KEY:

FD30S Half Hour Fire Rated Fire Escape Door With Pushbar Door Ironmongery to BS 5839:Part 1:1989

S10 In The Event Of Fire Avoid Use Of Lift Sign

S12 Fire Action Sign

S13 Fire Door Keep Shut Sign

S14 Fire Door Keep Locked Sign

S20 Fire Escape Keep Clear Sign

S22 Fire Exit Sign

S25 Push Bar To Open Sign

S26 Direction Arrows To Nearest 'Fire Exit' Sign

EMERGENCY LIGHTING:
All emergency lighting should be installed in strict accordance with Mechanical Engineering Consultants drawings and must comply with BS5266:Part1:1999. A test certificate should be issued on completion.

Indicates area to be covered by emergency lighting linked to main fire alarm system (Actual number of units and positioning to be determined by specialist to BS5266:Part 1:1999).

Indicates 100mm high internally illuminated 'Fire Exit' sign positioned above door with emergency lighting to BS5266:Part 1:1999.

FIRE FIGHTING EQUIPMENT:
All fire extinguishers and fire fighting devices should be sited and maintained in strict accordance with BS:5306:Part 3:1985

Fire Extinguisher Containing Water

Fire Extinguisher Containing Foam

Fire Extinguisher Containing Powder

Fire Extinguisher Containing Carbon Dioxide Gas

Fire Extinguishing Device Containing A Fire Blanket

S Indicates area to be covered by automatic smoke detector linked to main fire alarm system to BS5839:Part 1:1989

K Indicates area to be covered by automatic heat detector linked to main fire alarm system to BS5839:Part 1:1989

Manual Fire Alarm Point to BS 5839:Part2:1989

Warning Device Sounder BS 5839:Part1:1989

30 Minutes Fire Resistant Construction

FD30 All doors marked FD30 on the floor layout plans to be 30 minute fire rated FD30 doors & frames fitted with intumescent strips and positive self closing devices.

MORTAR:
Mortar should be to the proportions given in BS5628. Part 1: 1992 for mortar designation (iii) or 1:6 portland cement and fine aggregate measured by volume of dry materials or of equivalent where appropriate, of greater strength, which is compatible with the masonry units and position of use. Note: All construction to be in accordance with BS5628 Part 1: 1992 and Part 3 2001 and sections A1 and A2 of Approved Document A of the Building Regulations 2004 edition.

WALLS BELOW GROUND: (RAISED D.P.C.)
Generally constructed in 7N/mm² concrete blockwork to B.S. 6073 Pt 1 with lean mix concrete cavity fill. Cavity fill to finish at least 225mm below the lowest d.p.c. 'Anderson' pitch fee Extra Load Elite (O.S.A.) high performance horizontal d.p.c. minimum 150mm above ground. 'Anderson' Xtra Diamond Seal (O.S.A.) d.p.m. lapped up outer face of inner leaf to lap with 'Ruberoid Rubbertray' (O.S.A.) cavity tray. Provide weep holes at 900mm centres above base of cavity fill and above cavity tray.

SURFACE FINISHES OF WALLS, CEILINGS ETC:
In all circumstances the surface finishes of walls and ceilings should generally be of a standard not lower than that as indicated below:

