



Land Adjacent Neath Abbey Road  
Abbey Road Industrial Estate,  
Neath.  
SA10 7BR

**Load Assessment on Existing Steel Framed Buildings**

For  
Huw Jenkins

|                          |                                         |
|--------------------------|-----------------------------------------|
| <b>Prepared by:</b>      | Kevin Painter BEng, CEng, MStructE      |
| <b>Checked by:</b>       | Jerry Kearney BEng, MIPENZ, CPEng IntPE |
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## EXECUTIVE SUMMARY

There are three buildings on the site which are considered within this report referenced Building 1, 2 and 3. The site is derelict, and the cladding has been removed from Building 1 and 3. Building 1 is the original building on this site, followed by Building 2 and Building 3 being the latest addition.

It is proposed to redevelop the site and refurbish the building for light industrial use.

A detailed load assessment of the steel framed Buildings 1 and 2 has been carried out by modelling the building in three dimensions. Where necessary older member configurations have been checked by hand calculations. Building 3 has a reinforced concrete frame. It has not been possible to load assess this building without specialist reinforcement scanning equipment and strength testing the concrete. Building 3 however has been assessed on a load balancing principal, to ensure that the new loads are not more onerous than the previous loads.

The load assessment shows that Buildings 1 and 2 can support a new light weight cladding system to current design loads. Based on previous loads it is reasonable to assume that building 3 can support the new lighter weight cladding system.

The inspection also shows that the buildings are in a reasonable condition for their age. However some strengthening and repair works are required as noted below:

Building 1 requires:

- Some strengthening works to the purlins (local to the valley with building 2)
- Some new steel bracing adding to the existing frame
- Some cladding rails replaced where they are badly corroded
- Steel repairs to bent or damaged steel members
- Blast cleaning and repainting

New roof and wall cladding will be required with new doors and roof lights. For the new wall cladding, new cladding rails will be required.

Building 2 requires:

- Minor repairs
- Missing members to be reinstated.

The main issue is the onset of corrosion of the existing insulated steel panel cladding system. This may need replacing or over cladding to remain maintenance free for the next stage of its use.

Building 3 requires:

- Minor concrete repairs
- Some masonry panels require rebuilding due to impact damage
- The canopy roof requires recladding with new sheets and cold rolled cladding and roof purlin rails
- The entire structure requires a new roof and wall cladding system

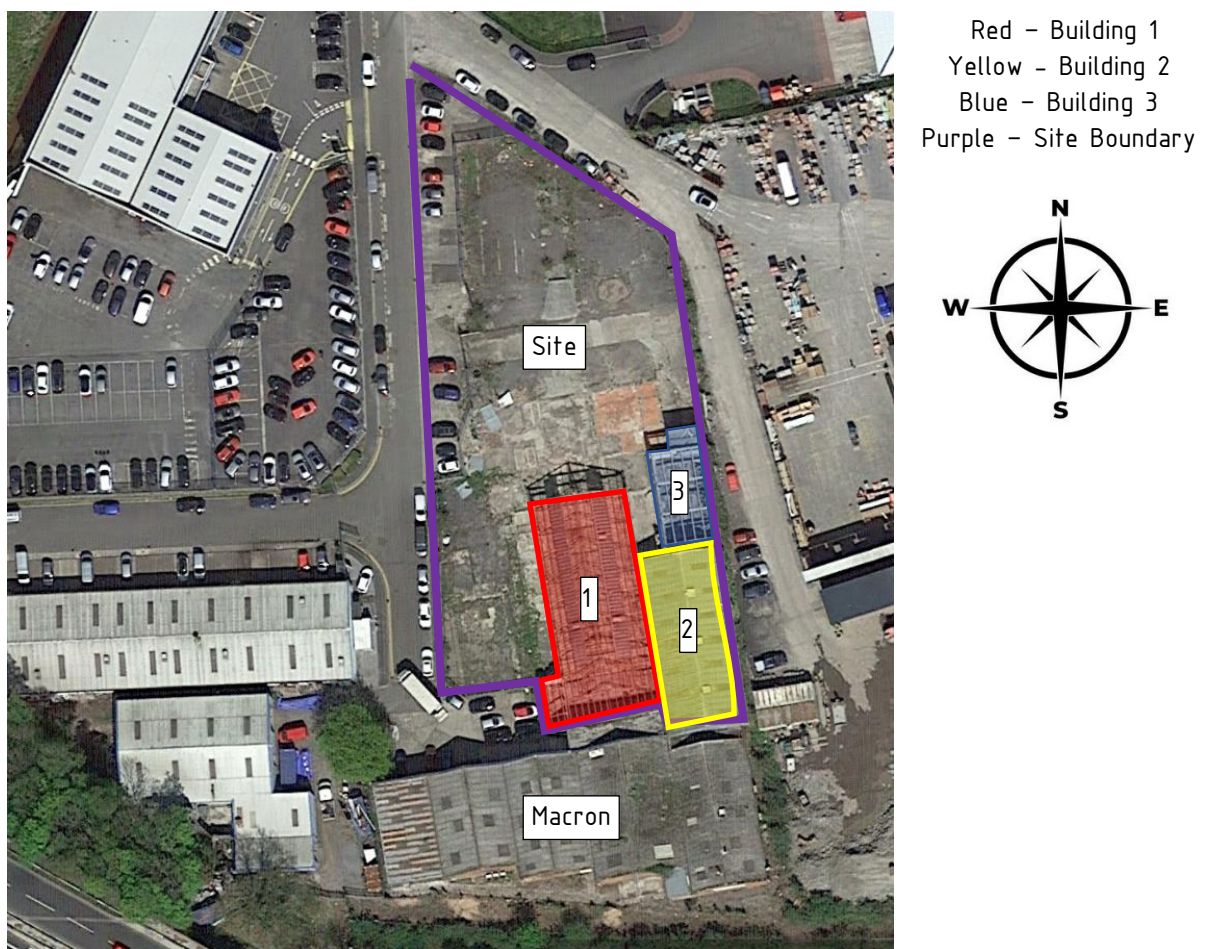
The buried drainage to these buildings has not been investigated.

## INTRODUCTION

kPa Consulting Engineers have been appointed by Huw Jenkins to undertake a load assessment on the buildings on the site for reuse as light industrial workshops and enterprise units.

The survey was undertaken on Tuesday 11<sup>th</sup> October 2022. Mobile scaffold access was used to gain access and record the roof steel member sizes of the buildings. Access was provided to all internal areas, and externally from the neighbouring site Celtic Stone. A trial pit was excavated against one of the bases to building 1 to determine indicative foundation details. No access was provided to the adjoining property of Macron Ltd.

It is understood that the original site has been subdivided. Macron Ltd now occupy the southern end of the site, beyond the steel frame building 1. Following the sub division, buildings 2 and 3 were constructed around building 1. See aerial image below:



Aerial Plan – Grid Ref SS743975

The buildings are currently unoccupied.

## PROPOSED LOADING

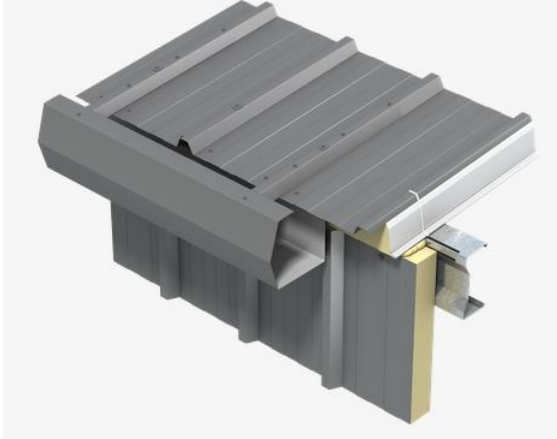
Load takes the form of building weight called permanent loading and variable loading such as wind, snow and nominal imposed load for light access and maintenance. These are described as follows:

### Permanent Loads (G)

#### Roof Sheeting

It is understood that the proposed refurbishment is to be used for small business units. It is likely that some may have light industrial use and remain open plan. The new roof coverings are likely to be either a composite insulated panels or a twin skin system of metal sheet with insulated rockwool core.

Typical Roof and Wall Sheet Systems:

|                                                                                     |                                                |                  |
|-------------------------------------------------------------------------------------|------------------------------------------------|------------------|
|   | Kingspan KS1000RW QuadCore™ composite cladding | Approx: 15kg/m2. |
|  | Trisobuild twin skin sheet with rockwool quilt | Approx: 25kg/m2  |

The permanent loads can be summarized as a unit load as follows:

| Item                                                                      | Weight (Load)              |
|---------------------------------------------------------------------------|----------------------------|
| Roof or Wall System                                                       | 25kg/m2                    |
| Purlins<br>(‘Z’ cold rolled purlins is 5kg/m which will equate to 4kg/m2) | 5 kg/m2                    |
| Services                                                                  | 25kg/m2                    |
| <b>Total</b>                                                              | <b>55kg/m2 (0.55kN/m2)</b> |

An allowance for solar panels could be added to this. Solar panels would add another 15–20kg/m2.

**Variable Loads (Q)**

These loads have been derived from BSEN 1991 Eurocode 1- Action on structures. The variable loads are as follows:

| Imposed Load         | Load                       |
|----------------------|----------------------------|
| Nominal imposed load | <b>0.6kN/m<sup>2</sup></b> |

**Snow Loads (S)**

These loads have been derived from BSEN 1991 Eurocode 1 – Part 1-3 Action on structures. The snow loads are as follows:

| Imposed Load                                                           | Load                        |
|------------------------------------------------------------------------|-----------------------------|
| Snow load (basic)                                                      | <b>0.41kN/m<sup>2</sup></b> |
| Snow Load (drifting in valley between bldg. 1 and 2 – triangular load) | <b>1.6kN/m<sup>2</sup></b>  |

**Wind Loads (W)**

These loads have been derived from BSEN 1991 Eurocode 1 – Part 1-4 Action on structures. The variable loads are as follows:

| Imposed Load              | Load                                   |
|---------------------------|----------------------------------------|
| Wind Load (roof – zone H) | <b>0.55 or – 0.70 kN/m<sup>2</sup></b> |
| Wind Loads (walls) –      | <b>0.80 or –1.16 kN/m<sup>2</sup></b>  |

**Design Codes**

Design codes applicable to construction of the steel framed buildings are the British Standards. Building 1 would probably have been designed to BS449 and Building 2 to BS5950. These were the general codes used from 1969 to 1985 and 1985 to 2010 respectively.

This load assessment will use load combinations to Eurocode 1 part 1-2 and assess the capacity of steel members to Eurocode 3 utilizing the materials strength of steel 275N/mm<sup>2</sup> applicable at the time of construction. The building has not been tested for material strength.

