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1. Scope of Works / Description of Systems of Plant & Equipment

CLIENT PROJECT No	**P23025**
ABS PROJECT No	**B2428**
CLIENT	**WINVIC CONSTRUCTION LTD**
PROJECT	**POYLE 80**
LOCATION	**POYLE**

SECTION 1 SCOPE OF WORKS & BRIEF DESCRIPTION

ABS Brymar floors were contracted to design & install the ground floor concrete slab for the project in Poyle

The floor slabs were cast in large bay format utilising Somero laser screed technology over a period of 4 days in July 2024.

The floor slab consists of a 175mm deep slab of well graded C32/40 concrete laid onto a 1200g polythene membrane with 150mm lapped and taped joints using 75mm proprietary tape. The slab has 1 layer of A142 mesh reinforcement throughout which is positioned 40mm from the bottom of the slab.

All areas of the slab were treated with a spray applied curing and sealing agent.

All joints within the slab have been sealed using a polysulphide sealant as part of ABS Brymar's contracted works.

The brief design statement on the as built drawings & the design calculations enclosed within this document should be consulted to ascertain the loading capacity of the slab.

The engineer's information within the O&M file should be consulted to ascertain the loading capacity of the slab.

CLIENT PROJECT No	**P23025**
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Location of items installed.

Concrete slabs are constructed from natural elements e.g.: - cement and gravel materials and as such are affected like any other natural element by volumetric changes associated with contraction and expansion due to climate and ambient temperature changes.

Your floor slabs incorporate reinforcement which consists of steel fabric reinforcement to control expansion and contraction. Reinforcement together with appropriately designed construction joints help to minimise the effects of early drying shrinkage, thermal effects and provide structural integrity to the slab to support equipment/material loads applied to the floor.

The floor slab will incorporate construction joints as follows: -.

“Contraction Joints” spaced at 40m to 50m centres formed using proprietary steel armoured joints.

“Sawn Induced Joints” approximately 3 mm wide installed at 5m to 6m centres. Sawn joints are positioned between the more widely spaced Contraction Joints as described above.

Stepped Galvanised Armoured joints were installed at the vehicular level access doorways.

The visible edges of floor joints at the surface of the slab are called “edge arrises”

CLIENT PROJECT No	**P23025**
ABS PROJECT No	**B2428**
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PROJECT	**POYLE 80**
LOCATION	**POYLE**

SITE ADDRESS

Winvic Construction Ltd
Unit 3
Pannatoni Park
Great Bank Road
Wingates Industrial Estate
Westhoughton
Bolton
BL5 3XN

ABS BRYMAR ADDRESS

ABS Brymar floors ltd

Unit 40 Drumhead road

Chorley North Ind Estate

Chorley

Lancashire

PR6 7BX

EMERGENCY INFORMATION

In the unlikely event of emergency or for any further information or clarification please contact ABS Brymar floors on Tel No 01619725000, or email General @absbrymarfloors.co.uk

2. Suppliers and Manufacturers Directory

winvic
DOING IT RIGHT.

CLIENT PROJECT No	**P23025**
ABS PROJECT No	**B2428**
CLIENT	**WINVIC CONSTRUCTION LTD**
PROJECT	**POYLE 80**
LOCATION	**POYLE**

LIST OF MATERIALS & COMPONENTS

PRODUCT /MATERIAL	SUPPLIER	WHERE USED
Concrete	Hanson	Whole Slab Area
Mesh Reinforcement	BRC Ltd	Within all Areas of Slab
Armoured Joints	Permaban (RCR)	Day Joints / Roller Shutter Doorways
Under Slab Membrane	Miers	Beneath all Areas of Floor Slab
Curing Agent	PICS HATCRETE	All Areas of Floor Slab
Joint Sealant	Phoenix Sealants	Sawn Joints and Columns

