



DESIGN & TECHNICAL BRIEF

May 2022

Contents

1.0	GENERAL	6
2.0	ACCOMMODATION REQUIREMENTS	6
2.1	<i>Dwelling requirements</i>	6
2.2	<i>Building Regulations Part M</i>	6
2.3	<i>Minimum room areas</i>	6
2.4	<i>Kitchen storage volumes</i>	6
3.0	INTERNAL LAYOUT	7
3.1	<i>Entrance/Circulation Areas</i>	7
3.2	<i>Cloakrooms</i>	7
3.3	<i>Living Area</i>	7
3.4	<i>Dining Area</i>	7
3.5	<i>Airing Cupboard</i>	7
3.6	<i>Kitchens</i>	8
3.7	<i>Bedrooms</i>	8
3.8	<i>Bathrooms</i>	9
3.9	<i>Storage</i>	9
3.10	<i>Study/Home Office</i>	9
4.0	MATERIALS AND WORKMANSHIP	10
4.1	<i>General</i>	10
4.2	<i>Prohibited materials</i>	11
5.0	DEMOLITIONS AND SITE CLEARANCE	12
5.1	<i>Asbestos</i>	12
5.2	<i>Demolition of Structures</i>	12
5.3	<i>Pest Control</i>	12
5.4	<i>Site Clearance</i>	12
5.5	<i>Protected trees</i>	12
6.0	Ventilation and Acoustic Design	13
6.1	<i>Daylight, Sunlight and Ventilation</i>	13
6.2	<i>Acoustic Design</i>	13
7.0	Sustainability	14
7.1	<i>Thermal Performance</i>	14
	<i>Generally, overheating should be limited to 25-28 degrees C for 1% of occupied hours.</i>	14
7.2	<i>Energy Usage</i>	14
7.3	<i>Water Usage</i>	14
7.4	<i>Materials and Finishes</i>	14
7.5	<i>Heat Loss Form Factor</i>	14

7.6	<i>Air Quality</i>	15
7.7	<i>Building Fabric - Thermal Performance</i>	15
7.8	<i>Building Fabric – Air Tightness</i>	15
8.0	SUBSTRUCTURE	16
8.1	<i>Substructure</i>	16
8.2	<i>Piled foundations</i>	16
8.3	<i>Ground Floor Structures</i>	16
9.0	FRAME AND UPPER FLOORS	17
9.1	<i>Generally</i>	17
9.2	<i>Upper Floor Structure</i>	17
10.0	ROOFS	18
10.1	<i>Roof Structures</i>	18
10.2	<i>Roof Coverings</i>	18
10.3	<i>Balconies and Terraces</i>	19
10.4	<i>False Chimneys</i>	19
10.5	<i>Leadwork</i>	19
10.6	<i>Soffits, Fascias and Bargeboards</i>	19
10.7	<i>Parapets</i>	19
10.8	<i>Safety Railing or Mansafe access systems</i>	19
10.9	<i>Roof Access</i>	20
10.10	<i>Insulation</i>	20
10.11	<i>Entrance Canopies</i>	20
10.12	<i>Rainwater Installation</i>	20
11.0	STAIRS	21
12.0	EXTERNAL WALLS	22
12.1	<i>Generally</i>	22
12.2	<i>Brickwork</i>	22
12.3	<i>Feature Work</i>	22
12.4	<i>Wall Ties and Cavities</i>	22
12.5	<i>Insulation to Cavity Walls</i>	22
12.6	<i>Movement and Construction Joints</i>	23
12.7	<i>Cavity Trays</i>	23
12.8	<i>Lintels</i>	23
12.9	<i>Render</i>	23
12.10	<i>Cladding</i>	23
13.0	WINDOWS AND EXTERNAL DOORS	24
13.1	<i>Windows - Generally</i>	24

13.2	<i>Glass and glazing</i>	25
13.3	<i>Window Ironmongery</i>	25
13.4	<i>Mastic sealant</i>	25
13.5	<i>External doors - generally</i>	26
13.6	<i>Glass and glazing</i>	26
13.7	<i>External Door Ironmongery</i>	27
13.8	<i>French/Patio Doors</i>	27
13.9	<i>General</i>	28
13.10	<i>Communal Controlled Entrance Doors</i>	28
13.11	<i>Communal External Fire Escape Door</i>	28
13.12	<i>Communal Letter Box System</i>	29
13.13	<i>Communal External Utility Doors</i>	29
14.0	INTERNAL WALLS AND PARTITIONS	30
14.1	<i>Generally</i>	30
15.0	INTERNAL DOORS	31
15.1	<i>Generally</i>	31
15.2	<i>Communal doors</i>	31
15.3	<i>Ironmongery</i>	31
16.0	WALL FINISHINGS	32
16.1	<i>Plasterwork</i>	32
16.2	<i>Wall Tiling</i>	33
16.3	<i>Skirtings and Architraves</i>	33
17.0	FLOOR FINISHINGS	34
17.1	<i>Screeds</i>	34
17.2	<i>Floor Coverings</i>	34
18.0	CEILING FINISHINGS	35
18.1	<i>Plasterwork</i>	35
18.2	<i>Lofts</i>	35
19.0	DECORATION	36
19.1	<i>Decoration</i>	36
20.0	COMMUNAL AREAS	37
21.0	KITCHEN INSTALLATIONS	38
21.1	<i>Generally</i>	38
21.2	<i>Appliance Spaces</i>	39
21.3	<i>Worktops</i>	39
21.4	<i>Sinks</i>	39

22.0	FIXTURES AND FITTINGS	40
23.0	SANITARY APPLIANCES	41
23.1	Generally	41
23.2	Taps	41
23.3	WC's	41
23.4	Baths	41
23.5	Shower Fittings	41
23.6	Wash Hand Basins	42
24.0	SOIL, WASTE AND OVERFLOW PIPE INSTALLATION	43
24.1	Soil, Waste and Overflow Pipework	43
24.2	Wastes and Overflow Pipes	43
24.3	Testing	43
25.0	PIPEWORK GENERALLY	44
26.0	COLD WATER INSTALLATIONS	45
26.1	Generally	45
26.2	Communal Water Supplies	46
27.0	GAS INSTALLATION	47
27.1	Generally	47
28.0	HEATING AND HOT WATER INSATLLATION	47
28.1	Generally	47
28.2	Heating Controls	49
28.3	Corrosion Inhibitors	49
28.4	Circulating Pumps	49
28.5	Motorised Valves	49
28.6	Ductwork	49
28.7	Testing and Commissioning	50
28.8	Low and Zero Carbon Technologies	50
29.0	ELECTRICAL INSTALLATION	51
29.1	Generally	51
29.2	Digital Connectivity	51
29.3	Mains installations	51
29.4	Circuits	51
29.5	Power and lighting installations	52
29.6	External Lighting Installations	52
29.7	External Lighting to Communal Areas	53
29.8	Electrical Heating Installations	53
29.9	Lighting Provision	53

29.10	Communal Lighting.....	54
29.11	Emergency Lighting Systems.....	54
29.12	Communal Lighting Control Systems.....	54
29.13	Mechanical Extract Ventilation.....	54
29.14	MVHR.....	54
29.15	Smoke and Heat Detectors and Carbon Monoxide Alarms.....	54
30.0	COMMUNICATION INSTALLATIONS.....	55
30.1	Generally.....	55
30.2	Television Installations.....	55
30.3	Testing.....	55
30.4	TV Point.....	55
30.5	Communal Door Entry System.....	55
30.6	Lift Installations.....	56
30.7	Testing.....	56
31.0	INCOMING SERVICES.....	57
31.1	Generally.....	57
31.2	Substations.....	57
32.0	EXTERNAL WORKS AND DRAINAGE.....	58
32.1	External Works – Generally.....	58
32.2	Roads, Parking Areas and Pavements.....	59
32.3	Paths and Paving.....	60
32.4	Soft Landscaping.....	61
32.4	Soft Landscaping (Cont'd).....	62
32.5	Walls, Fences and Gates.....	62
32.6	External Stores/Refuse.....	62
32.7	Communal Cycle Storage.....	62
32.8	Communal Refuse Storage.....	63
32.9	Street and Building Signage.....	63
32.10	Street Furniture.....	63
32.11	Car Charging Points.....	63
32.12	External Lighting.....	64
32.13	Drainage.....	65

1.0 GENERAL

This base specification only includes finishes to rented properties. There is a specification uplift for both Shared Ownership and Private Sale properties included on a separate spreadsheet within Appendix D of the Employer's Requirements.

Buildings are to be designed to have a lifespan of at least 60 years.

All required U-Values and air test minimum requirements are included in the Design Guide.

Contractors are required to adopt a fabric first approach for the design and construction of all plots

2.0 ACCOMMODATION REQUIREMENTS

2.1 Dwelling requirements

The minimum gross internal floor areas and general storage areas are to be in accordance with the Nationally Described Space Standards. Dwelling must be either 1B2P, 2B4P, 3B5P or 4B6P. Eastlight do not accept 1B1P, 2B3P, 3B4P or 4B5P dwellings.

The gross internal floor area (GIFA) is to be measured between the inside faces of external walls and over internal walls and voids.

2.2 Building Regulations Part M

- All plots are to achieve M4(2) standards as a minimum.
- Bungalows and ground floor flats are to meet M4(3)a standards
- 3 Bed (and larger) bungalows are to achieve M4(3)b standards.

2.3 Minimum room areas

The bedroom sizes shall to be provided in accordance with the Nationally Described Space Standards minimum room sizes:-

- Single Bedroom – 7.5m²
- Twin/Double Bedroom – 11.5 m²

2.4 Kitchen storage volumes

The following minimum kitchen storage volumes shall be provided as follows:

- 1 Person - 1.30 m³
- 2 Person - 1.50 m³
- 3 Person - 2.00 m³
- 4 Person - 2.10 m³
- 5 Person - 2.20 m³
- 6 Person - 2.40 m³

3.0 INTERNAL LAYOUT

The floor plans will indicate the furniture layouts and should show the furniture and activity zones included in the furniture schedules included within “Housing Quality Indicators Guide” or the room sizes should be such that they are classed “as meeting the standard” using the room matrix approach in “Housing Quality Indicators Guide”.

The shape of the rooms to be regular in form (except in cranked dwellings). All plan layouts must consider and avoid so far as reasonably practicable door clashes (internal and cupboard) to negate finger crush injuries.

WC/Bathrooms/Kitchens and the hot water cylinder should be sited in close proximity either vertically or horizontally to each other to give facilitate economic plumbing layouts.

Wherever possible, WC's should not be sited off of either the living room or kitchen.

Wherever possible, the main access to the garden should not be via the living room. If this is unavoidable then consideration should be given to the provision of patio doors or French windows.

3.1 Entrance/Circulation Areas

Where possible, the main dwelling entrance shall open into an enclosed lobby or hall (of minimum 3m²) and not directly into a living space.

The position of the door and layout should obscure views into the dwelling from outside of the property. Where possible, the main dwelling entrance shall open into an enclosed lobby or hall and not directly into a living space

3.2 Cloakrooms

A downstairs cloakroom will be provided to all houses. This should not be accessed directly from either the living room or kitchen wherever possible.

3.3 Living Area

The layout of the family houses shall provide for a living room and kitchen/diner, rather than a living/dining room and kitchen. However where best use of views and/or orientation can be made by alternative arrangements these can be considered.

Open plan designs are not acceptable in family houses and should be avoided where possible generally.

Preferably the main access to other rooms should not be through the living room.

3.4 Dining Area

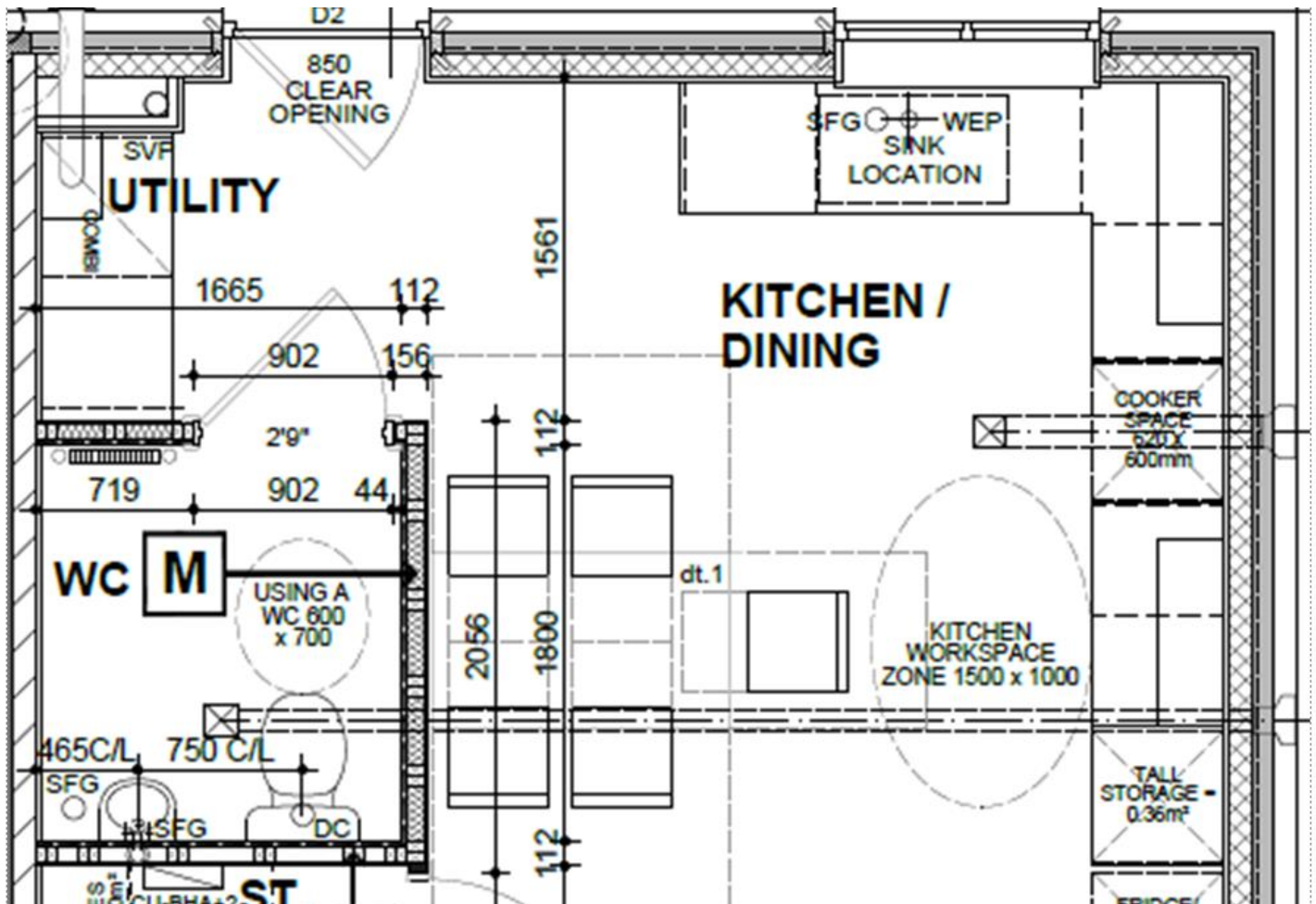
Layout of the dining area must allow for a table and chairs to accommodate the assumed household and sufficient circulation space around the area allocated for the dining table.

