) | R | |
| | Thermal Insulation, loose asbestos, Sprayed asbestos | 3 | | Action | Remove | |
| Asbestos Type | Non Asbestos | 0 | | | Encapsulate | |
| | Chrysotile (White) | 1 | 1 | | Enclose | |
| | Amosite (Brown) | 2 | | | Label & Manage | LM |
| | Crocidolite (Blue) | 3 | | | Inspection (Months) | 12 |
| Damage | Good Condition | 0 | 0 | | Action Timescale (Mth) | 3 |
| | Low Damage | 1 | | | Licensed/Competent | C |
| | Medium Damage | 2 | | | No Action Required | |
| | High Damage | 3 | | | Comments | |
| Surface Treatment | Composite material | 0 | 0 | | | |
| | Enclosed lagging, sealed AIB board, Cement | 1 | | | | |
| | Unsealed AIB board, encapsulated lagging | 2 | | | | |
| | Unsealed lagging, Sprays | 3 | | | | |
| Material Assessment Score | | | 3 | | | |

ASBESTOS MANAGEMENT SERVICES

| | | | | | | |
|---|--|-----------------------|---------------------------------------|---|------------------------|--|
| Building | | Survey Ref No. | T3 RSCRRB 1206 | | | |
| Location | Small low level flat roof | Survey Date | Tuesday 5 th December 2006 | | | |
| Item 2 | Roofing material | Sample No. | Presumed | | | |
|  | | | | | | |
| Product Type | Reinforced composites, Paints, Finishes, Cement | 1 | | Quantity (m / m² / m³) | 160 m ² | |
| | AIB Board, Rope, Textiles, Gaskets, Paper, Felt | 2 | 2 | | | Accessibility (Restricted / Semi Restricted / Open) |
| | Thermal Insulation, loose asbestos, Sprayed asbestos | 3 | | Action | Remove | |
| Asbestos Type | Non Asbestos | 0 | | | Encapsulate | |
| | Chrysotile (White) | 1 | 1 | | Enclose | |
| | Amosite (Brown) | 2 | | | Label & Manage | LM |
| | Crocidolite (Blue) | 3 | | | Inspection (Months) | 12 |
| Damage | Good Condition | 0 | 0 | | Action Timescale (Mth) | 3 |
| | Low Damage | 1 | | | Licensed/Competent | C |
| | Medium Damage | 2 | | | No Action Required | |
| | High Damage | 3 | | | Comments | |
| Surface Treatment | Composite material | 0 | 0 | | | |
| | Enclosed lagging, sealed AIB board, Cement | 1 | | | | |
| | Unsealed AIB board, encapsulated lagging | 2 | | | | |
| | Unsealed lagging, Sprays | 3 | | | | |
| Material Assessment Score | | | | 3 | | |

ASBESTOS MANAGEMENT SERVICES

| | | | | | | |
|---|--|-----------------------|---------------------------------------|--|------------------------|--|
| Building | | Survey Ref No. | T3 RSCRRB 1206 | | | |
| Location | Main building external walls | Survey Date | Tuesday 5 th December 2006 | | | |
| Item 3 | Profiled metal cladding coating | Sample No. | 1 | | | |
|  | | | | | | |
| Product Type | Reinforced composites, Paints, Finishes, Cement | 1 | 1 | Quantity (m / m² / m³) | 50 m2 | |
| | AIB Board, Rope, Textiles, Gaskets, Paper, Felt | 2 | | Accessibility (Restricted / Semi Restricted / Open) | R | |
| Asbestos Type | Thermal Insulation, loose asbestos, Sprayed asbestos | 3 | | Action | Remove | |
| | Non Asbestos | 0 | | | Encapsulate | |
| | Chrysotile (White) | 1 | 1 | | Enclose | |
| | Amosite (Brown) | 2 | | | Label & Manage | LM |
| Damage | Crocidolite (Blue) | 3 | | | Inspection (Months) | 12 |
| | Good Condition | 0 | | | Action Timescale (Mth) | 3 |
| | Low Damage | 1 | 1 | | Licensed/Competent | C |
| | Medium Damage | 2 | | | No Action Required | |
| Surface Treatment | High Damage | 3 | | | Comments | This material extends around the front and car park side elevations. It is also present along the rest of the building as a shorter section of non-profiled metal roof flashing. |
| | Composite material | 0 | 0 | | | |
| | Enclosed lagging, sealed AIB board, Cement | 1 | | | | |
| | Unsealed AIB board, encapsulated lagging | 2 | | | | |
| Unsealed lagging, Sprays | 3 | | | | | |
| Material Assessment Score | | 3 | | | | |

ASBESTOS MANAGEMENT SERVICES

| | | | |
|-----------------|---------|-----------------------|---------------------------------------|
| Building | | Survey Ref No. | T3 RSCRRB 1206 |
| Location | Male WC | Survey Date | Tuesday 5 th December 2006 |
| Item 4 | Cistern | Sample No. | 2 |



| | | | | | | |
|----------------------------------|--|---|---|--|---------------------|---|
| Product Type | Reinforced composites, Paints, Finishes, Cement | 1 | 1 | Quantity (m / m² / m³) | 1 | |
| | AIB Board, Rope, Textiles, Gaskets, Paper, Felt | 2 | | Accessibility (Restricted / Semi Restricted / Open) | | |
| Asbestos Type | Thermal Insulation, loose asbestos, Sprayed asbestos | 3 | | Action | Remove | R |
| | Non Asbestos | 0 | | | Encapsulate | |
| | Chrysotile (White) | 1 | | | Enclose | |
| | Amosite (Brown) | 2 | 2 | | Label & Manage | |
| | Crocidolite (Blue) | 3 | | | Inspection (Months) | |
| Damage | Good Condition | 0 | | Action Timescale (Mth) | | |
| | Low Damage | 1 | | Licensed/Competent | C | |
| | Medium Damage | 2 | | No Action Required | | |
| | High Damage | 3 | | Comments | | |
| Surface Treatment | Composite material | 0 | | | | |
| | Enclosed lagging, sealed AIB board, Cement | 1 | | | | |
| | Unsealed AIB board, encapsulated lagging | 2 | | | | |
| | Unsealed lagging, Sprays | 3 | | | | |
| Material Assessment Score | | | | | | |

ASBESTOS MANAGEMENT SERVICES

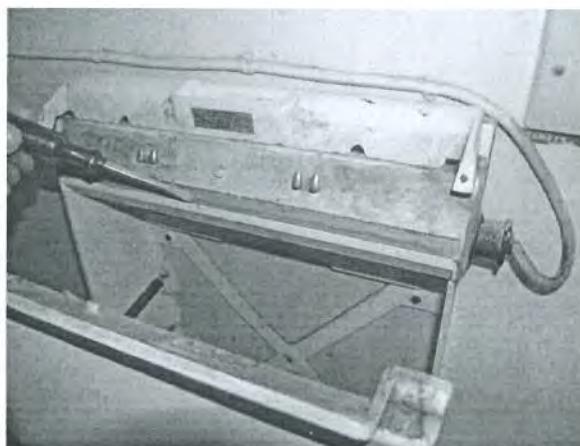
| | | | |
|-----------------|-----------|-----------------------|---------------------------------------|
| Building | | Survey Ref No. | T3 RSCRRB 1206 |
| Location | Female WC | Survey Date | Tuesday 5 th December 2006 |
| Item 5 | Cistern | Sample No. | APS 2 |



| | | | | | |
|----------------------------------|--|---|---|---|--|
| Product Type | Reinforced composites, Paints, Finishes, Cement | 1 | 1 | Quantity (m / m² / m³) | 1 |
| | AIB Board, Rope, Textiles, Gaskets, Paper, Felt | 2 | | Action | Accessibility (Restricted / Semi Restricted / Open) |
| | Thermal Insulation, loose asbestos, Sprayed asbestos | 3 | | | Remove |
| Asbestos Type | Non Asbestos | 0 | | Encapsulate | |
| | Chrysotile (White) | 1 | | Enclose | |
| | Amosite (Brown) | 2 | 2 | Label & Manage | |
| | Crocidolite (Blue) | 3 | | Inspection (Months) | |
| Damage | Good Condition | 0 | | Action Timescale(Mth) | |
| | Low Damage | 1 | | Licensed/Competent | C |
| | Medium Damage | 2 | | No Action Required | |
| | High Damage | 3 | | Comments | |
| Surface Treatment | Composite material | 0 | | | |
| | Enclosed lagging, sealed AIB board, Cement | 1 | | | |
| | Unsealed AIB board, encapsulated lagging | 2 | | | |
| | Unsealed lagging, Sprays | 3 | | | |
| Material Assessment Score | | | | | |

ASBESTOS MANAGEMENT SERVICES

| | | | |
|-----------------|----------------------------|-----------------------|---------------------------------------|
| Building | | Survey Ref No. | T3 RSCRRB 1206 |
| Location | Female WC | Survey Date | Tuesday 5 th December 2006 |
| Item 6 | Bunny burner heating strip | Sample No. | 4 |



| | | | | | | |
|----------------------------------|--|---|---|--|------------------------|---|
| Product Type | Reinforced composites, Paints, Finishes, Cement | 1 | 1 | Quantity (m / m² / m³) | 1 | |
| | AIB Board, Rope, Textiles, Gaskets, Paper, Felt | 2 | | Accessibility (Restricted / Semi Restricted / Open) | | |
| | Thermal Insulation, loose asbestos, Sprayed asbestos | 3 | | Action | Remove | R |
| Asbestos Type | Non Asbestos | 0 | | | Encapsulate | |
| | Chrysotile (White) | 1 | 1 | | Enclose | |
| | Amosite (Brown) | 2 | | | Label & Manage | |
| | Crocidolite (Blue) | 3 | | | Inspection (Months) | |
| Damage | Good Condition | 0 | | | Action Timescale (Mth) | |
| | Low Damage | 1 | | | Licensed/Competent | C |
| | Medium Damage | 2 | | | No Action Required | |
| | High Damage | 3 | | | Comments | |
| Surface Treatment | Composite material | 0 | | | | |
| | Enclosed lagging, sealed AIB board, Cement | 1 | | | | |
| | Unsealed AIB board, encapsulated lagging | 2 | | | | |
| | Unsealed lagging, Sprays | 3 | | | | |
| Material Assessment Score | | | | | | |

ASBESTOS MANAGEMENT SERVICES

| | | | |
|-----------------|---------------|-----------------------|---------------------------------------|
| Building | | Survey Ref No. | T3 RSCRRB 1206 |
| Location | Staff kitchen | Survey Date | Tuesday 5 th December 2006 |
| Item 7 | Sink underpad | Sample No. | 3 |



| | | | | | | |
|----------------------------------|--|---|---|--|---------------------|---|
| Product Type | Reinforced composites, Paints, Finishes, Cement | 1 | 1 | Quantity (m / m² / m³) | 1 | |
| | AIB Board, Rope, Textiles, Gaskets, Paper, Felt | 2 | | Accessibility (Restricted / Semi Restricted / Open) | | |
| Asbestos Type | Thermal Insulation, loose asbestos, Sprayed asbestos | 3 | | Action | Remove | R |
| | Non Asbestos | 0 | | | Encapsulate | |
| | Chrysotile (White) | 1 | 1 | | Enclose | |
| | Amosite (Brown) | 2 | | | Label & Manage | |
| | Crocidolite (Blue) | 3 | | | Inspection (Months) | |
| Damage | Good Condition | 0 | | Action Timescale (Mth) | | |
| | Low Damage | 1 | | Licensed/Competent | C | |
| | Medium Damage | 2 | | No Action Required | | |
| | High Damage | 3 | | Comments | | |
| Surface Treatment | Composite material | 0 | | | | |
| | Enclosed lagging, sealed AIB board, Cement | 1 | | | | |
| | Unsealed AIB board, encapsulated lagging | 2 | | | | |
| | Unsealed lagging, Sprays | 3 | | | | |
| Material Assessment Score | | | | | | |

