

1 West Regent Street, Glasgow

A Post-Occupancy Evaluation

Final Report





Introduction

A post occupancy evaluation of 1 West Regent Street, Glasgow was conducted by Performance Consultancy and Six Cylinder.

Over 220 people were involved in the evaluation, in which qualitative and quantitative data was collected. The key findings are presented in this report, along with conclusions and recommendations.

Findings of Evaluation

Overall, the building was reported to be well liked by tenants, many of whom described it as a great working environment.

Design Process

The brief was for a high specification office, achieved through quality facilities and finishes. The client and contractor were involved in the design process early on, to inform decisions and help fix the brief and design. M&E and structural input was commissioned later. They reported that they could have influenced some design decisions, if they had been brought in earlier.

Some restrictions to the flexibility of the fit-out had to be incorporated, such as soft spots in beams and the location of the core, because the future use by tenants was not known. It was not reported to have been an issue for any tenants in their fit-out.

An EPC A rating was targeted, as opposed to BREEAM Excellent, as it was felt to be more appealing to tenants.

Building Design

Tenants reported that they liked the look and feel of the workspace, especially the views out across the city.

The reception design was updated after handover. Some tenants preferred the previous one, with images of Glasgow. Whilst they wanted the building to be of a similar quality to London offices, they were proud to be based in Glasgow.

Facilities such as showers and changing rooms were well liked by those who used them. The toilets were more of an issue, due to water marks on surfaces, etc. when in use.

Access was effective, but when it was busy the lift doors closed too quickly, more than one lift could not be called at a time and lifts did not default back to the ground floor.

Tenants liked the location of the building, in relation to public transport links. Cycling provision was liked, but some felt the design of bike racks could potentially damage bicycles.

Internal Climate

Acoustics were reported to be very good.

Glare was an issue due to the high level of glazing, but tenants felt that they could easily control this with the blinds.

Cold draughts were experienced by some tenants, but not others, possibly due to their location in relation to the ventilation supply registers in the ceiling.

Some tenants reported being too cold, and others too warm. They said they had little control over the temperature. Overall though, people were comfortable day to day.

Facilities Management

Tenants reported that there was visible wear and tear of some finishes, especially panels inside lifts and push plates on doors.

Some maintenance issues were taking longer to fix than tenants would expect, for example repairs to stairwells. The lead time on parts affected the speed of some repairs.

Cleaning quality was felt to be good, but more cleaning time would have been appreciated in heavy use areas, such as toilets, during the working day.

Energy Use

Energy use did not change significantly with the weather, suggesting it was set to "always on".

Data from tenants revealed that heating energy demands varied between them. This may be due to location within the building and/or issues with the commissioning of local temperature controls.

The spaces were performing well in relation to typical office benchmarks for heating energy, and were better than good practice for lighting and power.

Conclusions

From the evaluation, conclusions were drawn and recommendations made on three levels: quick wins, longer-term investment and future design.

Project Overview

One West Regent Street is a ten storey category A office building, including three retail units at ground floor level. The building was completed in 2015 for £25m. The floor area is 18,170 sqm. Included within the project was the integration of a landmark listed building. This site connects key Glasgow buildings; the Odeon Art Deco corner and James Miller House on West Nile Street.

There is a double-height entrance space at ground floor level, with a manned reception desk and waiting area. Security gates were installed before the six high speed lifts, which access all floors.

In addition to the office floors, a secure basement car park was provided, with bike racks for more than 50 bicycles and a drying room. A mezzanine level was incorporated, with lockers, showers and a changing area.

Floorplans are included within the appendices.

Seven and a half floors have been let in the building:

Floor 10	Weir Group
Floor 9	Weir Group
Floor 8	Global Radio
Floor 7	Arup
Floor 6	FDM
Floor 5	CMS
Floor 4	CMS (half floor)
Floor 3	Shepherd Wedderburn
Floor 2	Vacant
Floor 1	Vacant

Post Occupancy Evaluation Methodology

An holistic approach was taken to gather qualitative and quantitative data, and provide both breadth and depth. We involved over 150 building occupants in the evaluation process.

Evaluation activities included:

1) **Desktop review** of documentation including design brief, layout plans, energy data, etc.

2) A **Design team hindsight review workshop** was held with representatives from the project management, architectural and M&E teams. Discussion focused around the design process and responding to the brief.

3) **Interviews** were conducted with the building manager and representatives from four of the tenant organisations. Topics focused on were reasons for choosing the building, fit-out process and performance of the building following occupation.

4) A **Questionnaire** was sent out to four tenant organisations within the building. Responses were received from 151 tenants. Questions focused on building comfort and satisfaction with the communal areas.

5) **Building performance assessments** were conducted by a building scientist to establish how the facility was performing in terms of building fabric and energy use.

In this report, the key findings of the evaluation are detailed under the headings:

- Design process
- Building design
- Internal climate
- Facilities management
- Energy use

Recommendations are made for both the management of 1 West Regent Street, and learning for similar projects in the future.

Overall, tenants were extremely positive about the building. They liked the look and feel of the space internally and externally and were particularly positive about the views from their offices.

There were relatively few issues identified, which are highlighted within this report. Many of the issues are already being addressed by building managers, contractors and the design team.

2. Design Process



Brief Development

The client wanted to create a building which was as high quality in design and specification as office buildings in London. They wanted to attract organisations who would locate their headquarters at 1 West Regent Street. The design, and specification of systems, fixtures and fittings, were all driven by the requirement to provide a high quality and highly desirable office space. Emphasis was placed on toilets, showers, changing areas, and parking.

Numerous visits were made to London offices to view shower and toilet provision, and finishes. The visits inspired various elements of the design, including the incorporation of a mezzanine floor for showers and changing.

Detailed discussions were held, with the client, to develop and interrogate the brief. Numerous hours were dedicated to this exercise, in a relatively short space of time. The contractor was also involved in brief development discussions and influenced the brief based on what could be achieved. It ensured that the client was happy with what was specified, and that no significant alterations were requested or required.

Design Process

It was reported that the desire to get the building completed, sooner rather than later, meant that there were some areas of the programme where more time would have been optimal. In some areas, the team did not have adequate time to provide the level of detail required, for example ceilings were described as 600 to 1200, but the actual layout had to be developed later with the contractor.

There was a sense that those responsible for the structure and building systems, were appointed to the project later than would have been ideal. Due to the client having purchased the site with planning consent, the scheme was developed from the consented scheme.

Those developing the M&E solution and structures felt that earlier engagement would have led to a more holistic and pragmatic solution being developed. It was felt that the focus early on was on what could be seen in the building, rather than what would make it work. There was almost a complete re-design required of some elements, to practically achieve what was required and within the agreed budget.

There were some challenges associated with designing for the interface between 1 West Regent Street and the art deco building next door. Some tenants made it a clause within their lease that it be redeveloped simultaneously, or shortly afterwards, so as not to negatively impact upon the 1 West Regent Street building.

Aesthetic and fit-out

Specification was driven by the desire for quality, and the aesthetic of the building. The specification was fixed, for both M&E and design, however the price of some elements came in above budget. The contractor was able to go direct to the supplier in some cases, and in others, changes were made to the detail of what was specified. This led to the delivery of a building which met the overall specification and brief, but was within cost parameters.

The lead time for replacement of any FF&E or system parts were not a priority when determining the specification, as it was not something the client asked the team to consider. The focus was on look and feel on completion. There were limited spares purchased, as there was a limit to storage space available.

There was some discussion about what level of fit-out should be incorporated. Most tenants in their fit-out will lift up floor boxes and put in their own data cables, etc. Therefore, it seems wasteful to put in floor boxes and ceilings. However, the agent advised that it would help with letability of the space as it looks more attractive on initial viewing. Therefore, this fit-out level was delivered.

There were some issues noted, both by the design team and by tenants interviewed, with the resolution of security and access between the communal areas, including lift lobbies. Access control of the base build affected the fit-out of some offices and tenants had to work to find a solution to meet their needs, supported by the building managers.

2. Design Process

Structural Design

The concrete façade, specified previously, was changed to a more lightweight material to increase efficiency of floorplates. Additional work was undertaken with both structural and M&E teams to reduce the impact of services and structural elements on floorplates. For example, the beam strategy was carefully considered to allow long span floorplates, clear of columns, to be provided, within budget.

Some soft spots were allowed for in the beam strategy to facilitate walls being installed during fit-out. However, not knowing future requirements meant that these may not have been in the most appropriate location for tenants. Tenants did not highlight any issues with the beams, but an issue was raised by one tenant with the central core, which they felt divided the floorplate and made their space feel like two halves, rather than one, single open space.

Capacity for a full kitchen was specified on each floor, including associated extraction. Lengthy discussions were held about this issue, and ultimately it impacted upon riser sizes. Tenants were very positive about their kitchen areas, although only one from the sample interviewed had installed a kitchen requiring the full extract capabilities. Drainage was incorporated to the rear of the building for efficiency, but most tenants have decided to incorporate their kitchens elsewhere on the floorplate, requiring additional servicing to be provided. Additional riser space would have offered greater flexibility for fit-out.

The client specified parking spaces to accommodate large cars and around 60 spaces. Due to the footprint of the

basement, and where columns would naturally fall, a significant amount of the budget had to be spent on hidden structure to allow for the number of parking spaces specified. This had to be resolved after contract close, so money to fund this had to be found within the budget.

The roof on the completed building is largely given over to plant. A standard floor load was specified. This is adequate for the plant installed, and above the lift core is an area designated for four further generators if required.

Construction Process

The site was bought after planning consent had been granted. The footprint and massing of the building did not change dramatically, and Glasgow City Council Planning Department saw this as a real opportunity for investment in Glasgow. Therefore, they were keen for the building to go ahead and supported changes that were made.

Building Control was a challenge. The timescales for getting agreements were long, therefore much of the work had to be undertaken at risk to the contractor. For example, getting the address of 1 West Regent Street confirmed and fire strategy approved. This was out of the control of the team, but had implications for the project.

One of the main fit-out issues raised by tenants was the lack of a goods lift. Many had to transport elements, even heavy pieces, up the stairs. Lifts were damaged by materials, etc being transported. It was felt by the design team that, whilst it would have been useful during the fit-outs, a goods lift was not really required in general use. Therefore, it was not cost effective to provide one.

Commissioning of the building went to programme. However, there were some specific issues noted, such as the building pressure test being scheduled for the same day that windows were being installed. All the electrical testing was witnessed by M&E contractors.

Building Performance

EPC A was targeted from day one, based on theoretical carbon emission targets, and achieved. Advice from letting agents suggested it would be more attractive than a BREEAM Excellent rating to tenants. It was not felt to be worth the additional investment, to achieve the small number of mandatory credits, to achieve BREEAM excellent.

The team went for VRV, which provided a good starting point. An outline model for the building was built at Stage 2, which informed decisions that were taken.

High performance glazing was incorporated on east, west and south facing facades, but was omitted from the north facing facade as it was deemed to be an unnecessary cost. The envelop manufacturer was appointed at the same time as the contractor, so they had already determined that the project could be built.

The depth of the beams had to be reduced to below 800mm to avoid the need for void detection in the sprinkler system. This meant that the steel density had to be increased, and cellular holes within the beams were limited in number, which reduced flexibility for fit-out. It also had some impact on the overall ceiling layout in terms of where vents could be incorporated, etc.

3. Building Design



3. Building Design

The way that the building looks, the amenities provided, the communal spaces, and other issues of access transport and security were considered within the evaluation. Overall, people were very positive about the design of the building.

Aesthetic

Overall, respondents to the questionnaire reported that they liked the look and feel of the workplace.

A well defined palette of neutral colours and natural materials was specified for the communal areas in the building. These colours were used to avoid clashes with the brand of occupying organisations.

For the reception area, design principles were developed by an interior designer, but the technical design was completed by the architects. Given that they were designing the whole of the building, the reception area was a small part of the architect's scope. If interior designers had also been appointed to undertake the technical design of the space, it may have ensured that all principles were applied effectively, and in the way envisaged. Budget constraints were also felt to have restricted what could be done in the space.

Since being completed, the reception area has been refurbished by the building owners. Tenants reported that this was not at their request. Many also stated that they preferred the previous design, which included images of Glasgow and was therefore perceived to be more relevant, locating them within the city, as opposed to the new artwork which was more generic.

Other small amendments have been made to communal areas, such as changing signage from glass to bronze, to improve the aesthetic.

One of the main positive features of the building, highlighted by a high number of questionnaire respondents and tenant representatives interviewed, were the unencumbered views from the building, across the city of Glasgow. All tenants noted this as a major driver for them selecting the building, in particular those on higher floors.

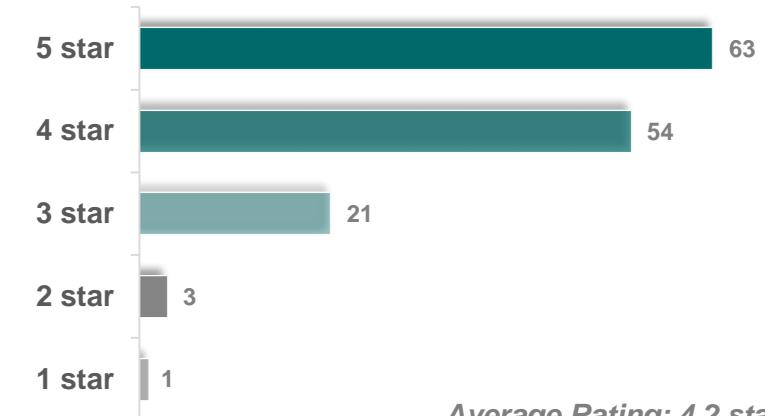
Amenities

As noted, amenities within the building were a key aspect of the brief. Overall, people reported being very happy with the showers and changing facilities. However, it should be noted that only 18% reported using the showers and changing facilities often or regularly.

The toilets were not rated as favourably. This was due to how they looked in use, as opposed availability. Allowing access to toilets between floors meant that they were in communal areas so fewer toilets needed to be provided. However, this did not appear to have been an issue for tenants. In use it was found that the taps splash out of the sink and on to the black Corian surface too easily, and this left prominent watermarks. As a result, some people felt that it regularly looked messy and less than pristine.

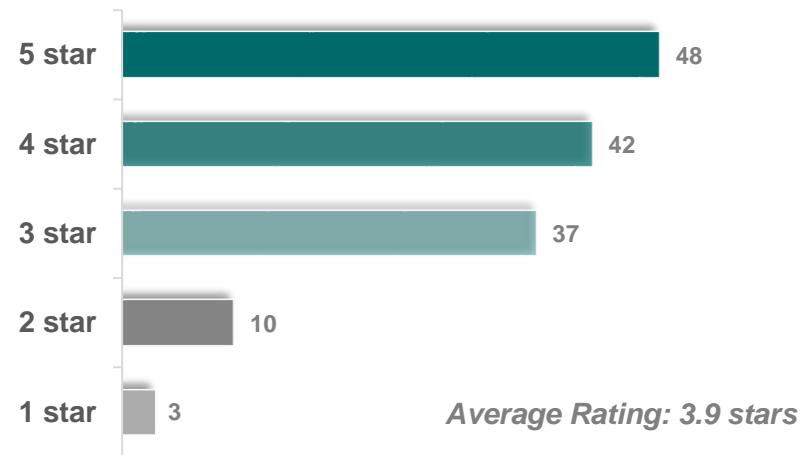
In addition, there were some concerns raised about views into the toilets, as the staff noted that they could clearly see out on to adjacent buildings and were worried that people could see them in the toilets.

How would you rate the external appearance of the building?



Average Rating: 4.2 stars

How satisfied are you with the design and layout of the toilets?



Average Rating: 3.9 stars

3. Building Design

Access

The building was designed to facilitate ease and speed of access, whilst maintaining security. There was discussion around the main doors being sliding or revolving and the length of time it would take people to get through a secure barrier and into the building.

Overall, people reported being happy with access to the building. There were some issues raised in relation to the lift control system, particularly at busy times.