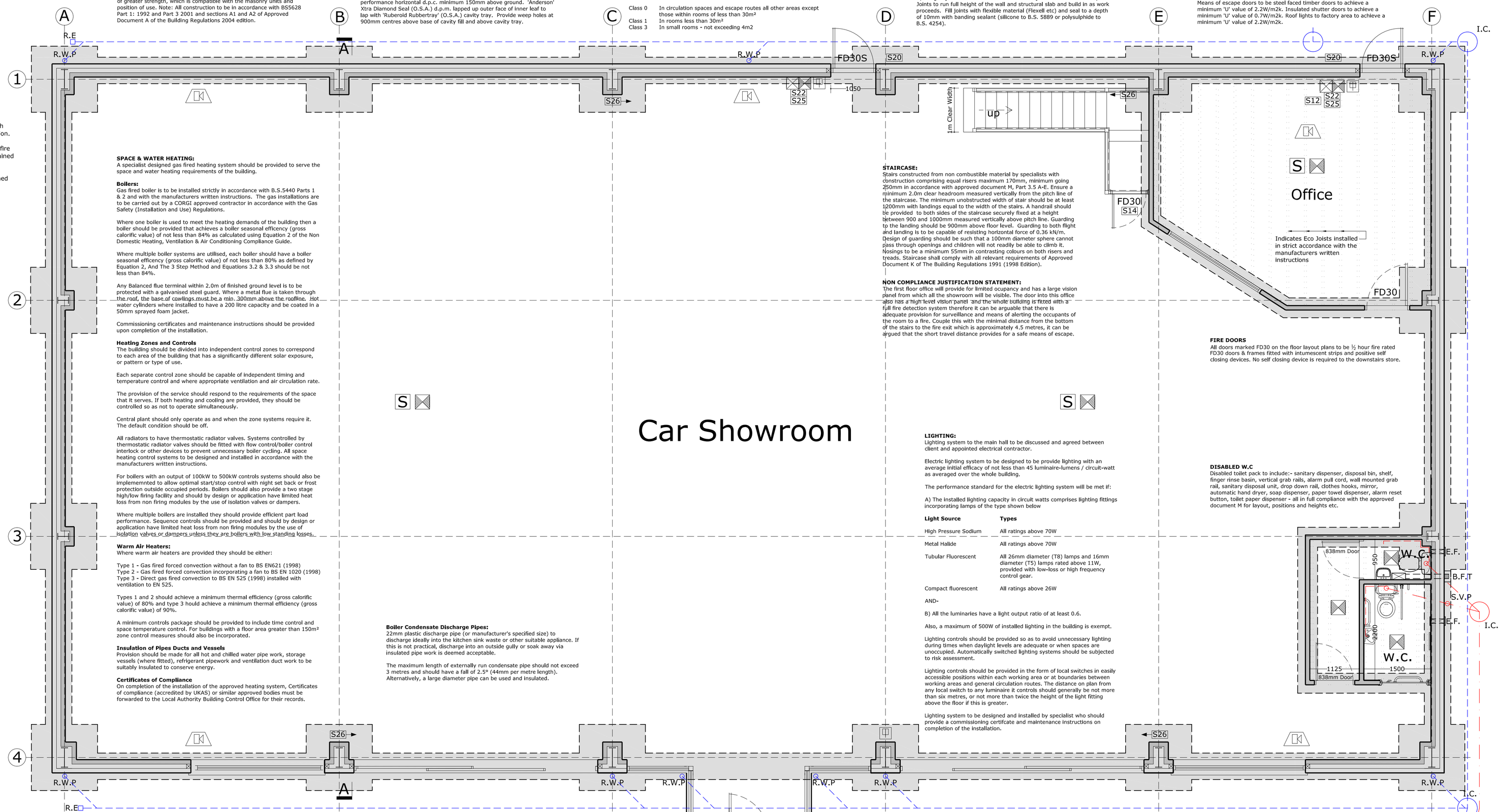
Class 0 In circulation spaces and escape routes all other areas except those within rooms of less than 30m²
Class 1 In rooms less than 30m²
Class 3 In small rooms - not exceeding 4m2

MOVEMENT JOINTS:
Provide vertical movement joints to B.S. 5628 pt 1 1992 and pt 2 1995 in long straight runs of masonry at the following centres:

Clay brickwork - 12m centres - 16mm thick joint
Concrete blocks - 6m centres - 10mm thick joint

Spacing of joints can be increased where bed joint reinforcement adopted. Joints to run full height of the wall and structural slab and build in as work proceeds. Fill joints with flexible material (Flexell etc) and seal to a depth of 10mm with banding sealant (silicone to B.S. 5889 or polysulphide to B.S. 4254).

EXTERNAL DOORS AND OPENINGS
Means of escape doors to be steel faced timber doors to achieve a minimum 'U' value of 2.2W/m2k. Insulated shutter doors to achieve a minimum 'U' value of 0.7W/m2k. Roof lights to factory area to achieve a minimum 'U' value of 2.2W/m2k.



SPACE & WATER HEATING:
A specialist designed gas fired heating system should be provided to serve the space and water heating requirements of the building.

Boilers:
Gas fired boiler is to be installed strictly in accordance with B.S.5440 Parts 1 & 2 and with the manufacturers written instructions. The gas installations are to be carried out by a CORGI approved contractor in accordance with the Gas Safety (Installation and Use) Regulations.

Where one boiler is used to meet the heating demands of the building then a boiler should be provided that achieves a boiler seasonal efficency (gross calorific value) of not less than 84% as calculated using Equation 2 of the Non Domestic Heating, Ventilation & Air Conditioning Compliance Guide.

