General

All dimensions are in millimetres unless stated otherwise.

All proprietary materials to be installed in accordance with the manufacturers instructions.

All dimensions to be confirmed on-site. Do not scale from the drawings.

Building Regulations Part L1B (October 2010) Prescribe these limiting U values for new building elements:

Element	
Wall	0.28
Pitched Roof (ins@ceiling)	0.16
Pitched Roof (ins@rafters)	0.18
Flat Roof	0.18
Floors	0.22
Swimming pool basin	0.25

Where the existing building elements are part of a building subject to a material change of use, these should be upgraded if their U-value is lower than the threshold u-value shown Below:

Element	Threshold	Target Improved Value
Cavity Wall	0.70	0.55
Other Wall	0.70	0.30
Floor	0.70	0.25
Pitched Roof (ins@ceiling)	0.35	0.16
Pitched Roof (inb@rafters)	0.35	0.18
Flat Roof	0.35	0.18

Any Existing Windows or Doors that has an U-value of less than 3.3 should be upgraded to meet the the following target Values:

Fitting	
Windows (inc rooflights)	1.6
Doors	
>50% glazed	2.2
Other Doors	3.0
	1.8
	1.8

An Energy Performance Certificate (EPC) is required to be given to the Owner of the building no later than 5 days after completion of the works. Building Control is to be notified that this has been done.

Internal stud wall construction

All non-load bearing stud walls are to be constructed using 75x50mm timber members grade C24 (SC4), 600mm centres, provide 12.5mm plasterboard to both faces.

Load bearing stud walls are to be constructed using 100x50mm timber members grade C24 (SC4), 400mm centres, provide 12.5mm plasterboard to both faces.

70x14 timber skirting to be placed at foot of all internal faces.

75x50 noggins at 400 centres vertically with wall plates top and bottom. Load bearing wall to have 100x50 noggins and top plate strapped or clipped to all roof rafters.

All internal stud walls separating a room from a w.c. (unless en-suite or containing a door) as well as walls separating bedrooms from other rooms (unless containing a door) to provide adequate sound resistance. This can be achieved either by fixing two or more layers of plasterboard to timber or steel studs, or by infilling the gaps between the studs with an absorbent layer of unfaced mineral wool batts or quilt (min. thickness 25mm, min density 10kg/m3). Plasterboard fixed to timber frame with a minimum distance between linings of 75mm, or metal frame with minimum distance between linings of 45mm. All joints to be well sealed.

Timber

All timber to be grade C24 (CS24) to BS5268 pt 2: 1996 unless noted otherwise.

All joists to be tanalised or similar.

Notches shall be no deeper than 0.125 times the depth of joist and shall not not be cut closer to the support than 0.07 times the span.

Holes shall not have a diameter greater than 0.25 times the depth of the joist and shall be drilled at the neutral axis. Holes should be not less than 3 diameters (centre to centre) apart and shall be located between 0.25 and 0.4 times the span from the support.

Minimum bearing at all supports to be 35mm unless noted otherwise.

Workmanship and bearing areas shall comply with the relevant requirements of BS5628:pt 2 1991.

No notches or holes shall be cut in roof rafters other than at supports where the rafter may be birdsmouthed to a depth not greater than 0.33 times the rafter depth.

Timber fascias to be painted with 2 coats of gloss paint. Colour to clients approval.

Felt Flat Roof Construction

Flat roof joists 175x50@400c/c SC4

Walls to laterally restrained by roof using a suitable method in accordance with the building regulations.

Roof to be tied down vertically to walls using 30mm by 5mm galvanised steel wall straps at a maximum 2 metre centres.

Permanite or sim. high performance felt system finish to roof, superflex sanded wholly bonded to superbase. Torch vent glass fibre based perforated venting underlay wholly bonded to type 3g bituflas partially bonded to 21mm ext. Quality plywood deck over s/wd. Firring at 1:40nom. (1:80 min.) fall. Mineral chippings bonded in bitumen as roof finish.

Insulation to achieve a U-value of 0.18w/m²k as follows: Breather Membrane draped over one layer of 120 mm Celotex XR 4120 fitted between rafters, maintaining 50mm ventilation gap between insulation and existing boarding with one layer 25mm Celotex PL4000 fixed to u/s of rafters. One layer of 12. mm foil backed plasterboard fixed over insulation to rafters. Underside of rafters lined with 12.5 mm plasterboard to receive 3mm plaster skim coat finish.