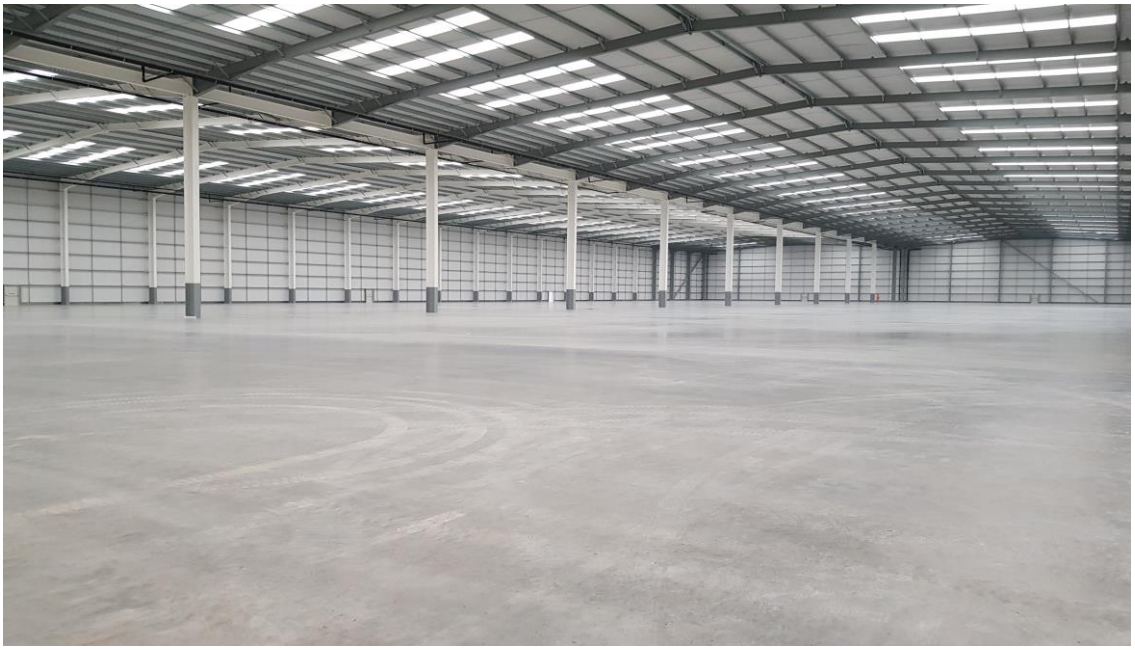
CLIENT PROJECT No **P23025**
ABS PROJECT No **B2428**
CLIENT **WINVIC CONSTRUCTION LTD**
PROJECT **POYLE 80**
LOCATION **POYLE**

LIST OF SUPPLIERS & SUB- CONTRACTORS

Name	Address	Tel & Fax Nos	Work Done/Products Supplied
Hanson	Local Plant	Tel: 0330 1233530	Concrete
BRC Reinforcement	Station Road, Sutton-In-Ashfield, NG17 5FY	Tel: 01623 555111 Email: sales@midlands.brc.ltd.uk	Mesh Reinforcement
Permaban (RCR)	Mill Close, Lee Mill Industrial Estate, Ivybridge, Devon, PL21	Tel: 01752 895288 Email: info@permaban.com	Armoured Joints
Miers	Unit 2, Central Trading Est, Bewsey Road, Warrington, WA2 7LP	Tel: 01925 202128 Email: sales@miersconstructionproducts.co.uk	Underslab Membrane
PICS HATCRETE	Unit 2, Red Shute Hill Industrial Estate, Newbury, RG18 9QL	Tel: 01635 202224 Email: sales@picsuk.com	Curing Agent
Phoenix Sealants	Forge Trading Estate, Halesowen B63 4DH	Tel 01384 566882	Joint Sealant

3. Manufacturers Information

DOCUMENT REF	00001
ABS PROJECT NO	B2428
CLIENT	WINVIC CONSTRUCTION LTD
PROJECT	POYLE 80
LOCATION	POYLE



Concrete and Mortar
Health and Safety Datasheet

Hazard Information

1 COMPOSITION

Concrete:

Mixture of natural aggregates, cement and water. Other ingredients may include admixtures, Pulverised Fuel Ash (PFA) and Ground Granulated Blast-furnace Slag (GGBS). Such additions are made to alter/improve the working characteristics of the material or to affect/enhance its properties once hardened

Mortar:

Mixture of natural aggregates, cement and water. Admixtures, hydrated lime and/or pigments may be added

2 HAZARDS IDENTIFICATION

Wet Concrete/mortar

Contact with eyes may cause irritation or, in severe cases, alkali burns

Skin contact may provoke allergic contact dermatitis in those sensitised to chromium compounds which occur in cement

Prolonged skin contact may result in irritant contact dermatitis and/or ulceration

Prolonged skin contact may cause sensitisation to chromium compounds

Dry concrete/mortar dust

Inhalation of silica particles in dust created by cutting or surface treatment of hardened concrete containing high silica aggregates (e.g. flint, quartzite, granite) may cause respiratory damage.

Emergency Action

3 FIRST AID MEASURES

Wet concrete/mortar

Eye Contact: Irrigate eye(s) immediately with clean water for at least 10 minutes. Seek immediate medical attention.

Skin Contact: Wash thoroughly with clean water as soon as contamination occurs.

NOTE: Skin contact Includes indirect contact through saturated clothing which should be changed.

Any concrete/mortar which gets into boots or Wellingtons (either through holes or over the tops of them) should be dealt with immediately by removing boots/wellingtons, socks, trouser etc. thoroughly washing off the affected areas with clean water **DO NOT** replace any boots or clothing which have concrete/mortar residue either in or on them. The feet and legs are very sensitive to Alkali burns. Therefore these procedures must be adhered to.

Dry concrete/mortar dust

Eye contact: Irrigate eye(s) immediately with clean water. Seek medical attention

Skin contact: Wash with clean water.

