



#### **PRINCE REGENT STREET TRUST**

**Invitation to Tender** 

Renovation of 'Caretakers' House into Offices and all associated works

In partnership with

**Pyramid Architectural Designs** 

TENDER CLOSING DATE: 11.59pm Friday 25th October 2024



#### PRINCE REGENT STREET TRUST

Company Registered Number: 11474011 | CEO: Julia Armstrong C/O Hartburn Primary School, Adelaide Grove, Hartburn, Stockton-on-Tees, TS18 5BS Tel: 01642 425116 | Email: admin@princeregenttrust.co.uk

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#### **Tender Accompaniment - Outline of Works**

#### **Project Location**

Kader Academy Staindrop Drive Acklam Middlesbrough TS5 8NU

# ARCHITECTURAL DESIGN

#### Points of Contact

Client Ryan Powner Chief Financial and Operations Manager Prince Regent Street Trust 01642 646001

ryan.powner@princeregenttrust.co.uk

Alex McKay / Ben Wears Pyramid Architectural Designs 01642 280339

**Architectural Designers** 

alex@pyramiddesigns.co.uk ben@pyramiddesigns.co.uk

#### Project Overview

Renovation of existing caretaker's house within Kader Academy grounds into staff office. External facade works, structural changes and internal works. Works to install new fence around property, hardscaping to property boundaries, and section of existing property land to become extension to school yard, with new hardscaping.



#### Outline of Works

Structural

- Existing roof is to have the felt covering removed. 25mm battens and counter battens to be laid on existing rafters with slate roofing tiles to be laid on those. Existing rafters are to be assessed prior to work commencing to ensure they can provide the structural loading required for the new roof tiles.
- Existing chimney is to be removed and chimney breasts on the ground and first floor are also to be removed.
- Within the side extension, all existing substation equipment is to be removed. A new timber stud wall is to be inserted to all external walls, with a 50mm cavity and filled with 70mm Kingspan Kooltherm and faced with 52.5mm Kingspan Kooltherm insulated plasterboard. 3mm skim plaster finish to be applied to the internal. A steel beam will span front to back to be supported on the existing walls. A structural engineer will provide calculations for the profile and size of this beam, along with how it will be supported within the space. The roof in this section will be removed and replaced with a new warm roof. C24 195mm x 47mm joists which will span side to side, between external walls and the new steel beam that will be inserted. 18mm plywood will sit above these joists with 150mm Celotex XR4000 insulation above this. The final elements of this roof will be 18mm exterior grade plywood with a GRP system laid above. Openings will be created for 3x 1835mm x 1550mm black/anthracite UPVC windows, two to the front and one to the rear. These will be accompanied by a new 1835mm x 2150mm black/anthracite UPVC set of French doors to the rear also. New flooring, wall covering and final finishes are to be specified by the client.
- The existing rear extension will be converted into a DDA compliant shower room with WC. The same insulated studwork buildup that is to be applied to the existing substation extension, will be applied here, and two existing doors will be bricked up also. The existing roof will be removed and replaced with a new cold roof. C24 150mm x 47mm joists will sit above 62.5mm Kingspan K118 insulated plasterboard, with 100mm Kingspan K107 insulation between the joists to provide a 50mm airgap. There is to be an 18mm exterior grade plywood with a GRP system laid above. New flooring, wall covering and final finishes are to be specified by the client. All new bathroom
- The existing front entrance is to be retained in situ, but replaced with black/anthracite UPVC door with one sidelight.
- All existing windows will be retained in situ and style, but either replaced with black/anthracite UPVC windows or painted black/anthracite. To be specified by the client.
- New kitchen to be fitted and plumbed in.
- New opening to be created for 1775mm x 2150mm French doors to rear of main property.
- Land around new rear entrance will be raised to form level ramp access up into offices.



- Walls to be removed on first floor level.
- Smallest front, first-floor bedroom to have left wall removed in part to open up to next bedroom and form large office space.
- Plastering work in all rooms to provide base for final finishes. Client to then decide on final wall and floor finishes in all rooms.
- Client may require new radiator locations. To be discussed with client.
- Upper floor bathroom to be reviewed and if needed, all new bathroom fittings to be provided and installed.
- Smoke detectors to be installed within office rooms, conference room and hallways/landing.
- Heat detectors provided to kitchen.
- Mechanical extraction provided to both bathrooms and kitchen.
- All lighting in every room to be confirmed in style by client.

#### **Fixtures and Fittings**

Based on discussions with the client, a separate costings package may need to be prepared for all fixtures and fittings within the space.

- New desks for each office room. 8 desks and working stations are shown on plans however this is to be confirmed with client prior to ordering and fitting. Desk chairs need to be ordered for each workstation also.
- Large conference desk to be provided or built for new conference room. Current desk shown (supplied by Calibre Furniture) seats 13 persons and current understanding is that this is an appropriate number of seats required.
- Interactive TV/board and small media wall to be installed in conference room.
- Privacy film to be applied to all ground floor doors and windows.
- Breakfast bar to be installed between kitchen and breakout space.
- 3-seater sofa to be included in breakout space.
- Floor to ceiling storage for office stationery/paperwork/files to be built within all office rooms as shown in location on our plans. Style to be confirmed with client.



#### External

- Navy blue, horizontal composite cladding panels to be installed to exterior. All locations shown on plans. Strip covering north-east corner. Strip around and above main entrance and upper window. Strips above each conference room window.
- Overhead block canopy installed above
- Existing feature bricks to the front of the property are to be painted navy blue to match cladding.
- New 1800mm timber closeboard fence to be installed around property (location shown on plans). Land within new fence boundary to be hardscape, possibly tarmac but client to confirm.
- Land previously belonging to property at rear (shown on plans) will be reclaimed for school yard area, foliage and lawn removed and replaced with matching tarmac.

All IT/electrical services such as new trunking for offices, CAT-6 data points and sockets are to be installed and prepared by the client's own IT department.

Local council to be instructed to form new dropped curb to front and make good planting around entrance path.

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EXISTING GROUND FLOOR PLAN SCALE 1:50



EXISTING ROOF PLAN SCALE 1:50



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	Full Fill Cavity Wall To achieve minimum U Value of 0.18 W/m²K New cavity wall to comprise of 103mm suitable facing brick. Full fill cavity with 100mm Celotex Cavity insulation as manufacturer's details. Inner leaf to be 100mm medium block, 0.45 W/m²K. Internal finish to be 12.5mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar.
	FULL FILL CAVITY WALL To achieve minimum U Value of 0.18 W/m²K 20mm two coat sand/cement render to comply to BS EN 13914-1 with waterproof additive on 100mm standard block, 0.45 W/m²K. Fully fill the cavity with 100mm Celotex Cavity insulation as manufacturer's spec. Inner leaf to be 100mm standard block, 0.45 W/m²K. Internal finish to be 12.5mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar.
	INTERNAL STUD PARTITIONS 100mm x 50mm softwood treated timbers studs at 400mm ctrs with 50 x 100mm head and sole plates and solid intermediate horizontal noggins at 1/3 height or 450mm. Provide min 10kg/m <sup>3</sup> density acoustic soundproof quilt tightly packed (eg. 100mm Rockwool or Isowool mineral fibre sound insulation) in all voids the full depth of the stud. Partitions built off doubled up joists when partitions run parallel or provide noggins where at right angles, or built off DPC on thickened concrete slab if solid ground floor. Walls faced throughout with 12.5mm plaster board with skirr plaster finish. Taped and jointed complete with beads and stops.
<u> </u>	INTERNAL MASONRY PARTITIONS (BLOCKWORK) Construct non load bearing internal masonry partitions using dense concrete blocks built off thickened floor slab and tied at 225mm centres with proprietary steel profiles or block bonded t all internal and external walls. Walls faced throughout with 12.5mm plasterboard on dabs with skim plaster finish or 13mm lightweight plaster.
c==>	SUPPORTING BEAM New steel beams to be encased in 12.5mm Gyproc FireLine board with staggered joints, Gypro FireCase or painted in Nullifire S or similar intumescent paint to provide 1/2 hour fire resistance as agreed with Building Control. All fire protection to be installed as detailed by specialist manufacturer. Engineer to confirm all steel and structural work.
	EXTERNAL BRICKWORK WALL 100mm brick external walls with 100 X 400mm piers at maximum 3.0m ctrs.

