CAMDEN

COMMUNAL AERIAL INSTALLATION

DIGITAL TELEVISION UPGRADE PROGRAMME

Specification for IRS

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1. Introduction: Purpose of this Document

This document sets out a summary specification of requirements for communal television aerial systems to be installed in residential buildings owned or managed by Camden. We recommend that all systems should be designed and installed to meet these standards.

This document is intended for purposes of preliminary planning and tendering. It may be incorporated in specific legal agreements between Camden / Lakehouse and CustomFM.

The systems to be installed are known as "Integrated Reception Systems" (IRS). The intended effect of such a system is to provide a full range of television (satellite and terrestrial, analogue and digital) and radio signals (both FM and DAB) to every home covered by the system. This broad range is intended to provide the widest possible choice to tenants in deciding which services to use. It will also enable the provision of interactive TV services and an infrastructure for local security and information systems.

In order to provide this range of facilities, every IRS must incorporate, besides an appropriate aerial, satellite dish and headend equipment, a system of independent cabling, either Co-axial or Fibre based, to every home, and a specific outlet within every home. These items are all described in the succeeding pages.

This document also describes in outline the procedures required for planning the upgrading of individual systems, for reporting and keeping records of work done, and for managing changes agreed while work is in progress. Conformity with these administrative provisions will be an essential part of the contract.

Whilst considerable care has been taken in the preparation of this specification, "Landlord" or its agents will accept no liability under any circumstances whatsoever for any direct, indirect, consequential or special damages arising from your use of or reliance on this specification.

2. General

The contractor shall supply, install, test and commission a "nine-wire" Integrated Reception System, typically comprising:

- FM, DAB, UHF TV aerials and satellite dishes
- Backbone cabling: eight coaxial cables providing individual satellite IF bands (low band and high band on vertical and horizontal polarisations) from two orbital locations and one coaxial cable providing terrestrial signals between 88MHz.and 862MHz
- Multiswitches and other signal processing electronics
- Drop cables to a minimum of one position, using a minimum of two coaxial cables, in each dwelling within the building

The contractor shall ensure that in the course of his works, existing television and radio services continue to be available to the residents.

The contractor shall confirm the addresses, including postcodes, which have been attached to the given head-end, once the Installation is complete.

The systems shall comply with the current technical conditions of the relevant licensing authorities. It will be the responsibility of the contractor to determine the requirement for any licenses and to apply for any license that a building may require.

The Contractor shall liaise with any local planning office should a building be located within a conservation area and/or be listed such that an installation requires either planning permission or listed building consent. The contractor will submit plans and any planning application as part of the tender price. The planning application fee shall be charged to "Landlord" at face value as a variation.

The contractor shall be a member of the Confederation of Aerial Industries and have the relevant qualifications for the design and installation of television distribution systems. Where a non-employed sub-contractor is used, then the primary contractor will remain responsible for the sub-contractor's work. All staff including engineers whether employed or sub-contracted must have valid CRB validation.

2.1. Errors

Where the contractor believes that this specification is incomplete in any respect or that additional details are required for the satisfactory and safe operation of the proposed systems, the contractor shall notify "Landlord" immediately and shall be responsible for developing the necessary additional specifications and ensuring that the proposed system can be operated in a satisfactory and safe manner.

3. Services

The services to be provided using the proposed system are as follows:

SERVICE	PROGRAMMES	FREQUENCY
Terrestrial Analogue	BBC 1	Band IV/V
	BBC 2	Band IV/V
	ITV	Band IV/V
	Channel 4	Band IV/V
	Five	Band IV/V
Terrestrial Digital	Multiplex 1	Band IV/V
	Multiplex 2	Band IV/V
	Multiplex A	Band IV/V
	Multiplex B	Band IV/V
	Multiplex C	Band IV/V
	Multiplex D	Band IV/V
RSL Analogue	Locally advised UHF	Band IV/V
Satellite Digital	All horizontally and vertically polarised transmissions, both lowband and high-band from the 28°E and 13°E orbital positions, in the frequency range from 10.7GHz to 12.75GHz.	Satellite IF

FM Radio The national and local services

legally transmitted to the general Band II

area of the site concerned.