NOTE: Skin contact includes indirect contact through saturated clothing which should be changed

Inhalation/ingestion: Remove patient to fresh air

4 FIRE FIGHTING MEASURE

None needed:

Materials do not support combustion

5 ACCIDENTAL RELEASE MEASURES

Personal protection

Avoid contact with skin and eyes

Wear impervious protective clothing Note: (see under section 7 EXPOSURE CONTROLS/PERSONAL PROTECTION)

Environmental measures

Prevent from entering drains, sewers or water courses

Method of cleaning

Recover bulk spillage, without delay and while material is still in non-hardened (plastic) state, using suction system or mechanical shovel

Precautions

6 HANDLING & STORAGE

Wet concrete/mortar

Avoid direct skin and eye contact with set concrete/mortar

Do not kneel or sit on wet concrete/mortar

Exercise care adjacent to deep sections of newly-placed concrete which is still fluid/plastic

Note: For personal protection, also see section 7

Dry concrete/mortar dust

Minimise dust creation wherever possible

Note: For personal protection, also see section 7

7 EXPOSURE CONTROLS/PERSONAL PROTECTION

Wet concrete/mortar

Hand protection: impervious gloves

Eye protection: suitable protection is advisable where there is risk of accidental exposure/splashing

Skin protection: long sleeved clothing, full-length trousers, and impervious boots. Also kneepads, if kneeling down to provide a surface finish.

Dry concrete/mortar dust

NOTE: Occupational Exposure Standards (OES) or Maximum Exposure Limits (MEL) for inhalable and respirable dusts are set by the Health & Safety Commision.

These are published annually in HSE Guidance Note EH40. The following limits (8 hour time-weighted averages) are given in EH40/99:

8 Hour TWA

Total inhalable dust: 10mg/cubic metre OES

Respirable dust: 4mg/cubic metres OES

Respirable crystalline silica: 0.3mg/cubic metre MEL

Engineering control measure: containment and local exhaust ventilation where airborne dust exposure is likely to reach exposure limits

Respiratory protection: suitable respiratory protective equipment to HSE approved standard if engineering control measures are insufficient

Hand protection: anti-dust goggles to approved HSE standard

Product Information

9 PHYSICAL & CHEMICAL PROPERTIES

Detailed properties vary according to:

The specific mix, and

The ingredients added to affect the working characteristic of the material

All mixes are:

Abrasive Alkaline (typically pH10-14)

10 STABILITY & REACTIVITY

Not applicable

11 TOXICOLOGICAL INFORMATION

Wet concrete/mortar

Eye contact: may cause irritation or, in sever cases alkali burns

Skin contact: (short-term exposure) may cause alkali burns; may cause acute allergic dermatitis in people sensitised to chromium compounds

Dry concrete/mortar dust

Eye contact: may cause transient irritation

Skin contact: (brief/occasional) no harm likely

Inhalation: inhalation of large quantities of dust or dust containing respirable silica (generated by cutting, drilling etc.) may cause progressive lung damage, leading to permanent disability and, in extreme cases, to premature death

Ingestion: no harm likely

12 ECOLOGICAL INFORMATION

No date is available on the preparation themselves. When used as intended, no environmental impact is anticipated.

If spillage occurs, do not allow material to enter drains, sewers or water courses.

Waste Disposal

13 DISPOSAL CONSIDERATIONS

Not hazardous. However, disposal subject to local authority current requirements and regulations.

Additional Information

14 TRANSPORT INFORMATION

Not hazardous: no vehicle labelling required.

15 REGULATORY INFORMATION

Chemicals (Hazard Information and Packaging for Supply) Regulations 1997

Danger Classification: IRRITANT (+ hazard symbol)

R38: Irritating to the skin

R41: Risk of serious damage to the eyes

R43: May cause sensitisation by skin contact

S24: Avoid contact with skin

S25: Avoid contact with eyes

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

Other statutory provisions

Health & Safety at Work etc. Act 1974

Consumer Protection Act 1987

Control of Substances Hazardous to Health Regulations (COSHH) 1994

Construction (Design & Management) Regulations 1995

Environmental Protection Act 1990

IMPORTANT NOTES:

The information contained in this Safety Data Sheet does NOT constitute the user's own assessment of workplace risk as required by other safety legislation. If purchasing on behalf of a third party who will work with the material, it is your statutory duty to pass on this information to them BEFORE such work begins.

16 OTHER INFORMATION

Data and advice in this Safety Data Sheet is provided to alert all purchasers and users to possible hazards of use when the material is used as intended. This information should enable them to take necessary precautions to protect the health and safety of all personnel.

Guidance references

Available from HMSO, HSE are offices, or local authority Environmental Health Department:

EH40: Occupation Exposure Limits

A Step by Step Guide to COSHH (HS[G]97)

BAR & FABRIC REINFORCEMENTS

Fabric Reinforcement

Fabric is manufactured to BS4483, from cold reduced wire which complies with BS4482. Ribbed wire classified as Type 2 and recognised in BS8110 as having improved bond characteristics, is available as standard material. Each wire intersection is resistance welded using electronically controlled techniques.