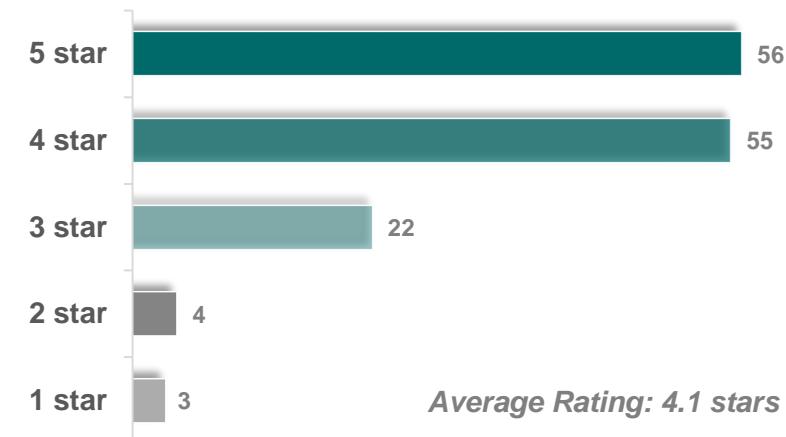
Some felt that the lift doors furthest away from the smart-panel closed too quickly, and that it was not always possible to get there in time. At busy times, the system did not allow more than one lift to be called at a time, and lifts did not default back to the ground floor. This meant that there were often queues of people waiting for lifts at the start of the day.

Sometimes selecting the right floor on the smart-panel was an issue as it appeared to have an additional, unnecessary screen after the floor was first selected.

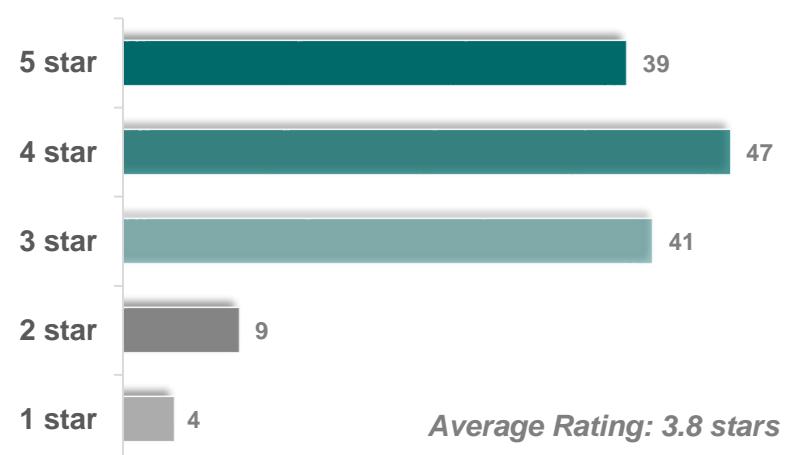
The design team noted that the majority of people use the escape door to enter the building, rather than revolving doors, which affects climate control in the reception area.

The reception staff were praised, and people felt that they, along with the design of the space, created a welcoming environment for visitors and occupants of the building. The only minor issue raised was the distance of the waiting area from the reception desk, so reception staff could not speak to visitors from their position at the desk.

How satisfied are you with the design and layout of the reception area?



How would you rate the appearance of the corridors, lift lobby and stairwells?



Communal Spaces

The main communal spaces considered within the building, aside from the amenities, were circulation spaces. This includes: lift lobbies, stairwells and the reception area.

Overall, people reported that the amount of space and design were well liked, but there were issues with the robustness of some finishes. In addition, there were issues raised in relation to the length of time it had taken to fix damage, particularly to the stairwells.

Polished plaster was specified in the reception area and lift lobbies. The client was keen to keep this within the specification. However, in areas without natural light, such as lift lobbies, it did not work as well, and application played a large part in the quality of the finish. In the reception area, the majority of the polished plaster has been skimmed and painted white

3. Building Design

Transport

The location of the building was one of the main reasons given by tenant representatives for taking office space. Access to public transport links, for their employees and visitors and clients, was important. For two tenants it was a deciding factor in choosing 1 West Regent Street over offices viewed in other locations in Glasgow.

Most felt that the location reduced the need for parking, although the four spaces allocated per floor were used by all tenants.

One tenant organisation relied heavily upon cars, as employees spent a lot of time out visiting clients. They had had to take parking spaces in a nearby multi-storey carpark, and found this to be expensive. However, they appreciated that they chose the office knowing that there was limited parking available.

Around 21% of questionnaire respondents reported having cycled to work, and 10% reported cycling regularly. These respondents reported being happy with the provision of showers, changing facilities, a drying room and lockers. They were also happy with the security of the bike storage area. However, some cyclists found the racks to be an issue, particularly if they had mudguards on their bike, as the design of the racks meant their bikes were at risk of being damaged.

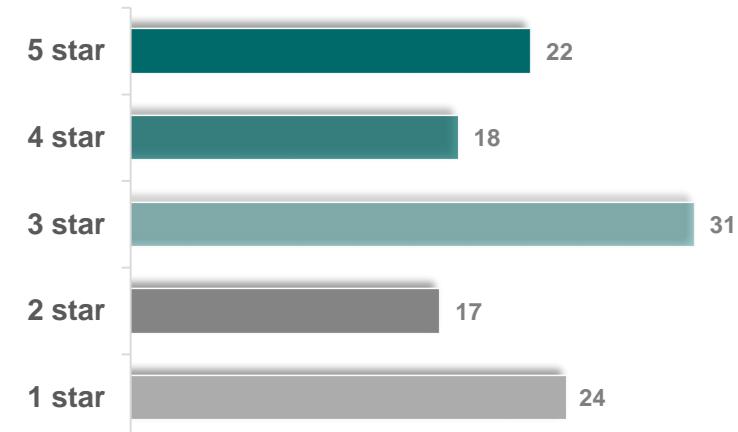
Given the location of the office, and the regeneration locally, some tenants reported that it had improved social interaction in the offices, with people going out to get lunch and eating together, or going out after work.

Security

Overall security of the building was rated very positively. People felt that during the day the building was very safe. The increased activity in the local area, as a result of the regeneration, in which 1 West Regent Street has played a part, has made people feel safe when they leave the building in the evening.

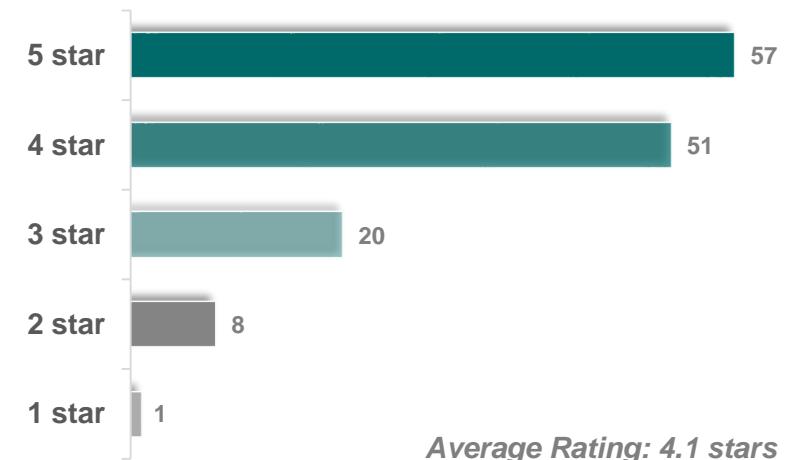
Some respondents reported that they would have liked increased security presence in the evenings. This was to allow tenants to exit the building, as they were not always able to find someone to let them out if the security guard was on patrol. It was requested by two questionnaire respondents, that the security guard was always stationed at the desk 20-30 minutes before the last trains in the evening, so they could get out on time.

How satisfied are you with provision for parking?



Average Rating: 3.0 stars

How satisfied are you with the security of the building?



Average Rating: 4.1 stars

4. Internal Climate



Environmental Comfort

Environmental comfort was looked at from two perspectives. One was the frequency with which discomfort occurred, and the other was how easily tenants could make an adjustment to alleviate any discomfort. This principle is based on the adaptive comfort approach to evaluating building performance, which defines comfort as the absence of discomfort. It suggests human control over the immediate environment allows people to adapt to, and even prefer, a wider range of thermal conditions. Thus, a lack of adaptability in a space would exacerbate any discomfort.

The two extremes of internal climate factors were addressed, as well as other indicators of environmental qualities. This included cold draughts and hot spots (excessive and under ventilation); too hot and too cold (heating/cooling issues); smells and stuffiness (ventilation strategy and capacity issues); glare (lighting design); city noises (acoustic penetration through the façade); noise from adjacent offices and vibration (internal acoustic partitioning).

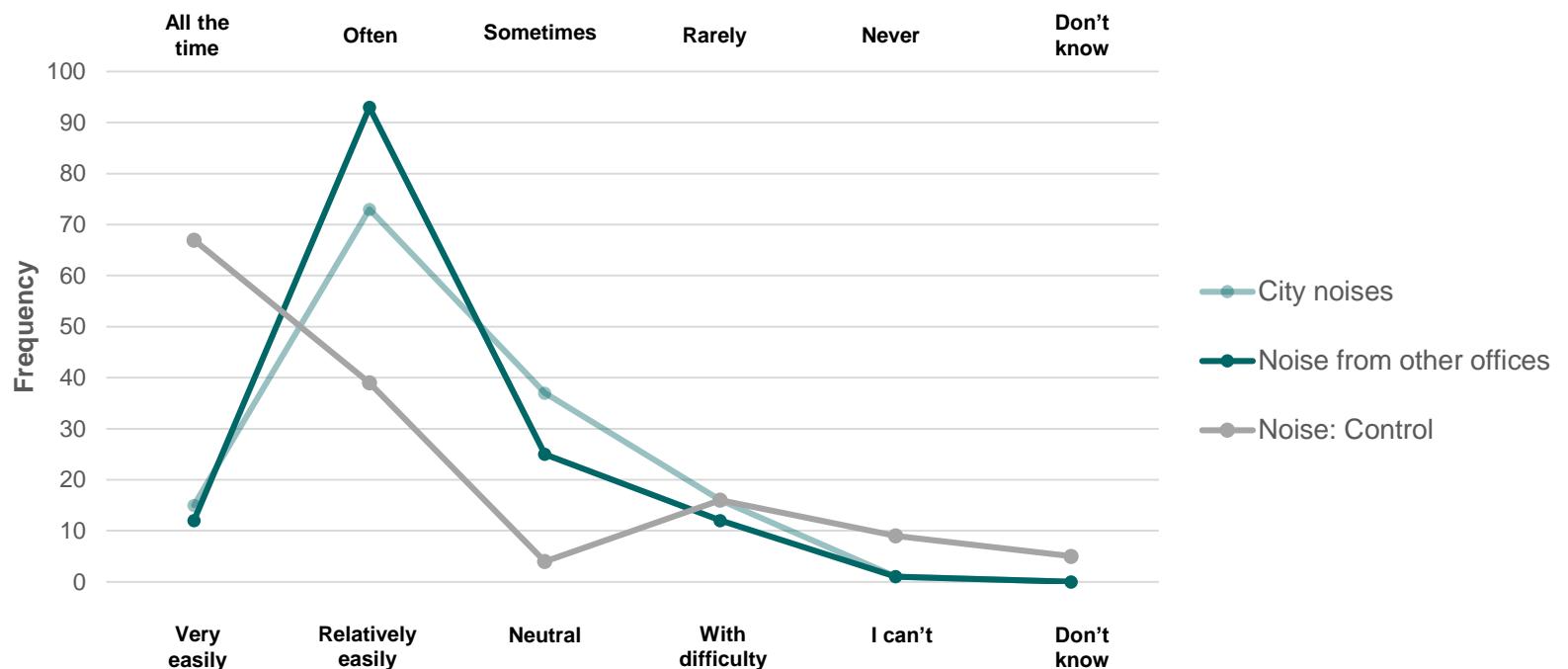
There were a small number of comfort issues which were raised in the meetings with Building Managers, which were predominantly to do with the ventilation and temperature. This was confirmed in the end user questionnaire responses, which highlighted some of the causes of discomfort.

Acoustics

The responses about various acoustic performance parameters were very positive, with the vast majority of respondents stating that they are rarely or never negatively affected by noise from the city or adjacent offices. This is demonstrated by the teal coloured line on the graph.

Tenants reported that they do not notice, or do not need to make adjustments to eliminate, unwanted noise, as indicated by the grey line on the graph. This is positive feedback in relation to the structure and architecture, and indicates the building fabric is generally working as it should be.

How often do you experience the following in your office?



When the following becomes an issue, are you able to make adjustments?

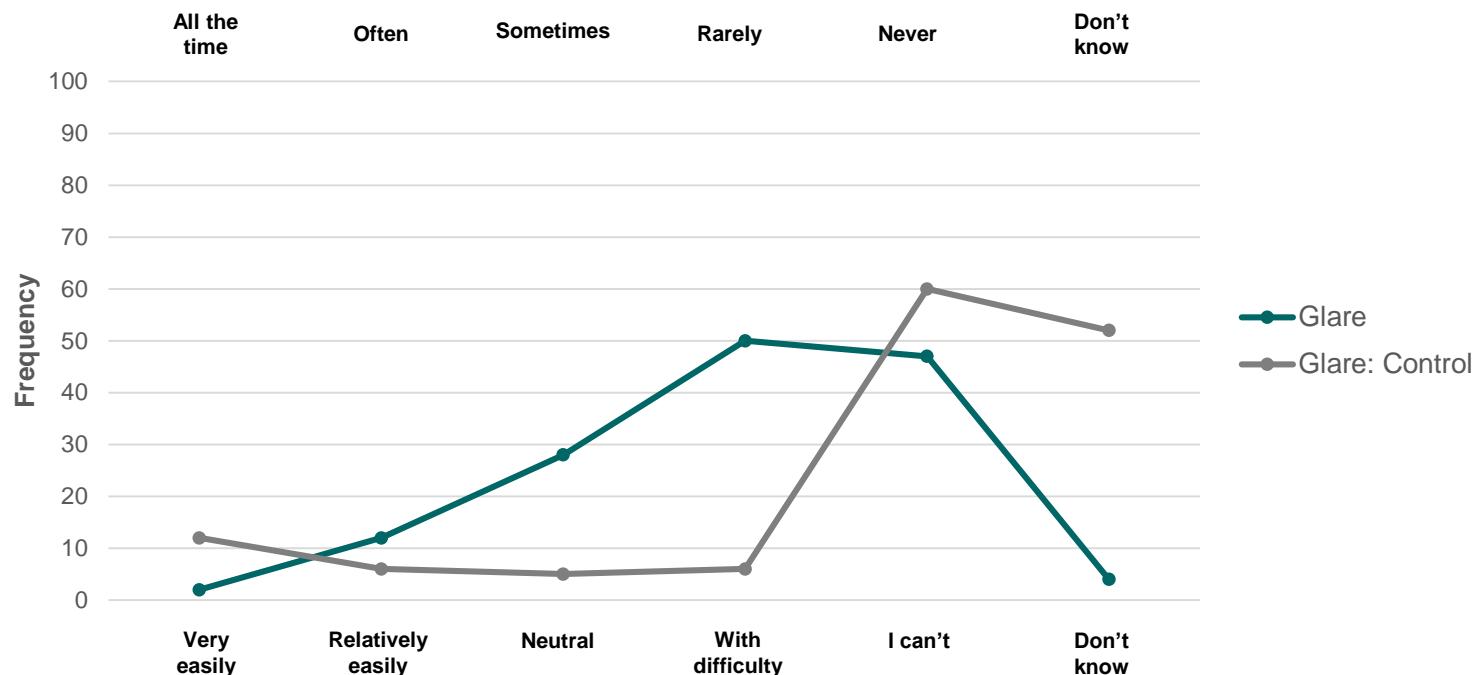
4. Internal Climate

Lighting

The frequency with which people experienced glare was extremely high, as would be expected with a highly glazed façade and adjacent buildings. Often glare is caused by sun reflecting off other hard surfaces in the city scape, such as building facades, streets and roofs, back towards the building in question. This is shown by the teal coloured line on the graph.

Despite the frequency that glare was reported, building users felt that they were able to alleviate glare which means it was not too much of a comfort concern. This is highlighted on the graph by the grey line. It also indicates that the installed systems were working for many of the building occupants. There may be some specific areas where control is less possible, such as desks with certain orientations, or areas which are not fitted with blinds. The occupants in these areas may suffer more issues with glare on their screens.

How often do you experience the following in your office?



When the following becomes an issue, are you able to make adjustments?