#### REVISIONS

REV	DATE	CHANGES
0	14/03/24	Initial Draft
1	26/03/24	Internal Changes

#### JOB INFORMATION

ADDRESS: KADER ACADEMY, STAINSDROP AVENUE, MIDDLESBROUGH, TS5 8NU CLIENT NAME: RYAN POWNER

PROJECT: CONVERT DWELLING TO SCHOOL OFFICE

#### **DRAWINGS** :

Existing Plans - Page 01

#### DATE :

14/03/24

#### SCALE :

1:50 @A1

#### **DRAWN BY :**

AM







EXISTING FRONT ELEVATION SCALE 1:50



EXISTING RIGHT SIDE ELEVATION SCALE 1:50





EXISTING REAR ELEVATION SCALE 1:50

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	LEGEND		
	Full F To ac New Cavit Intern	ill Cavity Wall chieve minimum U Value of 0 cavity wall to comprise of 10 y insulation as manufacturer nal finish to be 12.5mm plaste	0.18 W/m <sup>2</sup> K 3mm suitable facing brick. Full fill cavity with 100mm Celotex 's details. Inner leaf to be 100mm medium block, 0.45 W/m <sup>2</sup> K. erboard on dabs. Walls to be built with 1:1:6 cement mortar.
	FULL To ac 20mr 100m manu	FILL CAVITY WALL shieve minimum U Value of 0 n two coat sand/cement rend im standard block, 0.45 W/m flacturer's spec. Inner leaf to	0.18 W/m²K fer to comply to BS EN 13914-1 with waterproof additive on ²K. Fully fill the cavity with 100mm Celotex Cavity insulation as be 100mm standard block, 0.45 W/m²K. Internal finish to be
	12.5n	nm plasterboard on dabs. Wi RNAL STUD PARTITIONS m x 50mm softwood treater s and solid intermediate hor	alls to be built with 1:1:6 cement mortar. d timbers studs at 400mm ctrs with 50 x 100mm head and sole rizontal noggins at 1/3 height or 450mm. Provide min 10kg/m³
	densi soun partiti concr plaste	ity acoustic soundproof quil d insulation) in all voids the ions run parallel or provide rete slab if solid ground floo er finish. Taped and jointed	tightly packed (eg. 100mm Rockwool or Isowool mineral fibre full depth of the stud. Partitions built off doubled up joists where noggins where at right angles, or built off DPC on thickened r. Walls faced throughout with 12.5mm plaster board with skim complete with beads and stops.
	INTEL Cons thicke all int skim	RNAL MASONRY PARTITI truct non load bearing inter ened floor slab and tied at 2 ernal and external walls. W plaster finish or 13mm light PORTING BEAM	ONS (BLOCKWORK) all masonry partitions using dense concrete blocks built off 25mm centres with proprietary steel profiles or block bonded to alls faced throughout with 12.5mm plasterboard on dabs with weight plaster.
	New : FireC as ag manu EXTE 100m	steel beams to be encased ase or painted in Nullifire S irreed with Building Control. Ifacturer. Engineer to confir ERNAL BRICKWORK WALI im brick external walls with	in 12.5mm Gyproc FireLine board with staggered joints, Gyproc or similar intumescent paint to provide 1/2 hour fire resistance All fire protection to be installed as detailed by specialist m all steel and structural work.
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PROPOSED GROUND FLOOR PLAN SCALE 1:50



PROPOSED ROOF PLAN SCALE 1:50



PROPOSED FIRST FLOOR PLAN SCALE 1:50



LEGEN	ID
	Full Fill Cavity Wall To achieve minimum U Value of 0.18 W/m <sup>2</sup> K New cavity wall to comprise of 103mm suitable facing brick. Full fill cavity with 100mm Celotex Cavity insulation as manufacturer's details. Inner leaf to be 100mm medium block, 0.45 W/m <sup>2</sup> K. Internal finish to be 12.5mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar.
	FULL FILL CAVITY WALL To achieve minimum U Value of 0.18 W/m²K 20mm two coat sand/cement render to comply to BS EN 13914-1 with waterproof additive on 100mm standard block, 0.45 W/m²K. Fully fill the cavity with 100mm Celotex Cavity insulation as manufacturer's spec. Inner leaf to be 100mm standard block, 0.45 W/m²K. Internal finish to be 12.5mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar.
	INTERNAL STUD PARTITIONS 100mm x 50mm softwood treated timbers studs at 400mm ctrs with 50 x 100mm head and sol plates and solid intermediate horizontal noggins at 1/3 height or 450mm. Provide min 10kg/m <sup>3</sup> density acoustic soundproof quilt tightly packed (eg. 100mm Rockwool or Isowool mineral fibre sound insulation) in all voids the full depth of the stud. Partitions built off doubled up joists whe partitions run parallel or provide noggins where at right angles, or built off DPC on thickened concrete slab if solid ground floor. Walls faced throughout with 12.5mm plaster board with skin plaster finish. Taped and jointed complete with beads and stops.
<i>₹<i>⊺⊺⊺⊺</i></i>	INTERNAL MASONRY PARTITIONS (BLOCKWORK) Construct non load bearing internal masonry partitions using dense concrete blocks built off thickened floor slab and tied at 225mm centres with proprietary steel profiles or block bonded all internal and external walls. Walls faced throughout with 12.5mm plasterboard on dabs with skim plaster finish or 13mm lightweight plaster.
C==3	SUPPORTING BEAM New steel beams to be encased in 12.5mm Gyproc FireLine board with staggered joints, Gypri FireCase or painted in Nullifire S or similar intumescent paint to provide 1/2 hour fire resistance as agreed with Building Control. All fire protection to be installed as detailed by specialist manufacturer. Engineer to confirm all steel and structural work.
	EXTERNAL BRICKWORK WALL 100mm brick external walls with 100 X 400mm piers at maximum 3.0m ctrs.

# REVISIONS REV DATE CHANGES 0 14/03/24 Initial Draft 1 26/03/24 Initial Changes

#### JOB INFORMATION

ADDRESS: KADER ACADEMY, STAINSDROP AVENUE, MIDDLESBROUGH, TS5 8NU CLIENT NAME: RYAN POWNER

PROJECT: CONVERT DWELLING TO SCHOOL OFFICE

#### DRAWINGS :

Proposed Plans - Page 04

#### DATE :

14/03/24

#### SCALE :

1:50 @A1

#### DRAWN BY :

AM





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PROPOSED REAR ELEVATION SCALE 1:50

LEGEND Full Fill Cavity Wall To achieve minimum U Value of 0.18 W/m²K New cavity wall to comprise of 103mm suitable facing brick. Full fill cavity with 100mm Celotex Cavity insulation as manufacturer's details. Inner leaf to be 100mm medium block, 0.45 W/m²K. Internal finish to be 12.5mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar. FULL FILL CAVITY WALL To achieve minimum U Value of 0.18 W/m²K 20mm two coat sand/cement render to comply to BS EN 13914-1 with waterproof additive on 100mm standard block, 0.45 W/m²K. Fully fill the cavity with 100mm Celotex Cavity insulation as manufacturer's spec. Inner leaf to be 100mm standard block, 0.45 W/m²K. Internal finish to be 12.5mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar. XXXXXXXXX INTERNAL STUD PARTITIONS 100mm x 50mm softwood treated timbers studs at 400mm ctrs with 50 x 100mm head and sole plates and solid intermediate horizontal noggins at 1/3 height or 450mm. Provide min 10kg/m³ density acoustic soundproof quilt tightly packed (eg. 100mm Rockwool or Isowool mineral fibre sound insulation) in all voids the full depth of the stud. Partitions built off doubled up joists where partitions run parallel or provide noggins where at right angles, or built off DPC on thickened concrete slab if solid ground floor. Walls faced throughout with 12.5mm plaster board with skim plaster finish. Taped and jointed complete with beads and stops. ZZZZZZ INTERNAL MASONRY PARTITIONS (BLOCKWORK) Construct non load bearing internal masonry partitions using dense concrete blocks built off thickened floor slab and tied at 225mm centres with proprietary steel profiles or block bonded to all internal and external walls. Walls faced throughout with 12.5mm plasterboard on dabs with skim plaster finish or 13mm lightweight plaster. C \_ \_ \_ SUPPORTING BEAM New steel beams to be encased in 12.5mm Gyproc FireLine board with staggered joints, Gyproc FireCase or painted in Nullifire S or similar intumescent paint to provide 1/2 hour fire resistance as agreed with Building Control. All fire protection to be installed as detailed by specialist manufacturer. Engineer to confirm all steel and structural work. EXTERNAL BRICKWORK WALL 100mm brick external walls with 100 X 400mm piers at maximum 3.0m ctrs.

#### REVISIONS

REV	DATE	CHANGES
0	14/03/24	Initial Draft
1	26/03/24	Internal Changes
2	18/06/24	Signage removal

#### JOB INFORMATION

ADDRESS: KADER ACADEMY, STAINSDROP AVENUE, MIDDLESBROUGH, TS5 8NU CLIENT NAME: RYAN POWNER

PROJECT: CONVERT DWELLING TO SCHOOL OFFICE

**DRAWINGS** :

Proposed Elevations - Page 05

#### DATE :

14/03/24

#### SCALE :

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#### **DRAWN BY :**

AM





All windows to front, left side and rear to be new anthracite frames.