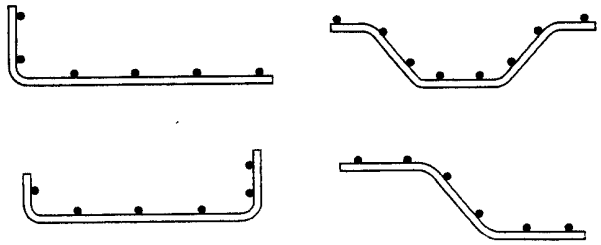
- Standard Sheets are 4.8 x 2.4m. (Also available 3.6 x 2.0m merchant size sheets - see below).
- Standard and merchant size sheets are available ex stock.
- When ordering non-standard sheets, the main wire length should be the first dimension stated.

BS Reference	Mesh Size Nominal Pitch of Wires		Wire Sizes		Cross Sectional Area per Metre Width		Nominal Weight per m^2 (kg)	Sheets per Tonne (approx)	Sheet Weight (kg)	Sheets per Bundle	Sq Metres per Tonne
	Main (mm)	Cross (mm)	Main (mm)	Cross (mm)	Main (mm)	Cross (mm)					
STANDARD SIZES (4.800 x 2.400)											
A393	200	200	10	10	393	393	6.16	15	70.96	18	162.34
A252	200	200	8	8	252	252	3.95	22	45.50	28	253.16
A193	200	200	7	7	193	193	3.02	29	34.79	34	331.13
A142	200	200	6	6	142	142	2.22	40	25.57	46	450.45
A98	200	200	5	5	98	98	1.54	57	17.74	60	649.35
B1131	100	200	12	8	1131	252	10.90	8	125.57	10	91.74
B785	100	200	10	8	785	252	8.14	11	93.57	14	122.85
B503	100	200	8	8	503	252	5.93	15	68.31	18	168.63
B385	100	200	7	7	385	193	4.53	20	52.19	24	220.75
B283	100	200	6	7	283	193	3.73	24	42.97	30	268.10
B196	100	200	5	7	196	193	3.05	29	35.14	36	327.87
C785	100	400	10	6	785	70.8	6.72	13	77.41	16	148.81
C636	100	400	9	6	636	70.8	5.55	16	63.94	20	180.18
C503	100	400	8	5	503	49.0	4.34	20	50.00	26	230.41
C385	100	400	7	5	385	49.0	3.41	26	39.28	30	293.26
C283	100	400	6	5	283	49.0	2.61	34	30.07	32	383.14
D98	200	200	5	5	98.0	98.0	1.54	57	17.74	60	649.35
D49	100	100	2.5	2.5	49.1	49.1	0.77	113	8.87	50	1298.70
MERCHANT SIZES (3.600 x 2.000)											
A393	200	200	10	10	393	393	6.16	23	44.35	26	162.34
A252	200	200	8	8	252	252	3.95	35	28.44	30	253.16
A193	200	200	7	7	193	193	3.02	46	21.74	50	331.13
A142	200	200	6	6	142	142	2.22	63	15.98	50	450.45

Cut & Bent Fabric

We can supply Fabric Radius or Bent in accordance with BS8666/BS4466. Either in standard sheets or special cut to size sheets.

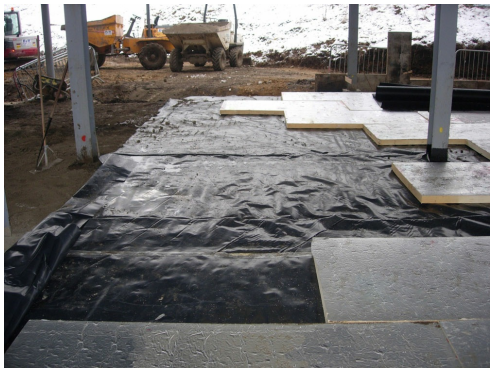
When specifying, shapes must relate to BS8666/BS4466 shape codes, or a fully dimensioned sketch indicating the direction of bending relating to transverse or longitudinal wires.

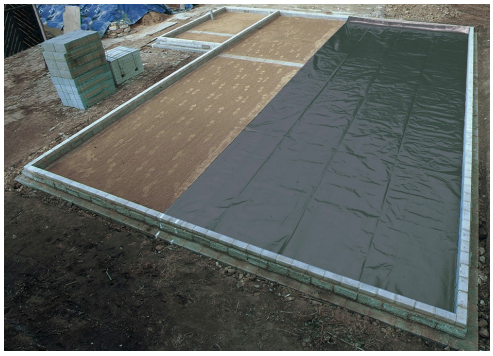


For all bent fabric reinforcement.

The bending dimensions must avoid welded transverse wires occurring within four diameters of the start of a bend.