DAB The radio and data services, both Band III

local and national, provided by the DAB services in the area concerned

It should be noted that in certain parts of the United Kingdom, analogue terrestrial Channel Five and some digital terrestrial multiplexes are not available. The contractor shall indicate which of the above services (if any) will not be available over the proposed system.

RSL (Restricted Service License) services do not have a long-term license and cover a small geographical area. Any inclusion of a RSL service should not be seen as permanent.

The contractor shall perform a site test at each location to determine that all the services listed above are available at the levels required for distribution (see below). If any service is, as a result of the site test, found not to be available, this must be reported to "Landlord" immediately so that agreement may be reached as to which services will be provided prior to the start of any work.

4. Specifications

The systems must conform to the following standards and codes of practice:

- EN 60728 (all relevant parts)
- EN 50117 for coaxial cables.
- EN 60966-2-5 and -2-6 for connecting cables.
- BS 4662:2006 Specification for boxes for the enclosure of electrical accessories.
- BS 5733:1995 Specification for general requirements for electrical accessories.
- Code of Practice for the installation of Terrestrial and Satellite TV Reception Systems from the Confederation of Aerial Industries
- Installing Digital Television: MATV and IRS (DTG R-book 5). In the case of a difference between R-book 5 and this specification, this specification will take precedence.
- BS 7671, Requirements for Electrical Installations (IEE Wiring Regulations)
- The Construction (Design and Management) Regulations, 1994, where applicable
- EN 62305 for lightning protection
- Circular 10/05: Permitted Development Rights for Antennas

5. Frequency Planning

In the event that modulators and/or channel converters are used, all frequency planning must be undertaken to avoid creating visible interference on analogue services. In particular, where an existing off-air channel N is present, channels N±1 and N±5 must be avoided.

6. Performance of the System

The system will be required to deliver the services described in Section 3 above, with all signals meeting the level and C/N criteria described below.

Should the contractor believe that the suggested plans, if supplied, do not meet the performance criteria this must be highlighted at the time of tender, together with alternative proposals?

If, in the course of the installation, the contractor believes that plans will have to be changed, "Landlord" must be notified immediately, and any costs, etc., agreed between the contractor and "Landlord" before installation work continues.

6.1. Signal Levels

All signal levels must be within the rated capability of the amplifiers to be installed, taking into account adequate de-rating for the number of channels distributed, and the use of amplifiers in cascade.

Signal levels at all outlets on the system must comply with the following:

FREQUENCY BAND	MAXIMUM LEVEL	MINIMUM LEVEL
Band II FM Radio	74 dBμV	54 dBµV
Band III DAB	65 dBµV	45 dBµV
Band IV/V Analogue	80 dBµV	60 dBμV
Band IV/V Digital	65 dBμV	45 dBµV
Satellite IF Digital	77 dBµV	52 dBµV

Note: - Post analogue switchover the maximum level for Band IV/V increases to 80 dBµV. This assumes that no analogue signals are present on the system.

6.2. Carrier to Noise Ratios, C/N

Digital terrestrial signals will require a minimum C/N at the outlets of 26dB.

Digital satellite signals will require a minimum C/N at the outlets of 9dB.

Measurement of C/N for satellite frequencies should be made against a noise floor, not between transponders. The recommended frequencies for measuring the noise floor are 1980MHz in low-band and 1080MHz in high-band. If a signal is present at these frequencies, then the noise floor frequency should be adjusted to avoid conflict. The new frequency should be recorded on the completion certification.

7. Installation Process

The installation process shall be completed in accordance with the following sequence. Any deviation from this process may only be taken after consultation with an agreement of "Landlord" and after such agreement has been advised by "Landlord" in writing.

- 1. Survey
- 2. Pre-installation preparation, e.g. core drilling
- Installation of antennas and dishes. Advise "Landlord" if any received signals are
 of insufficient quality for the system as a whole to meet the requirements of this
 specification.
- 4. Installation of containment, particularly of any containment required for the network backbone. Installation of containment for drop cables within a dwelling should be completed at stage 8.
- 5. Installation of backbone cables.
- 6. Installation of headend, including remote located switches and repeater amplifiers, etc.
- 7. Connection of backbone cables and commissioning of system
- 8. Installation of drop cables to individual homes, fitting of new socket-outlets and measurement of signals. Any AV equipment connected to the old system should be connected to the new system. Demonstration that the new system is working and delivering the required signals must be made to the resident. The resident should sign a document to that effect. Any dwelling where the contractor is unable to gain access should be noted, and the date and time of non-access advised to "Landlord".
- 9. Any existing system that has been replaced should be switched off after a period of time determined by "Landlord". Redundant equipment should be removed and disposed of legally, and in a manner that allows the materials to be recycled wherever possible.