Roof construction

Timber sizes to be as shown in the table of components.

Roofing materials and insulation details to be as given on the drawing.

Walls to laterally restrained by roof using a suitable method in accordance with the building regulations.

Roof to be tied down vertically to walls using 30mm by 5mm galvanised steel wall straps at a maximum 2 metre centres.

Insulation in roof (flat and pitched) to achieve a U-value of 0.18w/m²k unless stated otherwise. For dormer and gable/party walls u-value to achieve 0.18w/m²k. See ref detail for specification. For flat roofs place 120mm Celotex TC3000. For Pitched Roofs use Celotex GA4000 - 50mm between rafters +80mm under the rafters.

If possible maintain a 50mm ventilation layer between the top of the insulation and roof tiles or provide breather membrane under tiling battens. Install counter battens as necessary and provide adequate eaves and ridge ventilators of area equivalent to a 5mm continuous gap.

All flashings to be minimum code 4 Standard

Mortar

Mortar shall be to the proportions given in BS 5628:pt 1 1978 for mortar designation(iii) or 1:1:6 portland cement, lime and fine aggregate measured by volume of dry materials or mortar shall be of greater strength which is compatible with the masonry units and position of use.

Dry pack to be semi-dry or hand-dry mix to prevent shrinkage and ensure full bearing of the existing structure onto the steels.

Sanitary pipework and drainage

All work to be strictly in accordance with building regulations part h and the relevant clauses of BS8301 and BS5572.

Washbasin to have 32mm diameter waste with 75mm seal trap. Bath and shower to have 40mm diameter waste with 75mm seal trap trap. WC to have 100mm diameter waste with 50mm depth of water seal. Overlength/combined wastes to be min. 50mm diameter.

All waste pipes to be uPVC to BS4514.

Wastes to run into existing soil and vent stack at a minimum gradient of 1:50 for washbasin and shower, and 1:100 for WC. Allowance shall be made by the contractor for the shower unit to be set on a plinth to achieve sufficient run-off gradient.

Soil vent pipe to be a minimum of 75mm diameter. The ventilation point on the pipe to be a minimum of 900mm above roof windows.

Investigate any existing cold water storage tank and central heating tanks and relocate/replace as necessary.

Party Wall

Existing party wall to be investigated and upgraded as necessary to meet the sound insulation requirements and thermally insulated to achieve 0.3W/sqmK u-value. Use British Gipsum or Knauf Insulation products - e.g. 12.5mm soudblock plasterboard over GL1 lining channel fixed with GL2 bracket forming a 65mm cavity filled with 65mm isowool onto ex. brick wall. Alternatively fix 65mm th. Celotex (or similar) PIR insulation bonded to plasterboard.

Stairs

Stairs to be constructed in accordance with building regulations part k.

A handrail shall be provided throughout the length of the staircase on the outer face.

Handrail shall be 900mm high, measured from the top of the handrail to the pitchline.

Balustrading shall be provided at second floor level, to incorporate 100mmx100mm newel post, in traditional style. Gap between balusters not to exceed 100mm.

Risers to be a maximum 220mm and goings 220mm. The maximum pitch of stairs to be 42 degrees.

Minimum headroom required to be 2 metres.

Stair width to be minimum 750mm.

Minimum distance between top step and wall opposite to be at least equal to the width of the stairs.

Minimum going at any part of the tapered tread should not be less than 50mm. The going should be measured at the centre point of the length of the length of deemed length of a tread. For treads longer than 1m the height should be measured at points 270mm from each end of the length of deemed length of a tread (when refered to a set of consecutive tapered treads of different lengths, the term deemed length means the length of the shortest tread). All consecutive tapered treads in a flight should have the same taper. Where stairs contain straight and tapered treads the goings to the tapered treads should not be less than those of the straight flight.

Doors, Windows and Ventilation

New windows and doors to match existing.

Double glazed windows with min.16mm air gap between glazing to provide a u-value of 1.6w/m²k with low E coating on inner pane.

All openable elements to have suitable seals.

All internal doors to achieve minimum FD30 fire resistance unless stated otherwise

Provide polymer dpc above and below window openings and proprietary cavity closers.