ASBESTOS MANAGEMENT SERVICES

| | | | |
|-----------------|---------------|-----------------------|---------------------------------------|
| Building | | Survey Ref No. | T3 RSCRRB 1206 |
| Location | Large kitchen | Survey Date | Tuesday 5 th December 2006 |
| Item 8 | Sink underpad | Sample No. | 5 |



| | | | | | | |
|----------------------------------|--|---|---|--|---------------------|--|
| Product Type | Reinforced composites, Paints, Finishes, Cement | 1 | | Quantity (m / m² / m³) | | |
| | AIB Board, Rope, Textiles, Gaskets, Paper, Felt | 2 | | Accessibility (Restricted / Semi Restricted / Open) | | |
| | Thermal Insulation, loose asbestos, Sprayed asbestos | 3 | | Action | Remove | |
| Asbestos Type | Non Asbestos | 0 | X | | Encapsulate | |
| | Chrysotile (White) | 1 | | | Enclose | |
| | Amosite (Brown) | 2 | | | Label & Manage | |
| | Crocidolite (Blue) | 3 | | | Inspection (Months) | |
| Damage | Good Condition | 0 | | Action Timescale(Mth) | | |
| | Low Damage | 1 | | Licensed/Competent | | |
| | Medium Damage | 2 | | No Action Required | X | |
| | High Damage | 3 | | Comments | | |
| Surface Treatment | Composite material | 0 | | | | |
| | Enclosed lagging, sealed AIB board, Cement | 1 | | | | |
| | Unsealed AIB board, encapsulated lagging | 2 | | | | |
| | Unsealed lagging, Sprays | 3 | | | | |
| Material Assessment Score | | | | | | |


ASBESTOS MANAGEMENT SERVICES

| | | | |
|-----------------|-------------------|-----------------------|---------------------------------------|
| Building | | Survey Ref No. | T3 RSCRRB 1206 |
| Location | Managers office | Survey Date | Tuesday 5 th December 2006 |
| Item 9 | Vinyl floor tiles | Sample No. | 6 |



| | | | | | | |
|----------------------------------|--|---|---|--|------------------------|--|
| Product Type | Reinforced composites, Paints, Finishes, Cement | 1 | | Quantity (m / m² / m³) | | |
| | AIB Board, Rope, Textiles, Gaskets, Paper, Felt | 2 | | Accessibility (Restricted / Semi Restricted / Open) | | |
| | Thermal Insulation, loose asbestos, Sprayed asbestos | 3 | | Action | Remove | |
| Asbestos Type | Non Asbestos | 0 | X | | Encapsulate | |
| | Chrysotile (White) | 1 | | | Enclose | |
| | Amosite (Brown) | 2 | | | Label & Manage | |
| | Crocidolite (Blue) | 3 | | | Inspection (Months) | |
| Damage | Good Condition | 0 | | | Action Timescale (Mth) | |
| | Low Damage | 1 | | | Licensed/Competent | |
| | Medium Damage | 2 | | No Action Required | X | |
| | High Damage | 3 | | Comments | | |
| Surface Treatment | Composite material | 0 | | | | |
| | Enclosed lagging, sealed AIB board, Cement | 1 | | | | |
| | Unsealed AIB board, encapsulated lagging | 2 | | | | |
| | Unsealed lagging, Sprays | 3 | | | | |
| Material Assessment Score | | | | | | |

ASBESTOS MANAGEMENT SERVICES

| | | | | | | |
|---|--|-----------------------|---------------------------------------|---|--|--|
| Building | [REDACTED] Road, Dargoi | Survey Ref No. | T3 RSCRRB 1206 | | | |
| Location | Main store room | Survey Date | Tuesday 5 th December 2006 | | | |
| Item 10 | Electrical enclosures | Sample No. | Strongly presumed | | | |
|  | | | | | | |
| Product Type | Reinforced composites, Paints, Finishes, Cement | 1 | | Quantity (m / m² / m³) | Various | |
| | AIB Board, Rope, Textiles, Gaskets, Paper, Felt | 2 | 2 | | | Accessibility (Restricted / Semi Restricted / Open) |
| Asbestos Type | Thermal Insulation, loose asbestos, Sprayed asbestos | 3 | | Action | Remove | R |
| | Non Asbestos | 0 | | | Encapsulate | |
| | Chrysotile (White) | 1 | | | Enclose | |
| | Amosite (Brown) | 2 | 2 | | Label & Manage | |
| Damage | Crocidolite (Blue) | 3 | | | Inspection (Months) | |
| | Good Condition | 0 | | | Action Timescale (Mth) | |
| | Low Damage | 1 | | | Licensed/Competent | C |
| | Medium Damage | 2 | | | No Action Required | |
| | High Damage | 3 | | | Comments | |
| Surface Treatment | Composite material | 0 | | | Note that other enclosures are located at the rear of the main store adjacent to the loading bay door. | |
| | Enclosed lagging, sealed AIB board, Cement | 1 | | | | |
| | Unsealed AIB board, encapsulated lagging | 2 | | | | |
| | Unsealed lagging, Sprays | 3 | | | | |
| Material Assessment Score | | | | | | |

RECOMMENDATIONS

Based on the findings of this survey, no further recommendations are deemed necessary.

It is sometimes impracticable and uneconomical to locate, remove and adequately clean electrical items containing asbestos. A simpler and more cost effective option may be to remove each electrical item as a complete assembly and dispose of it as asbestos waste.

N.B. Note that the producer of any waste containing asbestos materials has a legal duty of care under current waste legislation, of ensuring that such waste items either presumed or positively identified as containing asbestos, be disposed of in accordance with current waste legislation. This will necessitate the use of a waste haulier licensed to carry asbestos waste, who will issue a consignment note upon collection of the asbestos waste, and ensure its final disposal in a landfill site licensed to accept such waste. The waste producer's duty of care extends to ensuring that the asbestos containing materials are finally deposited in an asbestos licensed landfill site.

APPENDIX

ASBESTOS RISK ASSESSMENT TABLE

The purpose of the material risk assessment scoring within this table is to determine the relative ability of different asbestos containing materials (ACM's) to release fibres into the air if they are disturbed. This assessment can be carried out as part of the survey as no prior knowledge of the building use is required and the parameters involved can be judged at the time of the survey. The likely magnitude of fibre release from the ACM is based on a simple four parameter additive algorithm, using Product Type, Asbestos Type, Damage and Surface Treatment. This gives a score which falls into four categories, namely :

High (> 10), Medium (7 – 9), Low (5 – 6) and Very Low (<4).

Whilst the material assessment will identify the high risk materials which will most readily release airborne fibres when disturbed, it does not automatically follow that those same materials should be given priority for remedial action. The current Control of Asbestos at Work Regulations (CAWR) places an explicit duty on Duty Holders, who may be employers, controllers or occupiers of premises, to manage asbestos in non-domestic premises. This duty requires them to –

- Assess whether asbestos containing materials are or are liable to be present in the workplace.
- Where ACM's are or are liable to be present, to prepare a written plan identifying the areas concerned and specifying the measures to manage the risks arising from same.
- Record and update the assessment / management plan on a regular basis.

Consequently management action priorities must be determined by carrying out a risk assessment taking into account such factors as –

- Location of the ACM.
- Extent of the ACM.
- Accessibility (or vulnerability) of the ACM.

- What the location is used for.
- The level of occupancy of the area.
- Typical activities carried out in the area.
- Likelihood, frequency and type of maintenance activities which are likely to take place.

Such a risk assessment can only be carried out by having a detailed knowledge of all of these factors for a given building, which a surveyor would not normally be party to, with the exception of Accessibility, which has been assessed. Further background information on what is meant by Accessibility is given below.

Under the CAWR, the duty holder is required to make the risk assessment using the information in the survey and their detailed knowledge of the additional factors outlined above. The completed risk assessment will then form the basis of the overall building or site asbestos management plan.

ASBESTOS CONDITION REPORTING

During the survey, the condition of the asbestos materials found is assessed and categorised into four broad categories, namely Good (0), Low Damage (1), Medium Damage (2) and High Damage (3). A brief explanation of these terms is outlined below.

Good Condition (0) : The asbestos based material is in sealed condition and showing no signs of deterioration or visible damage.

Low Damage (1) : The asbestos based material, although sound, is (A) sealed but showing slight signs of surface deterioration such as hairline cracks, water stains and minor blemishes or (B) unsealed but is otherwise in good condition.

Medium Damage (2) : The asbestos based material is badly water stained, broken, badly cracked or corroded, or fibrous materials are exposed.

High Damage (3) : The asbestos based material, sprays and/or thermal insulation is showing signs of severe delamination. Visible asbestos debris may also be present.

ACCESSIBILITY

This is an assessment of how accessible or vulnerable an ACM is in terms of sustaining damage and/or exposing persons to fibre release. The classifications fall into the following three broad categories.

- “Restricted”** - Where the material is in an area requiring a ladder and/or only authorised persons can gain entry.
- “Semi Restricted”** - A locked room would be classed as “Semi Restricted”.
- “Open”** - Offices, corridors, etc. would be classified as “Open”.

These classifications would not usually be included in a type 3 asbestos survey.

ACTION

The recommended action is based on the previously recorded information, and will normally be selected from one or more of the following –

Remove – Item and / or debris should be removed and disposed off using an asbestos licensed contractor, unless otherwise specified.

Encapsulate – Seal (or reseal if the material has been previously sealed) using paint or other appropriate encapsulant.

Enclose – Cover the asbestos containing material using an appropriate non-asbestos protective material.

Label – Position self adhesive standard asbestos warning labels on or adjacent to the asbestos containing material at appropriate spacing intervals, ensure the material is maintained in good condition and take measures to prevent future accidental disturbance / damage.

Inspect – Carry out material condition inspections on the asbestos material at twelve monthly intervals, unless specified otherwise, and record the material condition findings.

Licensed / Competent – Indication as to whether the recommended course of action needs to be carried out by an HSE licensed asbestos contractor or by a suitably competent, trained and equipped non-asbestos licensed contractor.

No Action Required – No asbestos detected following sampled material laboratory analysis and therefore no further action required.

TYPES OF SURVEY

There are currently three types of survey outlined within the current Health and Safety Executive MDHS 100 document, the key differences of which are outlined below.

Type 1 : Location and Assessment Survey (Presumptive Survey)

The purpose of the survey is to locate, as far as reasonably practicable, the presence and extent of any suspect ACM's in the building and assess their condition. This survey essentially defers the need to sample and analyse for asbestos (or the absence thereof) until a later time eg. prior to demolition or major refurbishment. The duty holder bears potential additional costs of management for some non-asbestos containing materials. All areas should be accessed and inspected as far as reasonably practicable eg. above false ceilings and inside service ducts, risers, lift shafts, etc, or must be presumed to contain asbestos. Any material which can reasonably be expected to contain asbestos, must be presumed to contain asbestos, and where it appears highly likely to contain asbestos, there should be a strong presumption that it does. All materials which are presumed to contain asbestos must be assessed.