3.5 Airing Cupboard

It is preferable to have the airing cupboard located off of the landing area

3.6 Kitchens

Kitchens in properties with 3 or more bedrooms are to contain a small utility area. See example below:



The room should be regular in plan and set out to suit kitchen units' standard sizes to optimise the use of space. Layout of the dining area must allow for a table and chairs to accommodate the assumed household and sufficient circulation space around the area allocated for the dining table.

3.7 Bedrooms

Double bedrooms should be capable of accommodating two single beds. In single bedrooms sufficient space is to be available for a 2m long bed which is not to be located under the window.

Particular care should be taken to ensure that furniture circulation areas are clearly included in the room design.

3.8 Bathrooms

The layout shall provide a 1700mm bath, pedestal basin and WC. The bath is not to be located below a window. The blending valve to the bath to be set at the hottest permitted temperature. A separate wall mounted thermostatically controlled shower is to be provided over the bath, which is to be supplied independent of the blending valve.

Natural light and ventilation are preferred in all bathrooms, and are a requirement for dwellings with two or more bedrooms.

Level access showers are to be provided to all bungalows and ground floor flats with a separate bath where possible

Care should be taken to ensure privacy is maintained between bathrooms and adjacent areas, particular circulation areas.

Windows should avoid further privacy issues with external areas and so be restricted in their opening and generally be away from gardens, balconies and terraces.

3.9 Storage

Provision shall be made for the storage of household equipment, either in a purpose built cupboard or as a tall storage cupboard (provided without shelves) in the kitchen but in addition to the kitchen storage set out elsewhere in this document.

Built-in wardrobes are not to be provided in bedrooms except when the layout incorporates alcoves that only require the provision of a door and frame. They are not to be located on external walls. In small bedrooms a stair bulkhead is to be finished as an enclosed store.

All built in storage needs to be sufficiently sized to meet national space standards and exclude services cupboards. The location needs to be central to the layout and should be fully useable. Door access needs to be as wide as possible to optimise access and from a circulation area.

There should be a minimum provision for a service cupboard of 800x2000mm, accessed from circulation areas and whose access considers maintenance and plant replacement.

3.10 Study/Home Office

All properties no matter the size should make provision for home working by all residents.

Properties with 3 or more bedrooms should have a separate study/snug.

4.0 MATERIALS AND WORKMANSHIP

4.1 General

All materials and workmanship within these Works will be designed and constructed in accordance with the following and other relevant standards applicable at the commencement of works on the site, and are generally to be in accordance with good building practice.

1. The British Standard Institute Specification and Codes of Practice
2. Health and Safety at Works Act including the Construction (Design and Management) Regulations (CDM)
3. The Building Regulations
4. Local Authority Planning and Bye – Laws
5. Local Water Board Requirements and Regulations
6. Water Resources Act
7. Land Drainage Byelaws
8. Environment Agency
9. Domestic Heating Compliance Guide
10. [Control of Pollution (Oil Storage) (England) Regulations]
11. The Electricity Supply Act
12. The Requirements of the Electricity Supply Company
13. Electricity Supply Regulations
14. The IEE Wiring Regulations
15. The CIBS Guides
16. National House Building Council Guidelines
17. Considerate Constructors Scheme
18. Lead Development Association
19. Nationally Described Space Standards
20. National Housing Federation's Schedule of Furniture to be accommodated

Proprietary materials will be used strictly in accordance with the manufacturer's recommendations and instructions. Materials identified in this Design & Technical Brief will be selected from the manufacturer's standard product range.

The selection of items not specifically identified in this Brief will be selected to be in keeping with the remainder of the design. The choice and selection of materials will be agreed by the Employer. Any materials identified and approved by the Local Planning Authority as part of the detailed planning permission will not be changed. Where manufacturers or suppliers have been specified throughout this Brief the product offered is to be equivalent or similar approved.

Hardwood shall be selected and suitable for its use in the works and will be from a sustainable-managed forest. No hardwood from rainforests or other endangered tree species is to be used.

4.2 Prohibited materials

The use of the following materials shall not be permitted:-

- High alumina cement in structural elements;
- Wood wool slabs in permanent formwork to concrete or in structural elements;
- Asbestos or asbestos containing products as defined in The Asbestos Regulations 1987 or any statutory modification or re-enactment thereof;
- Asbestos substitutes or any naturally occurring or man-made mineral fibres with a thickness of 3 microns or less and a length of 200 microns or less or which contain any fibres not sealed or otherwise stabilised to prevent migration of fibres;
- Calcium chloride admixtures for use in reinforced concrete;
- Naturally occurring aggregates for use in reinforced concrete which do not comply with British Standard 882:1992 and/or naturally occurring aggregates for use in concrete which do not comply with British Standard 8110:1985 (as amended or supplemented);
- Calcium silicate, aggregate bricks or tiles used above damp proof course level;
- Lead, lead in decorative finishes or any products containing lead which may be ingested, inhaled or absorbed except where copper alloy fittings containing lead are specifically required in drinking water pipework by any relevant statutory requirements or use of lead for flashings and other roof abutment work;
- Urea formaldehyde in foams or other materials which may release gases in quantities which may be hazardous with reference to any limit set by the Health and Safety Executive;
- Non-replenishable tropical hardwood;
- Materials including or requiring chlorofluorocarbons (CFC's) or hydrofluorocarbons (HFC's) in their manufacture or any other such materials prohibited by the Montreal Protocol; and
- Materials or substances generally known at the time of specification to be deleterious or hazardous to health and safety or the durability of the Development in the particular circumstances in which they are to be used and having regard to the Guidance "Good Practice in Selection of Construction Materials" dated 16 May 1997 sponsored by the British Property Federation and British Council of Offices and the BRE Digest or are otherwise not in accordance with British Standards or Codes of Practice or good building practice or techniques.

5.0 DEMOLITIONS AND SITE CLEARANCE

5.1 Asbestos

The Contractor shall identify the presence of any asbestos or asbestos based products hazardous to health and remove all asbestos using trained personnel from site to a licensed, approved tip.

5.2 Demolition of Structures

The Contractor shall safely terminate all services to the existing structures to the approval of the Public Utility Services and demolish all structures on the site.

The Contractor shall break up and remove all existing foundations, ground slabs, basement structures and all other obstructions in the ground. Upon completion of demolition works the Contractor is to remediate and backfill all areas and make up level to adjacent ground level, thoroughly consolidate and leave level.

5.3 Pest Control

The Contractor shall allow for clearing all pests from the site and ensure that pests do not spread to adjoining properties during the course of the works.

5.4 Site Clearance

The Contractor shall clearing and remediate the whole of the site of all fly tipping, vegetable matter, rubbish, debris and contaminated earth, removing old walls, fencing, etc. and grubbing up any pipe, roots or other obstructions including underground storage tanks, concrete, rubble, hardcore or other hard materials and cut down and removing any unwanted hedging, trees, undergrowth and the like and grubbing up the roots thereof.

5.5 Protected trees

Existing trees are to be protected in accordance with the requirements of the Local Authority. The Contractor will be required to design and construct the foundations and external finishes so as not to cause damage to the tree roots and also to provide sufficient foundation to the new buildings.

6.0 Ventilation and Acoustic Design

6.1 Daylight, Sunlight and Ventilation

Daylighting levels should aim to be > 2% av. Daylight factor with 4% uniformity.

Layouts should optimise daylight to reduce the need for artificial lighting

Optimise passive gains as far as is practical and facilitate the passive ventilation and movement of pre warmed air to reduce the need for specific space heating

Daylight, sunlight and ventilation in properties should provide:

- Natural daylight levels to all areas of a room, but without introducing privacy or overheating issues.
- Secure night time ventilation, such as solid night vents or louvred screens Infront of inward opening windows.
- Passive cooling of internal spaces to avoid overheating without the need for mechanical intervention whilst avoiding problems with external air quality or noise pollution, particularly near busy roads.
- Kitchens should have easily openable windows to allow purge ventilation to remove cooking smells and moisture. This ventilation should not be via external doors
- An assessment of internal daylight levels should be undertaken early in the design work to optimise the layouts and resident experience.
- Assessments should quantify the impact on neighbouring homes and gardens in terms of daylight, sunlight and rights to light where appropriate.

6.2 Acoustic Design

Internally, the specification of all floors, walls and doors needs to provide appropriate levels of protection against internal airborne and impact noise.

Beds and other more sensitive spaces should be cited away from possible sources of noise such as living rooms wherever possible.

Service cupboards and plant rooms should be located away from sensitive rooms such as bedrooms and noise mitigation proposals developed as part of the detailed design.

External plant should be carefully located. and if not appropriate in gardens where they should be away from the actual property and if necessary, with an appropriate acoustic enclosure. Their impact on the quality of visual amenity also needs to be considered. They should not be located on balconies or roof terraces and their position should be secure to avoid vandalism.

7.0 Sustainability

7.1 Thermal Performance

Generally, overheating should be limited to 25-28 degrees C for 1% of occupied hours.

7.2 Energy Usage

Homes should target operational energy levels of < 60 kwh / m² / yr.

All specified systems should be low energy systems.

All dwellings should:

- Recover heat loss where ever possible (for example in ventilation and waste water)
- Dwelling layouts should be zoned layout to allow smart space heating
- Specify a flexible and responsive smart system that learns inhabitants
- Use low energy heating that operates at a general lower temperatures such as underfloor heating coupled with an appropriate building fabric specification
- Light fittings should all be low energy and the number and specification kept to a minimum
- Have low energy fittings and appliances throughout

7.3 Water Usage

Potable water usage should levels should target <95 l/p/day.

As part of this target, projects should consider the following measures;

- A preference for showers over baths generally
- Low flow / aerated taps and showers as standard
- Low water use bath and toilets
- Low water usage and low energy appliances generally such as washing machines (A++) and dishwashers (A+)
- Waste water heat recovery should be used in all bathrooms wherever possible.

Proposals should include rainwater and grey water recycling where possible. Rainwater collection should be designed to be convenient and easily useable by residents. The option to use grey water to flush WCs should be considered.

7.4 Materials and Finishes

All materials should be low VOC and other harmful properties. Total Volatile organic compounds (VOC's) for the dwelling should target < 0.3 mg/m³.

7.5 Heat Loss Form Factor

For small scale housing projects, the target form factor should be between 1.7 – 2.5, and for medium to large scale housing schemes should be between 0.8 – 1.5.

7.6 Air Quality

- All ventilation systems should aim to achieve a minimum of 90% efficiency and include heat.
- Wherever possible, to provide both cooling and fresh air, within the constraints of buildings overheating and thermal performance of fabric, buildings should aim to optimise amounts of purge ventilation where ever possible.
- Bathrooms and WC's should always have a window to allow purge ventilation.
- Cooking areas should have their own dedicated extract and not rely on the whole building system.
- Materials should be specified to limit Volatile organic compounds (VOC) and their impact on internal air quality levels. Biophilic design can also contribute significantly to internal air quality

7.7 Building Fabric - Thermal Performance

The energy performance of building fabric should aim to achieve as an absolute minimum a 25% improvement on current Building Regulations. The Contractor should target the following Fabric U-values (W/m² .K);

- Walls 0.13 - 0.15
- Floor 0.08 - 0.10
- Roof 0.10 - 0.12
- Exposed ceilings/floors 0.13 - 0.18
- Windows 1.2
- Doors 1.4

Coupled with high levels of fabric performance, consideration should also be given to reducing thermal bridging (as an indirect form of heat loss) through building fabric specification and detailing. The Contractor should target 0.04 'Y' value.

7.8 Building Fabric – Air Tightness

Contractors should target a minimum air tightness of 1m³/h.m²@50Pa.

8.0 SUBSTRUCTURE

8.1 Substructure

The substructures shall be designed by a suitably qualified Engineer and shall take into account all ground conditions and loading in accordance with the requirement of the site investigation report, current Building Regulations and NHBC standards. Foundations shall generally be trench fill strip foundations

The Contractor shall satisfy himself with regard to the conditions and nature of the soil and assess for himself the nature of the ground, level of the water table, presence of gases, access difficulties and any other information required in order to construct the substructures as no claim on the grounds of want of knowledge will be entertained.

The Contractor is to take into account any remediation measures that are required to contaminated land and carry out the remediation works to the approval of the Local Authority and Environment Agency.

The Contractor is to take into account all adjoining structures and boundaries in the design of the substructures. Allow for all temporary supports and permanent retaining structures.

The Contractor is to provide cube tests of all concrete used in strip foundations, piles, ringbeams, floor slabs etc. The results are to be forwarded to the Employer's Agent.

8.2 Piled foundations

Should piled foundations be required the Contractor shall provide the following:

- Full details of all designs and specifications for the Works.
- A photographic survey of surrounding buildings prior to commencing the Works.
- A noise survey/report should be provided prior to the execution of any driven pile.
- Integrity test for each pile.

8.3 Ground Floor Structures

Generally the ground floor shall comprise in-situ concrete, precast or proprietary beam and block flooring. Timber ground floor structures are not allowed. The Employer's preference is that the concrete floors shall be finished with a screed. Accessible ducts for pipework and wiring shall be provided in the ground floor construction. All oversite shall be treated with an approved weedkiller. Ground floor voids shall be left clear and be provided with adequate ventilation, air bricks and internal sleeper walls shall similarly be vented to maintain ventilation. The Contractor shall pay particular attention to prevent frost attack, sulphate attack and efflorescence to the Works.

The Contractor shall pay particular attention to the detailing of levels and damp proof courses and membranes in the areas adjacent to entrances. External ground levels shall be minimum 150 mm below DPC level except at level door thresholds. The Contractor shall provide a design that prevents water and moisture ingress and also makes the necessary provision for ramped and level access to the dwellings as required.

The substructure shall incorporate effective damp proof membranes and damp proof courses to prevent the passage of damp from the ground to the inside of the building. All walls below the damp proof courses shall be constructed in masonry suitable for the circumstances. Damp proof courses shall be adequately lapped and taped turned up walls to DPC level and securely fixed prior to applying the finish.

Torn or inadequately lapped damp proof courses and membranes will not be allowed.

9.0 FRAME AND UPPER FLOORS

9.1 Generally

The frame and upper floors shall be designed by a suitably qualified Structural Engineer.

Timber framed construction and structural insulated panel (SIPS) construction is acceptable to schemes of 4 storeys or less provided the manufacturer and type of timber framed system is provided with the Contractor's Proposals at the time of tender.

