



Condition No.8 External Amenity Areas Sound Levels

24 Apartments

37 Broadwater Road
Welwyn Garden City
AL7 3AX

Client:

Solai Holdings Limited
Portland House
1st Floor
69-71 Wembley Hill Road
Wembley
Middlx
HA9 8BU

Prepared by
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UK

Date
31st January 2018

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Issue No.	1
Author	Peter Ashford
signature	
Reviewed	John Hammond
signature	
Date	31 st January 2018

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1 Executive Summary

Condition 8 of the planning permission granted by Welwyn Hatfield Borough Council for the redevelopment of the form office building at 37 Broadwater Road into a building consisting of 24 two-bedroom apartment (planning reference 6/2016/297/MAJ). The Condition states;

No development shall take place until the glazed balustrade/screen details have been submitted. The details should demonstrate that the necessary noise levels for the external amenity areas are in compliance with the noise requirements under BS8233:2014 and the resultant noise levels within the external amenity areas (balconies and roof top communal area) would not exceed the $L_{Aeq,T} 55dB$. Once these details have been agreed they shall be implemented in accordance with these details and shall be in place before the first occupation of the flats and shall be retained in that form thereafter.

This report has been commission by Solai Holdings Limited and sets out measured sound levels at the front and rear of the existing office building, on the site, over a 24-hour period. Levels were highest at the front of the site, overlooking Broadwater Road, but at a level of only 63 dB $L_{Aeq,day}$ free due to the low (30 mph speed limit) traffic speeds . Levels at the rear were 5 dB quieter.

The permitted development has two 3rd floor external “relax areas” and three private balconies, these will be protected by solid, continuous glass screens to a height of 1600mm, which will provide a substantial level of attenuation of the occupants sat in these areas. Day time external levels of no more that 47 dB $L_{Aeq,day}$ have been predicted here.

There are one plot on the first and second floor that will have external balconies on the front façade of the building and these will maintain a balcony screen height of 1600mm, all other balconies will be the standard 100mm height.

The highest sound level for these will be 51 dB $L_{Aeq,day}$ (plot 16), exposure levels on the other balconies down the northern facade of the building and at the rear will be less than this.

It has therefore been demonstrated that the design of the balconies has been sufficient to ensure external amenity day time sound levels will be limited to no more than 55 dB $L_{Aeq,day}$ as required by Condition No. of the planning consent.

This report will therefore be sufficient to discharge Condition No. 8.

2 Introduction

Planning permission has been granted by Fareham Borough Council for the construction of “Change of use of an office building to form 24 x 2 bedroom residential apartments with balconies, the construction of an additional two storeys and a four storey side and rear extension with roof garden, layout of 26 car parking spaces and cycle parking, internal access routes, landscaping and supporting infrastructure” at 37 Broadwater Road, Welwyn AL7 3AX (planning reference 6/2016/297/MAJ), the building to consist of 24 apartments on two floors with roof garden and external balconies.

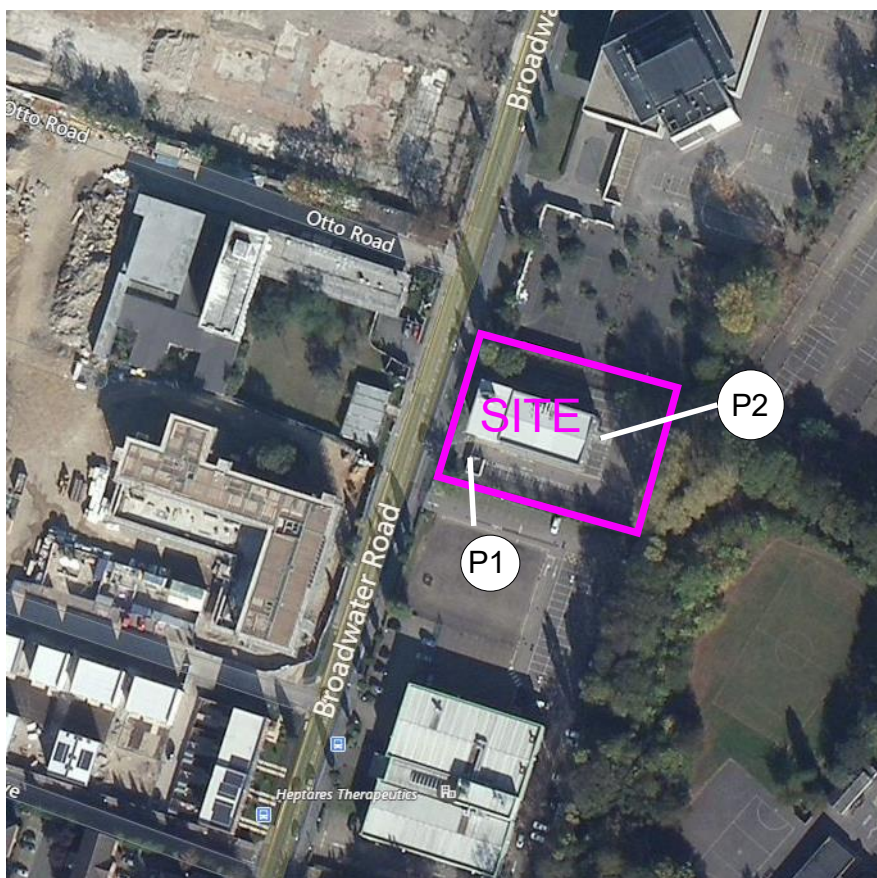
The Condition No. 8 of the planning consent states;