#### PROPOSED GROUND FLOOR PLAN SCALE 1:50

#### ELECTRICAL LEGEND

- DOUBLE GANG SOCKET 1200mm HIGH AFI (2 PER DESK)
- CAT-6 CONNECTION POINT (2 PER DESK)
- SPOTLIGHTCABLE TRUNKING 1200mm HEIGHT



PROPOSED FIRST FLOOR PLAN SCALE 1:50

	Full Fill Cav To achieve New cavity Cavity insula Internal finis	ity Wall minimum U Value of 0.1 wall to comprise of 103r ation as manufacturer's h to be 12.5mm plaster	I8 W/m²K nm suitable facing brick. Full fill cavity with 100mm Celot details. Inner leaf to be 100mm medium block, 0.45 W/m board on dabs. Walls to be built with 1:1:6 cement morta
	FULL FILL ( To achieve 20mm two o 100mm star manufacture 12.5mm pla	CAVITY WALL minimum U Value of 0.1 coat sand/cement rende idard block, 0.45 W/m <sup>2</sup> k er's spec. Inner leaf to b sterboard on dabs. Wall	18 W/m <sup>2</sup> K r to comply to BS EN 13914-1 with waterproof additive o K. Fully fill the cavity with 100mm Celotex Cavity insulatio e 100mm standard block, 0.45 W/m <sup>2</sup> K. Internal finish to b Is to be built with 1:1:6 cement mortar.
	INTERNAL 100mm x 50 plates and s density aco sound insul partitions ru concrete sla plaster finis	STUD PARTITIONS of the part of	timbers studs at 400mm ctrs with 50 x 100mm head al ontal noggins at 1/3 height or 450mm. Provide min 10 ightly packed (eg. 100mm Rockwool or Isowool miner: ill depth of the stud. Partitions built off doubled up joist oggins where at right angles, or built off DPC on thicke Walls faced throughout with 12.5mm plaster board wit omblete with beads and stops.
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	100mm bric	k external walls with 10	J0 X 400mm piers at maximum 3.0m ctrs.
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LEGEND		
	Cavity Wall	
To achi New ca Cavity i Internal	eve minimum U Value of 0.1 vity wall to comprise of 103n nsulation as manufacturer's finish to be 12.5mm plastert	8 W/m²K Im suitable facing brick. Full fill cavity with 100mm Celotex details. Inner leaf to be 100mm medium block, 0.45 W/m²K. xoard on dabs. Walls to be built with 1:1:6 cement mortar.
FULL F To achi 20mm t 100mm manufa 12.5mm	ILL CAVITY WALL eve minimum U Value of 0.1 wo coat sand/cement render standard block, 0.45 W/m <sup>2</sup> K cturer's spec. Inner leaf to br n plasterboard on dabs. Wall	8 W/m <sup>2</sup> K to comply to BS EN 13914-1 with waterproof additive on . Fully fill the cavity with 100mm Celotex Cavity insulation as a 100mm standard block, 0.45 W/m <sup>2</sup> K. Internal finish to be s to be built with 1:1:6 cement mortar.
INTERN 100mm plates a density sound i partitior concret	JAL STUD PARTITIONS x 50mm softwood treated t and solid intermediate horiz: acoustic soundproof quilt ti nsulation) in all voids the fu is run parallel or provide no e slab if solid ground floor.	imbers studs at 400mm ctrs with 50 x 100mm head and sole ontal noggins at 1/3 height or 450mm. Provide min 10kg/m <sup>3</sup> ghtly packed (eg. 100mm Rockwool or Isowool mineral fibre II depth of the stud. Partitions built off doubled up joists where ggins where at right angles, or built off DPC on thickened Walls faced throughout with 12.5mm plaster board with skim
plaster VVVVVV Constru thicken all inter	finish. Taped and jointed co JAL MASONRY PARTITIOI loct non load bearing interna ed floor slab and tied at 225 nal and external walls. Wall	mplete with beads and stops. VS (BLOCKWORK) I masonry partitions using dense concrete blocks built off imm centres with proprietary steel profiles or block bonded to s faced throughout with 12.5mm plasterboard on dabs with
skim pla SUPPC New ste FireCas as agre	aster finish or 13mm lightwe PRTING BEAM ael beams to be encased in se or painted in Nullifire S of ed with Building Control. Al	ight plaster. 12.5mm Gyproc FireLine board with staggered joints, Gyproc similar intumescent paint to provide 1/2 hour fire resistance I fire protection to be installed as detailed by specialist all total and ctructured work
EXTER 100mm	NAL BRICKWORK WALL brick external walls with 10	0 X 400mm piers at maximum 3.0m ctrs.
REVISION	6	
REV	DATE	CHANGES
0	14/03/24	Initial Draft
	26/03/24	Internal Changes
	KMATION	-
ADDRESS: KA STAINSDROP MIDDLESBRC	ADER ACADEMY, 2 AVENUE, 200GH, TS5 8NU	
CLIENT NAMI	E: RYAN POWNE	R
PROJECT: CO SCHOOL OFF	DNVERT DWELLII FICE	NG TO
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precaution - The clien party wall site.	s. t/building own agreements pr	er must obtain the necessary ior to commencing works on
PY		MID
ARC	НІТЕСТ	URAL DESIGN



WEBSITE: WWW.PYRAMIDDESIGNS.CO.UK





Land around property to be hardscaped.



New 1800mm high timber closeboard fence.



Existing property land to be taken over for school grounds. Foliage and lawn to be removed and replaced by matching tarmac hardstanding for school grounds.

	ח		
LEGEN			
	Full Fill Cavity Wall To achieve minimum U Value of	0.18 W/m²K	
	New cavity wall to comprise of 1 Cavity insulation as manufacture Internal finish to be 12.5mm plas	03mm suitable facing brick. Full fill cavity with 100mm Ce pr's details. Inner leaf to be 100mm medium block, 0.45 W sterboard on dabs. Walls to be built with 1:1:6 cement mo	
	FULL FILL CAVITY WALL To achieve minimum U Value of	0.18 W/m²K	
	20mm two coat sand/cement rei 100mm standard block, 0.45 W/ manufacturer's spec. Inner leaf f	nder to comply to BS EN 13914-1 with waterproof additive m <sup>2</sup> K. Fully fill the cavity with 100mm Celotex Cavity insula to be 100mm standard block, 0.45 W/m <sup>2</sup> K. Internal finish t	
	12.5mm plasterboard on dabs. V	Valls to be built with 1:1:6 cement mortar.	
	INTERNAL STUD PARTITIONS 100mm x 50mm softwood treated timbers studs at 400mm ctrs with 50 x 100mm head and plates and solid intermediate horizontal noggins at 1/3 height or 450mm. Provide min 10kg/ density acoustic soundproof quilt tightly packed (eg. 100mm Rockwool or Isowool mineral fit		
	density acoustic soundproof qu sound insulation) in all voids th partitions run parallel or provide	iilt tightly packed (eg. 100mm Rockwool or Isowool min e full depth of the stud. Partitions built off doubled up jo e noggins where at right angles, or built off DPC on thic	
	concrete slab if solid ground flo plaster finish. Taped and jointe	or. Walls faced throughout with 12.5mm plaster board d complete with beads and stops.	
	INTERNAL MASONRY PARTITIONS (BLOCKWORK) Construct non load bearing internal masonry partitions using dense concrete blocks built off thickened floor slab and tied at 225mm centres with proprietary steel profiles or block bonded off internal and centered walks. We'll found the state with 25 mm.		
c==>	skim plaster finish or 13mm ligi	tweight plaster.	
	New steel beams to be encase FireCase or painted in Nullifire as agreed with Building Contro	d in 12.5mm Gyproc FireLine board with staggered joir S or similar intumescent paint to provide 1/2 hour fire m I. All fire protection to be installed as detailed by specia	
//////////////////////////////////////	EXTERNAL BRICKWORK WA	irm all steel and structural work.	
	100mm brick external walls with	n 100 X 400mm piers at maximum 3.0m ctrs.	
REVISI	ONS		
REV	DATE	CHANGES	
0	14/03/24	Initial Draft	
1	26/03/24	Internal Changes	
JOB IN	FORMATION		
		 IV	
ADDRES	S: KADER ACADEM DROP AVENUE,	IY,	
MIDDLES	SBROUGH, TS5 8NU	J	
CLIENT	NAME: RYAN POWN	IER	
PROJEC	T: CONVERT DWEL	LING TO	
SCHOOL	_ OFFICE		
	NGS :		
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Propos	NGS : ed Landscaping	— Plan - Page 08	
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## PROPOSED ROOF PLAN SCALE 1:30



VENTILATED FLAT ROOF

(imposed load max 1.0 kN/m<sup>2</sup> - dead load max 0.75 kN/m<sup>2</sup>) To achieve U value of 0.15 W/m<sup>2</sup>K Flat roof covering to be glass reinforced plastic (GRP) system with BROOF(t4) fire rating in accordance with BS EN 13501-1:2018 and with a current BBA or other approved accreditation. GRP to be laid in compliance with manufacturer's details by flat roofing specialist on 18mm exterior grade plywood, plywood to be laid on firings to give a 1:40 fall on 47 x 150mm grade C24 timber joists at 400 ctrs, max span 3.22m (see Engineer's details for sizes). Cross-ventilation to be provided on opposing sides by a proprietary eaves ventilation strip to give 25mm continuous ventilation, with fly proof screen. Flat roof insulation is to be continuous with the wall insulation but stopped back to allow a continuous 50mm air gap above the insulation for ventilation. Insulation to be 100mm Kingspan K107 between joists and 62.5mm Kingspan K118 insulated plasterboard under. Finish with plaster skim (provide VCL under insulated plasterboard if required by Building Control). Provide restraint to flat roof by fixing using of 30 x 5 x 1200mm ms galvanised lateral restraint straps at maximum 2000mm centres fixed to 100 x 50mm wall plates and anchored to wall.

Remove existing felt roof covering and replace with counter battens and slate roof tiles to suit 20-21degree pitch as existing. Existing rafters to be assessed for suitability of loading of new tiles.



WARM FLAT ROOF To achieve U value 0.15 W/m<sup>2</sup>K abuts existing house.