4. Internal Climate

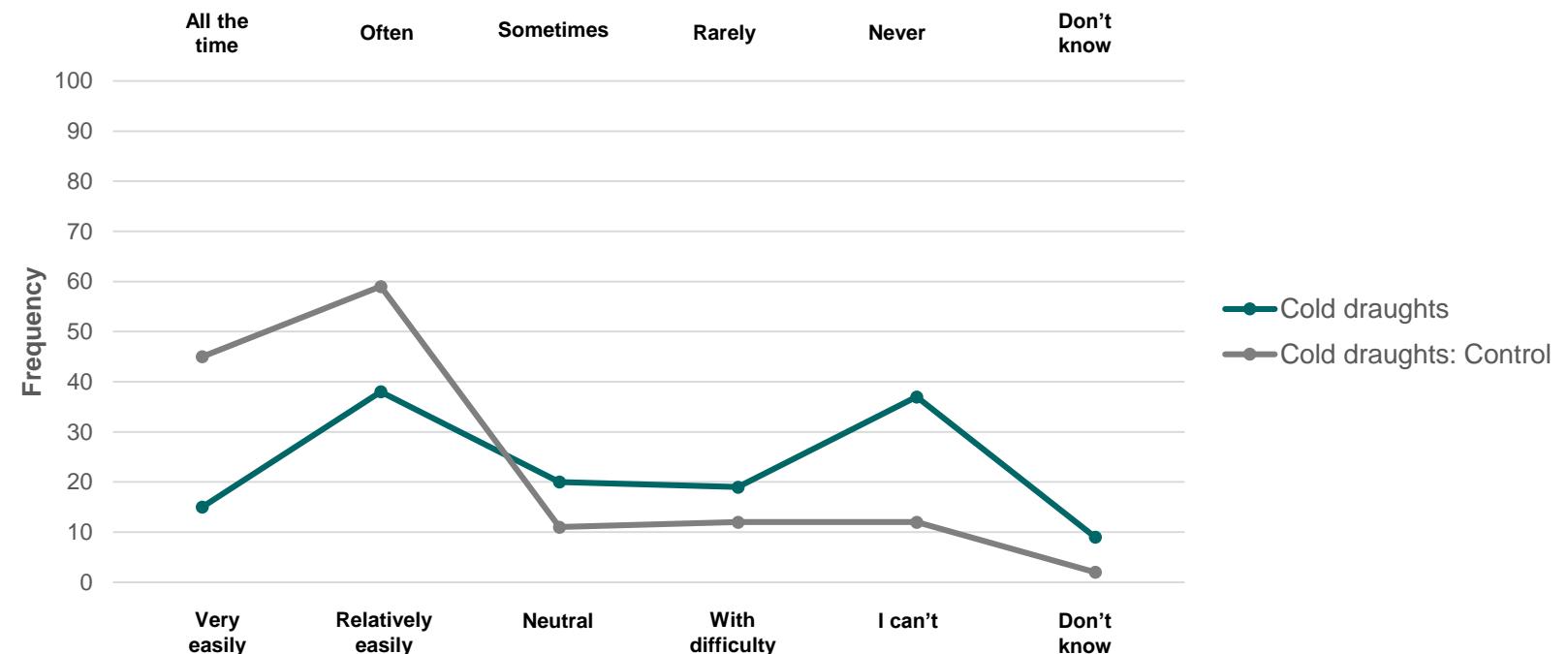
Air Movement

Responses from the end user questionnaire revealed that the frequency people felt cold draughts was highly variable, with 33% of respondents stating they often or always experienced cold draughts and about 38% saying they never experienced cold draughts or did not notice. This is highlighted on the graph by the teal coloured line.

The variance in responses is consistent with what would be expected, based on the desk layouts in the offices. Occupants with desks under ventilation supply registers would have been frequently impacted by cold draughts, whereas those with desks further away would not.

More consistent was the response on control, with 50% of occupants saying they could not make adjustments, or could only make adjustments with difficulty, to alleviate discomfort from cold draughts. This is demonstrated by the grey line on the graph.

How often do you experience the following in your office?



When the following becomes an issue, are you able to make adjustments?

4. Internal Climate

Thermal Performance

Too Cold

The frequency with which people felt too cold was consistent with 48% of respondents stating they often or always felt too cold. This is likely to be a combination of both ventilation and temperature control. This is highlighted by the teal line on the first graph.

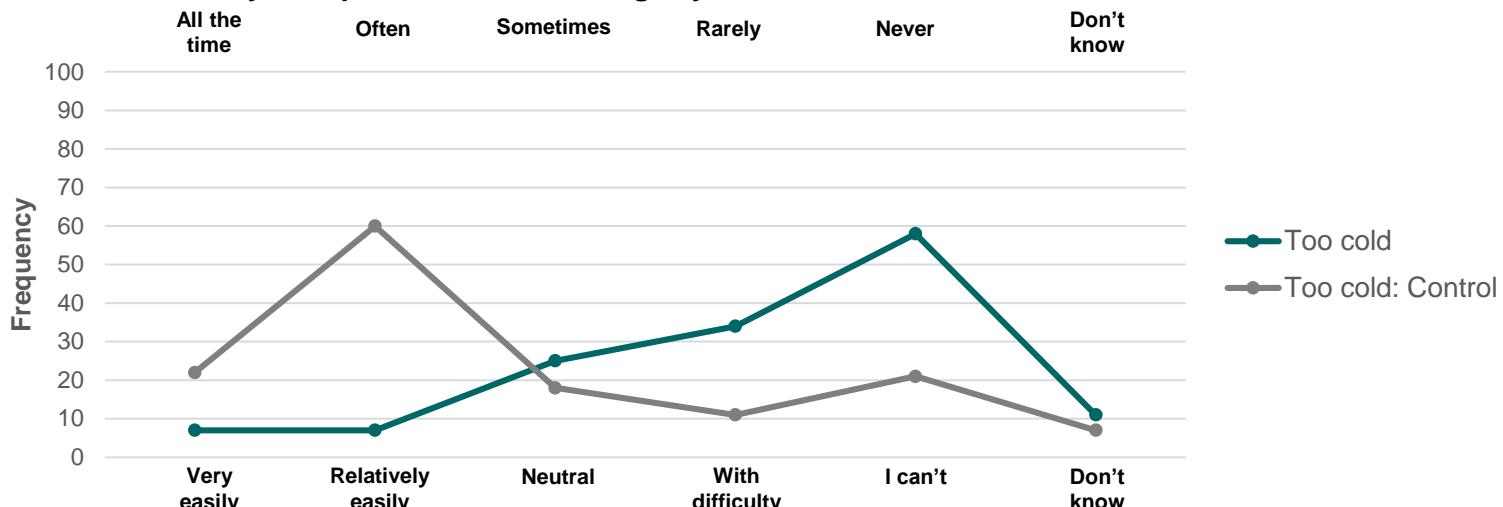
The response on control was that 56% of occupants saying they could not make adjustment or could only make adjustment with difficulty to alleviate discomfort from the space being too cold. This is shown by the grey line on the first graph.

As this is an adaptive comfort survey, it's possible that those who say they *can* easily make adjustment to alleviate discomfort from being too cold, may either be adapting their dress (e.g. putting on a jumper), their location within the office (e.g. using breakout spaces), or their perceived body temperature (e.g. warm food/drinks).

Too Warm

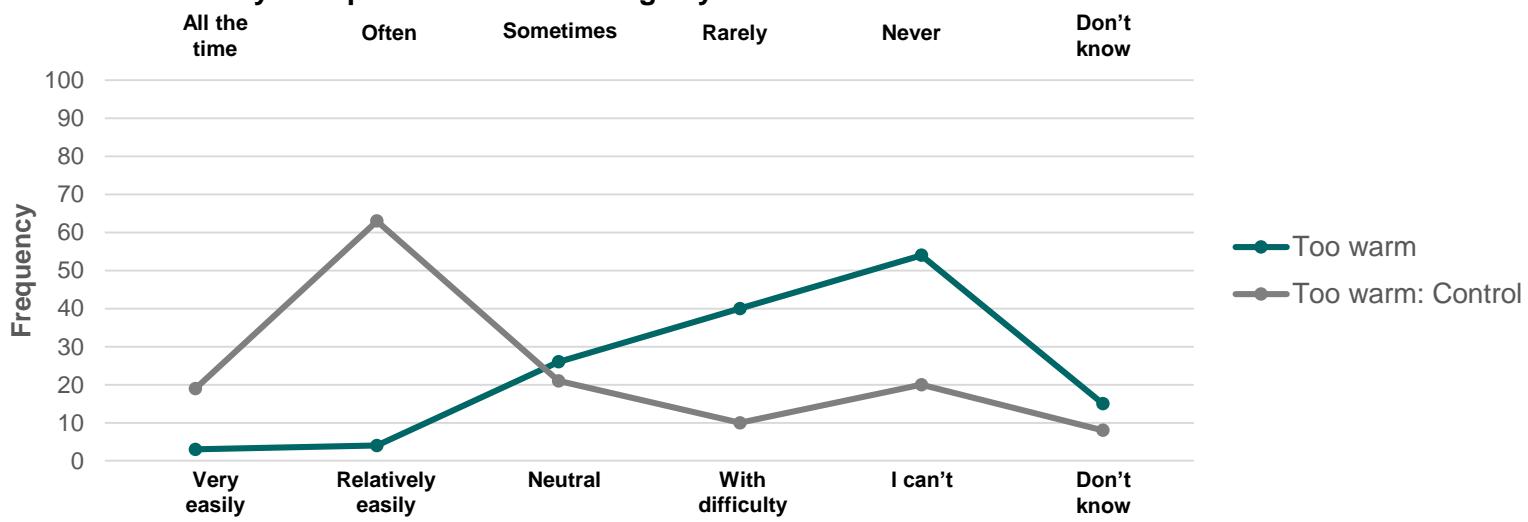
The responses about being too warm are statistically very similar to 'too cold' and is demonstrated by the teal line on the second graph. The frequency with which people felt too warm often or all the time was 48%. With control, 60% occupants saying they could not make adjustment, or could only make adjustment with difficulty, to alleviate discomfort from the space being too warm. This is again highlighted by the grey line on the graph.

How often do you experience the following in your office?



When the following becomes an issue, are you able to make adjustments?

How often do you experience the following in your office?



When the following becomes an issue, are you able to make adjustments?

4. Internal Climate

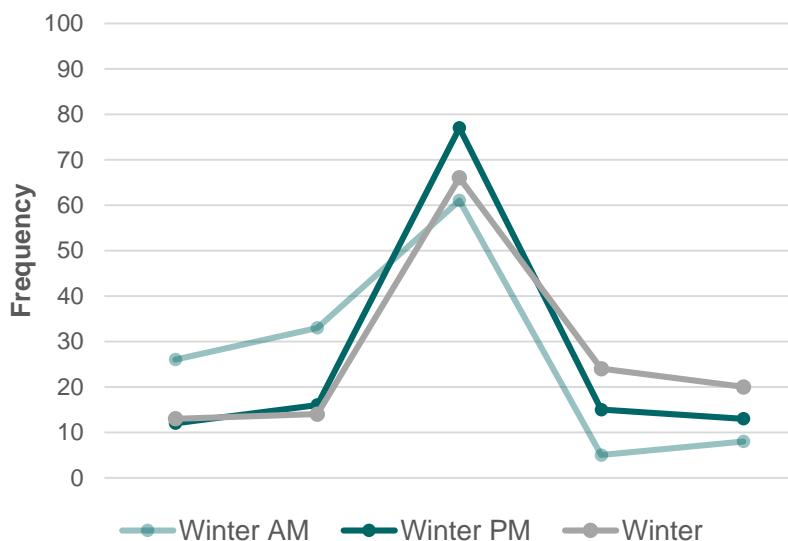
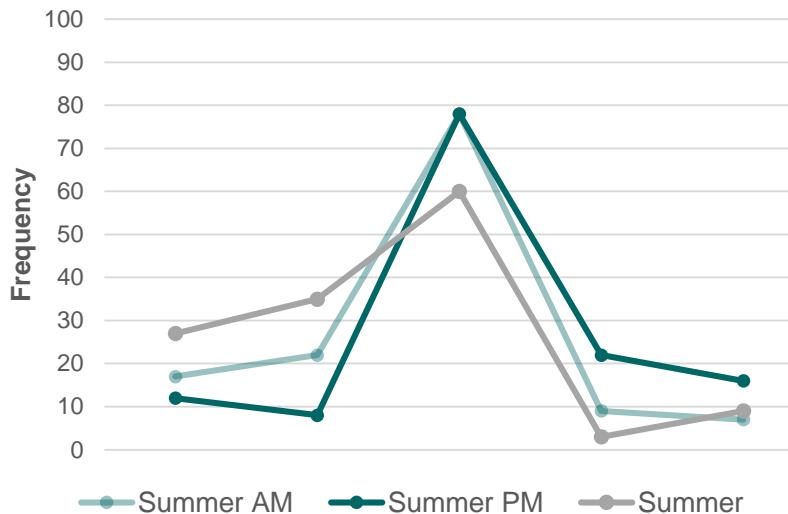
Summer & Winter Thermal Profiles

The respondents also gave feedback about the temperatures in summer and winter, as well as in the mornings and afternoons.

The overall perception for summer or winter is shown by the grey line on each graph. The teal lines highlight perceptions in the morning and afternoon at that time of year.

The results shows that both the summer and winter conditions were generally satisfactory, with the majority of respondents rating the temperatures as neutral. As expected, the summer temperatures were slightly weighted towards too warm, whereas the winter temperatures were slightly weighted towards too cold.

Overall, the thermal responses demonstrate that occupants generally find the thermal comfort of the building acceptable, despite the cold spots and draughts. This is reinforced by the adaptive comfort principles that the occupants are able to make reasonable adjustments, to their working situation, to alleviate any specific discomfort.



Ventilation System

The design of the ventilation is to both supply and return through registers in the ceiling, using the void above the ceiling as an extract plenum. This creates a series of environmental qualities which impact on comfort. Firstly, when cooler air is supplied through the register, it will tend to descend rapidly into the space, due to natural negative buoyancy, with the existing air being warmer and thus less dense than the colder air. This can create an "air curtain" effect, which can cause localised discomfort. Alternatively, the fan speed and diffusion grills can push the air at speed, either horizontally or vertically, depending on whether they are commissioned correctly. The increased airspeed can then exacerbate any thermal discomfort, which anecdotally, could account for the situation reported by one of the tenant organisations.

Generally, the most comfortable ventilation strategy is to supply air at low level, and allow the fresh air to displace the soiled, warmer air by pushing it up to the ceiling, then extract the soiled air at high level. This reduces internal air speeds, minimises the travel distance of cold air, and its exposure to occupant's skin, and uses the natural qualities of basic fluid mechanics to improve the efficiency of the building. It also potentially reduces the fan-power requirements of ventilation system. Understandably, this can be difficult to achieve in a speculative office building, as having to coordinate ventilation services in both the floor and ceiling would potentially be unappealing to tenants, and restrictive in terms of coordinating layouts.

5. Facilities Management



5. Facilities Management

Wear and Tear

Tenants reported that some finishes within the building had not worn as well as they would have liked. This includes the finish on the panels inside the lifts and internal door push plates.

The surfaces of lift panels were scratched. One panel in particular was noted to be vandalism, but there were scratches on other panels which were due to people's bags in the lift, etc. Tenants felt that it made the lifts look scruffy and a more durable finish may have been more effective.

Invisible fixings were specified for the internal door push plates. Tenants reported that in a number of locations, these had come loose and appeared warped.

Maintenance

Tenants reported that they would have liked some maintenance issues to have been fixed quicker. Some of these were things which had been damaged or had broken, and others were linked to the original build.

It was reported that there was a delay to some repairs being made, due to the lead time for parts. One example cited was a lead time of at least 6 weeks for a replacement locker key to be obtained. Tenants were frustrated when issues could not be resolved faster.

A number of tenants reported frustration with the length of

time taken to repair damage caused by the fit-out, in particular in the stairwells. At the time of the evaluation, repairs were just being completed, around a year after the fit-out of most spaces had been completed. Most tenants felt that this was too long to wait.

There were some residual issues with the building highlighted as outstanding, including the temperature settings in one office and issues with air conditioning system commissioning in another. Tenants were working with the building manager to get these resolved.

