

Safety Review Checklist - Finished Building Product

Item	Description	DT Response
1	Fire escape stairways the design of the flight of stairs must discharge adjacent to and facing the final exit (from the stairs) to the exterior place of safety. (The discharge flight of stairs must not point back in to the building or internal storey access door – traditional architect design).	
2	Provide storage rooms for emergency response equipment, B&E fittings, janitorial supplies, janitorial machines, waste collection in building layout	
3	Provide external compounds for gas cylinders and piped in gas supplies. Chains must be provided for all cylinders Rain protection for gas skids/ manifolds. Provide hydrogen generator for all hydrogen applications. Provide nitrogen generators for all nitrogen applications. All piped in gasses to be risk assessed and FTA/ ETA analysis provided by design team and risk to health of users and off site evaluated and discussed with UCC H&S office. All gas systems to have automatic shut off devices, over pressure safety features and gas detection. Ventilated pipe within a pipe to be used for toxics with gas detection in outer pipe. All pipes to be run external to building to room of use. Not through circulation routes or escapes routes. Gas cylinders shall not be located within buildings. Ramp access to gas cylinder cages and loading bay.	
4	Provide external storage compounds for chemicals (virgin and waste) and ramp access to same and delivery bay – physically segregated from car park areas.	
5	External walled area for large wheelie bins (rubbish should not be stored within buildings for collection)	
6	Provide external ash trays and locate away from building entrances and windows	
7	Provide ramps which comply with Bldg Regs Technical Guidance K, Wheel chair accessible rooms (door opens) and a wheel chair toilet	
8	Provide tea station (with sink) not part of WC closets.	
9	Tea stations should not be open to corridors. Provide self closing fire doors on electromagnetic hold open devices if this is required.	
10	Provide central photocopying areas with high and low level extractions. Photocopying stations should not be open to or within any corridor. Provide self closing fire doors on electromagnetic hold open devices if this is required to rooms	
11	Provide floor mounted flush sockets and wired remotes to teaching positions	
12	Floor mounted electrical sockets to have covers that close flush with the floor slab/ floor covering (not protruding)	
13	Provide access for disabled and egress in event of fire - fire refuges \ fire evacuation lift with independent power supplies and comply with fire requirements for use of said lifts in conjunction with fire consultant	
14	Provide structural integrity to resist impact of boiler explosions within a building irrespective of controls/ precautions fitted to boiler. Provide detailed assessment	
15	Provide details of output rating of boilers(s) and match fire resistance to enclosure	
16	Ensure that lifts run to plant room level and that there are not any door lips that prevent use of wheeled hand trucks to move equipment or drums from the lift lobby to plant rooms or out to roof top plant areas. [rain ingress conflicts may cause unsafe manual handling risks].	
17	Provide two alternative means of escape of roof tops, where two stairs exist in the building. Ensure that there is a railed off route to all escape routes and easy access from roof to same that is easily usable and is well illuminated with emergency lighting etc	
18	Provide L1 addressable Fire Detection and alarm system with PA facility, text messages and voice evacuation messages, and hearing induction loops for the hearing impaired. Smoke detection generally but heat detection in areas where there will be dust/ fumes, to kitchens, boiler houses. Infra-red detection to alcohol stores. Provide Electromagnetic hold open devices (linked to the fire alarm) to all cross corridor fire doors. Ensure doors close on fire alarm test activation or power supply failure. Use mechanically secured \ braced brackets to support. A wireless deaf alerter system transmitter antenna system and a wireless text repeater should be installed. (see system now in place in the main Campus B&E).Text repeater messages to be installed on both sides of compartment boundaries where 2 buildings are interconnected for access. Messages to warn persons not to enter the building on the fire alarm activation.	