All bathrooms should be fitted with a mechanical extract fan operated by connection to the light switch or occupant detector in accordance with part F (2006) of the building regulations. Extract fan to have a minimum capacity of 8l/sec. Fans in rooms with no openable windows should have a 15 minute overrun facility.

Mechanical ventilation to kitchen to be capable of extracting at a rate of not less than 60 litres per second or 30 litres per second when incorporated within a cooker hood. Extraction rates to comply with Table 1.1a of the Building Regs Part F.

Purge ventilation
For each habitable room with external walls:
For a hinged or pivot window that opens 30° or more, or for sliding sash windows, the opening part should be at least 1/20 of the floor area of the room.
For a hinged or pivot window that opens less than 30°, the opening part should be at least 1/10 of the floor area of the room.
For each wet room with external walls, install an openable window (no minimum size).

Windows to habitable rooms to provide a minimum of 8000 sq.Mm trickle ventilation. All other rooms ie. Kitchen and bathroom windows to provide minimum 4000 sq.Mm

Glazing shall conform to part n of the building regulations and BS6206:1981 in critical locations.

Any glazing to doors and windows within 300mm of doors and within 1.5m of ground/floor level and elsewhere glazing to windows within 800mm of ground/floor level to be toughened or break safely.

The position, opening and materials of all glazing units to comply with BR AD Part B: Fire safety. All fire egress windows to comply with paragraph 2.8

Window openings where the sill is between 600-800mm from internal finished floor level (FFL) should be provided with permanent horizontal guarding up to 800mm from FFL. Where the sill is below 600mm from FFL then the guarding should be non-climbable and should extend 700mm above the sill height either internally or externally.

Glazing below 800mm from finished floor level (FFL) should be able to provide containment from a person falling against it or provide a barrier to resist the horizontal forces in accordance with BS 6399 Part 1: 1996.

Heating and Gas Services

Any new heating, cooling and ventilation appliances should meet the standards set out in the Domestic Building Services Compliance Guide, 2010.

The contractor is responsible for the design and installation of any heat producing systems and all necessary work shall be carried out by a competent person to the clients requirements.

All other work related to heat producing appliances and the installation of new boilers shall be carried out in accordance with parts J and L of the building regulations. To demonstrate compliance a condensing boiler is required or carry out an assessment in accordance with DOMESTIC HEATING COMPLIANCE GUIDE. Adequate SEDBUK value to be used.

Thermostatic radiator valves to be provided to all new radiators.

Any Gas fittings, appliances or storage vessels should be installed by a suitably qualified person i.e. Gas Safe registered. Copies of certificates to be provided for submission to the building control.

Space heating controls to:
* provide independent time and temperature control to both the heating and hot water circuits. (in Scotland 7 day timing is required)
* provide control systems with a boiler interlock
* split the heating system into zones using either:
  - o room thermostats or programmable room thermostats in all zones
  - o a room thermostat or programmable room thermostat in the main zone and Thermostatic Radiator Valves (TRV's) on all radiators in the other zones
* provide time control by the use of either:
  - o a full programmer with separate timing to each circuit
  - o two or more separate timers providing timing control to each circuit
  - o programmable room thermostat(s) to the heating circuit(s), with separate timing of the hot water
* for dwellings with a total usable floor space of over 150m2, then:
  - o the heating circuit should be split into a minimum of two zones plus a hot water service zone and:
  - o each zone should be separately timed by the use of a multi-channel programmer or multiple heating programmers or programmable room thermostats

Electrical requirements

All wiring and components to comply with the latest edition of the IEE electrical regulations.

High efficiency light fittings to be installed, capable of only accepting lamps having a luminous efficacy greater than 45 lumens per circuit-watt, will be provided in rooms or circulation areas most frequently used, at a rate of 3 per 4 fixed lighting fittings.

All new electrical works should be installed, inspected and tested by an electrician competent to do so. A competent electrician is the one who holds a City and Guilds 2380 or 2381 (16th edition) certificate and City and Guilds 2391 (Inspection, Testing and Certification) certificate and has experience of electrical installation work.

All new electrical works will need to be designed, installed, inspected and tested by a competent person registered with the NICEIC, ECA, JIB or similar approved body for which a certificate of testing and commissioning is required upon completion.