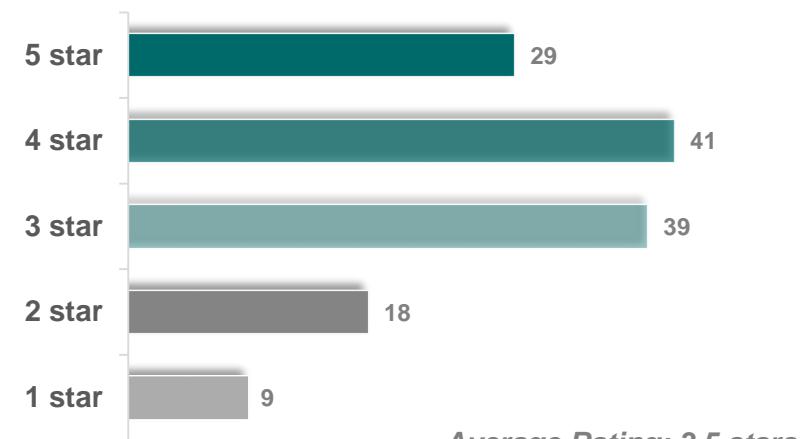
Overall, people felt that those managing the building did an effective job and responded to issues as quickly as they were able to. It was felt that delays to repairs and maintenance were caused by factors outside the control of the building's own management team.

Cleaning

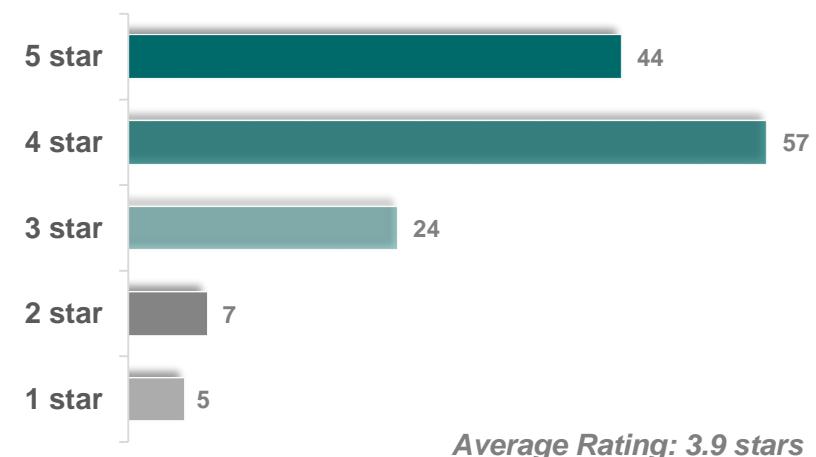
Some tenants raised issues with cleaning. People were generally satisfied with the standard of cleaning that took place in the building, but felt that not enough cleaning staff hours were allocated for every area to be cleaned as often as it should be. In particular, issues were highlighted in relation to the frequency of cleaning in the toilets during the working day.

There were also issues raised in relation to some finishes which showed up dirt or looked unclean with use. For example, stainless steel surfaces in high use areas and Corian surfaces around the toilet washbasins which show up watermarks.

How satisfied are you with the wear and tear of the building?



How satisfied are you with the cleanliness of the shared areas of the building?



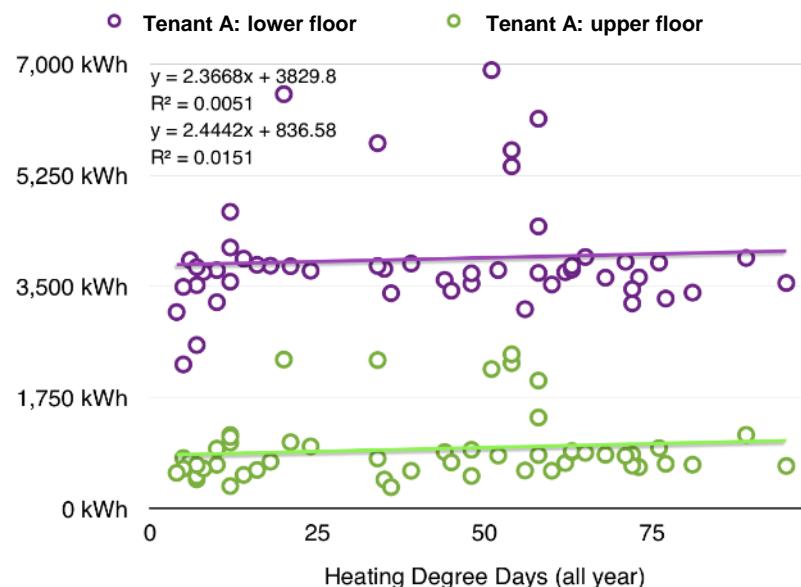
6. Energy Use



6. Energy Use

Heating Degree Day Analysis

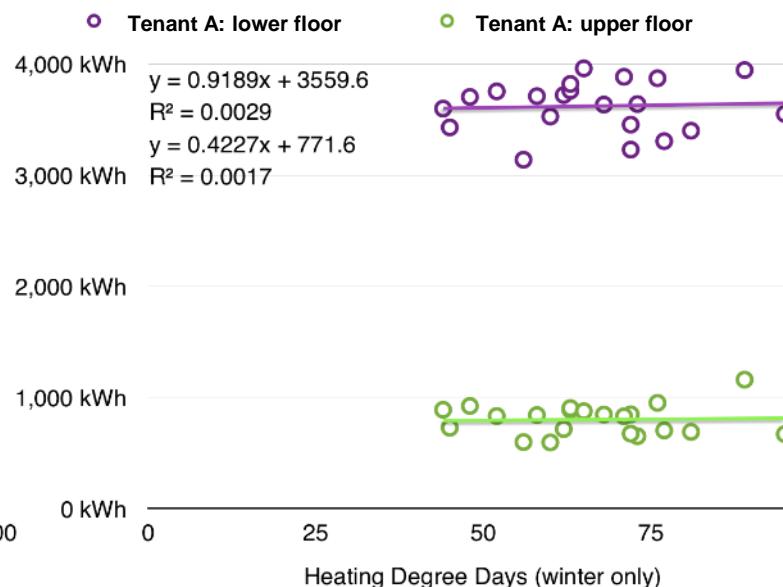
The energy data for two tenant was analysed. Heating degree day correlation, using a 15.5-degree baseline temperature, did not reveal a statistically significant correlation, for either workspace. Even with the cooling data removed, there was little to indicate that the system was responding to external weather conditions. This is somewhat unusual in a modern office building, with a new BMS system. This suggests that the current performance of the space is potentially operating in an “always on”, constant output scenario. Further investigation could help to identify the cause and improve control over the system, reducing the operating cost of the space by lowering the environmental servicing demand.



Tenant A Heating Energy

Two sets of analysis were undertaken on Tenant A’s heating and cooling data to determine the correlation with weather. The first set of data looked at the full year energy demand in relation to heating degree days. The second looked only at data collected between November and March (heating season), to see if that improved the data correlation. Neither analysis showed any statistically significant correlation to the weather.

As expected, the lower floor has a higher general demand for heating energy than the upper floor. This is likely to be due to the stairwell acting as a small chimney through

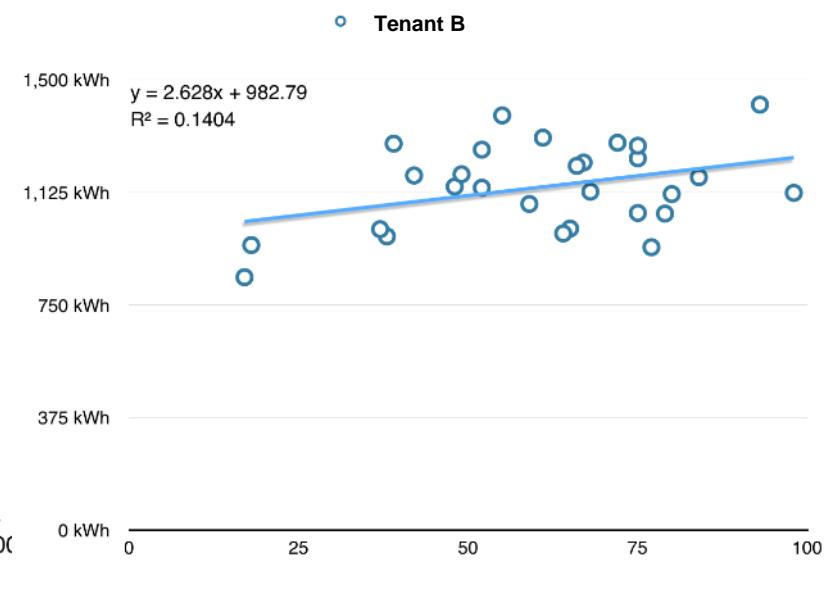


which the lower floor heat escapes to the upper floor. This contributes to the upper floor heat load, reducing the heating energy demand of the upper floor, but increasing it for the lower floor.

The lower floor had an average baseload of ~3,829 kWh/week and the upper floor had an average baseload of ~836 kWh/week, which averages a baseload of ~2,333 kWh.

Tenant B Heating Energy

Tenant B’s heating degree day analysis showed a poor correlation between heating and degree days (<15%). It indicates a baseload of ~982kWh/ week.



6. Energy Use

The building employs a number of unique passive strategies to aid in reducing the overall energy demand and overall passive nature of the building design. Firstly, is the southern-facing core. This is a clever feature, as it reduces the solar gain from the south facades, reducing the need for active cooling which would normally dominate a building of this type.

The BCO Award application statement said “The central air handling units employed adiabatic cooling. Such a system does not rely on a central cooling facility therefore delivering supply air throughout without the traditional low off coil temperatures and low levels of relative humidity often associated with dry throats or contact lens issues. It is believed that this is the first such system to be employed in a speculative office development in Scotland and is a step to delivering a healthier environment.”

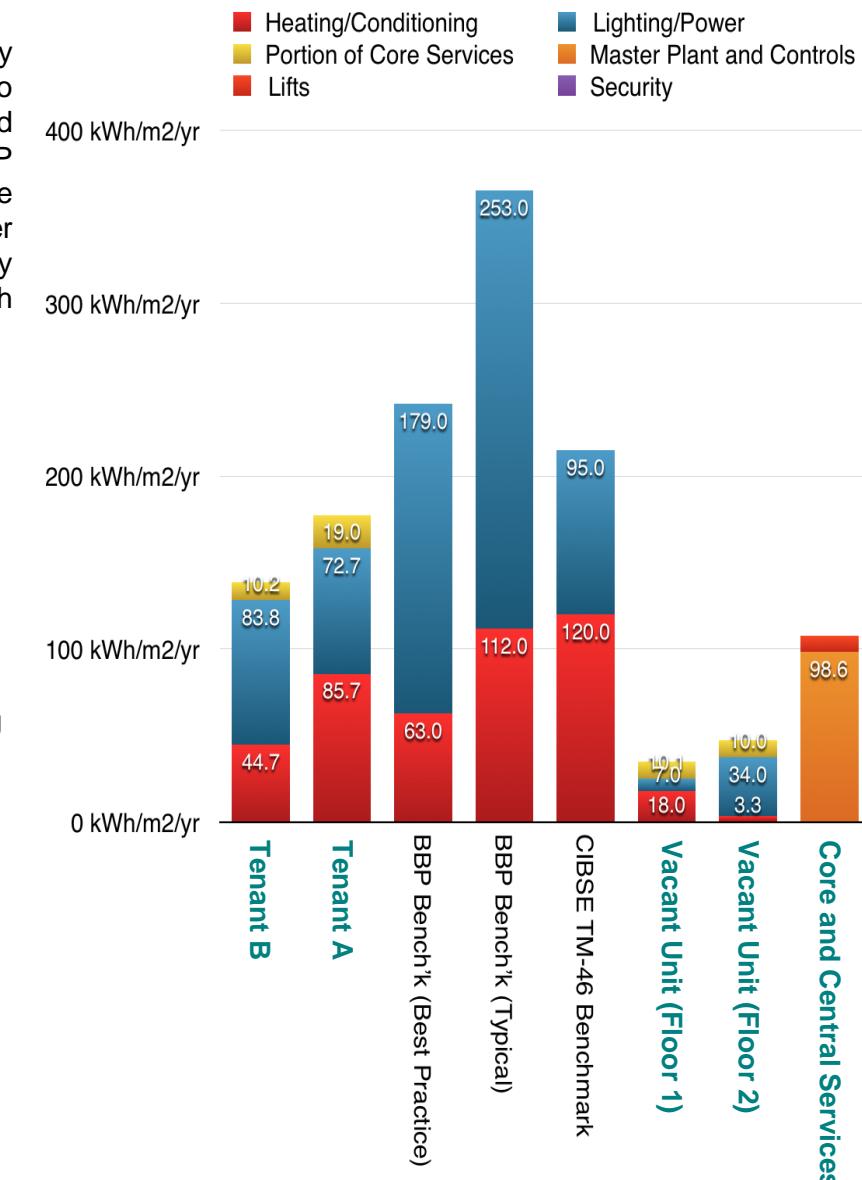
The energy data which was analysed included the core services electrical sub-meters, the sub-meters to two of the empty units (Level 1 and Level 2), and the sub-metered data for Tenant A and Tenant B**. A range of benchmarks have been provided to compare the performance of those spaces, prioritising the two occupied offices.***

Normally, when comparing the building' energy data against BBP Benchmarks, the full building data would be included, for all offices. We only had permission to use energy data from two tenants, so the other tenancies could not be included in the overall analysis. Thus, the

core and central services data was accounted for separately on the graph, and then added back into the two tenants who had energy data available. It is assumed the tenancies and operational patterns are similar to those of the BBP benchmarks. Even with core services added back in, the area weighted energy use of Tenant B's offices are better than the “Good Practice” BBP benchmark¹, and significantly better than the CIBSE Best Practice benchmark for both heating and electrical loads.

¹About BBP Operational Energy Benchmarks:

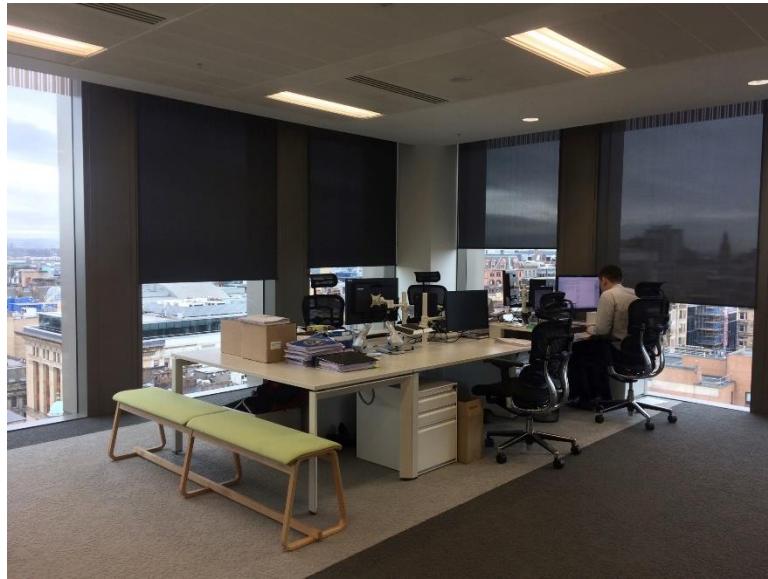
- Benchmarks are calculated from the average of the most recent three years of data; based on properties for which at least three years of validated data are available within the last five years, in the UK.
- The benchmarks are based on offices which have an average annual occupancy rate of 75% or more in all three of the years of validated data.
- The benchmarks are based on whole building data only.
- It is recognized that whole building energy intensity using NLA as the denominator is, as opposed to GIA, to an extent, a mismatch between numerator and denominator but this is the most consistently available and accurate denominator.



** At the moment, the data is only regularised against benchmarks for floor area, not weather or occupancy.

*** The energy data may require a further discussion with Atelier10, for QA.

6. Energy Use



The lighting and small power loads in Tenant A and Tenant B's offices are not significantly different. The firms have similar densities of occupation and relatively similar central services for their staff, and all the lights are controlled by absence detection, which is generally the most effective form of lighting occupancy detection.

The difference in environmental energy demand from the AHU's is significantly different however, with Tenant A being nearly twice Tenant B's energy consumption per unit floor area. The FM from Tenant A noted they do not currently have visibility over the BMS, only the thermostats, for which there is no map to indicate which thermostats control which fan coils. Tenant A increase the temperature set-point from the default of 21-degrees daily, as they otherwise get cold blasts from the ventilation system. They also noted that the system was generally

slow to respond to requests for temperature increases and that the system reverts back to the defaults every day at 6:30am. This creates a small management burden, with the FM having to actively manage the primary office space temperature set-point, which he cannot do until 8:30am, when the first staff arrive in the office. The increased load and discomfort may be connected and partly due to not having an occupied office floor above. Further investigation may be useful, however it is likely that a recommissioning of the controls could both alleviate some comfort complaints and reduce Tenant A's air handling energy load.