19	Provide an addressable fire alarm panel with room for expansion, that can communicate full details with our master panel (and hard wire back of a centralized alarm signal to General Services reception via armour protected fire rated cable as necessary. Type of panels required to be compatible - consult with Kevin O' Regan. Superintendent of Electrical Services (also fit telephone auto-dialer to UCC external security firm monitoring alarm monitoring service. Also install repeater panels in large buildings. Alarm panels to be located inside the main door and to be linked to a slam shut on the natural gas main supply. Resetting of the fire alarm shall not automatically reset the natural gas supply. The latter shall have to be undertaken manually. Fire alarm activation should automatically shut off all HVAC motors that could circulate smoke through a building	

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20	Provide Fire Rated PA facility with voice evacuation module, with internal and external speakers to be provided. External message to direct evacuees away from glazed facades.	
21	Where access control is required provide electromechanical door locks where access control is required. Provide this at room level (do not install on corridor or stair doors). [Do not provide override break glass units adjacent to a security door with any electromagnetic magnetised plates to the top of any door]. Ensure doors can be mechanically opened from inside on fire alarm activation or power supply failure. Ditto for any cross corridor doors in direction of escape or external exit doors used for out of normal hours access.	
22	Provide text repeater panels and two stage alarms on any building linked by link bridges and use text repeaters to notify leaving one building of a fire in the next. Ditto with compartmentation as outlined above where phased alarm activation utilized.	
23	Ensure that vertical ventilation shafts for fire ventilation are linked to only open at the floor of alarm activation and not on every floor level.	
24	Ensure that all fire alarm panels have a general evacuation button and that activation of this feature causes all electromagnetic hold open devices to cross corridor doors and electromechanical locks on cross corridor door to deactivate.	
25	All smoke detectors and valves/ levers in ceilings and in plant rooms must be easily accessible with reference to location, access. Crawling should not be required or stripping of cable trays or pipe work. Detector access should not be blocked by cable trays.	
26	Designers must walk all finished building to ensure that all areas are covered by emergency lighting, and fire detection and alarm sounders. Alarm Audibility tests shall be conducted in each room having regard to prevailing background noise. Fire alarms shall be discernible from other alarm bells.	
27	Lifts must be capable of taking a stretcher and the largest piece of equipment that users need for the building (as supplied/ packaged). Lifts must be provided with a sign – not to use in the event of fire” unless they have an independent power supply	
28	Provide Gas detection (where gas supplies provided), local lab gas proving and auto shut offs. Local alarm panel. All compressed gas supplies to be piped from cages located externally. Local gas alarms not to be linked to fire alarm panel. Install H2 generators and N2 generators in lieu of piped supplies of said gases. If methane gas the building supply must have a slam shut device on the main supply and this to shut down on any detection of methane gas leak. Any reset of the fire alarm panel should not cause automatic reset of the methane supply to all areas. (A manual reset must be required after checking for open taps).	
29	Detectors to be cited near point of use and in open areas in labs (not restricted/ confined) by shelving or equipment. Detectors to be located in vertical zone commensurate with gas properties and reference to ignition sources or breathing zones depending on hazard	
30	No gas pipes thro stairs enclosure	
31	Gas pipes to run thro ventilated shafts with no electrical fire risk	
32	Provide gas proving system in all rooms/ lab areas that use natural gas – this to be provided near the exit door to the room / lab	
33	Energy saving lights must not be temperature sensitive – rendering them in effective on cold mornings. Minimum maintained lighting must be provided to darkened lobbies of toilets, stairways, corridors, circulation between lab benches. Roof level plant rooms/ roof tops.	
34	Provide an electrical emergency shut off device to all labs / workshops – inside the door. This to have a shrouded cover to prevent accidental activation	
35	Machinery all dangerous mechanical equipment to be adequately guarded – and provided with a local key operated on/ off switch and an emergency shut off device local to/ adjacent to the machine.	
36	Provide emergency lighting with directional exit signs internal & external routes. Provide maintained directional exit signs on each side of cross corridor doors and to indicate all alternative escape routes. Exit signs must be hung at the Code recommended height on chains as necessary – not stuck up under high floor soffits for aesthetics. (Note: external emergency lighting still required where there is adequate external street lighting). Emergency Lighting must activate on local \ general power failures. Twin spots if used to be located so as not to dazzle evacuees and located so that they are not likely to be within the smoke layer. Emergency lighting to be located below the potential smoke layer in buildings	
37	Safety signs as per SHWW Safety Signs Regs must be included in the architects fit out- electrical utilities, moving parts, fire equipment, exit signs, drinking water , first aid point, special hazards (chemical / biological), fragile roofs, asbestos materials, noisy plant , no smoking signs.	
