



RIBA STAGE 3 OVERHEATING RISK ASSESSMENT

September 2023 | Rev D

Overheating risk assessment

Introduction

This document is part of the planning application for a new community hub building within the Down Lane Park in the Haringey Borough of Tottenham Hale. The hub will be a single storey building of approximately 401m² floor area which will primarily be a large multi-use community space, a café and kitchen and park maintenance office spaces.

Overheating risk assessment in support of planning

The proposal should be deemed acceptable in terms of mitigating the risk of overheating. Although only a small minor development, the design strategy adheres to Passivhaus principles including ensuring a thermally comfortable and climate resilient building.

This report summarises the work undertaken by the project team at RIBA stages 1-3 and covers:

- The proposed approach to mitigating the risk of overheating;
- How the design has sought to reduce solar gains and prioritise passive cooling strategies.

It includes the summary results of calculations and assessments which demonstrate how well the scheme is likely to perform. These include TM52 calculations.

It should be noted that a small update to the East/West elevation and glazing has been proposed following the overheating risk assessment calculations. It is considered that this is a minor change and can be evaluated at the next design stage, as it is likely not to significantly impact the outcome of the results.

Revision history

A	10/08/2021	Draft issue to design team
B	25/08/2023	Update to description of scenarios showing natural ventilation option and occupancy
C	06/09/2023	Additional page reviewing changes to the design
D	27/09/2023	Coordination with architects areas.

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Review of updated design | GA's

Following a Value Engineering process undergone by the team, an updated pack of drawings has been produced highlighting a few changes in plan and elevation. This and the following page provide comments on the revised design and the likelihood of any impact on the overheating modelling.



Previous design – GF plan



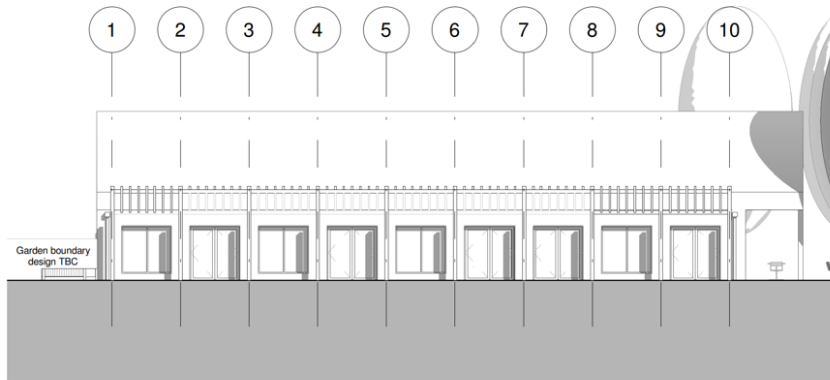
Planning changes – GF plan

Impact on Overheating modelling

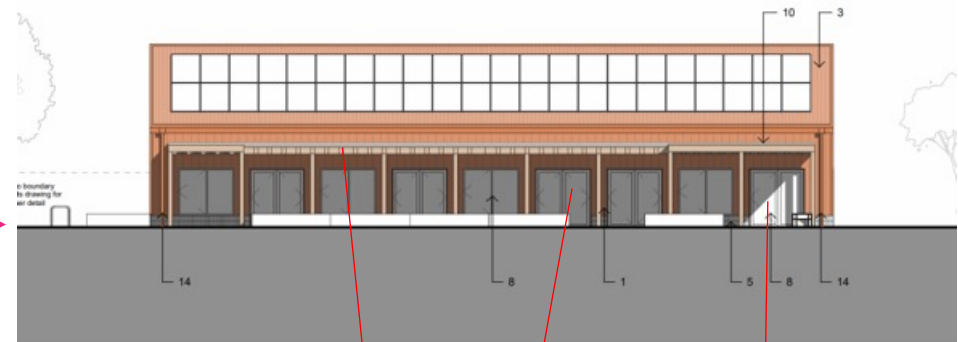
The area changes will have a negligible impact on the overheating modelling results. More specifically, the reduced occupancy and thus reduced internal gains will positively contribute to the mitigation of the risk.

Regarding the kitchenette and the meeting room, they will run on a mixed ventilation mode in case these are merged into one space.

Review of updated design | Elevations



Previous design – South Elevation



Planning changes – South Elevation

External doors and
window head heights
reduced from 2.4m to
2.25m

Timber pergola
height reduced to
2.8m and pitch laid
flat (still covered to
provide shading to
the building)

Reduction in the
fenestration sizes in
line with Passivhaus
target ratios

Impact on Overheating modelling

The window changes will be beneficial to the overheating modelling results. More specifically, reduced glazing areas will offer less solar gains and will positively contribute to the mitigation of the risk. Additionally, more panes have been designed as openable which will be enhancing the natural ventilation scenario.

The shading from the pergola is expected to still have a similar impact as per the previous design in reducing solar gains and mitigating the risk.

Why is overheating important?

There were over 2,000 excess deaths during the ten-day heat wave in August 2003 across England and Wales and it is widely predicted that climate change will lead to more frequent and intense heat waves, as well as increases in average temperatures in the summer.

Combined with increased urbanisation and an ageing population, thousands more people are expected to be affected by heat-related ill health by 2050, particularly elderly and vulnerable people.

Overheating can also cause less critical health problems (sleep deprivation for example) and research indicates that heat-related sleep loss is a cause for concern.

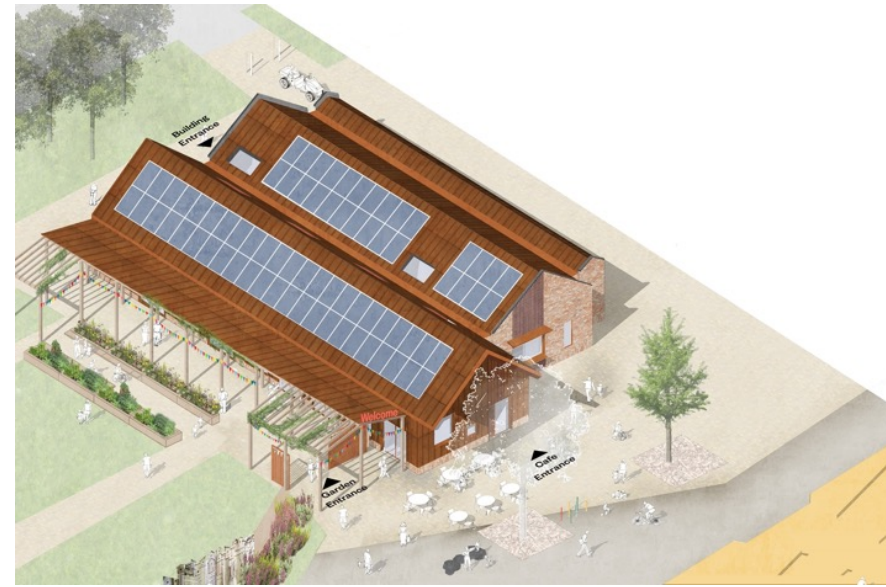
Why should the risk be carefully assessed?