A copy of the appropriate BS7671 electrical installation and test certificate must be provided to Building Control by the competent electrician before a completion certificate can be issued.

Electrical fittings to be of good quality throughout. Light fittings are to be of a type to be specified by the client. All light fittings in bathrooms to be suitable for the locality.

Energy efficient internal lighting is required, which only take lamps having a luminous efficacy >45lm/circuit watt. (Minimum 1 fitting per 25m² or 1 per four fixed lighting positions, whichever is the greater). 3 in 4 light fittings are to be energy efficient as specified above.

External lighting requires a photocell/PIR with lamp capacity a maximum 150W or lamps only having a luminous efficacy >40lm/circuit watt should be adopted.

All spotlights to be fitted with fire resistant hoods

Existing light and power sockets as appropriate, to be relocated to suit new floor layout as required. Switches and socket outlets in habitable rooms on all floors should be between 450mm and 1200mm from finished floor level.

New fixtures and fittings to be colour contrasting. Colours of walls, floors and ceilings to generally be differentiated by 30 points on the Dulux colour scale.

All new heating, cooling and ventilation appliances should meet the standards set out in the Domestic Building Service Compliance Guide, 2010.

Fire Safety

A mains-operated fire detection and alarm system is required to at least a Grade D Category LD3 standard in accordance with the recommendations of BS 5839 Part 6. The position of the detector heads indicated on the plans. The mains supply to the system should be a single independent circuit from the dwelling's main distribution board At least one smoke detector/alarm should be sited within the hallway at each level, sited within 7.5m of each habitable room with a standby power supply (battery). visual and audible signal of power failure.

Replacement windows within habitable rooms at first floor level should be designed and constructed as emergency egress windows; an unobstructed area of at least 0.33m² and a minimum opening dimension of 450mm (where feasible).

All doors leading onto the staircase enclosure should be FD20's.

Storm water drainage

All guttering to be uPVC and have gutter width of 100mm.

Outlets to be uPVC and have a minimum internal diameter of downpipe of 63mm.

Sound Insulation

Piped services to be surrounded with sound absorbent material for their full height and enclosed within ducting above and below the floor. enclosure to have a mass of 15kg/m.

Unfaced sound insulation materials need fire stopping and gas safety I.E. Ventilation's of ducts at each floor.

Sanitation, hot water safety and water efficiency

Cold water supply:

* Wholesome water must be provided where drinking water is drawn off.
* Wholesome water or softened wholesome water must be supplied to any washbasin in or adjacent to a room containing for the a sanitary convenience.
* Wholesome water or softened wholesome water must be supplied to any washbasin, bidet, fixed bath and shower in a bathroom
* Wholesome water must be provided to any sink provided in any area where food is prepared.

There must be a suitable installation for the provision of water of a suitable quality to any sanitary convenience fitted with a flushing device. It is not stipulated that a supply of wholesome water or softened wholesome water is required therefore these devices can be served by water from other sources, for example reclaimed 'greywater', harvested rainwater, water from wells etc, water reclaimed from industrial processes etc.

Cold water supply applies to domestic greenhouses, small detached buildings and extensions to buildings, including conservatories if they are to be served by a water supply from a dwelling.

Requirements for Hot Water supply and systems:

Hot Water supply and systems applies safety provisions to all types of hot water systems and includes a new provision on the prevention of scalding.

Heated wholesome water or heated softened wholesome water to be supplied to any wash basin, or bidet in or adjacent to a room containing a sanitary convenience, any wash basins, bidet, fixed bath or shower in a bathroom and any sink is provided in an area where food is prepared.

Any hot water system, including associated storage or expansion vessel shall resist the effects of any temperature or pressure that may occur in normal use or as a consequence of a reasonably anticipated malfunction.

Any part of a hot water system that incorporates a hot water storage vessel shall incorporate precautions to ensure that the temperature of the stored water does not exceed 100oC and that any discharge from safety devices is safely conveyed to a point where it is both visible and will not cause a danger to persons in or about the building.

Hot water supply to any fixed bath in a newly formed dwelling must be designed and installed with measures to ensure that the temperature of the water that can be delivered to the bath cannot exceed 48oC to prevent scalding. This applies when a dwelling is created through new-build or conversion.

Hot Water supply and systems regulations also applies to domestic greenhouses, small detached buildings and extensions to buildings, including conservatories if they are to be served by a water supply from a dwelling.

