From: Neil Crawford
Sent: 06 October 2014 18:16
To: M.Smith@maxfordham.com
Cc: 1279 Grenfell Tower; d.campbell@maxfordham.com; slawrence@rydon.co.uk
Subject: RE: Grenfell Tower Regeneration Scheme

Hi Matt

Thanks for this but I don't know how much of an appetite there is for this much trickle vent. It will mean running vents along the top of pretty much all the windows; won't this affect daylighting levels?

Regards
Neil

From: M.Smith@maxfordham.com [mailto:M.Smith@maxfordham.com]
Sent: 06 October 2014 17:28
To: Neil Crawford
Cc: 1279 Grenfell Tower; d.campbell@maxfordham.com; slawrence@rydon.co.uk
Subject: RE: Grenfell Tower Regeneration Scheme

Evening Neil

I've discussed this with Duncan and we feel that it's appropriate to reiterate our previous advice. This is in-keeping with the ethos of the improvement works to Grenfell Tower, the fabric upgrades are bringing the building in line with that of a new-build and the ventilation should reflect this.

We advise that you should get as close as is practical to the areas outlined below.

Kind regards,

Matt

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From: Neil Crawford <Neil@studioe.co.uk>
To: "M.Smith@maxfordham.com" <M.Smith@maxfordham.com>,
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Date: 26/09/2014 12:28
Subject: RE: Grenfell Tower Regeneration Scheme

Hi Matt

The issue of trickle vents is causing a little confusion on the existing flats as the area requirement doesn't appear to be totally explicit in the regulations.
I have attached a detail of the proposed that provides an amount (typically just under 5000mm2) on all the smaller windows. Presumably your thinking on the achieving the total amounts (50000mm2 for two bedrooms and 35000mm2 for 1 beds is based on bathroom and kitchen extracts combined with the trickle vents to give the total background ventilation but there is no hard and fast rule about how much of this shouldbe through the trickle vents themselves (?)

Regards
Neil

From: M.Smith@maxfordham.com [mailto:M.Smith@maxfordham.com]
Sent: 24 September 2014 11:39
To: Neil Crawford
Cc: 1279 Grenfell Tower; d.campbell@maxfordham.com
Subject: Re: Grenfell Tower Regeneration Scheme

Morning Neil

1. What (if any) requirement for trickle ventilation is there on the cladding design. Is this 8500mm2 per habitable room or a reduced amount based on consequential improvement to an existing building (2000mm2) and can this all be at one level or separated (say at bottom and top of window frame to allow for circulation)

I'll break it down into the new flats and existing flats:

New Flats
We have allowed for continuous mechanical extract in the new flats (MEV). This means that the extract points in the kitchen, WC and bathroom must have a minimum combined extract rate in accordance with Part F:

Table 5.1b **Whole dwelling ventilation rates**

	Number of bedrooms in dwelling				
	1	2	3	4	5
Whole dwelling ventilation rate [a,b] (l/s)	13	17	21	25	29

Notes:

a. In addition, the minimum ventilation rate should be not less than 0.3 l/s per m² of internal floor area. (This includes all floors, e.g. for a two-storey building add the ground and first floor areas.)

b. This is based on two occupants in the main bedroom and a single occupant in all other bedrooms. This should be used as the default value. If a greater level of occupancy is expected add 4 l/s per occupant.

And must also have background ventilators (trickle vents) in accordance with the following (also Part F):

Background ventilators

For any design air permeability, controllable ***background ventilators*** having a minimum ***equivalent area*** of 2500 mm² should be fitted in each room, except ***wet rooms***, from which air is extracted. As an alternative, where the designed air permeability is leakier than (>) 5 m³/(h.m²) at 50 Pa ***background ventilators*** are not necessary, but see the cautionary advice in paragraph 5.10. Where this approach causes difficulties (e.g. on a noisy site) seek expert advice.

Where ***background ventilators*** are fitted:

- they should be located to avoid draughts, e.g. typically 1.7 m above floor level;
- fans and ***background ventilators*** fitted in the same room should be a minimum of 0.5 m apart;
- ***background ventilators*** may be either manually adjustable or automatically controlled (see paragraphs 4.18 to 4.20).