The impact of overestimating the overheating risk can also have unintended negative consequences: it can lead to the reduction of window sizes when not required, which would reduce daylight and can reduce energy efficiency through the unnecessary reduction of the glazing g-value.

Mitigating overheating at Down Lane Park Hub

This report details the methodology and findings of a dynamic thermal modelling overheating study in the proposed Down Lane Park Hub development in the Haringey Borough of Tottenham Hale.

The analysis has been undertaken in line with Haringey's New Local Plan (First Steps Engagement 2020), Haringey's Key Overheating Planning Application Requirements Document (November 2021) and the London Plan's Cooling Hierarchy (2021 London Plan). Since the building is commercial, the spaces have been assessed against CIBSE TM52 and CIBSE Guide A documents.



Sketch showing proposed development of Down Lane Park

Technical Guidance | CIBSE TM52 & CIBSE Guide A

CIBSE TM52

The three criteria described in CIBSE TM52 Guidance taken together, provide a robust yet balanced assessment of the risk of overheating of buildings in the UK and Europe. A room or building that fails any two of the three criteria is classed as overheating.

An understanding of how often a building is likely to exceed its comfort range during the summer months can provide useful information about the building's thermal characteristics and potential risk of overheating over the range of weather conditions to which it will be subjected. This simple 'hours of exceedance' criterion is something that designers are familiar with and provides a good first assessment of acceptability.

CIBSE Guide A

Buildings that are cooled mechanically can also overheat if the ventilation system is, for example, undersized or poorly controlled. In that case the CIBSE Guide A fixed temperature test must be followed.

Requirements to achieve compliance with CIBSE TM52 in free-running buildings



CIBSE TM52, 2013, The limits of thermal comfort: avoiding overheating in European buildings

Criterion 1

The first criterion sets a limit for the number of hours that the operative temperature can exceed the threshold comfort temperature (upper limit of the range of comfort temperature) by 1 K or more during the occupied hours of a typical non-heating season (1 May to 30 September).

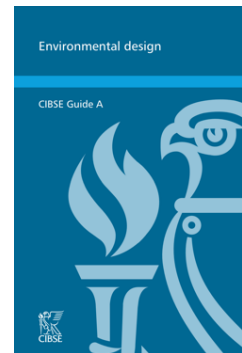
Criterion 2

The second criterion deals with the severity of overheating within any one day, which can be as important as its frequency, the level of which is a function of both temperature rise and its duration. This criterion sets a daily limit for acceptability.

Criterion 3

The third criterion sets an absolute maximum daily temperature for a room, beyond which the level of overheating is unacceptable.

Requirements to achieve compliance with CIBSE Guide A in mechanically cooled buildings



CIBSE Guide A, 2015, Environmental design

Criterion

All occupied spaces should not exceed an operative temperature of 26°C for more than 3% of the annual occupied hours.

London Plan | Policy SI 4 Managing heat risk



Climate change means London is already experiencing higher than historic average temperatures and more severe hot weather events. This, combined with a growing population, urbanisation and the urban heat island effect, means that London must manage heat risk in new developments.

Policy SI 4 of the London Plan (March 2021), outlines key policies and sets out an integrated framework to mitigate this risk.

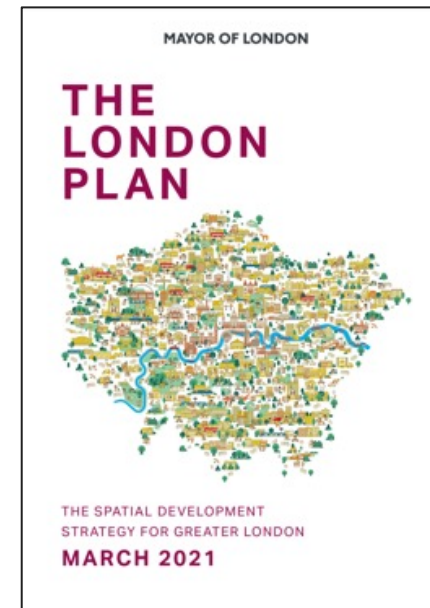
Policy SI 4 (Managing heat risk) of London Plan states:

Strategic

A Development proposals should minimise adverse impacts on the urban heat island through design, layout, orientation, materials and the incorporation of green infrastructure.

Planning decisions

B Major development proposals should demonstrate through an energy strategy how they will reduce the potential for internal overheating and reliance on air conditioning systems in accordance with the following cooling hierarchy: 1) reduce the amount of heat entering a building through orientation, shading, high albedo materials, fenestration, insulation and the provision of green infrastructure 2) minimise internal heat generation through energy efficient design 3) manage the heat within the building through exposed internal thermal mass and high ceilings 4) provide passive ventilation 5) provide mechanical ventilation 6) provide active cooling systems



The London Plan, March 2021



Green infrastructure can provide some mitigation of the urban heat island effect by shading roof surfaces and through evapotranspiration.



There are a number of low-energy measures that can mitigate overheating risk. These include solar shading, building orientation and solar-controlled glazing. Occupant behaviour will also have an impact on overheating risk.



Passive ventilation should be prioritised, taking into account external noise and air quality in determining the most appropriate solution. The increased use of air conditioning systems is not desirable.

Local Plan Policy | Haringey

Haringey's Key Overheating Planning Application Requirements Document summarises the main information that need to be submitted as part of the Overheating Assessment.