(imposed load max 1.0 kN/m<sup>2</sup> - dead load max 0.75 kN/m<sup>2</sup>)

Flat roof covering to be glass reinforced plastic (GRP) system with BROOF(t4) fire rating in accordance with BS EN 13501-1:2018 and with a current BBA or other approved accreditation. Roof covering to be laid in compliance with manufacturer's details by flat roofing specialist onto 18mm exterior quality plywood over 150mm Celotex XR4000 on sw firings to minimum 1 in 40 fall on sw treated 47 x 195mm C24 flat roof joists at 400mm ctrs to give a max span of 4.51m or as Structural Engineer's details and calculations. Fix 12.5mm plasterboard over vapour barrier to underside of joists, finish a with plaster skim. Provide cavity tray to where new roof

Provide restraint to flat roof by fixing of 30 x 5 x 1200mm ms galvanised lateral restraint straps at maximum 2000mm centres fixed to 100 x 50mm wall plates and anchored to wall.









#### LEGEND

	Full Fill Cavity Wall To achieve minimum U Value of 0.18 W/m²K New cavity wall to comprise of 103mm suitable facing brick. Full fill cavity with 100mm Celotex Cavity insulation as manufacturer's details. Inner leaf to be 100mm medium block, 0.45 W/m²K. Internal finish to be 12.5mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar.					
	FULL FILL CAVITY WALL To achieve minimum U Value of 0.18 W/m²K 20mm two coat sand/cement render to comply to BS EN 13914-1 with waterproof additive on 100mm standard block, 0.45 W/m²K. Fully fill the cavity with 100mm Celotex Cavity insulation as manufacturer's spec. Inner leaf to be 100mm standard block, 0.45 W/m²K. Internal finish to be 12.5mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar.					
	INTERNA 100mm x plates and density ad sound ins partitions concrete s plaster fin	INTERNAL STUD PARTITIONS 100mm x 50mm softwood treated timbers studs at 400mm ctrs with 50 x 100mm head and sole plates and solid intermediate horizontal noggins at 1/3 height or 450mm. Provide min 10kg/m <sup>3</sup> density acoustic soundproof quilt tightly packed (eg. 100mm Rockwool or Isowool mineral fibre sound insulation) in all voids the full depth of the stud. Partitions built off doubled up joists where partitions run parallel or provide noggins where at right angles, or built off DPC on thickened concrete slab if solid ground floor. Walls faced throughout with 12.5mm plaster board with skim plaster finish. Taped and jointed complete with beads and stops.				
<i>\\\\\</i>	INTERNA Construct thickened all interna skim plas	INTERNAL MASONRY PARTITIONS (BLOCKWORK) Construct non load bearing internal masonry partitions using dense concrete blocks built off thickened floor slab and tied at 225mm centres with proprietary steel profiles or block bonded to all internal and external walls. Walls faced throughout with 12.5mm plasterboard on dabs with skim plaster finish or 13mm lightweight plaster.				
c==>	SUPPORTING BEAM New steel beams to be encased in 12.5mm Gyproc FireLine board with staggered joints, Gyproc FireCase or painted in Nullifire S or similar intumescent paint to provide 1/2 hour fire resistance as agreed with Building Control. All fire protection to be installed as detailed by specialist manufacturer. Engineer to confirm all steel and structural work.					
	EXTERNAL BRICKWORK WALL 100mm brick external walls with 100 X 400mm piers at maximum 3.0m ctrs.					
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ADDRESS: KADER ACADEMY, STAINSDROP AVENUE, MIDDLESBROUGH, TS5 8NU

CLIENT NAME: RYAN POWNER

PROJECT: CONVERT DWELLING TO SCHOOL OFFICE

**DRAWINGS**:

Proposed Construction Details - Page 10

DATE :

14/03/24

SCALE :

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**DRAWN BY :** 

AM

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WEBSITE: WWW.PYRAMIDDESIGNS.CO.UK

# PROPOSED CONSTRUCTION PLAN SCALE 1:30



### BRICK FINISH TIMBER FRAMED

50mm vented and drained cavity

Treated timber frame constructed using 100mm x 50mm head & sole plates and

Insulation to be 70mm Kingspan Kooltherm between studs and 52.5mm Kingspan Kooltherm insulated plasterboard over studs with VCL, finished with 3mm skim coat of

#### LEGEND

	Full Fill Cavity Wall
	New cavity wall to comprise of 0.3 mm suitable facing brick. Full fill cavity with 100mm Celotex Cavity insulation as manufacturer's details. Inner leaf to be 100mm medium block, 0.45 W/m²K. Internal finish to be 12.5mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar.
	FULL FILL CAVITY WALL To achieve minimum U Value of 0.18 W/m²K 20mm two coat sand/cement render to comply to BS EN 13914-1 with waterproof additive on 100mm standard block, 0.45 W/m²K. Fully fill the cavity with 100mm Celotex Cavity insulation as manufacturer's spec. Inner leaf to be 100mm standard block, 0.45 W/m²K. Internal finish to be 12.5mm plasterboard on dabs. Walls to be built with 1:1:6 cement mortar.
******	INTERNAL STUD PARTITIONS 100mm x 50mm softwood treated timbers studs at 400mm ctrs with 50 x 100mm head and sole plates and solid intermediate horizontal noggins at 1/3 height or 450mm. Provide min 10kg/m <sup>3</sup> density acoustic soundproof quilt tightly packed (eg. 100mm Rockwool or Isowool mineral fibre sound insulation) in all voids the full depth of the stud. Partitions built off doubled up joists where partitions run parallel or provide noggins where at right angles, or built off DPC on thickened concrete slab if solid ground floor. Walls faced throughout with 12.5mm plaster board with skim plaster finish. Taped and jointed complete with beads and stops.
/////	INTERNAL MASONRY PARTITIONS (BLOCKWORK) Construct non load bearing internal masonry partitions using dense concrete blocks built off thickened floor slab and tied at 225mm centres with proprietary steel profiles or block bonded to all internal and external walls. Walls faced throughout with 12.5mm plasterboard on dabs with skim plaster finish or 13mm lightweight plaster.
:==>	SUPPORTING BEAM New steel beams to be encased in 12.5mm Gyproc FireLine board with staggered joints, Gyproc FireCase or painted in Nullifire S or similar intumescent paint to provide 1/2 hour fire resistance as agreed with Building Control. All fire protection to be installed as detailed by specialist manufacturer. Engineer to confirm all steel and structural work.
// // // // // // //	EXTERNAL BRICKWORK WALL 100mm brick external walls with 100 X 400mm piers at maximum 3.0m ctrs.

#### REVISIONS

REV	DATE	CHANGES
0	14/03/24	Initial Draft
1	26/03/24	Internal Changes

#### JOB INFORMATION

ADDRESS: KADER ACADEMY, STAINSDROP AVENUE, MIDDLESBROUGH, TS5 8NU

CLIENT NAME: RYAN POWNER

PROJECT: CONVERT DWELLING TO SCHOOL OFFICE

**DRAWINGS**:

Proposed Construction Details - Page 11

DATE :

14/03/24

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**DRAWN BY**:

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# ADDITIONAL REGULATION NOTES

PLANNING NOTE - The local Planning department to be consulted on any local requirements relating to Planning Permissions and Permitted Development rights. An A removes certain rights. maybe in place.

#### Prior approval to be sought where required. SINGLE-STOREY EXTENSION

An extension or addition to your house is considered to be permitted development, not requiring an application for planning permission, provided certain limits and conc 1. On designated land\* - no cladding of the exterior. \*Designated land (Article 2(3)) includes national parks and the Broads, Areas of Outstanding Natural Beauty, c

#### and World Heritage Sites.

2. On designated land\* - no side extensions. Rear extension - No permitted development for rear extensions of more than one storey. The regime for larger single-s extensions (see point 9) does NOT apply to houses on designated land.

3. No more than half the area of land around the "original house" would be covered by additions or other buildings. Sheds and other outbuildings must be included v 50 per cent limit.

4. No extension forward of the principal elevation or side elevation fronting a highway.

5. Materials to be similar in appearance to the existing house.

Side extensions to be single storey. Width of side extension must not have a width greater than half the width of the original house. 6.

Side extensions to have a maximum height of four metres and width no more than half that of the original house. 7. 8. If the extension is within 2m of a boundary, maximum eaves height should be no higher than 3m to be permitted development.

Single-storey rear extensions must not extend beyond the rear wall of the original house by more than 4m if a detached house; or more than 3m for any other ho 9. designated land (Article 2(3)) or a Site of Special Scientific Interest, this limit is increased to 8m if a detached house; or 6m for any other house.

10. Maximum height of a single-storey rear extension of 4m. (or less than 3m if within 2m of a property boundary)

#### . Maximum eaves and ridge height of extension no higher than existing house. TWO-STOREY REAR EXTENSION

An extension or addition to your house is considered to be permitted development, not requiring an application for planning permission, provided certain limits and conc 1. On designated land extensions of more than one storey are not permitted development. \* Designated land includes national parks and the Broads, Areas of Outs Beauty, conservation areas and World Heritage Sites.

2. Extensions (including previous extensions) and other buildings must not exceed 50% of the total area of land around the original house. \* Sheds and other outbu included when calculating the above 50% limit.

3. Maximum eaves and ridge height of extension no higher than existing house. If extension is within two metres of a boundary maximum eaves height should be not metres to be permitted development.

4. Extensions of more than one storey must not extend beyond the rear wall of original house by more than three metres or be within seven metres of any boundary wall of the house.