Where multiple boiler systems are utilised, each boiler should have a boiler seasonal efficency (gross calorific value) of not less than 80% as defined by Equation 2, And The 3 Step Method and Equations 3.2 & 3.3 should be not less than 84%.

Any Balanced flue terminal within 2.0m of finished ground level is to be protected with a galvanised steel guard. Where a metal flue is taken through the roof, the base of cowlings must be a min. 300mm above the roofline. Hot water cylinders where installed to have a 200 litre capacity and be coated in a 50mm sprayed foam jacket.

Commissioning certificates and maintenance instructions should be provided upon completion of the installation.

Heating Zones and Controls
The building should be divided into independent control zones to correspond to each area of the building that has a significantly different solar exposure, or pattern or type of use.

Each separate control zone should be capable of independent timing and temperature control and where appropriate ventilation and air circulation rate.

The provision of the service should respond to the requirements of the space that it serves. If both heating and cooling are provided, they should be controlled so as not to operate simultaneously.

Central plant should only operate as and when the zone systems require it. The default condition should be off.

All radiators to have thermostatic radiator valves. Systems controlled by thermostatic radiator valves should be fitted with flow control/boiler control interlock or other devices to prevent unnecessary boiler cycling. All space heating control systems to be designed and installed in accordance with the manufacturers written instructions.

For boilers with an output of 100kW to 500kW controls systems should also be implememnted to allow optimal start/stop control with night set back or frost protection outside occupied periods. Boilers should also provide a two stage high/low firing facility and should by design or application have limited heat loss from non firing modules by the use of isolation valves or dampers.

Where multiple boilers are installed they should provide efficient part load performance. Sequence controls should be provided and should by design or application have limited heat loss from non firing modules by the use of isolation valves or dampers unless they are boilers with low standing losses.

Warm Air Heaters:
Where warm air heaters are provided they should be either:

Type 1 - Gas fired forced convection without a fan to BS EN621 (1998)
Type 2 - Gas fired forced convection incorporating a fan to BS EN 1020 (1998)
Type 3 - Direct gas fired convection to BS EN 525 (1998) installed with ventilation to EN 525.

Types 1 and 2 should achieve a minimum thermal efficiency (gross calorific value) of 80% and type 3 hould achieve a minimum thermal efficiency (gross calorific value) of 90%.

A minimum controls package should be provided to include time control and space temperature control. For buildings with a floor area greater than 150m² zone control measures should also be incorporated.

Insulation of Pipes Ducts and Vessels
Provision should be made for all hot and chilled water pipe work, storage vessels (where fitted), refrigerant pipework and ventilation duct work to be suitably insulated to conserve energy.

Certificates of Compliance
On completion of the installation of the approved heating system, Certificates of compliance (accredited by UKAS) or similar approved bodies must be forwarded to the Local Authority Building Control Office for their records.

Boiler Condensate Discharge Pipes:
22mm plastic discharge pipe (or manufacturer's specified size) to discharge ideally into the kitchen sink waste or other suitable appliance. If this is not practical, discharge into an outside gully or soak away via insulated pipe work is deemed acceptable.

The maximum length of externally run condensate pipe should not exceed 3 metres and should have a fall of 2.5° (44mm per metre length). Alternatively, a large diameter pipe can be used and insulated.

STAIRCASE:
Stairs constructed from non combustible material by specialists with construction comprising equal risers maximum 170mm, minimum going 250mm in accordance with approved document M, Part 3.5 A-E. Ensure a minimum 2.0m clear headroom measured vertically from the pitch line of the staircase. The minimum unobstructed width of stair should be at least 1200mm with landings equal to the width of the stairs. A handrail should be provided to both sides of the staircase securely fixed at a height between 900 and 1000mm measured vertically above pitch line. Guarding to the landing should be 900mm above floor level. Guarding to both flight and landing is to be capable of resisting horizontal force of 0.36 kN/m. Design of guarding should be such that a 100mm diameter sphere cannot pass through openings and children will not readily be able to climb it. Nosings to be a minimum 55mm in contrasting colours on both risers and treads. Staircase shall comply with all relevant requirements of Approved Document K of The Building Regulations 1991 (1998 Edition).

NON COMPLIANCE JUSTIFICATION STATEMENT:
The first floor office will provide for limited occupancy and has a large vision panel from which all the showroom will be visible. The door into this office also has a high level vision panel and the whole building is fitted with a full fire detection system therefore it can be arguable that there is adequate provision for surveillance and means of alerting the occupants of the room to a fire. Couple this with the minimal distance from the bottom of the stairs to the fire exit which is approximately 4.5 metres, it can be argued that the short travel distance provides for a safe means of escape.