38	All electrical and gas utilities must be capable of being isolated and locked off.	
39	Machine power supplies that are capable of being isolated and locked off.	
40	Maintained lighting to permanently darkened corridors/ stairs	

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41	Provide a minimum of 3 steps not 2 or 1 (internal stairs)	
42	External landings outside emergency exits and internal stair landings (provide hand rails – also provide a minimum of 3 steps never 1 step. Also provide ramps for disabled emergency egress.)	
43	All external steps to pathways to have handrails and disabled tactile features. All external steps to have external lighting and emergency back up features installed for a general power failure on campus.	
44	Physically block off space in stairway at lowest level. Keep residual “free” space in stairways to minimum (it gets abused as storage space).	
45	Stairs and steps that conform to Buildings Regs Technical Guidance Document K.	
46	No do locate metal lockers in corridors escape routes – unless emergency exits are provided in all rooms connecting with said routes.	
47	Internal stairs \ corridors that are not encroached by the swing of door openings	
48	Any full height glazed screens – safety glazing and markings.	
49	Plumbed drinking water points – SHWW Miscellaneous Welfare Regs	
50	Do not locate post boxes in escape routes. Provide post boxes with offices with a metal letter box in the corridor wall (if not required to be a fire rated wall).	
51	All fume cupboards for use with hazardous / toxic materials must achieve containment test and a minimum face velocity of 0.5m/s if it is to be used as a fume cupboard at UCC with toxic substances. Warning alarms must reflect this. Face velocity read outs must be provided to all fume cupboards and LEV or extract system that is essential to health and safety.	
52	Lifts in scientific buildings must be capable of transporting chemicals and of being sent to a particular floor without stopping. Permanent Signs must indicate that passengers must not ride in lifts whilst transporting chemicals.	
53	Provide O2 detection areas where liquid nitrogen is produced, transported or used. Provide O2 detection in any area where the content of a compressed gas cylinder discharge into a room over night could cause asphyxia or provide permanent ventilation at high and low level if this is to be avoided without use of detection.	
54	Consult with Radiation Protection Officer re radioactive labs and high powered laser labs. The latter should have doors interlocked with the beam, no reflective surfaces and no desks within.	
55	External steps outside of building – provide handrails to all (UCC insurer requirement)	
56	Provide store rooms for cleaner’s materials. Provide store room for audio visual materials. Provide a store room for B&E pico mobile work platform and other work at height access equipment – at a floor where there is lift access.	
57	Provide Tea room/ store for security and services attendants and adequate space for sorting post and mail bags.	
58	Provide store room for Buildings & Estates materials and emergency equipment	
59	Provide for escapee fire egress from enclosed site to the open air free of all boundaries (no locked gates – provide full personnel doors with emergency panic bolts fitted in all gates that may be closed at any time). Keep building exits separate from delivery yards.	
60	Provide external lighting – this to have emergency backup – if a general power failure to campus. [Has occurred – latest Dec 2013]	
61	Provide high slip resistance of external steps/ pavers, internal steps/ pavers, (beware of limestone, brick and tiles etc)	
62	Ensure that there are NO Obstructions/ protrusions or brackets \ bolts below 2m head height - general rooms/ stairs and plant rooms – HVAC designers beware. All valves and pumps to be easily accessible. Access bridges to be provided over HVAC runs at roof level and other protected access platform hop ups in roof plant rooms.	
63	Provide lifting points in ceilings for motors or for bring in/ out heavy items such as pianos, organs , large safe, equipment or other kit (or locate the kit in rooms that allow same to be undertaken)- widths of doors/windows to facilitate same	
64	Provide roofs parapet edge protection /(1.1 m high) (collective protection measure) – (not fall arrest) Provide fixed anchors for maintenance / inspection. Building design must favour permanent edge protection (collective protection) – not fall arrest	
65	Provide metal step hop-ups with handrails over roof level plant/ pipe runs. Raise parapets/ edge protection locally in vicinity of hops ups. Provide maintained emergency lighting at hop ups.	
