Washable, acoustically-absorbent materials will be required in some areas within the infection-control regime.

Acoustically-absorbent materials should have a minimum absorption area equivalent to a Class C absorber (as defined in BS EN ISO 11654:1997) covering at least 80% of the area of the floor, in addition to the absorption that may be provided by the building materials normally used. If a Class A or B absorbent material is used, less surface area is needed.

Within atria, the following is also stated;

Acoustic absorption is likely to be needed in large open spaces such as atria, particularly in localised areas within it (for example reception areas and cafeterias). A reverberation-time criterion should be agreed depending on the specific requirements for use of the space.

Atria should strike a balance between controlled reverberation levels and the visually perceived/expected character of the space. The following criterion has been agreed as an optimum. This will permit effective speech communication over normal conversational distances, but will not be suitable for large group meetings or presentations.

	Reverberation Time, secs (average of values in 500Hz, 1kHz and 2kHz octave bands)
Atrium	2 - 2.5

Table 2.2 - Reverberation time criteria

3.0 ARCHITECTURAL DESIGN REVIEW & RECOMMENDATIONS

Scott Tallon Walker's drawings and information provided by other members of the design team have been used to inform the following review.

3.1 BUILDING ENVELOPE SPECIFICATION

3.1.1 Curtain Wall Sound Insulation

All proprietary glazing elements of the building fabric shall be tested in accordance with BS EN ISO 10140-2:2010 in a UKAS accredited, or similarly validated, laboratory.

The quoted minimum sound reduction specifications apply to the panels and windows, including frames, seals, etc. Glass performance is not an acceptable means of demonstrating compliance with the specification for window performance.

This will involve testing in 1/3rd octaves from at least 100Hz to 3150Hz inclusive. The test samples must be representative of the design proposals for the relevant façades as set out in the specifications below. This shall include glass, framing, seals, opening lights, etc. The results from the

tests should be converted into octave band values by the method approved in the above test document.

The following minimum sound reduction indices shall be achieved:

Sound Reduction Index dB	Octave Band Centre Frequency (Hz)						R_w
	125	250	500	1k	2k	4k	
External Façades							
Type A.1	38	43	46	50	50	47	49
Type A.2	34	40	43	47	47	44	46
Type B	32	38	41	45	45	42	44
Type C1	30	36	39	43	43	40	42
Type C2	23	24	29	32	30	29	35
Type D	20	24	27	31	34	33	31
Atrium Façades							
Type E1	N/A						41
Type E2							37
Type F	No Acoustic Rating						

Table 3.1 – Facades – Acoustic requirements

The general locations of these system types are indicated on the façade sketches provided in Appendix A and summarised in the following table:

Elevation	Floor	Glazing type required
Double Aspect Room on TCR & Grafton Way	1-3	Type A.1
Tottenham Court Road	1-3	Type A.2
Grafton Way – west	1-3	Type B
Grafton Way – east	1-3	Type C1
TCR & Grafton Way	4	Type C1
Grafton Way	5	Type C2
Huntley Street	All	Type D
University Street	All	Type D
Courtyards / Atrium Extension	1-4	Type D
Courtyards / Atrium Extension	5	Type C2
Atrium to Sensitive Rooms	Ground – 5th	Types E1 /E2
Atrium to Circulation Areas	Ground – 5th	Type F

Table 3.2 - Placement of glazing types

Type A.1 glazing system occurs in the limited scenario of a bedroom at the corner of Tottenham Court Road (TCR) and Grafton Way facades being exposed on both aspects. Subject to the results of laboratory acoustic testing, a secondary glazing unit fitted internally to the primary façade system, may be required to provide fully-compliant acoustic performance in this scenario.

Type A.2 glazing system is required for bedrooms on the TCR Façade having a single aspect. The requisite performance is expected to be provided by a suitably selected double or triple glazed unit and framing system.

Type B glazing system is required for bedrooms on the Grafton Way Façade with an open view of TCR. The request performance is expected to be provided by a suitably selected double or triple glazed unit and framing system.

Type C1 glazing system is required for bedrooms on Grafton Way that benefit from an increased distance from TCR and non-sensitive rooms on the TCR and Grafton Way facade. The requisite performance is expected to be provided by a suitably selected double or triple glazed unit and framing system.

Type C2 inclined glazing system is required for bedrooms on Grafton Way that benefit from reduced view of the street but, consequently, have greater exposure to noise from rooftop chiller plant. The requisite performance is expected to be provided by a suitably selected double glazed unit and framing system.

Type D glazing system is required for all used on facades without an open view of TCR and Grafton Way. The requisite acoustic performance is typically provided by a standard double or triple glazed curtain wall system.

Type E1 and E2 glazing systems are required on sensitive rooms backing onto the main atrium. The requisite performance is expected to be provided by a suitably selected double glazed unit and framing system.

Type F glazing system is specified for rooms backing onto the atrium that do not have a requirement for acoustic separation.

3.1.2 Cladding/Non-Vision Element Sound Insulation

It is assumed that non-vision elements of the building fabric will achieve a minimum sound reduction index of R_w 40dB. Such a performance is expected to be achieved by a thermally-insulated steel framed system with with internal linings.

3.1.3 Mullions or Cellular Partition Lines

Where appropriate, to control the flanking of partitions by cladding/mullions, the construction forming part of the external cladding shall be tested in accordance with BS EN ISO 10848-2:2006: *Acoustics - Laboratory measurement of the flanking transmission of airborne and impact sound*