### Load Combinations

Different load combinations are checked to determine the most extreme design forces in the members of the frames. The following principal load cases have been assessed with combinations of wind load and notional horizontal forces NHF from all directions:

$$\begin{aligned} \text{STR}_{1,1} &= 1.35G + 1.5Q + 1.5RQ \\ \text{STR}_{2,1} &= 1.35G + 1.5S \\ \text{STR}_{3,1} &= 1.35G + 1.5Q + 1.5RQ + \text{EHF}_{\text{Dir}} \\ \text{STR}_{6,1} &= 1.35G + 1.5y_0S + 1.5y_0W + \text{EHF}_{\text{Dir1}} \\ \text{STR}_{7,1} &= 1.35G + 1.5y_0Q + 1.5y_0W + \text{EHF}_{\text{Dir1}} \\ \text{STR}_{8,1} &= 1.35G + 1.5y_0S + 1.5W + \text{EHF}_{\text{Dir1}} \end{aligned}$$

Notional horizontal forces are loads that exist due to inaccuracies and imperfections introduced into the structure during its construction.

### Analysis

Due to Building 1 and 2 being so close, snow drift needs to be considered and wind forces are also different when buildings are so close. Due to the volume of potential load cases, the building has been modelled on a computer using Tekla Building Designer software. Therefore, the buildings have been modelled as one linked building.

A utilization value will be calculated. A value greater than 1 is a failure, and below is as pass.

The analysis model is shown below:

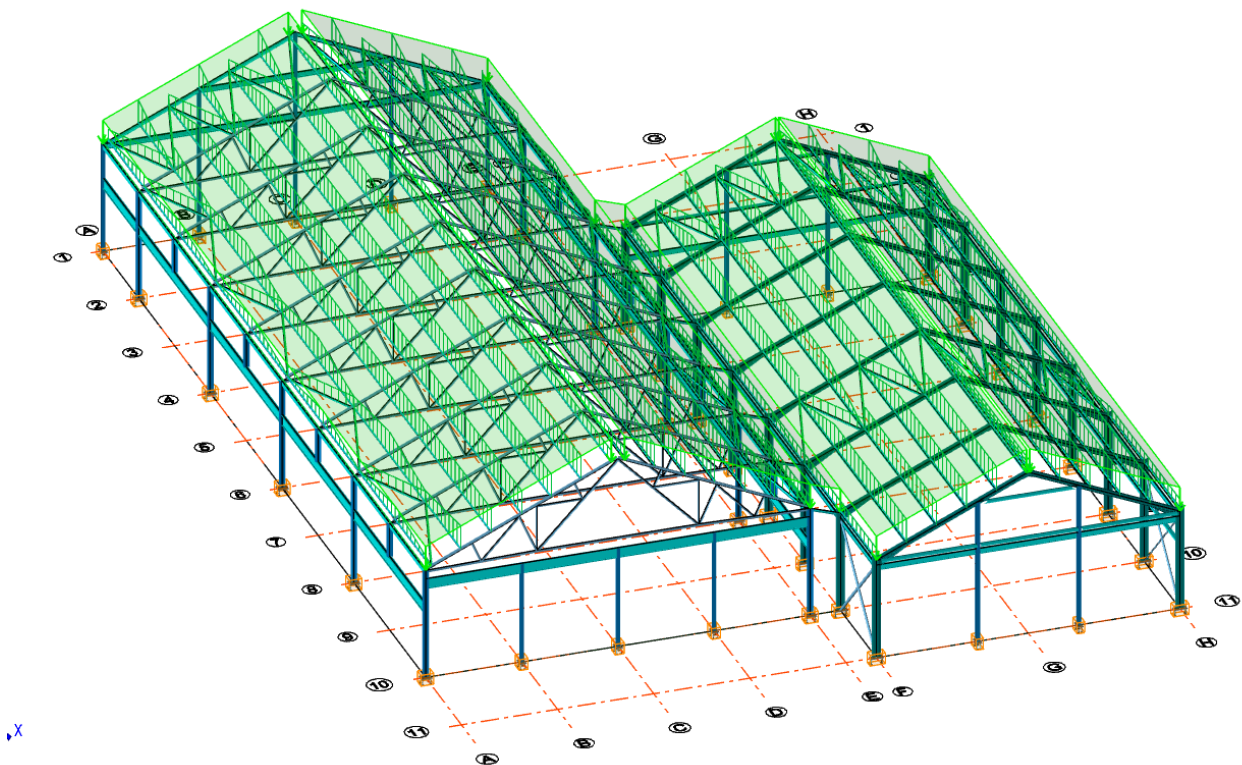


Fig 1. Analysis model

## BUILDING 1 - FINDINGS

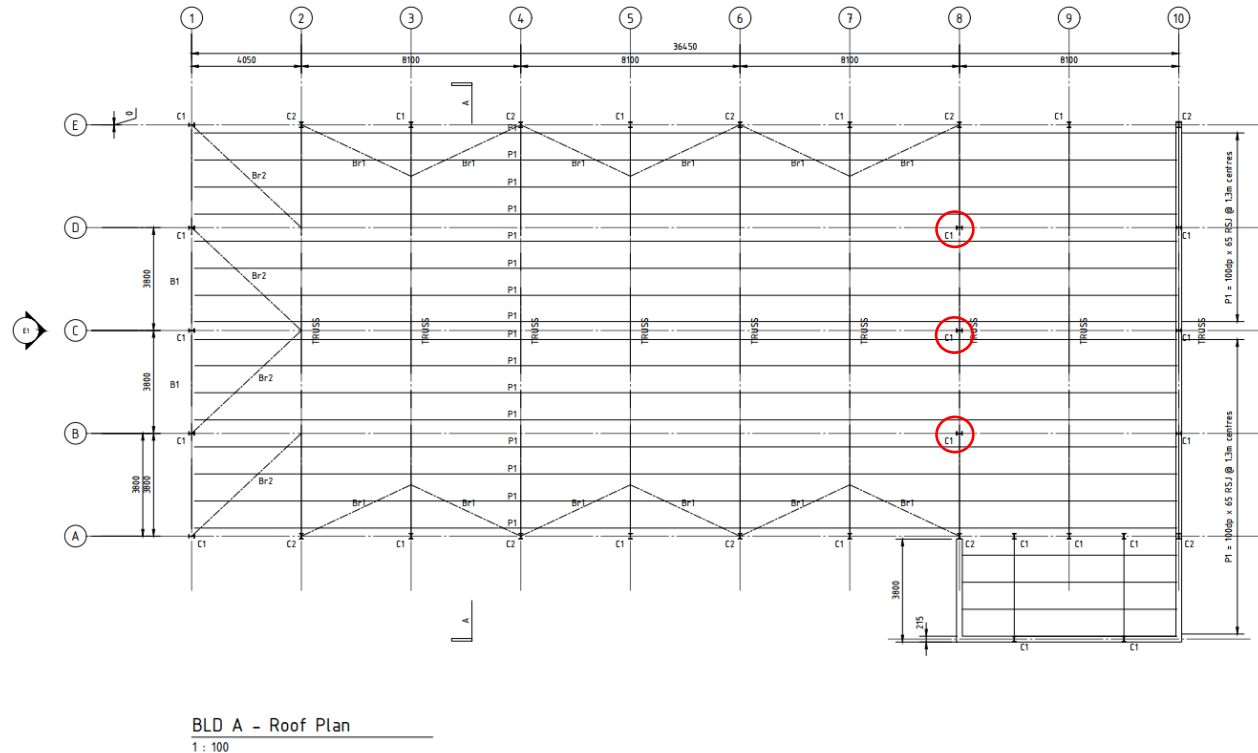
### Building 1 Structural Arrangement

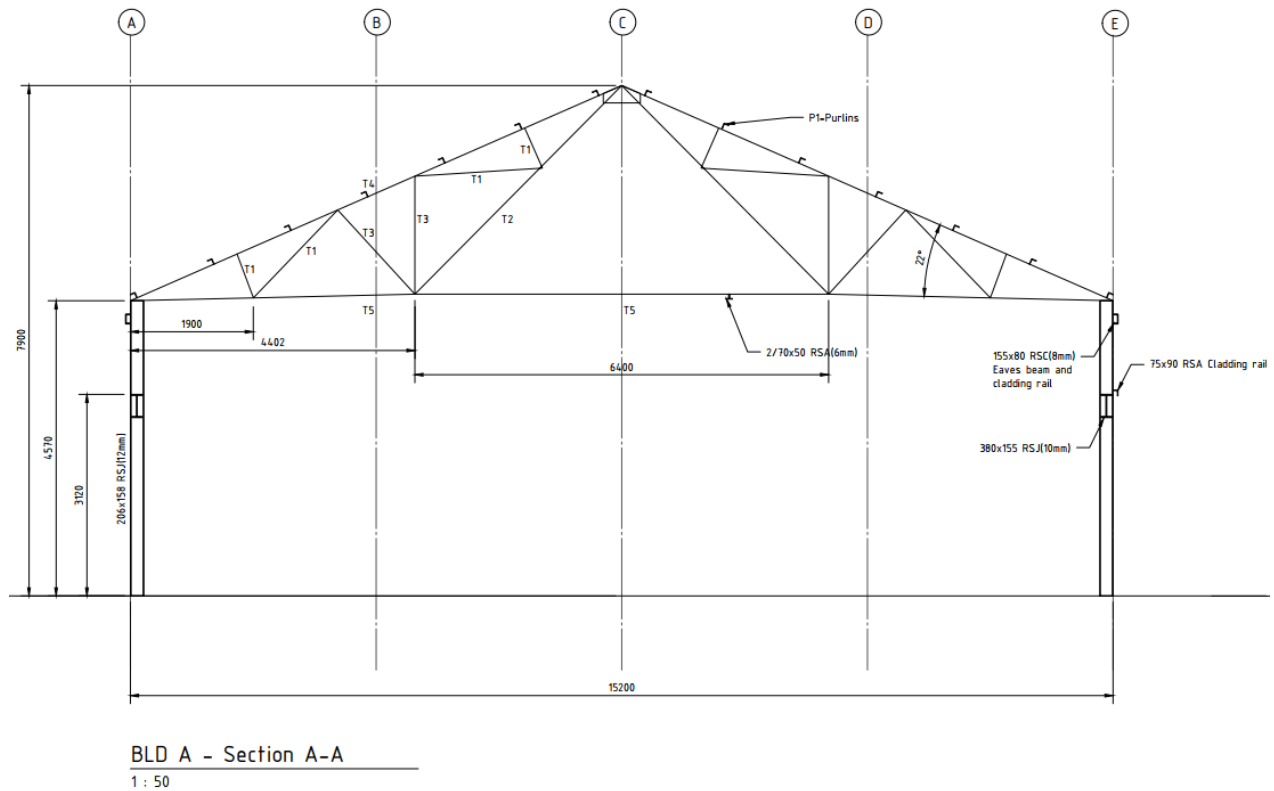
The original building has been stripped of all wall and roof coverings. These coverings are understood to have been a corrugated asbestos board roof and walls with a glazed screen and roller shutter doors to the western elevation. The building is a steel frame construction with steel columns which cantilever from the ground and a steel trussed roof with steel angle roof purlins and wall rails and riveted connections. The ground floor is of concrete slab construction. The building footprint is 15.2m wide by 36.5m long and 7.9m in height. The floor area is open except for 3 columns on gridline 8 (circled red below) which are non-load bearing and can be removed (previously acting as a restraint for a wall which is no longer there).

It is believed that the building gable walls were once infilled with masonry panels. This is a significant load which has now been removed. However, the masonry may also have acted as a shear wall assisting with lateral stability. If the beams have moment resisting connections, then the frame can act as a sway frame. If the connections are not moment resisting, then bracing can be added to provide lateral stability.