66	Provide for safe access and egress on roof tops in relation to any access routes, drains etc	
67	Provide fixed mesh screen guards to prevent access to shearing hazards on automatically opening windows – both in rooms, atria, and stair wells – also consider shearing hazard in terms of roof top access during maintenance. Provide local electrical isolation system that can be locked off at point of access	

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68	Window cleaning – provide windows that may be cleaned from inside safely without climbing on furniture or falling out of the open window. Install all necessary safety methods and wall fixings for anchors - ladders/ fall arrest systems. Fall arrest systems to be fitted to permanent vertical access ladders.	
69	Provide building entrance doors and floor slabs that can accommodate a WEMP (truck mounted preferably) to re lamp glazed atria and clean windows and replace smoke detection or service vent actuators. Consider glazing type and configurations that require minimal cleaning.	
70	Provide for lamping in lecture theatres and atria that can be remotely lowered down to floor level eliminating necessity for specialist scaffolding	
71	Provide stairway lighting on side walls of stairways at landing levels so that the lights can be maintained/ lamps replaced without need for scaffold.	
72	Provide windows that open from inside (safe and easy) - ex floor or with mech. winders or electrical devices – but still do not present a floor to ceiling exposed ope risk.	
73	Provide a First Aid Room as per SHWW Regs on the ground \ access floor and near the entrance – must be sign posted, requires a sink and a folding doctors type patients table. Building lifts must be capable of taking a stretcher with a patient lying down.	
74	Provide facilities for Nursing Mothers as per SHWW Regs (again with a sink) – near building entrance.	
75	Provide changing rooms - where the work activity necessitates – labs etc, workshops. Separate male and female facilities.	
76	Provide dedicated wash hand sink and drying facilities within all labs, workshops, areas where staff could have hands contaminated with chemicals, dirt or biological materials. This facility must be in addition to work product	
77	Provide emergency eye wash showers in all labs, workshops, areas where staff could have eyes splashed with contaminated with chemicals, dirt or biological, debris materials. This facility must be within the room <u>not</u> outside of the room (i.e. no doors in between)	
78	Provide emergency showers where staff could be accidentally covered with hazardous chemicals (provide this within the room – not at the entrance and provide a drain to same)	
79	Ensure that security does not conflicts with Fire egress (or any digital locks).	
80	Provide no locks to cross corridor doors or to escape stairways. Provide locks to final exits that are easily openable ex inside without the use of a key. (thumb turns where there is less that 50 people in a building , emergency panic bolts for emergency doors serving more that 50 people. Provide no locks to fire doors on escape routes incl stairways.	
81	Security break glass units (to computer rooms) etc should not be located adjacent to fire alarm break glass units	
82	Provide safe maintenance access to attics, lights (stairs/ general, tiered lecture halls), water tanks, roof. Water tanks and equipment should not be located over stairways or within. Stair lights should be at landing level and on the wall (not over central voids or near bannisters).	
83	Provide fixed stair or fixed ladders with hoops to access all attics, attic plant/ tanks, to all raised features on roofs, vent stacks etc and fall arrest features as necessary for safe use.	
84	Roof top doors / windows which give access to roofs should have a unique key and be alarmed (area outside should have railings. Access should be via fixed permanent metal/ concrete steps and non slip – may be wet)	
85	Roof top services which require access should have railings, platforms and fixed ladders. Require toe boards to platforms.	
86	Service ducts should be locked and have smoke detection fitted. All service ducts should have metal grating / internal floors for safe access and fire door access at each floor. Note: service ducts should not be accessed off of stairways!	
87	Fire Extinguisher - type, quantity and location of fire points (in conjunction with John O' Callaghan UCC Fire Officer and budget attached to the project! - to be addressed by the Architect in the fit out). Similar for Fire assembly signs – must be installed externally before handover of building.	
88	Notice Boards for central circulation areas – must by under glass and lockable. No felt notice boards in these areas	
89	Ignition source 5 Flammability of curtains, drapes and soft furnishings. None of the latter to be included in circulation routes.	