Extract from Haringey's Key Overheating Planning Application Requirements (November 2021) Document states:

1. Submission of a **Dynamic Thermal Modelling Assessment**, with TM49 weather files for the London Weather Centre, under the high emissions 50% percentile scenario.
 - a. In line with TM52 for non-residential developments
2. Model and report on **All weather files and patterns** to demonstrate a robust understanding on how the building may perform and what the overheating risk will be:
 - a. Mandatory compliance with Design Summer Year (DSY) 1 (2020s weather pattern, high emissions, 50% percentile)
 - b. Implement mitigation measures to comply as far as feasible with DSY 2 and 3 (2020s weather pattern, high emissions, 50% percentile) within the proposed development
 - c. Future compliance with DSY1 with the 2050s and 2080s future weather patterns (high emissions, 50% percentile) through a retrofit plan with measures that can be implemented within the building design.
3. Demonstrate the development has followed the London Plan's Cooling Hierarchy to design the development and to introduce mitigation measures, providing justification where measures have not been found feasible.
4. Demonstrate the appropriate and robust inputs into the dynamic model.
5. Demonstrate which spaces have been modelled within the development.
6. Report results of the dynamic modelling in line with the TM52/TM59 compliance criteria.
7. Technical details of the mitigation measures proposed.
8. Confirmation of who will manage overheating risk in the future, such as the managing company.



Haringey's Local Plan, Strategic Policies (2013) and Development Management DPD (2017)



New Local Plan, First Steps Engagement (2020)

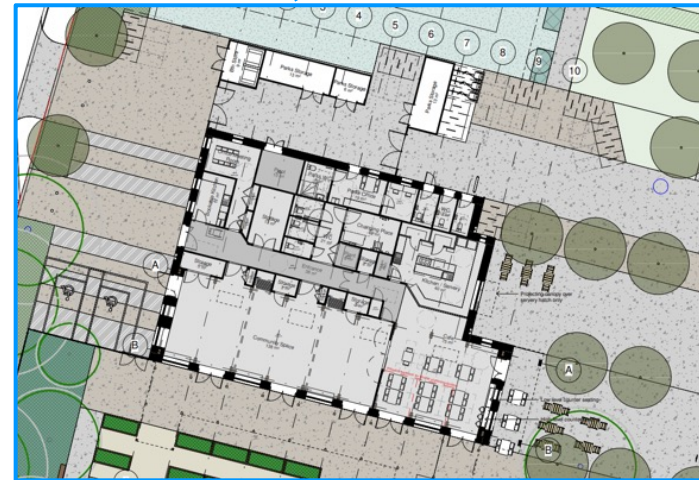


Haringey Climate Change Action Plan (2021)



Site | Acoustics and Noise

The site is located in a quiet area remote from heavy traffic or any other high level noise sources. Based on that, we have assumed that windows can be opened during occupied hours without causing any disturbance to the users of the spaces. It should be noted that this is considered reasonable for a project of this scale, and considering an acoustician has not been appointed.



Proposed site plan and ground floor plan showing location and surrounding urban context

Proposed passive cooling strategy

Highly variable use

The proposed building has a large community space that can be used in multiple ways, this means that the building occupancy and the experience of building users operating the building varies.

To accommodate this very different use type the building will operate in two primary modes to achieve summer comfort:

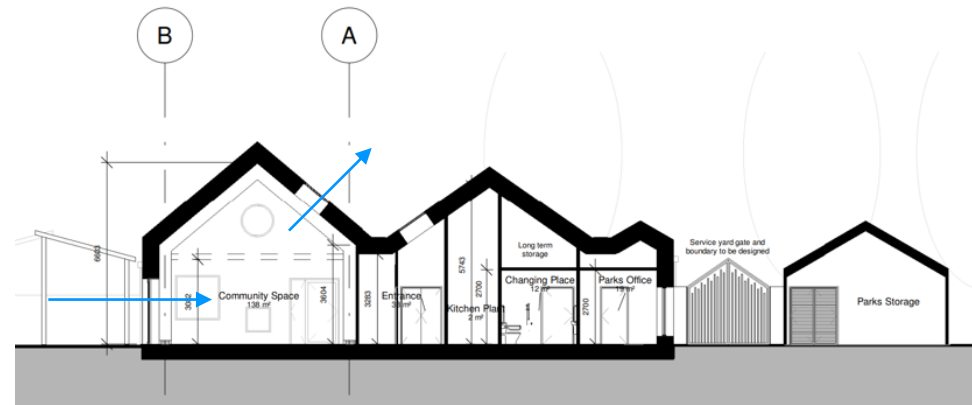
1. Normal use mode (Scenario 1)

Passive cooling is provided by opening windows and rooflights. Cross ventilation and openings that can be used securely mean that a large air flow in multiple use conditions can be achieved.

The MVHR background ventilation system is set on a time programme to provide night ventilation to pre-cool the building. This has the advantage of requiring no building user action and avoids the need for cooling during the day.

2. High occupancy mode (Scenario 2)

Fan coil units that are capable of providing cooling are located in the occupancy café, community space, parks office, and office meeting room. These are higher occupancy spaces or areas with prolonged occupancy. The cooling can be used in periods of very hot weather, and during very high occupancy periods.



Building section showing window ventilation opening and rooflight exhaust. Rooflights will be openable and controlled by a manual electric opening system that closes when rain is detected.



The East and West elevations include an opening window behind a louvre screen. This allows a high free area to be achieved and windows to be left open securely.

Creating the dynamic model

Modelling approach

Using approved dynamic thermal modelling software EDSL TAS v9.5.4, a TM52 overheating risk assessment has been carried out for all the commercial spaces which are occupied for more than 30 minutes.

The following spaces were assessed:

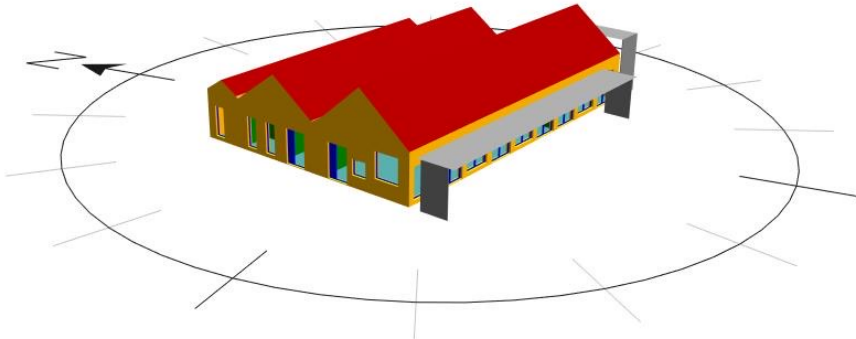
- Community space
- Cafe
- Kitchen / Servery
- Bookable kitchen
- Parks office
- Office meeting room

All spaces have been modelled against the CIBSE London Weather Centre 2020's High50 DSY1, DSY2 and DSY3 weather files. Additionally, the 2050's High50 DSY1,DSY2,DSY3 and 2080's High50 DSY1,DSY2,DSY3 future weather files have been tested as part of Haringey's requirements.