Potential Recommissioning

The primary system was commissioned before fit-out, despite ducting downstream of fan coil units having changed in some instances. Any recommissioning should include reporting on the initial programming of the BMS, as-is, and provide a list of changes made, along with month-by-month monitoring of energy use to demonstrate that changes have had an impact on performance. It is likely that reducing the operational hours of the ventilation plan, by 30 minute intervals in the morning, could help with both comfort and energy demand, if this is allowable in the tenancy agreement..

Future Commissioning

Commissioning in speculative office buildings is typically carried out as it was in 1 West Regent Street, due to contractual ease, rather than because it is the most efficient or effective way to approach the commissioning of the heating and ventilation systems. This offers some opportunity for improvement and innovation.

It is possible that future spec office buildings could benefit from a staged, leaner, commissioning strategy, which could both improve performance and reduce some controls costs. There may be some advantage in doing a light-touch commissioning pre-fit-out to ensure the equipment is all, in principle, in working order to close the primary contract. Then carrying out a more substantial seasonal commissioning as part of the tenants first-year in-situ, post-fit-out. This would enable the commissioning agent to adjust the grilles, fan speeds, thermostats, time clocks and set-points to better suit the tenants, and potentially reduce energy demands. However, this may have an impact on leases.

Future projects may benefit from early stage (Stage 2-3) workshops with the client to layout a handover sequence specifically to define the framework and signoff gateways for commissioning building services such that they are commissioned in stages, and the tenancy agreements are coordinated to account for any post-fit-out requirements for controls adjustments and commissioning, if agreed.

7. Conclusions and Recommendations



7. Conclusions

Overall, the design team reported that they had worked effectively together, and with the client, to deliver successfully against the brief.

End users agreed, and were very happy with the design of 1 West Regent Street. They were particularly happy with the look and feel of the building, both externally and internally, and the views from the building.

A large number of end users specifically commented in the questionnaire that 1 West Regent Street is a great working environment.

There were some issues identified with the space and design. Many of these were already being addressed at the time of the evaluation.

Design Process

Overall, the design process was reported to be effective. The design team worked closely with the client to develop a brief that everyone was signed up to, and the contractor was involved early to ensure it could be built.

The process could possibly have been improved by involving M&E and structural engineers earlier in the process, so that the design was developed in a more holistic way.

Greater consideration of the durability and maintenance of finishes may have led to specification of FF&E which continued to look attractive in use.

Building Design

Occupants like the look and feel of the space. Whilst they like the reception area, the previous design, with images creating a connection to Glasgow, was preferred by some tenants.

Few people used the changing facilities, but those who did were positive about them. The toilets were reported to look scruffy in use e.g. marks on the Corian surface.

Lifts can slow up access at busy times. Some re-programming may help.

Use is made of the parking, and some tenants would like more. However, it is understood that this is not practical due to the location. Cyclists are pleased with provision for them, with just a minor design issue relating to the bike racks.

Security was rated positively, again only a minor issue was raised in relation to not always being able to find a security guard to let occupants out when leaving the building late at night.

Internal Climate

Occupants reported that they rarely, or never, experienced issues with noise, either from outside the building or from other tenants.

Tenants reported frequent issues with glare, but accepted that this was due to the high levels of glazing. They were happy with their ability to control glare through blinds.

Occupants reported that they often felt too hot or too cold, and that they had limited control over the temperature. However, on the whole the temperature was reported to be comfortable on a day to day basis.

Facilities Management

Some finishes within the building were not felt to be wearing as well as they should, given the length of time that the building had been occupied.

Repairs in some cases were taking longer than occupants felt they should. They appreciated that this was often due to reasons beyond the control of the building manager, who they felt did a good job within the building.

Cleaning was felt to be adequate but under-resourced, especially in high use areas, such as toilets, during the working day.

Energy Use

The energy use of Tenant B was considerably lower than that of Tenant A, on a per sqm basis. This may be due, in part, to their locations within the building, but could also potentially be improved through a recommissioning of the controls in the office with a higher energy demand.

In comparison to benchmarks, both tenants and the core areas are performing better than the typical benchmarks for offices, and in the case of Tenant B, better than best practice in relation to heating energy. Lighting and power are reported to be very efficient, in comparison to both benchmarks and best practice.

8. Recommendations

Recommendations are divided into three levels; quick wins, longer term investments and future design guidance.

Quick Wins

1. Re-programme the lifts to keep doors open longer, automatically send the lifts back down to the ground floor and allow more than one lift to be called at once.
2. Review the bike rack provision to determine whether some could be replaced to reduce potential issues with mudguards.
3. Review the security guards' schedule in the evenings to ensure that they are on the main desk for the 30 minutes before the last train, to let tenants out who are working late.
4. Tenant organisations could review their own desk layouts to potentially reduce the number of people who have a desk under a ventilation supply register, to reduce issues with cold draughts.
5. Review the approach to maintenance and repairs in the building, to determine if there are efficiencies which could be made.
6. Review the repairs and maintenance reporting system to ensure tenants are kept up to date with progress on repairs, and any reasons for delay.
7. Review cleaning resource and approach to determine if spaces such as toilets could be kept cleaner, especially during standard working hours.

Longer Term Investment

8. Consider the views of tenants when changes are made to spaces. Overall, they like the high quality finishes. However, tenants reported that they liked to feel there was a positive local connection to Glasgow incorporated in the design.
9. Consider whether bathroom fittings could be adapted or replaced to reduce water marks on the Corian surfaces.
10. Review the finishes that are specified, when they are replaced, to determine if something more robust, but in-keeping with the aesthetic, could be selected.
11. Tenants could review temperature control systems, and consider recommissioning them, in their offices, and in relation to the BMS, to ensure an appropriate temperature can be set and learnt by the system so it is maintained on a day to day basis. This may also lead to energy efficiencies.
12. Ensure maintenance requirements are provided in relation to future changes to the environment, to allow for accurate life-cycle costing and planning for maintenance, including lead times for parts.
13. Consider recommissioning the building BMS system, and a potential reduction of operational hours of the ventilation plan. Test and verify the impact of any changes.

Future Design

14. Involve the client and contractor in the development of the brief, and engage M&E and Structural Engineers to ensure an holistic development of the design, which is feasible to deliver and meets clients needs.

15. Consider the placement of soft spots in beams and location of the core to give tenants the flexibility to fit-out the space as they require.
16. Consider lead time and durability of materials specified. Test to determine how they will perform in use and provide client with accurate information on lead times and wear and tear.
17. Consider the impact on the building of fit-out processes and whether provision of a goods lift is required. If not provided, consider ways to mitigate damage from fit-out of the offices, such as more durable finishes on staircases and in stairwells.
18. Recognise the importance of the reception area for creating a positive first impression for tenants' visitors. Invest appropriately in design development and FF&E.
19. Consider the location of ventilation supply registers to minimise the number of tenants who are likely to be sat underneath, and risk experiencing cold draughts.
20. Consider alternative ventilation strategies, such as supplying air at a low level as opposed to from above. Understand the impact that this may have on flexibility of fit-out for tenants.
21. Ensure the FM requirements of the design and any finishes are understood and specified, in particular implications for cleaning and maintenance.
22. Consider a light touch commissioning on completion, and a more intensive commissioning process one year after tenant fit-outs.

Appendices



Floorplans

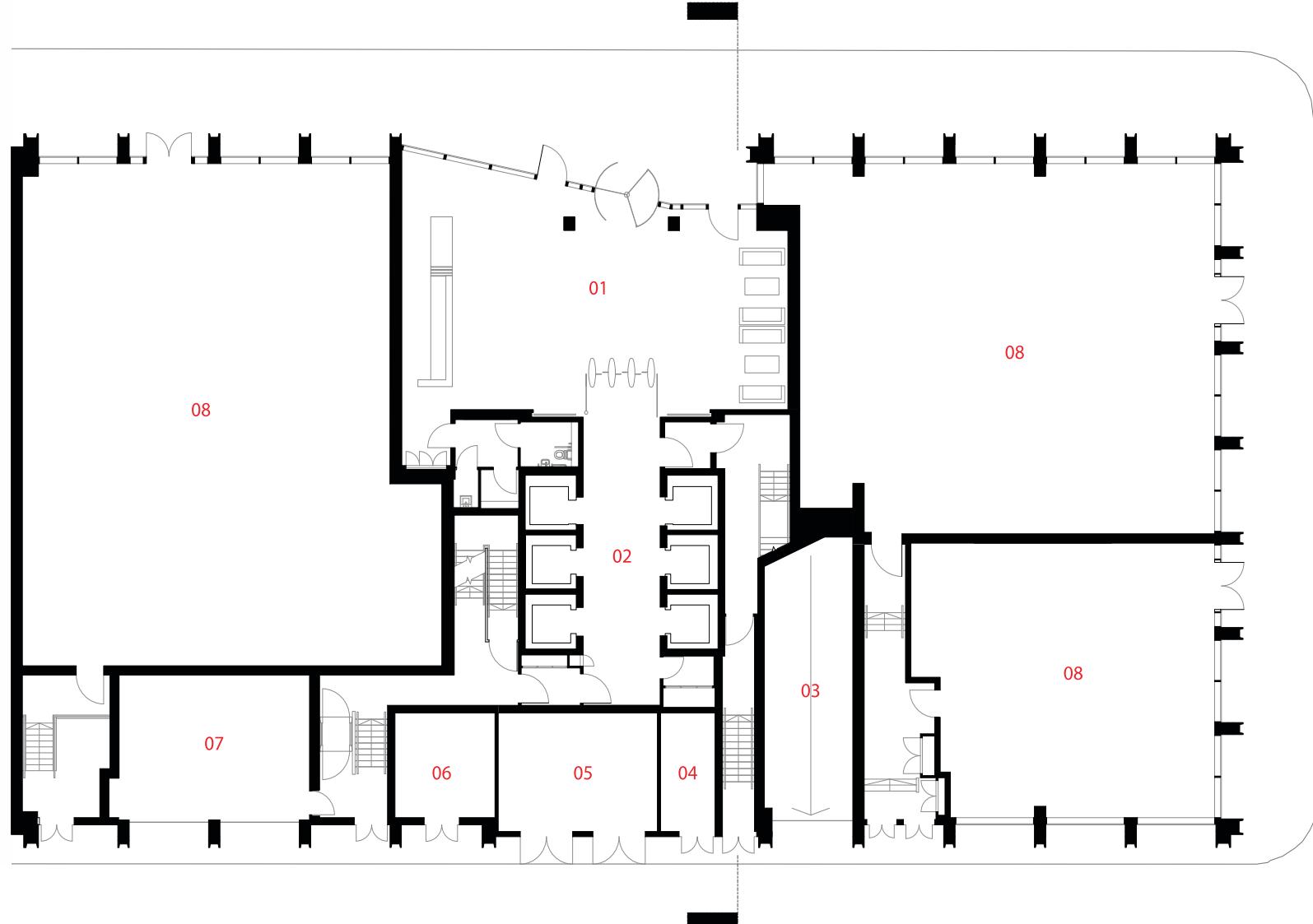
Floorplan: Ground Floor

Key

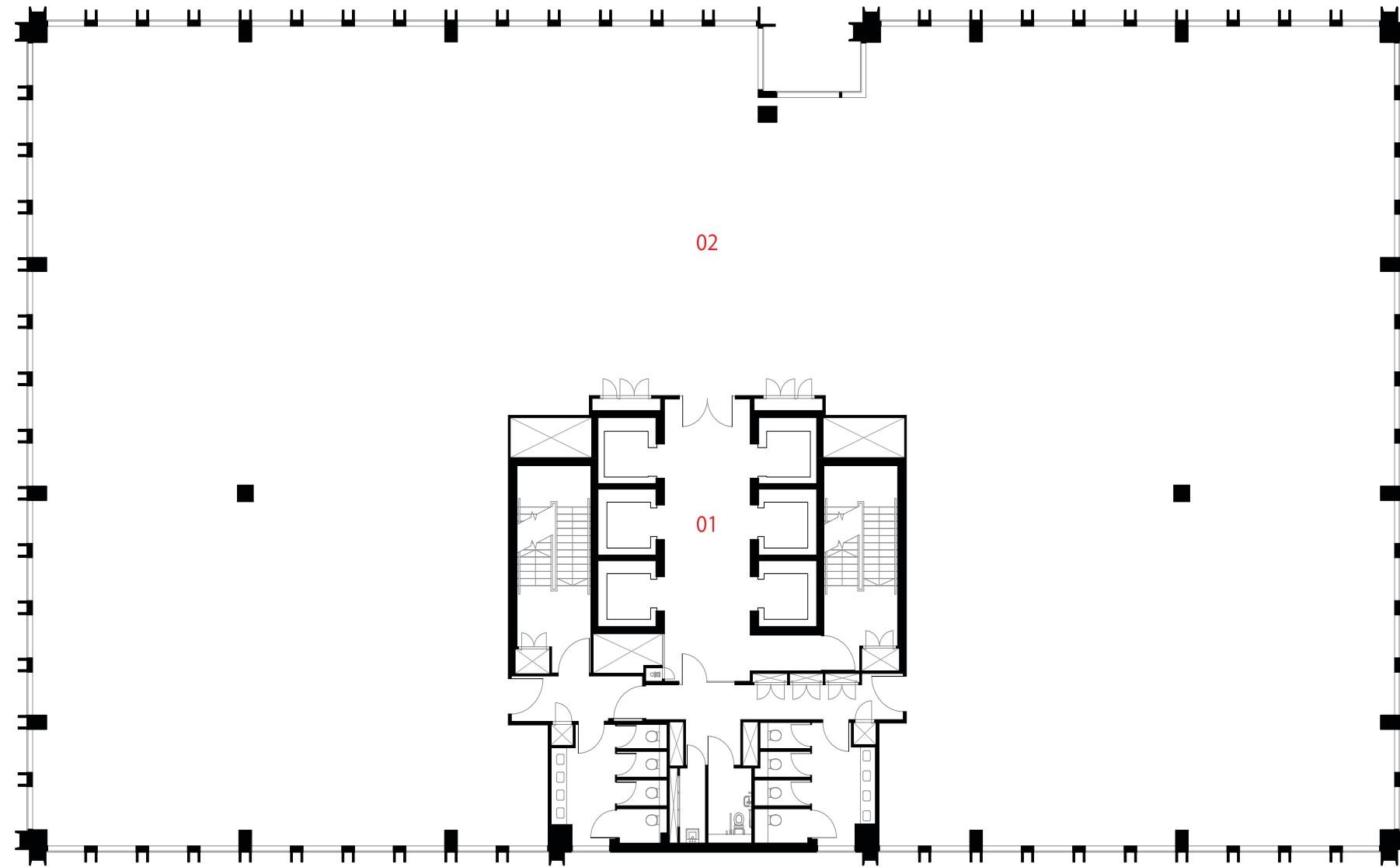
- 01 - Office Reception
- 02 - Lift Lobby
- 03 - Basement Car Park Entrance
- 04 - Ancillary
- 05 - Electrical Substation
- 06 - Ancillary
- 07 - Car Parking
- 08 - Retail