90	NO soft furnishings or electrical risk in escape routes. Use architectural metal or hard solid timber for seats in circulation areas	
91	Any sculptures in circulation routes should be fixed in position and must not reduce the effective width of the escape route and set back from balustrades \ ope.	
92	Block off the space beneath stairways at ground / basement level - to prevent storage under	
93	Need to consider Flammability of signs/ displays fixed to walls of circulation routes and escape routes	

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94	Variable height markings to fully glazed doors must be installed to glass doors and screens at the outset of occupation/ handover (to cater for all sizes of people including wheel chair users)	
95	Provide safety cushion protection to the frame/ door edge interface of double action door - to prevent trapping where children present	
96	Do not provide mail boxes or handout collection in circulation spaces/ corridors of buildings.	
97	No student lockers in circulation spaces (designate a room for same)	
98	Provide emergency call points in disabled toilets. Mechanically check grounds for all lighting aides within disabled toilets and bathrooms	
99	Provide dedicated emergency phones (red) in central places in each building - to enable the fire brigade to be called and to contact Reception centre (as per in our existing buildings)	
100	Provide dedicated telephone for emergency use in wheelchair refuge. This phone to be linked back to UCC reception centre main campus. All wheel chair refuges to be uniquely sign posted and each stairway landings and each stairways uniquely numbered (consult with John V. O'Callaghan, UCC Fire Consultant re system being deployed).	
101	Provide evacuation chairs (on tracks) for the mobility impaired & wall mounted in escape stairways (entrance level).	
102	Provide mechanical means / access for heavy items - pianos, heavy kit, motors, safes – eq. lifts and lifting points	
103	Provide hand rails & banisters of adequate height. Hand rails must be continuous at landings. Stairs over 1.2 m wide must have 2 continuous handrails. Provide intermediate handrails if the stairs is more than 1.6 m wide. Design of bannisters and stair handrails or glass edge protection to discourage sliding \ climbing \ horseplay. Atrium floor hand rails to be a minimum of 1.2 m high and curved inwards and upwards (profile to not promote sitting upon or any features to promote ease of climbing by a child)	
104	Provide wall mounted schematic under glass of finished building (A3 size) showing fire exit stairways and escape routes (in green) plus location of external assembly points- to be required as part of architects fit out	
105	Book shelving - not higher than 1.8 m unless mobile stairs purchased with safety locking mechanism (note step ladders not adequate for heavy or awkward items or for retrieval)	
106	Book shelving / filing systems must secured to the wall. No high level shelving over 1.8m. No shelving over deep benches or in corners over desks or benches that involves overreaching with load at furthest distance from body torso. No shelving or benches or equipment in close proximity behind any room opening doors. (locate access doors adjacent to side wall on narrow room plans to avoid as necessary).	
107	VDU work stations 'L' shaped not 2 straight desks butted together and positioned to avoid glare <u>and reflectance</u> (tinted glass in external windows, lighting diffusers, positioning of VDU's at 90 degrees to windows and strip lighting, cantilever desk frames)	
108	Provide dedicated room for high volume photocopiers (with active or passive ventilation) and a self closing fire door set linked by an electromagnetic hold open device to the fire alarm if required to keep this open	
109	Provide safes for each dept?	
110	Provide ventilation for inner rooms (windowless)	
111	Provide ventilation and cooling for heating producing appliances - high volume photocopiers, computer rooms, ovens	
112	Ensure safety of window hatches (to dept offices where provided) - fire door and fitted with electromagnetic hold open devices if on dead end corridors - otherwise not fire doors - but not hinged glass doors without frames around the edge	
113	Provide local exhaust ventilation to workshops and any hand soldering locations – and piped to exterior of building and in such a way that there is not re-entrainment of exhausted air.	
