

Technical Advice Note: Guide Specification for Fully Adapted Disabled Units

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INTRODUCTION

The purpose of this Technical Advice Note is to provide greater detail for the development of fully adapted disabled units. It provides technical advice to developers and decision-makers but is not adopted policy and should not be read as such. It may be updated from time to time to reflect changing circumstances or to update in light of best practice.

It is recommended that all plans for fully adapted disabled dwellings are approved by SWT Housing Enabling and Development in conjunction with the SWT funded Occupational Therapist who advises on the needs and design requirements for housing applicants with disabilities or special needs.

Plans are required to be submitted at a scale of 1:50 with separate plans for kitchen, bath and showers rooms at a scale of 1:20. The plans and detailed specifications are to be agreed in writing by TDBC Housing Enabling and Development before the commencement of building works.

In case of conflict between this specification and any statutory requirement (e.g. Planning permission/conditions, Building Regulations), the statutory requirement shall take precedence.

Housing designed for wheelchair users shall refer to the Wheelchair Housing Design Guide second edition published by Habinteg. This document identifies the essential requirements for such compliance.

LOCATION AND DESIGN

Wheelchair accessible dwellings should be an integral part of the development taking into consideration the proximity and level access accessibility to local amenities and public transport.

The practicalities of managing and maintaining the dwellings and suitability for the service user will be taken into account when agreeing the appropriate spatial distribution, tenure and property type of units on the site. The preference is for clusters of no more than four units

1. MOVING AROUND OUTSIDE

1.1. Footpaths

Ensure that footpaths are smooth but slip resistant, constructed with BitMac finish wearing course, of 1200mm minimum width and with adequate space to negotiate obstacles, turn and pass.

1.2. Footpath edges

Provide protective edgings, kerbs or rails where footpaths are significantly higher than adjacent ground levels or where adjacent ground significantly falls away.

Ensure that gradients to footpaths or routes within a development do not exceed the following distance or ratio:-

- 2m max @ 1:15
- 5m max @-1:20

Ensure the maximum length of slope is limited to suit the gradient with top, bottom and, where required, intermediate landings.

1.3. Cross falls

Ensure that these do not exceed 1:50 on footpaths, whether dedicated to pedestrian use or shared with vehicles.

1.4. Crossings

Ensure that these have flush junctions or shallow gradients and avoid gratings or channels which could trap wheels or footrests.

2. USING OUTDOOR SPACES

2.1. Private Gardens

Where private back or side gardens are provided, ensure that gates have 850mm clear opening, with 300mm nib on the leading edge side of the gate. The gate shall be operated from each side by a wheelchair user, with reachable and easily manipulated fittings.

Lock to be at 900-1000mm from FFL.

2.2. Balconies

Provide nominally level access to balcony and usable space, minimum 1200mm clear of any door swings.

2.3. Garden

Provide a level, paved area, minimum 1.8 x 1.8, large enough to easily accommodate 2 (two) wheelchair users simultaneously, connecting footpaths to building, circulation spaces shall comply with the requirements set out under "Footpaths" above.

Lay out garden to provide:

- Accessible paving outside external door
- External drying facilities will not be provided. A "Tidy-Dry" or similar system shall be installed within bathroom spaces at a height of 900-

1200mm (Final height to be confirmed by Housing Association) above finished floor level and in a position which is accessible by the wheelchair user

- Accessible route from external door, storage and gate

Provide adequate scope for future accessible planting

2.4. Refuse

Make suitable usable refuse provision, i.e. to deposit refuse in an accessible container for collection, within a short distance of an external door, or ensure appropriate management provision.

Covered refuse storage to be provided with PIR activated lighting, suitable water supply for wash down purposes and adequate, accessible drainage gully.

Door to waste storage areas should meet the same criteria set out for communal and main entrance door set out in section 4 below (excluded opening and communication systems).

Access routes to refuse areas, as a minimum, to meet the requirements set out for 'footpaths' in section 1.

3. APPROACHING THE HOME

3.1. Covered area

Ensure that minimum clear area and height are as below with slip resistant, smooth and nominally level paved surface below set out in 3.5 Canopy at entrance.

Car parking spaces shall be allocated for individual dwellings and shall be located as close as possible to main entrances to minimise travel distances.

Where possible the covered area to be immediately adjacent to the entrance providing a direct link and canopy to entrance.

Level access required with sufficient space to transfer to and from the vehicle.