Type 2 : Sampling, Identification and Assessment Survey (Sampling Survey)

The purpose and procedures used in this survey are the same as for Type 1, except that representative samples are collected and analysed for the presence of asbestos. Samples from each type of suspect ACM found are collected and analysed to confirm or refute the surveyor's judgement. If the material sampled is found to contain asbestos, other similar homogeneous materials used in the same way in the building can be strongly presumed to contain asbestos. Less homogeneous materials will require a greater number of samples. The number should be sufficient for the surveyor to make an assessment of whether asbestos is or is not present. Sampling

may take place simultaneously with the survey, or as in the case of some larger surveys, can be carried out as a separate exercise after the type 1 survey is complete.

Type 3 : Full Access Sampling and Identification Survey (Pre-demolition/Major Refurbishment Survey)

This type of survey is used to locate and describe, as far as reasonably practicable, all ACM's in the building and may involve destructive inspection, as necessary, to gain access to all areas, including those that may be difficult to reach. A full sampling programme is undertaken to identify possible ACM's and estimates of the volume and surface area of ACM's made. The survey is designed to be used as the basis for tendering the removal of ACM's from the building prior to demolition or major refurbishment works. Consequently, the survey does not assess the condition of the asbestos other than to note areas of damage or where additional asbestos debris may be expected to be present.

Bulk Analysis Request

Client: AMS Order No. AMS 352 : Despatch Date : 6/12/2006
Site Address: Report Issue Date: 08/12/06
Job Number: 06/12/BO35 Test Date: 06/12/06

| Sample No | Location | Content & Concentration |
|-----------|---|-------------------------|
| ELL28508 | Sample 1 – External high level profiled metal wall cladding | Chrysotile |
| ELL28509 | Sample 2 – Male WC cistern | Amosite |
| ELL28510 | Sample 3 – Staff kitchen sink underpad | Chrysotile |
| ELL28511 | Sample 4 – Female WC bunny burner heating strip | Chrysotile |
| ELL28512 | Sample 5 – Large kitchen sink underpad | NAD |
| ELL28513 | Sample 6 – Managers office vinyl floor tiles | NAD |

Report on the analysis of delivered samples of material suspected of containing asbestos. Sample analysis was conducted in accordance with documented in house procedures and the methodology contained in MDHS77 (Asbestos in bulk materials. Sampling and identification by polarised light microscopy. June 1994). The information provided concerning sample locations is as provided by the client no liability can be accepted for the accuracy of this information.

Comments, opinions, and recommendations are outside the scope of our UKAS accreditation. Determination of concentration is outside the scope of Laboratory accreditation.

Sample Analysis Conducted by: BB

Authorised signatures: J Richards A Harrison
 Technical Director Quality Manager

Key: Chrysotile: White Asbestos Amosite: Brown Asbestos Crocidolite: Blue Asbestos NAD No Asbestos Detected
 Trace <5% Low 5-15% Medium 15-50% High 50%+

Page 1 of 1

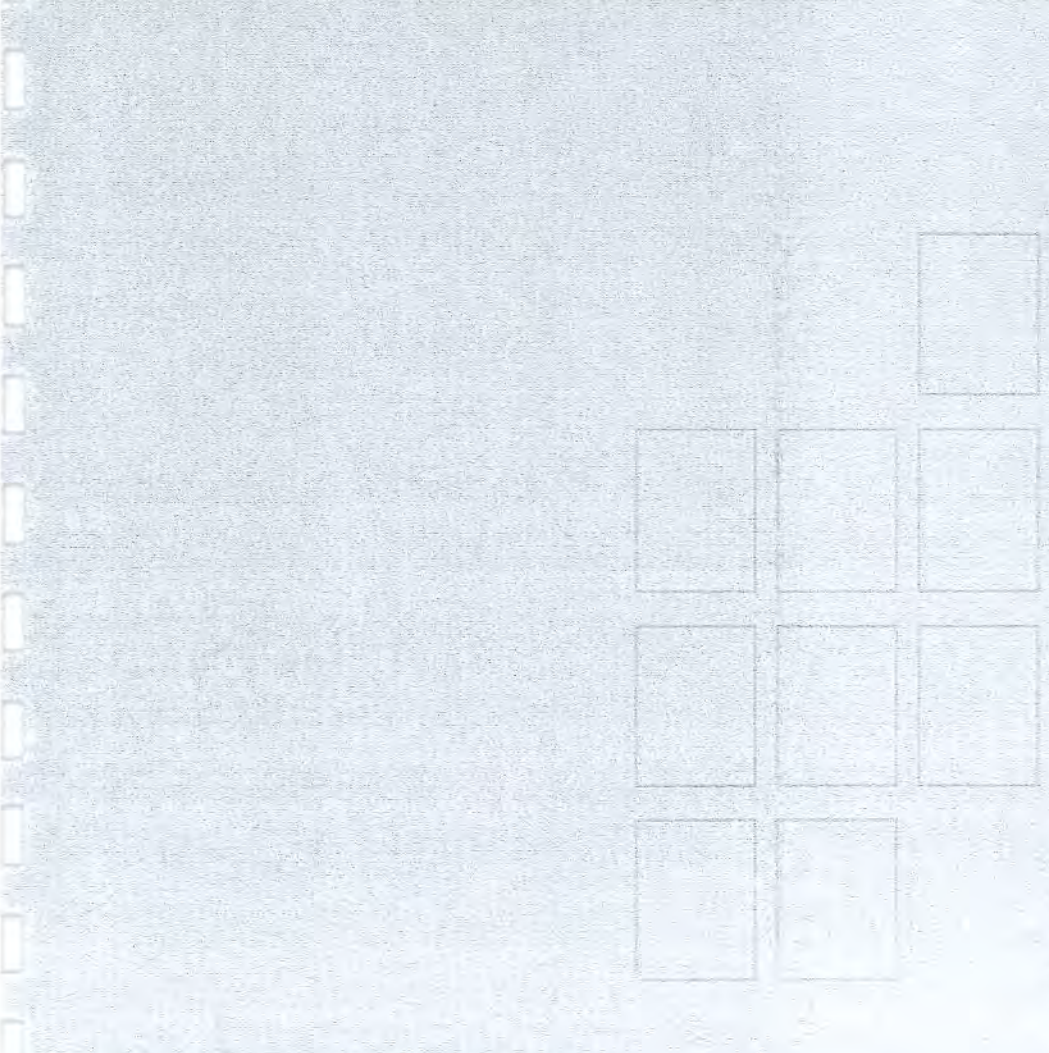
Issuing Office: Th
 Tel:

Appendix 18.0



MASONRY BLOCKS

Specifiers Guide



Technical Information

Product Data

Adhesion & Glover's extensive range of Alphacrete® Architectural Masonry Block is produced from a carefully controlled mixture of quality aggregates and cement to bring you a premier block, designed to the highest standards of dimensional accuracy.

| Dimensions | |
|-----------------------|---|
| Standard | Actual Size 440 x 215 mm Co-ordinating Size 450 x 225 mm |
| Metric Modular | Actual Size 390 x 190 mm Co-ordinating Size 400 x 200 mm |

| Compressive Strength | Density |
|------------------------|----------|
| 7 N/mm ² | 2100Kg/m |
| 10 N/mm ² | 2100Kg/m |
| 15.0 N/mm ² | 2150Kg/m |

Additional strengths can be produced. Please contact our Technical Department for further information.

Air Tightness

Acheson & Glover Alphacrete® Architectural Masonry is suitable for use in buildings which have an air tightness requirement. The company carry out regular tests, BSRIA Test Certificates are available upon request.

Sound Insulation

Alphacrete® offers excellent resistance to the transmission of airborne sound. The following table shows average sound reduction values for various block types over the range of frequencies (100-3150)HZ.

| Code | Alphacrete® |
|---------------|-----------------|
| A/C/D/P/R 100 | 100mm Solid 44 |
| A/C/D 102 | 100mm Hollow 41 |
| A/C/D/P/R 200 | 140mm Solid 49 |
| A/C/D 202 | 140mm Hollow 43 |
| A/C/D/P/R 300 | 215mm Solid 51 |
| A/C/D/P/R 302 | 215mm Hollow 48 |
| A/C/D/P/R 500 | 90mm Solid 42 |
| A/C/D 600 | 100mm Solid 44 |
| A/C/D 700 | 140mm Solid 49 |
| A/C/D/P/R 800 | 190mm Solid 50 |
| A/C/D/P/R 802 | 190mm Hollow 46 |

Manufactured in accordance to BS 6073 Specification for Pre-cast Concrete Masonry Units Part 1 & 2

Water Absorption

When independently tested, Alphacrete® Architectural Masonry Block was found to have a very low absorption rate.

Drying Shrinkage

The Drying Shrinkage value of Alphacrete® Architectural Masonry Block is important as this affects the amount of shrinkage which takes place in panels of masonry. Alphacrete® Architectural Masonry Block has values considerably below BS 6073 Part 1. Please refer to BS 5628 and BS 6073 for additional information.

Thermal Performance K Value

| Thermal Conductivity (K) Value - Alphacrete® Architectural Masonry Block A - 1000 | |
|---|-----------|
| Exposed | 1.56 W/mk |
| Protected | 1.46 W/mk |

How to calculate K Value (λ)

The value is related to density and moisture content.

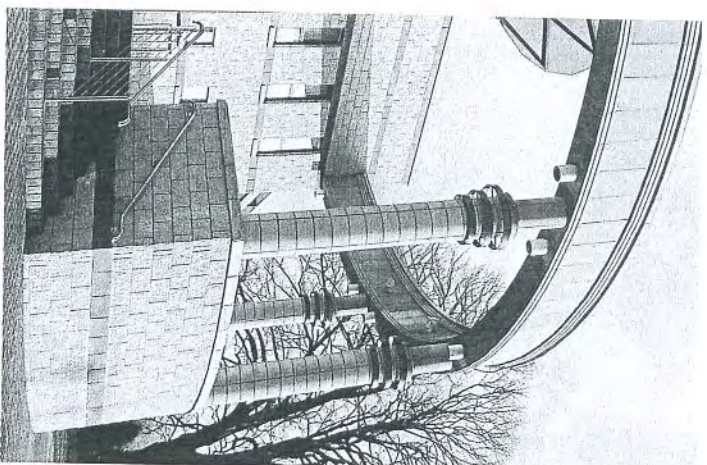
The λ value = Thermal Conductivity (W·m⁻¹·K⁻¹)

The 'R' value = Thermal Resistance (m²·K·W⁻¹)

The Thermal resistance is directly proportional to the thickness and is given by:

$$R = d / \lambda$$

NB: R = Thermal resistance λ = Thermal conductivity d = Block thickness in metres



Phoenix, Estemstone Buff & Athena, Sierra Veronese

Table showing the weight of Alphacrete® Masonry in Kgs/m² of Exposed Wall

| Wall thickness | Solid | Hollow |
|----------------|------------------------|------------------------|
| STANDARD | | |
| 100mm | 218 Kgs/m ² | 134 Kgs/m ² |
| 140mm | 305 Kgs/m ² | 200 Kgs/m ² |
| 215mm | 460 Kgs/m ² | 270 Kgs/m ² |
| METRIC MODULAR | | |
| 90mm | 196 Kgs/m ² | N/A |
| 100mm | 218 Kgs/m ² | N/A |
| 140mm | 305 Kgs/m ² | N/A |
| 190mm | 414 Kgs/m ² | 245 Kgs/m ² |