5. Roof pitch of extensions higher than one storey to match that of the existing house, as far as is practicable. 6.

Materials used in exterior work to be similar in appearance to those of the exterior of the existing house. 7. Any upper-floor window in a wall or roof slope in a side elevation must be obscure-glazed and nonopening unless the parts which can be opened are more than the floor of the room in which it is installed.

8. No balconies or verandas are permitted development.

#### NOTICE OF COMMENCEMENT

A notice of commencement is to be submitted to Building Control within 5 days of work being regarded as commenced, under regulation 16 of The Building Regulations (England) Regulations 2010.

Work will be deemed to have commenced when the build has progressed to at least one of the following:

For complex buildings – Foundations are constructed, and the structure of the lowest floor level is complete.

For new buildings and horizontal extensions - Sub surface structure of the building or the extension including all foundations and the structure of the ground floor level For all other works – constructed 15% of the overall work.

#### NOTICE OF COMPLETION

A Notice of Completion to be given to Building Control not more than 5 days after the work has been completed. The notice to contain the following information:

The name, address, telephone number and (if available) email address of the client, principal contractor, and principal designer.

A statement from the applicant to say that the works have been completed and complies with all the applicable regulations to the best of their knowledge. A statement from both the principal contractor and principal designer to confirm they have fulfilled their duties under Part 2A (duty holders and competence).

#### **CDM REGULATIONS 2015**

The client must abide by the Construction Design and Management Regulations 2015. The Client must appoint a Contractor, if more than one Contractor is to be involv need to appoint (in writing) a Principal Designer (to plan, manage and coordinate the planning and design work), and a Principal Contractor (to plan, manage and coord construction and ensure there are arrangements in place for managing and organising the project).

#### **Domestic Clients**

The Domestic Client is to appoint a Principal Designer and a Principal Contractor when there is more than one Contractor, if not your duties will automatically be transfer Contractor or Principal Contractor.

The Designer can take on the duties, provided there is a written agreement between you and the Designer to do so.

The Health and Safety Executive is to be notified as soon as possible before construction work starts if the works:

(a) Last longer than 30 working days and has more than 20 workers working simultaneously at any point in the project.

#### Or (b) Exceeds 500 person days.

THERMAL BRIDGING

Care shall be taken to limit the occurrence of thermal bridging in the insulation layers caused by gaps within the thermal element, (i.e. around windows and door openin provision shall also be made to ensure the extension is constructed to minimise unwanted air leakage through the new building fabric.

#### MATERIALS AND WORKMANSHIP

All works are to be carried out in a workmanlike manner. All materials and workmanship must comply with Regulation 7 of the Building Regulations, all relevant British European Standards, Agreement Certificates, Product Certification of Schemes (Kite Marks) etc. Products conforming to a European technical standard or harmonised should have a CE marking.

The latest edition of the British Standard (including any amendments) applies to any undated references within these specifications.

#### SITE PREPARATION

Ground to be prepared for new works by removing all unsuitable material, vegetable matter and tree or shrub roots to a suitable depth to prevent future growth. Seal up disconnect and remove existing redundant services as necessary. Reasonable precautions must also be taken to avoid danger to health and safety caused by contami gases, e.g. landfill gases, radon, vapours etc. on or in the ground covered, or to be covered by the building.

#### EXISTING STRUCTURE

Existing structure including foundations, beams, walls and lintels carrying new and altered loads are to be exposed and checked for adequacy prior to commencement of required by Building Control.

#### BEAMS

Supply and install new structural elements such as new beams, roof structure, floor structure, bearings, and padstones in accordance with the Structural Engineer's cal details. New steel beams to be encased in 12.5mm Gyproc FireLine board with staggered joints, Gyproc FireCase or painted in Nullifire S or similar intumescent paint t fire resistance, as agreed with Building Control. All fire protection to be installed as detailed by specialist manufacturer.

#### FLAT ROOF RESTRAINT

100m x 50mm C16 grade timber wall plates to be strapped to walls using 1200mm x 30mm x 5mm galvanised mild steel straps at maximum 2.0m centres, straps to be wall faces.

#### **OPENINGS AND RETURNS**

An opening or recess greater than 0.1m<sup>2</sup> shall be at least 550mm from the supported wall (measured internally).

#### LINTELS

- For uniformly distributed loads and standard 2 storey domestic loadings only

Lintel widths are to be equal to wall thickness. All lintels over 750mm sized internal door openings to be 65mm deep pre-stressed concrete plank lintels. 150mm deep li for 900mm sized internal door openings. Lintels to have a minimum bearing of 150mm on each end. Any existing lintels carrying additional loads are to be exposed for commencement of work on site. All pre-stressed concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with BS EN 1992-1-1:2023 Eurocode 2, with a concrete lintels to be designed and manufactured in accordance with accor 40 N/mm<sup>2</sup> and incorporating steel strands to BS 5896 to support loadings assessed to BS EN 845-2:2013.

For other structural openings provide proprietary insulated steel lintels suitable for spans and loadings in compliance with Approved Document A and lintel manufacturer's standard tables. Stop ends, DPC trays and weep holes to be provided above all externally located lintels. Independent lintels to have an insulated cavity closure between the inner and outer lintel.

Artical 4, which	TIMBER FRAME WALL To achieve minimum U Value of 0.18 W/m²K Outer skin to be 102mm suitable facing brick with 50mm vented and drained cavity provided between the stud and brick cladding.
ditions are met. conservation areas storev rear	treated timber frame studs constructed using 100mm x 50mm treated timbers with head and sole plates and noggins at 400mm ctrs or to s/engine be 70mm Kingspan Kooltherm between studs with 52.5mm Kingspan Kooltherm insulated plasterboard with VCL provided over. Finish with 3mm junctions to have water tight construction, seal all perimeter joints with tape internally and with silicon sealant externally.
when calculating the	VENTILATED FLAT ROOF (imposed load max 1.0 kN/m² - dead load max 0.75 kN/m²) To achieve U value of 0.15 W/m²K Flat roof covering to be glass reinforced plastic (GRP) system with BROOF(t4) fire rating in accordance with BS EN 13501-1:2018 and with a cur
ouse. Where not on	<ul> <li>GRP to be laid in compliance with manufacturer's details by flat roofing specialist on 18mm exterior grade plywood, plywood to be laid on firings to C24 timber joists at 400 ctrs, max span 3.22m (see Engineer's details for sizes). Cross-ventilation to be provided on opposing sides by a propriet continuous ventilation, with fly proof screen. Flat roof insulation is to be continuous with the wall insulation but stopped back to allow a continuous ventilation. Insulation to be 100mm Kingspan K107 between joists and 62.5mm Kingspan K118 insulated plasterboard under. Finish with plaster splasterboard if required by Building Control).</li> <li>Provide restraint to flat roof by fixing using of 30 x 5 x 1200mm ms galvanised lateral restraint straps at maximum 2000mm centres fixed to 100 x THIS IS A GENERAL GUIDE BASED ON NORMAL LOADING CONDITIONS FOUND IN DOMESTIC CONSTRUCTION. IT IS YOUR RESPONS ASCERTAIN WHETHER ENGINEER'S DETAILS/CALCULATIONS ARE REQUIRED. PLEASE REFER TO THE TRADA DOCUMENT – 'SPAN' IN ELOOPS, CEILINGS AND ROOFS FOR DWELLINGS' OR ASK YOUR STRUCTURAL ENGINEER FOR ADVICE.</li> </ul>
ditions are met. standing Natural	WARM FLAT ROOF (imposed load max 1.0 kN/m <sup>2</sup> - dead load max 0.75 kN/m <sup>2</sup> )
uildings must be no higher than three	To achieve U value 0.15 W/m <sup>2</sup> K Flat roof covering to be glass reinforced plastic (GRP) system with BROOF(t4) fire rating in accordance with BS EN 13501-1:2018 and with a cur Roof covering to be laid in compliance with manufacturer's details by flat roofing specialist onto 18mm exterior quality plywood over 150mm Celot
y opposite the rear	40 fail on sw treated 47 x 195mm C24 flat roof joists at 400mm ctrs to give a max span of 4.51m or as Structural Engineer's details and calculation barrier to underside of joists, finish a with plaster skim. Provide cavity tray to where new roof abuts existing house. Provide restraint to flat roof by fixing of 30 x 5 x 1200mm ms galvanised lateral restraint straps at maximum 2000mm centres fixed to 100 x 50mm THIS IS A GENERAL GUIDE BASED ON NORMAL LOADING CONDITIONS FOUND IN DOMESTIC CONSTRUCTION. IT IS YOUR RESPONS
1.7 metres above	IN FLOORS, CEILINGS AND ROOFS FOR DWELLINGS' OR ASK YOUR STRUCTURAL ENGINEER FOR ADVICE.
s etc. (Amendment)	LEAD WORK AND FLASHINGS All lead flashings, any valleys or soakers to be Code 5 lead and laid in accordance with BS 5534 and BS EN 12588. Flashings to be provided to a welded upstands. Joints to be lapped min 150mm and lead to be dressed 200mm under tiles, etc.
is completed.	INTERNAL STUD PARTITIONS 100mm x 50mm softwood treated timbers studs at 400mm ctrs with 50 x 100mm head and sole plates and solid intermediate horizontal noggins a 10kg/m <sup>3</sup> density acoustic soundproof quilt tightly packed (e.g.100mm Rockwool or Isowool mineral fibre sound insulation) in all voids the full depth doubled up joists where partitions run parallel or provide noggins where at right angles, or to be built off DPC on thickened concrete slab if solid g 12.5mm plasterboard with skim plaster finish. Plasterboard to be taped and jointed complete with beads and stops.
	ELECTRICAL All electrical work required to meet the requirements of Part P (electrical safety) must be designed, installed, inspected and tested by a Competer Person Self Certification Scheme such as BRE certification Ltd, BSI, NICEIC Certification Services or Zurich Ltd. An appropriate BS7671 Electric for the work by a person competent to do so. A copy of a certificate will be given to Building Control on completion.
	INTERNAL LIGHTING Install low energy light fittings that only take lamps having a luminous efficiency better than 80 lumens per circuit watt. All fixed to have lighting ca comply with Part L of the current Building Regulations and the Domestic Building Services Compliance Guide.
ved, the Client will dinate the erred to the	HEATING Extend all heating and hot water services from existing and provide new TRVs to radiators. Heating system to be designed, installed, tested and f specialist. All work to be in accordance with the Local Water Authorities bye laws, the Gas Safety (Installation and Use) Regulations 1998 and IEI The energy performance of the new components to be assessed. The results should be recorded and given to the building owner. All accessible pipes to be insulated to the standards in Table 4.4 Approved Document L.
	NEW AND REPLACEMENT WINDOWS New and replacement windows to be double glazed with 16-20mm argon gap and soft coat low-E glass. Window Energy Rating to be Band B or b W/m <sup>2</sup> K. The door and window openings should be limited to 25% of the extension floor area plus the area of any existing openings covered by the Insulated plasterboard to be used in reveals to abut jambs and to be considered within reveal soffits. Fully insulated and continuous cavity closers Windows and door frames to be taped to surrounding openings using air sealing tape. Windows to be fitted with trickle vents to provide adequate background ventilation in accordance with Approved Document F.
ngs). Reasonable	NEW AND REPLACEMENT DOORS New and replacement doors to achieve a U-Value of 1.4W/m²K. Glazed areas to be double glazed with 16-20mm argon gap and soft low-E glass safety glass to BS 6206, BS EN 14179 or BS EN ISO 12543-1 and Part K of the current Building Regulations. Insulated plasterboard to be used in reveals to abut jambs and to be considered within reveal soffits. Fully insulated and continuous cavity closers Windows and door frames to be taped to surrounding openings using air sealing tape.
Standards, European product	SAFETY GLAZING All glazing in critical locations to be toughened or laminated safety glass to BS EN 12600:2002, BS EN 14179 or BS EN ISO 12543-1 and Part K within 1500mm above floor level in doors and side panels within 300mm of door opening and within 800mm above floor level in windows.
o, cap off,	EXTRACT TO KITCHEN Kitchen to have mechanical ventilation with an extract rating of 60 l/s, or 30 l/s if adjacent to hob to external air. Internal doors should be provided air circulation. Ventilation provision in accordance with the Domestic Ventilation Compliance Guide. Intermittent extract fans to BS EN 13141-4. C mechanical ventilation systems, where they can be tested and adjusted, shall be commissioned and a commissioning notice given to the Building
inants and ground	EXTRACT TO WC WC to have mechanical ventilation ducted to external air with an extract rating of 15 l/s operated via the light switch. Vent to have a 15min overru should be provided with a 10mm gap below the door to aid air circulation. Ventilation provision in accordance with the Domestic Ventilation Comp BS EN 13141-4. All fixed mechanical ventilation systems, where they can be tested and adjusted, shall be commissioned and a commissioning n
lculations and to provide 1/2 hour	
fixed to internal	
intels are to be used inspection at ete strength of 50 or	