Where there is no direct external ground floor entrance, ensure parking provision in the form of designated parking space for each wheelchair user, off street or kerbside, nominally level. That can enable transfer to and from the vehicle.

3.2. Route to entrance

Ensure a smooth, slip resistant route to entrance.

Ensure that ramps, where unavoidable, are not steeper than 1:15 and not longer than 5m.

3.3. Entrance landing

Provide a level landing, min. 1.5 x 1.5m, but ensure 1200mm depth clear of any outward door swing.

Provide 150mm high kerb for side protection where ground level is below path or landing level.

3.4. Canopy at entrance

Provide a canopy/ porch to a minimum dimension of 1.2 x 1.5m extending beyond door on lock side and at a maximum height of 2.3m.

3.5. Lighting

Provide adequate lighting to the transfer area and route to entrance and entrance itself.

Incorporate PIR sensors to external light fittings along with a manual override facility.

3.6. Lifts

Where wheelchair dwellings are above the ground floor space (minimum 1315 x 920, including clearances) with minimum 1200mm clearance beyond the lift open door position for a future lift should be allocated.

Knock out panels within the floor construction minimum 1315 x 920 formed with trimmed joists and infilled with removable framing and removable flooring boards.

A dedicated fused spur and own dedicated fuse on circuit board can be installed.

Where wheelchair dwellings are above the ground floor, lifts should be defined in BS8300. A second lift should be accessible to and from wheelchair user dwelling for use when first or core lift is undergoing maintenance or is out of service.

4. NEGOTIATING THE MAIN ENTRANCE and COMMUNAL AREA DOORS

4.1. Doors

Provide an effective minimum clear width of at least 850mm.

4.2. Approach space

Provide space beside leading edge of door, min. 300mm for a door opening away from the wheelchair user, min. 300mm for a door opening towards them, extending 1.8m from face of door.

4.3. Threshold

Provide a weather tight accessible LEVEL threshold detail to meet statutory requirements set out in the Building Regulations.

4.4. Locks

Provide secure locking, with key or locking control, at 800-900mm high.

Provide easy grip pulls or handles.

4.5. Opener

Provide a powered door opening system to all Entrance and Communal Area doors with remote control facility for wheelchair users. Ensure the openers provide a sufficient time delay to permit wheelchair users sufficient time to pass through the opening.

Elsewhere make provision for future installation of a remote controlled door opener, comprising the provision of an overhead 5 amp fused spur to all communal entrance doors and main dwelling entrance door, with at least 380mm between the top of the door and the ceiling to allow retro fitting.

4.6. Letterbox

Letter boxes should include cages internally to prevent mail dropping to the floor.

Ensure letter boxes allocated to the Wheelchair Housing plots are installed at a Maximum height of 800mm above finished floor level.

4.7. Lever, pull handle

Select for ease of use and good grip and to contrast with door, handles should be minimum 19mm diameter with 45mm clear hand space behind the handle or lever, minimum back set 54mm from the edge of the door. Pull handles should be minimum 400mm long fit at 1000mm high.

Minimum 400mm deep kick plate should be provided and screw fixed to the door.

4.8. Entry phone call panel

An audio only/ audio with video entry phone system to be installed.

Controls to be installed a minimum of 300mm clear of any internal corner.

All call panels to be installed at a height of 800mm above finished floor level. Where ambulant residents share the use of the external call panel, the panel shall be installed at a height that ensures the highest function button on the call panel is no higher than 1200mm above ground level at that point.

Ensure the system incorporates a sufficient time delay for wheelchair before locking mechanisms re-engage.

Provide a 5 amp switched fused spur above the front door, positioned 500mm from the hinge edge for automatic door opening provision.

4.9. Bell push

Where installed install a minimum of 300mm clear of any internal corner and at 800-900mm high with a large vandal resistant operating surface. Ensure the bell push button is coloured to contrast with the door and the background decorations.

4.10. External Lighting

Install local lighting which illuminates all external elements used by occupants, visitors and callers, and operated by PIR detectors (with a manual override facility), where not managed by a common facility.

4.11. Internal Lighting to Communal Areas

Provide accessible lighting controls in relation to internal communal areas and internal routes.

4.12. Pull Handles

Provide additional pull handles to the outer face of inward opening doors at 900-1000mm high.