The columns and beams supporting the trusses are encased in concrete. They have the rigidity and stiffness of concrete, as well as the strength and ductility of the steel section. They also reduce the cross-sectional dimensions which in turn makes them slenderer. Removing the concrete encasement can affect buckling strength, axial load capacity and stiffness. The structure will be reviewed with the concrete removed.

The general arrangement of the building is shown below:





### Building 1 General Arrangement Images



Photo B1 - GA1 - Side elevation



Photo B1 - GA2 - End elevation



Photo B1 - GA3 - Internal elevation on gridline E



Photo B1 - GA4 - Internal elevation on gridline A



Photo B1 - GA5 - Internal elevation on gridline 1



Photo B1 - GA6 - Internal elevation on gridline 10



Photo B1 - GA7 - Trial pit to column on gridline A1



Photo B1 - GA8 - Side wall lights

## Building 1 Load Assessment

### Member Capacity

The members of the frame have been load assessed and capacities of the members checked as follows:

| Description                                        | Reference | Section Size (Flange thk) | Utilisation Ratio | Pass or Fail |
|----------------------------------------------------|-----------|---------------------------|-------------------|--------------|
| Purlin (non-snow drift load)                       | P1        | 100x65 RSA (6mm)          | 0.92              | Pass         |
| Purlin (snow drift load between gridlines D and E) | P1        | 100x65 RSA (6mm)          | 1.26              | Fail         |
| Bracing (GL1 to 2)                                 | BR1       | 80x80x6 RSA               | 0.63              | Pass         |
| Bracing (Wind only)                                | BR2       | 75x75x6 RSA               | 1.2               | Fail         |
| Column                                             | C1        | 203x125 RSJ (12mm)        | 0.61              | Pass         |
| Column                                             | C2        | 206x158 RSJ (12mm)        | 1.02              | Fail +       |
| Gable Rafter                                       | B1        | 155x75 RSC (6mm)          | 0.13              | Pass         |
| Gable Beam                                         | B2        | 255x100 RSJ               | 0.1               | Pass         |
| Gable Beam                                         | B3        | 305x126 RSJ (6mm)         | 0.05              | Pass         |
| Truss Support Beam                                 | TB        | 380x155 RSJ (10mm)        | 0.95              | Pass         |
| Eaves Beam/Cladding Rail                           | EB        | 155x80 RSC (8mm)          | 0.03              | Pass         |
| Cladding Rail                                      | CR        | 75x90 RSA                 | Decayed           | Fail         |
| Truss -Internal                                    | T1        | 65x55 RSA (6mm)           | 0.24              | Pass         |
| Truss - Internal Main Chord                        | T2        | 2/65x55 RSA (6mm)         | 0.15              | Pass         |
| Truss -Internal                                    | T3        | 65x65 RSA (6mm)           | 0.56              | Pass         |
| Truss -Upper chord                                 | T4        | 2/75x62 RSA (6mm)         | 0.35              | Pass         |
| Truss - Bottom Chord                               | T5        | 2/70x50 RSA (6mm)         | 0.85              | Pass         |

+ Note with concrete encasement this member will pass (only one column is affected)

### Deflection

Deflection of steel framed build should be restricted to height/deflection ratio of  $h/300$  for masonry clad structures and  $h/150$  for industrial clad buildings i.e. for frames with non-brittle cladding.

| Concrete Column encasement | Deflection               | Height/Deflection Ratio | Pass or Fail |
|----------------------------|--------------------------|-------------------------|--------------|
| Removed                    | 54mm at a height of 4.5m | 83                      | Fail         |
| Retained                   | 20mm at a height of 4.5m | 225                     | Pass         |

Assuming non brittle cladding.

If the concrete is removed consideration should be given to stiffening the frames. With potential cross bracing between the building 1 and 2 columns on gridline E and F.

**Building 1 Defects Images**

The following principal defects were noted:



Photo B1- D1 – Bracing required



Photo B1- D2 – Concrete encasement spalled



Photo B1- D3 – Unrestrained bottom edge of  
gable wall truss member



Photo B1- D4 – Damaged and missing concrete  
encasement



Photo B1- D5- Truss end connection – Typical spalling paint and light corrosion



Photo B1- D6- Corrosion to purlins and truss



Photo B1- D7- Twisted end to truss

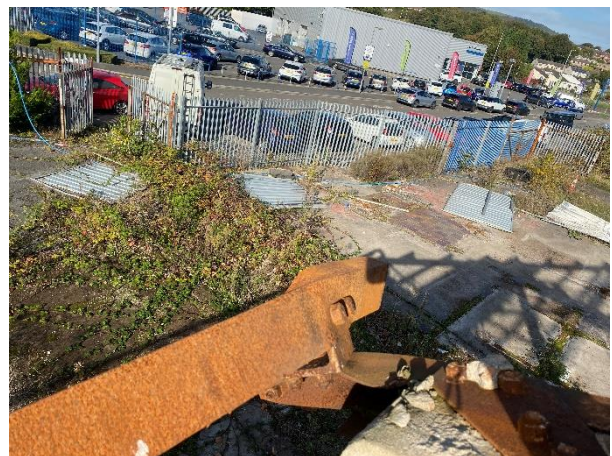


Photo B1- D8- Twisted end to purlin



Photo B1- D9- Canopy member not fully removed



Photo B1- D10- Masonry infill still part in place



Photo B1- D11- Corroded bottom cladding rail



Photo B1- D10- Redundant steel beams to be removed circled in red

### **Building 1 Required Works**

The following is a summary of the structural repairs:

1. Bent ends to truss rafters to be straightened
2. Concrete encasement to beams damaged (remove or repair)
3. Check steel beam connections to gable ends and provide cross bracing if necessary to replace masonry shear walls which are now removed.
4. Paint flaking and light corrosion, requires blasting clean and repainting
5. Better restraint to gable truss bottom chord to resist wind loads in GL 10 (above neighbouring roof level)
6. Perimeter drain (internal slab and external slab at same level)
7. Remove old roof lights
8. Drainage CCTV survey (no drainage investigation has been made as part of this survey)
9. Additional roof bracing required between gridline 8 and 10 (restraint required)
10. Strengthen or replace purlins to valley with building 2
11. Lower cladding rail badly corroded and should be replaced
12. Provide new cladding rails and frame to gable on gridline 10
13. Provide new roof and wall cladding throughout

### **Potential change to openings on gridline A and E:**

The beam to the side elevation is currently at circa 2.5m above ground level. It is understood there may be a requirement to provide a much higher entrance. This would be a significant change to the building structural arrangement. Columns will need to be installed to support the trusses on new foundations. Some bracing will be required between openings. This change should not have any significant impact on the roof members,