A schematic plan representing the "as installed" system in block diagram form, showing locations of equipment, types of cables and earthing arrangements must be submitted to "Landlord" as part of the installation documentation.

7.1 Surveys

If after surveying a given building "Landlord" decides not to proceed with any further work at specific locations then the contractor shall levy a charge for survey only.

7.2 Residential Connections

The contractor shall ensure that the resident is given the opportunity of at least three separate dates and times for appointments, each date to be at least one week apart, and these appointments to be in addition to any ad-hoc residential connections made whilst the contractor is on site and with the agreement and/or request of the resident.

The Contractor is to allow for up to three appointments per dwelling for the purpose of connecting the resident's equipment to the system, as in item 8 in Paragraph 7. If the first appointment is cancelled or missed by the resident, then the contractor shall make a new dated and timed appointment. If the second appointment is also missed then the matter shall be escalated to "Landlord". A third dated and timed appointment

will then be scheduled with agreement of the resident. Prior to the contractor attending the third appointment the contractor shall advise "Landlord" of the confirmed date and time.

Any missed appointment, by residents shall be noted by the contractor of the date and time the contractors engineer called at the resident's premises. This shall be by entry to a PDA with an automatic date and timing facility.

In the event that the contractor is unable to attend at the given appointment date and time he shall make all efforts to inform the resident in advance and where possible give at least twenty fours notice.

8. Materials

All materials must be new and previously unused. All goods and materials used in providing the system shall conform to EU and national standards, where such standards have been established, and to the codes of practice issued by the relevant industry bodies.

8.1. Antennas

"Landlord" must agree the final position for aerials and satellite dishes. If the number of dish antennas exceeds two on a building under 15m height, or four on a building of 15m or over, then planning permission will be required.

8.2. Television and Radio Aerials

UHF aerials shall comply with the requirements of the CAI Aerial Benchmarking scheme and be issued with a conformity number.

The aerial system, mounts, support structures, etc. must be capable of withstanding wind speeds of 100mph/162kph.

8.3. Satellite Dishes

Satellite dishes, mounts, support structures, etc., must be capable of withstanding wind speeds of 100mph/162kph. Dishes must be of adequate size for the system concerned, and be able to produce 15dB C/N at the installation site in clear sky conditions, for all relevant transponders being received.

Dishes shall be aligned for maximum signal strength and carrier to noise ratios. LNBs shall be aligned for optimum cross polar discrimination.

8.4. Headend Equipment and Repeater Amplifiers

All equipment should be powered at 230 volts AC except where line powering of mutiswitches, etc., is required.

The equipment must be securely mounted and accessible for maintenance purposes in a dry secure location.

No equipment must be mounted in, or accessible from, any dwelling.

Where required, a suitable weatherproof housing to an IP55 specification must be supplied.

8.5. Cables and Fixings

All coaxial cables shall be manufactured to the relevant parts of EN 50117. All cables shall be certified under the CAI Cable Benchmarking Scheme.

All coaxial cable shall have a nominal characteristic impedance of 75 ohms and be suitable for the application. The contractor shall take into account any requirements for special cables such as Low Smoke Zero Halogen (LSZH/LSOH).

All underground cables shall be in a separate green duct and the ductwork shall be of a suitable quantity to take the number of cables involved. The ducting type must be approved by "Landlord".

Where it is impossible to install ductwork, cables may be directly buried. Where cables are directly buried, the cables must be of the bonded shield type containing a water barrier consisting of a polythene-backed aluminum foil tape embedded in the sheath.

"Landlord" must be consulted and approval given for all routes below paths, roads, etc., as ducting requirements may vary.

No underground joints in the cables will be allowed. All joints must be made above ground.

Where applicable (for example, where the cable needs protection from possible vandalism) external cables shall be protected by conduit, capping or trunking of a suitable size. All external surface routes must be approved by "Landlord" before installation.