5. ENTERING AND LEAVING, DEALING WITH CALLERS

5.1. Transfer

Provide space within the home to manoeuvre wheelchair to transfer to a second chair, to store the first, clear of circulation and the required approach to furniture and doors. A charging point will be provided under the stairs.

Minimum area required on plan 1100 x 1700mm.

5.2. Turning space

Provide space to manoeuvre and turn, 1500 x 1800mm, clear of fittings and obstacles on a closed door.

5.3. Post

Provide a fitting to collect post while maintaining effective door opening width. Please refer to 4.6.

5.4. Entry phone

Controls to be installed a minimum of 300mm clear of any internal corner.

Call panels to be installed at a height of 800mm above finished floor level.

Ensure if installed the system incorporates a sufficient time delay for wheelchair users to pass through the openings (including secondary doors if applicable) before locking mechanisms re-engage. (Position of entry phone i.e. hall and bedroom?)

5.5. Lobby

Provide space to manoeuvre and turn, 1500 x 1800mm, clear of fittings and obstacles on a closed door.

Provide space beside latch edge of doors as follows:-

- 300mm minimum for doors opening towards user
- 200mm for doors opening away

Provide space to turn between doors at an angle to each other.

6. NEGOTIATING THE SECONDARY DOOR

6.1 Landing

Provide nominally level landing 1500 x 1500mm with 1200mm clear of door swing.

6.2 Door

Provide effective clear width of 800mm to single door or main leaf.

6.3 Approach space

Ensure space to approach, manoeuvre and pass through door on line.

6.4 Threshold

Provide watertight, accessible detail.

6.5 Lock

Provide top sole leaf, or where paired the main leaf, secure locking system offering:-

- Operation on latch
- Security from outside when required
- Simple operation from inside without key at all times
- Key operation at 800-900mm high
- Handles at 900-1000mm high

Where applicable, provide to secondary leaf secure multi locking (independent of main leaf) by single inside handle at 900-1000mm high.

6.6 Stays

Provide to outward opening door integral and adjustable fittings to prevent over opening or sudden closing in windy conditions.

6.7 Pull

Provide for addition of closing pull at 900-1000mm high to suit occupant.

6.8 Lighting

Provide accessible lighting controls in relation to door and external and internal routes, with operation of external lights by PIR detectors.

7. MOVING AROUND INSIDE

7.1. Straight passages

Ensure that passage widths or approaches where no turning or door approach is required are no less than: -
900mm clear of all obstructions (except skirting).

7.2. Head-on approach to doors in passages

Ensure space beside latch edge of door, minimum of 200mm on push side and min. 300mm on pull side.

7.3. Turning 90 degrees

Ensure that passage widths or approaches to turn through 90 degrees are no less than 1200mm clear of all obstructions (except skirting) for extent of manoeuvring space.

7.4. Turning 180 degrees

Ensure that passage widths or approaches to turn through 180 degrees are no less than 1500mm clear of all obstructions (except skirting) for extent of manoeuvring space.

7.5. Right angles

Ensure at right angles that passage width clear of all obstructions (except skirting) for the extent of the turn is no less than 1200mm width in one direction, and 900mm in the other; or 900mm in each direction in combination with angle splayed by 300mm.

7.6. Effective clear width for doors

Ensure 840mm min. effective clear width. Increase where approach is at an angle.

7.7. Space to approach doors

Provide space beside latch edge of doors as follows:-
- 300mm minimum for doors opening towards user
- 200mm for doors opening away

7.8. Doors at angles

Provide space to turn between doors at an angle to each other.

7.9. Sliding doors

Provide space beyond doorway at latch side for sideways approach and operation.

7.10. Internal Storage / Airing Cupboard

Provide an electric tubular type, heating device incorporating suitable thermostatic cut out, within the cupboard.

Ensure that depth and width of storage space, in combination with any shelving layout, provides optimum access to space and to stored items.

Ensure that opening width of doors suits angled or head-on approach.

Allow for accessible storage of bulky household equipment such as cleaners, brooms, ironing boards etc as well as additional equipment specific for a wheelchair user. Wide and shallow storage approached sideways is preferred.

Coat hooks to be at a height of 1200mm

Other internal feature such as hooks, mirrors, shelving should be usable from a sitting position.

8. MOVING BETWEEN LEVELS WITHIN THE DWELLING

8.1 Lift

Provide lift for independent use by a wheelchair user to BS6440 and BS5900:2012 which connects floors and is accessed off circulation spaces at each floor level. Terry Harmony S or similar.