## BUILDING 2 - FINDINGS

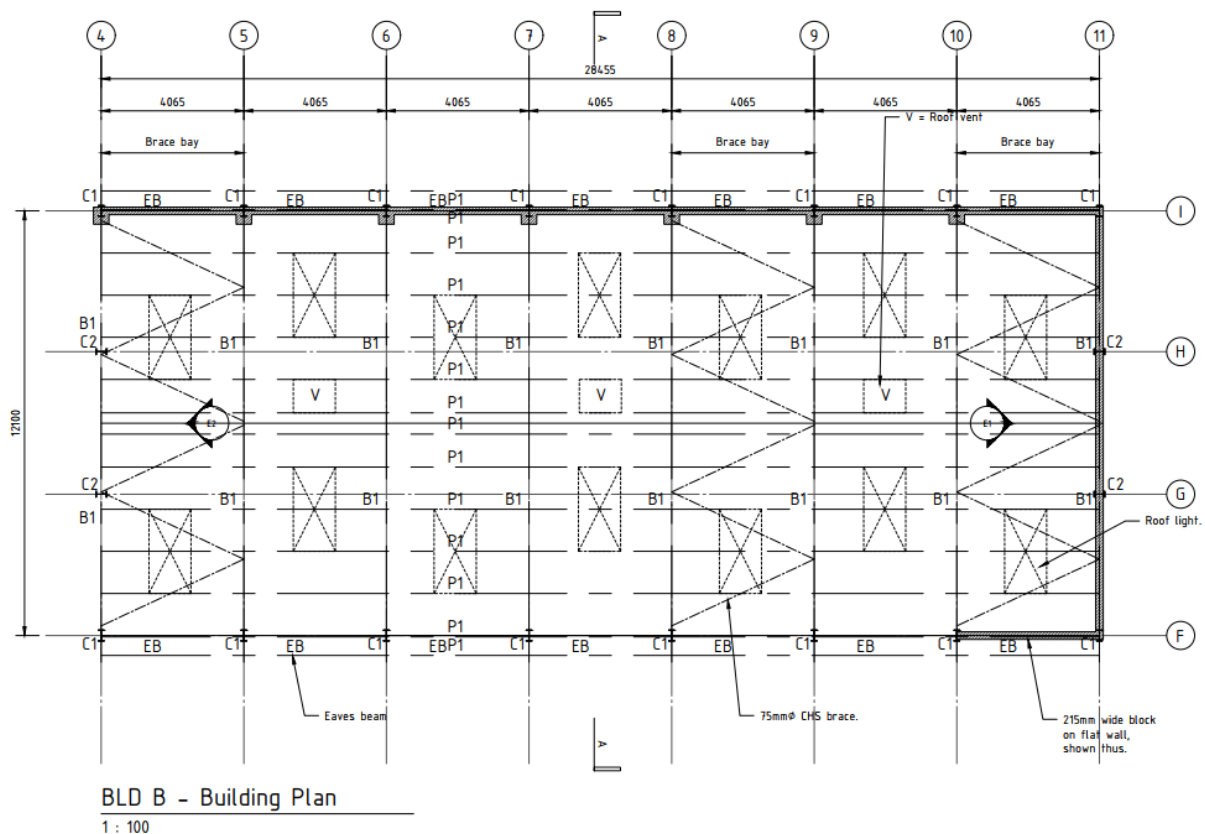
### Building 2 Structural Arrangement

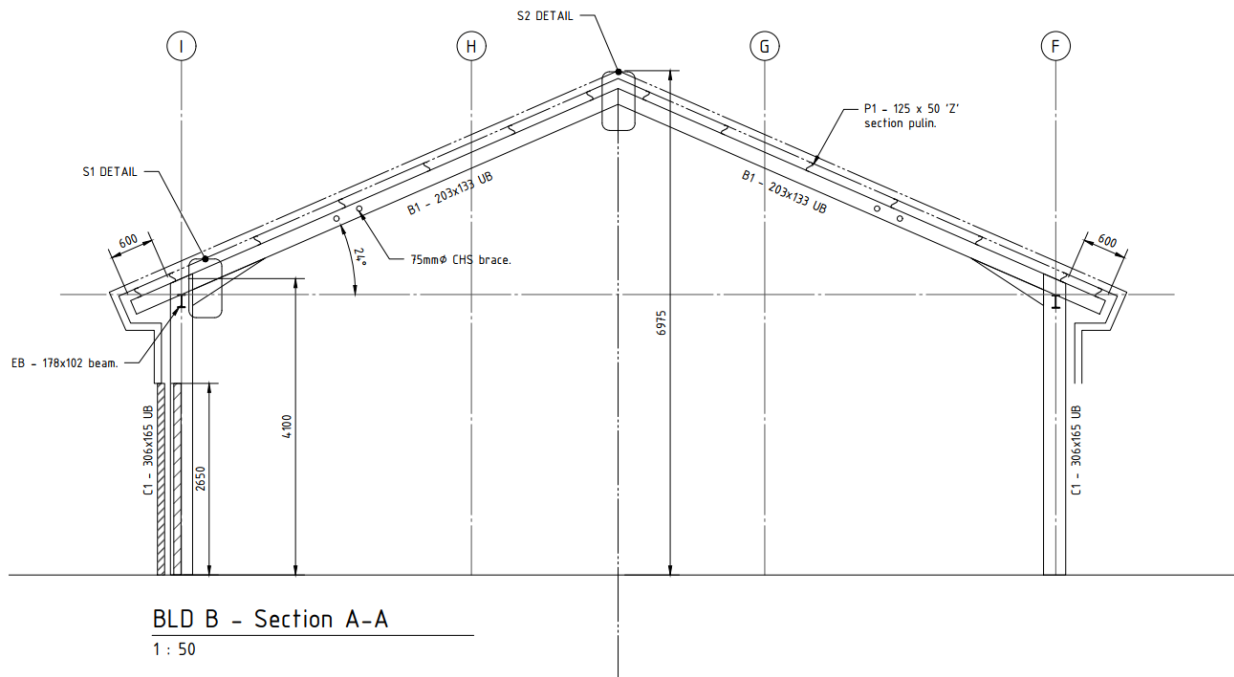
Building 2 is a steel portal framed single span building with steel columns and rafters supporting cold rolled metal purlins which support an insulated and painted twin skin steel roof panel. The panels continue down the upper section of the walls and against the boundary (gridline I and 11) a masonry cavity wall forms the lower section of the wall. Elsewhere the building edgeline is open.

The building footprint is 28.5m long by 12m wide and 7m in height at the ridge. The floor plan is open.

Stability to the frames on gridline 4 to 11 is provided by sway frames utilising a moment resisting haunch connection between the columns and rafters to resist lateral wind loads on the long sides of the building. Wind loads on the short ends of the building are resisted by diagonal cross bracing on the external wall on gridline I and by roof bracing between GL's 4-5, 8-9 & 10-11. Note some bracing has been removed and will need to be reinstated.

The general arrangement of the building is shown below:





### Building 2 General Arrangement Images



Photo B2-GA1 – Internal elevation on GL4



Photo B2-GA2 – Internal elevation on GL11



Photo B2-GA3 – External elevation on GL11



Photo B2-GA4 – External roof along gridline I



Photo B2-GA5 – External building corner on gridline I/11



Photo B2-GA6 – Building 1 to building 2 joint arrangements



Photo B2-GA7 – Valley gutter along gridline F

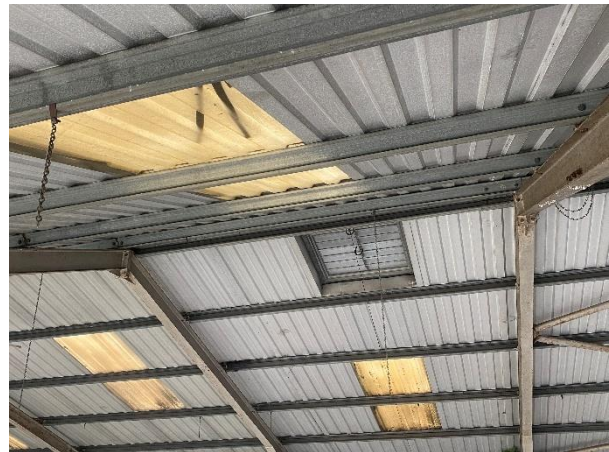


Photo B2-GA8 – Internal roof arrangement showing vent openings and roof lights



Photo B2-GA9 – Building 1 to building 2 connection on gridline F4



Photo B2-GA10 – Redundant steelwork outside building 3 and connected into building 2

## Building 2 Load Assessment

### Member Capacity

The members of the frame have been load assessed and capacities of the members checked as follows:

| Description                  | Reference | Section Size (Flange thk)                         | Utilisation Ratio | Pass or Fail |
|------------------------------|-----------|---------------------------------------------------|-------------------|--------------|
| Purlin (non-snow drift load) | P1        | 125x50 Zeta purlin (not sleeved)<br>– ref 1/12513 | 0.74              | Pass         |
| Purlin (snow drift load)     | P1        | 125x50 Zeta purlin (not sleeved)                  | 0.98              | Pass         |
| Cladding Rails               | Cr        | 140x60 C Section<br>(2.5mm gauge assumed)         |                   |              |
| Bracing (vertical)           | Br1       | Removed                                           | N/A               | +            |
| Bracing (roof)               | Br2       | 76x5 CHS (wall thickness<br>assumed)              | 0.32              | Pass         |
| Column                       | C1        | 306x165x40UB                                      | 0.32              | Pass         |
| Column (gable)               | C2        | 203x133x25UB                                      | 0.11              | Pass         |
| Rafter                       | B1        | 203x133x25UB                                      | 0.89              | Pass         |
| Eaves Beam                   | EB        | 178x102x19UB                                      | N/A               | Pass         |

+ Bracing has been removed. It appears that the bracing provision has been replaced with the masonry walls acting as shear walls. This will require further investigations to confirm that it is acting as a shear wall.

### Deflection

Typical deflection at eaves under the full wind load on the gridline A elevation is circa 35mm at a height of 4m giving a ratio of Height/Deflection = 114.

Note this deflection does not allow for the stiffened haunch connections or some base fixity. Therefore, we find the real/actual deflection is likely to be within acceptable limits.

The lateral deflection limit is  $h/150$  for industrial clad buildings i.e. for frames with non-brittle cladding. In this instance the lower-level masonry walls will simply rotate at DPC level.

## **Building 2 Defects Images**

The following principal defects were noted:



Photo B2- D1 – Redundant structure attached to frame



Photo B2- D2 – Heavy vegetation along boundary wall

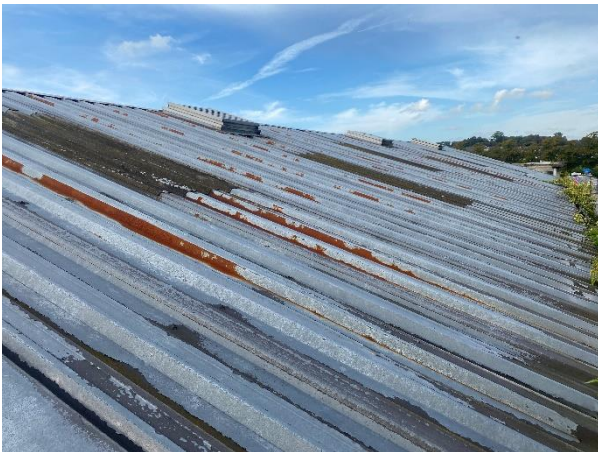


Photo B2- D3 – Corrosion to steel sheets. Paint system is failing



Photo B2- D3 – Masonry repairs to emergency exit on gridline I



Photo B2- D4 – Gutters to be repaired on gridline I



Photo B2- D5 – Missing eaves beams

### **Building 2 Required Works**

The following is a summary of the structural repairs:

1. Roof sheeting outer face corrosions has started. Consider replacing or over cladding
2. Remove redundant structure attached to frame
3. Remove vegetation along boundary wall. Some vegetation appears to be Japanese Knot weed which will need continuous monitoring and treatment
4. Masonry repairs to boundary wall on gridline I
5. Replace the missing eaves beams
6. Consider a cross tie member between building 1 and 2 to improve lateral deflection and ensure the shared gutter does not pull away from building 1
7. Clean all previously painted steelwork and repaint as necessary

## BUILDING 3 – FINDINGS

### Building 3 Structural Arrangement

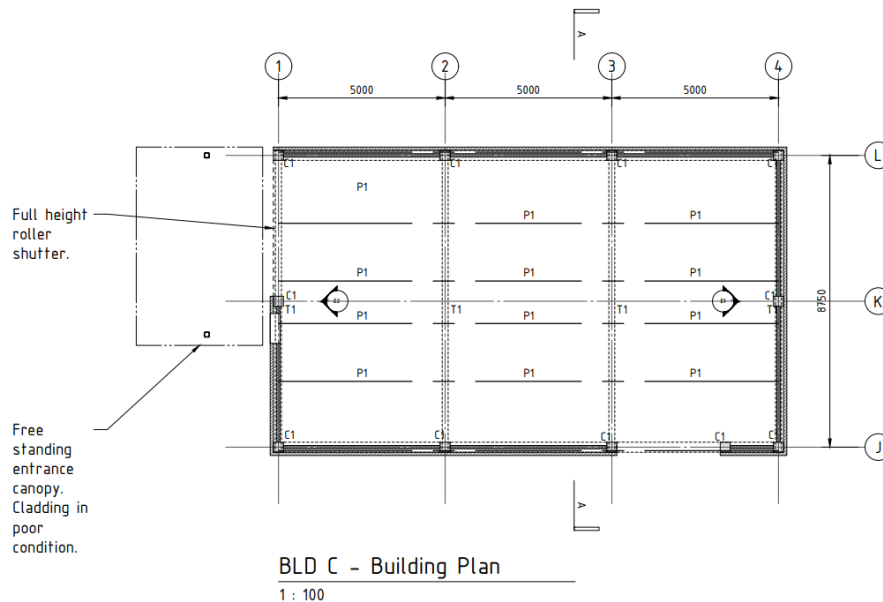
Building 3 is a precast concrete framed building with reinforced concrete columns, roof beams/trusses supporting reinforced concrete purlins, a combined gutter and eaves beam with reinforced concrete cladding rails to the building upper walls. The lower half of the walls are constructed from cavity masonry wall comprising of a clay brick outer leaf and autoclaved aerated concrete inner leaf (thermalite). The thermalite blocks are brittle.