The acceptance of the use of timber framed construction or SIPS by the Employer shall not diminish the Contractor's obligations under this Contract and the Contractor in particular is to ensure that his Contractor's Proposals are acceptable to the Local Authority and Warranty Provider.

9.2 Upper Floor Structure

Upper floor construction to houses shall be of timber joist or proprietary timber construction and shall including all necessary supports. All structural timbers used are to be pre-treated. All timber joists to party and external walls shall be supported by joist hangers and must not be built into brickwork or blockwork walls. Floor boarding to timber floors shall be moisture resistant flooring grade tongued and grooved chipboard. Floor boarding to receive a floor finish by others will not be accepted if the floor boarding is excessively stained, marked or defaced or has large cut outs or damaged areas.

All floor structures must be designed to allow access to plumbing and mechanical for maintenance purposes. Timber floors are not to be used in flats unless they are an integral element of the timber framed construction.

Concrete intermediate floors shall be finished with reinforced screeds.

Flooring to whole of the wet rooms should be graded towards the gulley.

Coved skirtings are to be provided in wet rooms

All service locations and runs shall be clearly marked on the floors.

10.0 ROOFS

10.1 Roof Structures

The roof structures shall be designed by a Structural Engineer.

Pitched roofs shall be of a proprietary pressure impregnated with preservative trussed rafter construction including all necessary bracing.

Flat roof construction, inward sloping roofs, parapet walls and secret gutters shall be avoided. Where flats roofs cannot be avoided, a 25 year guarantee must be provided.

10.2 Roof Coverings

Second hand roof slates or tiles shall not be used unless otherwise agreed in writing with the Employer.

Dry ridges, hips and verges are to be used secured using proprietary fixing systems and will match the preferred roof covering.

Battens are to be pressure impregnated with preservative.

Flat roof coverings shall be laid to falls and crossfalls to achieve the appropriate roof drainage.

Penetrations through the roof coverings shall be kept to a minimum and must be adequately sealed and tested for watertightness.

Roof skirtings, upstands, interfaces and the like shall be a minimum of 150mm high or greater as required by the manufacturer of the chosen roof covering.

The Contractor shall only use flat roof coverings which are installed by trained and certified operatives approved by the manufacturer of the roofing system.

Green roofs, roof gardens and the like shall be avoided where possible. Where required by planning, they are to be designed by the specialist roofing advisor and shall be compatible with the waterproofing system.

The Contractor shall allow for walkway for maintenance and access routes to plant areas and the like a minimum 1m wide.

Concrete roofs shall be properly prepared and cured and shall include bonding agents, primers, vapour control layers, membranes, insulation, reinforcement and felt protection layers as required by the chosen system.

Steel and timber roofs shall be properly prepared and shall include vapour control layers and insulation as required by the chosen system.

The roof pitches shall be within manufacturers recommended limits for the roof coverings being used.

Details with samples as necessary, of proposed roofing materials shall be submitted to the Employer for approval prior to submission to the Local Authority.

10.3 Balconies and Terraces

Coverings to balconies and terraces shall be designed by a specialist roofing advisor.

Balconies must be a usable space suitable for the number of proposed occupants. They must have lighting, a solid floor and doors are to open inwards. Timber or timber based products will not be acceptable on balconies. Sliding doors will not be accepted.

Balcony and terrace roofs shall be properly prepared and cured and shall include bonding agents, primers, vapour control layers, membranes, insulation, reinforcement and felt protection layers as required by the chosen system. Balconies shall be designed to be provided with solid floors and edge protection and ensure that rainwater discharges from the balcony effectively and prevents staining to the building envelope and prevent discharge on to the balcony below. Adequate rainwater gullies and downpipes shall be provided to all balconies.

All balconies shall be provided with adequate balustrading. All balustrading shall be self-finished to minimise maintenance and shall not be painted.

Ground floor flats are to have private terraces/balconies with a minimum 1.2m high boundary fence/glazing panel (to match other balconies on building where applicable)

Main entrances onto balconies and roof terraces should be from the living spaces.

Furniture layouts should be shown for balcony and terrace areas to ensure that they are usable. Balconies and terraces should be 1800mm deep as an absolute minimum to allow 4 people to sit around a table. Where in close proximity to neighbouring properties, privacy and screening needs to be considered. Sufficient privacy should be provided without the need for temporary, resident installed screening. Micro climate also needs to be considered, particularly when cited on the south and west of a building and overly exposed to wind and sun.

Balconies and terraces are not to be recessed into the building envelope wherever possible.

10.4 False Chimneys

False Chimneys are to be avoided unless they are a planning requirement. Where they are necessary they are to be faced with brick-slips to match the main building.

10.5 Leadwork

All lead detailing and gauges shall be in accordance with the Lead Development Association details and recommendations and shall receive one coat of patination oil.

10.6 Soffits, Fascias and Bargeboards

Soffits, fascias and bargeboards shall be PVCu, colour to be agreed to Employer. A closed eaves detail is to be provided to prevent infestation by insects and birds to the roof space.

10.7 Parapets

Parapet copings must be adequately profiled and installed to prevent staining the face of elevations and bedded on suitable damp proof courses. Mastic joints are not acceptable.

10.8 Safety Railing or Mansafe access systems

Provide safety railings or mansafe access systems to roof areas where required to allow future maintenance and cleaning operations.

10.9 Roof Access

Provide access to the roof space. Hatches shall be pre-formed, insulated and draught stripped with 'pull tight' catches and are to be minimum dimensions of 550 x 750mm. Lockable loft hatches are to be avoided unless they are in a communal area.

Consider the location of the loft hatch locations to avoid locating above stairways and balustrades to ensure sufficient space for safe positioning of access ladders.

Allow for providing a cat walk from the access hatch to and around any equipment located in the roof space. Decking for access shall be WBP plywood or softwood boarding. Chipboard decking is not acceptable.

Allow for adequate lighting to all roof spaces where access is required for equipment. All lighting shall be controlled by neon indicator switches which shall be positioned in locations agreed with the Employer.

Access hatches are to be provided to flats and common parts.

10.10 Insulation

Roof space insulation to be provided to the requirements of the Building Regulations. Insulation to the roof space shall not interrupt ventilation air flow and purpose made components shall be used wherever possible. Loose fibre, chipping or particle type insulants shall not be permitted.

Inverted roofs where insulation is to be laid on top of the membrane roofing shall be adequately protected from damage until completion of the works.

PIR Insulation is to be avoided

10.11 Entrance Canopies

Provide entrance canopies to all communal and individual entrance doors.

Where possible, all entrance canopies are to have rainwater goods.

GRP porches will not be accepted. They are to be formed of timber with roof tiles to match the main roof.

10.12 Rainwater Installation

Gutters and down pipes are to be PVCu and shall be of sufficient size and fall to discharge all water shed from roofs and gutters to allow easy drainage. Where required gutters shall be provided with suitable wire balloons or leaf guards. Changes in direction of rainwater pipes are not acceptable. All rainwater pipes should discharge into the drainage system and shall be provided with a rodding point where they enter the underground drainage system. Overflow pipes to gutters should be provided.

A rainwater disposal system shall be fitted to all roofs over 2.0 sq. m in area comprising gutters and downpipes.

Provide rainwater butts to all private gardens, off the side of the shed. Sheds to be fitted with appropriate guttering.

Rainwater pipes and gutters shall be self-finished steel or aluminium to flatted schemes.

The Contractor shall test all the rainwater gutters and downpipes to ensure that they are properly aligned, self-draining and do not have any leaks.

Internal rainwater pipes should be avoided. Where internal rainwater pipes are unavoidable the Contractor shall provide casings to the rainwater pipes including providing sound insulating insulation to the pipes.

11.0 STAIRS

Staircases to houses shall be wrought softwood with softwood treads and softwood risers, painted wrought softwood, newel posts and moulded handrails with minimum 32 x 32mm balustrades with suitably finished soffit. Staircases should have closed risers. Open treads to staircases are not permitted. Glazed panels to staircases shall not be used. Winders are only permitted where straight flights are not possible. Staircases constructed using plywood, MDF, fibreboard or particle board shall not be permitted.

Staircases in maisonettes and flats shall be reinforced in-situ or precast concrete.

In flats provide mild steel balustrades and handrails. Balustrades shall be painted and handrails shall have a plastic coated capping.

The void space between the balustrades and the return wall (stair stringer) at should either be designed out in its entirety or be greater than 150mm. See image below showing gap/area to be designed out:



12.0 EXTERNAL WALLS

12.1 Generally

External walls shall be of either traditional cavity construction, or timber framed construction designed in accordance with TRADA standards. The external wall structure shall be designed to achieve the necessary loading, thermal and acoustic requirements of the Building Regulations.

All materials used for the elevational treatments shall be to the approval of the Planning Authority and Employer. All materials used must conform to the relevant standards. The Contractor shall use materials which will not suffer from frost attack, efflorescence or other excessive defects. All brickwork, render and cladding shall be properly cleaned down and left free from mortar, splashes and other stains on completion.

Wall ties should be provided and fitted in accordance with the guidance, current at the time of use.

12.2 Brickwork

Facing bricks shall be through coloured stock bricks. Bricks with an applied face or colour are not acceptable. Second hand, stained or chipped facing bricks shall not be used.

Facing bricks to be solid, aerated bricks should be fully filled or avoided. Facing bricks are the preferred material for external walls.

Facing bricks shall be approved by the Employer and Planning Authority. Pointing shall be with a neat weather struck or bucket handle joint as the work proceeds. Recessed pointing is not acceptable and coloured mortar may not be used unless otherwise dictated by Planning.

Bricks are to be mixed from a minimum of three packs to prevent banding and laid frog up. Perforated bricks having holes fully filled with mortar. Care must be taken to ensure that facing bricks are free from chipping and staining.

Brickwork below the damp proof course level shall be Class B engineering bricks.

Provide 2nr sample panels of each type of facing brickwork and obtain the Employer's approval before proceeding. The sample panel with the correct agreed mortar and pointing will be maintained as a control specimens and removed on completion.

12.3 Feature Work

The Contractor is to allow for all feature work (brick bands, arches, brick-on-edge soldier courses, cills, render bands, etc.) as shown on the drawings or as required by the Planning Authority.

12.4 Wall Ties and Cavities

Wall ties shall be stainless steel (or other approved) of the appropriate length and fully bedded.

Proprietary weep holes are to be provided in a colour to match the brickwork.

Cavities shall be constructed in accordance with good building practice and kept clear of all mortar droppings, rubbish, etc. and shall be closed with thermally insulated cavity closers.

12.5 Insulation to Cavity Walls

Insulation to external walls shall be provided within the cavity and not by drylining. Loose fibre, chipping or particle type insulants shall not be permitted. Cavity insulation shall be kept clear of all mortar droppings and other debris.

If required, partial fill cavity insulation shall be used with retaining clips manufactured by the cavity insulation manufacturer shall be used and shall comply with the thermal requirements of the Building Regulations.

12.6 Movement and Construction Joints

Movement and construction joints are to be carefully located and pointed with a sealant of an approved colour compatible with the colour of the selected facing bricks or external finish, and, where possible, located behind down pipes.

12.7 Cavity Trays

Trays shall incorporate stopped ends and adequate weep holes shall be provided through the external leaf.

12.8 Lintels

Lintels shall be galvanised insulated steel as manufactured by Catnic, IG or similar. Where the underside of the lintel is substantially visible, for example overhanging upper floors forming porch areas, the finish to the soffit of the porch shall be extended to mask the underside of the supporting lintel and edge masked with a stained timber bead, or a rebated timber infill shall be provided to cover the underside of the lintel, with a stained finish.

Arched lintels should be designed to accommodate matching arched window.

12.9 Render

Render, where required by the planners, shall be a through coloured rather than painted. The colour of the render is to be approved by the Employer and Planning Authority.

Stainless steel angle and stop beads shall be used. The rendering and associated detailing are to be in accordance with the manufacturer's instructions.

12.10 Cladding

Cladding should be avoided unless required by the Planners. Where cladding is to be used it should be subject to the approval of the Planning Authority and Employer, be hardiplank or another concrete based product, insulated and in accordance with current Fire Regulations.

The cladding and associated detailing are to be secret fixed in accordance with the manufacturer's instructions.

13.0 WINDOWS AND EXTERNAL DOORS

13.1 Windows - Generally

Windows shall be PVCu with hermetically sealed triple glazed units. The fenestrations and profiles of the windows are to be approved by the Planning Authority and the Employer and the windows shall comply with the following criteria: -

- 10 year guarantee against manufacturing defects.
- 10 year triple glazing unit guarantee against failure of seal.
- Factory fitted glazing with internal beading to BS 5713.
- Factory fitted ironmongery and fittings.
- Multi-point locking system with lockable lever handle.
- Secure and child-proof night vent position on all opening lights.
- Window restrictors are to be fitted to all windows at 1st floor level and above and where overhanging pathways
- All opening lights are to permit the cleaning of all external glass surfaces of the window from within the building using easy clean hinges.
- Factory cut trickle vent slots with factory fitted vent to achieve current Building Regulations. Use acoustic trickle vent where rooms face a road, railway, park, substation or known noise source unless MVHR is utilised
- Weather stripping to achieve severe exposure standards.
- At least one openable casement in each habitable room shall comply with current fire egress standards.
- Two sets of keys per window.
- To improve energy efficiency of design, window sizes and location are to maximise on passive solar gain from southeast through to southwest orientation without causing overheating
- Window openings are to be at a height that do not require additional guarding

All window boards are to be 25mm thick painted MDF or softwood with a rounded front edge and returned ends and project a minimum of 25mm beyond the face of the wall. The junction of window board and window to be adequately sealed. (Bathrooms are to have tiled window cills).

All windows shall be provided with external cills with adequate drips to ensure proper protection and weathering.

Bay and oriel style windows should not be provided, unless included on the planning drawings.

The position of opening lights is to be carefully considered so as not to be restricted by adjacent sinks, baths and the like. Opening lights shall not be positioned at high level so as to prevent easy operation. Where opening lights are positioned in locations that may present difficulties in opening the Contractor shall provide suitable remote opening mechanisms. All opening lights shall be sized and hinged to permit cleaning of all external glass surfaces of the window from within the dwelling or communal area.

The Contractor shall provide a sample window for approval by the Employer prior to ordering the windows. The sample provided by the Contractor shall be provided with the ironmongery to be use fitted to the sample.

Rooms provided with patio, French or balcony doors shall ensure that the doors are provided with sidelights containing opening lights or that the rooms in which the doors are located also contains a window with opening lights to provide sufficient ventilation without the need to open the patio, French or balcony doors.

The Contractor shall ensure the selection of patio, French or balcony doors can be adequately restrained when in the "open" position by the use of restrictors, stays and the like to prevent damage. Sliding doors will not be accepted.

Windows are generally to be side hung casement type windows and, where possible, with a minimum of one secure top hung fanlight per room.