Fire Safety Construction Notes:
General:

The plans have yet to be examined by the Fire Safety Officer, any additional comments will be forwarded as soon as possible.

Suitably located routes of sufficient number and size need to be provided to enable the occupants to escape to a place of safety in the event of fire

These need to be adequately lit, exits suitably signed and provide appropriate facilities to limit the ingress of smoke to the escape route or provide measures to remove smoke

All works must be carried out in accordance with Building Regulations Approved Document B1, BS5588 Fire precautions in the design, construction and use of buildings, parts 1-10, Fire Prevention Guide No.1, Fire precautions in town centre redevelopment and other relevant and approved documents.

Fire extinguishers are to be provided in accordance with BS EN3, adjacent to each storey exit and in relevant locations, and of a type (or types) suitable for the particular uses. The type and location are to be agreed with the Fire Safety Officer.

Appropriate commissioning reports must be provided for all fire safety elements. Before the new premises are occupied a fire risk assessment must be undertaken, or existing assessment reviewed, in order to comply with the Regulatory Reform (Fire Safety) Order 2005.

Electrical and Smoke Alarms:

An automatic fire detection system to be provided throughout (i.e. heat detectors in kitchens, an smoke detectors in accommodation, corridors and stairways) in accordance with BS 5839 Part 1:2002 - type L1 or as appropriate.

All dwellings should be fitted with self-contained smoke alarms permanently wired to a separately fused circuit at the distribution board and conform to the IEE Wiring Regulations. Smoke alarm must be manufactured in accordance with BS5446, Part 1:1990 and Fire Detection and Alarm Systems BS5839, Part 1. Manual call points (located at storey exits) complying with Part 2:1983 should be provided.

Fire alarms are to be located in circulation areas within 7m of rooms where fires are likely to start (kitchens and living rooms), and within 3m of bedroom doors, and at least 300mm from any wall or light fitting if fixed to a ceiling and preferably mounted in the centre or between 150 and 300mm below the ceiling if designed to be wall mounted.

Fire alarms must be fixed in position to allow for routine maintenance, testing and cleaning

Fire alarms must be sited away from areas where steam, condensation or fumes could give false alarms, and away from areas that get very hot or very cold.

A minimum of one alarm should be installed in each storey of the dwelling. Corridors more than 15m long should contain more than one smoke alarm, and these should be interconnected to activate the alarm signal in all of them.

Lighting and Signing:

All escape routes, corridors and stairs, within accommodation generally, and all windowless areas should have adequate artificial lighting. The lighting to escape stairs will need to be on a separate circuit from that which supplies any other part of the escape route.

Emergency Lighting Systems should comply with standards for installation: BS5266 Emergency Lighting, Part1:1988

Except for dwelling-houses, flats and maisonettes, exit signs should be provided to every doorway or other exit giving access to a means of escape. The exit should be distinctively and conspicuously marked by a sign with letters of adequate size in accordance with BS5499 Fire safety signs, notices and graphical symbols, Part 1:1990.

Where exit signage is not illuminated this should be located within 2m of an emergency light fitting.

The building control inspector shall witness a test of the fire alarm system and emergency light test, and a copy of the commissioning certificate shall be submitted to the building control.

Common Staircases:

Each common stair is situated in a fire-resisting enclosure with the appropriate level of fire resistance.

Each protected stair should discharge either into a direct final exit or by means of a protected exit passageway to final exit.

If two protected stairways or protected exit passageways are adjacent, they should be separated by an imperforate enclosure.

A protected stairway should contain no other accommodation apart from a lift well.

Opening in the external walls of protected stairways should be protected from fire in other parts of the building if they are situated where they might be at risk.

A common stair should have a minimum width of 1m. Maximum riser height should be 180mm, and minimum going length is not to be less than 250mm.

For a mixed-use building where a building has no more than three storeys above the ground storey, the stairs may serve non-residential and dwelling uses, with the provision that each occupancy is separated from the stairs by protected lobbies at all levels.