No development shall take place until the glazed balustrade/screen details have been submitted. The details should demonstrate that the necessary noise levels for the external amenity areas are in compliance with the noise requirements under BS8233:2014 and the resultant noise levels within the external amenity areas (balconies and roof top communal area) would not exceed the LAeq,T 55dB. Once these details have been agreed they shall be implemented in accordance with these details and shall be in place before the first occupation of the flats and shall be retained in that form thereafter.

Solai Holdings Limited has appointed Acoustic Associates SW Ltd to carry out a site sound survey and prepare a mitigation scheme sufficient to control external amenity sound levels to those set out in BS8233.

3 Environmental Sound Levels

The aerial view below shows the site and its proximity to Broadway Road to the front which has a 30 mph speed limit;



A site sound survey was carried out from Monday 29th to Tuesday 30th January 2018. The site was vacant and had a solid 2.4m high fence running along the pavement. At the time of setting up and collecting the two sound level meters (location shown as P1 and P2 above) the soundscape was

made up of the sound of traffic moving on Broadwater Road and some demolition activity sound from the large former Weetabix factory to the north.

The photograph below shows the microphone at the front of the site (P1) at a height of approximately 3.5m from where there was a direct line of sight over the solid site hoarding on top the road;



A second meter was located at the rear of the former office building on the first floor fire exit, at a height of approximately 5m, as shown in the photograph below;



