UNIVERSITY OF Southampton

Briefing Document:

Toilet and Washrooms Refurbishment

Document Number
ES/020/H

26.03.2018

Revision Index.

		Revised by	Revision made
D	13.04.2013	SA	Issued for use
E	06.12.17		Updated
F	23.01.18	CF	Updated and formatted
G	14.03.18	CF	Taps for Accessible WC basins changed and report formatted.
H	26.03.2018	CF	Urinal specification updated

Guidance Specification for the Refurbishment of the Existing & New Campus Toilets & Washrooms

Background

This report aims to improve an existing generic specification for all proposed refurbishment of the campus toilets and for new toilet facilities. For contractors this to be read in conjunction with the specific tender documents for each project.

It has been developed after research carried out into the available market products that meet the required University brief, and specifications, which are readily available to meet the short procurement programme. It incorporates experience gained during the long-term refurbishment programme, and uses products that have stood the test of time, and been found reliable by our maintenance teams.

Project Brief

All existing infrastructure must be taken into account when the refurbishment is being considered. In the case of retrofit work, it is inevitable that there will be a number of desirable items, which in many cases will not be fitted, e.g. Floor drainage. At the outset of any toilet refurbishment the practicality, cost and benefits of installing a unisex shower in each building is to be considered, where they can be incorporated without loss of necessary sanitary accommodation.

Consideration should be given to increasing the cubicle size to the maximum possible without loss of facilities or causing inadequate circulation space. This is to satisfy student request for larger cubicles.

In all cases, the proposals and the programme should be agreed after liaison with the users' representative. Maintenance staff should also be consulted to establish any history of problems, to be able to incorporate any improvements, and to agree the proposals, pre handover commissioning arrangements, and maintenance strategy.

The Universities Condition Survey and Disabled Access Survey data held on Planon shall be used at the outset on each project and listed items for areas being refurbished shall be incorporated when possible, UoS Project Manager to advise.

Specification Design Notes

Experience has shown that there may be existing problems with partial blockages in the existing drains which have built up over time, and are easier rectified in advance rather than become evident after or during a refurbishment, especially where new "water saving" cistern sizes reduce the amount of water available for flushing which could be masking an existing problem.

1. **Existing installation**

   As part of the refurbishment review, the existing utility installation need to be considered and prior to commencement of plumbing works the following will be carried out: -

   a) CCTV survey of soil pipes to the nearest manhole or vertical soil and vent pipe will be carried out if this survey shows any scale build-up/blockages/reductions in cross sectional area, pressure hosing, reaming etc. is to be carried out to clear. Additional cost to the contract to be agreed with UoS Project Manager. Specialist sub- contractors have the facility to enable this to be done in the same visit as the survey work.
   b) Pressure measurements to be taken of both hot and cold water and noted. If these are inadequate, supplementary measures need to be taken to improve the position. This may be done as enabling works in advance of the refurbishment works. In any event if replacing new for old, care should be taken that any new system additions do not reduce the pressures to become unacceptable.

c) The type of hot water supply should be determined (calorifier, point of use, vented, unvented, and instantaneous) and the delivery temperature determined. The strategy for the avoidance of Legionella disease and the position of sampling points should be established. The University's Estates Team will assist with this.
d) Water and Sanitary services shall be installed in accordance with current Building Regulations and British Standard EN 12056 :2000

2. Soil pipework

Existing soil pipework is to be used where possible. **Flexible connections are not permitted** between new WCs and existing pipework. **Short radius "knuckle" 90°are not to be used**. 90° swept long radius bends should be used, both vertical and horizontal to connect WCs to the soil drainage.

Where insufficient rodding eyes in existing systems allow to install extra rodding eyes, to facilitate maintenance work. Where no suitable rodding facilities exist, a vertical leg is to be provided, via swept radius long bends and terminating with a rodding eye above spill level of fittings. Where there is a range of fittings this is to be provided at the end of each range.

Where there is a range of urinals, a 75mm 'manifold' drain to be provided with a running trap before entry to the SVP. This effectively means that the urinals drain via a 38mm wastepipe immediately into a 75mm collective drain, which has the advantage of being easier to check, maintain and better able to cope with any ureic salts build-up.

Removable panels are to be provided to access rodding eyes.

3. WCs

Single trap siphonic WC suites are to be used. These require a minimum fall of water, and are less noisy than wash down types. They will be back- to- the- wall, floor mounted types, with clean external lines for efficient cleaning. Wall mounted cantilever types are not to be specified. Height of WC pans to be not less than 450mm, rimless WC pans to be used.

Single flush, 6 litre cisterns will be used.

On the completion of any refurbishment works, existing 7.5 litre cisterns are to be set aside and handed over to the University maintenance staff for possible re-use.