Form knock out panels within the floor construction minimum 1315 x 920 formed with trimmed joists and infilled with removable framing and removable flooring boards.

8.2 Installation

Include a full range of safety and security features such as:-

- Integral and fire-resistant ceiling and floor traps
- Sensitive edges and surfaces
- Manual override and return to entrance floor / emergency lowering
- Lift-mounted telephone and/or alarm
- 30 minute fire integrity between floors
- 250kg capacity
- Smoke alarms

8.3 Circulation

Provide adequate circulation space at each level to manoeuvre, call lift, approach and open its door and use it.

9. USING LIVING SPACES

9.1. Room layout

Provide space for furniture and for a wheelchair user to approach it, circulate, transfer to seating, and approach and operate doors, windows, equipment and controls.

9.2. Radiators

Ensure that their positioning does not inhibit a reasonable layout in terms of wheelchair movement.

Radiators to be installed with isolation and thermostatic control valves at an accessible height.

All radiators to be Low Temperature Radiators (LTR) with thermostatic radiator valves.

9.3. Electrical Sockets

Ensure that sockets are not sited within 750mm of an internal room angle.

Sockets to be installed at an accessible height at 900mm.

Sockets to kitchen worktop spaces to be installed on blocks.

10. USING THE KITCHEN

10.1. Layout.

To provide a practical working kitchen for a wheelchair user.

Ensure clear manoeuvring space not less than 1800 x 1800mm.

Ensure wherever practicable, that windows are positioned for ease of control and cleaning. Where windows are inaccessible because of worktops, an electrically operated window opener will be supplied.

10.2. Worktops

Provide a length of 600mm deep, 38mm thick worktop suitable for a wheelchair user with clear knee space below and appropriate to the size of the dwelling as set out in the Housing Quality Indicators Version 4 Unit Layout requirements, or such standard which may supersede.

As an indication, the space layout could be 1500mm turning circle plus room for one other (i.e 1800mm x 1500mm – clear manoeuvring space)

All worktops should be on adjustable brackets to range from 700mm to 900mm with tiling behind. This should be adjusted to fit the incoming tenant. Fascia boards and vertical poles should be avoided within the main working area.

To allow non-wheelchair user to comfortably use a worktop there should be appliances such as washing machine beneath.

It must be easy to move equipment between hob and sink, therefore a worktop with unobstructed knee space is required between these units.

10.3. Sink

Provide integral shallow sink with minimum 150mm bowl depth drainer to maximise height adjustability, with insulated bowl, suitable for a wheelchair user (with clear knee space below), and accessible, easily manipulate mixer tap with swivel arm extending over drainer or worktop. The length of worktop including the sink/ drainer will be height adjustable. Drainer will be handed to the hob side. Minimum 300mm to both sides of the sink and drainer.

10.4. Storage

Provide storage appropriate to the size of dwelling, the major proportion of which is to be in a position and format usable from a wheelchair.

Drawer runners will be metal and will include 'stops'.

One wall unit to be selected by Employer to be lockable for the storage of harmful substances.

10.5. Controls and lighting

Where worktops are adjustable, fit switches and sockets to worktop with enough cable to accommodate the change in worktop height.

Sockets to kitchen worktop spaces to be installed on blocks. A minimum of 4 sockets above the worktop at an appropriate position for using kettle, microwave, toaster and other labour saving equipment.

Provide remote and labelled switches for appliances and equipment.

Combine general lighting with well positioned task lighting.

Provide 'Surestop' remotely controlled stopcock.

Isolator switches to be located in an accessible position to a wheelchair user.

10.6. Appliances

Provide and install electric hob with controls at front of plate. The hob should have a knee space below and be inset level with the work surface so that pans can be slid across. Either induction or ceramic. Minimum 300mm worktop both sides of the hob.

Provide and install electric oven with grill facility housed in tall housing at accessible height, with side hinged door. The base of the oven will be 770mm from the floor; this consists of a plinth 146mm high, cupboard door 560mm high and the retractable shelf directly below the oven 70mm lower than the base of the oven. The controls should not exceed the height of 1200mm.

Provide spaces in addition to hob and oven for three appliances/white goods with electrical/water services as appropriate.

Provide four such spaces in larger dwellings accommodating 5 or more people.