Ecomembrane
CE Mark to EN 13967





- **Accredited by the British Board of Agrément (BBA: 94/3009)**
- **Manufactured using 100% recycled polythene**
- **Visqueen's low cost Eco entry level brand**
- **Suitable for use below concrete floors in accordance with clause 11 of CP 102:1973**

Description
Visqueen EcoMembrane® is manufactured from 100% recycled polyethylene suitable for use as a Type “A” damp proof membrane as defined by BS EN 13967: 2012. It is black or blue in colour, available in 250µm, 300µm and 500µm thicknesses and in convenient multi folded rolls.

Applications and use
Visqueen EcoMembrane® DPM is suitable for use below concrete floors in accordance with clause 11 of CP 102:1973, where there may be capillary rise of moisture but not where it may be subject to hydrostatic pressure. In such a circumstance, Visqueen Tanking Membranes should be used. Where there is a risk that the ground may be waterlogged, sub-soil drainage in accordance with CP 102 and BS 8102 should be provided.

For jointing adjacent sheets of Visqueen DPM, DPM to DPC and DPC to DPC, Visqueen Jointing System should be used. To complete the approved system use the following components when installing the membrane:

- VisqueenPro Double Sided Jointing Tape
- VisqueenPro Single Sided Jointing Tape
- Visqueen TreadGUARD1500
- Visqueen Zedex CPT DPC
- Visqueen Top Hat Units

IMPORTANT
Based on BBA, BRE and CIRIA guidelines, Visqueen Building Products recommend the use of special gas protection membranes (rather than traditional polythene DPMs) as suitable protection against ground gases. On brownfield sites or where there is ground contamination please seek further advice from Visqueen Building Products .

For high-rise buildings and commercial heavy duty RC slabs please use Visqueen High Performance 500 um centre-folded DPM in conjunction with Visqueen TreadGUARD as a cost-effective solution. Typical building examples of this use would be schools, hospitals, leisure and shopping centres.

Installation
When used in accordance with the BBA certificate and the relevant clauses of CP102: 1973 in concrete floors not subject to hydrostatic pressure, Visqueen Damp Proof Membranes form an effective barrier to the passage of moisture from the ground. The DPM must be continuous with the DPC in the surrounding walls.

The membrane should be installed on a compacted sand blinding layer or smooth concrete float finish. The DPM must be covered by Visqueen TreadGUARD1500 or rigid under slab insulation as soon as possible after installation. Care should be taken to ensure that the membrane is not stretched or displaced when placing the concrete or screed over the membrane.

Jointing Procedures

- Always ensure that the membrane is clean, dust free and dry at the time of jointing
- Adjacent sheets must be overlapped by a minimum of 150mm
- Bond together using Visqueen PRO Double Sided Jointing Tape
- The joint should then be sealed using Visqueen PRO Single Sided Jointing Tape.

Where the sheets have been perforated they should be patched with sheets of identical thickness lapped at least 150mm beyond the limits of the puncture and bonded with Visqueen PRO Double Sided Jointing Tape and sealed with Visqueen PRO Single Sided Jointing Tape.

Service Pipe Penetrations
Please use Visqueen Top Hat Pipe Cloaks for any service pipe penetrations. The base of the Visqueen Top Hat Units should be sealed using Visqueen Double Sided PRO Jointing Tape and Visqueen PRO Single Sided Jointing Tape.

Storage and Handling
Visqueen Ecomembrane is classified as non-hazardous when used in accordance with the relevant Code of Practice (CP 102:1973). The product is chemically inert and is not affected by acids and alkalis that may be present in the sub-soils.

The material is not recommended for uses where it will be exposed to long periods of outdoor weathering as exposure to ultraviolet light will embrittle the product. When a Vapour Control Layer is required please refer to Visqueen's Vapour barrier range. We do NOT recommend Ecomembrane for this use.

Weathering will not occur when the membrane is installed in accordance with CP102 1973.Care should be taken to avoid accidental damage when handling the membrane on site.

Visqueen PRO Double Sided Jointing Tape and Visqueen PRO Single Sided Jointing Tape should be kept in a warm, dry place until needed.

Installation is not recommended below 5°C.

Technical Data and CE Mark

Visqueen Ecomembrane complies with the requirements and clauses of EN 13967 - Flexible sheets for waterproofing.

British Board of Agrement performed the initial inspection of the manufacturing plant and of factory production control and the continuous surveillance, assessment and evaluation of factory production control, and issued the certificate of constancy of conformity of the factory production control. 0836–CPD – 13/F029 applies.