The Contractor shall design and provide windows to communal and non-residential areas that can be safely operated and cleaned from the inside of that area.

Large areas of windows or glazing that cannot be cleaned from the inside shall be avoided but where this cannot be avoided and forms part of the consented scheme the Contractor is required to provide a cleaning strategy for the regular cleaning and maintenance of these areas prior to finalising the design and procuring the materials. The cleaning strategy is to be agreed with the Employer and will include cleaning eyes and other restraints required to enable safe cleaning of the windows.

Components using recycled PVCu are not permitted.

Externally beaded glazing units are not permitted.

Large or insufficient mastic seals between external walls and windows frames are not acceptable.

Mechanical joints are not permitted.

Velux roof lights are not permitted unless they are shown on the drawings or prior approval is obtained from the Employer. Where Velux roof lights are acceptable they shall be provided with child proof safety catches and poles for opening.

A painted 50 x 25mm softwood battens shall be provided for curtain rails to all windows and external doors, and shall project 150mm either side of the window opening.

13.2 Glass and glazing

Windows shall be glazed in clear glass with obscure glass to bathrooms and WC's. the obscured glazing shall be sandblasted not patterned. All glazing shall be internally beaded.

Laminated safety glass shall be used in all windows where required by the Building Regulations including windows on staircases.

All glass shall be free from scratches, bubbles, stones, or other defects. Defective glass will not be accepted and will have to be replaced by the Contractor.

All safety, laminated and Low E glass shall be properly kite marked to identify the glass installed.

13.3 Window Ironmongery

All window ironmongery shall be good quality and robust and match colour of window.

13.4 Mastic sealant

The gaps between the external wall and the window and door frames shall be neat and pointed with a sealant of an approved colour compatible with the colour of the selected facing bricks or surrounding material.

13.5 External doors - generally

External doors and frames shall be as stated on the planning drawings. External doors are to be approved by the Planning Authority and the Employer and shall comply with the following criteria:-

- 10 year guarantee against manufacturing defects.
- 10 year double glazing unit guarantee against failure of seal.
- Factory fitted glazing and beading to BS 5713.
- Factory fitted ironmongery and fittings including letter plate to front door.
- Weather stripping to achieve severe exposure standards.
- Supplied by an ISO 9000 registered company.
- Certified to PAS 24 standards.
- All outward opening doors are to have wind restraints.
- All external doors to be Part M compliant

Natural light should be optimised using either glazed fanlights or side lights to the main door. Side lights as well as glazing within front doors should be obscured.

Individual entrance doors to flats shall be solid core flush doors to the approval of the Employer.

Rear doors are to have a solid panel at the base.

Main entrance doors shall have a minimum clear opening of 800 mm.

External doors, apart from main entrance doors, are to have a minimum clear opening of 750 mm.

The reveal for all external doors to be wide enough to allow for quality finish behind door hinge and fitting of a door chain

13.6 Glass and glazing

All glazing shall be internally beaded.

Laminated safety glass shall be used in all windows where required by the Building Regulations including windows on staircases.

All glass shall be free from scratches, bubbles, stones, or other defects. Defective glass will not be accepted and will have to be replaced by the Contractor.

All safety, laminated and Low E glass shall be properly kite marked to identify the glass installed.

13.7 External Door Ironmongery

All external door ironmongery and furniture shall be good quality satin anodised aluminium.

Door stops shall be provided to all inward opening doors.

Ironmongery to front entrance doors shall include the following:-

- Heavy duty washer butt hinges
- Door numerals. Door numerals should be fixed to individual doors on flats where doors are in a communal area. All external main entrance doors to have number plate fixed to wall at side of door
- Door Knocker to match door furniture
- Door viewer/spy hole
- Security chain or stay
- Five lever cylinder mortice deadlock multipoint locking system.
- Split spindles will not be accepted
- Letter plate with draught sealed internal cover and anti-vandal shroud. Letter plates are not required to individual entrance doors in blocks of flats

Maximum height of level threshold is to be 15mm (in accordance with the Building Regulations) and have an Acco or similar external drain across the width of the door opening. Weatherproofing detail to be approved by the Employer.

Ironmongery to rear entrance doors shall include the following:-

- 3Nr heavy duty washer butt hinges
- 2Nr hinge bolts if door opens outwards
- Five lever cylinder mortice deadlock multipoint locking system, key operated from both sides, and door handle set
- Outward opening doors

All exposed frames to have a minimum rebate of 25mm and water bars should be rebated by at least 19mm.

13.8 French/Patio Doors

French doors to be supplied by window manufacturer with 5 lever cylinder mortice deadlock multipoint locking to master door, lever action flush bolts to slave door operated by handle or simple catches incorporated in leading edge with overhead restrictors to hold door open in 90 Degrees position with additional facility to pop restrictor off and open door approximately 170 degrees and hold fully open on cabin hook and eye to all doors incorporating sidelights. If handle is likely to clash with sidelight glazing then an appropriate door stop to be incorporated at low level to prevent clash.

Where patio or French doors are provided then an additional means of providing external ventilation shall be introduced in the form of an opening side light.

French/patio doors, must have heavy duty hinges suitable for the weight of the door and no sliding or bi fold doors will be accepted. Bi fold door may be considered for Shared Ownership and Private Sale properties.

13.9 General

Ironmongery to be consistent across a scheme and is to match colour of external door and window frames.

The gap between the external wall and the door frames shall be neat and pointed with a sealant of an approved colour compatible with the colour of the selected facing bricks or surrounding material.

Components using recycled PVCu are not permitted.

Externally beaded glazing units are not permitted.

External doors with single plywood panels are not acceptable.

Large or insufficient mastic seals between external walls and door frames are not acceptable.

13.10 Communal Controlled Entrance Doors

Communal controlled doors which shall include main entrance doors, inner lobby doors to main entrances and other external communal controlled doors shall comply with the following requirements:

- Communal controlled doors shall be steel or aluminium framed glazed door.
- All doors shall open inwards.
- 1200 x 22mm diameter stainless steel solid pull handle both sides
- 12mm stainless steel continuous finger friendly hinge
- Stainless steel kick plates to both sides of doors
- Stainless steel push plates to both sides of door
- Surface mounted overhead door closer for use by persons with a disability

The audio visual door entry system will comprise the following:

- Flush mounted stainless steel DDA+ compliant entry panel fixed with vandal resistant security screws with one button per unit with flat number; high quality colour camera, proximity access reader; keypad and trade button
- All doors shall be secured with a magnetic locks. The magnetic locks shall be 12-volt DC fail safe/open/unlocked
- External flush mounted fire brigade emergency override switch labelled "EMERGENCY SWITCH"
- Flush mounted door release button internally
- Flush mounted break glass emergency door release button with plastic cover labelled "DOOR RELEASE EMERGENCY RELEASE"
- A surface mounted plastic unit comprising telephone and door release button will be provided in each flat adjacent to the front door of the flat. This unit will have the capability to have an induction loop fitted to the loudspeaker in the ear piece of the telephone and a surface mounted xenon beacon for the hard of hearing.
- The door entry system controller be provided with an uninterrupted battery to provide 4 hour operation and will be capable of automatically adjusting for Greenwich Mean Time and British Summer Time
- Communal doors are to have a failsafe system locks so in the event of a power loss, the door can be opened

13.11 Communal External Fire Escape Door

Communal fire escape doors will be fitted with a push bar exit system.

13.12 Communal Letter Box System

Provide a surface mounted letter box system manufactured by The Safety Letterbox Company Limited or equal and approved in a location to be approved by the Employer. One letter box is to be provided for each dwelling with two keys and details of where replacement keys can be obtained.

Provide a parcel drop box to each block of flats. Details to be agreed on a scheme by scheme basis.

13.13 Communal External Utility Doors

External utility doors which shall include doors to plant rooms, refuse stores, bike stores and other amenity space doors shall be robust to comply with Building Regulations.

The Landlord's external doors will comprise door handle and deadlock with keypad for entry and must be operable from the inner face by use of a thumb turn to ensure that persons are not accidentally locked in. FB1 and FB2 keys to be avoided where possible

Landlord's external doors where required shall be provided with louvres and integral insect screen. Doors to refuse stores and cycle stores shall be fitted with a handle, bolt and keypad entry.

Landlord meter cupboard doors are to be fitted with a handle and a deadlock with an FB1 key and Tenant meter cupboard doors are to be fitted with a handle and deadlock with FB2 keys. Two keys are to be provided for the landlord and each tenant.

14.0 INTERNAL WALLS AND PARTITIONS

14.1 Generally

Load bearing shall be designed by an Engineer or suitably qualified person and shall take into account all ground and loading conditions.

Non-loadbearing partitions shall comprise either blockwork, timber or metal stud partitions with noggins at all plasterboard edges and provision for equipment fixing position and kitchen units.

The Contractor shall ensure that the walls between dwellings shall comply with the Local Authority's requirements for sound insulation, the minimum requirement for sound insulation shall comply with the Building Regulations requirements and shall be evidenced by the Contractor. The Contractor shall provide sound test certificates or evidence of registration and compliance with robust details. Separating walls shall be extended into the roof space and shall be adequately fire stopped at the junction of dwellings and roof.

All studwork to bathrooms and WC's shall be lined with minimum 18mm WBP plywood to their inner face to allow supporting the future installation of grab rails and other mobility aids and are to be subsequently covered with plasterboard.

All blockwork walls shall be provided with the appropriate damp proof courses, wall starters, bed reinforcement, soft joints and the like in accordance with good building practice.

Board materials to be tiled shall be moisture resistant and of sufficient thickness to avoid flexing.

Proprietary pre-fabricated partition systems and laminated plasterboard partitions are not acceptable.

Sound insulating material shall be provided in all stud partitions to habitable rooms, bathrooms, WCs and shower rooms and as required by the Building Regulations.

Stud partitions that house, cylinders, heat interface units and other items of plant shall be insulated to prevent noise nuisance and heat gain into adjacent areas.

All plots to have fully ply lined bathrooms and WC's, & kitchens where there are stud walls

15.0 INTERNAL DOORS

15.1 Generally

Internal doors shall be vertical panelled, cottage style solid core and painted doors.

All fire rated internal doors shall have intumescent strips, smoke seals, additional hinges, etc. to comply with the Building Regulations.

Allow a 15 mm gap below all internal doors to accept carpet subject to Fire Regulations.

Allow for 10 mm gaps clear of floor finishes under doors for ventilation where required by the Building Regulations.

Robust, skirting mounted door stops are to be provided for all doors.

Door frames and linings shall be painted joinery quality softwood with painted softwood with 65 x 18mm MDF 10mm pencil round architraves.

Consideration should be given to either full height doors to increase the sense of space within circulation areas or fanlights over doors to allow natural light to permeate into circulation areas to increase a sense of light and space and reduce running costs.

15.2 Communal doors

Communal internal doors shall be complete with associated clear fire rated vision panels. Georgian wired glass is not acceptable.

Communal internal doors shall be fitted with heavy duty door closers, door separates, magnetic hold open door devices, D-handles and push and kicker plates to both sides.

Doors to communal AOV(s), service risers, access panels or meter cupboards shall be fire rated as necessary.

15.3 Ironmongery

All door furniture and ironmongery shall be good quality, satin anodised aluminium finish.

All doors shall be fitted with 1½ pair of heavy duty butt hinges and mortice latch and handle set.

Bathrooms and WC's doors shall be fitted with mortice thumb turn internally with emergency coin release from the outside. Sliding bolts must not be fitted to the inside of bathroom doors.

Cupboards that can be closed from the inside shall be fitted with a mortice lock set with handles on both sides.

Doors to airing cupboards and storage areas shall have storey height frames with an upper door to maximise storage space where the floor to ceiling height allows this.

Door furniture shall be fitted to doors 1050mm above finished floor level.

Door handles should be through bolt not screw fitted

Concealed fixing roses to door handles plates are not to be push fit they should be screw fit.

Pressed aluminium will not be accepted

16.0 WALL FINISHINGS

16.1 Plasterwork

All walls to be either two coat plastered or 12.5mm thick plasterboard, taped, jointed and skimmed with thistle board finish plaster. All plaster work is to be brought to a fine trowel finish ready to receive decorations. Bonding plaster must not be used. Galvanised mild steel angle and stop beads are to be used to all arises and ends.

Plasterboard surfaces to be tiled shall be suitably sealed. Moisture resistant plasterboard must be used in kitchens, bathrooms and WC's.

Junctions between windows and external door frames and internal wall finish must be finished with an approved mastic sealant.

All pipework, ducting and flues are to be concealed with boxing.

16.2 Wall Tiling

All wall tiles are to be 150 x 150 mm bumpy white glazed tiles with white water resistant grout.

Tiling above kitchen worktops is to be the full height between the worktop and underside of wall unit or 4 tiles high where there are no wall units. In the cooker space they should extend from skirting level to top of the wall unit

Window cills in kitchens and WC's should only be tiled if directly above the sink.

Two courses of tiles are to be provided above wash hand basins in WC's.

Tiling above baths are to be provide on all three side from the top of the bath to the underside of the ceiling.

Wet rooms are to have full height tiling to all walls.

Proprietary white edge trims and white mastic is to be provided to all exposed edges of tiles.

Tiling is to be returned in the window reveals where it falls within a tiled area, but a softwood window board is to be provided to the cill. Cills in bathrooms to be tiled where it falls within a tiled area.



Wall tiling shall be set out so as to avoid unnecessary cut tiles at edges and margins. There must be a maximum 5mm gap between underside of tiling and bath / basin / shower / tray / worktop etc. before the silicon bead is applied.

Duct and pipe boxings are to be tiled if within a tiled zone. Where required, proprietary access panels shall be provided.

Sheet vinyl panels in lieu of tiling in bathrooms will also be considered but is to be agreed in writing with Eastlight on a scheme by scheme basis.

16.3 Skirtings and Architraves

Skirtings are to be painted 100 x 18mm MDF with minimum radius 10mm pencil rounded tops.

All skirting, architraves and trims shall be securely fixed to their backgrounds.

Coved skirting is to be provided in all wet rooms

17.0 FLOOR FINISHINGS

17.1 Screeds

All screeds to concrete floors shall be a minimum of 65 mm thick, level, wire reinforced, free from imperfections, damage and stains and ready to receive floor finishes. Screed boards will be considered where underfloor heating is utilised.

17.2 Floor Coverings

Allow for non-slip vinyl sheet flooring R10 rated to kitchens, bathrooms and WC's and sealed silicone sealant at junctions of floors and walls laid in accordance with the manufacturer's instructions. Where applicable, the vinyl floor finish is to extend under removable panels/units in kitchens and bathrooms. All vinyl should be wood effect and joints should be avoided

Vinyl shall be sealed at all edges with an approved colour matched silicone sealant.

Wet room floors are to have a fall to gulley (pumped if required) with an Altro Marine vinyl sheet flooring with coved skirting.