	LEGEN	D				
		Full Fill Cavity Wall To achieve minimum U Value of (	) 18 W/m²K			
		New cavity wall to comprise of 10 Cavity insulation as manufacturer Internal finish to be 12.5mm plast	somm suitable facing brick. Full fill cavity with 100mm Celotex 's details. Inner leaf to be 100mm medium block, 0.45 W/m²K. erboard on dabs. Walls to be built with 1:1:6 cement mortar.			
		FULL FILL CAVITY WALL To achieve minimum U Value of (	) 18 W/m²K			
heathing (or other approved). Ply fixed to eer's details and calculations. Insulation to skim coat of finishing plaster. All		20mm two coat sand/cement rend 100mm standard block, 0.45 W/m manufacturer's spec. Inner leaf to 12.5mm plasterboard on dabs. W	ler to comply to BS EN 13914-1 with waterproof additive on <sup>2</sup> K. Fully fill the cavity with 100mm Celotex Cavity insulation as be 100mm standard block, 0.45 W/m <sup>2</sup> K. Internal finish to be alls to be built with 1:1:6 cement mortar.			
		INTERNAL STUD PARTITIONS 100mm x 50mm softwood treate plates and solid intermediate hor	d timbers studs at 400mm ctrs with 50 x 100mm head and sole rizontal noggins at 1/3 height or 450mm. Provide min 10kg/m³			
		density acoustic soundproof quil sound insulation) in all voids the partitions run parallel or provide	t tightly packed (eg. 100mm Rockwool or Isowool mineral fibre full depth of the stud. Partitions built off doubled up joists when noggins where at right angles, or built off DPC on thickened			
rent BBA or other approved accreditation.		concrete slab if solid ground floo plaster finish. Taped and jointed	r. Walls faced throughout with 12.5mm plaster board with skim complete with beads and stops. ONS (PLOCKWORK)			
ary eaves ventilation strip to give 25mm s 50mm air gap above the insulation for skim (provide VCL under insulated		Construct non load bearing inter thickened floor slab and tied at 2 all internal and external walls. W skim plaster finish or 13mm light	nal masonry partitions using dense concrete blocks built off (25mm centres with proprietary steel profiles or block bonded t alls faced throughout with 12.5mm plasterboard on dabs with weight plaster.			
50mm wall plates and anchored to wall	C==>	SUPPORTING BEAM New steel beams to be encased FireCase or painted in Nullifire S	in 12.5mm Gyproc FireLine board with staggered joints, Gypro or similar intumescent paint to provide 1/2 hour fire resistance			
SIBILITY TO ASSESS YOUR DESIGN TO TABLES FOR SOLID TIMBER MEMBERS	<i></i>	as agreed with Building Control. manufacturer. Engineer to confir EXTERNAL BRICKWORK WALI 100mm brick external walls with	All fire protection to be installed as detailed by specialist m all steel and structural work. L 100 X 400mm piers at maximum 3.0m ctrs.			
	REVISI	ONS				
rrent BBA or other approved accreditation. tex XR4000 on sw firings to minimum 1 in	REV	DATE	CHANGES			
ons. Fix 12.5mm plasterboard over vapour	0 1	14/03/24 26/03/24	Initial Draft Internal Changes			
n wall plates and anchored to wall. SIBILITY TO ASSESS YOUR DESIGN TO						
TABLES FOR SOLID TIMBER MEMBERS						
	JOB IN	FORMATION				
all jambs and below window openings with	ADDRES STAINSE MIDDLES	S: KADER ACADEM ROP AVENUE, BROUGH. TS5 8NU	 (,			
at 1/3 height or 450mm c/cs. Provide min						
h of the stud. Partitions to be built off ground floor. Walls faced throughout with	GLIENT	NAME: RYAN POWN	EK			
	PROJEC SCHOOL	T: CONVERT DWELL OFFICE	LING TO			
nt Person registered under a Competent						
al Installation Certificate is to be issued						
	DRAWINGS :					
apacity (im) 185 x total lloor area, to	Propos	ed Construction [	Details - Page 12			
fully certified by a GAS SAFE registered	DATE :					
E Regulations.	14/03/24					
	SCAL F					
better and to achieve U-value of 1.4 e extension.						
s to be used around reveals.	NA @A1					
	DRAWI	NBY:	_			
. Glass to be toughened or laminated	AM					
s to be used around reveals.						
	0   0.5m	1m 1.5m 2m	2.5m 5n   3m 3.5m 4m 4.5m			
of the current Building Regulations, i.e.						
		1m 2m	3m 4m			
with a 10mm gap below the door to aid	٥ 		5n			
Cooker hoods to BS EN 13141-3. All fixed g Control Body.	- All R - This	ights Reserved. Drawings must n	ot be reproduced without			
	permis	sion.	ings			
in if no window in room. Internal doors pliance Guide. Intermittent extract fans to	- All di	mensions to be c	hecked by contractor on-site.			
otice given to the Building Control Body.	- Cons	struction must onl g control and any	y commence once planning, / other relevant approvals have			
	been o - It is t	bbtained. he responsibility (	of the owner to ensure			
	approv	/als have been gi	ranted.			
	survey	vor, engineer or re	esponsible person immediately.			
	with th	e cdm regulation	s and mandatory h&s on site			
	precau - The o	itions. client/building ow	ner must obtain the necessary			
	party v site.	vall agreements p	prior to commencing works on			
	D	VD				
$(\mathbf{C})$	A R	CHITEC	TURAL DESIGN			

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#### STRUCTURAL CALCULATIONS FOR RYAN POWNER – KADER ACADEMY

KADER ACADEMY STAINSDROP AVENUE MIDDLESBROUGH TS5 8NU

DESIGN AND CALCULATIONS FOR REMOVAL OF LOAD BEARING WALL AT GROUND FLOOR



Tel: 01287 348404 E-mail: <u>info@pmce.co.uk</u> Website: <u>www.pmce.co.uk</u> Unit 8 Lexington Buildings, Longbeck Estate, Marske by the Sea TS11 6HR

#### **General Construction Notes and Guidance:**

1. Calculations are not to be used for the purpose of ordering materials and should only be used for Building Regulations submissions. All dimensions should be checked by the contractor on site.