GROUND FLOOR PLAN

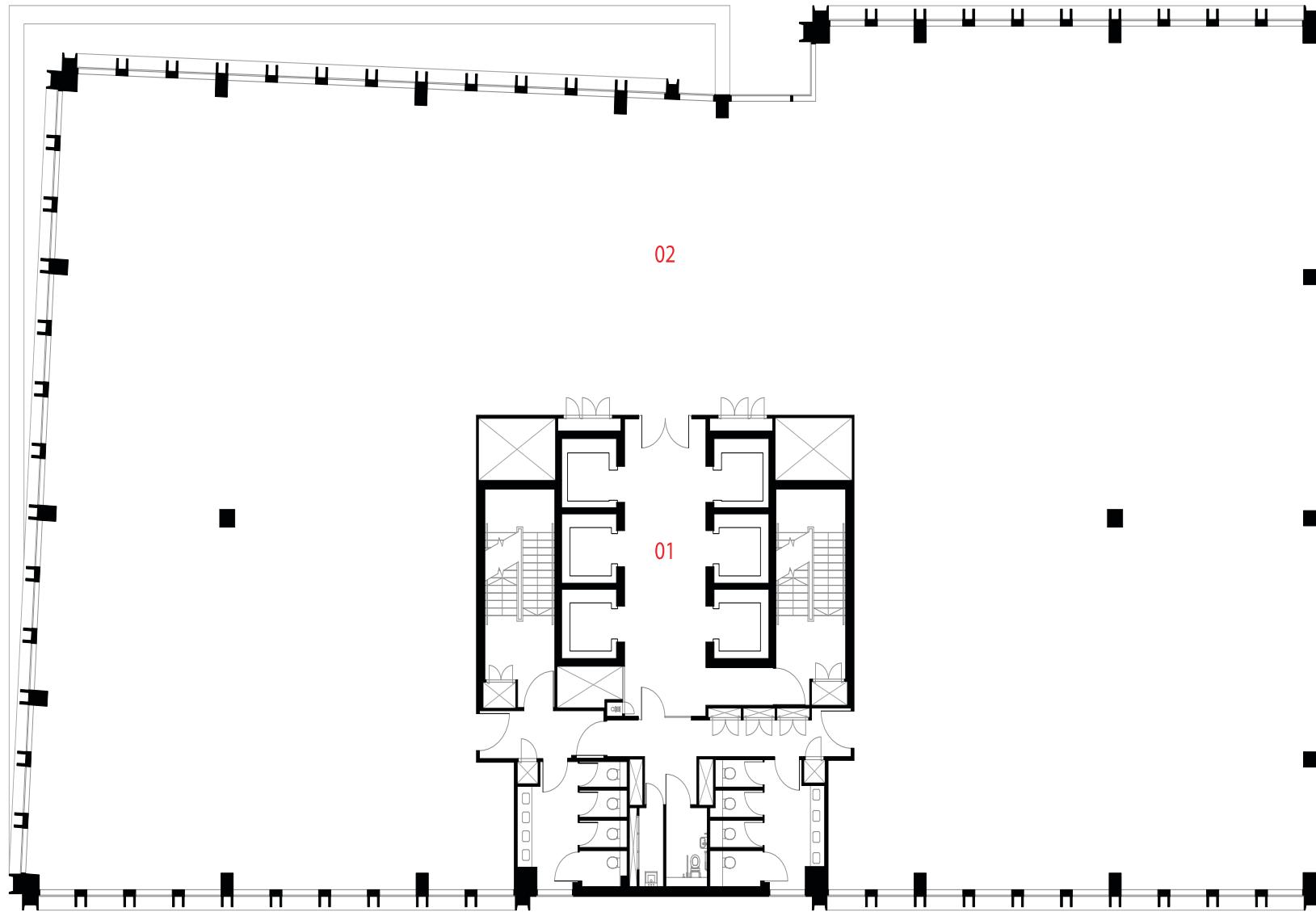
Scale 1:200 - A3



Floorplan: Typical Floor – Floors 3 to 8



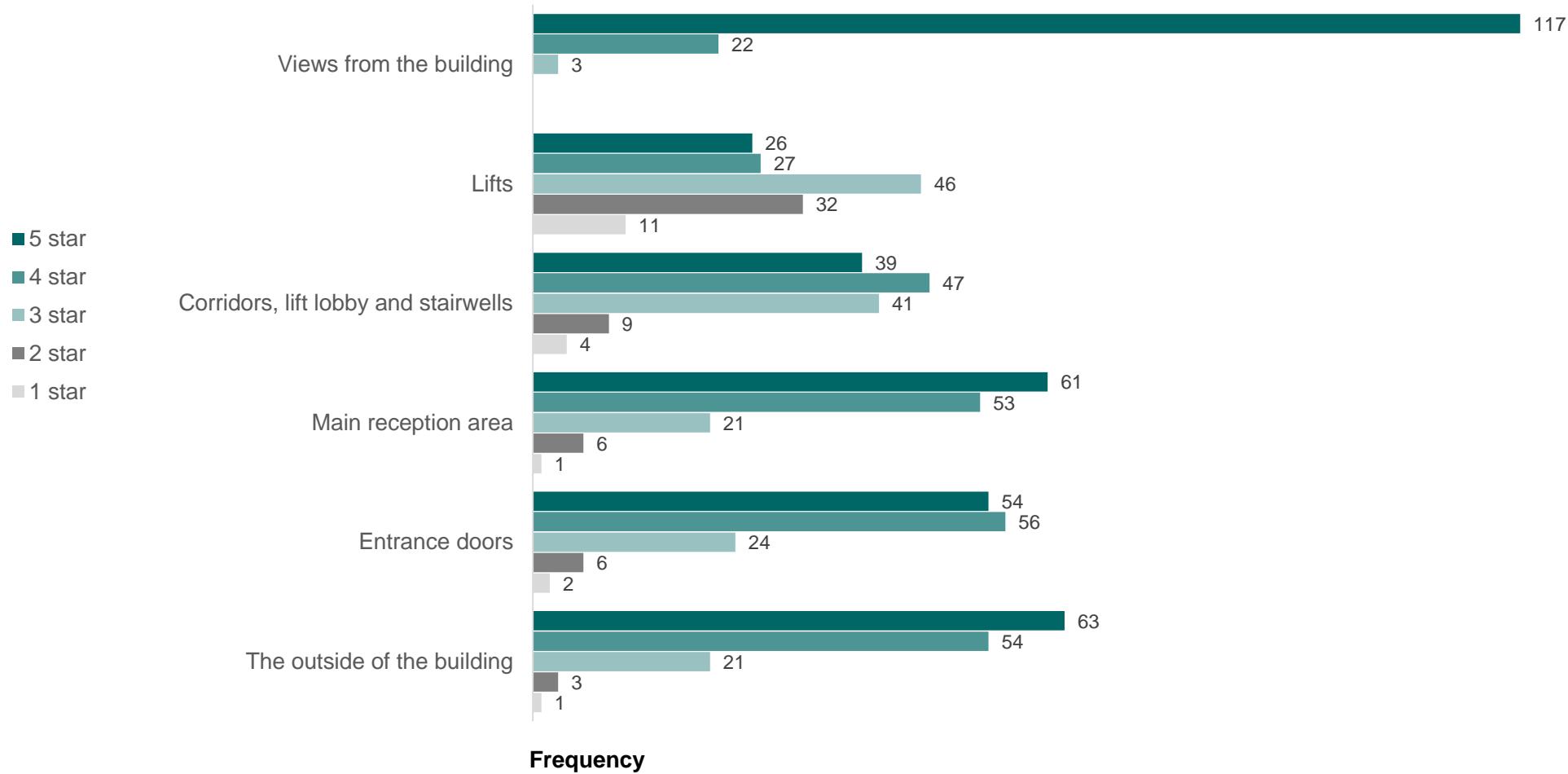
Floorplan: Top floors - 9 and 10



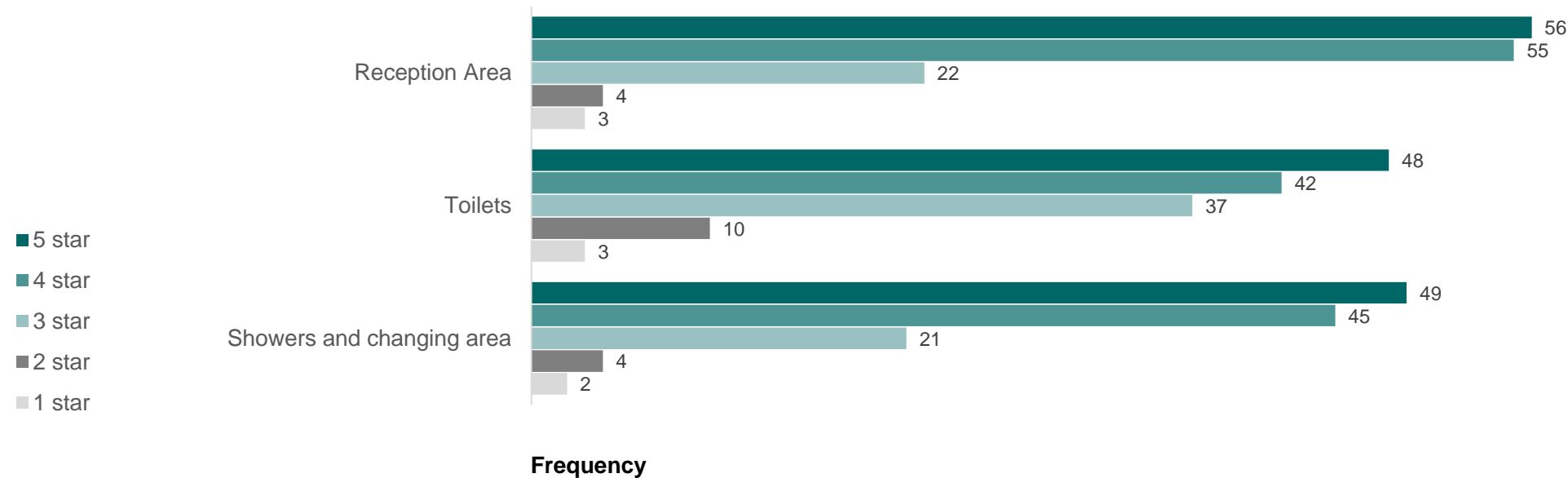
Questionnaire Responses

Questionnaire Data

How would you rate the appearance of the following, on a scale of 1 to 5?

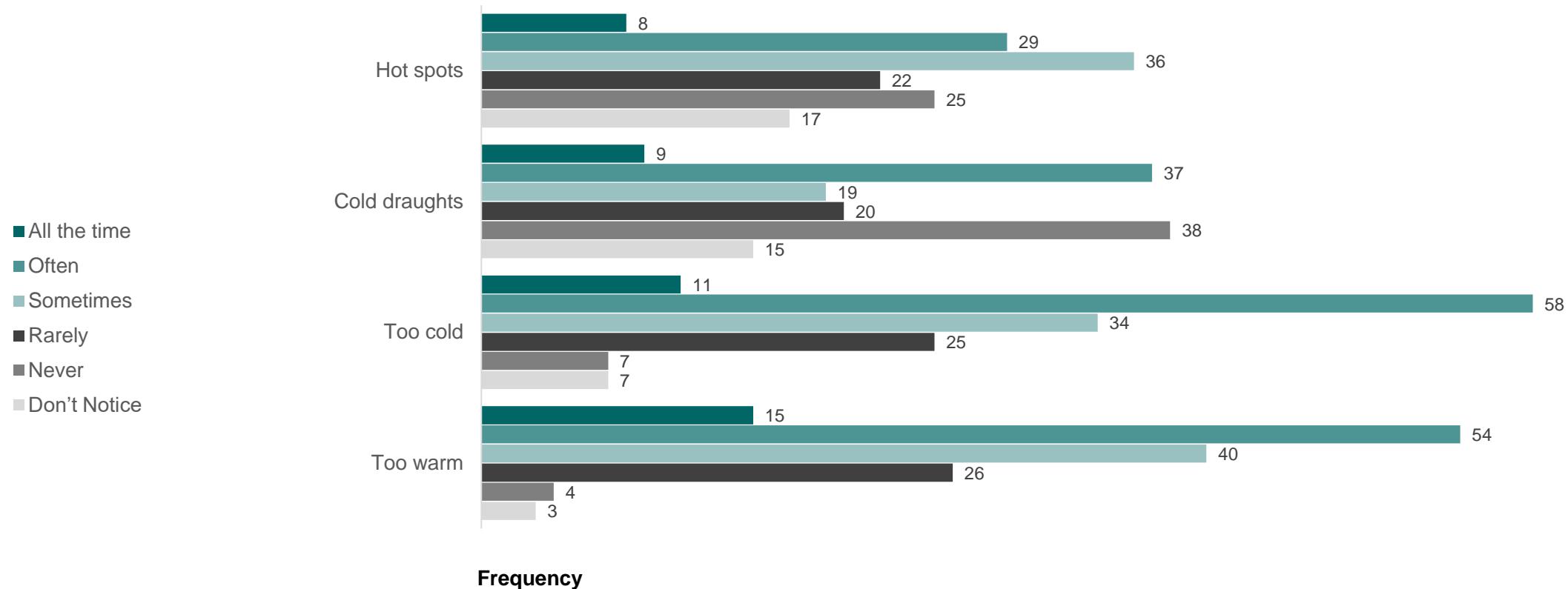


How satisfied are you with the design and layout of the following, on a scale of 1 to 5?

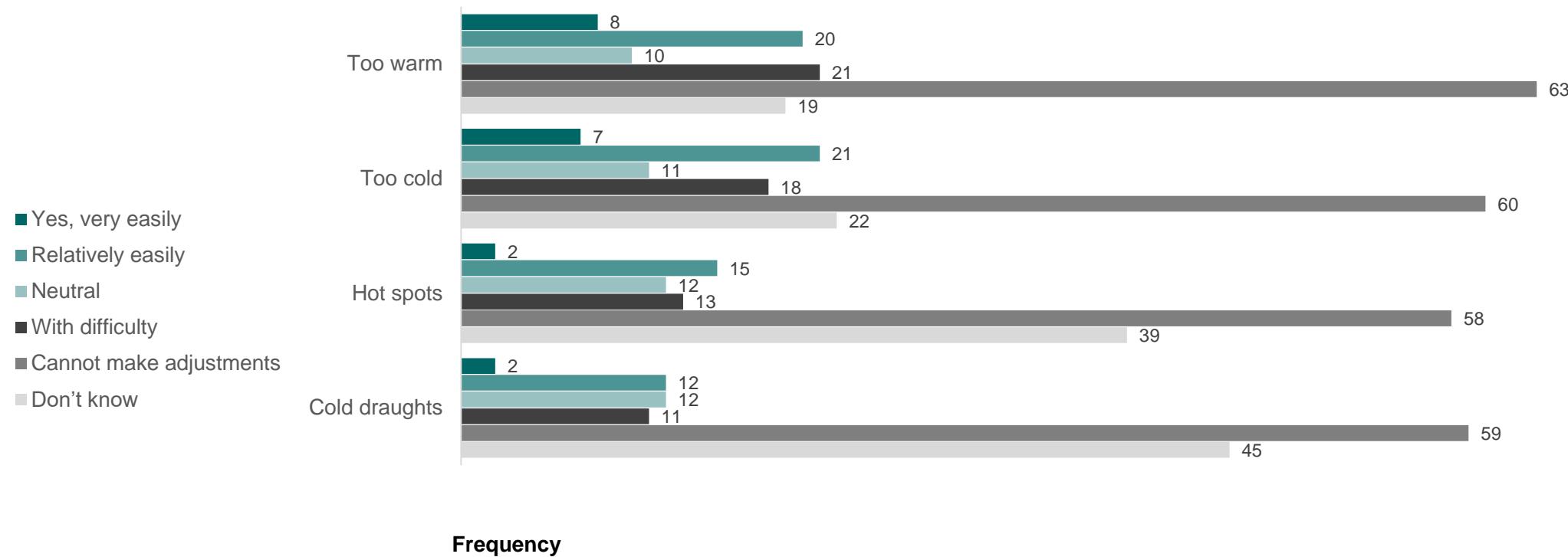


Questionnaire Data

How often do you experience the following in your office?