All screeded floors to have sheet vinyl in wood effect

All wooden flooring to have all staples, snots etc cleaned off

Wooden thresholds are to be provided between all doors except where kitchen/diner which is to be continuous vinyl

Where stairs are concrete in communal areas they are to be hardwearing carpet with 10 year warranty, with minimum 2.5 tog underlay with communal flooring to match

Ribbed barrier matting is to be provided to all communal entrance doors, the full width of the opening and at a depth to be agreed on a scheme by scheme basis

Tarkett or equal approved 2mm thick homogeneous sheet compact solid vinyl flooring is to be provided to all communal areas including cleaners cupboards and store, staircases and landings laid all in accordance with the manufacturer's instructions using adhesive recommended by the manufacture. All joints are to be sealed with matching welding rod. The colour of the sheeting is to be agreed with the Employer.

Aluminium nosings with non-slip inserts of contrasting colours are to be provided to all communal staircase treads.

Floor paint is to be provided to all concrete Plant Rooms and the like.

Where required acoustic underlay is to be provided to flats. Where acoustic underlay is provided a vinyl floor finish unless otherwise stated in this Design Guide.

All flooring is to be laid with the minimum number of joints.

A self-levelling screed is to be used where required to prevent an uneven floor finish.

The Contractor shall ensure that all floor coverings are protected until completion of the works. Scratched, stained or otherwise damaged floor finishes shall not be accepted.

18.0 CEILING FINISHINGS

18.1 Plasterwork

All ceilings to be finished with 12mm foil backed plasterboard, skimmed with a Thistle board plaster, and painted with a mist coat and two full coats of white vinyl matt water based emulsion, bathrooms are to be finished with vinyl silk emulsion. Ceilings in toilets, bathrooms and kitchens shall be moisture resistant plasterboard.

Galvanised mild steel angle and stop beads are to be used to all arises and angles.

Direct decoration to plasterboard is not acceptable.

Artex or other forms of textured finish are not permitted.

An MF ceiling is to be provided in communal areas with proprietary access panels provided where access to services above are required.

18.2 Lofts

A proprietary loft hatch is to be provided to the roof space in all houses. The loft hatch is not to be above the staircase and is not to have a lock with a key.

A lockable loft hatch is to be provided above communal areas in flats. The loft hatch is not to be above the staircases or in cupboards. A lockable loft hatch is to be provided in communal hallways in flats.

Lay in grid suspended ceilings will not be permitted.

19.0 DECORATION

19.1 Decoration

Decoration to wall and ceilings will be painted with a mist and two coats of water based matt emulsion generally. Decoration to bathroom and kitchen walls and ceilings are to be moisture resistant vinyl silk emulsion finish.

All joinery shall be knotted, stopped and primed all round before fixing. All joinery shall be prepared, knotted, stopped, primed and painted with a minimum of two undercoat and one white satinwood paint finish. Gloss is not to be used.

Decorations to all internal and external surfaces shall receive an applied decoration to achieve a minimum life of five years before maintenance redecoration is required.

All paint colours are to be agreed with the Employer.

All radiators are to be self-finish. All paint to heating pipework shall be heat resistant.

Two coats of an approved preservative is to be provided to all holes and cuts formed after timbers have been treated with preservative. Non-ferrous metals shall be primed with a calcium plumbate primer. Acrylic primers shall not be used

All metalwork including exposed pipes shall have all oil and grease removed before painting and shall be primed and painted with two undercoats and two finishing coats of full satinwood paint.

Galvanised steel to be shall be thoroughly and evenly coated and free from pin holes, lumps, surplus galvanising or other defects. Where galvanised surfaces are cut or scratched, they shall be made good with one coat of "Galvafruid" or similar and approved cold galvanising process.

External paint is to be avoided

20.0 COMMUNAL AREAS

Communal areas are to be provided with all statutory signage, 'No Smoking' signage, fire extinguishers and fire blanket required by the Fire Risk Assessment.

"Fire Door Keep Shut" signs are to be provided to communal doors where required by Building Regulations. "Fire Exit" and "Fire Escape Signage" is to be provided in communal staircase and corridor areas where required by Building Regulations. "Flat Block Name and Flat Numbers" signs are to be provided adjacent to the entrance to each flat block. A sign to read "No Smoking" "Flats X to XX" is to be provided on each floor of the flat blocks.

A Notice Board is to be provided in the communal entrance hall. All signage is to be approved by the Employer.

A lockable cleaners socket (either at the point or from landlords cupboard) is to be provided on each floor

Landlords meter to be lockable separate to flat meters

Lockable key safe to be provided to all flats (wall mounted next to communal entrance door (large enough to hold all landlords keys)

Provide communal sign to say what flats are on what floor to be agreed on a scheme by scheme basis

Flat block name/postal address to be fitted to the external wall of flats

Suitable pram/pushchair storage in communal areas is to be provided, however it is not to impinge on ingress/egress from the building and is to comply with fire requirements.

21.0 KITCHEN INSTALLATIONS

21.1 Generally

Kitchen fittings shall be by either Benchmarx from the options range or symphony. Colours and handles are to be selected by the Employer. Should the Contractor wish to use an alternative range or manufacturer he must provide these details with his Contractor's Proposals at the time of tender and should specify why the above options cannot be used.

Kitchens should have:

- Door line units + a single minimum of 500 draw pack - soft close on everything
- All units - Minimum 300cm with incremental increase of no less than 10cm
- Double units to be used where possible at 800 & 1000 – no units to exceed 1000
- Corner base units to have a minimum 400 door
- 180 degree soft close hinges on all doors
- Tumble dryers must be located on external walls
- Plinth protection required
- A base unit protector under the sink unit
- Kitchen carcasses are to be a minimum 18mm thick.
- Base units shall be a minimum 600mm deep.
- Tray spaces shall not be provided
- No wall units 150mm either side of cooker space
- End panels to be colour matched and carcass to also be colour matched to doors
- Batten to be fitted to underside of draining board
- A broom cupboard at least 500 x 600 x 1500 mm high shall be included in the kitchen layout
- The cooker position and sink unit are to be located in a continuous run with a minimum of 500mm of worktop or drainer space to either side of the sink and cooker
- Where possible, the sink is to be located under a window
- Neither the cooker nor the drainer are to be located in corner positions

Care should be taken to ensure that drawers and doors can be opened fully once all other kitchen fittings and appliances have been installed.

21.2 Appliance Spaces

Appliance spaces should be as follows:

- A minimum 620 mm wide clear space should be left for a fridge/freezer. Fridge spaces shall not be next to cooker.
- Washing machine and dishwasher spaces shall be provided to accommodate a 620 mm wide complete with electrical, water and waste connections adequately capped off for future connections. The service connections shall be located such that the washing machine and dishwasher can be connected without the need for cutting or removing adjacent units. A sacrificial removable base unit may be provided. A deeper worktop is to be considered when plumbing for freestanding appliances is located at the rear of the space, to avoid protruding beyond the worktop.
- Cooker spaces shall be a minimum width of 620mm to accommodate a 600 x 600 cooker. No wall units shall be located directly above the cooker space. Cooker spaces shall be provided with electrical supplies for an electric cooker to include cooker isolation switch cooker connection spurs and socket outlet spur.
- Openings for washing machines, refrigerators, tumble dryer/dishwasher and freezers shall be clear of any obstructions. The floor finish shall be extended into this space.

Service and waste pipes shall be neatly located so as not to affect the storage capacity of kitchen fittings and the positioning of kitchen appliances. All access points shall be easily located.

The Contractor shall provide kitchen plans and elevations to a scale of 1:20 for each kitchen type. The drawings must be approved by the Employer prior to the Contractor ordering the fittings and appliances.

The layout of the kitchen shall ensure that the 'work triangle' of sink, cooker and refrigerator space is not broken by a circulation route across the room. The design shall provide a minimum working space of 1.2m in front of all units.

Pre drilled hole(s) are required in sides of base units, close to the wall, 100 mm below the worktop for services where adjacent to washing machine or dishwasher spaces.

21.3 Worktops

Worktops shall be 600 mm wide, minimum 38mm thick laminate finish with post-formed front edge, with all cut edges sealed and fitted with matching laminate prior to delivery.

Worktops shall be from Benchmarx or Symphony to match kitchen supplier.

Worktops are to be joined with mason's mitres.

All joints and cut to worktops shall be neatly formed edges and shall be sealed with waterproof sealant to prevent moisture damage. All exposed edges to worktops shall be provided with matching laminate, with the exception of cooker spaces which shall be provided with metal edgings. Junctions of worktops are to have neat scribed butt joints at 90° angles. No metal junction strips are to be used.

Scratched kitchen units, worktops, sinks or accessories will not be accepted.

21.4 Sinks

Provide heavy gauge stainless steel inset sinks with a one and a half bowl and drainer, with brushed stainless steel waste, plug and chain and chrome monobloc mixer tap. A batten is to be provided to support the drainer and mixer tap.

22.0 FIXTURES AND FITTINGS

Provide painted wrought softwood decorated curtain battens above all windows French widows and patio doors. Curtain battens shall extend a minimum of 150mm beyond the window reveal and shall be plugged and screwed to the structure.

An airing/linen cupboard is to be provided in all dwellings. The airing cupboard is to comprise three rows of unpainted removable 25 x 50mm wrought softwood slatted shelving. A minimum of three rows shall be provided to each cupboard. Natural ventilation is to be provided to the airing/linen cupboard. A tube heater is to be provided in the airing/linen cupboard. metal guard and neon fused spur to be located in hallway or outside or a/c

Where further internal storage areas as shown on the drawings are provided this is to include removable unpainted wrought softwood slatted shelving to maximise storage and a minimum of 1.5m² shelf area. Storage areas shall be provided with artificial lighting where over 1.2m² in area. Natural ventilation is to be provided to all storage areas to prevent the build-up of condensation and mould growth.

Bathrooms and WC's are to be provided with 450 x 600mm safety glass copper backed mirrors fixed with dome headed screws above all wash hand basins, chromium plated steel toilet roll holder and towel rail. The towel rail is to be positioned over the radiator.

Wetrooms are to be provided with a full length mirror or where this is not possible 2Nr 450 x 600mm safety glass mirrors.

A shelf is to be fitted above sinks in wet rooms

A shower rail and curtain is to be provided at each shower position.

A Leifheit Telegant 70 wall mounted clothes airer or other similar and approved is to be provided to each bath position to all flats.

Hat and coat hooks to be provided, (2Nr. per bedspace to a maximum of 6). Hooks to be brushed SAA screwed to a painted softwood rail, the location of which is to be agreed with the Employer.

Where units have no private garden an 'A' Frame airer is to be provided.

23.0 SANITARY APPLIANCES

23.1 Generally

Sanitaryware shall be white from an approved supplier (Armitage Shanks or other equal and approved).

All sanitary appliances shall be capable of being easily isolated by using inline isolator valves.

Where products are not specified the Contractor shall select water efficient taps, showers and toilets which incorporate aerated taps and showerheads, flow regulators, low flush toilets and the like to encourage water saving and improving water quality. Sanitary appliances, pipework ancillaries and brassware will be designed to ensure that water consumption is kept to a minimum and achieves the Building Regulations criteria for water use.

23.2 Taps

Taps shall be chrome aerated taps.

Single mixer taps should be provided to bathrooms and WC's

23.3 WC's

The location of cisterns and design of the plumbing installation shall minimise noise transmission, cisterns shall not be positioned on party walls.

WC suites shall be close coupled WC pans with horizontal outlets, 4/2.6 litre cisterns with dual flush valve and seat and cover.

Cisterns shall be securely fixed and pans shall be fixed with Domex screws.

Joints between WC traps and wastes shall be made using proprietary connections with self-sealing connectors.

23.4 Baths

A 1700 x 700 mm long acrylic bath with grab handles and non slip bottom is to be provided with painted WBP plywood side and end panels fixed with brass cups and screws.

Baths to have grab handles

A shower curtain and rail to be provided to all baths. The rail must be screw fixed not pressure or suction fitted

23.5 Shower Fittings

A full height shower curtain and rail to be provided to all wet rooms. It needs to enclose the proposed shower area (min 1.2 x 1.2m²). The rail must be screw fixed not pressure or suction fitted

A chrome plated shower mixer valves exposed thermostatic shower pack.

Showers should be typically Triton T80 Pro Fit or Triton Omnicare both in 8.5Kw. (Note the Omnicare has variations of model number if a waste pump is used, one for analogue pumps another for digital.)

23.6 Wash Hand Basins

Sinks shall be of a suitable size sufficient to wash in.

A metal plug is to be provided to all sinks not plastic or rubber. All plugs to be on chains, pop up wastes will not be accepted.

Metal plugs are also to be fitted to all sinks in disabled plots. Sinks to disabled bathrooms to be sufficiently large enough to enable the resident to shave and wash effectively (min 600mm wide).

Wash hand basins shall be vitreous china with pedestal to bathrooms.
Allow for wall mounted wash hand basin on heavy duty wall brackets to separate WC's.

Taps are to be Bristan 3" lever, chrome to BS 1010. Spray taps shall be fitted to wash hand basins.

Wash hand basins to bathrooms shall be 550mm wash hand basin with one tap hole, chrome plated captive flip waste and overflow (no chain stay hole) complete with pedestal.

A chrome single lever wash basin mixer tap is to be provided to wash hand basins.

24.0 SOIL, WASTE AND OVERFLOW PIPE INSTALLATION

24.1 Soil, Waste and Overflow Pipework

All internal visible soil, waste and overflow pipes shall be white.

All external visible soil, waste and overflow pipes shall be black.

Internal soil stacks shall not pass through living accommodation where possible. All soil stacks and waste pipes shall be in ducts and adequately insulated against noise transmission. Soil stacks without sound insulation will not be accepted.

All overflow pipes shall discharge to outside the building.

All overflow pipes for hot water must be copper.

All overflow pipes located in the roof space shall be insulated.

Soil and waste pipes shall be properly supported and include cleaning and rodding points which shall be easily accessible.

Cleaning and rodding points shall be provided at each floor level as a minimum. The position of all cleaning and rodding points.

Standpipes shall be trapped and have removable caps.

Proprietary flashings are to be fitted to all pipes passing through roofs and a ventilating cowl shall be fixed to the head of each pipe.

All traps are to be white HD polythene two piece traps with a 75mm deep seal.

Soil and waste pipes shall be of appropriate materials taking into regard their location. In particular soil and waste pipes in vulnerable locations such as basement or undercroft car parks shall be in cast iron. The Contractor shall also take into the consideration the fire safety requirements of the Building Regulations when selecting the materials for soil and waste pipes. The Contractor is to ensure adequate fire stopping and compartmentalisation is achieved.

The soil, waste and overflow installations above ground level are to be in UPVC pipes and fittings and shall comply with the requirements of the Building Regulation.