2. All steelwork to be mechanically wire brushed and painted two coats of red oxide. Steelwork located in the cavity or below DPC to be suitably protected with 2 coats of bituminous paint.

3. All timber to be graded C24 (SC4) unless stated otherwise. Preservative treated to Architect's details

4. To be read in conjunction with architect's drawings, any inconsistencies should be reported.

5. For details of fire protection to steelwork, see Architects drawings.

6. The contractor is to ensure that all existing construction is adequately supported, using needles and props as required. Where a new beam supports the existing construction adequate pre-load is to be applied and suitable packs such as driven dry-state introduced, then pointed up with mortat.

7. All blockwork to be 7.3 N/mm<sup>2</sup> in class III mortar below DPC in accordance with BS5628:Part3:2005 or suitable 7.0 N/mm<sup>2</sup> foundation quality blocks in class II mortar in accordance with the manufacturer's instructions. All brickwork below DPC to be engineering bricks DPC in accordance with BS 5628: Part 3: 2005.

8. The builder is to take into consideration the placement of the structural elements, ensuring that the method of lifting and placement is safely carried out. Responsibility for this element lies with the Contractor. As the existing walls need to be propped in order to introduce some of the lintels, this should also be considered in relationship to the risk assessment of the Contractor. Safe working procedures must be adopted. Responsibility for this element lies with the Contractor. Splice details for long-span beams can often be accommodated if required.

9. By using these calculations you agree to have read and agreed to our terms and conditions. Details of these can be found at https://www.pmce.co.uk/terms-and-conditions should you have any queries relating to our terms and conditions please inform us in writing prior to commencing structural works

#### Party Wall Act 1996

If part of the work is adjacent to the boundary, the adjacent neighbours right to support could be affected; the issues associated with Party Wall Act may need to be considered. This may include providing information to the adjoining owner, giving sufficient notice of works in compliance with the Act. If the following list applies to this project then the Party Wall Act will apply.

1. Installing a new beam into the shared wall between properties

2. Demolishing, building or under-pinning an existing shared wall

3. Building a new wall at or on the boundary or junction of two properties

4. Damp-proofing all the way through a party wall

5. Digging foundations that are within 3m of a Party Wall, where the new foundations are deeper than the existing ones

6. Where the new foundations are within 6m and lower than a 45° line from the bottom of the existing foundations.

#### <u>Codes</u>

BS EN 1990+A1:2006/NA: 2005-06	Basis of structural design
BS EN 1991-1-1 BS EN 1991-1-3/NA: 2005-12	Part 1-1: General actions - Self-weight, imposed loads for buildings Part 1-3: General actions - Snow loads
BS EN 1995-1-1+A1:2008/NA: 2006	Part 1-1: General - Common rules and rules for buildings
BS EN 1995-1-2	Part 1-2: General - Structural fire design
BS EN 1991-1-4/NA: 2006	Part 1-4: General actions - Wind loads
BS EN 14080:2013-08 BS EN 338:2010-03	Timber structures - Glued laminated timber and solid timber - Requirements
D3 LN 330.2010 03	



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#### Loading

			De	ad <u>Live</u>
<u>Roof1b</u>				
	Tiles	g <sub>1</sub> =	0.65 kN/m <sup>2</sup>	
	Rafters,felt,insulation etc	g <sub>2</sub> =	0.30 kN/m <sup>2</sup>	
	Plasterboard	g <sub>3</sub> =	0.25 kN/m <sup>2</sup>	
		g <sub>0</sub> =	1.20 kN/m <sup>2</sup>	
	Roof pitch	a=	35 °	<b>6</b>
		$g_k = g_0/COS(a)$	= <u>1.4</u>	$\frac{6 \text{ kN/m^2}}{2}$
	Roof snow loading	$q_k = 0,60^{(60-a)/30}$	=	<u>0.50</u> <u>kN/m<sup>2</sup></u>
Boof7a				
(Flat)	loist & boarding finishes	a.=	0 35 kN/m <sup>2</sup>	
(1 100)	Placterhoard	91 <sup>-</sup>	$0.25 \text{ kN/m}^2$	
	Tasterboard	$g_2 = g_1 \pm g_2$	- 06	$0 k N / m^2$
	Impocod	$g_k = g_1 + g_2$	_ <u>0.0</u>	<u>U KN/III</u> 1 50 kN/m <sup>2</sup>
<b>F</b> I	Imposed	Ч <sub>к</sub> —	-	<u>1.50</u> <u>kn/11</u>
FIOOF	loist & boarding finishes	a –	0.25 kN/m <sup>2</sup>	
	Dist & Doarding, ministres	g <sub>1</sub> -	$0.25 \text{ kN/m}^2$	
	Flasterboard	$g_2 = a_1 + a_2$	- 0.50	$k_{\rm N}/m^2$
	Imposed	$g_k = g_1 + g_2$	- <u>0.50</u>	$1.50 \text{ kN/m}^2$
Walla	Imposed	Yk-	_	<u>1.50 km/m</u>
waiis			0.45 1.11/	
W1	External cavity blockwork	$g_1 = 2, /*(2, 1+1, 4) =$	9.45 kN/m	
	Plasterboard	$g_2 = 2,4*0,25$	0.60 kN/m	
		$g_k = g_1 + g_2$	= <u>10.05</u>	<u>; kN/m</u>
W5	Internal 100 blockwork	g <sub>1</sub> = 2,4*1,40=	3.36 kN/m	
	Plasterboard both sides	g <sub>2</sub> = 2,4*0,25*2 =	1.20 kN/m	
		$g_{k} = g_{1} + g_{2}$	= <u>4.56</u>	<u>5 kN/m</u>



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	Profile	Padstone
B01	254 x 146 UB 31	440 long x 102.5 wide x 215 deep concrete padstone to each end



ightarrow Denotes proposed span direction for new warm roof timbers

#### Loadings:

B01:			
Span 5.20 m		Live	Dead
Roof 2a	6.40 / 2 * 0.60 =		1.92 kN/m

Roof 2a	6.40 / 2 * 1.50 =	4.80 kN/m

Dead Loads = 1.92 kN/m

Live Loads = 4.80 kN/m

PM Consulting Engineers LTD	Project Kader Ac	ademy, Staindro	Job no. PM24344			
1 Millenium Court, Ellerbeck Way Stokesley	Calcs for Ryan Powner			Start page no./Revision 1		
126 27	Calcs by PM	Calcs date 02/09/2024	Checked by	Checked date	Approved by	Approved date

#### STEEL BEAM ANALYSIS & DESIGN (EN1993-1-1:2005)

In accordance with EN1993-1-1:2005 incorporating Corrigenda February 2006 and April 2009 and the UK national annex



Support conditions Support A

Support B

Applied loading

Beam loads

Load combinations

Vertically restrained Rotationally free Vertically restrained Rotationally free

Permanent self weight of beam × 1 Permanent full UDL 1.92 kN/m Variable full UDL 4.8 kN/m

Support A

Support B

Permanent  $\times$  1.35 Variable  $\times$  1.50 Permanent  $\times$  1.35 Variable  $\times$  1.50 Permanent  $\times$  1.35 Variable  $\times$  1.50

TEDDS calculation version 3.0.14

	Project	Job no.					
PM Consulting Engineers LTD	Kader Aca	ademy, Staindro	PM24344				
1 Millenium Court, Ellerbeck Way Stokesley	Calcs for		Start page no./Revision				
TS9 5JZ		Ryan	Powner		2		
	Calcs by PM	Calcs date 02/09/2024	Checked by	Checked date	Approved by	Approved date	
Analysis results							
Maximum moment		Mmax = 34.5	5 kNm	Mmin =	<b>0</b> kNm		
Maximum shear		Vmax = <b>26.5</b>	kN	Vmin = •	<b>-26.5</b> kN		
Deflection		δ <sub>max</sub> = <b>4.9</b> r	nm	$\delta min = 0$	mm		
Maximum reaction at support A		RA_max = <b>26</b>	5 <b>.5</b> kN	RA_min =	= <b>26.5</b> kN		
Unfactored permanent load rea	ction at support A	A RA_Permanent	= <b>5.8</b> kN				
Unfactored variable load reaction	on at support A	$R_{A_Variable} =$	12.5 kN				
Maximum reaction at support B		RB_max = 26	5 <b>.5</b> kN	RB_min =	= <b>26.5</b> kN		
Unfactored permanent load rea	ction at support E	B RB_Permanent	= <b>5.8</b> kN				
Unfactored variable load reaction	on at support B	RB_Variable =	12.5 kN				
Section details							
Section type		UKB 254x <sup>-</sup>	146x31 (Tata \$	Steel Advance)			
Steel grade		S275					
EN 10025-2:2004 - Hot rolled	products of stru	ctural steels					
Nominal thickness of element		$t = max(t_f, t_f)$	w) = <b>8.6</b> mm				
Nominal yield strength		fy = <b>275</b> N/r	mm²				
Nominal ultimate tensile strengt	h	fu = <b>410</b> N/i	f <sub>u</sub> = <b>410</b> N/mm <sup>2</sup>				
Modulus of elasticity	19	E = <b>21000</b>	) N/mm <sup>2</sup>				
		+ +	6 				
Partial factors - Section 6 1							
Resistance of cross-sections		γM0 = <b>1.00</b>					
Resistance of members to insta	bility	γ <sub>M1</sub> = 1.00	γ <sub>M0</sub> = 1.00				
Resistance of tensile members	Resistance of tapelle members to fracture		ymr - 1.00				
		7012 - 1110					
Lateral restraint		Snan 1 had	alateral restrai	nt at sunnorte on	lv.		
					'y		
Effective length factors		1/ /					
Effective length factor in major a	Ky = <b>1.000</b>						
Effective length factor in minor a	axis	$\kappa_z = 1.000$					
Enective length factor for torsion	1	$n_{LT.A} = 1.20$	u +∠×h				
KLT.B = <b>1.200</b> + 2 × h							