114	Provide a minimum of 2m min head height to all stairways, doors, attics an in all plant rooms and to all areas where electrical equipment // mechanical equipment/ pipe runs/ electrical cable runs/ water tanks, or HVAC controls equipment are located) – this includes brackets and supporting bolts. A defined colour coded floor \ walkway to be installed to access and exit walk ways and valve access aisles in all plant rooms. All valves, read out dials or gauges to be accessible safety off of same. Safety hops up steps \ access bridge type platforms and steps of same to be provided outside of the aisle space. Head height to be maintained at top of platforms and to steps. Guard rails to such platforms and steps also. And steps to be provided into and over any bunding around plant room or roof top equipment (ie tanking surrounds).	
115	Do not provide seminar rooms on the upper floors of houses	
116	Flat roofs – provide fixed ladder (hoped) access for maintenance and perimeter railings	
117	Verify that the exterior and interior of the buildings and all fittings/ services are maintainable in a safe manner. (SHWW ACT 2005 obligation)? Are special facilities or equipment required? Avoid need for specialist staff \ contractors to operate same. Collective protection over individual. Does the design/ fit out require to be changed to facilitate same?	

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118	Provide ramps to all external landings incorporating steps/ stairs of escape routes	
119	Hot and cold water supply system to comply with ACOP on control of legionella in work place. Provide automatic flushing devices for water fountains. See Kevin O'Regan, B&E Engineering Services for UCC spec and advice on mixer taps \ sentinel taps. Avoid dead legs.	
120	Provide No smoking signs in fit out of buildings (legal prohibition as of Jan 04)	
121	Provide Fire rated room and ventilated for segregation of waste in each floor.	
122	Fire rated metals bins with self closing lids and openable doors to be provided in fit out for general waste and all recyclables or battery collection. Units to be fixed to walls by brackets. Note: Recycling centres are not to be provided in any stairways or corridors (a separate room needs to be provided at each floor level).	
123	Lifts - machinery guarding (hoists to be guarded like lifts with a full enclosure and interlocked doors).	
124	No un-protected open – falls from height – include returns on stairway landings	
125	Fragile roofs and attic spaces – designed means of access for maintenance – collective protection	
126	No timber decking on walkways, steps or stairways externally	
127	Handrails and minimum of 3 steps and disabled warning features to all external steps including pathways and external lighting to same.	
128	Raised flower planters both internal and external to have parapet edge protection and designed in safe means of access for maintenance	
129	Eliminate necessity for work at heights or use of MEWPs where possible – install HVAC equipment at ground level, have facility to winch down lights to ground level for replacement.	
130	Reception desks in to be designed with a flexible enclosure for control of temperature (heat and cold), air changes and avoid excessive drafts or thermal movements during all seasons.	
131	Remote handling facilities for book returns etc and parcel, storage space for postal delivery trolleys etc. – Ergonomics considerations to be applied to bins for unloading (talk to Safety Office)	
132	Room lighting grids to be placed over aisles (not over benches or desks) – safe access for maintenance	
133	Lab bench reagent shelving - Vertical Shelf dividers to be installed at mid shelf depth to prevent bottles being knocked through to the other side	
134	Provide thumb turn locks to all building main entrances even if they will be normally open when the building is in use (UCC policy not to have any doors that could not be unlocked in an emergency if the doors were closed out of hours of for cleaning). Note these thumb turn locks must be located at waist height	
135	Ensure that any/ all double doors which are fire doors each have self closing devices and priority closing devices fitted – even if it is intended to use only one door leaf in normal use	
136	Ensure that automatic sliding doors fail to safety in open position on activation of fire alarm system or else that there are static emergency exit doors of adequate exit width immediately adjacent to the door	
137	Ensure that any turnstile entry systems with mechanical arms– will not impact on pregnant women or people with disabilities. Ensure that the turnstile system fails to open system on activation of fire detection and alarm system. Also that there is a local electrical isolation system	
138	Ensure that any tall doors which have secreted latches/ locking clasps are only fitted at such a level that it can be opened by a person of modest height – without climbing on chairs	
139	Do not provide for filing cabinets on access/ egress routes, inside of doors or internal corridors	
140	Provide for primary, secondary and tertiary chemical stores. Primary should be external to buildings. All to have bunding, chemical segregation, appropriate electrics for the risks, cross ventilation at high and low level, retractable arm LEV or use with dispensing, earthing and bonding depending on risk, emergency eye wash showers (frost protected), bunding with raised grating and ramps if not recessed to floor level. Note ramps should not interfere with egress from the area or cause trip hazards. Bonding may also be required and sumps. Secondary storage may be within a building at ground level, with a ventilation and emergency egress direct to the open air.	