All pipe runs, fittings and controls are to be designed to prevent air blocking within the system and facilitate complete drainage. Condensation overflows should, where possible, terminate internally. If they must terminate externally the pipes must be insulated to current standards and terminate over a drain.

Soil and vent pipes shall be located in ducts and insulated with Rockwool quilt. Proprietary access hatches are to be provided in the ducts adjacent to access rodding eyes on each floor on soil stacks and at air emittance valves where provided. Where air emittance valves are provided suitable ventilation is to be provided to the WC side of the boxing.

24.2 Wastes and Overflow Pipes

Wastes and overflow pipes are to have will have Solvent welded joints. Overflow pipes to be clipped where passing through roof space and lagged as necessary. In all situations they should project by 100mm from face of building and terminate with a 90 degree bend fitting.

24.3 Testing

The soil, waste and overflow installation is to be tested and commissioned.

25.0 PIPEWORK GENERALLY

All equipment, plant, stopcocks, control valves, meters and fittings shall be properly identified and labelled as to their use. Labelling and identification shall be by use of engraved metal or traffolyte tags or identification plates.

All pipework shall be concealed with adequate access provided.

All exposed pipework (where not boxed in) must be painted.

All pipework passing through concrete, masonry and other materials must be properly sleeved and protected against corrosion.

All pipework within communal areas and risers shall be in iron, steel or copper.

All pipework must be hidden, buried or concealed and only where this is not possible or for final connections shall exposed pipework be accepted. Excessive lengths of boxing will not be accepted to meet this requirement.

The Contractor is to ensure adequate fire stopping and compartmentalisation is achieved.

All plastic pipework and associated fittings shall be from the Hep20 system or similar approved which shall be installed strictly in accordance with the manufacturer's instructions.

Pipework shall be fed via manifolds and shall be in continuous runs from the manifold to the radiator or fitting that it supplies without any joints in the running length.

All manifolds and pipework shall be suitably located and neatly installed.

All manifolds shall be easily accessible for maintenance. Additional access hatches should be avoided but shall be provided where necessary to allow maintenance.

Pipework runs shall take the most direct route to the fittings and be agreed with the Employer. Pipework concealed in floors and walls shall be positioned in "safe zones" which shall be recorded on record drawings which are to be included in the Health and Safety File.

Plastic pipework concealed in screeds or walls shall also be masked with metallic tape to enable detection by a pipe detector.

All pipework shall be properly fixed and supported.

The Contractor shall pressure test and inspect the installations on a regular basis to ensure that materials and workmanship are satisfactory.

26.0 COLD WATER INSTALLATIONS

26.1 Generally

A metered cold water supply shall be provided to each dwelling. Water meters are to be provided and fitted in accessible positions.

Stopcocks shall be provided in agreed positions where the incoming main enters the dwelling. All stop valves and drain down valves must be provided at the appropriate locations.

All stopcocks, control valves, meters and fittings shall be located in visible and accessible positions. In schemes with flats additional stopcocks shall be located in a lockable riser cupboard or ceiling voids outside of the dwelling entrance to allow control of the cold water supplies without having to enter the dwelling. Proprietary access points shall be provided where required.

All stopcocks, control valves, meters and fittings shall be properly labelled with engraved metal or traffolyte tags with details also being provided in the Health and Safety File. Service valves are to be provided in appropriate locations to allow for isolation of all elements during maintenance and renewal.

All pipes serving kitchen, sanitary appliances and plant shall incorporate in-line isolator valves to allow the appliances or plant to be disconnected and replaced.

All pipes must be neatly fixed and properly supported. Cold and hot water supplies shall be positioned so that hot water supplies do not heat up any adjacent cold water supplies.

Provide all necessary overflow pipes. Overflows shall be sensibly located and discharge externally in positions so as not to cause damage to the fabric.

Cold water supplies to the sink and basins shall be mains fed.

A cold water supply, hose connector and waste outlet to be provided to dishwasher space or future dishwasher space behind a removable unit, with a capped off isolator hose connector.

A brass bodied external tap with a non-return valve and hose union should be provided adjacent to the refuse enclosure and communal garden watering points in flats. The external tap watering points shall be connected to a landlord water supply and must be provided inside a lockable container, isolated with a stop valve and will be fully insulated. Where possible, the external tap should be positioned over a gully/drain.

In all plots the Contractor is to provide a sure stop switch system (or similar approved) in lieu of a stop cock for easy access.

26.2 Communal Water Supplies

Provide a separate cold water supply to each dwelling of adequate size and flow to meet the peak demands with a landlord metered water supply or sub-meters to each flat.

Pumped boosted water supplies shall be provided where necessary to provide adequate flow rates. Pumped boosted water supplies will be expected in developments of significant size or with three or more floors.

Booster pumps shall be obtained from a recognised supplier and shall consist of a minimum of three variable speed pumps with inverter controls arranged as duty, assist and standby. The booster pressure shall be sufficient to overcome the static head and the pipework pressure drop at the design flow rate and supply water at 3.0 bar.

The tops of all risers in boosted water supplies shall be fitted with anti-shock and vacuum break valves.

Pipework used in boosted water systems shall be MDPE (where underground) or copper, galvanised steel or high quality plastic (Aquasystem or other equal and approved). Pipework shall be sized not to exceed 1.5m/s velocity at design flows to avoid velocity noise. All pipework above ground shall be insulated and vapour sealed to prevent unwanted heat gain.

The installation of boosted water supplies shall conform to the requirements of BS 6700 current at the date of installation.

Individual or communal water tanks shall be provided as necessary. All tanks shall have the appropriate capacity. All tanks shall be properly supported, be insulated and have appropriate covers and be capable of isolation. Float valves shall be the equilibrium type.

All tanks shall incorporate overflow and warning pipes which shall be located so that faults can be promptly detected and any discharges will be routed so as not to cause any damage to the plant room or building. All pipes and tanks in exposed spaces must be properly insulated with preformed insulation sleeves to pipes.

All tanks shall be provided with a Hydromag electromagnetic water treatment unit manufactured by Hydrotec Limited and shall be suitably sized for the system being provided.

Notwithstanding the above where possible communal water tanks should be avoided.

27.0 GAS INSTALLATION

27.1 Generally

Gas installation is not required on any development.

28.0 HEATING AND HOT WATER INSATLLATION

28.1 Generally

Manifolds for pipe in pipe systems shall be located in airing cupboards.

MDPE pipework in lieu of copper may be used for cold water mains. MDPE pipework shall have suitable compression fittings (Philmac or other similar approved). All MDPE pipework shall be designed to withstand a pressure of 12.5 bar, operate at 3.0 bar and shall be tested to 10.0 bar. The Contractor shall provide a certificate to confirm that the MDPE pipework has been tested and meets the design criteria.

Provide hot water supplies to each dwelling of adequate size and flow to meet the demands.

A hot & cold water supply, hose connectors and waste outlet is to be provided for a washing machine in the adjacent kitchen base unit.

All control valves shall be in accessible positions and properly labelled with metal or plastic tags.

The overall design objective of the services systems design is to achieve optimum efficiencies and reduce operational and maintenance risks.

The whole of the plumbing, mechanical, heating, ventilation, electrical, lift and all other services installations shall comply with the requirements of any statutory instrument, Local Authority, Statutory Undertaker.

All services, plant and systems should be designed to ensure that energy consumption is kept to a minimum within the constraints of the specified operational parameters.

All services installations shall be designed and constructed to enable easy access for maintenance and renewal of plant, equipment and controls.

The Contractor shall provide two sets of coordinated Construction Drawings for the whole of the plumbing, mechanical, heating, ventilation, electrical, lift and all other services installations for comment by the Employer. The drawings shall be provided at least four weeks before any services installations commence on site. Drawings shall be provided in electronic format as well as two sets of paper documents.

Drawings shall show the location and routes of all services pipework, plant, equipment, electrical points and controls. Services drawings shall also be co-ordinated with the furniture layouts to ensure that the location of all services pipework, plant, equipment, electrical points and controls are suitably routed and located. Coordinated kitchen and services layouts are to be provided to the Employer for approval.

The Contractor shall provide all design calculations in support of his design as requested by the Employer or the Employer's Services Consultant (e.g. flow calculations, heating calculations, sizing calculations, etc.).

The Contractor shall ensure that all plumbing, mechanical, heating, ventilation, electrical, lift and all other services installations are adequately protected during the course of the Works until Practical Completion. The Contractor shall ensure that all open pipe ends are temporarily capped and protected to prevent dirt, dust and foreign bodies from damaging the installations.

Whole house heating is required to meet the design temperatures and ventilation assumptions set out in Energy Saving Trust Good Practice Guide 79. A heater or radiator is to be fitted in each room (including entrance lobbies of 1st floor flats) of the house or flat.

Air Source Heat Pumps are to be installed in lieu of gas boilers. Adequate space is to be allocated in cupboards to accommodate the equipment

A detailed design of the proposed installation, complete with heat loss calculations showing due regard to the thermal requirements of the dwelling shall be provided. Design calculations shall assume that any adjoining property is unheated and radiators shall be suitably sized.

Consideration must be given in the designing of systems for larger dwellings, to zoning off sections of the property to comply with Building Regulation requirements. Automatic control of the system shall consist of a three port or zone valves. A room thermostat shall generally be located in the main living room or in a central area where there is a sufficiently large heating requirement to allow the thermostat to provide good control.

The position of radiators shall be agreed with the Employer.

An appropriate chemical corrosion inhibitor as manufactured by Sentinel shall be installed within the heating system in strict accordance with the manufacturer's instructions.

Controls for heating installations shall be robust and shall include a time clock and programmer. Controls shall be located in the kitchen giving independent control of hot water and heating systems.

Heating temperature is to be controlled by a thermostat located in the hallway adjacent to the living room door.

The heating system shall be left in operation for at least 72 hours and then drained down, flushed through and recharged.

Inhibitor by Sentinel shall be added to the system when recharging.

Provide an electro-magnetic water descaling device to heating and hot water systems.

Heating system controls, such as thermostats, shall be designed for good usability in accordance with the principles set out in BSRIAs "BCIA 1/2007 Controls for End Users".

The heating installation shall provide the following minimum temperatures when the outside temperature is -30°C , allowing for the appropriate level of air changes:-

Accommodation:

ROOM	TEMPERATURE
Living and dining	21°C
circulation areas	21°C
bedrooms and hallways	18°C
Bathrooms and WC's	21°C
Kitchens	21°C

Heating is not required in communal halls, staircase and corridor areas within flats.

The system is to be designed and correctly sized for the actual heat loss from each individually heated area.

Radiators shall be wall hung factory finished Kite marked pressed steel with roll top design and located so as not to impair movement and the placing of furniture and fittings.

Microbore shall not be permitted.

Systems shall be capable of being drained down with a drain tap at the lowest point of the heating system.

Pipework shall not be buried in concrete floors, preformed ducts shall be used including skirting ducts. Pipework passing through joists shall be sleeved, with all holes and notching taking into account the structural integrity of the joists and maintenance access. Fixing centres for pipework shall not exceed 600 mm.

Heating and primary hot water pipes shall, where required, be adequately insulated with rigid taped insulation.

Smart controls are required to all heating and hot water systems to Rented, Shared Ownership and Private Sale properties.

28.2 Heating Controls

A room thermostat is to be located either in the hall or on the landing with TRVs on radiators elsewhere. The programmer is to be located in the kitchen.

28.3 Corrosion Inhibitors

A corrosion inhibitor to the correct proportions shall be added to the water within the system.

28.4 Circulating Pumps

Circulating pumps should be Grundfos low energy pumps or similar approved.

28.5 Motorised Valves

Motorised valves should be manufactured by Danfoss or similar approved.

Pipework or fittings must not be notched into floor joists. Where notching cannot be avoided metal protection plates shall be provided over the pipework.

Pipework or fittings must be routed so as not to obstruct or restrict appliance spaces.

28.6 Ductwork

Pipe casings in bathrooms and kitchens shall be clad in waterproof MDF.

Where the construction of insulated floors and ceilings does not permit pipework to be run in the floor space, skirting ducts shall be provided.

Automatic Openable Vents (AOVs) shall be provided in the communal areas as appropriate to deal with overheating issues. AOVs should be heat activated at 25°C and not smoke activated.

28.7 Testing and Commissioning

On completion of the works the Contractor shall test and commission the whole of the plumbing, mechanical, heating, ventilation, electrical, lift and all other services installations and leave them all in good working order.

The Contractor shall provide as a minimum, test certificates for each dwelling for the following:

1. Certificate of compliance with the Water Supply (Water Fittings) Regulations.
2. Certificate of compliance that the electrical installations have been installed and tested to BS (IEE Wiring Regulations). Test certificates must be modelled on those in BS.
3. Test certificates for the Lift Installations.
4. Test certificates for the renewable technologies installed.
5. Test certificates for the sanitary and disposal installations.
6. Video survey of drain pipes from property on CD.
7. TV aerial and satellite signal strength test for communal systems.
8. ASHP commissioning certificates (dated no longer than a month prior to the handover date)

All test certificates must identify the postal address of the scheme and the plot number of the unit to which the test certificate applies where applicable. Individual test certificates must be provided for each installation tested and separately scanned to the Employer and a copy is to be included in the Health and Safety File. Incomplete or unsigned test certificates will not be accepted.

The Contractor is to allow for testing the whole of the plumbing services, waste pipes and fittings, and all labour, appliances and water provided for so doing, until the new plumbing services are in working order.

Test the whole of the cold and hot water installations, flush through and leave in good working order.

All tests shall be carried out to the satisfaction of the Employer's Agent and shall be at the Contractor's expense including the cost of fuel and electricity.

The Contractor is to be available when residents take occupation, and for a second visit at a date arranged by the Employer, to demonstrate how equipment works in the properties. Training is also to be given to the Employer's staff.

28.8 Low and Zero Carbon Technologies

Air Source Heat Pumps are to be installed to every plot. The location and manufacturer of the equipment is to be approved by the Employer.

Where dwellings are designed to achieve an air test below 3.50 m³/ (h m²)@50pa a MVHR system is to be fitted. They should have a minimum efficiency of 90% and to optimise performance, units should be positioned no further than 2m away from external walls where possible.

29.0 ELECTRICAL INSTALLATION

29.1 Generally

The electrical installation shall, as a minimum, be in accordance with the attached Schedule of Electrical Fittings hereafter.

The whole of the electrical installation shall be carried out in accordance with the latest Edition IEE Regulations and to the requirements of the Local Electricity Authority; the works shall be carried out by an NICEIC Contractor.

All electrical equipment supplied and fitted by the Contractor shall be BS and/or BEAB approved.

Switches and socket outlets are to be flush fitting.

All switches and sockets to be MK Logic Plus white plastic or equal and approved.

All cable runs are to be concealed within the fabric of the building or in the roof space. Cables buried in plaster or screed shall be conduit protected.

To be in accordance with NHBC/ requirements and IEE current regulations and shall be tested prior to handover and an approved test certificate shall be provided.