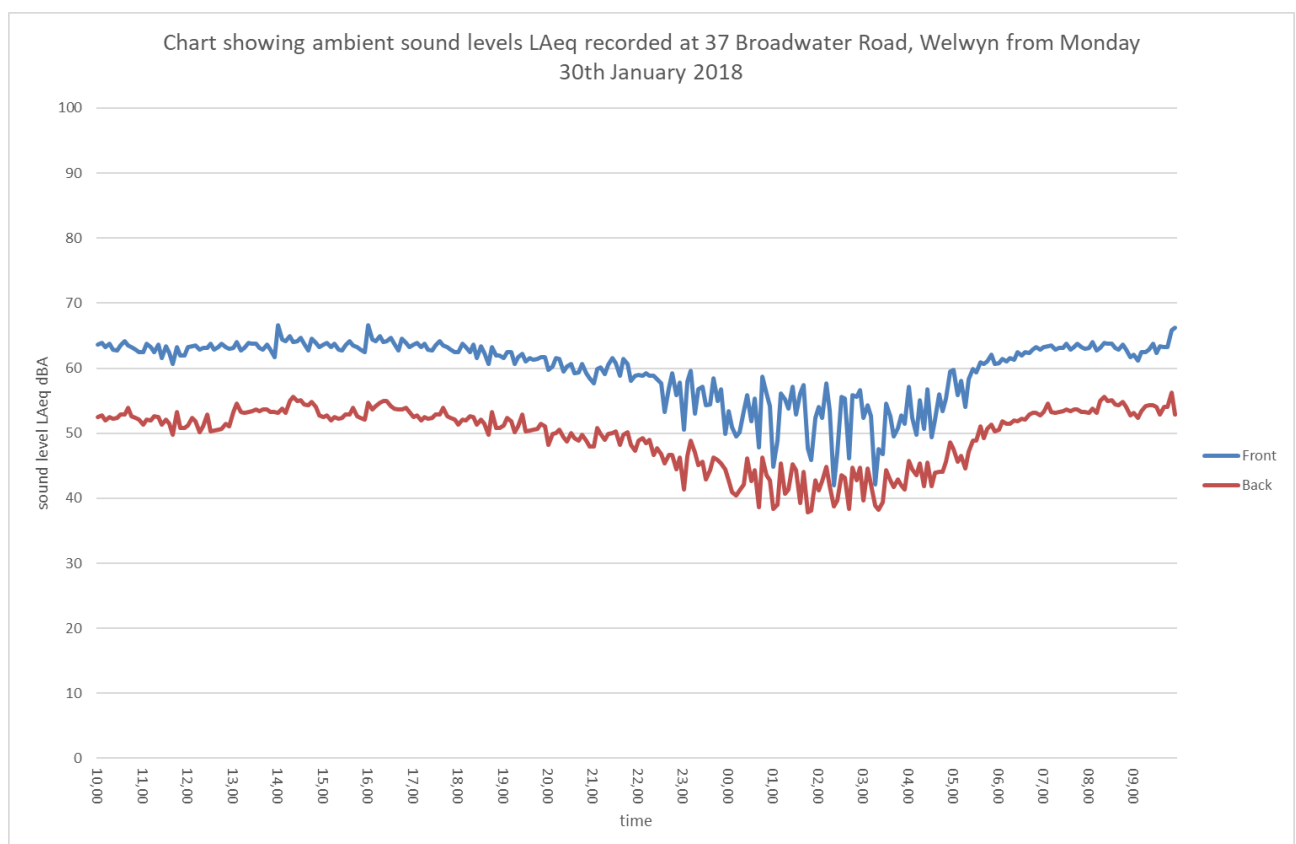
Each meter was calibrated before and after the survey without any adverse variants being observed. Details of the equipment used are given in the table below;

Make	Model	Serial No.	Calibration No.	Cert	Re-calibration due
Rion	NL31	00583286	1603119		2-3-18
Rion	NL31	012730381	1603115		15-2-18
Rion	NC74	34794316	TRAC17/04089		5-5-18

Both meters were set to record noise parameters over repetitive 5 minute periods.

The weather during the survey was clear and fine with little wind and suitable for repeatable environmental sound measurement¹.

The chart over page shows the L_{Aeq} levels recorded;



This chart makes it clear that sound levels were higher on the western boundary overlooking Broadwater Road than the rear. The sound levels are summarised in the table below;

Period	Front	Back
	$L_{Aeq,T}$	$L_{Aeq,T}$
day 7am to 11pm	63	52
night 11pm to 7am	57	47

¹https://www.wunderground.com/history/airport/EGGW/2018/1/29/DailyHistory.html?req_city=EGGW&req_state=CBF&req_statename=United+Kingdom&reqdb.zip=00000&reqdb.magic=115&reqdb.wmo=03673