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Classification of grass castion	a Castion E	F					
Classification of cross section	is - Section 5	.5 ∝ – √[235 N	l/mm² / f.] <b>– 0 0</b>	2			
		ε = v[235 k	√/////-//yj = <b>0.9</b>	2			
Internal compression parts su	bject to bend	ing - Table 5.2 (s	sheet 1 of 3)				
Width of section		c = d = 219	mm zo	01			
		$C / T_w = 39.5$	ο×ε<=72×ε	Class 1			
Outstand flanges - Table 5.2 (s	sheet 2 of 3)						
Width of section		c = (b - t <sub>w</sub> -	2 × r) / 2 = <b>62.5</b>	5 mm			
		c / t <sub>f</sub> = 7.9 >	× ε <b>&lt;= 9</b> × ε	Class 1			
					Sect	tion is class 1	
Check shear - Section 6.2.6							
Height of web		h <sub>w</sub> = h - 2 ×	tf = <b>234.2</b> mm				
Shear area factor		η = <b>1.000</b>					
		h <sub>w</sub> / t <sub>w</sub> < 72	×ε/η				
				Shear buckling	resistance ca	an be ignored	
Design shear force		V <sub>Ed</sub> = max(	abs(V <sub>max</sub> ), abs('	Vmin)) = <b>26.5</b> kN			
Shear area - cl 6.2.6(3)		$A_v = max(A_v)$	$x - 2 \times b \times t_{\rm f}$ + (t <sub>v</sub>	w + 2 × r) × t <sub>f</sub> , $\eta$ ×	hw × tw) = <b>163</b>	<b>7</b> mm <sup>2</sup>	
Design shear resistance - cl 6.2	.6(2)	$V_{c,Rd} = V_{pl,R}$	$d = A_v \times (f_y / \sqrt{3})$	]) / γмо = <b>259.9</b> kM	١		
		PAS	S - Design she	ear resistance ex	ceeds desig	n shear force	
Check bending moment major	r (y-y) axis - S	ection 6.2.5					
Design bending moment		$M_{Ed} = max($	abs(Ms1_max), al	OS(Ms1_min)) = <b>34.5</b>	5 kNm		
Design bending resistance mor	nent - eq 6.13	$M_{c,Rd} = M_{pl,l}$	$Rd = W_{pl.y} \times f_y / \gamma$	мо = <b>108.1</b> kNm			
Slenderness ratio for lateral to	orsional buck	ling					
Correction factor - Table 6.6		kc = <b>0.94</b>					
		$C_1 = 1 / k_c^2$	= 1.132				
Curvature factor		g = √[1 - (I₂	( / l <sub>y</sub> )] = <b>0.948</b>				
Poissons ratio		v = 0.3					
Shear modulus		G = E / [2 >	(1 + v)] = <b>8076</b>	<b>59 N/</b> mm²			
Unrestrained length		$L = 1.2 \times L_{2}$	s1 + 2 × h = <b>674</b>	<b>3</b> mm			
Elastic critical buckling moment		$M_{cr} = C_1 \times C_2$	$\pi^2 \times E \times I_z / (L^2)$	× g) × √[l <sub>w</sub> / l <sub>z</sub> + L²	$^{2}$ × G × It / ( $\pi^{2}$	$\times E \times I_z)] =$	
-		<b>53.7</b> kNm					
Slenderness ratio for lateral tors	ional buckling	$\overline{\lambda}_{LT} = \sqrt{W}$	$p_{J,y} \times f_y / M_{cr}) = 1$	.419			
Limiting slenderness ratio		$\overline{\lambda}$ LT,0 = <b>0.4</b>					
			$\bar{l}_{LT} > \bar{\lambda}_{LT,0} - Lat$	teral torsional bu	uckling cann	ot be ignored	
Design resistance for buckling	a - Section 6 '	8 2 1			-	_	
Buckling curve - Table 6.5	5 00011011	b					
Imperfection factor - Table 6.3		αLT = <b>0.34</b>					
Correction factor for rolled section	ons	β = <b>0.75</b>					
LTB reduction determination fac	tor	φ <sub>L</sub> τ = 0.5 ×	[ <b>1 +</b> αιτ × ( λιτ	- $\overline{\lambda}_{LT,0}$ ) + $\beta \times \overline{\lambda}_{LT,2}$	<sup>2</sup> ] = <b>1.428</b>		
I TB reduction factor - eq 6 57		$\gamma_{1T} = \min(1)$	/[m ⊤ + √(m ⊤² -	$\beta \times \overline{\lambda}_{1T^{2}}$ ] 1 1/	$\overline{\lambda}_{1}$ $\tau^{2}$ ) = 0.464		
Modification factor		$f = \min(1 - 1)$	, [ψ=, 1, (ψ=, 0.5 × (1 - k₀)× [′	1 - 2 × ( $\overline{\lambda}$ + - 0.8)	21 1) <b>– 0 993</b>		
Modified LTB reduction factor -	ea 6 58	21 T mod - mi	$n(x_1 \pm 1) = 0$	<b>467</b>	], 1) = 0.000		
Design huckling resistance mor	nent - ea 6 55		$mod \times W_{riv} \times f_{v} /$				
besign buckling resistance mon	DACC	ivio,κα = χLL,	nou ~ vvpl.y × ly/	moment exceeds	s design hen	dina moment	
	17.00	Doorgin Duokiii	.9 - 05/5/01/00 1		2 design bell	ang momont	

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#### Check vertical deflection - Section 7.2.1

Consider deflection due to variable loads

Limiting deflection

Maximum deflection span 1

 $\delta_{\text{lim}} = L_{\text{s1}} / 360 = 14.4 \text{ mm}$ 

 $\delta = max(abs(\delta_{max}), abs(\delta_{min})) = 4.931 \text{ mm}$ 

PASS - Maximum deflection does not exceed deflection limit

#### Padstone

#### COMPLIES WITH LATEST EUROPEAN DESIGN CODES

structural calculations for padstones

Beam End Reaction = 26.50 kN (factored) Factored Load at End of Beam	Variable Load Safety Factor = 1.5 Permanent Load Safety Factor = 1.35
Characteristic strength of masonry = $2.6$ Width of beam end bearing = $102.5$ mm Length of beam end bearing = $100$ mm	N/mm <sup>2</sup> (Brickwork usually = 4.5 N/mm <sup>2</sup> ) (3.6N Blockwork usually = 2.6 N/mm <sup>2</sup> ) (A Engineering Brick = 13.2 N/mm <sup>2</sup> ) (B Engineering Brick = 10.5 N/mm <sup>2</sup> ) (Weak Brickwork = approx 2.8 N/mm <sup>2</sup> ) (7.3N Blockwork usually = 4.2 N/mm <sup>2</sup> ) (10.4N Blockwork usually = 5.4 N/mm <sup>2</sup> )
γm = 3.0	
Bearing Factor = $1.25$	

Results

Maximum Bearing Stress =	1.08	N/mm <sup>2</sup>
Actual Bearing Stress =	2.59	N/mm <sup>2</sup>

Padstone Required

#### Padstone Results

Characteristic strength of Pac	dstone =	30.0 N/mm <sup>2</sup>	( A Engineering Brick = 13.2 N/mm <sup>2</sup> )
			( B Engineering Brick = 10.5 N/mm <sup>2</sup> )
Width of Padstone = 102.5	mm		( Concrete C15 = 15 N/mm <sup>2</sup> )
Length of Padstone = 440	mm		( Concrete C30 = 30 N/mm <sup>2</sup> )
			( Concrete C40 = 40 N/mm <sup>2</sup> )
		_	(Steel Plate = 275 N/mm <sup>2</sup> )
Allowable padstone stress =	12.50	N/mm²	
Stress under beam end bearing = 2.59		N/mm²	Therefore Padstone Stress OK
Allowable masonry stress =	1.08	N/mm²	
Stress under padstone =	0.59	N/mm²	Therefore Masonry Stress OK

Provide 440 long x 102.5 wide x 215 deep concrete padstone to each end

#### Flat roof and steel beam connection detail:



#### JOISTS TO STEEL BEAM CONNECTION

\* Roof finished and insulation not shown on connection detail. Please refer to architects drawing and specification.