10.7. Refuse

Provide suitable internal refuse arrangements, such as 3Nr. 10 litre refuse bins, manageable from a wheelchair.

11. USING THE BATHROOM

11.1. Bathroom

In all dwellings provide fully accessible bathroom with WC, basin and installed level-access 'wheel-in shower' with provision for future bath in place of shower, with flexible or easily adaptable services.

Ensure clear manoeuvring space not less than 1800 x 1800mm to enable wheelchair user sufficient space to adequately access wc, basin and shower area. Minimum clear wall length along one shower wall to be 1900mm (for future changing table provision), vertical SVP boxing to be outside of this area.

11.2. Layout

Ensure independent approach/transfer to and use of all fittings including manoeuvring space clear of fittings and of door swing if inward opening.

11.3. WC

Select and position for a range of transfers and for provision of support rails later to suit user. WC suites to be part M compliant, including raised seats, grab rails and drop arm support aids. Doc M packs to be supplied but NOT fitted.

Seat height 490mm from FFL.

Waste pipe outlets to be vertical directly behind the pan or straight behind the pan. I.e. no waste pipework to be to the left or right behind the WC which inhibits wheeled chair access.

For future wash dry WC provision, supply and install 1 No. 10amp fused spur to the RH side of the WC. Connect to existing electrical supply. Position spur between 100-300mm from FFL and 50-100mm left of the centre line of the WC.

11.4. Second WC

In dwellings of four or more persons, provide a fully accessible second WC with basin, and hand the transfer space opposite to the handing of the main WC to provide both left handed and right handed transfer options within the dwelling.

11.5. 'Wheel-in' Shower

'Wheel-in' shower provision to be fully accessible with preformed shower floor former (as Impey level dec easy-fit) (min. 1000 x 1000) fitted with accessible gully floor drain. (Note: provided beneath or adjacent to bath if bath fully installed initially). Bath waste to connect into the shower gully.

Thermostatically controlled, minimum 8.7 kw electric shower with 2.0m extended hose and 1.0m riser rail, (Mira Advance Flex or similar approved) suitable for wheelchair operation to be provided with extended lever controls and adjustable head. Shower controls to be fixed 1100mm from FFL.

Provide but not fit 2x 600mm long grab rails and shower seat in shower area.

Shower curtain rail fixed 1820mm above floor level with heavy-duty weighted shower curtain provided.

Concertina style low level side screen as Impey Elevate half height folding doors.

Full height white tiling to all bathroom walls including those where a bath is installed.

'Wet floor' facility finished with slip resistant vinyl sheet, 'Altro Aquarius or Pisces range flooring or similar approved, laid to falls to a gully positioned below the bath location, dressed into floor gully and up 100mm high skirting formed with cove formers and top edge capping strip.

Where underfloor heating is provided, provide an area at least 1900 x 900mm clear of pipes (which can include the shower zone) to allow for a larger shower former to be easily installed.

11.6. Bath

Where provided select bath and taps, position and detail to allow for a range of transfers (450mm to one end), access to and operation of taps.

11.7. Basin

Select and position to be approached in wheelchair with shallow but good capacity bowl, support for arms, reachable and lever taps. Basin shall be a non-pedestal type to allow space beneath for access.

11.8. Finishes

Provide full height white tiles to all walls and slip resistant flooring.

11.9. Supports

Ensure that walls and ceiling are adequate for adjustable height basins and subsequent fixings of hoists, seats, supports and other fittings. Stud walls to the bathrooms and cloakrooms to be lined in 25mm WBP exterior quality hardwood plywood, with moisture resistant plasterboard over.

All taps to have thermostatic controls (applies to both kitchen and bathroom).

12. USING BEDROOMS

12.1. Layout

Provide bedroom layouts to ensure access to both sides of beds in double bedrooms and outer side of beds in single bedrooms, access to other furniture and window.

12.2. Controls

Adjacent to bed head provide:-

- TV and FM aerial and power socket outlets
- Room light switch, two-way with main door switch
- Entry phone point (also in main hall/lounge)
- Telephone point (also in main hall/lounge)

12.3. Hoist

Make provision for future hoist installation in main bedroom – provide suitably strengthened ceiling joist minimum 150mm deep and other structure to permit a hoist run from bedroom into bathroom.

Provide a 5 amp fused spur at ceiling level within bedrooms and shower room.