141	Provide wall mounted ID plates to indicate location and depth of underground services externally	
142	Provide 1 hour Duperthal flammable cabinets with self closing doors, for storage of flammable cabinets at lab level or in tertiary multipurpose chemical stores, and vent through fume cupboard extract system.	
143	Provide extracted, bunded acid cabinets for storage of acids at lab level or in multipurpose chemical stores	
144	Provided extracted, bunded toxic cabinets that are lockable for storage of poisons	
145	Provide lightweight aluminium external bollards externally outside of exit routes to prohibit illegal parking and set down. All removable bollards to be light weight and socket covers must not cause a trip hazard.	
146	Provide designated set down areas in car parks for delivery and set down of deliveries.	

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147	Ensure that there are large assembly points externally on site can to take the volume of people who may be evacuating building and not adjacent to glazed facades.	
148	Provide a buried connector cable from the main electrical board to an external point on the building façade, away from exits, where a portable generator on a trailer could be wheeled to and connected for the purpose of providing an alternative electrical supply during a shut down.	
149	Provide at least 3 main external routes away from assembly points externally in confined sites, to a place of safety free of all boundaries. This is required for onward evacuation of persons assembling /site emergency evacuation where 400 or 400+ persons may assemble or where confined site and deliveries/ fire brigade access may impeded or cause danger to persons evacuating	
150	To minimize numbers evacuating at any one time compartment large buildings with 1 hour fire resistance and arrange two phase alarm activation by vertical compartment boundaries.	
151	Undergraduate buildings shall not have easy access to roof tops sun areas, roof top gardens or external balconies.	
152	All external glazing shall be capable of being cleaned off a truck type MEWP and suitable hard standing provided for same	
153	Internal glazing to offices on to atria shall be rigid and secure to prevent accidental falling out of their frame and resist lateral pressure during cleaning. Sills shall be sufficiently high over desks to prevent objects accidentally dislodged falling out of open windows	
154	Plant rooms at roof level shall be located on roof so as to allow a crane to easily sling replacement mechanical plant into position for am location adjacent to the building.	
155	Security control desks shall be designed by an ergonomist. Similar for post room sorting. Provide adjustable height bag platforms \ work benches.	
156	Library issue desks shall be designed by ergonomist	
157	Student accommodation shall have window restrictors fitted to opening sash windows. Openable windows shall also be provided to any lounge areas in student accommodation.	
158	LEV systems used for extraction of hazardous gases shall be ducted to the highest point of the roof	
159	Permanent edge protection shall be provided to flat roof containing AV satellites, HVAC cassettes, mobile phone masts	
160	Provide a dedicated wired emergency telephone in al UCC buildings to UCC General services reception for emergency use/ contact with UCC security. This to be in addition to any lift REM system. The Lift REM system shall also have an automatic default to UCC reception if the Lift operator does not respond quickly	
161	Write up areas shall not be provided within laboratories or workshops. Separate rooms shall be provided for this purpose with inter- connecting doors to labs as necessary.	
162	Space shall be provided in laboratories for storage of coats/ bags of students engaged in practicals or relocation of chairs during practicals.	
163	Any permanent displays in corridors / circulation areas shall be lockable under glass , with safety glazing as necessary and shall not reduce the effective route of the corridor or provide for storage of material	
164	Shooting bolts shall not be provided to any exit door or gate used for escape purposes	
165	Separate pedestrian access gates shall be provided at site boundary entrances to UCC premises. Traffic ramps, visibility and pedestrian priority signs shall be erected.	
166	Speed ramps shall be erected on internal roadways and designated pedestrian crossings established	
167	Traffic mirrors shall be installed on unsighted junctions	
168	Barriers \ low height walls or .railings shall be protected to prevent pedestrians crossing roads at traffic barriers and to protect pedestrians from vehicles reversing at delivery points or the chemical or gas compounds	