DATASHEET

Technical Support: 0333 202 6800
LAST UPDATED: 24.05.2018

VISQUEEN ECOMEMBRANE 100% RECYCLED

Ecomembrane

CE Mark to EN 13967

Product Data

Product Data

heading	Characteristic	Test method	Units	Compliance criteria	0.25	0.3mm	0.5mm
	Visible defects	EN 1850 -2	-	Pass/Fail	Pass	Pass	Pass
	Length	EN 1848-2	m	-0%/+10%	25	25	12.5
	Width	EN 1848-2	m	-2.5%/+2.5%	4	4	4
	Straightness	EN 1848-2	-	Pass/Fail	Pass	Pass	Pass
	Tensile Strength - MD	EN EN12311		>MLV	13	13	15
	Tensile Strength - CD	EN EN12311		>MLV	13	13	15
	Tensile Elongation - MD	EN EN12311	%	>MLV	300	300	300
	Tensile Elongation - CD	EN EN12311	%	>MLV	300	300	300
	Joint Strength	EN12317-2	N	>MLV	136	169	256
	Watertightness 2kPa	EN 1928	-	Pass/Fail	Pass	Pass	Pass
	Resistance to impact	EN 12691	mm	>MLV	150	150	200
	Durability (artificial ageing)	EN 1296 and EN 1928	-	Pass/Fail	Pass	Pass	Pass
	Durability Chemical Resistance	EN 1847	-	Pass/Fail	Pass	Pass	Pass
	Resistance to tearing (nail shank)	EN 12310-1	N	MDV	165	205	310
	Resistance to tearing (nail shank)	EN 12310-1	N	MDV	170	250	310
	Resistance to static loading	EN 12730	Kg	>MLV	Pass -20	Pass -20	Pass -20
	Water vapour transmission - resistance	EN 1931	MNs/g	MDV	586	682	1390
	Water vapour transmission - permeability	EN 1931		MDV	0.36	0.32	0.16
	Reaction to Fire	EN 13501-1	Class	MDV	F	F	F

DATASHEET

Technical Support: 0333 202 6800
LAST UPDATED: 24.05.2018

VISQUEEN ECOMEMBRANE 100% RECYCLED

Appendix A

Ecomembrane
CE Mark to EN 13967

About Visqueen

Visqueen is the market leader in the manufacture and supply of structural waterproofing and gas protection systems. Visqueen offers the complete package – a proven, reliable range backed by a technical support service that goes unmatched in the market - everything you would expect from a reputable and ethical company.

Complete Range, Complete Solution

- Structural Waterproofing
- Damp Proof Course
- Damp Proof Membranes
- Gas Protection and Gas Venting
- Vapour Control Layers
- Stormwater Protection

Download Library

- Technical Datasheet
- Standard Details
- Technical Service
- Visqueen Gas Protection Brochure
- NBS Clauses
- BBA Certificates
- Material Safety Datasheets
- Specification Guide

Find your local stockist

Search our directory of Visqueen specification Specialist Centres to locate your nearest Visqueen Partner.

Technical support throughout your project

We are specialists in our field and can help you specify the correct solutions with the necessary performance levels, in accordance with building regulations.

- Nationwide site support team
- Specification advice
- Installation guidance & project sign off
- System design including CAD details

CPD Seminars and Training Academy

Gas Protection CPD
The specification, technical design, and installation of gas protection systems, enabling the sustainable regeneration of brownfield sites.

Structural Waterproofing CPD
The specification, technical design, and installation of structural waterproofing systems for protection against water and damp ingress in both above and below ground projects.

Visqueen Training Academy
We are now able to offer exclusive in depth training opportunities on a wide variety of Visqueen products at our Training Academy.

Visqueen Special Projects
We provide high-level expertise, comprehensive support and experience in all types of waterproofing and gas protection.

VISQUEEN
Part of RPC bpi group
Heanor Gate Road, Heanor, Derbyshire, DE75 7RG
0333 202 6800 enquiries@visqueen.com www.visqueen.com

Technical Data – PICS Water Based Curing and Sealing Solution

(90.41) E (G)

PRODUCT DESCRIPTION

PICS Water Based Curing and Sealing Solution is a water based acrylic emulsion.

PURPOSE

PICS Water Based Curing and Sealing Solution can be applied to aid curing of freshly laid concrete or can be used to seal existing concrete surfaces.

SPECIAL PROPERTIES

As a curing agent:

- Aids curing of fresh concrete
- Slows surface drying
- Reduces chances of plastic cracking
- Can be used on colour hardened concrete floors
- Suitable for interior or exterior use
- 84% curing efficiency
- Conforms with ASTM C-309 and ASTM C-156

As a sealer:

- Improves abrasion resistance
- Enhances colour and aesthetics
- UV light and weather resistant
- Inhibits moss or algae growth
- Resists staining
- Suitable for interior or exterior use

APPLICATION INSTRUCTIONS

Mix well, or shake container thoroughly before use.

As a curing agent: As soon as final finish is completed and the concrete surface is free of any bleed water, the product should be applied by sprayer as soon as the surface has gained sufficient strength to withstand spray application without damage.

The product must be applied at a MINIMUM of 5m²/ litre in one or two applications. Allow first coat to dry tack free prior to applying second coat (if required). Application rates may increase due to surface porosity, surface profile and uniformity of application.