Table refers to all finishes in the product range.

| Thermal Resistance R Value | | | | |
|--------------------------------------|------------|---------------|-----------------|-----------------|
| CO-ORDINATING FACE SIZE: 450 X 225mm | | | | |
| Thickness (mm) | Block Type | Code | Outer Leaf Agam | Inner Leaf Agam |
| 100 | Solid | A/C/D/P/R 100 | .064 | .068 |
| 140 | Solid | A/D/P/R 200 | .090 | .096 |
| 140 | Hollow | A/C/D 202 | .141 | .151 |
| 215 | Solid | A/C/D/P/R 300 | .138 | .147 |
| 215 | Hollow | A/D/P/R 302 | .180 | .188 |

| CO-ORDINATING FACE SIZE: 400 X 200mm | | | | |
|--------------------------------------|------------|---------------|-----------------|-----------------|
| Thickness (mm) | Block Type | Code | Outer Leaf Agam | Inner Leaf Agam |
| 90 | Solid | A/C/D/P/R 500 | .058 | .062 |
| 100 | Hollow | A/C/D/P 600 | .064 | .068 |
| 140 | Solid | A/C/D 700 | .090 | .096 |
| 190 | Solid | A/C/D/P/R 800 | .122 | .130 |
| 190 | Hollow | A/C/D/P 802 | .180 | .188 |

Fire Resistance

Alphacrete® offers excellent fire resistance properties as they are manufactured from a Class 1 aggregate. This table shows figures for 'notional periods of fire resistance' which were obtained from BS476 Fire Test on Building Materials & Structures.

| Notional Periods of Fire Resistance for different wall types and aggregate Block | | | | | | | | | |
|--|------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------------------|---|---------------|------------|
| Code | Block Type | Load Bearing Walls (HS) | | | Non Load Bearing Walls (HS) | | | Code | Block Type |
| | | Single Leaf Wall | Double Leaf Cavity Wall | Double Leaf Cavity Wall | Single Leaf Wall | Double Leaf Cavity Wall | | | |
| A/C/D/P/R 100 | 100mm | Solid | 2 | 6 | 2 | 2 | 6 | A/C/D/P/R 100 | 100mm |
| A/C/D 102 | 100mm | Hollow | 2 | 4 | 2 | 2 | 6 | A/C/D 102 | 100mm |
| A/C/D/P/R 200 | 140mm | Solid | 3 | 6 | 4 | 4 | 6 | A/C/D/P/R 200 | 140mm |
| A/C/D 202 | 140mm | Hollow | 2 | 4 | 3 | 3 | 6 | A/C/D 202 | 140mm |
| A/C/D/P/R 300 | 215mm | Solid | 4 | 6 | 6 | 6 | 6 | A/C/D/P/R 300 | 215mm |
| A/C/D/P/R 302 | 215mm | Hollow | 2 | 4 | 4 | 4 | 6 | A/C/D/P/R 302 | 215mm |
| A/C/D/P/R 500 | 90mm | Solid | 1 | 6 | 2 | 2 | 6 | A/C/D/P/R 500 | 90mm |
| A/C/D 600 | 100mm | Solid | 2 | 6 | 2 | 2 | 6 | A/C/D 600 | 100mm |
| A/C/D 700 | 140mm | Solid | 3 | 6 | 4 | 4 | 6 | A/C/D 700 | 140mm |
| A/C/D/P/R 800 | 190mm | Solid | 4 | 6 | 6 | 6 | 6 | A/C/D/P/R 800 | 190mm |
| A/C/D/P/R 802 | 190mm | Hollow | 2 | 4 | 4 | 4 | 6 | A/C/D/P/R 802 | 190mm |

Code Reference = A - Athena C - Corinthian D - Decoblock® P - Phoenix R - Regent

Design & Detailing

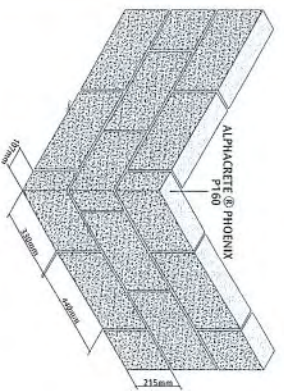


Figure 1 External Corner Detail

Helpful Hint

The detail above shows how to build an external corner in the Phoenix range without using the normal quoin block (i.e. P110), and yet achieve half bond on both elevations.

When detailing Alphacrete® Architectural Masonry Block panels, the designer should set out masonry units to full or half block lengths where possible to avoid unsightly and unnecessary cutting of units on site. Co-ordinating dimensions will also ensure that the masonry is properly bonded.

Good Detailing will make the difference:

- 1 Choose appropriate bond pattern - Stretcher bond is shown in the example. See page 29 for alternative bond patterns.
- 2 The use of quoin blocks at corners and returns plus cavity closers is recommended.
- 3 Integrate movement joints with perpendents and conceal behind rain water pipes where possible. See page 35 for further details.
- 4 Position and size openings to suit block working modules. See Coursing Calculation Table on page 30 & 31.
- 5 Construct lintels from pre-formed lintel blocks. See diagram on page 37.
- 6 It may be necessary to use bond beam units in conjunction with lintel blocks on wider spans.
- 7 Ensure lintel bearings are whole blocks.
- 8 A range of sill blocks are available which course with blockwork.

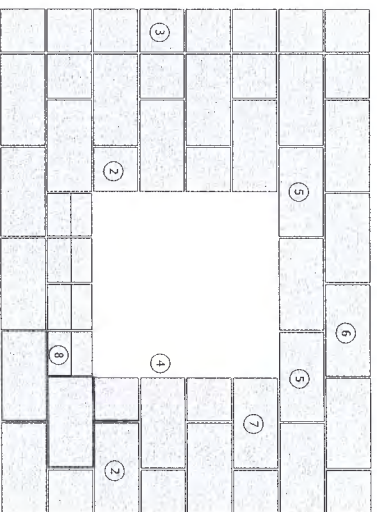


Figure 2 Good Detailing

Helpful Hint

Creative use of Alphacrete® specials will enhance the appearance of any design & provide visual interest.

Bond & Coursing

Coursing is visually significant and must be precise and a wide variety of options are available for designers to consider.

These include:

Full block stretcher bond [Figure 3]

Half block stretcher bond [Figure 4]
Particularly suitable for curved walls.

Full block stack bond [Figure 5]

Has a strong clean appearance but because horizontal and vertical joint lines are continuous, workmanship must be very precise. Unlike other bonds the blocks do not overlap to stabilise the wall and it therefore must be strengthened by reinforcement.

Full block stack bond using

grooved block [Figure 6]
With 10mm x 10mm recess, produces an attractive square pattern, workmanship is again important.

Mixed block & brick bond [Figure 7]

Can be used to introduce further colour & visual interest into the wall, care must be taken where Alphacrete® masonry blockwork and brickwork are mixed to ensure coursing co-ordinates with internal skin of cavity wall and also insulation board.

Coursed Ashlar [Figure 8]

Stretcher courses of brickwork can be incorporated into elevations of Alphacrete® to break up the mass of blockwork. However consideration should be given to the location of wall ties for co-ordination with inner leaf.

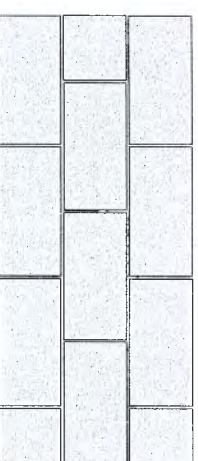


Figure 3 Full block stretcher bond

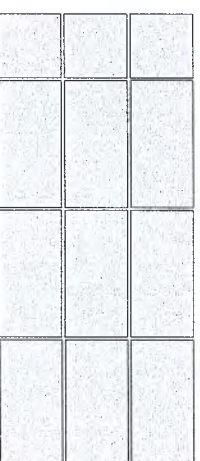


Figure 5 Full block stack bond

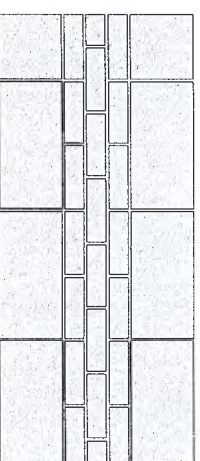


Figure 7 Mixed block & brick bond

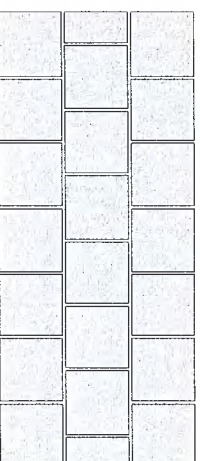


Figure 8 Half block stretcher bond



Figure 4 Full block stack bond using grooved block

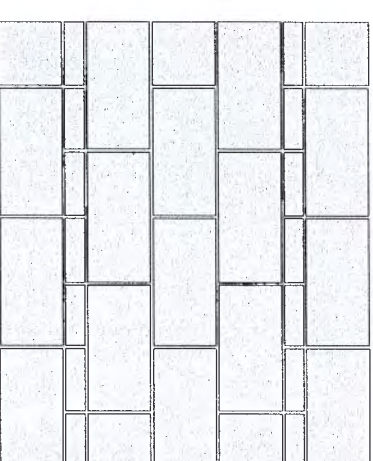


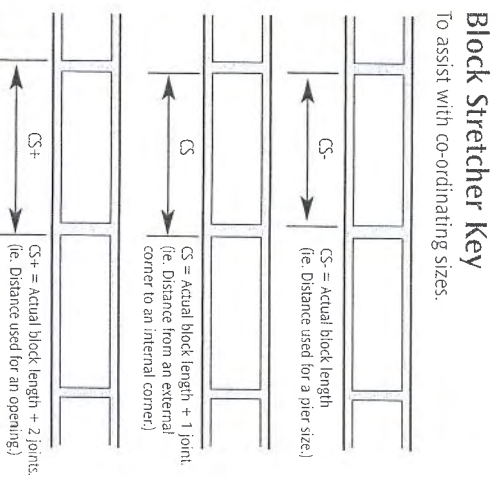
Figure 6 Coursed Ashlar



MASONRY BLOCK CALCULATION TABLES - STANDARD

Horizontal Blockwork-Standard [440 x 215mm]

| No. of Blocks | CS- | CS | CS+ | CS+ | CS+ |
|---------------|------|------|------|------|------|
| 1/2 | 215 | 225 | 235 | 235 | 235 |
| 1 | 440 | 450 | 460 | 460 | 460 |
| 1 1/2 | 665 | 675 | 685 | 685 | 685 |
| 2 | 890 | 900 | 910 | 910 | 910 |
| 2 1/2 | 1115 | 1125 | 1135 | 1135 | 1135 |
| 3 | 1340 | 1350 | 1360 | 1360 | 1360 |
| 3 1/2 | 1565 | 1575 | 1585 | 1585 | 1585 |
| 4 | 1790 | 1800 | 1810 | 1810 | 1810 |
| 4 1/2 | 2015 | 2025 | 2035 | 2035 | 2035 |
| 5 | 2240 | 2250 | 2260 | 2260 | 2260 |
| 5 1/2 | 2465 | 2475 | 2485 | 2485 | 2485 |
| 6 | 2690 | 2700 | 2710 | 2710 | 2710 |
| 6 1/2 | 2915 | 2925 | 2935 | 2935 | 2935 |
| 7 | 3140 | 3150 | 3160 | 3160 | 3160 |
| 7 1/2 | 3365 | 3375 | 3385 | 3385 | 3385 |
| 8 | 3590 | 3600 | 3610 | 3610 | 3610 |
| 8 1/2 | 3815 | 3825 | 3835 | 3835 | 3835 |
| 9 | 4040 | 4050 | 4060 | 4060 | 4060 |
| 9 1/2 | 4265 | 4275 | 4285 | 4285 | 4285 |
| 10 | 4490 | 4500 | 4510 | 4510 | 4510 |
| 10 1/2 | 4715 | 4725 | 4735 | 4735 | 4735 |
| 11 | 4940 | 4950 | 4960 | 4960 | 4960 |
| 11 1/2 | 5165 | 5175 | 5185 | 5185 | 5185 |
| 12 | 5390 | 5400 | 5410 | 5410 | 5410 |
| 12 1/2 | 5615 | 5625 | 5635 | 5635 | 5635 |
| 13 | 5840 | 5850 | 5860 | 5860 | 5860 |
| 13 1/2 | 6065 | 6075 | 6085 | 6085 | 6085 |
| 14 | 6290 | 6300 | 6310 | 6310 | 6310 |
| 14 1/2 | 6515 | 6525 | 6535 | 6535 | 6535 |
| 15 | 6740 | 6750 | 6760 | 6760 | 6760 |
| 15 1/2 | 6965 | 6975 | 6985 | 6985 | 6985 |



The tables shown calculate and record the Horizontal and Vertical distance taken up by the number of block used in a course.