FIRE DOORS
All doors marked FD30 on the floor layout plans to be ½ hour fire rated FD30 doors & frames fitted with intumescent strips and positive self closing devices. No self closing device is required to the downstairs store.

LIGHTING:
Lighting system to the main hall to be discussed and agreed between client and appointed electrical contractor.

Electric lighting system to be designed to be provide lighting with an average initial efficacy of not less than 45 luminaire-lumens / circuit-watt as averaged over the whole building.

The performance standard for the electric lighting system will be met if:

A) The installed lighting capacity in circuit watts comprises lighting fittings incorporating lamps of the type shown below

Light Source	Types
High Pressure Sodium	All ratings above 70W
Metal Halide	All ratings above 70W
Tubular Fluorescent	All 26mm diameter (T8) lamps and 16mm diameter (T5) lamps rated above 11W, provided with low-loss or high frequency control gear.
Compact fluorescent	All ratings above 26W

AND-

B) All the luminaries have a light output ratio of at least 0.6.

Also, a maximum of 500W of installed lighting in the building is exempt.

Lighting controls should be provided so as to avoid unnecessary lighting during times when daylight levels are adequate or when spaces are unoccupied. Automatically switched lighting systems should be subjected to risk assessment.

Lighting controls should be provided in the form of local switches in easily accessible positions within each working area or at boundaries between working areas and general circulation routes. The distance on plan from any local switch to any luminaire it controls should generally be not more than six metres, or not more than twice the height of the light fitting above the floor if this is greater.

Lighting system to be designed and installed by specialist who should provide a commissioning certifcate and maintenance instructions on completion of the installation.

DISABLED W.C
Disabled toilet pack to include:- sanitary dispenser, disposal bin, shelf, finger rinse basin, vertical grab rails, alarm pull cord, wall mounted grab rail, sanitary disposal unit, drop down rail, clothes hooks, mirror, automatic hand dryer, soap dispenser, paper towel dispenser, alarm reset button, toilet paper dispenser - all in full compliance with the approved document M for layout, positions and heights etc.

PEDESTRIAN ACCESS INTO AND CIRCULATION ABOUT THE SITE:
A separate level approach pedestrian access from the highways footpath at the edge of the site and from all parking areas designated as disabled parking should be provided to the main entrance. The width of the footpath should be should be 1800mm (1500mm min.) to allow all users to pass when travelling in opposite directions.

The gradient along its length should be no steeper than 1:60 along its whole length, or less steep than 1:20 with the use of level landings introduced for each 500mm rise of the access. In all cases the cross fall gradient should not exceed 1:40 except at dropped kerbs and crossing points.

On sites with limited space, widths of 1200mm will be permitted so long as they incorporate passing areas of 1800mm by 2000mm at suitable intervals which are free from obstructions upto a height of 2100mm. The case must also be made in the Access Statement

All access routes edges should be clearly defined. Any difference in levels at joints between paving units and or drainage channels should be flush (5mm with joints filled flush). Any such channels should be designed to avoid trapping walking aids and wheels.

Surface materials should be well laid and maintained and provide a firm, durable and slip-resistant surface in all weathers, with undulations not exceeding 3mm under a 1000mm straight edge for foamless materials (such as tarmac or concrete). Inappropriate materials such as sand, loose gravel, cobbles and terrazzo should be avoided. Where different surface materials are utilised along the access route they should have similar frictional characteristics.

Where an uncontrolled crossing point occurs along the access route which crosses the vehicular access this should be indentified by a buff coloured blister surface. (Diagram 1, page 19 of Approved Document M).

Planting along the access route should not obstruct the route or present an overhead hazard. All routes should be clearly signed, carefully located, clear, non-reflective and logical.

MAIN ENTRANCE DOORS:
Main entrance doors should be provided to ensure a minimum clear opening width of 1m. There should be an unobstructed space of at least 300mm on the pull side of the door between the leading edge and any return wall unless doors are powered entrance doors. Where doors are fitted with a latch, the door opening furniture should be able to be operated with one hand using a closed fist, eg a lever handle. All door opening furniture should contrast visually with the surface of the door and should not be cold to the touch. The opening force at the leading edge should be no greater than 20N.