As a sealer: Existing concrete surfaces should be clean, dry and free of any surface laitance.

When used outside, the product must be applied when there is no chance of rain before the product has fully dried. Concrete should not be sealed below 10°C or above 30°C.

Drying times will vary, depending on temperature, humidity and air flow, however as a guide, the film will be tack free within 2 hours at 20°C. Foot traffic may be permitted after 12 hours and vehicular traffic after a minimum of 24 hours at 20°C.

Treated floors which are suitably cleaned and / or prepared can be compatible with future waterbased or solvent based coatings. Always apply a small test area prior to recoating or subsequent applications. Contact PICS technical department if in doubt.

PACKAGING

25 and 200 litre metal drums

STORAGE

Store at minimum 5°C. Do not allow to freeze.

CURING EFFICIENCY

Independently tested to BS7542:1992 guidelines with colour hardener added and trowelled into the surface and final finish trowelled to replicate on site conditions. After 72 hours in the drying cabinet, in the sprayed specimen 84% of the moisture in the mortar that was available to evaporate had been retained.

SPECIFICATION CLAUSE

"*Freshly laid concrete, which has received its final finish shall be treated with **PICS Water Based Curing and Sealing Solution** from PICS (Tel 01635 202224) to aid curing of the finished slab. All materials should comply to ISO9001 for Quality Assurance. All work should be carried out in conjunction with the manufacturer's current technical data sheet and instructions for use*".

HEALTH AND SAFETY

PICS Water Based Curing and Sealing Solution is non-toxic and non-flammable. The solution can normally be applied without a vapour mask or safety glasses. Avoid contact with skin and eyes. Flush affected areas with water. Do not take internally. Refer to Health & Safety Data Sheet for further information.

TECHNICAL SERVICES

For further information, call our technical dept. on:-

☎ UK (01635) 202224

☎ International +44(0) 1635 202224

e-mail info@picsuk.com
Web Site www.picsuk.com

14-10-2016

Manufactured by:
PATTERN IMPRINTED CONCRETE SUPPLIES LIMITED
Unit 2, Red Shute Hill Ind. Est., Hermitage,
Nr Newbury, Berkshire, RG18 9QL, United Kingdom
www.picsuk.com
info@picsuk.com

www.rcrflooringproducts.com
RCR Flooring Products Limited
Mill Close, Lee Mill Industrial Estate, Ivybridge, Devon, PL21 9GL
t: +44 1752 895288 | f: +44 1752 395800 | e: info@rcrflooringproducts.com

permaban®

AlphaJoint® Classic 4010

Specification Sheet
Issue 6.1
01/03/2021

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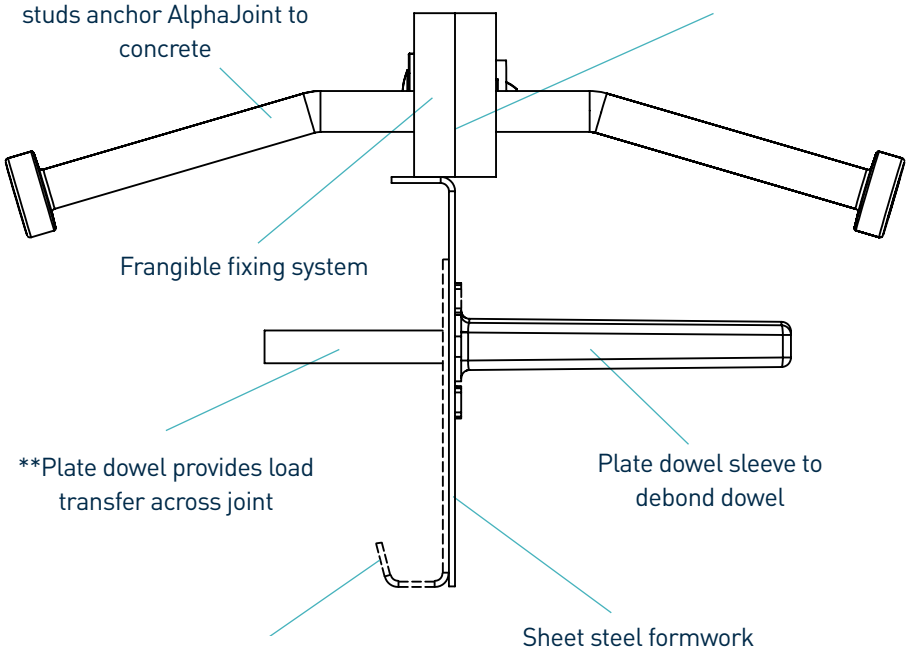

*Also available in electro-galvanised steel and stainless steel
**Dowels available in thicknesses of 6mm, 8mm and 10mm