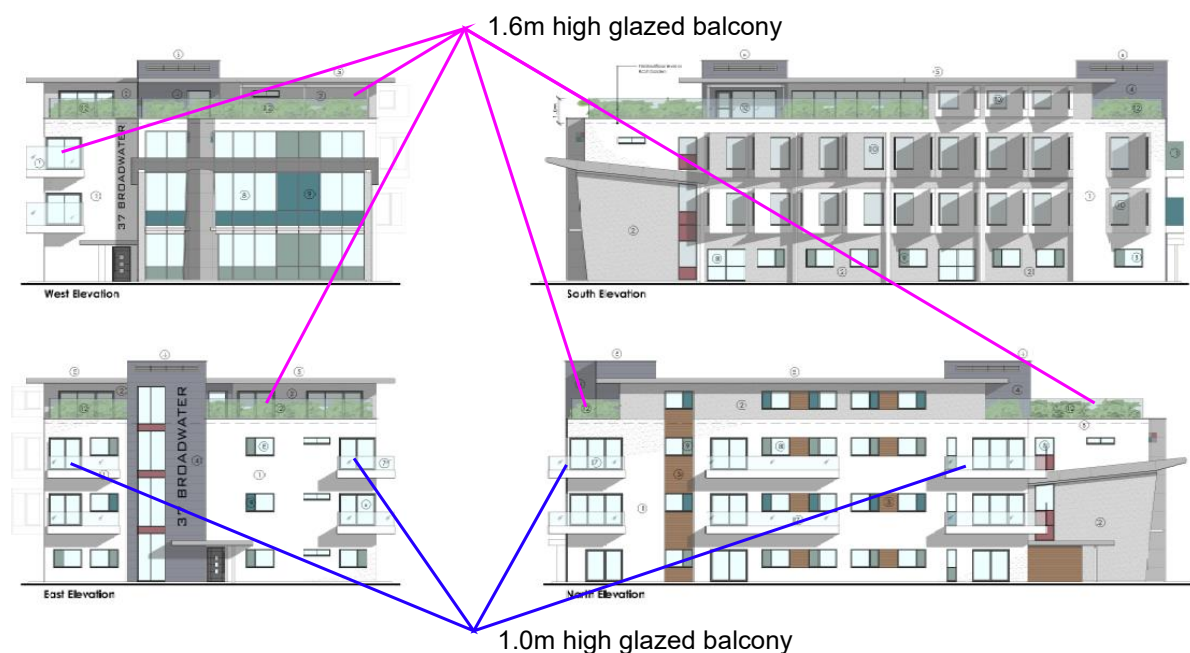
4 Assessment of external sound levels

The level of sound incident on the facades of the new dwellings can be estimated using Wolfe IMMI 3-D computer noise modelling software, which implements the calculation procedures set out in ISO 9613-2:1996 (Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation). As well as the amendment contained within ISO/TR 17534-3:2015 (Acoustics - Software for the calculation of sound outdoors - Part 3: Recommendations for quality assured implementation of ISO 9613-2 in software according to ISO 17534-1).

The following modelling assumptions have been relied upon;

- $G = 0.0$ (hard ground outside the site)
- Air temperature 10°C ,
- Humidity 70%,
- Downwind propagation,
- Receiver height on external amenity/balcony areas 1.2m (seated),
- traffic on Broadwater Road modelled as a line source 0.5m high and on centre line of carriageway,
- The general arrangement is shown on Stdio11 Architecture 's drawing No. 312.AB.01, 02 & 03(copies at the rear of this report),

An extract of the elevation drawing is shown below along with the glazed balcony heights;



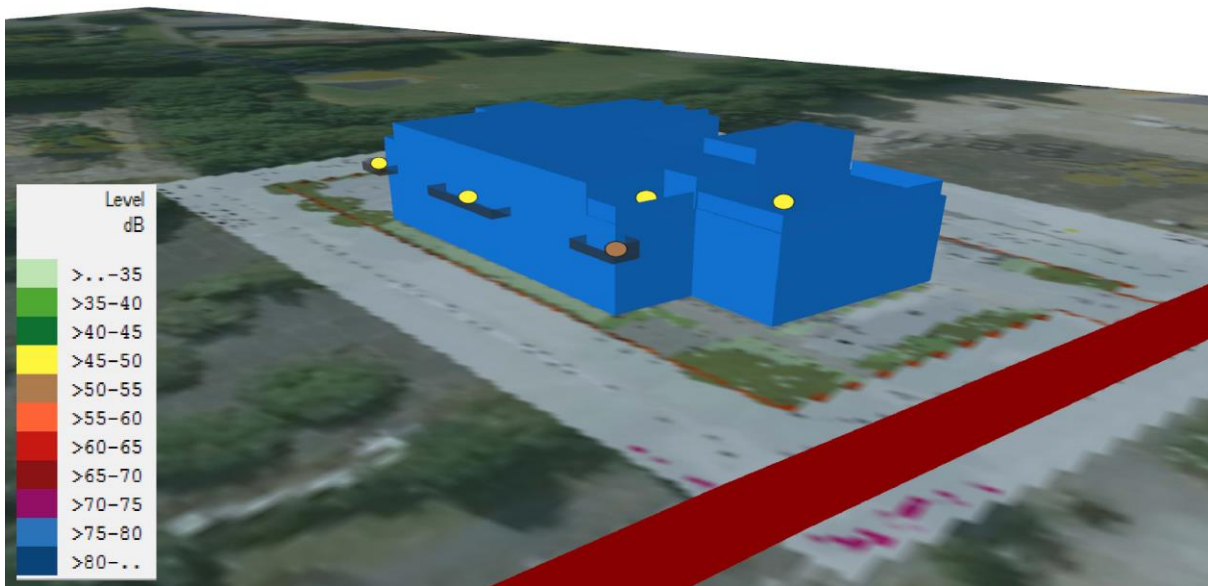
The image below shows the view of apartments looking from the south west;