In certain cases it may be necessary to retain existing 7.5 litre cisterns, if the demand or the existing drainage system requires a greater water flow, UoS Project Manager or Liaison Engineer to advise.

Pneumatic and mechanical button operated flushing arrangements will not be used, as these have been found to lead to complaints of RSI by cleaning staff, as well as a lack of understanding by some users. Lever handle operated single flush arrangements are more reliable and are to be used.

Internal overflow arrangements shall comply with Water Supply (Water Fittings) Regulations.

4. Urinals and Automatic flush control systems

Water saving measures are extremely important and conservation devices are to be installed:

Urinal cisterns will be controlled by a mains powered urinal Flush Control valves with solenoid valve and presence detection, to automatically manage the supply of water to the cistern. Where no mains power is present and where difficult to provide, battery powered flush control valves should be used.
Sensors to be ceiling mounted and located to avoid unnecessary flushing.
Preferred suppliers are Cistermiser and Dart Valley Systems.

Urinals to be exposed trap with concealed pipework, waste and supply as Twyfords Camden or equivalent. Exposed traps to be chrome plated.

5. Wash hand basins

Wash hand basins will be provided with a single hole and be fitted with an Ultra TWS009 Mono Basin mixer self-closing non concussive tap. In retrofit work where wash hand basins with two holes are to be reused, a pair of Biflo non-concussive taps will be used with the hot tap installed on the left hand side. The taps to be set to close after approx. 10 seconds.

Note: Ultra TWS009 Mono Basin mixer taps are not suitable when the water pressure is below 1 bar. In such instances Inta NC230CP Non Concussive Basin Taps (down to 0.5 bar min) will be used as an alternative. If the water pressure is below 0.5 bars, a Bristan Capri Contemporary Basin Mixer tap will be used.

An option for the use of sensor flow taps has been explored to reduce water consumption and maintenance, and is acceptable in certain circumstances. Experience has shown however there can be problems caused by low light levels if no external windows exist in the toilet area, and adequate water pressure is often an issue. Approval to be obtained from the Project Manager before the procurement and installation of such devices.

Disabled toilets to have a single-hole wash hand basin, fitted with

6. Water temperature

When a new hot water system is being considered, the University's Liaison Engineer shall be consulted.

The outlet temperature for new electric water heaters should be set at 60°C.

Thermostatic mixing valves (TMVs) to be installed on all disabled WC basins.

All taps without TMV' to have a "Danger Hot Water" warning sign fixed to the wall/mirror next to them. Where TMV's are fitted, temperature testing points shall be provided.

7. Valves

All new or refurbished installations to have a sufficient number of valves to ensure the system is fully maintainable, local isolation to be provided to all hot and cold outlets. If pipe work is concealed full flow lever valves shall be used, full flow Ballofix valves may be used if the pipework is unconcealed. All valves shall be accessible.

All low points on the domestic water system to be provided with drain cocks to facilitate system drain down.

8. Insulation

All concealed pipework to be insulated with silver face mineral wool insulation.

9. Ventilation

a) Toilets will be mechanically ventilated to achieve a minimum extraction rate of 10 ac/hr. The room will also be supplied or adapted to obtain adequate make up air i.e. 80% of the extraction rate.

b) The installation is to comply with the latest CIBSE Guide Regulations and Building Regulations.

c) The means of control of the ventilation system and its power supply are to be discussed and agreed with the Liaison Engineer.

10. Washroom Systems

Cost and programme will determine their selection. The time taken to provide drawings for approval after an order is placed, and the delivery date after approval of drawings can be critical and must be allowed for **Total Laminates Systems Ltd** or equivalent and approved suppliers may be used, subject to prior approval of UoS Project Manager.

Materials of construction for different component parts are used by different suppliers,

Melamine faced moisture resistant medium density fibre board
18mm moisture resistant medium density fibre board with a 0.8mm melamine facing. This material has proved satisfactory as framing/carcassing where any floor interface is properly protected from water.

High pressure laminate
17mm chipboard panels faced with high pressure laminate to an overall thickness of 19mm. All panels have post formed edges.

Solid grade laminate
12mm thick panels that are extremely resistant to impact and the panel core is impervious to water. Edges are radiuses and polished back and therefore no lipping is required.

Melamine faced chipboard
19mm high performance melamine faced chipboard with all panel edges lipped with 3mm PVC. **This material is not to be used as found unsatisfactory in typical use.**

Total Laminate Systems Ltd

Total laminate systems provide a Simplicity modular wall Duct Access Panel system for WCs and Urinals. The doors and cubicles are the Shock system in 12 mm solid grade laminate. The vanity units are Simplicity vanity units with integral acrylic stone wash basins.