CALCULATION TABLES - METRIC MODULAR

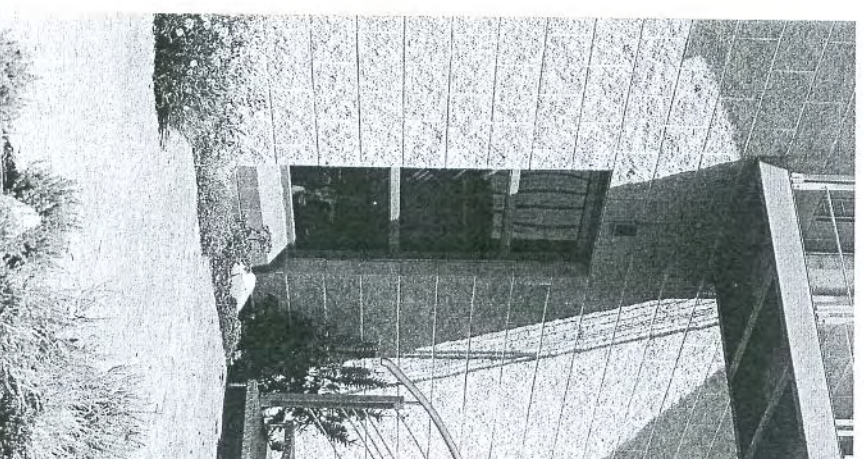
Horizontal Blockwork-Metric Modular [390 x 190mm]

| No. of Blocks | CS- | CS | CS+ | CS+ | CS+ | No. of blocks | CS- | CS | CS | CS+ |
|---------------|------|------|------|------|------|---------------|-------|-------|-------|-------|
| 1/2 | 190 | 200 | 210 | 210 | 210 | 16 | 6390 | 6400 | 6400 | 6410 |
| 1 | 390 | 400 | 410 | 410 | 410 | 16 1/2 | 6590 | 6600 | 6600 | 6610 |
| 1 1/2 | 590 | 600 | 610 | 610 | 610 | 17 | 6790 | 6800 | 6800 | 6810 |
| 2 | 790 | 800 | 810 | 810 | 810 | 17 1/2 | 6990 | 7000 | 7000 | 7010 |
| 2 1/2 | 990 | 1000 | 1010 | 1010 | 1010 | 18 | 7190 | 7200 | 7200 | 7210 |
| 3 | 1190 | 1200 | 1210 | 1210 | 1210 | 18 1/2 | 7390 | 7400 | 7400 | 7410 |
| 3 1/2 | 1390 | 1400 | 1410 | 1410 | 1410 | 19 | 7590 | 7600 | 7600 | 7610 |
| 4 | 1590 | 1600 | 1610 | 1610 | 1610 | 19 1/2 | 7790 | 7800 | 7800 | 7810 |
| 4 1/2 | 1790 | 1800 | 1810 | 1810 | 1810 | 20 | 7990 | 8000 | 8000 | 8010 |
| 5 | 1990 | 2000 | 2010 | 2010 | 2010 | 20 1/2 | 8190 | 8200 | 8200 | 8210 |
| 5 1/2 | 2190 | 2200 | 2210 | 2210 | 2210 | 21 | 8390 | 8400 | 8400 | 8410 |
| 6 | 2390 | 2400 | 2410 | 2410 | 2410 | 21 1/2 | 8590 | 8600 | 8600 | 8610 |
| 6 1/2 | 2590 | 2600 | 2610 | 2610 | 2610 | 22 | 8790 | 8800 | 8800 | 8810 |
| 7 | 2790 | 2800 | 2810 | 2810 | 2810 | 22 1/2 | 8990 | 9000 | 9000 | 9010 |
| 7 1/2 | 2990 | 3000 | 3010 | 3010 | 3010 | 23 | 9190 | 9200 | 9200 | 9210 |
| 8 | 3190 | 3200 | 3210 | 3210 | 3210 | 23 1/2 | 9390 | 9400 | 9400 | 9410 |
| 8 1/2 | 3390 | 3400 | 3410 | 3410 | 3410 | 24 | 9590 | 9600 | 9600 | 9610 |
| 9 | 3590 | 3600 | 3610 | 3610 | 3610 | 24 1/2 | 9790 | 9800 | 9800 | 9810 |
| 9 1/2 | 3790 | 3800 | 3810 | 3810 | 3810 | 25 | 9990 | 10000 | 10000 | 10010 |
| 10 | 3990 | 4000 | 4010 | 4010 | 4010 | 25 1/2 | 10190 | 10200 | 10200 | 10210 |
| 10 1/2 | 4190 | 4200 | 4210 | 4210 | 4210 | 26 | 10390 | 10400 | 10400 | 10410 |
| 11 | 4390 | 4400 | 4410 | 4410 | 4410 | 26 1/2 | 10590 | 10600 | 10600 | 10610 |
| 11 1/2 | 4590 | 4600 | 4610 | 4610 | 4610 | 27 | 10790 | 10800 | 10800 | 10810 |
| 12 | 4790 | 4800 | 4810 | 4810 | 4810 | 27 1/2 | 10990 | 11000 | 11000 | 11010 |
| 12 1/2 | 4990 | 5000 | 5010 | 5010 | 5010 | 28 | 11190 | 11200 | 11200 | 11210 |
| 13 | 5190 | 5200 | 5210 | 5210 | 5210 | 28 1/2 | 11390 | 11400 | 11400 | 11410 |
| 13 1/2 | 5390 | 5400 | 5410 | 5410 | 5410 | 29 | 11590 | 11600 | 11600 | 11610 |
| 14 | 5590 | 5600 | 5610 | 5610 | 5610 | 29 1/2 | 11790 | 11800 | 11800 | 11810 |
| 14 1/2 | 5790 | 5800 | 5810 | 5810 | 5810 | 30 | 11990 | 12000 | 12000 | 12010 |
| 15 | 5990 | 6000 | 6010 | 6010 | 6010 | 30 1/2 | 12190 | 12200 | 12200 | 12210 |
| 15 1/2 | 6190 | 6200 | 6210 | 6210 | 6210 | | | | | |

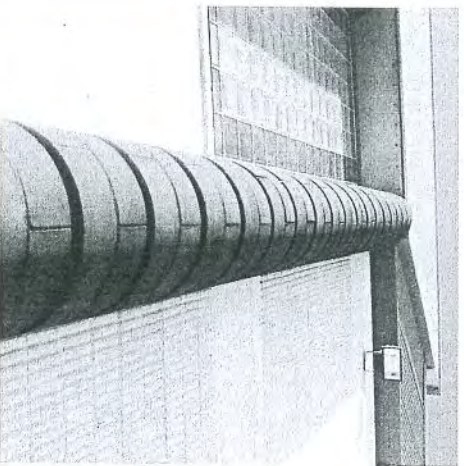
Vertical Blockwork-Metric Modular [390 x 190mm]

| No. of Block Courses | CS | CS+ | No. of Block Courses | CS | CS+ |
|----------------------|------|------|----------------------|------|------|
| 1 | 200 | 210 | 11 | 2200 | 2210 |
| 2 | 400 | 410 | 12 | 2400 | 2410 |
| 3 | 600 | 610 | 13 | 2600 | 2610 |
| 4 | 800 | 810 | 14 | 2800 | 2810 |
| 5 | 1000 | 1010 | 15 | 3000 | 3010 |
| 6 | 1200 | 1210 | 16 | 3200 | 3210 |
| 7 | 1400 | 1410 | 17 | 3400 | 3410 |
| 8 | 1600 | 1610 | 18 | 3600 | 3610 |
| 9 | 1800 | 1810 | 19 | 3800 | 3810 |
| 10 | 2000 | 2010 | 20 | 4000 | 4010 |

Tables shown are for guidance purposes only. Adheson & Glover cannot be held responsible for errors in the final design. All dimensions should be checked by the designer. Reference should also be made to BS 8000 Part 3 Code of Practice for Masonry which covers allowable building tolerances on site.



Structural Performance



Athens, Classico Bianco, Minerva Basalt & Regent, Classico Bianco



Phoenix, Verona Sand

Bond Beam Reinforcement

Alphacrete® Architectural Masonry Block lintels and bond beams may be used to span openings in wall panels whilst maintaining the appearance of the block units.

BS 5628 Part 2 requires that cover to reinforced masonry be determined giving consideration to the exposure of the blockwork and also the concrete in-fill strength. Exposure classification is given in clause 32.

The lintels are designed to support the triangle of blockwork indicated below.

The height of block-work above the lintel must be not less than 0.6 x clear span of lintel. No openings should occur within the shaded triangle.

For specific design consult your Structural Engineer.

Cover for Reinforcement

Note that BS 5628: Part 2 requires that cover for durability is measured from the in-situ concrete only, whereas cover for fire resistance may include the thickness of the masonry lintel/bond beam units.

Sequence of Lintel Construction

- Build up blockwork to the course below lintel.
- Provide temporary propping for the lintel units.
- Lay the lintel units with a 10mm wide x 20mm deep temporary spacer in each joint. Temporary joint spacers can be any material that provides adequate retention of the concrete in-fill and can be removed for pointing e.g. wooden strips or polystyrene.
- Place reinforcement to engineers specification. Plastic spacers will ensure correct coverage.
- Place concrete in the bottom of the lintel units.
- Complete in-situ filling, tamping by hand.
- When in-fill concrete has cured, dismantle temporary propping and remove joint spacers. Joints should then be carefully pointed to match existing block-work.