Vertical spanned cables may be installed where cables are to be located on the outside of a building. Cables should be attached, as a harness, to suitable catenaries of galvanized or stainless steel catenaries rope. This in turn is fixed, by the use of U-clamps, using a minimum of two clamps at each fixing point, at the top and bottom of each vertical span and tensioned to prevent displacement.

Where cables are run across a flat roofed area, they should be installed on a suitable cable tray of galvanized material. The tray should be fixed, at not less than one meter spacing, to a heavy duty brick or concrete block, by means of a standard screw and plug fixing, two fixings to each brick or block. The brick or block should be laid on a non-penetrating membrane of rubber or on two layers of mineral roofing felt. This protecting layer should be cut to the size of the brick or block and loose laid on the existing roof surface. Care must be taken should any shingle be located on the roof that the placing of any bricks or blocks does not cause penetration of the existing roof surface.

Alternatively, a proprietary support unit may be used in place of the brick or block, such unit to be approved by "Landlord" in writing prior to installation, and installed to the manufacturer's instructions.

Cable trays that are fixed vertically should be fixed using a method that locates the tray against a vertical surface, with a minimum spacing off of that surface of 12mm, at no more than one meter spacing so that the tray does not move in any plane.

All cable trays must be earthed in accordance with the latest version of the IEE wiring regulations.

Internal cables, located in building risers, must be fixed to a cable tray or located within an enclosed conduit or trunking.

Overhead spans of open public spaces shall not be used unless no other route is available. Even then, they shall only be used with prior consent of "Landlord". Allowance must be made for likely electrical or physical interference if this method is used.

All cable installation routes must follow a Star Wired or Tree & Branch installation format. For the purposes of this document, these terms are defined as:

Star Wired: An individual cable routed from the wall socket, uninterrupted, to the headend, which will be located in a central position within the designated building.

Tree & Branch: An individual cable routed from the wall socket, uninterrupted, to a switch position, which may be located away from the headend.

In either case, if there is a distribution system or method of split cables installed within the dwelling (prior to the outlet plate), then the cable route may be interrupted, providing all terminations are correctly made off and any signal losses accounted for.

Cables destined for one dwelling must not be routed through another dwelling. Should this be the only route of access available, then the contractor must obtain written permission from "Landlord" prior to any work commencing.

Cables may only be installed in roof spaces where no other route exists.

Within the head-end and network, the connection of the coaxial cable will be via F type and IEC connectors only. All F type connectors must be of the crimped or compression types and IEC connectors should be of a professional design and correctly fitted in accordance with the manufacturer's instructions. All connectors should be the correct size for the cable used.

The contractor will supply one 2m fly lead from the outlet point, within each dwelling to the TV, or video recorder. Where a satellite receiver is installed, a 2m fly lead will also be supplied to connect the IF outlet point to the satellite receiver. All fly leads shall be double screened and comply with the relevant parts of BS EN 60966.

8.6. Multi-Core Cable Color Coding

Where multi-core cables are used (e.g. five individual coaxial cables wrapped in a sheath) then the following colour codes shall apply. (Some multiswitches may also use this colour coding.)

Number	Colour	Designation
1	Red	High-band vertical
2	Yellow	High-band horizontal
3	White	Terrestrial
4	Green	Low-band horizontal
5	Black	Low-band vertical

8.7. Mounting Boxes

Flush metal boxes shall comply with BS4662 and have a minimum internal depth of 40 mm. When installed as a stand-alone upgrade existing wiring boxes to BS4662 may be used provided that they have a minimum internal depth of 25 mm. All cable entries from the boxes shall be grommeted so as to prevent damage to the cable. Flush mounted boxes of insulating material may be used in hollow partition walls of plasterboard and similar material and shall have a minimum internal depth of 40 mm, comply with BS5773 and have mounting centres compliant with BS4662.

Where surface mounted boxes are used, they shall be of moulded insulating material, have a minimum internal depth of 40 mm, comply with BS5733, have mounting centres compliant with BS4662 and be of a style and colour consistent with that of any electrical wiring accessories installed in the same dwelling.

In all cases, care shall be taken to ensure that all cable bending radii are no smaller than those advised by the cable manufacturer.

8.8. Passive Accessories

All accessories must conform to the requirements of EN 50083-4.

All passive accessories shall have 75 ohms characteristic impedance. All satellite IF signals shall be connected using F type connectors.