View NorthEast



The image below shows the view of the apartments from the north west;

View SouthEast



The table shows the predicted day time sound level on the Relax areas on the roof and higher level balconies where sound levels from the road will be at their greatest.

Location	Day time L _{Aeq,T} dB
Relax Area Front (3rd flr)	47
Plot 22 Balcony (2nd flr)	47
Relax Area Middle (3rd flr)	45
Plot 23 Balcony	42
Plot 24 Balcony	42
Plot 16 Balcony	51
Plot 17 Balcony	47
Plot 18 Balcony	46

The IMMI 3D acoustic model can full acoustic calculation can be shared on request.

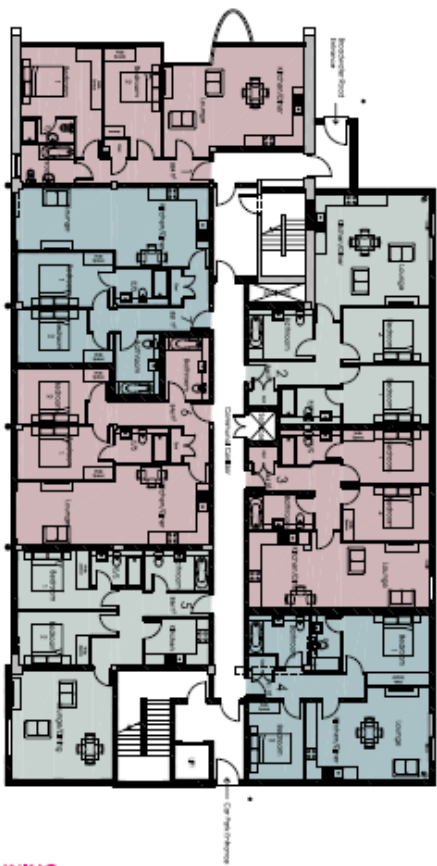
This table shows that sound levels will be at their highest on the 2nd floor balcony of Plot 24 overlooking Broadwater Road, where the glass balcony will be 1.6m high, facing the road and 1m high on its other sides.

The predicted external amenity/balcony sound levels can therefore be seen to be better than the 55 dB L_{Aeq,T} required by Condition No. 8 of the planning consent.

Drawings



First floor Plan



Ground floor Plan



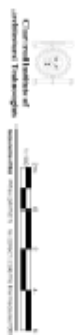
Ground floor Plan

**PLANNING
 APPLICATION**

1. Name	37 Broadwater Road, Welwyn Garden City, Herts SG13 7AX
2. Address	37 Broadwater Road, Welwyn Garden City, Herts SG13 7AX
3. Postcode	SG13 7AX
4. Date	11/01/2018
5. Drawn by	Acoustic Associates
6. Checked by	Acoustic Associates
7. Scale	1:100
8. Notes	See notes on drawing



- Multiple Key**
- | | | | | | | | |
|---|-------------------------|---|-------------------------------|---|-------------------------------|----|-------------------|
| 1 | Write through documents | 4 | Use engaging feedback | 7 | Classroom climate | 10 | Classroom Climate |
| 2 | Key through documents | 5 | Student role | 8 | Adaptive group work and roles | 11 | Classroom Climate |
| 3 | Student learning | 6 | Adaptive group work and roles | 9 | Classroom climate | 12 | Classroom Climate |