13. OPERATING INTERNAL DOORS

13.1. Construction

Ensure that door construction permits subsequent fixing of pulls or other fittings, and is of a semi solid core construction.

13.2. Handles

Provide to all door types, easily operated handles, pulls, latches and catches at 800-1000mm high.

13.3. Locking

Ensure that locking/indicator devices are easily manipulated inside and outside in an emergency.

13.4. Emergency opening

Ensure that inward opening doors to bathrooms, WC and showers can be easily operated outwards in an emergency and by a wheelchair user.

13.5. Self-closing doors

Where self-closers are required, ensure independent operation from a wheelchair is possible, with opening pressure not to exceed 15 Newtons at the leading edge of the door. Consideration must be given to installing powered door openers if specified opening pressure cannot be achieved.

14. OPERATING WINDOWS

14.1. Approach

Ensure that a wheelchair user can approach all windows to operate controls for opening and ventilation.

14.2. Operate

Ensure single operating handle within reach (max 1000mm high), controlling both ventilation and full opening and closing positions while maintaining security in ventilation as well as closed positions. Cord operated trickle vents will be required.

14.3. Gear

Where conventional opening is not possible, install manual or powered window opening gear with accessible controls to control main or most appropriate opening.

The window opener will be manual except for the kitchen which will be electrically controlled. The handle will be located to the side of the window. The training cable will be installed behind the dry lining and exit through the window sill ensuring the installation is tidy whilst fit for purpose.

14.4. Safety

Ensure that windows opening out over paths do not create hazards.

14.5. Glazing

Window openings will be constructed with the following sill heights:

- LOUNGE 750 (large) & 900mm (small)
- KITCHEN 1050mm
- BEDROOMS 900mm
- BATH/SHOWER 900mm

Where windows are above the minimum height window adjusters will be installed. Electrically operated window adjusters will be installed on kitchen windows.

14.6. Transoms

Avoid full width transoms (horizontal divisions) between 800-1500mm high.

14.7. Mullions

Mullions (vertical divisions to windows) to be flying/false to enable full window escape.

15. CONTROLLING SERVICES

15.1. Mains services

Ensure that a wheelchair user can reach, control and read the following:-

- Mains water stopcock
- Emergency Surestop emergency water cut off valve in an accessible location.
- Gas and electricity main switches and consumer units.

15.2. Plumbing

Provide essential isolating stop taps to sink, washing machine, WC and shower, and ensure that control by wheelchair user is possible. All hot water supplies to kitchen sink, wash hand basins, baths and showers to be temperature controlled using a thermostatic mixing valve (TMV). Lever taps to be provided throughout.

15.3. Flexible plumbing

Provide flexible plumbing to all adjustable fittings.

15.4. Switches

Specify full plate or larger rocket light switches, two-way where required, and set at maximum 900mm from FFL.

Where pull switches are required, provide large pull at maximum 900mm high from FFL.

15.5. Socket outlets - general

Specify sockets with large switches, on outer ends of double sockets.

Set sockets at 900mm from FFL. Where sockets are installed above fixed worktops, the sockets will be mounted on suitable blocks.

Where worktop height is adjustable, fit laboratory-type sockets to worktop or install conveniently located grid switch for control of above worktop socket outlets. Enough cable will be supplied to allow full height adjustable worktops.

15.6. Socket outlets - appliances

Set remote switches generally at maximum 900mm from FFL.

Where above fixed worktop, set switches on blocks.

Set sockets served by remote switches at min 600mm from FFL where they are below worktops.

15.7. Telephone

Provide BT telephone sockets at entrance, living room, kitchen, main bedroom and upper level circulation, all at 900mm from FFL or to match general socket outlets.

15.8. Future controls

Provide supply to future powered elements where detailed in previous sections.

15.9. Heating

Ensure that heating controls, such as boiler ignition, programmer/timer/pump, thermostat, are within reach and easily read and operated.

15.10. Radiators, heaters

Site radiator valves and heater controls at min. 600mm from FFL, i.e. mounted at the top of radiator, and specify usable fittings.

A small tubular heater installed into airing cupboards.

15.11. Surface temperatures

All radiators will be Low Surface temperature (LST) installed throughout. Ensure that thermostatic valves are outside casing.

15.12. Water temperatures

Ensure that hot water temperature does not exceed **43 degrees** at any fitting.

15.13. Security

Provide an appropriate fire alarm system and make provision for the future installation of intruder alarm by occupant.