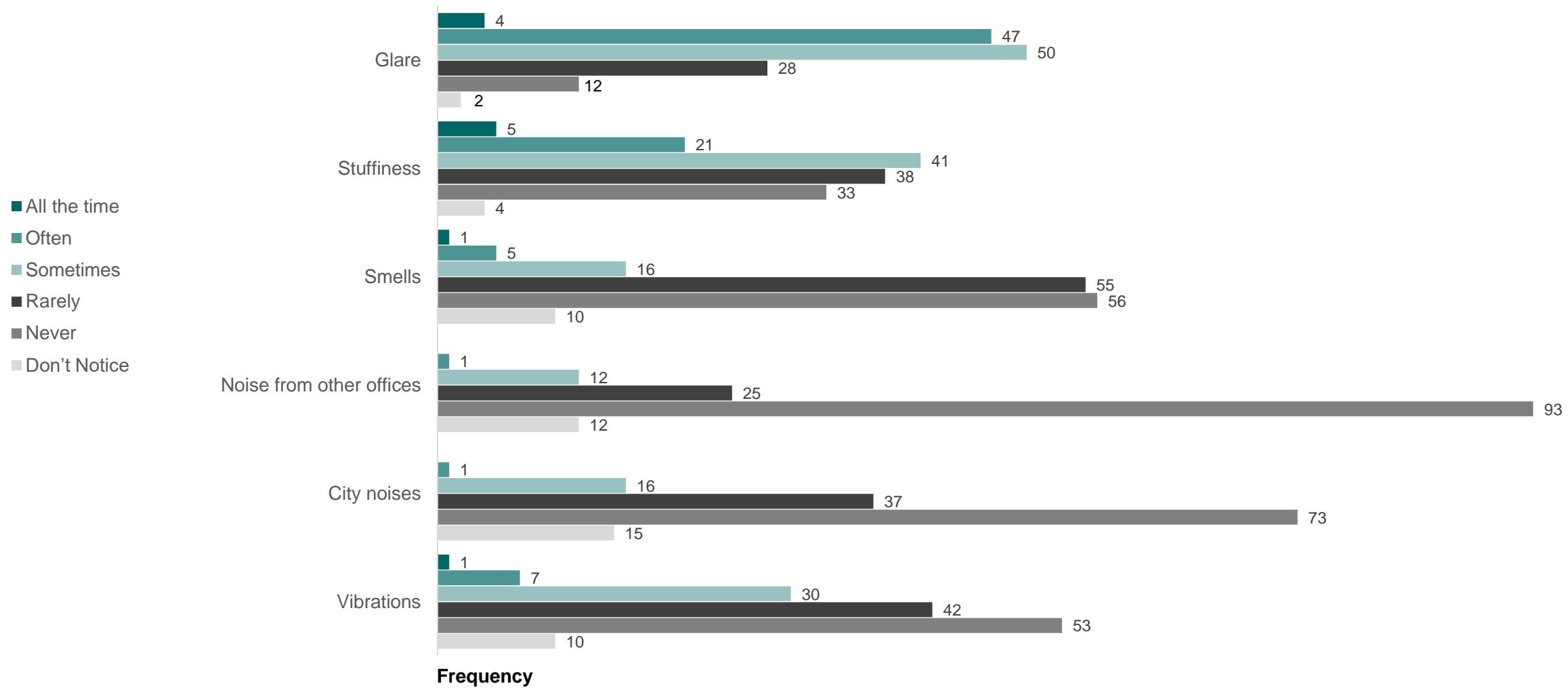


When the following becomes an issue, are you able to make adjustments to your workspace?



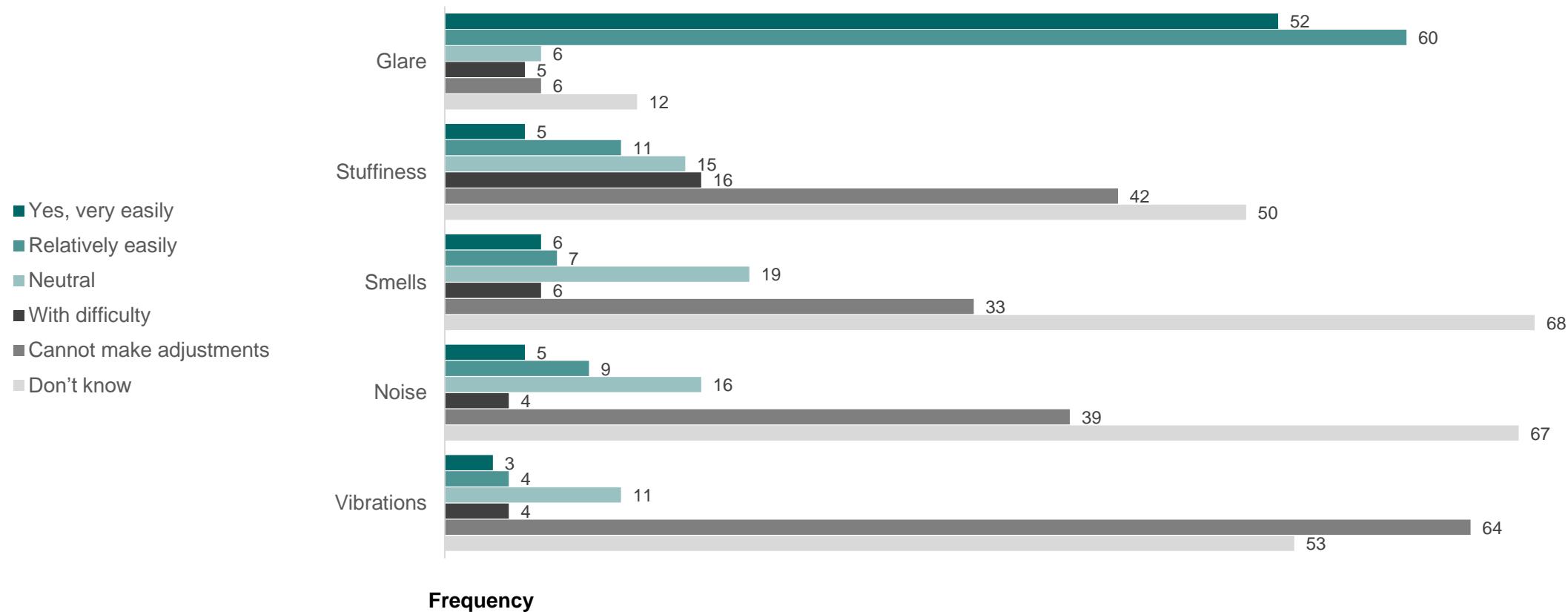
Questionnaire Data

How often do you experience the following in your office?



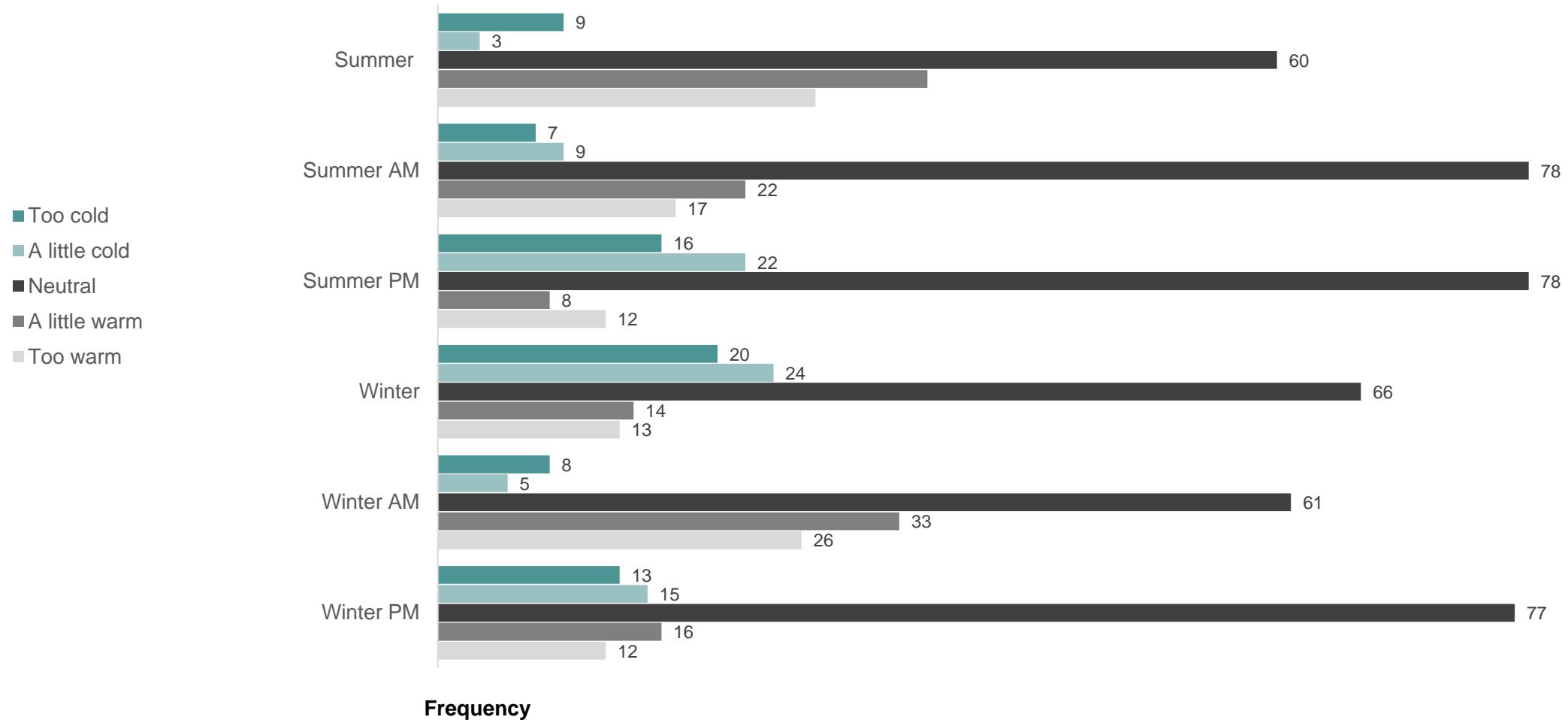
Questionnaire Data

When the following becomes an issue, are you able to make adjustments to your workspace?



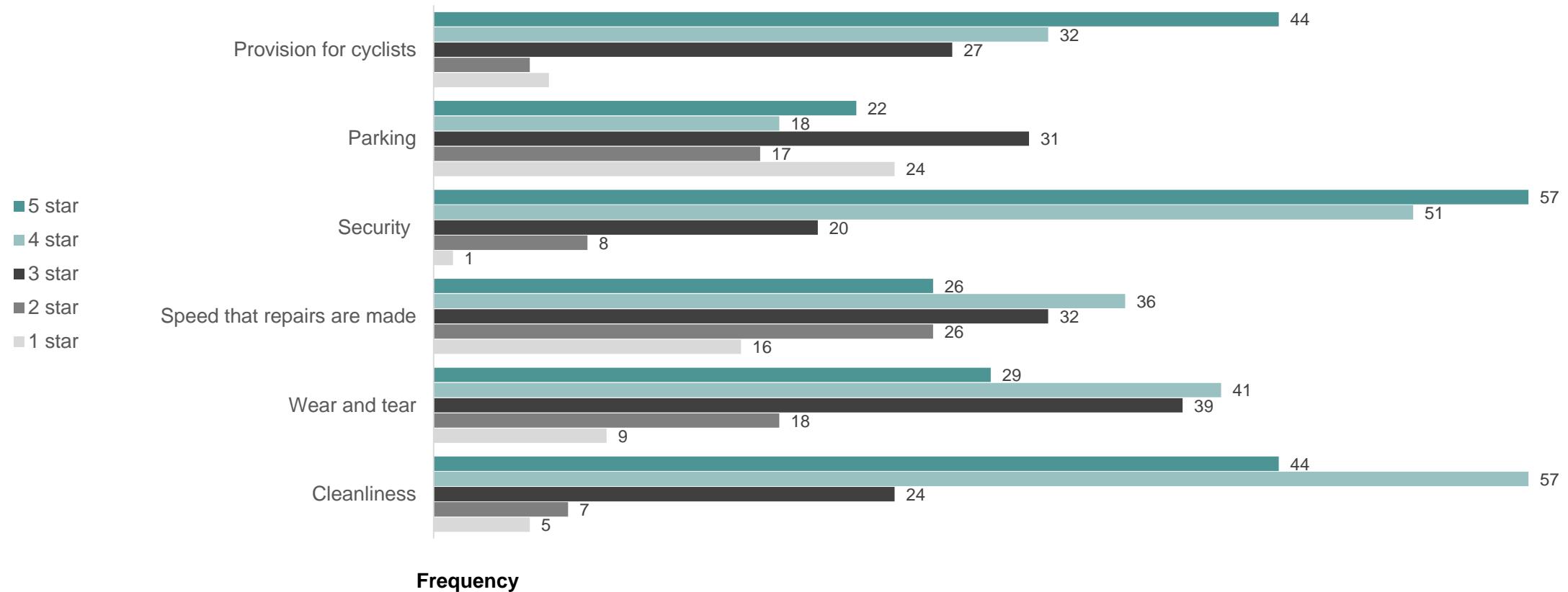
Questionnaire Data

How do you generally find the temperature in your office, at the following times?



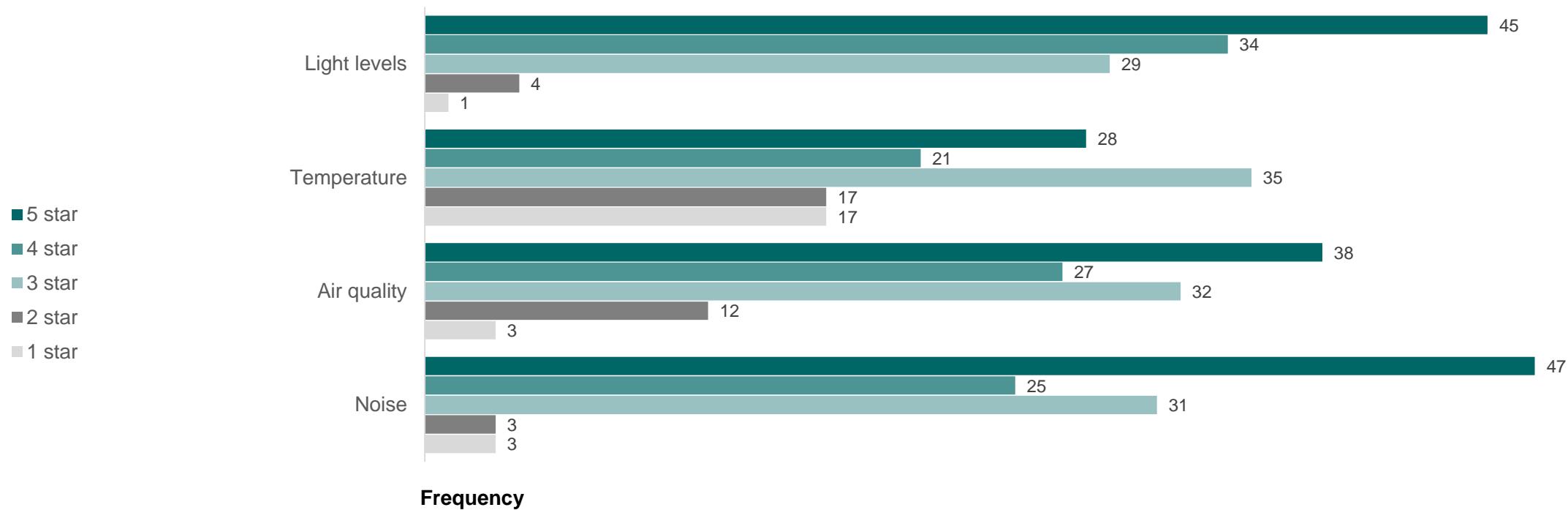
Questionnaire Data

How satisfied are you with the following, on a scale of 1 to 5?



Questionnaire Data

On a scale of 1 to 5, how happy are you with the response, if you report an issue with any of the following?



Materiality and Finishes

Materiality and Finishes

There were a number of materials issues, which were raised by different parties in the evaluation. These have been summarised and documented for future reference, to aid in considering finishes.

Some of the highlighted issues could be resolved with a different choice of material or specification in the future, whereas others were perhaps trade quality control issues which would need to be resolved on site. The managing agent noted that there is a slight danger in having over-specified finishes

Door Push Plates

The door push plates were designed to be screwless, and made of a thin sheet of stainless-finish metal. The fixing for the static door handles on the opposite sides were concealed by the push plates. This meant that whenever the pull bars on the opposite side of the door became loose (any door handle which is frequently used will eventually need to be tightened), these needed to be peeled off to enable the maintenance of the pull bars. This caused warping of the plate (Figure 1), which were then poorly adhered to the doors, a second time.

Whilst the screwless finish looked nice, initially, it has aged poorly, quickly. Many are warped and no longer lay flat against the door, and some have been retrofit with screws to help keep them fastened and flat (Figure 2).