External equipment shall be housed in suitable waterproof enclosures, conforming to IP55. All external enclosures must be approved by "Landlord" prior to installation.

8.9. Socket Outlets

The system must be connected to at least one socket outlet in every home. All socket outlets must be fully screened, surface or flush mount type, and have a minimum of four connecting points. Individual sockets shall be provided for UHF TV, Satellite1, Satellite 2, and Audio (covering both FM and DAB frequencies). Where required, sockets must be capable of passing Digibox infra-red remote control signals.

9. Safety

The system shall be compliant with the requirements of all relevant Health and Safety legislation and the CAI Codes of Practice on safety

All relevant equipment shall be equipotential bonded in compliance with EN 60728. All coaxial outer conductors shall be bonded to the main earth terminal of the electrical installation. It is the responsibility of the contractor, and in particular the installing or servicing engineer, to ensure that the system complies with all safety requirements.

The cable must be earthed as necessary and at no point on the system must the earth fault loop impedance be greater than five ohms.

Practical safety earth bonding should follow the procedure set out below, however the CAI Code of Practice noted above gives the technical requirements.

Incoming cables from antennas and LNBs shall be bonded across the outer sheath at a location close to the inputs of the headend equipment.

Each outgoing drop cable from a Multiswitch shall be bonded across the outer sheath close to its exit point from the branch site or headend location.

All electrical and electronic devices shall be bonded, independently of the coaxial cables. Bonding shall be carried out in a manner such that its integrity is maintained when equipment is removed. This may be achieved by the use of crimped connections or unbroken looped conductors.

The system must be earthed, via a minimum 4mm earth conductor to the main earth terminal of the electrical installation.

Where a system spans two or more buildings, each having a separate electrical installation, consideration may need to be given to providing galvanic isolation in back bone cables at the point of entry to a building in order to prevent excessive circulating current flowing in the cable outer conductors. This is particularly relevant where PME earthing is employed. Drop cables originating in one building must not serve system outlets in a separate building.

The external aerial support structure shall also be bonded to the installations earth.

If a lightning protection system (LPS) is installed, then the aerial mount shall be bonded to the LPS in accordance with EN 62305-2006. The contractor shall consult and liaise with the engineer or specialist contractor responsible for the LPS.

10. Testing

Before the hand-over of each system and before completion of the contract, the whole system must be tested by the Contractor to ensure that the system complies fully with the Specification. The tests will include the maximum and minimum signals for each of the services, measured at the socket outlets as specified by "Landlord". The Contractor shall provide an electronic (XL Spreadsheet) and a printed record of all measurements, by way of the provided completion certificate to "Landlord". The

Contractor shall also keep a set of records on file and lodge a laminated set of records at the Head-End location.

11. Final Commissioning

The contractor shall supply a final commissioning certificate, indicating signals at the inputs and output of the headend and levels received at the outlets. A specified commissioning certificate will be provided. The contractor shall demonstrate to "Landlord" that the picture quality on all the services stated is to ITU-R grade 4 on the analogue television channels and error free on the digital channels. Test equipment must be capable of measuring signal power to within ±3dB, and be suitable for all the services indicated. The minimum requirement is a spectrum analyser. A simple signal strength indicator is not sufficient. The spectrum analyser should be capable of downloading signal readings to the commissioning certificate mentioned in the paragraph above.

11.1 Completion

The installation will be deemed as completed as and when the Landlord has beneficial use of the system. This shall be indicated by the final commissioning certificate being deemed acceptable and passed by the Landlord and an agreed number of Plating Connections being undertaken and signed off by the resident. If three appointment attempts have been made, as outlined in Para. 7.2 above, and a Plating Connection for a given flat has not been achieved, then for the purposes of completion, this will be taken as an achieved Plating Connection. Invoicing, for the specific property, or Properties, may only take place after completion has been agreed between the contractor and Landlord.

12. Defects Liability and Maintenance

The contractor shall maintain the complete system to this specification without charge for a period of 12 months from the final date of commissioning.

At the end of the twelve month defect period the contractor shall submit certification of signal levels on each system as received at an agreed number of outlets, with proof of performance. This document will be taken as the final certificate.

The contractor shall attend to faults as reported by "Landlord" within 24 hours or as otherwise agreed in writing by all parties concerned.