PLANNING APPLICATION

NAME	DATE	TIME	LOCATION	STATUS
JOHN DOE	2023-10-26	14:30	Room 101	Present
JANE SMITH	2023-10-26	15:00	Room 101	Absent
BOB JONES	2023-10-26	15:30	Room 101	Present
ALICE BROWN	2023-10-26	16:00	Room 101	Absent
CHARLIE GREEN	2023-10-26	16:30	Room 101	Present
DAVID WHITE	2023-10-26	17:00	Room 101	Absent
EMILY BLACK	2023-10-26	17:30	Room 101	Present
FRED BROWN	2023-10-26	18:00	Room 101	Absent
GRACE GREEN	2023-10-26	18:30	Room 101	Present
HELEN WHITE	2023-10-26	19:00	Room 101	Absent
IRVING BLACK	2023-10-26	19:30	Room 101	Present
JACK BROWN	2023-10-26	20:00	Room 101	Absent
JILL GREEN	2023-10-26	20:30	Room 101	Present
JOHN WHITE	2023-10-26	21:00	Room 101	Absent
JANE BLACK	2023-10-26	21:30	Room 101	Present
JOHN DOE	2023-10-26	22:00	Room 101	Absent
JANE SMITH	2023-10-26	22:30	Room 101	Present
BOB JONES	2023-10-26	23:00	Room 101	Absent
ALICE BROWN	2023-10-26	23:30	Room 101	Present
CHARLIE GREEN	2023-10-26	00:00	Room 101	Absent
DAVID WHITE	2023-10-26	00:30	Room 101	Present
EMILY BLACK	2023-10-26	01:00	Room 101	Absent
FRED BROWN	2023-10-26	01:30	Room 101	Present
GRACE GREEN	2023-10-26	02:00	Room 101	Absent
HELEN WHITE	2023-10-26	02:30	Room 101	Present
IRVING BLACK	2023-10-26	03:00	Room 101	Absent
JACK BROWN	2023-10-26	03:30	Room 101	Present
JILL GREEN	2023-10-26	04:00	Room 101	Absent
JOHN WHITE	2023-10-26	04:30	Room 101	Present
JANE BLACK	2023-10-26	05:00	Room 101	Absent
JOHN DOE	2023-10-26	05:30	Room 101	Present
JANE SMITH	2023-10-26	06:00	Room 101	Absent
BOB JONES	2023-10-26	06:30	Room 101	Present
ALICE BROWN	2023-10-26	07:00	Room 101	Absent
CHARLIE GREEN	2023-10-26	07:30	Room 101	Present
DAVID WHITE	2023-10-26	08:00	Room 101	Absent
EMILY BLACK	2023-10-26	08:30	Room 101	Present
FRED BROWN	2023-10-26	09:00	Room 101	Absent
GRACE GREEN	2023-10-26	09:30	Room 101	Present
HELEN WHITE	2023-10-26	10:00	Room 101	Absent
IRVING BLACK	2023-10-26	10:30	Room 101	Present
JACK BROWN	2023-10-26	11:00	Room 101	Absent
JILL GREEN	2023-10-26	11:30	Room 101	Present
JOHN WHITE	2023-10-26	12:00	Room 101	Absent
JANE BLACK	2023-10-26	12:30	Room 101	Present
JOHN DOE	2023-10-26	13:00	Room 101	Absent
JANE SMITH	2023-10-26	13:30	Room 101	Present
BOB JONES	2023-10-26	14:00	Room 101	Absent
ALICE BROWN	2023-10-26	14:30	Room 101	Present
CHARLIE GREEN	2023-10-26	15:00	Room 101	Absent
DAVID WHITE	2023-10-26	15:30	Room 101	Present
EMILY BLACK	2023-10-26	16:00	Room 101	Absent
FRED BROWN	2023-10-26	16:30	Room 101	Present
GRACE GREEN	2023-10-26	17:00	Room 101	Absent
HELEN WHITE	2023-10-26	17:30	Room 101	Present
IRVING BLACK	2023-10-26	18:00	Room 101	Absent
JACK BROWN	2023-10-26	18:30	Room 101	Present
JILL GREEN	2023-10-26	19:00	Room 101	Absent
JOHN WHITE	2023-10-26	19:30	Room 101	Present
JANE BLACK	2023-10-26	20:00	Room 101	Absent
JOHN DOE	2023-10-26	20:30	Room 101	Present
JANE SMITH	2023-10-26	21:00	Room 101	Absent
BOB JONES	2023-10-26	21:30	Room 101	Present
ALICE BROWN	2023-10-26	22:00	Room 101	Absent
CHARLIE GREEN	2023-10-26	22:30	Room 101	Present
DAVID WHITE	2023-10-26			