Proposed Cross Avenue Residential Development, Blackrock, Dublin

Pedestrian Wind Comfort Analysis

Project Ref: 20538

Client: 1 Players Land Limited

Date: 09/05/2024

BPC ENGINEERS

BUILDING PERFORMANCE CONSULTING

Rev	Description	Date:	Written By	Approved By:
P1-03	Final Report Amended development	09/05/2024	GB	John Gleeson CEng MIEI, CMVP (AEE)

1 Executive Summary

This report provides information on the pedestrian wind comfort within the proposed amendment to a permitted Strategic Housing Development (planning reference ABP-311190-21) at Cross Avenue, Blackrock. The proposed amendment would increase the number of apartments in the development by five units. Figure 1 and Figure 2 illustrate the difference between the previous proposed development and the revised development, which includes the addition of three apartments on Block A and two apartments on Block B. The figures show that the change in the massing of development is negligible.

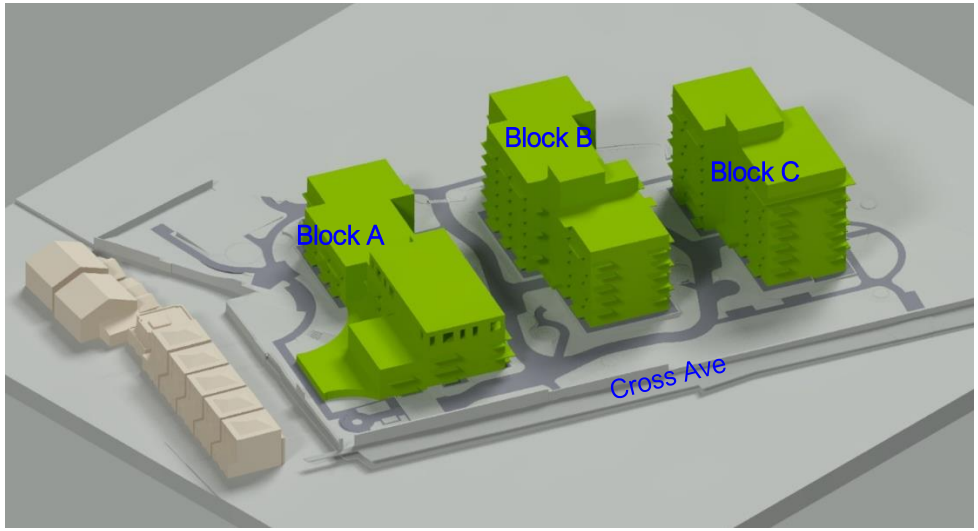

Figure 1: Previous proposed development (Perspective View Looking North)

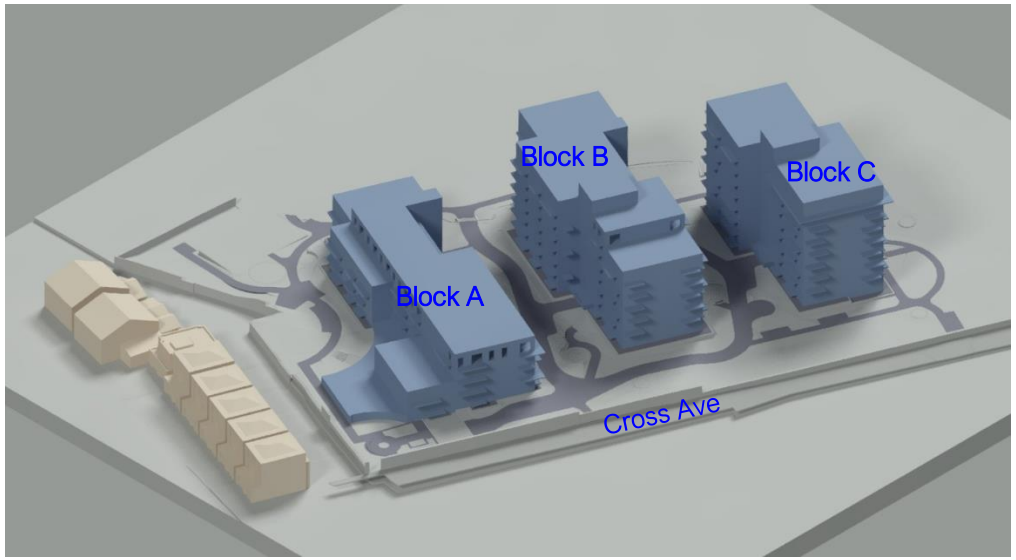

Figure 2: Amended proposed development (Perspective View Looking North)

BPC Engineers reviewed the "Pedestrian Comfort CFD Analysis" report previously developed by IES. to examine the effect of the amended proposal on pedestrian wind comfort.

In this report, 8 steady state Computational Fluid Dynamics (CFD) simulations were performed for the main wind directions (N, NE, E, SE, S, SW, W and NW) and annual average wind speed for Casement Aerodrome near Dublin. The wind was assumed to have characteristics associated with wind flowing through a suburb. The results obtained from the simulations were extrapolated along the annual weather data to obtain the most probable local air speed for each hour of the year. Statistical analysis was performed on this dataset to check compliance against the Lawson 2001 criteria.

The Lawson Criteria categories are shown in Table 1 and Table 2.

Table 1: Lawson 2001 comfort criteria categories

Wind speed [m/s]	Exceedance probability - % of hours per year	Category Code	Category
> 4	<5	A	Sitting
> 6	<5	B	Standing
> 8	<5	C	Strolling
> 10	<5	D	Business Walking
> 10	>5	E	Uncomfortable

Table 2: Lawson 2001 safety criteria categories

Wind speed [m/s]	Exceedance probability - % of hours per year	Category Code	Category
> 15	<0.023	S15	All Safe
> 15	>0.023	S15	Unsafe frail
> 20	>0.023	S20	Unsafe all

After reviewing the report, it was found that the changes made since the CFD analysis was conducted have had a negligible effect on the overall results. This is because the massing of the amended development is similar to the previous proposal. Therefore, the previously presented results are still accurate, and the previous report remains valid.

Overall, the development has been designed with due consideration for pedestrian comfort and will meet the recommendations as set out in the Lawson 2001 criteria.

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