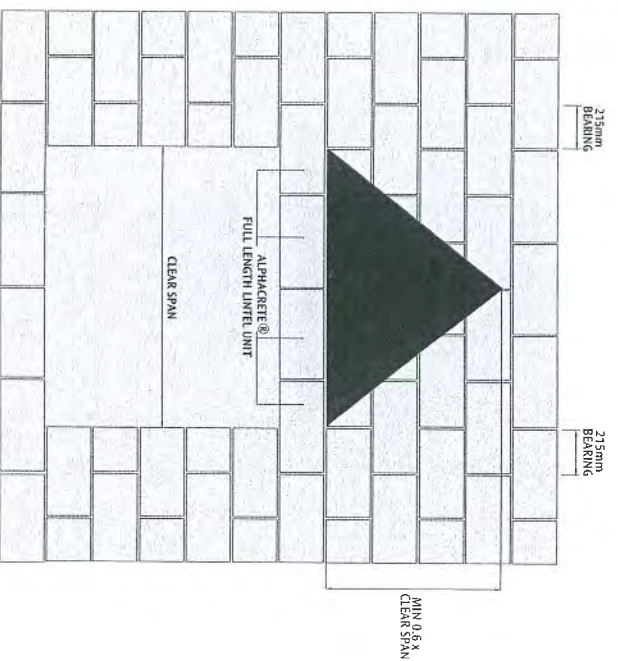


Figure 16 Load Distribution above Openings

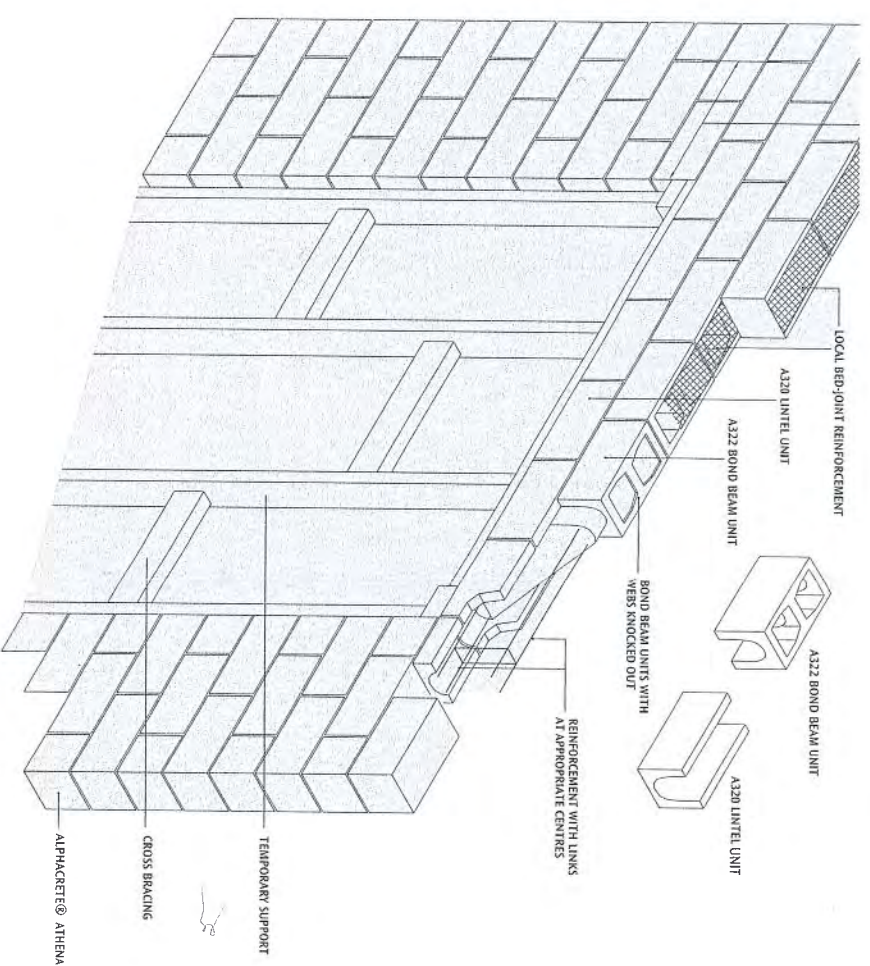


Figure 17 Two Course Lintel

Lintels and Bond Beams

Lintels & Bond Beams can be used as a structural element and as a means of movement control. They are constructed using specially shaped units, which are filled with concrete and reinforced as per engineers specification.

Other uses of lintels & bond beam courses are as follows:

- below large panel openings
- at the top of walls to distribute vertical loads
- as horizontal beams to transfer lateral forces to columns or piers
- as single or double course lintels. Figure 17 indicates how a two course lintel is constructed.



Phoenix, Classico Bianco

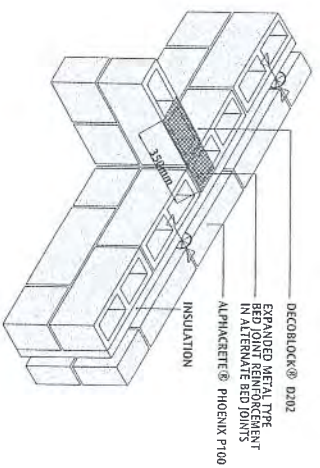


Figure 18 Load bearing Cavity Wall & Internal Wall Junction

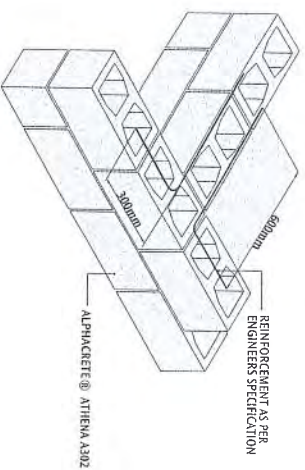


Figure 19 Intersection of Two Hollowcore Walls

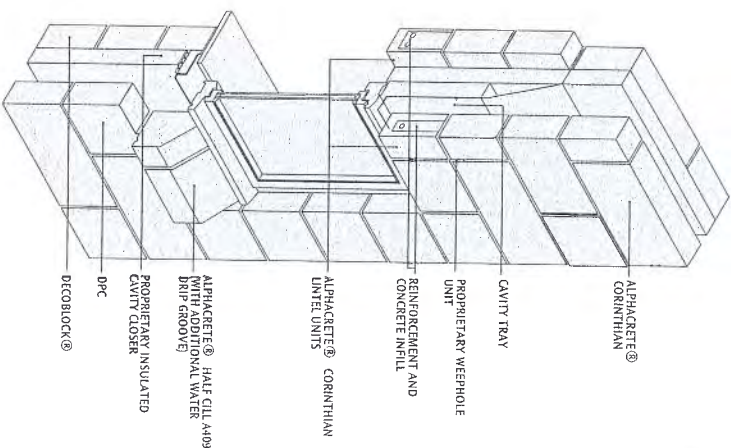
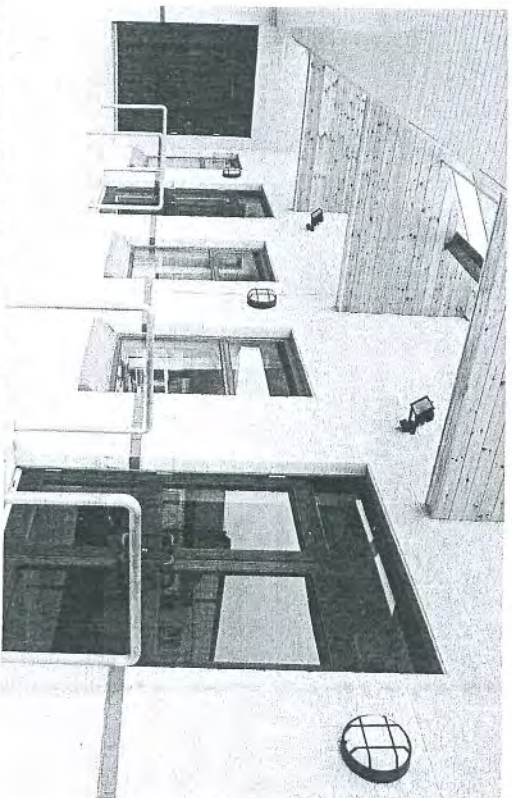


Figure 20 Lintel & Sill Detail



Phoenix, Ernestone Buff & Oakland, Glenvale Red Smooth

An A409 (Half Length Sill) can be used vertically on the window reveals and also inverted over the lintel to create a frame effect.

Helpful Hint

Fixings

Fixings can be easily accommodated in Alphacrete® products. Aggregate masonry block provide an ideal medium for many types of fixings.

Although it is generally easier to fix into solid blockwork, it is possible to fix into the solid portion of hollow blockwork with certain light and medium duty fixings. Alternatively, for a stronger connection, it is possible to fill the hollow portion of the blockwork with concrete for the units that require the fixing. This technique would allow a heavy duty fixing to be applied to the hollow unit once filled with concrete and allowed to cure.

It is possible to substitute hollow blockwork with solid blockwork in areas where fixings are necessary. An example is blockwork next to a roller shutter door. Fixing strength is critical because vibration from the motion of the door may put extra stress onto the fixings.

Figure 24 is a useful indicator of where to locate fixings within a blockwork wall and should be considered at the design & detailing stage and when fitting out on site.

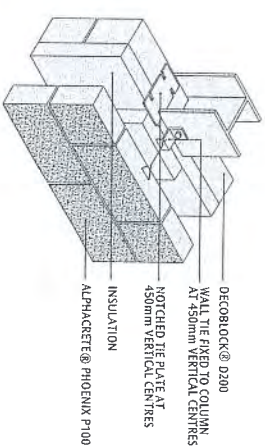


Figure 21 Construction of Cavity Wall with Steel Column

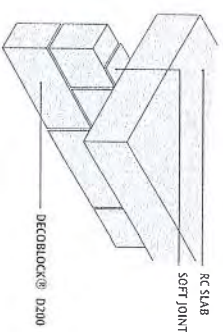


Figure 23 Junction of Non Load bearing Wall with Concrete Slab-without Head Restraint

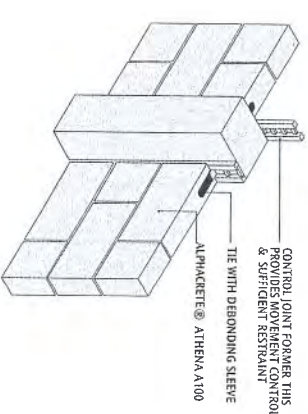


Figure 22 Construction of Single Leaf Wall with Concrete Column

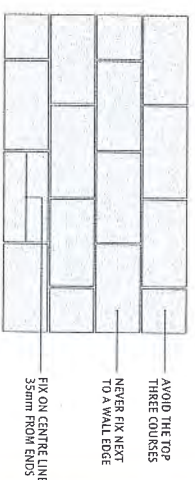
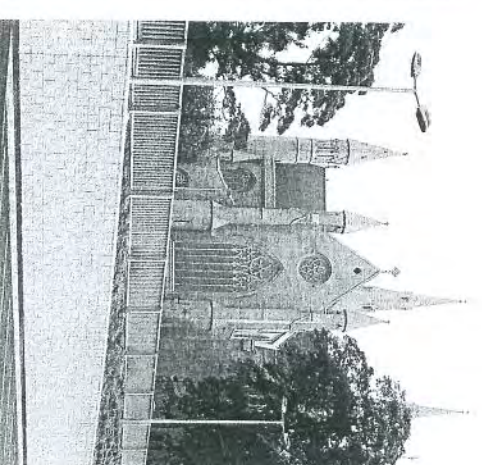


Figure 24 Position of Fixings

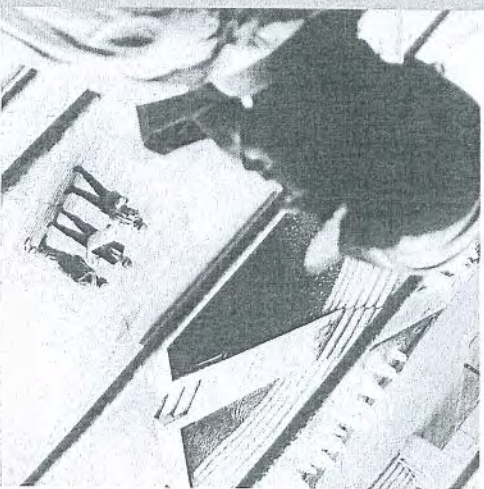


Phoenix, Classico Blanco



Phoenix, Portland

Good Site Practice



Getting the best from Alphacrete®

- Alphacrete® should be protected from the weather on site and during construction including the covering of completed but uncapped work. These precautions will reduce the likelihood of efflorescence and subsequent lime blooming.
- Care should be taken to prevent mortar smearing the surface of the Alphacrete® Masonry Block, as cleaning at a later stage could be difficult and can lead to expensive and time consuming remedial treatments. Prevention is better than cure.
- All mortar joints should be well filled to help prevent weeping.
- Cavities must be kept clean, as dirty cavities increase the risk of water reaching the inner leaf and can cause cold bridging.
- should be stored on sound, level ground raised clear of wet and muddy areas to prevent contamination and staining.
- Storage areas should be sited close to the points of work to reduce unnecessary handling and minimise damage and waste.