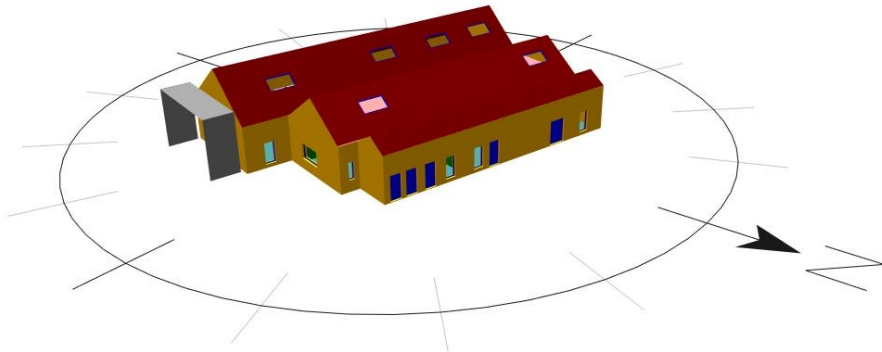
The model geometry was based on the latest planning layouts and elevations drawings received by Levitt Bernstein Architects

Drawings used for modelling	Rev / Date received
Plans, elevations, sections	14/07/2023

The key modelling parameters for the CIBSE TM52 and CIBSE Guide A assessments are listed in the next 2 pages.



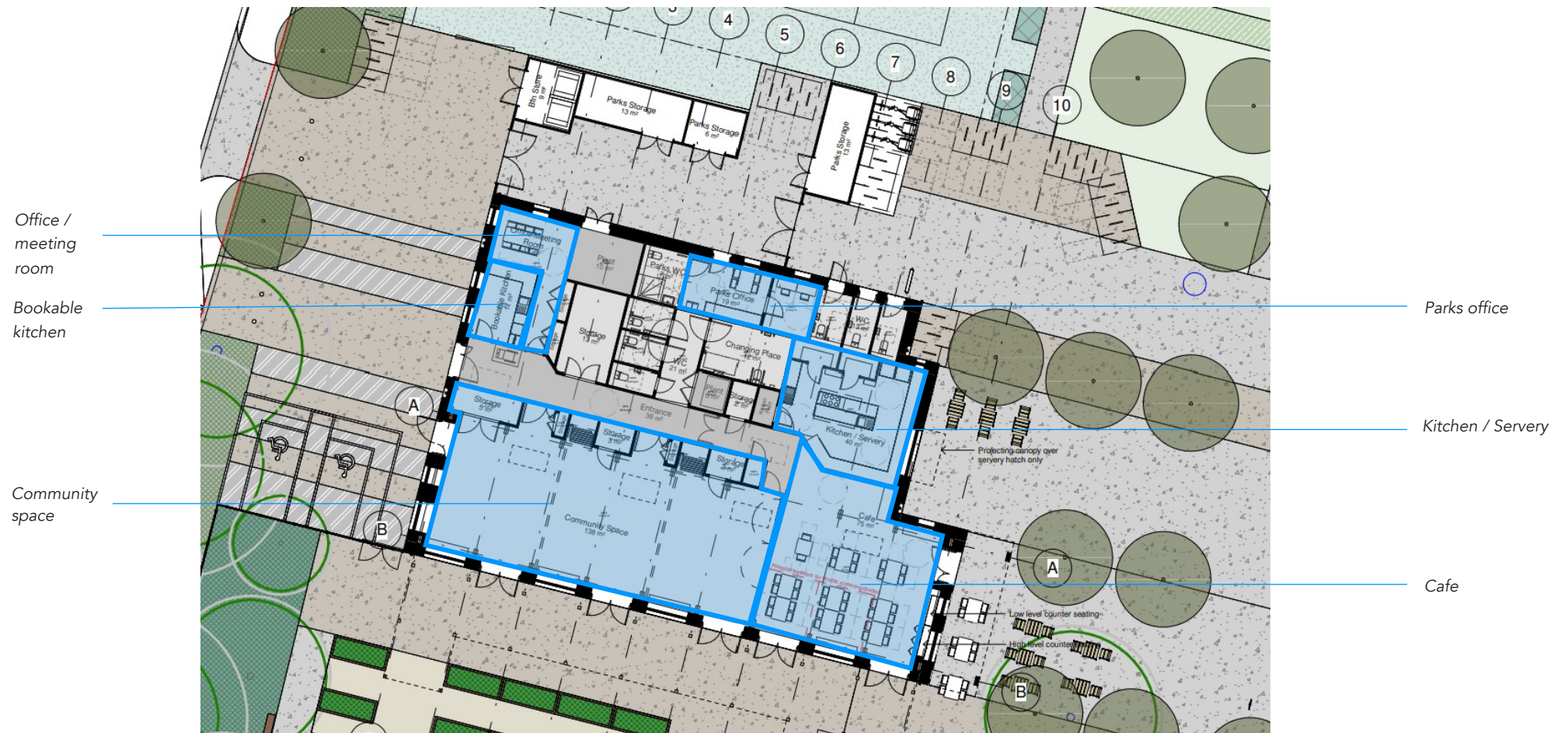
EDSL TAS model of the site – Down Lane Park Hub, SW view



EDSL TAS model of the site – Down Lane Park Hub, NE View

Assessed non-domestic spaces

The assessed non-domestic spaces are highlighted below.