Where possible the ground adjacent to the door should be 'level access' so as to avoid the need for an access ramp but as a minimum a level landing at least 1500x1500mm clear of any door swings should be provided.

If the door is manually operated then a canopy must be provided over to meet the requirements of AD Part M

VISION PANELS & GLAZING:
Vision panels to be installed to doors in corridors to leading edge between 500 & 1500mm if necessary with gap between 880 & 1150mm (diagram 9 page 30 AD M)

All fully glazed screens and doors to incorporate manifestation between 850 to 1000mm and 1400 to 1600mm above floor levels to visually contrast with the background as seen through the glazing in all lighting conditions. Manifestation should take the form of broken or solid lines (min 50mm high), patterns or a logo or sign (min 150mm high).

Glazed entrance doors that form part, or are adjacent to a glazed screen must be clearly differentiated by providing a high contrast strip at the top and on both sides.

DISABLED ACCESS - PART M:
Where possible a 'Level Approach' with a gradient of not more than 1 in 20 shall be formed to the main entrance door and all fire doors, it's surface shall be firm and even and be a min. 1200mm wide. If the ramp is no longer than 2m and does not rise more than 166mm then a 1:12 gradient may be used. A landing should be provided at the top and the foot of all ramps and should be a min 1200 x 1200 in size. Where the ramp exceeds 10m a 1.5m long landing should be provided in a colour that contrasts visually with that of the ramp. Any landings should be 1200mm clear of any door swing. All approaches to be agreed and approved by Local Authority Building Control.

Where the gradient to an entrance / exit is steeper than 1:20 an external ramp will required. The ramp should be of a different colour to the landings with handrails to both sides. The handrails should be of a material that prevents slipping and should not be not cold to touch. They should be easily distinguishable from their background without being highly reflective.

Raised kerbs a minimum of 100mm high should be incorporated to any open sides and should be in a contrasting colour to the ramp and landings. The surface material utilised should be of slip-resistant nature when wet and possess similar frictional characteristics as the landings.

Doorways shall have a level threshold (max. 15mm upstand) suitable for wheelchair access & provide a **minimum** clear opening width of not less than 1000mm.

ACCESSIBLE SWITCHES & SOCKET OUTLETS:
All switches & socket outlets for lighting & other equipment in all rooms shall be located at appropriate heights between 450 mm & 1 200mm above finished floor level.

MINIMUM EFFECTIVE CLEAR WIDTH OF DOORS:
Clear opening widths to be as follows:

800mm	When approached head on (without a turn or oblique Approach) & if at right angles to an access route at least 1500mm wide.
825mm	If at right angles to an access route at least 1200mm wide.
1000mm	All external doors if they are used by the general public.

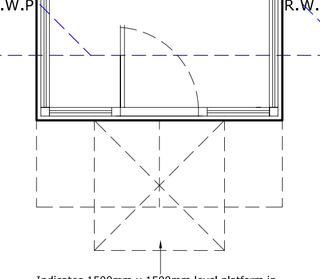
LINTELS:
Below Ground - Lintels to openings in masonry walling below ground level are to be approved pre-cast reinforced concrete lintels, ensure minimum end bearings of 100mm.

Cavity Walls - Lintels to openings in cavity wall construction above ground level are to be IG standard insulated galvanised steel lintels types L1/575 or L1/S100 for standard duty loading conditions and type L1/HD75 or L1/HD100 for heavy duty loading conditions. All lintels to have min. 100mm end bearings for spans upto 1200mm and 150mm end bearing for span greater 1200mm. Cavity trays to be fitted above all lintels and provided with stop ends and weepholes at 450mm apart with min. 2no. weepholes per tray.

Internal Walls - Lintels to openings in internal single leaf blockwork walls above ground level to be approved steel or concrete lintels with minimum 100mm end bearings. All lintels are to be selected and installed in strict accordance with the manufacturers written instructions.

All lintels should be to the manufacturers load span tables.

CAVITY TRAYS:
To be installed over all lintels (windows & doors), meter boxes, air bricks with weepholes & stop ends fitted. Weepholes must not be more than 450mm apart and there must be a min. of 2 weepholes per opening



Indicates 1500mm x 1500mm level platform in front of principal entrance door clear of any door swings. Ensure a gradient of 1:20 is achieved to remove the need for an access ramp.

WINDOWS AND EXTERNAL DOORS:
Provide and install timber or uPVC window units by specialist manufacturer, as indicated on the planning drawings.