All cables and equipment found to be faulty within the initial 12 month period will be repaired or replaced free of charge to "Landlord". If the fault is outside the control of the contractor, and is not a defect with any installed hardware, e.g. weather damage or vandalism "Landlord" will accept a reasonable charge by the contractor to rectify the fault. The decision as to whether the repair is chargeable will be at the discretion of "Landlord".

12.1 Making Good

The contractor shall make good any damage caused during the undertaking of the installation work. Small damage shall be treated as a repair and paint scenario

ensuring the paint colour matches the existing wall covering. All care must be taken when drilling through masonry to ensure that "Brick Shatter" does not occur. In the event that "Brick Shatter" does occur and the face of any brick is damaged, the contractor shall make all efforts to repair the brick face, colour matching to existing colour, where the brick cannot be repaired A specialist contractor will be employed by "Landlord" and the contractor re-charged for the works.

The contractor shall ensure that his insurance cover will cover the cost of major repairs. Public Liability is required to the value of £10million

13. Redundant Equipment

Subject to an additional cost being agreed:

All redundant equipment, associated with the existing MATV system, including but not limited to, Antennas, mounts, masts, amplifiers, taps, splitters, visible and accessible cables shall be disconnected, removed from site and disposed of. The time of switch off and disconnection of the equipment is to be agreed as a programme with "Landlord". All individual satellite dishes shall be removed from the building and the associated Set-Top-Box is to be re-connected to the newly installed IRS, tested and shown working correctly to the resident. The satellite dish shall be handed to the resident for safe keeping. In the event that it cannot be determined whose ownership a specific satellite dish belongs to then it shall be removed from site and held by the contractor for safe keeping until the end of the project. In the event that removal of any dishes causes a dispute with the resident then the dispute shall be settled by "Landlord".

14. Maintenance Contract

The contractor shall provide with his tender a proposal for a maintenance contract for a given period of years or to be renewed annually.

15. Additional Satellite Reception

The contractor shall allow in his pricing for the installation of additional satellite reception. Or in the case of 5 wire a minimised installation. The pricing shall allow "Landlord", where required, to provide reception from additional orbital position transmission, these may be from, but not limited to Turksat, and Astra at 19° East. The contractor will therefore allow, within the pricing schedule for so called 5 wire systems, 13 wire systems and 17 wire systems as well as the pre determined 9 wire system

16.MAPVHead-End Upgrades

At some locations the installation of an IRS may not be practical and the existing network still suitable for DTTV distribution. The contractor is to price for the upgrade of the Head-End to suit terrestrial reception, both at the time of installation and post switchover.

17. MATV Complete Installation

In certain circumstances, as previously mentioned in paragraph 16, an IRS may not be suitable for the location in question and the network may also require replacing. The contractor is to price for the installation of a completely new MATV system, incorporating antennas, Head-End, network infrastructure and outlet sockets.

18. Administration

The contractor will accept all responsibility for the administration of the project and will provide any report required by "Landlord"

18.1 Programme

The Contractor will agree a programme of works with "Landlord" taking into account geography, types of building and any specific requests from "Landlord". The contractor will advise residents of the intended date and time for the works to take place. The method and scale of such advice will be agreed between "Landlord" and the contractor prior to work commencing. The contractor will advise "Landlord" where work is taking place on a week by week basis and the number of staff expected to be involved with the project at any one time, A schedule of who, where and when will apply to the engineering staff working on the project.

18.2 Attendance Records

The contractor shall maintain accurate records for the purpose of attending any individual property to install sockets within these properties. The date and time of such visits are to be recorded by use of a PDA and this information will be maintained on a database, such database to be made visible to "Landlord" and any of its officers and/or residents.

18.3 Satisfaction Sign-Offs

The contractor will ensure that the work completed within an individual property is to the satisfaction of the resident and will arrange for a residents signature to be obtained before leaving the premises. All files to be arranged electronically.

18.4 Technical Files

The contractor will initiate a set of technical files to include, but not limited to: Surveys, as installed drawings and photographs, technical records, including equipment lists and completion certificates. All files to be provided electronically.

18.5 Progress Reports

The contractor will provide statistical information regarding the projects progress and will make these available electronically to "Landlord" at regular intervals, such statistical information to be readily available at the demand of "Landlord". The contractor will be expected to attend progress meetings at a choice of venue by "Landlord", dates and times to be agreed in advance.