Ground Floor Plan

Modelling assumptions

General model input data

Air infiltration	0.03 ach
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Building Fabric

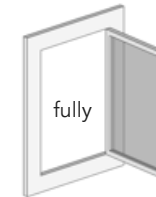
External Walls	0.09 W/m ² K – as per Energy Statement
Party Walls	Fully filled and sealed
Roof	0.09 W/m ² K – as per Energy Statement
Ground floor	0.075 W/m ² K – as per Energy Statement
Windows	Uwindow 0.9 W/m ² K Window frame 1.0 W/m ² K Glass 0.60 W/m ² K g value: 0.50 – as per Energy Statement
Doors	<1.00 W/m ² K – as per Energy Statement

Type of space	Occupied hours	Normal occupancy (number of people) – <u>Scenario 1</u>	Peak occupancy (number of people) – <u>Scenario 2</u>	Lighting (W/m ²)	Equipment (W/m ²)
Community space	09:00-18:00	25*	107*	4	3
Café	09:00-18:00	5	35	4	3
Kitchen / Servery	11:00-15:00	4	4	5	5
Parks office	09:00-17:00	4	4	5	8
Bookable kitchen	11:00-15:00	2	2	5	5
Office meeting room	09:00-17:00	8	8	5	5

*fluctuating during the day reaching the peak value 12:00-15:00

Natural ventilation: Operation & Openable area Scenario 1

As part of scenario 1, which has been prioritizing passive measures, all windows including roof lights have been modelled as being fully open (achieving their maximum equivalent free area A_f) during occupied hours but closed during the night. Fully open windows have been modelled as 80% to take account of frames.



Mechanical ventilation: Operation Scenarios 1 & 2

MVHR in summer bypass mode to continually provide: 5.5 l/s/m²



Cooling: Operation Scenario 2

As part of scenario 2, a high efficiency Variable Refrigerant Flow (VRF) heat pump has been modelled to provide cooling in the main spaces (café, community space, parks office, office meeting room). A cooling load of 70W/m² has been assumed for the purposes of the modelling.

Cooling is controlled on temperature with the setpoint being set to 22° C.



Results | TM52 and CIBSE Guide A – 2020 weather files

The tables on this page show a summary of the results of the TM52 and CIBSE Guide A overheating risk assessment for current weather scenarios.

Haringey Council's 'Key Overheating Planning Application requirements' requires each modelled room to comply with TM52 criteria using the DSY1 weather file (2020 high emissions, 50th percentile). It also goes beyond this and requires the implementation of additional mitigation measures to comply as far as feasible with DSY 2 and 3 weather files (2020s weather pattern, high emissions, 50th percentile).

Baseline design - Scenario 1

The baseline model, which is based on a primarily naturally ventilated scenario for all spaces, passes the TM52 criteria when tested against the DSY1 weather files apart from a marginal failure on the café. It is expected that this space will be passing on a mixed mode ventilation scenario. The baseline model only partially passes against the DSY2 and DSY3 weather files.

Current design - Scenario 2

Due to varied use of the main community space, that is designed to be segmented and modular, a VRF system with Fan Coil Units has been specified to be used during excessively hot summer periods and where the usage of the space is either at maximum occupancy or where, due to privacy or nuisance the windows and doors need to be closed. Based on that, a final scenario has been run assuming cooling as part of the community space, the café and the offices. Natural ventilation has been kept in the bookable kitchen and the kitchen / server as per scenario 1.

The current design complies with the current DSY1 weather file but only partially passes against the DSY2 and DSY3 weather files. Full compliance of the future weather files would require the cooling load to be increased.

BASELINE DESIGN: DSY1, 2020 High emissions, 50th percentile

Scenario 1 (natural ventilation only – assessed against CIBSE TM52)		
Community space	Naturally ventilated	Pass
Café	Naturally ventilated	Marginally Fail
Kitchen / Servery	Naturally ventilated	Pass
Parks office	Naturally ventilated	Pass
Bookable kitchen	Naturally ventilated	Pass
Office meeting room	Naturally ventilated	Pass

CURRENT DESIGN: DSY1, 2020 High emissions, 50th percentile

Scenario 2 (combination of natural ventilation and cooling depending on space – assessed against TM52 and CIBSE Guide A)		
Community space (assessed)	Mechanically cooled	Pass
Café	Mechanically cooled	Pass
Kitchen / Servery	Naturally ventilated	Pass
Parks office	Mechanically cooled	Pass
Bookable kitchen	Naturally ventilated	Pass
Office meeting room	Mechanically cooled	Pass

Appendix 1 | TM52 Overheating Results – Current weather data

Summer overheating results – DSY1 Without mechanical cooling (London_LWC_DSY1_2020High50)

Zone	Max Exceedable Hours	Criterion 1: #Hours Exceeding Comfort Range	Criterion 2: Peak Daily Weighted Exceedance	Criterion 3: #Hours Exceeding Absolute Limit	Result
Community space	36	21	15	0	Pass
Cafe	36	24	12	3	Marginally Fail
Kitchen / Servery	9	0	0	0	Pass
Parks office	22	0	0	0	Pass
Office / Meeting room	22	7	5	0	Pass
Bookable kitchen	9	5	3	0	Pass

Summer overheating results – DSY2 Without mechanical cooling (London_LWC_DSY2_2020High50)

Zone	Max Exceedable Hours	Criterion 1: #Hours Exceeding Comfort Range	Criterion 2: Peak Daily Weighted Exceedance	Criterion 3: #Hours Exceeding Absolute Limit	Result
Community space	36	138	15	39	Fail
Cafe	36	100	14	27	Fail
Kitchen / Servery	9	6	5	1	Pass
Parks office	22	13	8	3	Fail
Office / Meeting room	22	17	6	6	Pass
Bookable kitchen	9	8	6	2	Pass

Summer overheating results – DSY3 Without mechanical cooling (London_LWC_DSY3_2020High50)

Zone	Max Exceedable Hours	Criterion 1: #Hours Exceeding Comfort Range	Criterion 2: Peak Daily Weighted Exceedance	Criterion 3: #Hours Exceeding Absolute Limit	Result
Community space	36	168	16	53	Fail
Cafe	36	129	14	32	Fail
Kitchen / Servery	9	10	6	0	Pass
Parks office	22	19	10	0	Pass
Office / Meeting room	22	29	12	4	Fail
Bookable kitchen	9	17	6	1	Fail

Appendix 1 | CIBSE Guide A Overheating Results – Current weather data

Summer overheating results – DSY1 With mechanical cooling (London_LWC_DSY1_2020High50)

