Outlook

RE: internal beam for day room query

From Piotr Bytnar <piotrbytnar@bytnar.co.uk>
Date Wed 03/12/2025 17:24
To darren@lasebc.co.uk <darren@lasebc.co.uk>
Cc Jenny Prentice <jennymaryprentice@hotmail.com>

Dear Darren,

Thank you for your email and for outlining the concerns regarding the proposed strip foundation. As requested, please find below our engineering justification based on the information available from the excavation, the known ground history, and the observed performance of existing structures on the site. We also fully acknowledge that the conditions beneath the buried concrete slab cannot be confirmed without intrusive investigation.

1. Strip vs Raft Foundation Behaviour
Although a raft foundation spreads load over a larger area, it also mobilises a much deeper zone of soil—often up to ten times deeper than a strip foundation. This can increase overall settlement potential and, in extensions tied to existing buildings, can introduce differential tilting if the existing building behaves differently from the raft-loaded area.
For small domestic works, catastrophic instability is generally associated only with unusual sub-surface features such as voids or karstic soils. These risks cannot be entirely excluded in any foundation type, including rafts; they simply remain unknown unless specifically investigated.

2. Ground Conditions Observed
During excavation, the following was established:

- The previous conservatory flank wall, founded on the same fill material, showed **no signs of settlement or distress**, suggesting long-term stability of the fill above the slab.
- The new footing was excavated to **1 m depth**, at which point an existing concrete slab—believed to be part of the former gasometer structure—was exposed.
- The slab appears extremely robust; the owner reports that attempts to drill through it with standard tools were unsuccessful, which is consistent with heavy industrial slab construction.

While the thickness and underlying support of this slab remain **unknown**, its observed stiffness and historic performance under existing fill are useful indicators of capacity.

3. Loading and Stress Considerations
At approximately 1 m depth, typical overburden soil stress is **~20 kN/m²**.
The proposed strip foundation and superstructure contribute an estimated additional **~15 kN/m²** of localised load. When considering the typical soil influence zone (approximately 1 m each side of the footing), the relative stresses are:

- Existing vertical stress: **~60 kN/m²**
- Additional new stress: **~15 kN/m²**

Thus, the proposed works increase the existing stress by approximately **25%**. This is generally modest for a competent slab or underlying ground and remains significantly lower than many everyday contact pressures—for example, a single car tyre (~100 kN/m²) or a person standing on one leg (~40 kN/m²).

4. Uncertainty Below the Slab

We fully recognise that the **conditions beneath the slab are unknown**, and therefore the exact settlement behaviour cannot be fully predicted. However:

- This uncertainty exists for any foundation type unless deep or extensive investigations are undertaken.
- The long-term performance of the fill and the conservatory wall built over it suggests no adverse ground movement to date.
- The slab itself has provided uniform support for decades without observable settlement at the surface.
- Any settlement—if it occurs—would typically manifest early (during or shortly after construction) and is unlikely to be significant given the low additional stress introduced.

In essence, although we do not have intrusive data below the slab, the available evidence indicates that the slab and underlying ground have behaved consistently and stably under existing loads.

5. Conclusion

Based on the observed site conditions, the history of stable performance, and the modest increase in applied load, we consider the strip foundation appropriate for this extension. While the sub-slab conditions remain unknown, the engineering judgement is that the risk of significant movement is low and comparable to typical small extension works on mixed ground.
We hope this provides the clarity required. Please let me know if you have any questions.

Kind regards,

Piotr Bytnar BEng (Hons) MSc CEng MIStructE

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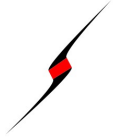

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From: Jenny Prentice <jennymaryprentice@hotmail.com>
Sent: 03 December 2025 14:00
To: Piotr Bytnar <piotrbytnar@bytnar.co.uk>
Subject: Fw: internal beam for day room query

Dear Piotr

I spoke to the building inspector yesterday afternoon as their report said it needed further investigation before the block and beam can start.

And Darren said he would come back to me today which he has with the following email.
I have attached his two reports:
the first for commencement of the project "BC_2025_0382 18112025 BC-11 Site Inspection Report 37548";

and the second relating to the foundation problem of the soil requiring the concrete to be poured "BC_2025_0382 18112025 BC-11 Site Inspection Report 37959";
Please find attached the site inspection report for the project above. Please review and note the comments raised in respect of foundation design given the observed site conditions.

I will be grateful if you can respond to Darren so that they can review and hopefully allow Glenn to progress with the beam and block on Monday when these items are going to be delivered.
Thanks

Jenny Prentice
Home: 01227 730008
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From: Darren Parrett <darren@lasebc.co.uk>
Sent: 03 December 2025 07:36
To: Jenny Prentice <jennymaryprentice@hotmail.com>
Cc: Tim Parrett <tim@lasebc.co.uk>
Subject: RE: internal beam for day room query

Hi Jenny,

As discussed yesterday in our telephone conversation, I have since met with my colleague and manager Tim and discussed the foundations.

We will need structural engineer's justification for the proposed strip foundation design having regard to the subsoil conditions (fill material with a buried concrete slab) having regard to the footing bearing onto the existing concrete slab. Whereas, say, a raft foundation would spread the load evenly over the entire footprint of the extension, a strip foundation exerts more concentrated point loads and we need to be sure that the support offered by the sub-strata at the base of the foundation is adequate in this regard.

If your structural engineer can provide this justification for the strip foundation design, we will review.

Kind regards

Darren

Darren Parrett

Building Control Surveyor

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