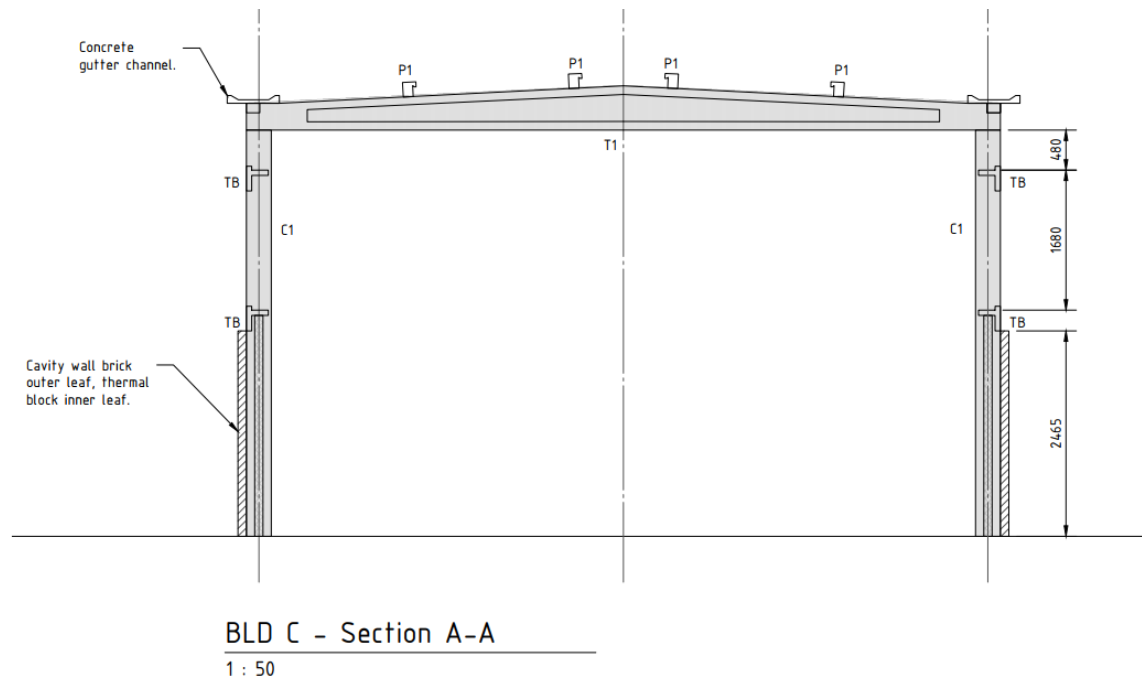
The building footprint is 15m long by 13m wide with an overall height of 5.5m. The floor area is open plan.

Stability to the frame is provided by vertically cantilevering columns. Connections to beams are single bolt connections which provide no moment capacity.

The upper walls and roof to the building were previously clad with a cement board type corrugated sheet simply bolted to rebates in the concrete beams with J hook bolts. A new door opening has been cut in the external wall alongside the main roller shutter entrance. There is a free-standing canopy in front of the main roller shutter entrance. This is constructed from vertically cantilevering columns, steel beams, cold rolled purlins and cladding rails.

Based on the appearance of the concrete elements we believe this building to be a product from Shay Mertagh who are an Irish precast concrete manufacturing company. This type of building is difficult to analyse or amend without referring to the original design drawings. We have asked the company to check if this is one of their buildings and to request a copy of the drawings. We are waiting to hear back.





### Building 3 General Arrangement Images



Photo B3-GA1 – Front entrance elevation on gridline 1



Photo B3-GA2 – Side elevation on gridline L



Photo B3-GA3 – Side elevation on gridline J



Photo B3-GA4 – Side elevation on gridline J



Photo B3-GA5 – Internal elevation on gridline 4



Photo B3-GA6 – Internal elevation on gridline 1



Photo B3-GA7 – Typical cladding rail to column connection



Photo B3-GA8 – Typical cladding rail – note upper concrete rebate/lip for connection of cladding J bolt fixing



Photo B3-GA9 – Column to main roof beam connection (single bolt or grouted tendon)



Photo B3-GA10 – Internal manhole



Photo B3-GA11 – Underside of canopy on gridline L

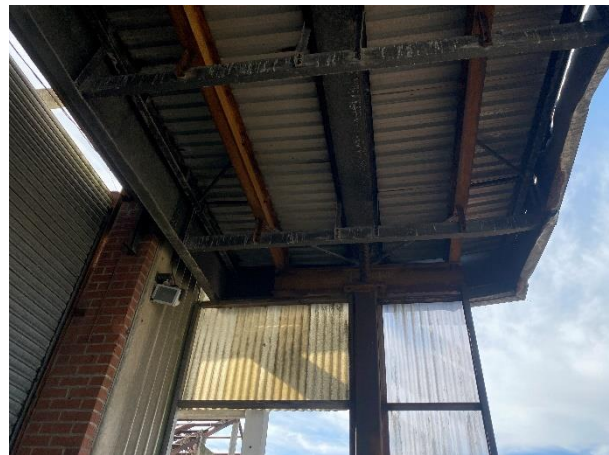


Photo B3-GA12 – Underside of canopy on gridline K

### **Building 3 Load Assessment**

#### **Member Capacity**

It has not been possible to load assess this building without knowledge of the reinforcement or concrete strength.

Assuming the building has been correctly detailed and previously supported a twin cement board cladding of typically 6.5mm cement board (as noted by some remaining structure) with a unit load of 17kg/m<sup>2</sup> per sheet (34kg/m<sup>2</sup> combined), it is reasonable to assume this load can be supported again. From the earlier section an insulated twin steel panel system is in the order of 15 to 25kg/m<sup>2</sup> and therefore can be assumed to be supported by the existing frame.

#### **Deflection**

Deflection of concrete elements is largely related to their cross-sectional properties. Based on the sectional properties, we believe that the deflections of this building will be within acceptable limits.

### **Building 3 Defects Images**

The following principal defects were noted:



Photo B3- D1 – General minor damage to concrete elements



Photo B3- D2 – Impact damage to side entrance door head cladding rail on gridline J



Photo B3- D3 – Impact damage to masonry infill panels



Photo B3- D4 – Further impact damage to masonry panel on GL 4



Photo B3- D5 – Spalled 'lip' to cladding rail



Photo B3- D6 – Impact damage to canopy

### **Building 3 Required Works**

The following is a summary of the structural repairs:

1. New cladding
2. Concrete repairs to columns and beams
3. Steel rail and cladding repairs to entrance canopy
4. Masonry repairs to inner leaf of wall
5. Perimeter drain to external wall areas where slab level externally is similar to internal levels
6. Replace lining to gutters and down pipes

## CONCLUSION

In general, we find that the existing buildings with the repairs noted can be reused and can support a new insulated twin wall cladding system.

In addition to the recommended required works noted at the end of each section for the structures, a global inspection of the current site drainage system is also required. This is to check the current condition and layout and also to identify if there are any public sewers/drainage crossing the site which could restrict future development or proposed site usage.

If there are changes to Building 1, which would require new foundations then a geotechnical investigation will be required to ensure any new foundations are adequately designed.

## EXTENT & LIMITATIONS OF SURVEY

The following limitations apply to only those items surveyed within this report and as instructed. In the case of a partial survey some items will not apply.

**Roofs and associated elements:** The roof(s) will be inspected externally from ground level (or localised vantage points) or using scaffold tower.

**Subsoil conditions & Foundations:** We will refer to our local knowledge of the subsoil conditions and speak to Building Control if necessary to understand the regional soil variations. No comment will be made on land contamination (as this is beyond the scope of this report type).

**Below Ground Drainage:** Drainage is not inspected as part of this survey

**Retaining Walls:** Visual inspection only and no opening up of the fabric will be carried out. The structural adequacy of the retaining wall will be based on signs of distress or lean which will be recorded.

**Walls:** Visual inspection only and no opening up of the fabric will be carried out.

**Sanitaryware:** We do not comment on above ground drainage except for rainwater goods.

**Service Installations:** A survey of the water, heating, hot water, electrical, and gas installations is not included within the survey. No efficiency calculations will be carried out, we always recommend that you separately instruct a Specialist Service Engineers attend the property and report in more detail.

**Japanese Knotweed:** Or other foreign infestation or insect infestation certification of removal is not provided as part of our service. Clients' are advised to seek specialist advice in relation to such matters.

**Damage:** We will take all reasonable care to prevent any damage to a building or structure. Note that if damage has already occurred to an area due to a structural defect and needs to be repaired in any case, further probing may be carried out by the Engineer. Often the possible cause of a problem can be confirmed with only minor further damage which the owner and or potential owner must accept without any recourse to the Engineer. It is your responsibility to gain permission from the Owner for the survey to be carried out.

**Proprietary Systems:** Often proprietary systems are used within buildings e.g. precast concrete units, and sometimes it is not possible to determine the exact construction of such a system. The Engineer will use reasonable skill and care to determine the appropriateness of such a system for its intended use, and use published tables where appropriate.

**Limitation of Survey through Instruction:** The Engineer may have been told by the client, the client's solicitors or other advisors of certain information which leads the Engineer to decide that certain part(s) of the building will not need to be inspected, e.g. certain parts of the building will be demolished, or maintenance of certain parts of the building is the responsibility of third parties. Inspection of some of the items may therefore not be relevant. If this is the case, the Engineer will record these provisos prior to carrying out the survey or within the report with appropriate rationale.

**Liability:** Under normal circumstances, the appropriate standard of care will be due skill and care reasonably to be expected of a competent Engineer performing a survey of the type in question. The client will only look to the employer for recompense (and not to the individual) if there is a finding of negligence.

**Damage caused by other parties:** kPa Consulting Engineers take no responsibility for damage caused by 3<sup>rd</sup> parties even if those 3<sup>rd</sup> parties are appointed on behalf of the Client by the Consultant or are being provided with instruction on site by the Consultant. e.g. contractors carrying out opening up works or CCTV surveys etc. All 3<sup>rd</sup> parties should carry out their works with due skill and care and provide their own insurances for the benefit of the Client.

**Dimensional Survey:** A structural survey does not cover or record existing dimensions but may make reference to approximate dimensions where deemed appropriate to give an indication of scale.