All external windows and doors are to be fitted with double glazed sealed units, with minimum 16mm gap between panes which are to be Argon filled with the inner leaf of glazing to have a 'soft' Low - E coating with an emissivity value between 0.15 - 0.20. Obscured glazing should be installed to bathrooms, ensuites & W.C.

All new doors to achieve a maximum 'U' Value of 2.2 W/m²K and new windows to achieve a maximum 'U' Value of 1.8 W/m²K.

Glazing In Critical Locations:
Provide suitable safety glazing in accordance with BS6262 & BS6206 (which should be permanently marked on the glass) to areas in windows below 800mm above finished floor levels and below 1500mm above finished floor levels in doors and within 300mm in side panels in doors.

Alternatively provide annealed glass in small panes not less than 6mm thick with a width not exceeding 250mm and an area not exceeding 0.5m² each measured between glazing beads or other fixings.

Another alternative would be to provide a form of permanent screen protection. This could take the form of difficult to climb guarding at least 800mm high and should prevent a sphere of 75mm coming into contact with the glazing. through any opening. A climbable screen with horizontal rails is not suitable where guarding is required.

Where windows protrude into access routes opening restrictor hinges should be provided to limit external hazards around the perimeter of the building.

WIndows - Ventilation:
All windows are to incorporate adjustable trickle ventilators to provide for background ventilation at the following rates:

8000 mm² - Occupiable rooms
4000 mm² - Kitchens, WCs

Rapid ventilation (ie an opening window) to be provided as follows:

Habitable rooms and separate WCs:
- Where window opens 30° or more - 1/20th of floor area
- Where windows open less than 30° - 1/10th of floor area

Kitchen, Utility and Bathroom:
- Opening window (no minimum size)

Windows and doors are to be set back in reveal to cloak any vertically installed insulated D.P.C.s by at least 30mm. All windows to provide a minimum 1/10th daylight of the room floor area. To limit infiltration, all doors, windows, loft hatches and other openings to be sealed with draught seals or similar.

ROOM VENTILATION:
All rooms to have purge ventilation provided by one or more openable windows with total free ventilation area not less than 1/20th room floor area with some part of the vent opening at high level (typically 1.7m above finished floor level). All rooms to have background ventilation provided by adjustable trickle ventilators in the top rails of windows to provide a minimum 8,000mm² free ventilation and 4,000mm² elsewhere by the use of air bricks. Ventilators to be reasonably secure and located typically 1.70m above finished floor level.

Sanitary Accommodation - To have mechanical extract ventilation capable of extracting at a rate not less than 6 litres/sec minimum, and capable of being operated intermittently.

Mechanical extract ventilation to be situated as high as possible and preferably 400mm below the ceiling.

Ventilation to the main car sales area by mechanical ventilation (as recommended in HSE Guidance Note EH22 Ventilation of the workplace) to provide rapid ventilation. Trickle ventilation as notes above. All aspects of mechanical ventilation, air conditioning and extraction systems are to be designed, manufactured, installed and commissioned by specialist by specialist M & E engineer or consultant.

All aspects of ventilation are to comply with all relevant sections of Approved Document F of the Building regulations 2006 Edition.

Proposed Ground Floor Layout

(Gross Floor Area = GF: 480m² or 5167ft², FF: 27m² or 290ft²)

This drawing has been prepared for the purpose of obtaining Planning and or Building Regulation Approvals only. The contractor is responsible for taking and checking all dimensions on site prior to commencement and reporting back any discrepancies to the client and the architectural consultant. All materials specified on this drawing are to be used in strict accordance with manufacturers written instructions and current codes of practice. Variations to the specifications within these drawings or associated documents are at the contractor's own risk. This drawing is the copyright of DesignQube By Steven Brown Ltd and must not be reproduced without written consent.

Preliminary Drawing
Subject to SBEM Calculations
& Building Control Approval

Mr David Grantham	Client
Car Showroom Site, Tattershall Way	Site Address
Proposed Car Showroom	Project Title
Building Regulations - Ground Floor Layout	Drawing
SAB	Drawn By
1 : 50	Scale
February 2007	Date
DQ-012-BR01 - Rev B	Drawing Number
Rev B - 05/04/07 - Amended to LBC requirements	Revisions
A1	Original Paper Size

DESIGNQube
By Steven Brown
Architecture and Urban Design
1st Floor, 12 Nichol Hill, Louth, Lincs, LN11 9NQ
Telephone 01507 610375