29.2 Digital Connectivity

The Contractor should provide, where available:

- User friendly smart controls that optimise system efficiencies
- Self-learning heating controls and smart thermostats
- Low energy smart lighting incl. motion activated lighting
- Electricity and energy reporting via digital display and internet metering
- Digital reporting of maintenance requirements of plant and faults
- Low energy electrical devices and appliances
- Smart charging
- 5G internet and digital TV

29.3 Mains installations

Each unit shall have a separate electrical supply connected to a split load CCU manufactured by MK or equal and approved.

Consumer unit to be located within a suitable casing, in an accessible location in the hall. Consumer units shall be fitted with miniature circuit breakers and RCD protection. The unit provided is to have capacity for at least two additional circuits. The location of the Consumer unit shall be agreed and approved by the Employer prior to fixing.

Electric meters to houses shall be located in an external meter cupboard. Meter location in flats are to be agreed with the employer.

“Smart” meters that enable remote meter reading shall be provided.

29.4 Circuits

A minimum of two lighting and two power circuits shall be provided to each dwelling. In the case of houses, one to each floor.

29.5 Power and lighting installations

The electrical installation shall, as a minimum, be in accordance with the below Schedule of Electrical Fittings as follows:

ROOM	REQUIREMENT
Kitchen	4 double outlets above worktop (all dwellings)
	1 single outlet adjacent to cooker
	Cooker control panel with neon indicator
	Fused spur with un-switched socket at low level for fridge/freezer
	Fused spur with un-switched socket at low level for fridge/freezer
	Fused spur with un-switched socket at low level for washing machine
	Fused spur with un-switched socket at low level for dishwasher
	Fused spur with un-switched socket at high level for the connection of a cooker hood
	Ensure at least 1 socket is on each run of worktop or distributed evenly
Living Area	4 double switched socket outlets. Sockets are to be coordinated with the telephone and TV positions. TV point
Dining Area	2 double switched socket outlets
Hallway	1 single switched socket outlet at each level
Double Bedrooms	4 double switched socket outlets. Sockets are to be coordinated with the TV positions. TV point
Single Bedrooms	3 double switched socket outlets. Sockets are to be coordinated with the TV positions. TV point
Airing Cupboard	1 un-switched socket at low level for tubular heater (if applicable)
	Fused spur for immersion heater with red engraved neon switch located outside of the cupboard (if applicable)
Bathroom	1 shaver socket within light fitting
Communal staircases in entrance hall	1 single outlet point per storey with lockable isolator
USB Port	1 double socket in each room is to have a USB port on it
WIFI Booster	The socket on the landing is to contain a WIFI booster

29.6 External Lighting Installations

External weatherproof bulkhead light fittings shall be located at the front and rear entrance to the houses and shall incorporate PIR controls with internal override switch.

29.7 External Lighting to Communal Areas

All communal areas not benefitting from adopted street lighting must be adequately lit with low level lighting bollards fed from landlord communal electricity supply. All bollards are to be vandal proof and securely fixed to a concrete base.

External luminaires shall be IP65 rated and selected from the manufacturer's range suitable for external use.

External lighting levels are to meet BS7671 "Lux" levels.

External lighting shall incorporate photocell and PIR controls and comply with emergency light regulations.

Garden and balcony lighting shall be provided and is to be switch and PIR controlled. Light fittings shall be good quality and robust.

External lighting shall be designed to prevent unnecessary glare or nuisance to residents or adjoining properties. External lighting should not be positioned in close proximity to bedroom windows.

To minimise light pollution, external luminaires should be limited to downward projection only.

The external lighting layout shall comply with the requirements of the Planners and Employer.

29.8 Electrical Heating Installations

Airing cupboards without hot water cylinders shall be fitted with caged electrical convector bar heater with fused switched spur and neon indicator outside the cupboard.

The immersion heater shall be a single element type with the illuminated switch for the immersion heater and wired directly to the consumer unit and clearly marked "immersion heater".

29.9 Lighting Provision

The Contractor shall ensure the lighting design provides adequate levels of lighting for the proposed user.

Supply and fix an integral light and shaver point above wash hand basins to bathrooms.

All light fittings shall be fitted with LED lamps.

Position of light switches shall take account of door swings and installation of kitchen wall units. All lights to rooms must be individually switched.

Provide ceiling mounted pendant low energy light fitting to living rooms, hallways and bedrooms.

Lighting to be provided to cupboards where floor area is 1m² or greater.

Class 1 sealed lamp to be provided to bathrooms.

Chrome track lighting with a minimum of 4 spot lights to be provided in all kitchens.

Two way light switching shall be provided to halls, landings and rooms with two entrances.

The position and height of light fittings within dwellings shall be considered so that lamps can be safely and easily replaced by the Resident.

29.10 Communal Lighting

The communal lighting systems should be designed with longevity, energy efficiency, vandal resistance and low maintenance in mind.

All communal luminaire shall be provided with LED low energy bulbs. To provide an even illumination across the entire surface of the diffuser the LEDs should be arranged to evenly cover the majority of the internal area of the luminaire and not clustered in a small group. In order to avoid excessive glare and “spotting” on the diffusers, multiple low powered LEDs should be used rather than smaller numbers of higher powered lamps.

The lighting systems shall be fitted with an occupancy control, preferably a microwave sensor mounted within the luminaire. When the sensor detects no activity in the controlled zone the luminaire will dim to a reduced output, preferably 25% of the full output. Once activity is detected again, the fitting will revert to full output. It should be possible to adjust both the size of the controlled zone and the time interval before dimming to the lower light output. The lower light output should be achieved by dimming all of the LEDs on the array rather than switching some off.

29.11 Emergency Lighting Systems

The lighting systems shall also incorporate emergency lighting to the approval of the Local Authority. The lighting system will use LED luminaires for both the communal and the emergency lighting and both the communal and emergency capability will be integrated into the same enclosure. A separate emergency system will not be acceptable.

When in emergency mode all of the lamps in the array shall be illuminated at a lower output to give the required light output. Emergency light fittings shall include 3 hour battery back up in the event of power failure.

In addition to the test certificates the Contractor shall also test the whole of lighting system and provide a separate Emergency Light Test Certificate from the approved installer.

29.12 Communal Lighting Control Systems

Communal light fittings will be controlled by movement detectors.

29.13 Mechanical Extract Ventilation

Mechanical extract ventilators are to be provided to all bathrooms and WC's and shall be humidistat controlled with a manual override operated by the light switch. Extract ventilators in bathrooms shall be fitted out of reach of the bath. A fused spur to isolate the fan is to be located out of reach at high level and bathroom, kitchen and WC lights are to remain operable when fans are isolated at the fused spur. Extract ventilators shall not be the window mounted type and shall be positioned to avoid draughts. Where vertical ducts are used they must be insulated, fitted with a condensation trap and terminated at roof level with a proprietary ridge vent.

29.14 MVHR

Mechanical Ventilation Heat Recovery systems are to be provided in all dwellings where the air test is below 3.50 m³ / (h m²)@50pa . Full details, including choice of unit, unit specification, ducting layout, flow rate calculations and break down per room, etc. shall be submitted to the Employer along with the details of the maintenance requirement including costs for regular requirements including filters for approval. All ducting to the MVHR / MEV units is to be rigid. MVHR /MEV units are not to be used for the purposes of drying out the works. Vent cowl caps to be provided in exposed locations to avoid wind noise and draughts

29.15 Smoke and Heat Detectors and Carbon Monoxide Alarms

Provide mains connected smoke, heat and carbon monoxide detectors. All rented plots are to meet BS5839:6 2019 LD2 D1 as a minimum Shared Ownership and Private Sale should meet LD2 D2 as a minimum.

30.0 COMMUNICATION INSTALLATIONS

30.1 Generally

The Contractor shall design the communication installations so that telephone and television points are sensibly located adjacent to power points. The Employer encourages the use of multi-use sockets to minimise the number of outlets and provide neat installations.

30.2 Television Installations

All television installations shall be capable of receiving both terrestrial and digital channels.

Television installations to houses shall include for the provision of TV aerials which should be located in positions to be agreed with the Employer.

Television installations to flats shall be communal systems comprising Integrated Reception Systems to be Sky Q compatible.

The Integrated Reception System shall provide the following;

- Terrestrial Digital TV (Freeview)
- Satellite (Sky, Sky+, SkyHD, Sky Q)
- Radio (including DAB)

The Contractor shall liaise with Sky to ensure that the Integrated Reception System to be installed is current and accommodates the latest innovations.

30.3 Testing

The Contractor shall test all communal television installations to ensure that they are in full working order at Practical Completion and provide a test certificate to confirm compliance with this clause.

30.4 TV Point

Where there is no communal loft to flats on lower floors the cables are to terminate through the gable walls in a box in small blocks of flats.

TV aerials are not required to houses, but cables need to be coiled in roof spaces.

Connection to a Cable or Satellite TV network will be considered where the company will provide the conduit or lay the service at no charge to the Employer.

Satellite quality television aerial cable, conduit and points (for living room and master bedroom) are to be provided for houses and flats.

30.5 Communal Door Entry System

At the main entrance to blocks of flats install a door entry phone system. The system to have as a minimum an entrance door call pad with speaker unit and one call button per flat, a telephone pad within the hall of each flat with a remove lock release controlling access through the communal entrance door. Trades buttons are to be avoided. Fob access will not be accepted, a landlords keypad for entry is to be provided.

The Contractor shall provide vandal resistant Door Entry Systems to all dwellings served by communal entrances.

All systems shall be linked to the buildings fire alarm installations to allow the Door Entry System to automatically unlock under fire conditions and to be automatically reset when resetting the fire alarm installations.

30.6 Lift Installations

Passenger lifts shall have a minimum capacity of 8 persons.

The specification of the lift including all finishes shall be approved by the Employer prior to placing the order for the lift.

For the avoidance of doubt;

- The lift shall include for audible and visual indication of lift arrival and location in the lift car and the lift lobby.
- The Contractor shall provide sufficient signage to each lift lobby to identify the relevant floor level and dwellings located at the various levels.
- The lift shall include for an illuminated signal at each level indicating to users the direction of the next movement of the lift car.
- The lift shall include for the evacuation of disabled people in an emergency.
- The Contractor is to provide an independent telephone line to each lift to allow two way communications in the event of an emergency. The telephone line and connection is to be installed in time for the commissioning of the lift. For the avoidance of doubt Practical Completion will not be achieved until the lift has a fully operational telephone line and the lift has been commissioned.
- All lift components must be open protocol capable of being repaired or replaced by other providers without impacting on service life or warranty.

The Contractor shall ensure that his lift specialist attends site prior to the manufacture of the lift to take adequate site dimensions for the purposes of manufacturing and verify that the lift shaft, lift pit and motor rooms where applicable are of sufficient size to accommodate the installations.

30.7 Testing

Test the whole of the electrical installation and leave in good working order. Satisfactory test certificates shall be issued to the Employer prior to Practical Completion. Certificates should be dated within 1 month of the handover date

31.0 INCOMING SERVICES

31.1 Generally

Individual metered incoming services are to be provided to all dwelling, with meters positioned to allow them to be read from outside the dwelling.

All service entries into the dwellings shall be properly and effectively sealed, with a flexible, vermin proof and gas tight material.

Allow for diverting the routes of existing services, service equipment, equipment and junction boxes, external lighting, etc.

The Contractor shall provide electricity, telephone and water mains to the dwellings and pay for all costs and charges in connection with their provision.

The Contractor shall agree the positions of all meters and plant with the Statutory Undertakers and Employer.

Water and electrical meters shall be capable of being read by the Statutory Undertakers and residents and shall be located in positions agreed with the Statutory Undertakers and Employer.

All meters must be clearly labelled to identify which dwelling they serve.

Separate Landlord's supplies for electricity, telephone and water mains shall be provided.

Where the scheme has one or more blocks or stair cores serving differing tenure types the Contractor shall provide separate Landlord's supplies and meters for each separate block or stair core. The Contractor shall also provide separate Landlord's supplies and meters which shall be dedicated to metering the external works only (e.g. communal lighting) to the scheme.

Landlord's meters shall be located in separate cupboards which shall be lockable.

Allow for locating, disconnecting and diverting any existing external mains as required.

The Contractor is to provide additional external mains for use as fire hydrants as required by the Local Authority.

The Contractor is to include for all builder's work in connection with the external mains.

Allow for altering the routes of existing services, service equipment, equipment and junction boxes, external lighting, etc.

Allow for all work in connecting the new services to the existing supplies.

Fibre Broadband is required to each plot and should be taken to the door

31.2 Substations

The Contractor is to allow for the provision of new substations if required by the electrical authority.

The position of substations shall be agreed with the Employer.

32.0 EXTERNAL WORKS AND DRAINAGE

32.1 External Works – Generally

The design and construction of the external works shall generally comply with the drawn requirements, the conditions of the Planning Approval and the specific requirements stated below.

The whole of the External Works shall be designed and constructed to Part M of the Building Regulations and shall take into account the requirements of disabled persons and wheelchair users.

Particular care should be taken to achieve the criteria for level and ramped approaches.

Communal facilities such as external and refuse storage shall be designed to take into consideration the requirements of disabled persons and wheelchair users.

Allow for clearing the whole of the site of all vegetable matter, rubbish, debris and contaminated earth, paths, footways, removing old walls, fencing, etc. and grubbing up any pipes, drains, services, roots and other obstructions including concrete rubble, hardcore and other hard materials and cutting down and removing any unwanted hedging, trees, undergrowth and the like and grubbing up the roots thereof.

Paths adjacent to parking bays are to be constructed to be to the same specification as the driveway to enable cars to be driven on them.

Driveways and car parking bays are to be capable of taking the load of a transit size van.

The design and construction of any works outside the boundary of the site shall be carried out to the approval of the Local Authority or Statutory Undertaker.

The Contractor shall enter into any separate agreements with the Local Authority or Statutory Undertakers as required to carry out any works outside the boundary of the site. The agreements shall include but not limited to Section 38 and 278 Agreements under the Highways Act and Section 104 and 106 Agreements under the Water Industry Act.

Sectional Agreements shall be completed to the satisfaction of the Highway/Sewer Authority/Council before the certificate of Practical Completion is issued. They must also be maintained by the Contractor during the Rectification Period including making good or damage due to reasonable wear and tear occurring during the Period and cleaning at the end of the Period, all to the satisfaction of the Highway/Sewer Authority/Council.

For the purposes of entering into adoption agreements the Contractor will be described as "The Developer".

The Contractor should allow in his tender for all costs associated with the entering into and completion of the adoption agreements including the provision of any bonds if required.

Odd shaped planting areas are to be avoided. Un-demisable areas are also to be avoided.

Clear boundaries are to be provided to plot frontages

The Contractor shall pay for all costs and charges in connection with these requirements.

All gardens are to have a brass bodied bib tap with an internal isolator.