Vanity Units

Total Laminate Systems – Simplicity – LG Hi Macs Vanity System 2 “DAPS2”

Product:	TLS Hi Macs top and traditional vanity under panel systems
Material:	Type 3 vanity tops
Sheet Size:	Various sheet sizes available
Face material;	LG Hi Macs from the current TLS range
Sub frame:	18mm MRMDF former and substrate
Face:	TLS colours from the Hi Macs Colour range
Edge:	Heat moulded and formed
Fixing:	Generally fitted by TLS approved installers. However, full installation advice to builder can be provided should they choose to install, inc drawings for approval and assisted site measure.
Under panels:	HPL panels 20mm o/a thick, all panels to have 2mm impact edging as standard. Colours to be chosen from the preferred washroom selector.
Fittings:	Frames to be built to exact design drawings and set in place with MDF sub frames and secret fixing clips, all M&E cut-outs have been allowed for on supply and installation.
Possible options:	Seamless bowls should be supplied and fitted as an alternative to ceramic bowls.
Local Supplier:	Total Laminate Systems, 11 Nimrod Way, East Dorset Trade Park, Wimborne Dorset BH11 7SH
Contact Email;	Sales@total-laminate.co.uk
Contact:	Mr James Mitchell – Commercial Manager 01202 877600 mob 07771 373310

Cubicles

Total Laminate Systems – Simplicity – Duct Access Panel System 2 “DAPS2”

Product:	DAPS2
Sub Frame:	Factory finished bonded one piece system, including machined cut outs, high pressed bonded sub frame in either 18mm MDF or MRMDR.
Sub Panels:	Choice of 19mm Polyrey Panoprey 20mm HPL bonded to a 18mm MRMDF or MR Chipboard core / 13mm Reysipur Compact Solid Grade Laminate (all panels to be 600mm wide unless otherwise stated)
Finishes:	All chosen from the Washroom colour selectors provided for the range of panel chosen.
Edge:	Polyrey comes in 1-2mm impact edging matching or contrasting colours. HPL options include, Post formed, 1-2mm impact edges or Laminate all in matching or contrasting colours. Hardwood edges also available.
Fixing:	One installation visit required with this system. Comes with all panels pre-hung using KeKu clips as standard and ready for 2nd fix M&E to install to.
Extras:	DAPS 2 also available with hinged lockable top panels and Sanitary ware if required.
Material:	All material used in this system is BS approved and is sourced from Sustainable sources, FSC and PEFC certificates available on request.
Local Supplier:	Total Laminate Systems, 11 Nimrod Way, East Dorset Trade Park, Wimborne Dorset, BH21 7SH

WCs

The WC installation comprises WC bowl and cistern in a complete cubicle with door and rear access modular panelling to conceal the cistern and associated cold water supply pipework and the soil drainage.

Floor mounted Back to wall WC with concealed cistern to be installed.

Cubicle doors and rear access panels to be constructed of 13mm solid grade laminate.

Framing/carcassing to be from18mm MF MR MDF

Vanity units are constructed in12mm solid grade laminate bonded to an 18mm mdf backing, with integral solid stone wash basins, on a MR MF MDF support framework with 12mm solid grade modular access panelling and end pieces as necessary.

However, this is not an integrated plumbing system provided off site.

All soil and waste drainage and hot and cold water supplies are provided by the principal contractor to a point within 300mm of the final connections, which are by TLS

Cubicle sizes
Consider increasing cubicle size as described in this document Project Brief.

A minimum cubicle size of 1500 (from WC duct wall which encloses the cistern) to the door, and an internal width of 850 should be provided. A clear manoeuvring space of a circle 450 dia should be maintained between the outside swing of the door, and the WC. The positioning of the preferred (larger) toilet roll holder should also be taken into account.

In all female cubicles, adequate space should be provided for a container for used sanitary towels.

Cubicle types
Ambulant disabled' cubicles will be provided when a range of more than 4 WC cubicles are provided.

11. Wheelchair accessible WC Provision

A combined wheelchair accessible WC toilet provision to include a baby change area fold down unit.

Accessible toilet to be installed as part M of Building Regulations, including colour contrast, UoS Project Manager to approve colour schemes.

12. Finishes

Selection of surface finish colour shall give 30 points difference in LRV, light reflectance value, between two adjoining surfaces. All as stipulated in Part M of the Building Regulations and as BS8600:2009. Colour schemes to be approved by UoS Project Manager.

a) Flooring

Impervious non slip sheet safety flooring is mandatory for all toilet and washroom areas. Safety flooring in areas where shoes are worn shall have a DIN R Rating minimum of R10 and a minimum PTV value of 36 when wet e.g. Polyflor – Polysafe Verona PUR or Altro Suprema or equivalent and approved.