Figure 1 – Warped door push plate

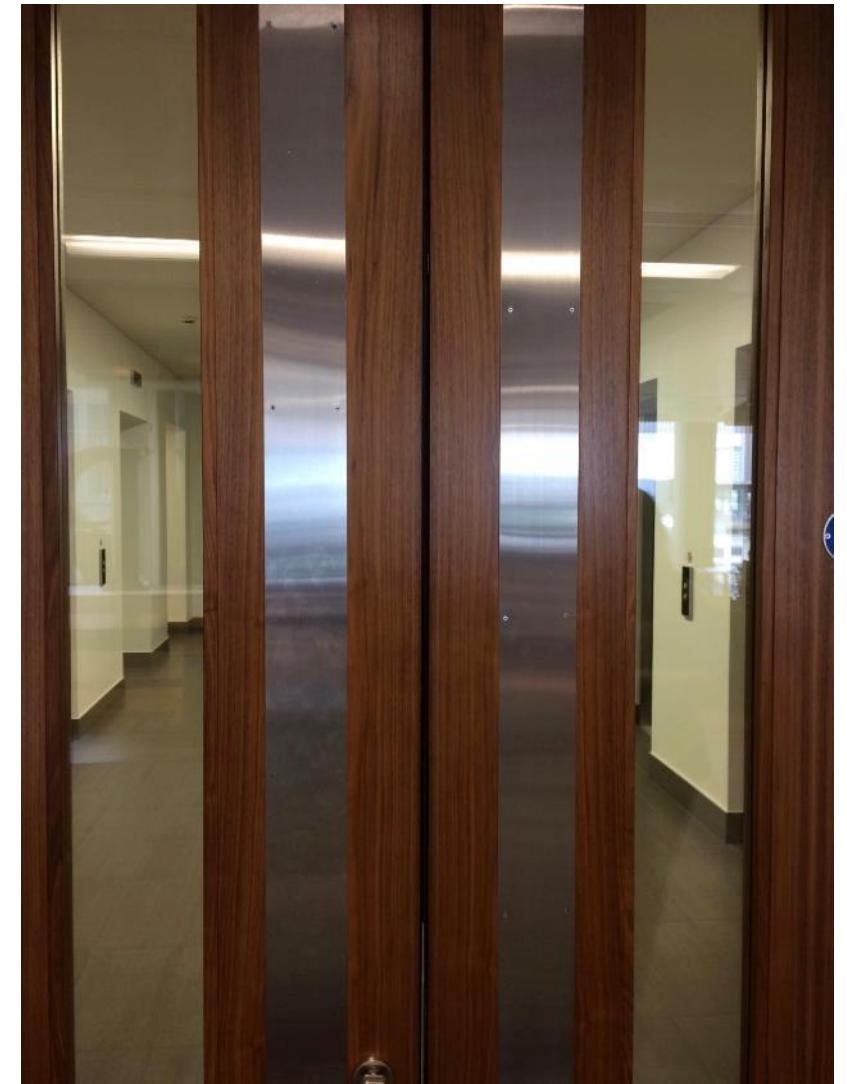


Figure 2 – Screws on door push plates

Materiality and Finishes

Walls in Corridors and Toilet areas

The walls in the common areas of the building, where the toilets are located, all show significant signs of wear and tear and scuffing (Figure 3). Some of this may be residual from the fit-outs, however some appears to simply be normal wear-and tear from day-to-day use.

It may be worthwhile, on future speculative office buildings, to look at a more robust finish, like tile, at dado-height to reduce some of the visible wear on wall surfaces. It might also be worthwhile advising the client to hold back a making-good budget for finishes on completion of the fit-out. That way, if the public areas get damaged during the fit-out, there is a budget set aside for making good or upgrading finishes once the heavy work has been completed.

A number of kick-plates have also become detached in these areas (Figure 4). Again, these were similar to the push-plates in that they appeared to be adhered with glue, rather than mechanically fastened.

There also appears to be a lack of door stoppers to protect walls from impacts and damage from opening doors (Figure 5).

It was noticeable that the tile floors in some of these areas were poorly laid and the tiles not level or flush with one another.

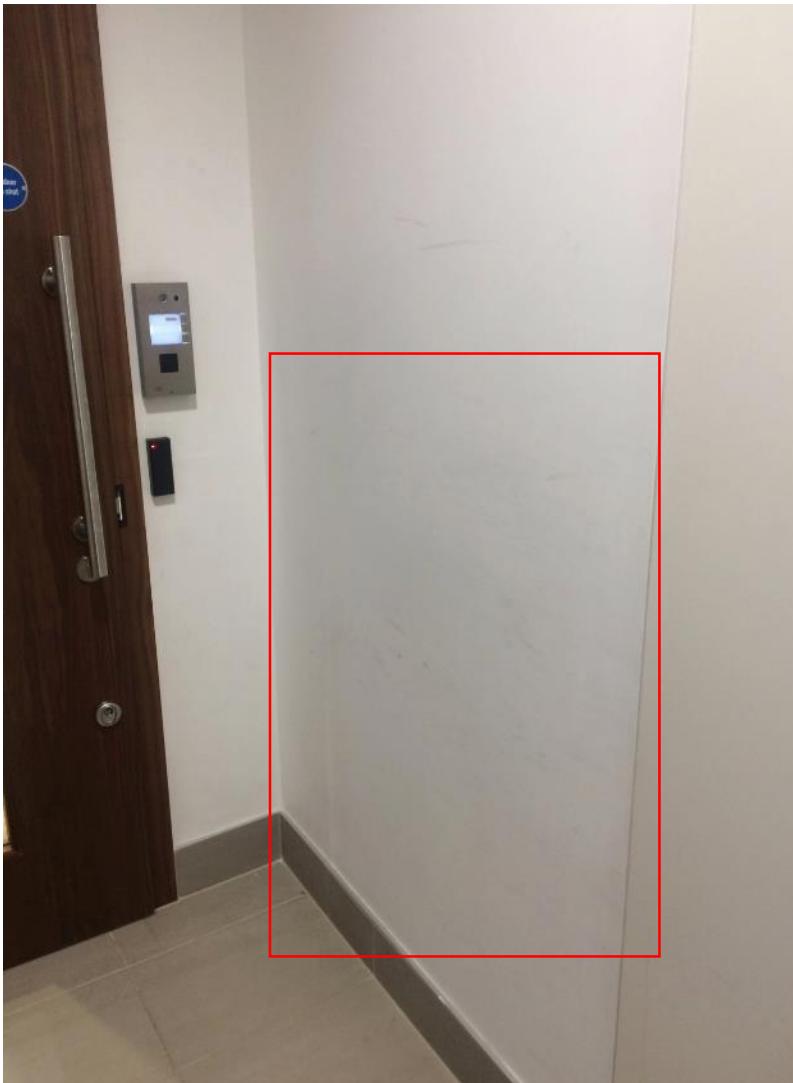


Figure 3 – Heavily marked wall



Figure 4 – Missing kick plate



Figure 5 – Damaged wall from lack of stopper

Lifts

The lift have aged quite quickly due to the stainless internal finishes, including a screen-printed graphic on some of the panels which is easily scratched. Some of the damage was deliberate, and the result of some fit-out activities. Other scratches are accidental and clearly the result of bags, zippers and general wear and tear.

It might be useful in the future to ‘bench test’ finishes in high use areas such as lifts, for example by scratching at them a little with a set of keys, etc., to see how well they tolerate use and potential abuse.



Figure 6 – Vandalism inside one of the lift doors



Figure 7 – Scratched screen-printed stainless lift panels

Materiality and Finishes

Revolving Doors

There were a number of complaints about the finishes on the revolving door, and remarks that it looked 'shabby'. On inspection, a few things were noted, and compared with a revolving door on a nearby property to demonstrate the difference.

The roof of the door itself is glass. This is a surface that has to be regularly cleaned, both inside and out, and will quickly accumulate noticeable dirt and water marks on the top which are highly visible. Also, looking through multiple layers of glass (the roof and the façade) amplify the visibility of any uncleanliness, such as streaks, dirt, dust, and fingerprints (Figure 8).

It was noted that stainless surfaces were all quite visibly marked. Stainless is not necessarily a clean-looking surface, generally. Whilst it is so-named because it will not rust, it does show dirt, water marks and other marks because of the shiny surface. The contrast between a shiny stainless surface and marked stainless surface is very visible and makes it look 'dirty'. It is not necessarily a finish that ages gracefully in high traffic areas, if used exclusively, and where large amounts of natural light reflect off it. (Figure 9, Figure 10)

In contrast, other revolving doors tend to have opaque roofs, so that any water marks or bird droppings on the outer roof are not visible to people entering the building. They also have surfaces which do not highlight marks and dirt so easily (Figure 11).

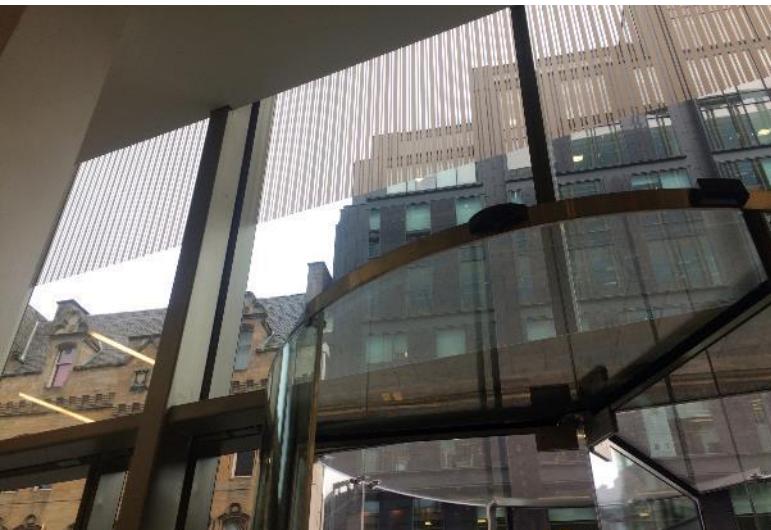


Figure 8 – 3 layers of glass visible, including the flat roof, partitions and upper wall



Figure 9 – Marked stainless fixing plate

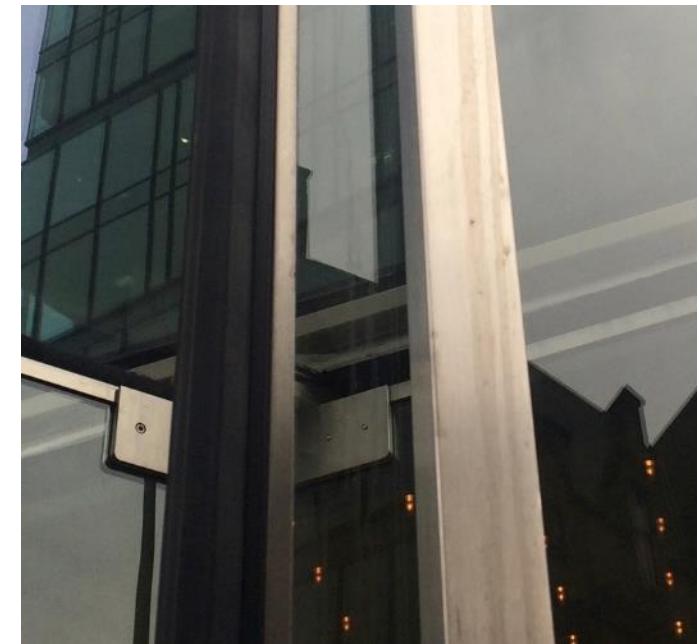
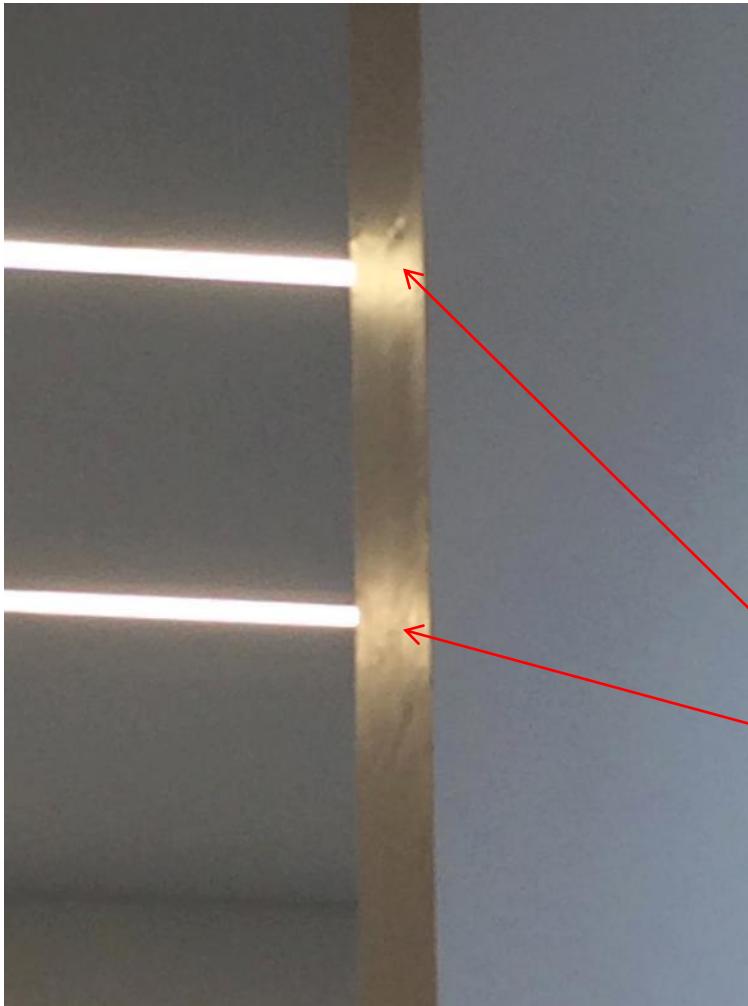


Figure 10 – Marked stainless, from rain runoff



Figure 11 – revolving door in a nearby building, without a glass roof

Materiality and Finishes



Polished plaster finish

Polished plaster was a finish requested by the client). The plaster finish does not look either smooth, nor intentionally distressed, but rather uneven. As a result, the surface was skimmed and painted over, but some unevenness remains.

The issues with this finish are likely to be a combination of the appropriateness of the finish specified and workmanship in applying the polished plaster. This is a highly skilled, specialist plastering job, and may, in practice, be difficult to achieve with local labour. It also often looks best with a dye additive, to give the polished plaster more coloured texture than flat white to simulate a stone-like finish.

Uneven surfaces

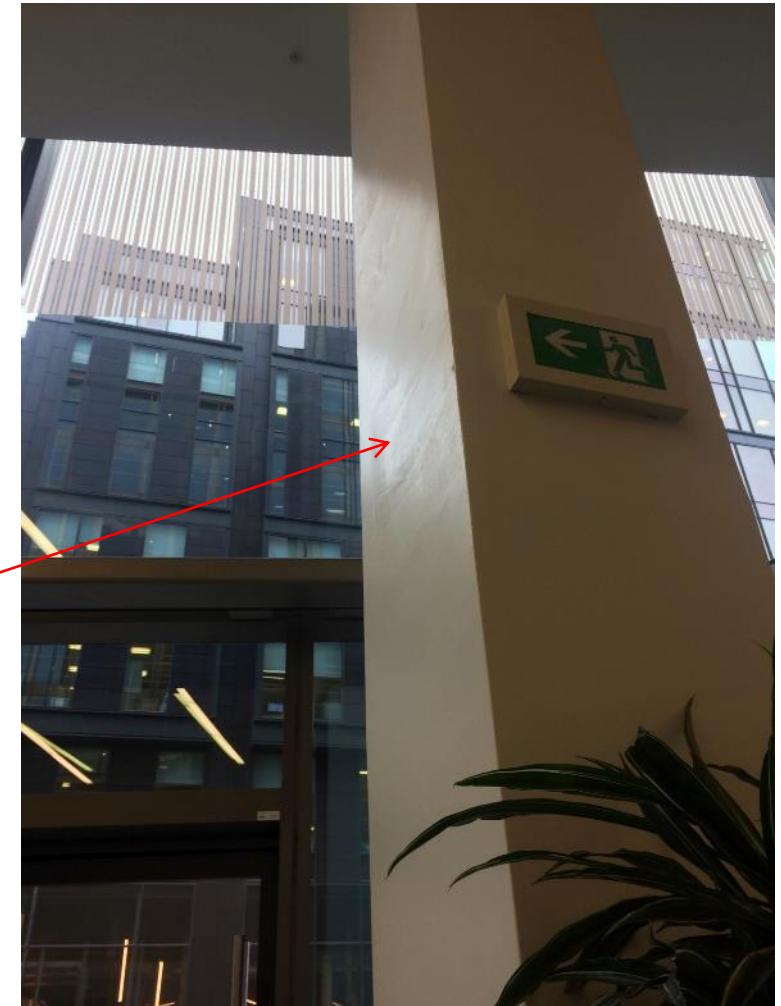


Figure 12 – Polished plaster (reception column), with light reflecting off

Figure 13 – Polished plaster (reception column)

Acknowledgements

Performance Consultancy worked with Six Cylinder to complete this research. We would like to thank the following people for their invaluable contributions to this post-occupancy evaluation report:

Ryder Architecture Limited

CBRE

Weir

Arup

FDM Group

Global Radio

www.performanceconsultancy.co.uk

© Performance Consultancy 2017