Zone	Max Exceedable Hours	Criterion: % of annual occupied hours >26°C	Result
Community space	99	98	Pass
Cafe	99	34	Pass
Kitchen / Servery		N/A	
Parks office	61	0	Pass
Office / Meeting room	61	10	Pass
Bookable kitchen		N/A	

Summer overheating results – DSY2 With mechanical cooling (London_LWC_DSY2_2020High50)

Zone	Max Exceedable Hours	Criterion: % of annual occupied hours >26°C	Result
Community space	99	117	Fail
Cafe	99	74	Pass
Kitchen / Servery		N/A	
Parks office	61	14	Pass
Office / Meeting room	61	24	Pass
Bookable kitchen		N/A	

Summer overheating results – DSY3 With mechanical cooling (London_LWC_DSY3_2020High50)

Zone	Max Exceedable Hours	Criterion: % of annual occupied hours >26°C	Result
Community space	99	153	Fail
Cafe	99	104	Fail
Kitchen / Servery		N/A	
Parks office	61	11	Pass
Office / Meeting room	61	47	Pass
Bookable kitchen		N/A	

Appendix 1 | TM52 Overheating Results – Future weather data

Summer overheating results – DSY1 Without mechanical cooling (London_LWC_DSY1_2050High50)

Zone	Max Exceedable Hours	Criterion 1: #Hours Exceeding Comfort Range	Criterion 2: Peak Daily Weighted Exceedance	Criterion 3: #Hours Exceeding Absolute Limit	Result
Community space	36	218	15	41	Fail
Cafe	36	147	15	15	Fail
Kitchen / Servery	9	2	1	0	Pass
Parks office	22	7	4	0	Pass
Office / Meeting room	22	21	10	0	Pass
Bookable kitchen	9	10	6	0	Pass

Summer overheating results – DSY2 Without mechanical cooling (London_LWC_DSY2_2050High50)

Zone	Max Exceedable Hours	Criterion 1: #Hours Exceeding Comfort Range	Criterion 2: Peak Daily Weighted Exceedance	Criterion 3: #Hours Exceeding Absolute Limit	Result
Community space	36	188	14	70	Fail
Cafe	36	147	15	44	Fail
Kitchen / Servery	9	8	6	2	Pass
Parks office	22	18	9	5	Fail
Office / Meeting room	22	29	6	9	Fail
Bookable kitchen	9	12	6	3	Fail

Summer overheating results – DSY3 Without mechanical cooling (London_LWC_DSY3_2050High50)

Zone	Max Exceedable Hours	Criterion 1: #Hours Exceeding Comfort Range	Criterion 2: Peak Daily Weighted Exceedance	Criterion 3: #Hours Exceeding Absolute Limit	Result
Community space	36	235	16	84	Fail
Cafe	36	189	17	58	Fail
Kitchen / Servery	9	16	7	1	Fail
Parks office	22	33	14	5	Fail
Office / Meeting room	22	45	10	13	Fail
Bookable kitchen	9	22	6	6	Fail

Appendix 1 | CIBSE Guide A Overheating Results – Current weather data

Summer overheating results – DSY1 With mechanical cooling (London_LWC_DSY1_2050High50)

Zone	Max Exceedable Hours	Criterion: % of annual occupied hours >26°C	Result
Community space	99	208	Fail
Cafe	99	95	Pass
Kitchen / Servery		N/A	
Parks office	61	2	Pass
Office / Meeting room	61	29	Pass
Bookable kitchen		N/A	

Summer overheating results – DSY2 With mechanical cooling (London_LWC_DSY2_2050High50)

Zone	Max Exceedable Hours	Criterion: % of annual occupied hours >26°C	Result
Community space	99	294	Fail
Cafe	99	182	Fail
Kitchen / Servery		N/A	
Parks office	61	17	Pass
Office / Meeting room	61	44	Pass
Bookable kitchen		N/A	

Summer overheating results – DSY3 With mechanical cooling (London_LWC_DSY3_2050High50)

Zone	Max Exceedable Hours	Criterion: % of annual occupied hours >26°C	Result
Community space	99	249	Fail
Cafe	99	165	Fail
Kitchen / Servery		N/A	
Parks office	61	30	Pass
Office / Meeting room	61	77	Fail
Bookable kitchen		N/A	

Appendix 1 | TM52 Overheating Results – Future weather data

Summer overheating results – DSY1 Without mechanical cooling (London_LWC_DSY1_2080High50)

Zone	Max Exceedable Hours	Criterion 1: #Hours Exceeding Comfort Range	Criterion 2: Peak Daily Weighted Exceedance	Criterion 3: #Hours Exceeding Absolute Limit	Result
Community space	36	335	14	100	Fail
Cafe	36	252	14	54	Fail
Kitchen / Servery	9	8	6	0	Pass
Parks office	22	23	10	0	Fail
Office / Meeting room	22	56	11	3	Fail
Bookable kitchen	9	31	6	1	Fail

Summer overheating results – DSY2 Without mechanical cooling (London_LWC_DSY2_2080High50)

Zone	Max Exceedable Hours	Criterion 1: #Hours Exceeding Comfort Range	Criterion 2: Peak Daily Weighted Exceedance	Criterion 3: #Hours Exceeding Absolute Limit	Result
Community space	36	292	16	115	Fail
Cafe	36	217	12	84	Fail
Kitchen / Servery	9	15	5	5	Fail
Parks office	22	33	6	10	Fail
Office / Meeting room	22	52	11	12	Fail
Bookable kitchen	9	25	6	6	Fail

Summer overheating results – DSY3 Without mechanical cooling (London_LWC_DSY3_2080High50)

Zone	Max Exceedable Hours	Criterion 1: #Hours Exceeding Comfort Range	Criterion 2: Peak Daily Weighted Exceedance	Criterion 3: #Hours Exceeding Absolute Limit	Result
Community space	36	329	13	138	Fail
Cafe	36	257	17	100	Fail
Kitchen / Servery	9	25	6	6	Fail
Parks office	22	54	11	13	Fail
Office / Meeting room	22	76	15	24	Fail
Bookable kitchen	9	37	8	11	Fail

Appendix 1 | CIBSE Guide A Overheating Results – Current weather data

Summer overheating results – DSY1 With mechanical cooling (London_LWC_DSY1_2080High50)