Health & Safety

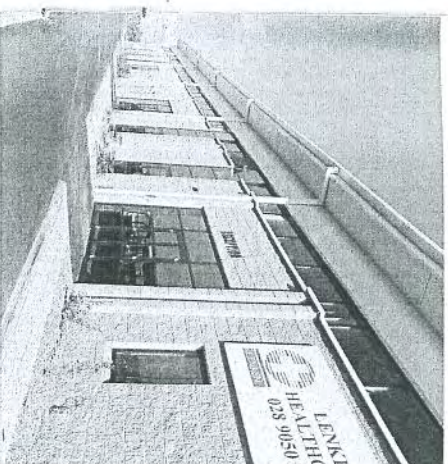
Care must be taken when handling / working with individual products to avoid risk of injury from manual handling, sharp edges, abrasive textures and dust fragments. Inhalation of any dust produced from aggregates must be avoided. Protective clothing must be worn and is activity dependant. **Further information may be obtained by contacting Acheson & Glover or the HSENI.**

ensuring
better results

MINIMISE damage and waste

prevention is better than cure

store ON level ground



NBS

Specification

F10 BRICK/BLOCK WALLING 250 CONCRETE FACING BLOCKWORK

Alphacrete® Masonry Block

A range of concrete facing blocks available in a variety of styles. Compressive strength: 7, 10 and 15 N/mm². Additional strengths can be produced – consult with Acheson & Glover technical department for further information. Density: 2100 Kg/m³ (7 and 10 N/mm²), 2150 Kg/m³ (15 N/mm²). The blocks have a very low water absorption rate and the drying shrinkage values are considerably below BS 6073: Part 1. Thermal conductivity (K Value): Exposed: 1.56 W/mK Protected: 1.46 W/mK

| Size | Standard 440 x 215mm Metric Modular 390 x 190mm | Widths | Standard 100, 140 and 215mm Metric Modular 90, 100, 140 and 190mm |
|------|--|--------|--|
|------|--|--------|--|

Finish / Colour

Alphacrete® Athena Range

A range of facing blocks and specials with a fine surface finish and sharp, straight arrises available in 2 size ranges. Designed for both internal and external use, it is an economical alternative to traditional materials. The dimensionally accurate flat surfaces complement the Phoenix range, making them suitable for detailing features, banding or paneling. Most types/sizes are available as solid, hollow or S.P. hollow types and each type includes a range of special blocks.

Colour: Venetian Red / Sienna Veronese / Verona Sand / Francesco Ash / Classico Bianco / Baroque Terracotta / Pantheon Amber / Palazzo Sepia / Ernestone Buff / Minerva Basalt / Portland Ricotta

Alphacrete® Corinthian Range

A range of facing blocks and specials with the weathered appearance of naturally dressed, coarse textured stone available in 2 size ranges. Most types/sizes are available as solid, hollow or S.P. hollow types and each type includes a range of special blocks.

Colour: Venetian Red / Verona Sand / Sienna Veronese / Classico Bianco / Baroque Terracotta / Francesco Ash / Pantheon Amber / Ernestone Buff / Palazzo Sepia / Minerva Basalt / Portland / Palento / Rubia / Ricotta

Alphacrete® Phoenix Range

A range of facing blocks and specials with a rugged, split-faced natural stone appearance available in 2 size ranges and designed for external use.

Most types/sizes are available as solid or hollow types and each type includes a range of special blocks. Colour: Canelieto / Sorrento / Wianna / Classico Bianco / Portland / Minerva Basalt / Baroque Terracotta / Venetian Red / Sienna Veronese / Verona Sand / Francesco Ash / Pantheon Amber / Ernestone Buff / Palazzo Sepia

Alphacrete® Regent Range

A range of facing blocks and specials with a vertical ribbed finish, available in 2 size ranges and designed for external use. Each full size block has 8 ribs and half length blocks have 4 ribs, ensuring all dimensions correspond with full ribs to eliminate unsightly detailing.

Colour: Venetian Red / Sienna Veronese / Verona Sand / Francesco Ash / Classico Bianco / Baroque Terracotta / Pantheon Amber / Palazzo Sepia / Ernestone Buff / Minerva Basalt / Portland

Mortar: As section Z21.

Mix: Consult with Acheson & Glover for recommendations and details.

Special requirements: Northern Mortars coloured mortar.

Recommended mortar colours:

Y35 Yellow – Canelieto, Verona Sand / Y7 Light Brown – Sorrento, Pantheon Amber / Y83 Dark Brown – Vienna, Palazzo Sepia / Y100 White – white cement - Classico Bianco, Portland / Y3 Charcoal - Minerva Basalt / Y22 Tan - Baroque Terracotta / Y25 Terracotta - Venetian Red / Y126 Terracotta - Sienna Veronese / Standard lime:sand mortar - Francesco Ash, Decoblock / Y110 Ernestone Yellow - white cement - Ernestone Buff

All of the mortar recommendations should be used with ordinary Portland Cement except where white cement is specified.



Acheson & Glover is a member of the RIBA CPD Providers Network and in-house presentations can be undertaken, by prior arrangement with our technical staff.

NBS Plus

NBS is available to download via our Website: www.acheson-glover.com

Appendix 19.0



Department of
**Finance and
Personnel**

www.dfpni.gov.uk

The Building Regulations (Northern Ireland) 2000

Technical Booklet



Fire safety

External escape stairs

1.73 Where more than one escape route is available from a storey (or part of a building) one, or more than one, of those routes may be by way of an external escape stair provided that –

(a) there is at least one internal escape stairway from every part of each storey; and **(b)** in the case of –

- (i) a building of Purpose Group 5 – the route is not intended for use by members of the public; or
- (ii) a building of Purpose Group 2 – the route serves only staff accommodation (office or residential).

1.74 Where an external stair is part of an escape route –

- (a)** the stair shall be protected from the weather when it serves a floor or flat roof more than 6 m above ground level. The degree of protection from the weather will depend on the exposure of the stair;
- (b)** all doors giving access to the stair shall be fire-resisting except at the top of any stair which leads downwards;
- (c)** any part of the external walls within 1.8 m of the stair (measured horizontally) shall be of fire-resisting construction –
 - (i) 1.8 m above (this may be reduced to 1.1 m at the top landing of the stair provided that it is not the top landing of a basement stair);
 - (ii) 1.8 m at the side of; and
 - (iii) 9 m below;

the flights and landings of the stair as shown on Diagram 1.11;

(d) the external walls of the building within 1.8 m of the escape route from the bottom of the stair shall be fire-resisting to a height of 1.1 m above the escape route; and

(e) glazing in fire-resisting external walls described in (c) and (d) above shall also be fire-resisting and fixed shut (see Table 1.8 for the limitations on the use of uninsulated glazing).

Diagram 1.11 Fire resistance of external walls adjacent to external escape routes