Safety flooring in barefoot environments shall have a minimum DIN Class Rating of B e.g. Altro Pisces or Polysafe Quattro or equivalent.

A darker anti slip vinyl floor keep its appearance longer than a lighter colour due to the presence of heel marks which appear over time and have to be cleaned off using an alkaline scrub.

In all cases, an integral cove with an upstand of between 100 and 150 will be installed. This height will be determined by the position of the access panels to the vanity unit. There are a number of proprietary capping pieces dependent on the wall finish, and the correct item should be installed. Altro Suprema is recommended and has the benefit of co-ordinating with Altro Whiterock Chameleon wall covering range. A joint can be made

between the wall covering and floor covering, to provide an impervious seamless floor/wall covering.

Where a new floor finish is proposed over existing quarry tiles, and where a complementary quarry tile skirting has been used, the tile skirting is to be removed and the wall finish made good in advance of a vinyl cove detail being adopted.

If floor drainage is required: Install a stainless steel back inlet floor gully and link the back inlet to the waste from the WHB. In this way the trap in the floor gulley is refreshed regularly and is less likely to dry out and start to smell.

b) Panelling and cubicles

It has been found that darker colours are less susceptible to vandalism and wear better in a harsh environment, colour to be approved by UoS Project Manager.

c) Walls

Where specified continuous sheet is preferred to tiling.

Both Trespa and Whiterock can be used. If necessary this material may be finished at a height above floor level above vanity units and to coincide with the underside of mirrors. As noted above it is possible to form a joint between the floor covering and Altro Whiterock wall material.

d) Ceilings

In many cases a plastered ceiling exists which will be retained, made good and redecorated.

Where suspended ceilings are specified a fibre tile suitable for use in a moist atmosphere will be used in an exposed grid.

13. Signage

To be agreed with UoS Project Manager and supplied as a client item.

14. Cleaner's socket

Provide a cleaners socket. This should be an MK Masterseal socket with 10mA RCD protection or equal.

15. Toilet roll holders

The University have a standard twin toilet roll holder which is a free issue item and should be used. Requests to be made to UoS Project Manager as soon as contract is let to ensure they will be available.

Lotus dimensions 300wx180Hx140D

16. Soap dispensers

The University has a standard soap dispenser which is a free issue item which should be used.

Deb Dimensions 233Hx130Wx115D

17. Accessories

Equinox style Coat Hooks should be provided to all cubicles.

18. Hand dryers

There is a preference for hand dryers in place of paper towels which can be the cause of WC blockages, as well as unsightly overflow from bins.

The following hand dryers have been found satisfactory. It would be wise before specifying hand dryers to consider the location and the implications noise from the hand dryer may have on the surrounding areas. Consideration should also be given to minimising any structure borne noise generated by hand driers.

Airforce by World Dryer
Biodrier Eco

Generally hand dryers are to be finished in white unless otherwise specified.

19. Electrical installation

This section of the specification should be read in conjunction with the University's *Briefing Notes for Electrical Services*, Ref. ES/005. All electrical works are to comply with BS7671.

a) A dedicated ring circuit shall be provided to serve the electric hand dryers, cistern controls, electronic taps, extract ventilation, etc. This circuit may serve all adjacent WC's if the circuit load allows. All accessories are to be labelled with their circuit reference and indicate the item of equipment controlled.

b) Electric water heaters rated above 1kW are to be wired on dedicated radial circuits. Heaters 1kW or below may be wired from the local ring circuit, if the total load allows, light levels 200 Lux.

c) Toilets/washrooms shall be provided with artificial lighting comprising of LED luminaires wired on dedicated circuits. One circuit may serve adjacent WC's if practicable. The lighting shall be energised by presence sensors so that upon occupation the lamps illuminate and remain energised for 20 minutes after presence was last detected. Luminaires shall be as supplied by one of the University's preferred manufacturers who are listed in Document Ref. ES/005.Lighting to achieve 200 Lux.

   In surface mounted installations luminaires are to be fixed to the soffit or walls with a side conduit entry, they are NOT to be mounted on BESA boxes.

d) Electrical accessories shall be either white plastic or brushed steel. Typically surface mounted cable containment shall be white plastic conduit or mini-trunking.

e) Emergency lighting shall generally comply with BS5266 with minimum luminaire maintenance of 3 hours shall be provided to all WC's and disabled toilets. On academic sites emergency luminaires shall be self-test as supplied by P4 Fastel. On sites where P4 Fastel systems are not utilised the Emergency luminaires are to be as supplied by one of the preferred manufacturers listed in Document Ref. ES/005.