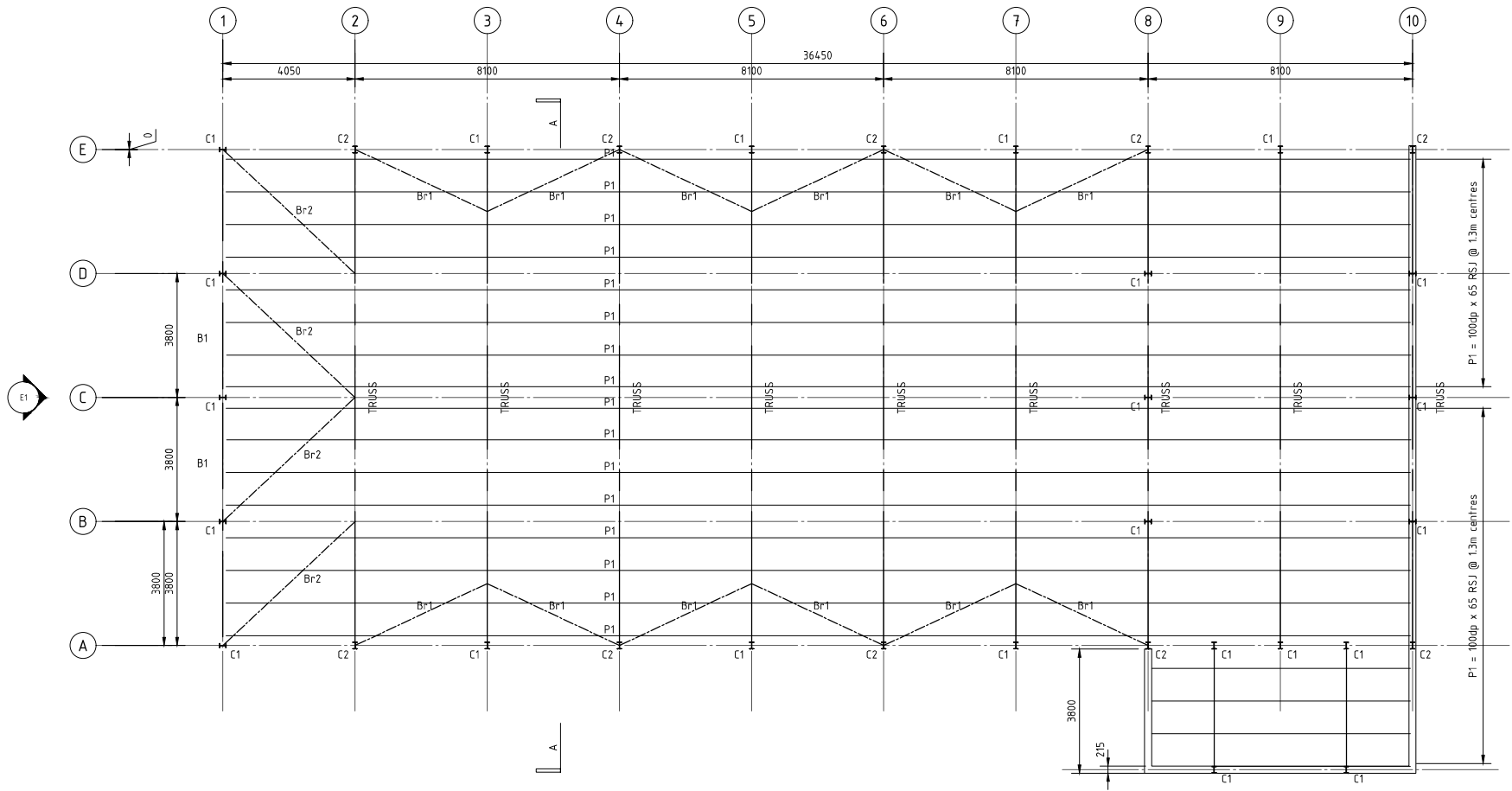
## **APPENDIX A – DRAWINGS**

GA001 – Building 1

GA002 – Building 2

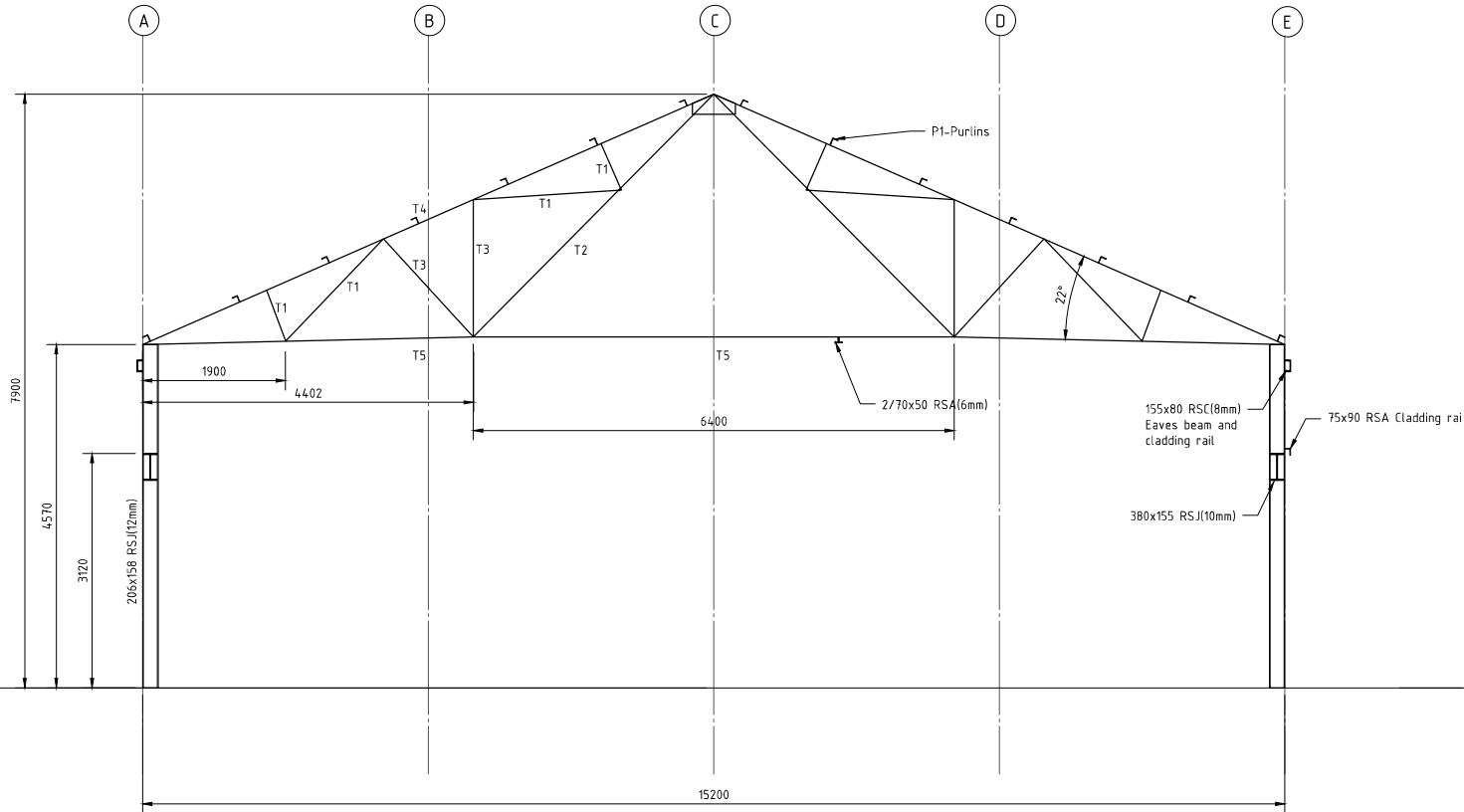
GA003 – Building 3

| STEEL TABLE |                     |
|-------------|---------------------|
| REF:        | SIZE:               |
| Br1         | 80 x 80 x 6 RSA     |
| Br2         | 75 x 75 x 6 RSA     |
| C1          | 203 x 126 RSJ(12mm) |
| C2          | 206 x 158 RSJ(12mm) |
| P1          | 100 x 65 RSA(6mm)   |
| B1          | 155x75 RSC (6mm)    |
| B2          | 225 x 100 RSJ       |
| B3          | 305 x 126 RSJ (8mm) |

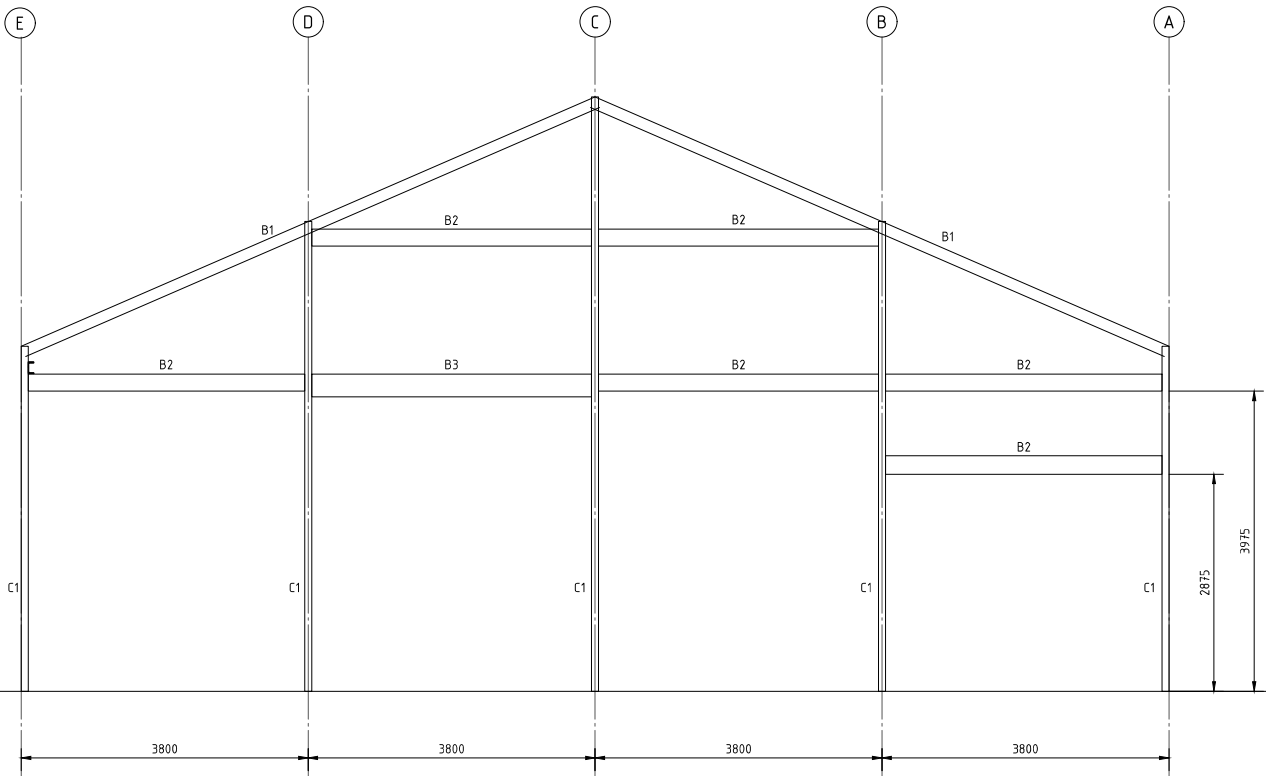


BLD A - Roof Plan  
1 : 100

| STEEL TABLE |                     |
|-------------|---------------------|
| REF:        | SIZE:               |
| T1          | 65 x 55 RSA(6mm)    |
| T2          | 2/65 x 55 RSA(6mm)  |
| T3          | 65 x 65 RSA(6mm)    |
| T4          | 2/75 x 62 RSA(6mm)  |
| T5          | 2/70 x 50 RSA (6mm) |



BLD A - Section A-A  
1 : 50



BLD A - Elevation 1  
1 : 50

Notes:  
This drawing is to be read in conjunction with all relevant Architect's and Engineer's drawings and the specification. This drawing should not be scaled. All dimensions are to be verified by the contractor on site. All discrepancies should be reported to the C.A. prior to the commencement of the works. Only drawings with 'CONSTRUCTION' status are to be used for construction.

|          |      |                        |       |       |
|----------|------|------------------------|-------|-------|
| 11.11.22 | P02  | Issued for Information | CS    | KP    |
| 01.11.22 | P01  | Issued for Information | CS    | KP    |
| DATE:    | REV: | DESCRIPTION:           | DRWN: | CHKD: |