The proposed stair enclosure is to achieve a minimum 30min. fire resistance rating. New fire-resistant stud wall construction: Framing members at least 44mm wide, and spaced at not more than 600mm apart, with lining (both sides) of 12.5mm plasterboard with all joints taped and filled. Existing brick wall does not need upgrading. Fire resistant floor/roof construction: At least 15mm t&g boarding or sheets of plywood or wood chipboard, floor joists at least 37mm wide, ceiling lined with 12.5mm plasterboard with at least 5mm neat gypsum plaster finish.

Wall and Ceiling Linings:

All wall and ceiling linings should offer adequate resistance to spread of flame over their surfaces and if ignited have a rate of heat release which is reasonable in the circumstances.

All internal lining are to achieve a surface spread of flame rating to a Class O

Fire Doors:

All fire doors to have an appropriate fire resistance rating in accordance to BS476:Part 22 as indicated on the plans.

All fire doors should be fitted with an automatic self-closing device, unless cupboards/service ducts which are normally kept shut.

No device should be provided to hold a door open unless fitted with a fusable link device or an automatic release mechanism (not suitable if only escape stair/firefighting stair).

No fire door should be hung from hinges with a melting point less than 800C unless tested.

Doors which are to be kept locked when not in use should be marked with an appropriate fire safety sign in accordance with BS5499, Part1:1990. The signs should be on both sides of the fire doors. This rule does not apply to fire doors within dwelling-houses and other residential buildings , doors to and within flats and maisonettes and lift entrance doors.

Ironmongery used on fire doors to be suitable. It is desirable to provide glazed vision panels to fire doors. Glazing to be of suitable size as prescribed in BR documents or to be adequately insulated. Vision panels to provide a minimum zone of visibility 500mm to 1500mm from floor. If necessary interrupted between 800mm and 1150mm from above floor level or a clear section of glass in the partition adjacent to the leading edge of the door.

Provide simple single action fastenings (capable of being easily opened without the use of a key on the risk side) to all doors on escape routes, with final exit doors do be with panic bolts or similar approved fastenings - located at a height complying with Part M of the Building Regulations.

If there is any variance to the above (e.g., for security reasons or by nature of the use) a risk assessment / access statement will need to be deposited for further consideration in conjunction with the Fire Safety Officer.

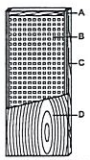
Typical FD30 Fire Door Specification

A. Rails - Single piece of solid wood (352.5kg/m3 minimum density) or fire rated composite material or combination thereof with sizing of each to conform to fire test specifications.

B. Core - Non combustible composite mineral core (416.5kg/m3 minimum density).

C. Stiles/Edges - Wood and composite mineral core used individually or combined in accordance with fire standards to produce a 30 minute fire door rating.

D. Face - Any commercially available high pressure plastic laminate, "backer sheet", or wood veneer.



Typical FD.30 Fire Door

Cavity Barriers and Pipe Penetrations

Knauf Rocksilk Smoke and Fire Barrier or similar secured by steel angle using expanding bolts. The perimeter of the barrier should be secured with steel strip.

At the ceiling junction, the Rocksilk Smoke and Fire Barrier is cut and draped on and between the joists, and secured by fixing to steel angle, which is itself fixed to the joists. Please see detail

At partitions or wall heads, if a secure fixing is available, as at soffits, the Rocksilk Smoke and Fire Barrier should be clamped by steel strip.

Two layers of 50mm Rocksilk Smoke and Fire Barrier with a 50mm air space between them are needed for one hour fire resistance. The joints in the two layers should be staggered and the Rocksilk Smoke and Fire Barrier returned outward at the top and bottom.

If possible, the Rocksilk Smoke and Fire Barrier should be secured with steel strip to the partition or wall head so as to maintain the 50mm air space as shown in the detail.

Services which are permitted by Building Regulations to penetrate barriers, should be provided with collars of Rocksilk Smoke and Fire Barrier at least 300mm long, sawn to the main barrier and then strapped or wired so as to avoid any possibility of gaps (Please see detail).

A half hour barrier requires a collar on one side of the barrier. A one hour barrier requires one collar on both sides of the barrier system. Reference should be made to Building Regulations Approved Document B, B3, Section 10.

NOTES

Rev.	Amendments	Date	Chkd.

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Title
Construction Notes

Drawn	NK	Date	Jan'20	Scale	-
Checked	DS, NN	Date	Jan'20		
Approved	SS	Date	Jan'20	Size	A1

Drawing No.	Rev.
2001-1238-107	B