Existing Flats

Part F states that these should be 'made no worse' than previously. However, due to the new cladding the flats are to become much more air tight than they were previously. We'd strongly recommend that the requirements for new dwellings as set out in Part F are followed. We'd classify the flats as having background ventilators and intermittent extract fans and as such the **1-bed flats should have 35,000 mm2** total equivalent area of background vent, and the **2-bed flats should have 50,000 mm2** total equivalent area of background vent. This was outlined in our Stage D report. The extract below shows how this should be spread and how the value is arrived at:

Background ventilators (follow Steps 1 to 3 below)

Step 1: Determine the total equivalent ventilator area – See Table A below for a dwelling with any design ***air permeability***. As an alternative, the guidance in Table B below may be followed for a dwelling designed to an ***air permeability*** leakier than (>) 5 m³/(h.m²) at 50 Pa which recommends less ventilation provisions, but see the cautionary advice in paragraph 5.10.

Step 2: Follow (i) or (ii) as appropriate depending on the number of storeys:

(i) For multi-storey dwellings, and single-storey dwellings more than four storeys above ground level:

- Use the total equivalent ventilator area from Step 1.

(ii) For single-storey dwellings up to and including the fourth storey above ground level:

- Add a further 10000 mm² to the total equivalent ventilator area from Step 1, preferably shared between several rooms.

Step 3: For dwellings which have a single exposed façade, or at least 70% of the ***equivalent area*** is designed to be on the same façade, cross-ventilation is not possible, or is limited, and additional ventilation provisions are recommended. In this case ***background ventilators*** should be located at both high and low positions in the façade to provide enhanced single-sided ventilation. The total ***equivalent area*** as described in Steps 1 and 2 above should be provided at the high position (typically 1.7 m above floor level) for all dwelling types and all storey heights. In addition, ventilators having the same total ***equivalent area*** should be provided at least 1.0 m below the high ventilators as shown in Diagram 2b. Single-sided ventilation is most effective if the dwelling is designed so that the ***habitable rooms*** are on the exposed façade, and these rooms are no greater than 6 m in depth.

A – Total equivalent ventilator area [a] (mm²) for a dwelling with any design air permeability.

Total floor area (m²)	Number of bedrooms [b]				
	1	2	3	4	5
≤50	35000	40000	50000	60000	65000
51–60	35000	40000	50000	60000	65000
61–70	45000	45000	50000	60000	65000
71–80	50000	50000	50000	60000	65000
81–90	55000	60000	60000	60000	65000
91–100	65000	65000	65000	65000	65000
> 100	Add 7000 mm² for every additional 10 m² floor area				

As outlined above, ideally trickle vent would be in the head of the window frame, but in the case of the 1-bed flats on a single facade, these would benefit from a mix of trickle vents at the head and base of the window. There is latitude in the positioning for the 1-bed flats as building regs do not demand that this is carried out.

2. Are there any requirements for air tightness and pressure testing in relation to the cladding/ envelope design?

Air tightness and pressure testing is not required for refurbished buildings. Part L1B states that a *'...suitable approach to showing the requirement has been achieved would be to adopt Accredited Construction Details'.*

3. Is there a requirement to specify a 'g' value for the glass to counter any overheating issues?

As a result of the overheating study we undertook during Stage C, we'd recommend a g value of 0.4. This will mitigate the overheating risk without introducing a noticeable tint.

Kind regards,

Matt

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Cc: 1279 Grenfell Tower <1279_Grenfell_Tower@studioe.co.uk>
Date: 24/09/2014 10:29
Subject: Grenfell Tower Regeneration Scheme

Hi Matt

I am currently looking after the Grenfell Tower project at Studio E. From the tender information and Part L report I would just like to clarify the following points as they are causing a little confusion right now;

- What (if any) requirement for trickle ventilation is there on the cladding design. Is this 8500mm2 per habitable room or a reduced amount based on consequential improvement to an existing building (2000mm2) and can this all be at one level or separated (say at bottom and top of window frame to allow for circulation)
- Are there any requirements for air tightness and pressure testing in relation to the cladding/ envelope design
- Is there a requirement to specify a 'g' value for the glass to counter any overheating issues.

I understand some of these points may be irrelevant on this project but would like to clarify them.

Regards
Neil

Neil Crawford
Associate

For and on behalf of
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BCSE Award School Architect of the Year 2008 & 2010
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Sustainable City Award 2009


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