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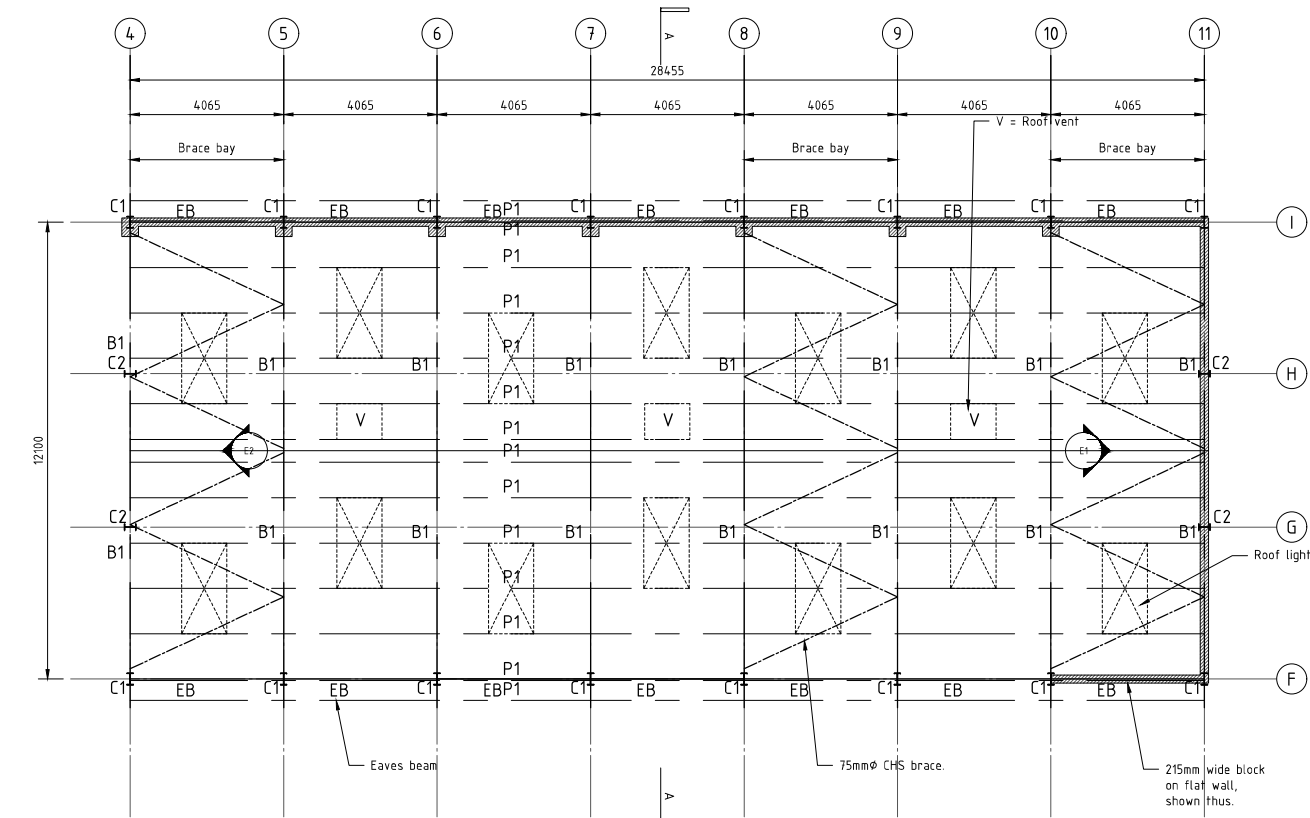
ADDRESS: Herbury Cottage, Southgate Road, Southgate Swansea SA3 2BT  
TELEPHONE: 01992 435 517  
URL: www.kPaConsulting.co.uk

PROJECT:  
Mr Huw Jenkins  
Abbey Road Industrial Estate,  
Neath,  
SA10 7BR

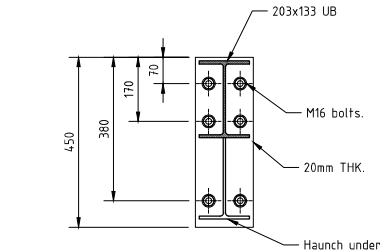
TITLE:  
BLD A - Existing Building Plan, Section,  
Elevation & Details

| STATUS:     |         |        |          |     |
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| SCALE:      | DATE:   | DRAWN: | CHECKED: |     |
| 1:100@A1    | OCT'22  | CS     | KP       |     |
| JOB No:     | ORG No: | REV:   |          |     |
| 939         |         | GA001  |          | P02 |

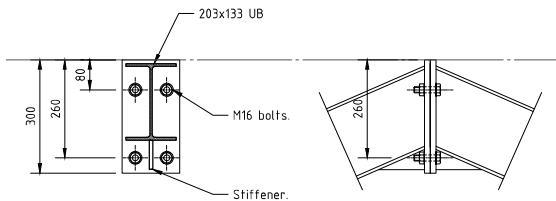
| STEEL TABLE |                     |
|-------------|---------------------|
| REF:        | SIZE:               |
| B1          | 203 x 133 x 25 UB   |
| C1          | 306 x 165 x 40 UB   |
| C2          | 203 x 133 x 25UB    |
| EB          | 178 x 102 x 19 UB   |
| P1          | 125 x 50 'Z' purlin |



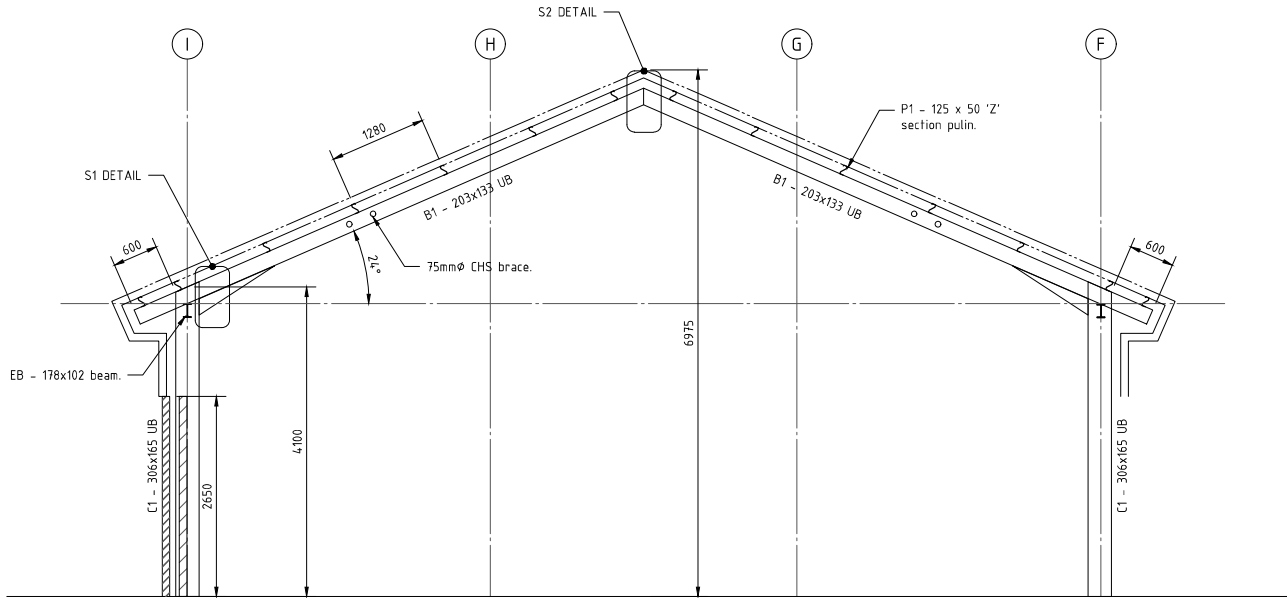
BLD B - Building Plan  
1 : 100



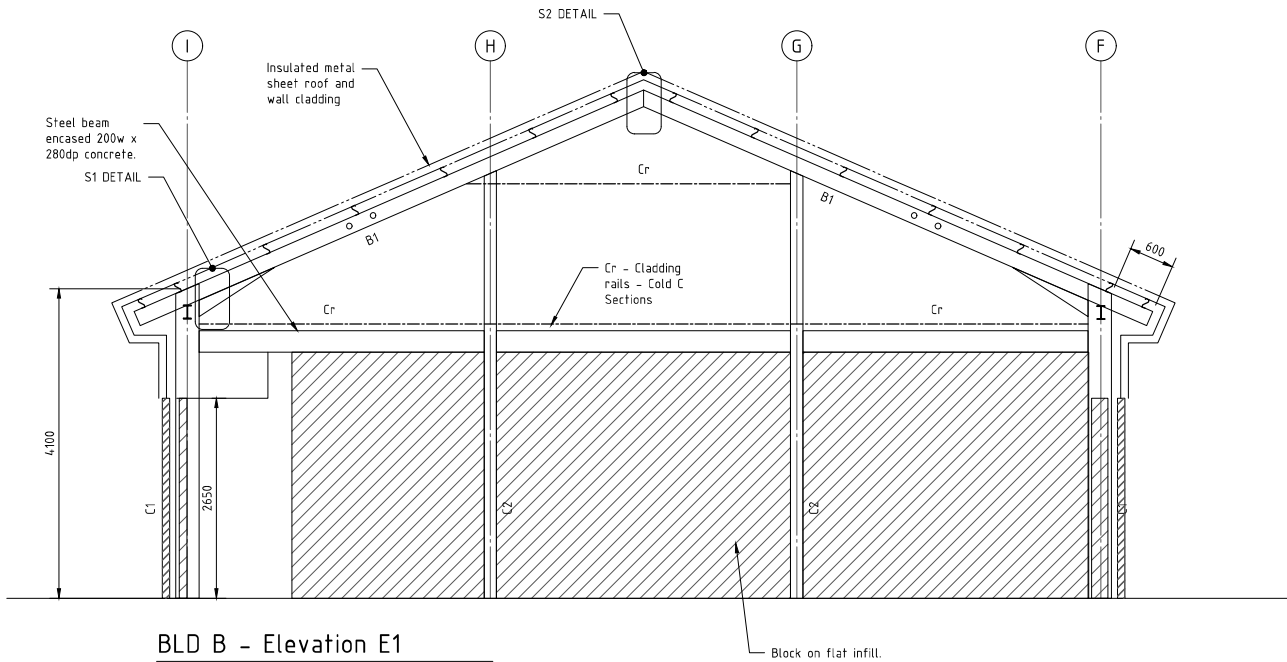
S1 Beam End Plate  
1 : 10



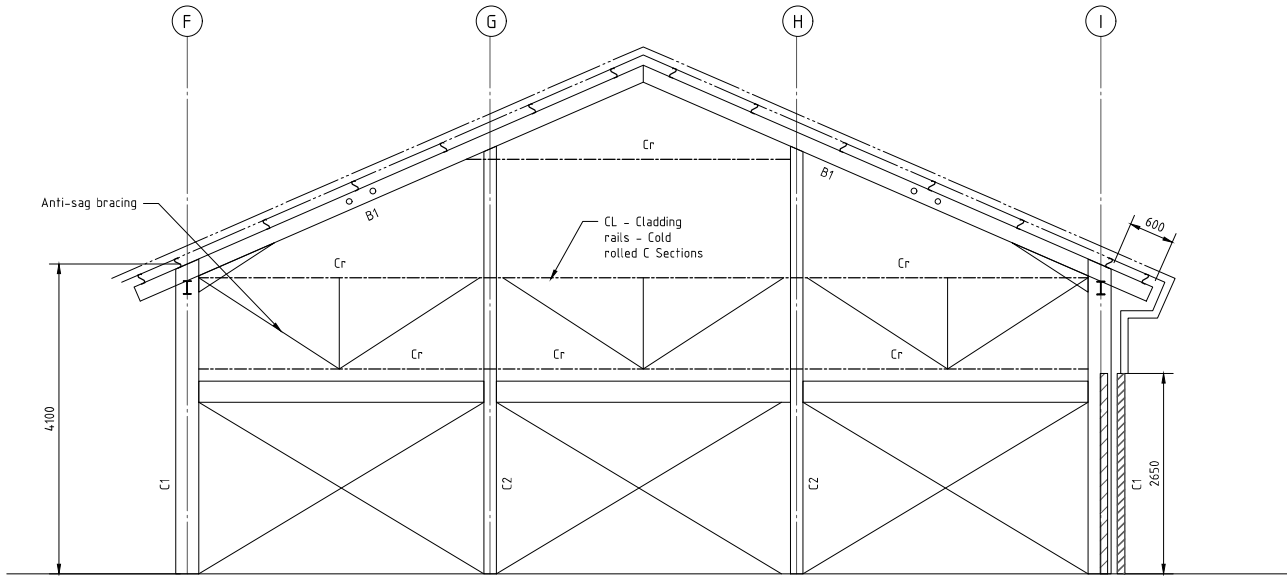
S2 Ridge Connection  
1 : 10



BLD B - Section A-A  
1 : 50



BLD B - Elevation E1  
1 : 50



BLD B - Elevation E2  
1 : 50

Notes:  
This drawing is to be read in conjunction with all relevant Architect's and Engineer's drawings and the specification. This drawing should not be scaled. All dimensions are to be verified by the contractor on site. All discrepancies should be reported to the C.A. prior to the commencement of the works. Only drawings with 'CONSTRUCTION' status are to be used for construction.