Zone	Max Exceedable Hours	Criterion: % of annual occupied hours >26°C	Result
Community space	99	375	Fail
Cafe	99	242	Fail
Kitchen / Servery		N/A	
Parks office	61	15	Pass
Office / Meeting room	61	101	Fail
Bookable kitchen		N/A	

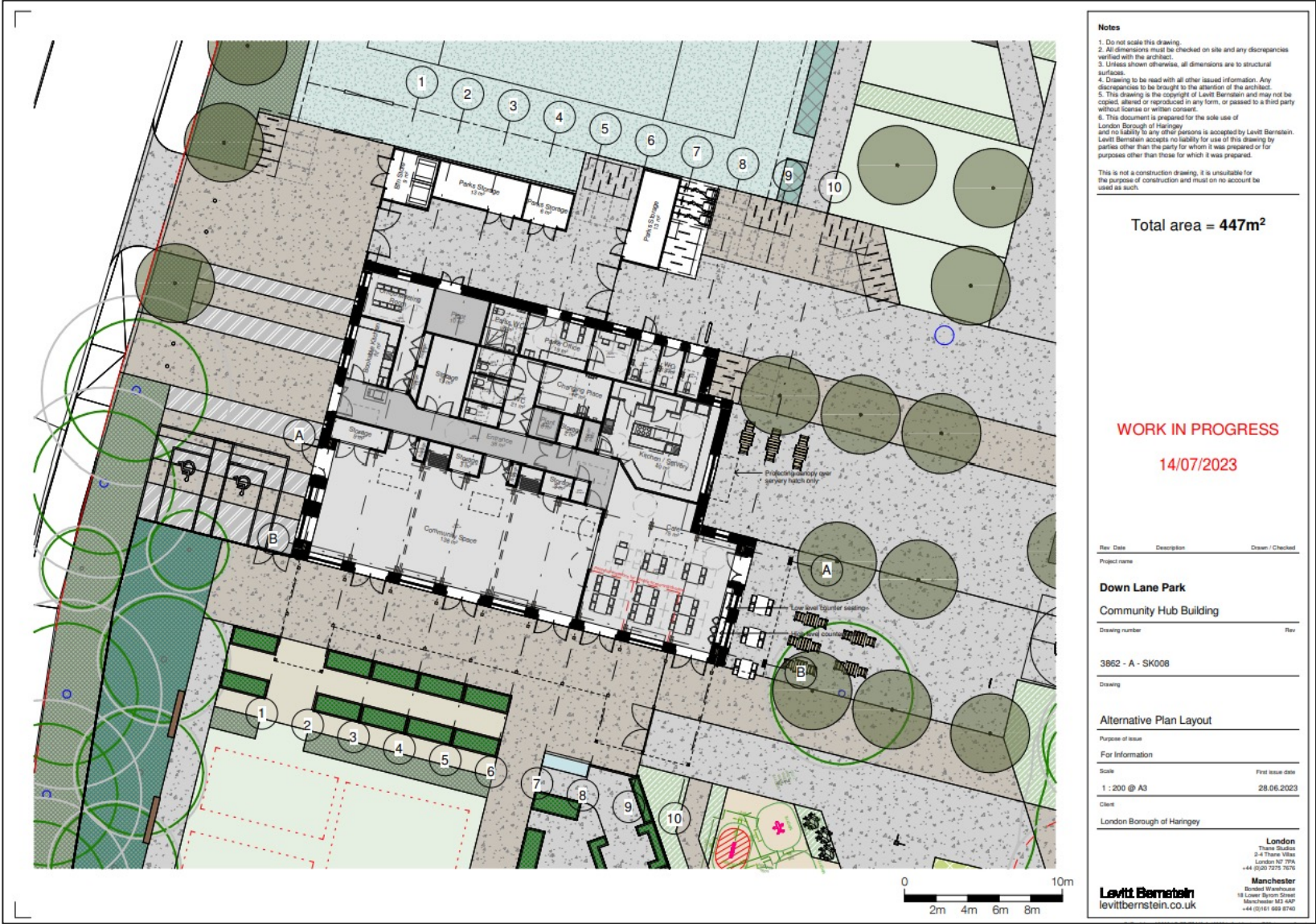
Summer overheating results – DSY2 With mechanical cooling (London_LWC_DSY2_2080High50)

Zone	Max Exceedable Hours	Criterion: % of annual occupied hours >26°C	Result
Community space	99	382	Fail
Cafe	99	237	Fail
Kitchen / Servery		N/A	
Parks office	61	31	Pass
Office / Meeting room	61	97	Fail
Bookable kitchen		N/A	