32.2 Roads, Parking Areas and Pavements

The design and construction of all roads, footpaths, parking areas, associated drainage, lighting and landscaping shall be to the Local Authority's adoptable standards. The Contractor shall, where possible offer, these areas for adoption by the Local Authority and shall allow for paying all fees and charges in connection.

All hard landscaped areas shall be designed to avoid pooling of water by being set to falls.

Access roads shall have separate pedestrian footpaths wherever possible and speed restrictions shall be incorporated to reduce vehicle speed.

Paving slabs shall not be used in vehicle access areas and pavements shall be a minimum 80 mm thick.

Contrasting surface textures shall be used to distinguish vehicular and pedestrian areas.

Access shall be designed throughout the development to take into consideration people with mobility, visual and hearing difficulties.

Kerbs and edge restraints shall be provided complete with adequate benching and haunching. Kerbs shall be provided to parking areas where they are next to a walkway/footpath.

Dropped kerbs and tactile paving shall be provided to crossing points.

Car parking spaces shall be clearly marked out with 'T' marks with a contrasting colour block where block paved or properly white lined where tarmac. Stainless steel discs with either the house or plot number to be agreed with the Employer.

Extend, alter and adapt the existing access roads, footways, kerbs and path edgings as indicated on the layout plans or as otherwise required by the Local Authority.

Remove any redundant crossovers and extend the pavement.

32.3 Paths and Paving

Provide non permeable or permeable precast concrete block paving or precast concrete flags as shown on the drawings.

Paths to houses shall be a minimum 900 mm wide with a granular slip resistant finish, paving flags shall be a minimum 50 mm thick and pavements a minimum 60 mm thick, paving abutting dwellings shall be a minimum 150 mm below the dpc level. Paths to wheelchair homes shall be a minimum 1500 mm wide.

Edges to footpaths shall have a raised kerb where the paving is higher than the adjacent surfaces and, if there is a drop greater than 380 mm, a handrail shall be provided.

Kerbs and edge restraints shall be provided complete with adequate benching and haunching.

All paved areas shall be properly drained to avoid ponding.

Paths shall be provided to the front entrance of each property, with a proprietary drainage channel and grating between the paving and level door threshold. A minimum 1200 x 1200 mm level landing shall be provided to the front entrance of each property, with a proprietary drainage channel and grating between the paving and level door threshold.

Loose gravel is not acceptable for parking areas. Any granular finish is to be firmly rolled into a concrete or bitumen base coat. Pavers can be used for access ways, with concrete or tarmac parking spaces.

A change in material or other form of demarcation should be used to distinguish between adopted and non-adopted areas.

Front, and side or rear entrances are to be provided to each dwelling. Strip drainage to be incorporated in all external entrances with level thresholds.

The side or rear entrance is to give direct access to the rear garden. Where a side entrance is provided it must be behind the fencing to the garden.

Paving to be laid to a cross fall with a patio formed to the rear of each dwelling 3m x 3m outside the patio/rear door(s). Where the garden slopes down to the patio, provision is to be made for surface water drainage with a minimum fall of 1:80 away from the building.

Footpaths giving rear access to houses should be hard-surfaced and extend from the rear garden gate to the rear door of the house. Footpaths shall be provided to connect the house with the shed, bin storage area and the rotary dryer.

32.4 Soft Landscaping

Existing trees are to be protected. The Contractor will be required to design the foundations so as not to cause damage to the tree roots and also to provide sufficient foundation to the new buildings. It is the Employer's intention that the landscaping should be completed before occupation unless otherwise agreed.

The whole of the site shall be clear of all vegetable matter, rubbish, debris and contaminated earth, paths, footways, removing old walls, fencing, etc. and grubbing up any pipes, drains, services, roots and other obstructions including concrete rubble, hardcore and other hard materials and cutting down and removing any unwanted hedging, trees, undergrowth and the like and grubbing up the roots thereof. All areas shall be left free from builder's rubble, debris, etc. at Handover and covered with a minimum of 150 mm thick topsoil. Imported topsoil is to be good quality loam, free from large stones (50 mm or over) and weeds. Topsoil is to be generally levelled to avoid pooling and must be at least 150 mm below dpc level where it abuts dwellings.

The proposed landscape scheme is to be prepared and costed for the Employers approval before being submitted to the Local Authority for approval.

Where communal landscaping is provided, weed preventions membrane is to be provided over planted area and covered in thick layer of bark. Avoid any un-demisable planting areas

Provide mowing margins as necessary.

All cultivated areas shall be properly dug over and ameliorants shall be added into the topsoil.

All cultivated areas shall be treated with an approved herbicide before laying turf or planting.

Allow for all trees and planting as shown on the drawings or as required by the Planning Authority.

Trees shall be best quality nursery stock.

Trees shall be protected and staked. Provide tree grilles and cages as necessary.

Plants shall be obtained from a supplier who is an approved member of the Horticultural Trades Association.

All trees and plants shall be identified with a plastic label and include all maintenance instructions.

Planted areas shall be finished with a layer of ornamental medium grade bark mulch. The mulch shall be retained by means of precast concrete edgings.

Verges to be top soiled and turfed.

Each property is to have an individual turfed front garden and an individual turfed rear garden except where planning dictates otherwise. This includes maisonettes.

Turf is to be laid at a time approved by the Employer (note this may be after practical completion). The Contractor shall be responsible for watering the turfed areas as and when necessary to ensure healthy growth.

All garden areas are not to exceed a slope of 1:10 and are to be turfed with good quality turf. All grassed areas shall be designed to be capable of being mowed and maintained with ease. Grassed areas to sloping areas where there will be a difficulty in access for grass cutting should be avoided.

Planting shall be designed to achieve all year round effect and to minimise maintenance. Landscape design shall be carried out in consultation with the Employer, Local Authority and Police Architectural Liaison officer (where applicable), wherever possible public space landscaped areas shall be adopted.

All common and adoptable areas of hard and soft landscaping are to be subject to a 12 months defects liability period are subject to a rectification period. The Contractor is to maintain the landscaped areas during this period. Maintenance shall include grass cutting and watering (at least one visit every two weeks during the growing season), plant bed weeding (at least one visit every four weeks during the growing season), litter and weed control, maintenance of tree and woodland areas and the replacement of plants and trees that die during that period.

32.4 Soft Landscaping (Cont'd)

All gardens shall have a fitted rotary clothes dryer with paving to allow clothes hanging from a hard standing. The rotary clothes dryer spike should be set in a concrete base. Where units have no private garden an 'A' Frame airer is to be provided. An even hard paved communal drying area shall be provided to blocks of flats to accommodate one dryer per two flats.

The Contractor shall be responsible for weeding and cutting grassed areas beyond the curtilage of the dwellings for the stipulated Rectification Period or until adopted and grassed areas within the curtilage of the dwellings until Practical Completion.

The Contractor shall replace any dead plants or turf at the end of the Rectification Period, or as appropriate after twelve months from planting.

32.5 Walls, Fences and Gates

Allow for all retaining and boundary walls as required. Provide all necessary guarding and handrails as required for changes in levels. Guarding and handrails shall be polyester powder coated or other low maintenance material.

Any retaining walls shall be designed by a Structural Engineer and shall take into account all ground and loading conditions.

All boundaries to the site shall receive a new boundary treatment.

The finish to all retaining and boundary walls shall be to the approval of the Planning Authority and Employer.

Gates shall be provided to houses with a side access and located at the front of the dwellings. Gates shall have a clear opening of 850 mm and fitted with a latch and rim lock.

The Contractor is to provide all new metal railings and gates as shown on the drawings. Railings and gates are to be designed with security as prime importance. All railings and gates are to be polyester powder coated steel or aluminium. All gates shall have suitable hinges, latches, bolts and locks.

The Contractor is to provide all new timber fencing and gates as shown on the drawings. Fencing and gates are to be designed with security as prime importance.

All fencing is to be treated timber close boarded fencing with concrete posts and concrete gravel boards with the exception of where a hedgehog highway is required. All fence posts are to be adequately secured in concrete. Fencing is to be a minimum of 1.80m high or as shown on the drawings or necessitated by the topography of the site. All gates shall have suitable hinges, latches, bolts and locks. A new close boarded fence is to be provided to all boundaries of the site.

32.6 External Stores/Refuse

Suitable refuse storage is to be provided to the satisfaction of the Local Authorities. The space for refuse should generally be to the rear or the side of the house and be within 2m of an external door. Refuse storage is defined as being 3m x 600x600 paving slabs.

The Contractor shall ascertain the local method of refuse collection and refuse storage should be designed accordingly. If not supplied by the District Council, dustbins shall be provided.

Provide a timber lockable shed minimum of 2.4m x 1.8m to each dwelling with a private garden on a hardstanding with a path link to the gate and rear door to the dwelling. Sheds are to be located to the rear of the garden and connected to the patio with a path.

32.7 Communal Cycle Storage

Provide communal cycle storage as shown on the drawings. Cycle storage should be fully covered to protect the storage from the elements. Cycle storage should be lockable and secure. Cycle storage should be robust design to the approval of the Employer. The Contractor shall make provision for cycle hoops for use by visitors.

32.8 Communal Refuse Storage

Provide adequate refuse storage as required by the Local Authority. Refuse storage shall be robust design to the approval of the Employer and the Local Authority. Refuse storage shall be sensitively located and not positioned in areas which may cause nuisance. Refuse storage should not be positioned in close proximity to windows and shall be adequately ventilated. The Contractor shall provide all refuse and recycling bins including euro bins for flats. Where the refuse and recycling bins are rented from the Local Authority the Contractor shall arrange for their delivery prior to Practical Completion. Communal refuse stores are not required to have a tap or water supply.

32.9 Street and Building Signage

Street nameplates are to be provided to Local Authority specification where required. Shared surfaces and traffic calming measures, where acceptable for adoption are to be incorporated into the layout design of the scheme.

Provide and fix all street and block names and numbers and external signs to the approval of the Local Authority, Employer and the Royal Mail.

The street and building signage shall be robust and professionally designed and manufactured. Plastic or painted signs will not be permitted.

The street and building signage shall be located in prominent and high level positions in locations to be agreed with the Employer.

32.10 Street Furniture

Provide and fix all street furniture as shown on the drawings.

The street furniture shall be robust and securely fixed.

32.11 Car Charging Points

An in curtilage vehicle charging point is to be provided in a suitable location. This should include an external grade mains 3 pin outlet powered from a separate circuit capable of providing a 7KW supply for charging. There is to be a clearly labelled isolator inside the property.

32.12 External Lighting

External lighting schemes to be well designed and ensure schemes are well lit with no dark spots especially to communal parking. Lighting should be designed to comply with both Secured by Design and planning requirements.

PIR external lights with LED bulbs are to be fitted to both front and back doors with an internal override switch

Motion sensor LED lights are to be provided to side passages and driveways to the side of dwellings
Adequate external lighting shall be lit with low maintenance, low energy and vandal resistant fittings designed for the approval of the Employer and Local Authority. Where not specified provide a range of LED robust lighting fixtures suitable for the environment for the Employer's selection.

All lighting is to be low energy operated by photocell and time control override and to be vandal resistant.

All cable runs are to be concealed and all controls must be labelled.

Test the whole of the electrical installation and leave in good working order; satisfactory test certificates shall be issued to the Employer prior to Practical Completion.

The tests shall be carried out to the satisfaction of the Local Electricity Authority and the Employer and shall be at the Contractor's expense including the cost of electricity consumed.

External lighting shall be designed to prevent unnecessary glare or nuisance to residents or adjoining properties. External lighting should not be positioned in close proximity to bedroom windows.

Provide adequate lighting to all common areas not lit from the street. Include for adequate lighting to bin stores and the bicycle stands.

All controls must be labelled.

32.13 Drainage

The Contractor shall be entirely responsible for establishing and providing satisfactory systems and routes for disposal and/or treatment of foul and surface water drainage and shall pay all costs in connection therewith.

Wherever possible the drainage design should be suitable for adoption by the relevant authority.

All pipes, ducts, cables, mains and other services exposed by the excavations shall be effectively supported by timbers or other means, and if damaged, the Contractor shall immediately notify the appropriate authorities and any damage shall be made good to the satisfaction of the appropriate Authority at the Contractor's expense.

The design and construction of the drainage and external mains shall comply with the requirements of the Local Authority and Statutory Undertakers. The foul and surface water drainage systems shall be designed to properly function when carrying the maximum anticipated loads. The design and construction of the drainage shall be to the Local Authority's adoptable standards whether it is adopted or remains private. The Contractor shall use his best endeavours to ensure that the drainage is adopted by the Local Authority and he shall pay all fees, bonds, etc. in conjunction with this requirement. The drainage system shall be designed to avoid running under buildings.

Allow for locating and diverting any existing drainage including reconnecting to new or existing systems. All redundant drain runs shall be plugged and manholes infilled.

Drain runs shall be laid to falls to ensure they are self-cleaning, and at suitable depths to provide maximum protection.

The Contractor shall allow for protecting all existing live drain runs, manholes and gullies, etc.

Manholes are to be brick, PVC-u or concrete as required. All manholes shall be accessible and of adequate strength for pedestrian or vehicular traffic as appropriate and positioned so that they will always be accessible. Manhole covers and access trap covers to be heavy duty metal and set flush in paved or concrete surround. Loose earth or grass is not an acceptable surround. Manholes located in paved areas with block pavements shall have recessed covers and inlaid with matching finish.

The Employer's preference is for drains to be connected to a mains drainage system where possible. Soakaways should be avoided where possible. Where direct connection cannot be secured, use of pumping stations is to be considered. Sewerage treatment plants should only be considered where direct connection or via a pumping station is not feasible.

Gullies are to be securely bedded in concrete. All gullies shall have rodding points. Drainage gullies shall be provided to communal bin stores to facilitate cleaning down.

Drainage channels shall be provided where required and shall be securely bedded in concrete with accessible galvanised gratings which shall be accessible.

Private open spaces are to be designed to stop water logging and pooling in gardens. Any reports during the Rectification Period of water logging and pooling in gardens is to be properly investigated and rectified at the Contractor's cost and in a prompt manner.

Where soakaways, private treatment plants and land drains are to be used, or if surface drainage is to discharge into an existing watercourse, written consent from the Environment Agency/drainage authority shall be provided to the Employer.

All drains and sewers should be provided with means of access for inspection and cleaning at every junction with another drain and at every change in direction or gradient.

Wherever possible, foul drainage shall discharge by gravity into an adopted public sewer. If other means of disposal are necessary then the Employer shall require full details including running costs, maintenance costs, life expectancy etc. Any systems shall be provided with a visual fault alarm and consent to discharge obtained from the Environment Agency.

The Contractor is to provide to the approval of the Employer a manufacturer's recommended service and maintenance contract for any private foul water pumping or treatment plant for the stipulated Rectification Period and allow for transfer to the Employer upon Making Good Defects.