|          |     |                        |      |       |
|----------|-----|------------------------|------|-------|
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| DATE:    | REV | DESCRIPTION:           | DRWN | CHKD: |

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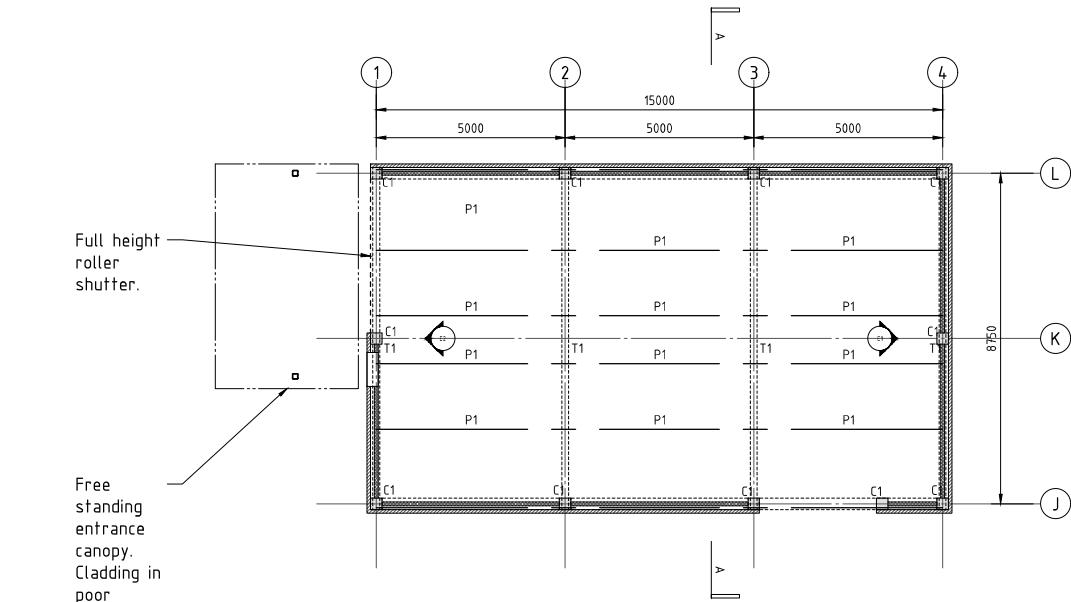
ADDRESS: Henbury Cottage, Southgate Road, Southgate Swansea SA3 2BT  
TELEPHONE: 01992 435 977  
FAX: 01992 435 977  
WWW: www.kPaConsulting.co.uk

PROJECT:  
Mr Huw Jenkins  
Abbey Road Industrial Estate,  
Neath.  
SA10 7BR

TITLE:  
BLD B - Existing Building Plan, Section,  
Elevation & Details

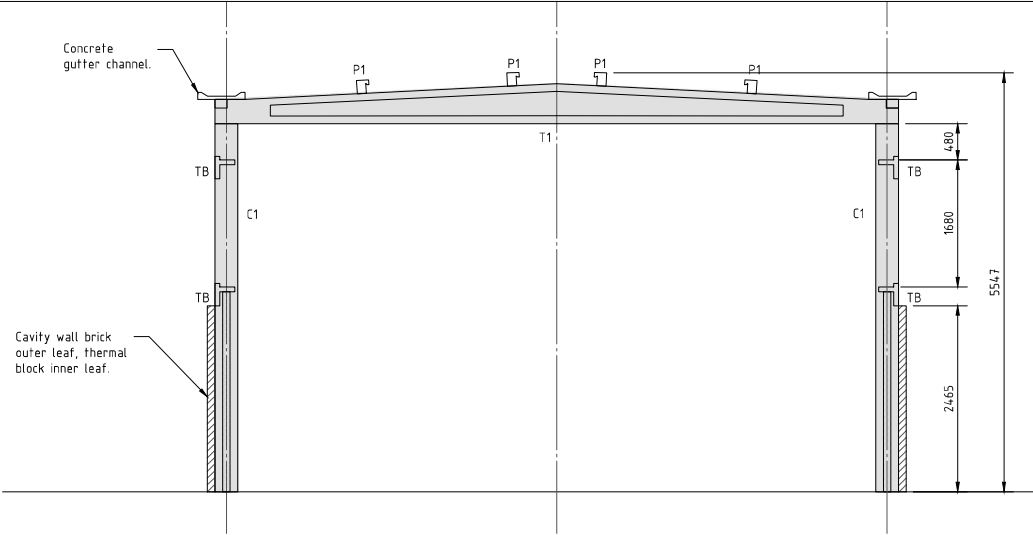
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| JOB No:<br>939      | ORG No:<br>GA002 | REV:<br>P02  |                |  |

| RC TABLE |                         |
|----------|-------------------------|
| REF:     | SIZE:                   |
| C1       | RC Column 300 x 300 sq. |
| P1       | RC purlin 175dp x 100w  |
| TB       | RC tie beam 295dp x 50w |
| T1       | RC Truss beam 530dp     |



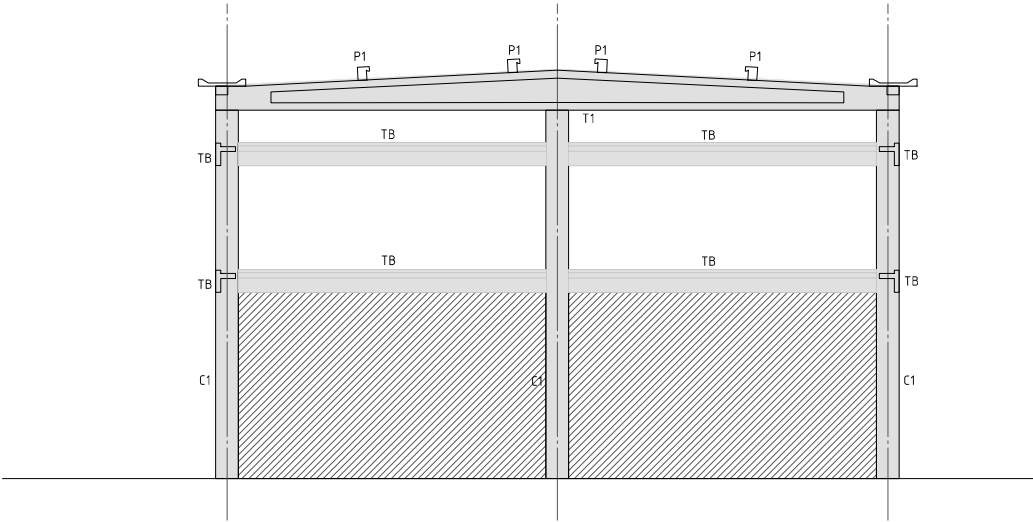
BLD C - Building Plan

1 : 100



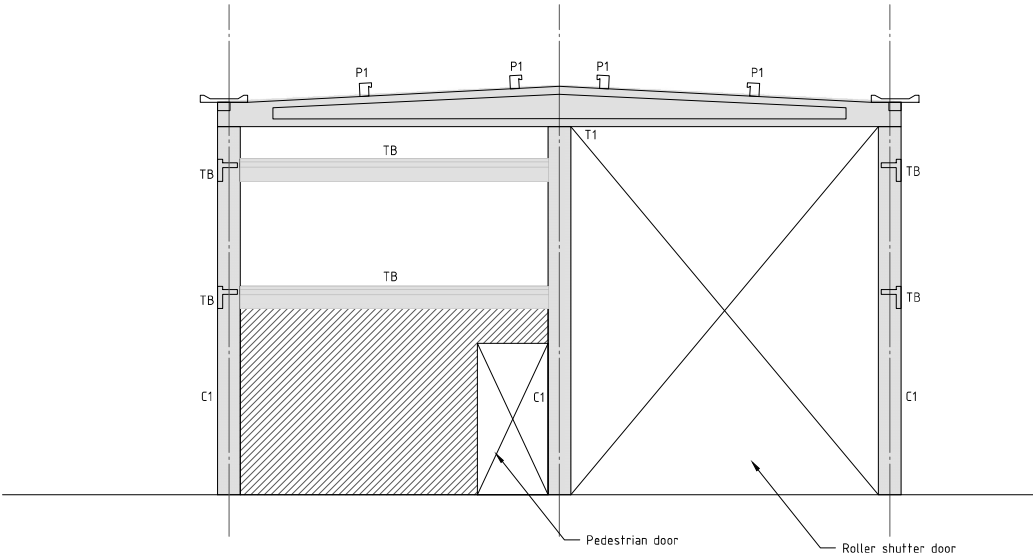
BLD C - Section A-A

1 : 50



BLD C - Elevation E1

1 : 50



BLD C - Elevation E2

1 : 50

Notes:  
This drawing is to be read in conjunction with all relevant Architect's and Engineer's drawings and the specification. This drawing should not be scaled. All dimensions are to be verified by the contractor on site. All discrepancies should be reported to the C.A. prior to the commencement of the works. Only drawings with 'CONSTRUCTION' status are to be used for construction.

|          |      |                        |       |       |
|----------|------|------------------------|-------|-------|
| 11.11.22 | P02  | Issued for Information | CS    | KP    |
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Engineers Ltd

ADDRESS: Henbury Cottage, Southgate Road, Southgate Swansea SA3 2BT  
TELEPHONE: 01992 435 517  
URL: www.kPaConsulting.co.uk

PROJECT:  
Mr Huw Jenkins  
Abbey Road Industrial Estate,  
Neath,  
SA10 7BR

TITLE:  
BLD C - Existing Building Plan, Section,  
Elevation & Details

|                               |                  |              |                |
|-------------------------------|------------------|--------------|----------------|
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| JOB No:<br>939                | ORG No:<br>GA003 | REV:<br>P02  |                |