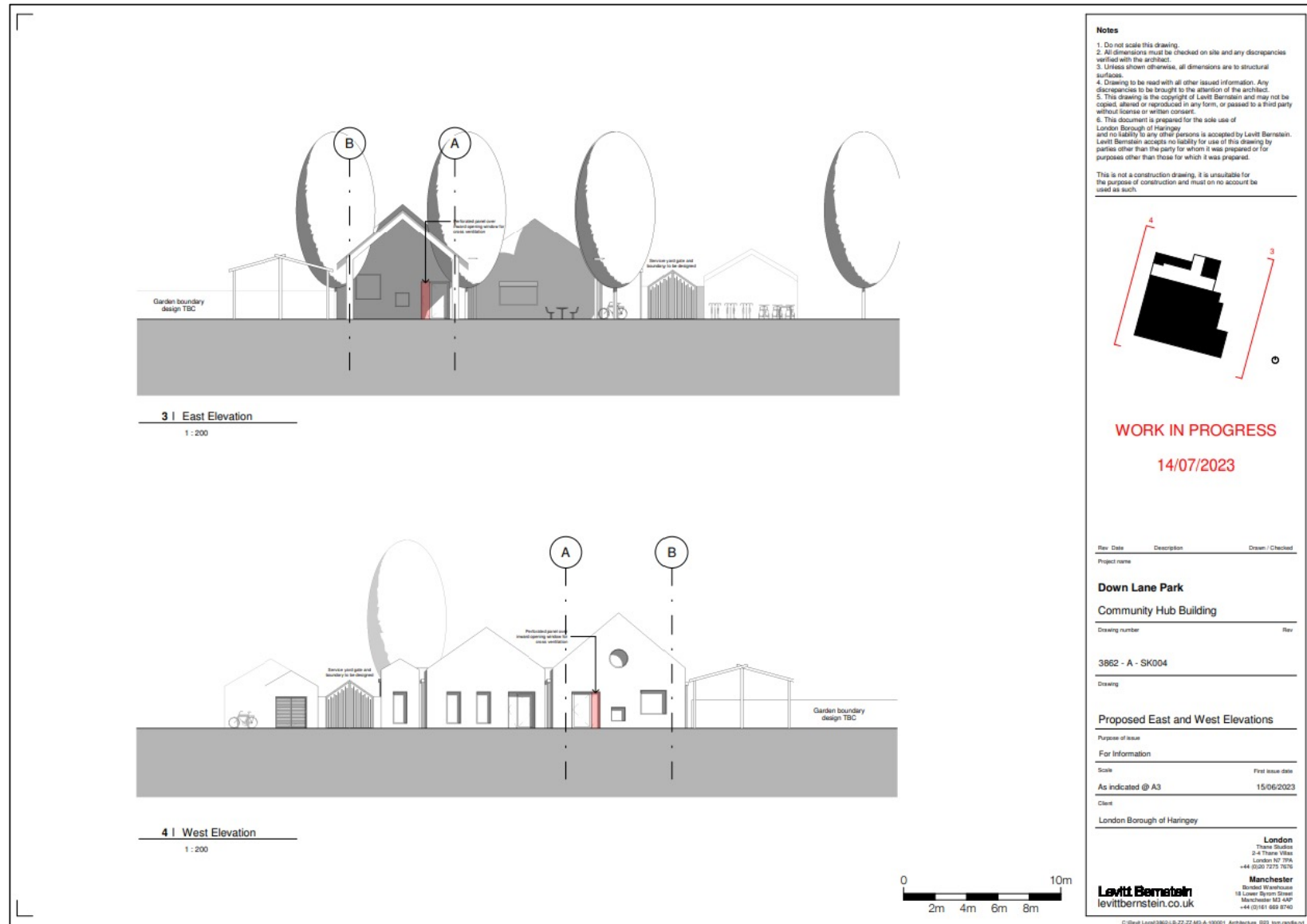
Summer overheating results – DSY3 With mechanical cooling (London_LWC_DSY3_2080High50)

Zone	Max Exceedable Hours	Criterion: % of annual occupied hours >26°C	Result
Community space	99	419	Fail
Cafe	99	283	Fail
Kitchen / Servery		N/A	
Parks office	61	66	Fail
Office / Meeting room	61	130	Fail
Bookable kitchen		N/A	

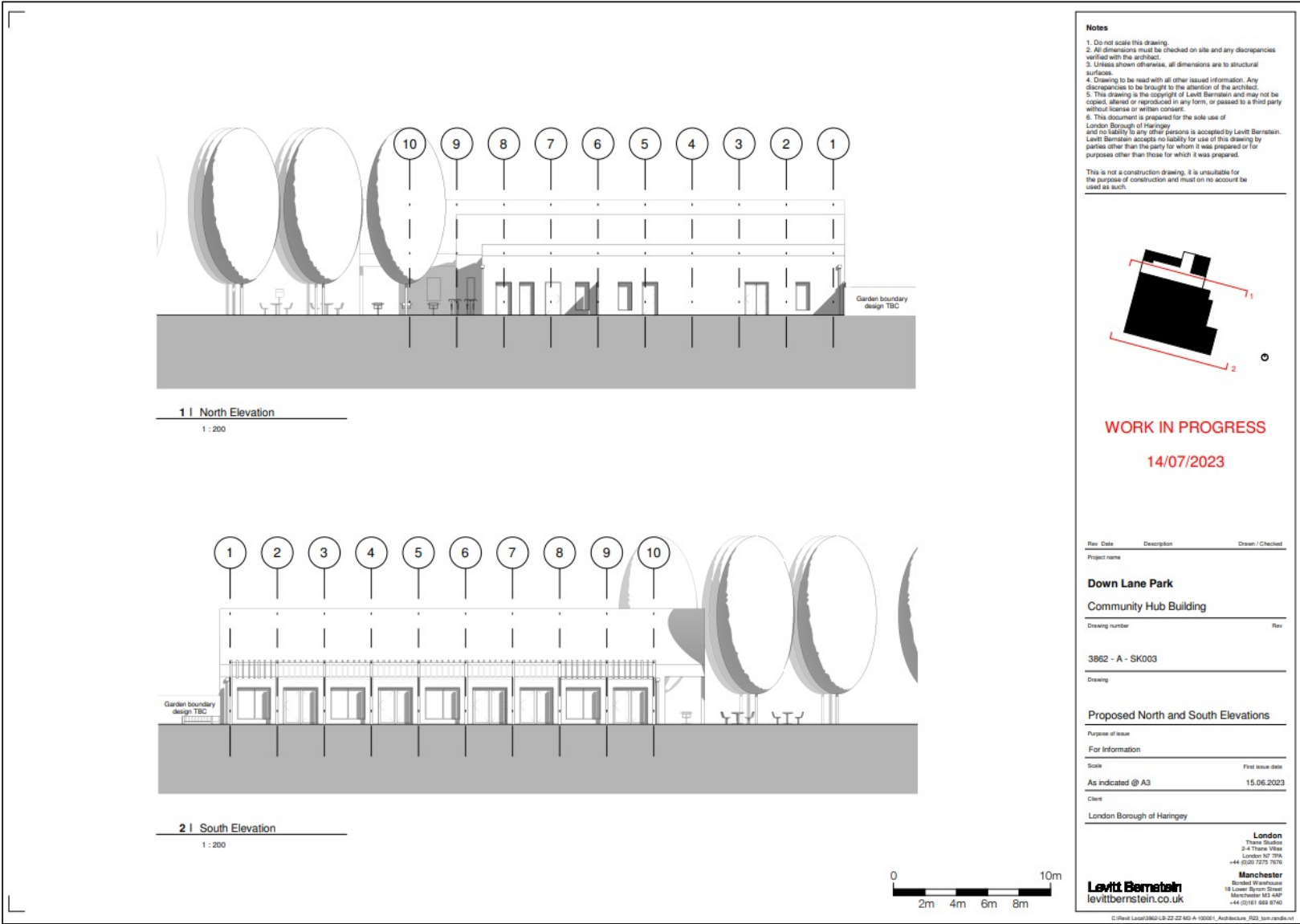
Appendix 2 | Drawings used for modelling



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