see para 1.56 and 1.74

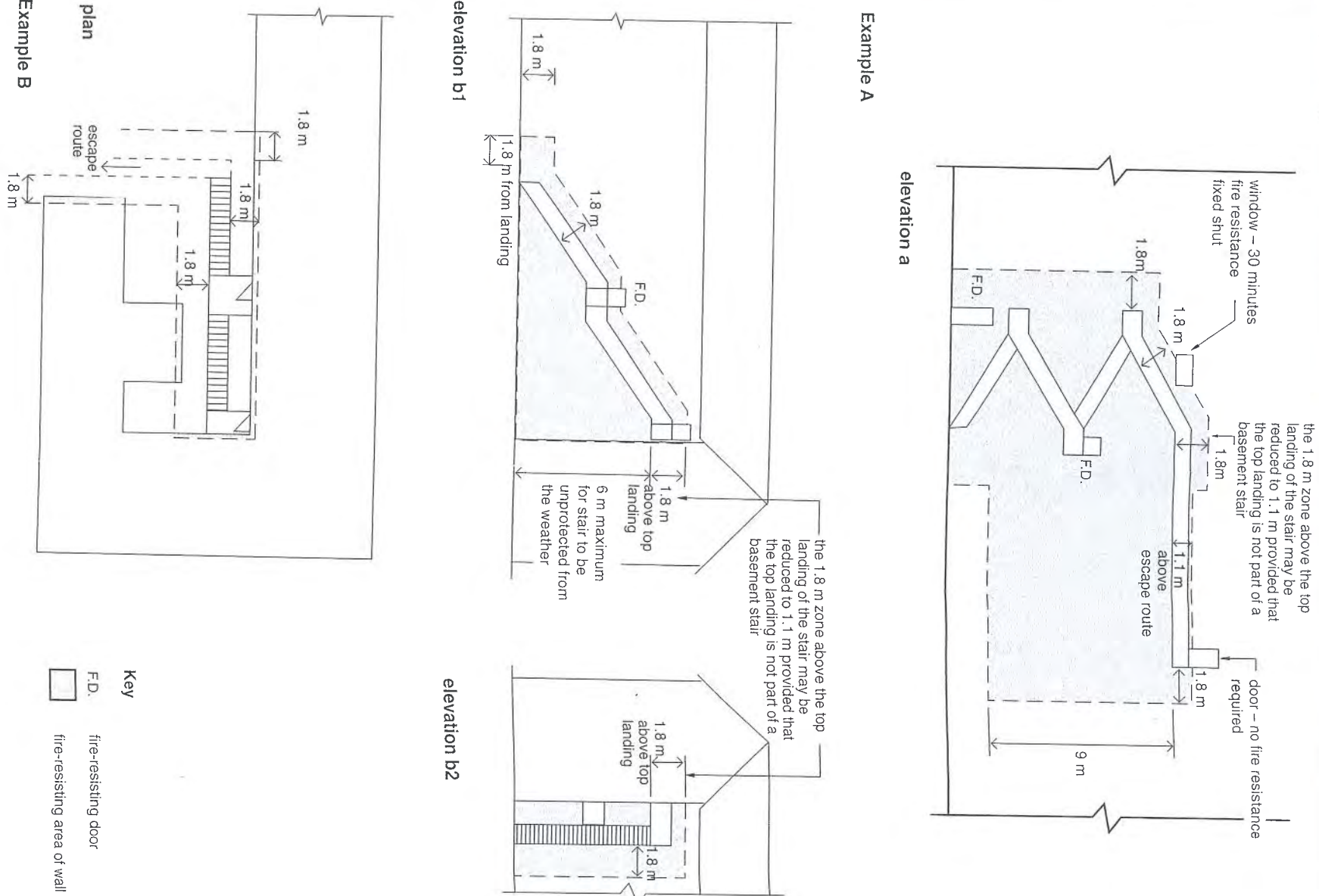


Table 1.3 Limitations on travel distances

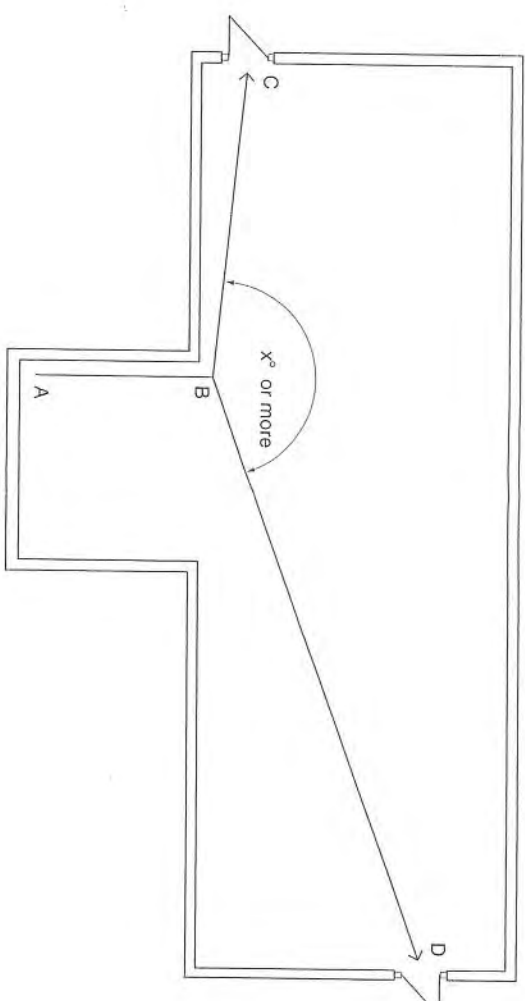
| Purpose group | Use of the building or part of the building | Maximum travel distance ⁽¹⁾ where travel is possible in – | |
|---------------------|---|--|-----------------------------|
| | | One direction only (m) | More than one direction (m) |
| 2(a) | Institutional | 9 | 18 |
| 2(b) | Other residential – (a) in bedrooms (b) in bedroom corridors (c) elsewhere | 9 ⁽²⁾ | 18 ⁽²⁾ |
| | | 9 | 35 |
| | | 18 | 35 |
| 3 | Office | 18 ⁽³⁾ | 45 |
| 4 | Shop and commercial | 18 ⁽³⁾ | 45 |
| 5 | Assembly and recreation – (a) buildings primarily for disabled people (b) schools (c) areas with seating in rows (d) elsewhere | 9 | 18 |
| | | 18 | 45 |
| | | 15 | 32 |
| | | 18 | 45 |
| 6 | Industrial ⁽⁴⁾ | 25 | 45 |
| 7 | Storage and other non-residential ⁽⁴⁾ | 25 | 45 |
| | | 9 ⁽²⁾ | 18 ⁽²⁾ |
| 2, 3, 4, 5, 6 and 7 | Place of special fire hazard ⁽⁵⁾ Crèche | 9 | 18 |
| | | 9 | 18 |
| | | 60 | 100 |
| 2, 3, 4, 5, 6 and 7 | Plant room or rooftop plant – (a) distance within the room (b) escape route not in open air (overall travel distance) (c) escape route in open air (overall travel distance) | 9 | 35 |
| | | 18 | 45 |
| | | 60 | 100 |

Notes –

- (1) The dimensions in the Table are travel distances. If the internal layout of partitions, fittings, etc. is not known when plans are deposited, direct distances may be used for assessment. The direct distance shall be taken as two-thirds of the travel distance.
- (2) Maximum part of travel distance within the room.
- (3) In the case of a small building described in paragraph 1.66 the maximum travel distance in one direction only may be –
 - (a) increased to 27 m in the ground storey; and
 - (b) measured to the foot of the unprotected stairway in the basement or to the head of the unprotected stairway in the first storey.
- (4) In industrial and storage buildings the appropriate travel distance depends on the level of fire risk associated with the processes and materials being used.
- (5) The dimensions given above assume that the building will be of normal fire risk. If the building is high risk, then lesser distances of 12 m in one direction and 25 m in more than one direction, shall apply.
- (6) Places of special fire hazard are listed in the definitions in paragraph 6.9.

Diagram 1.4 Travel distance in single direction leading to alternative escape routes

see para 1.4.1



If angle CBD is x° or more alternative escape routes are available from B provided –
 (a) either AC or AD is less than or equal to the maximum travel distance in more than one direction; and
 (b) AB is less than or equal to the maximum travel distance in one direction only.
 $x^\circ = 45^\circ$ plus 2.5° for each metre or part of a metre travelled from A to B

Subdivision of corridors

1.54 Where a corridor exceeding 12 m in length connects two or more storey exits, it shall be subdivided by self-closing fire doors (and any necessary associated fire-resisting screens) approximately mid-way between the storey exits so that no undivided part is common to two or more storey exits. For corridors around a central core see paragraph 1.48.

Where a dead end portion of a corridor exceeding 4.5 m in length leads to a point where alternative escape routes are available, the dead end portion shall be extended and separated by self-closing fire doors (and any necessary associated fire-resisting screens) from the remainder of the corridor as shown in Diagram 1.9. However, where the stairways and corridors are protected by a pressurization system complying with BS 5588-4: 1998, such separation is not necessary.

Enclosure of corridors that are not protected corridors

1.55 Where a corridor which is part of an escape route, but is not a protected corridor, is enclosed by partitions, those partitions shall be carried up to the underside of the structural floor or to a suspended ceiling. In the latter case cavity barriers shall be provided in accordance with paragraph 3.35. Every opening into a room shall be fitted with a door.

External escape routes

1.56 Where an external escape route, other than a stair, is beside an external wall of the building, that part of the external wall within 1.8 m (measured horizontally) of the escape route shall be of fire-resisting construction 1.1 m above and 9 m below the level of the route as shown in Diagram 1.11 (see page 29).

Escape over flat roofs

1.57 Where more than one escape route is available from a storey, (or part of a building where appropriate) one of those routes may be by way of a flat roof, provided that –

- (a) the route does not serve –
 - (i) a building of Purpose Group 2(a); or
 - (ii) in a building of any other purpose group – an area intended for use by members of the public;
- (b) the flat roof is part of the same building from which escape is being made;

(c) the route across the flat roof leads to a storey exit or external escape route ;

(d) the part of the flat roof forming the escape route and its supporting structure, together with any opening in the roof within 3 m of the escape route, is fire-resisting; and

(e) the route is defined and guarded by walls and/or protective barriers which comply with Part H.

Vertical part of the escape route

1.58 The provisions in paragraphs 1.59 to 1.74 relate to the vertical escape down or up escape stairways towards a final exit. They are mainly concerned with providing a sufficient number of escape stairs of adequate aggregate width and their protection.

Number of escape stairways

1.59 The number of escape stairways in a building, or part of a building is determined by the provisions in –

(a) paragraph 1.38 regarding independent escape routes from areas in certain uses;

(b) paragraphs 1.40 and 1.42 regarding the design of the horizontal part of the escape route;

(c) paragraphs 1.61 and 1.62 regarding the width of stairs and the discounting of a stairway respectively; and

(d) Section 5 regarding the provision and location of firefighting stairways.

Single escape stairways

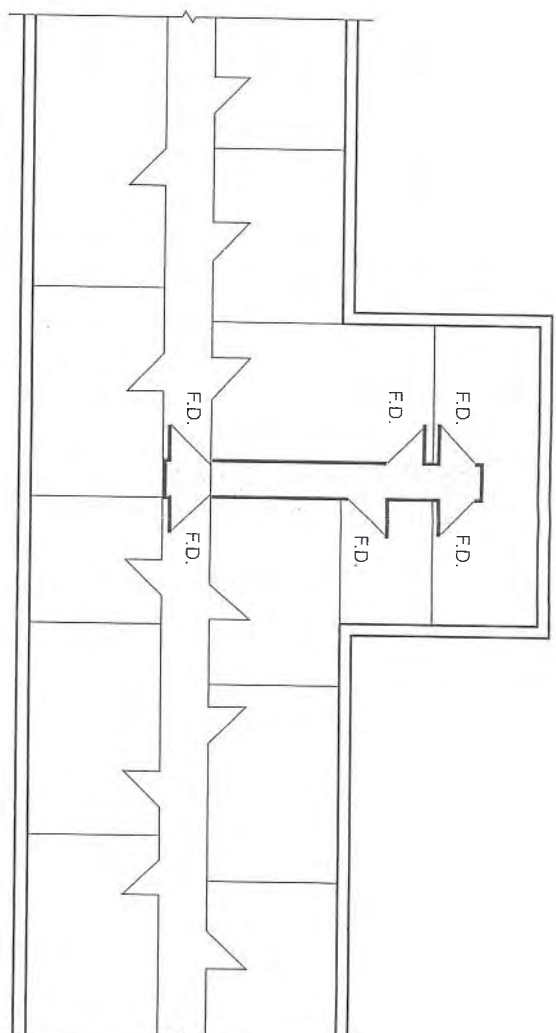
1.60 Where independent escape routes are not required from areas in different purpose groups, in accordance with paragraph 1.38, a single escape stairway may serve –

(a) a basement which is permitted to have a single escape route in accordance with paragraph 1.40; or

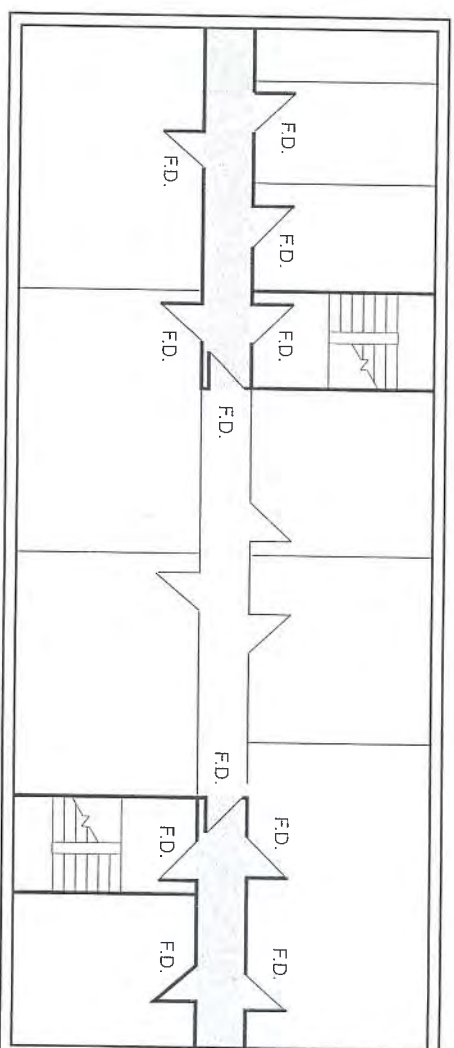
(b) a building which has no storey with a floor level more than 11 m above ground level, and in which every storey is permitted to have a single escape route in accordance with paragraph 1.40.

Diagram 1.9 Dead-end corridors

see para 1.54



(a) T-junction with main corridor



(b) Continuation past stairway