AlphaJoint® Classic 4010

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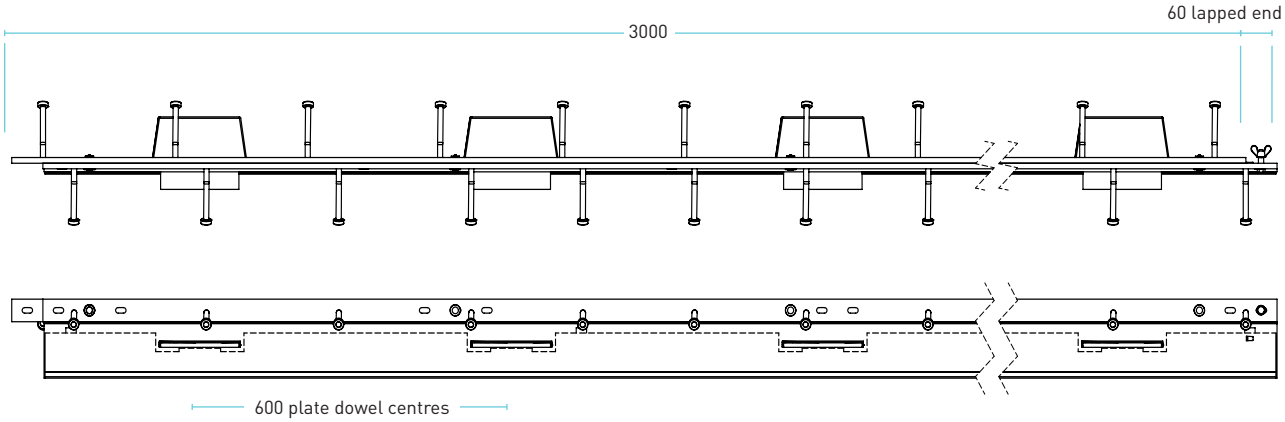
manufacturing tolerances

Length	±2.0mm	**Height**	±1mm	**Straightness**	±0.5mm/600mm

dimensions of AlphaJoint® Classic 4010



dimensions in mm

dimensions and weight of AlphaJoint® Classic 4010

Nominal Slab Depth (mm)	Joint Height, h (mm)	Dowel Size (mm)	Dowel Centres (mm)	Length (mm)	Single Joint Weight (kg)	Number Per Bundle	Bundle Weight (kg)
150 - 200	140 - 190	151 x 120 x 8	600	3000	33.0	42	1485.0
220	200				35.0	35	1451.0
240	225				36.0	35	1493.4

Typical height and length values shown only. Weight values shown are based on AlphaJoint® Classic 4010 including TD8 dowels and are approximate.

materials

Component	Material
Joint arris armouring (4010)	EN 10277-1:2018 S235JRC
Sheet steel formwork	BS EN 1030:2006 DC01
Shear stud	EN ISO 13918 :2017 S235J2
Plate dowel	BS EN 10025-2:2004 S275JRG2
Plate dowel sleeve	HDPP

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theoretical calculated ultimate loads at failure of dowel or concrete

(For typical slabs, 40N/mm2 concrete and 20mm joint opening)

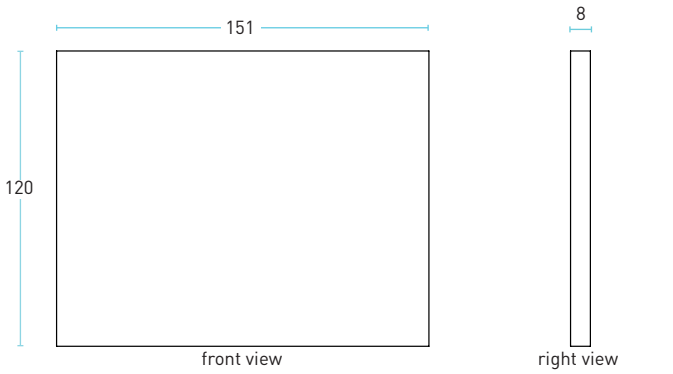
		Unreinforced Slab	
Slab Depth (mm)	**Dowel Type**	**Bursting (kN/m)**	**Bending (kN/m)**
Universal Divider Plate to Suit 150 - 200	TD6	35.7	53.4
	TD8	35.7	87.2
	TD10	35.7	124.7
225	TD6	60.7	53.4
	TD8	60.7	87.2
	TD10	60.7	124.7
250	TD6	72.4	53.4
	TD8	72.4	87.2
	TD10	72.4	124.7

Ultimate load (kN/m)

This table shows the load at failure in bursting (failure of the concrete) and bending (failure of the dowel) for a joint opening of 20mm - larger joint openings can be accommodated. The ultimate load has been calculated in accordance with TR34 4th Edition. Dowel positions taken at mid depth of slab. For more detailed analysis please contact RCR Flooring Products Ltd.

*All design calculations should be verified by a suitably qualified structual engineer.

compatible dowel systems



4. As Built Drawings

3.1.8 AB PDF Warehouse Concrete Floor

3.1.8 AB DWG Warehouse Concrete Floor

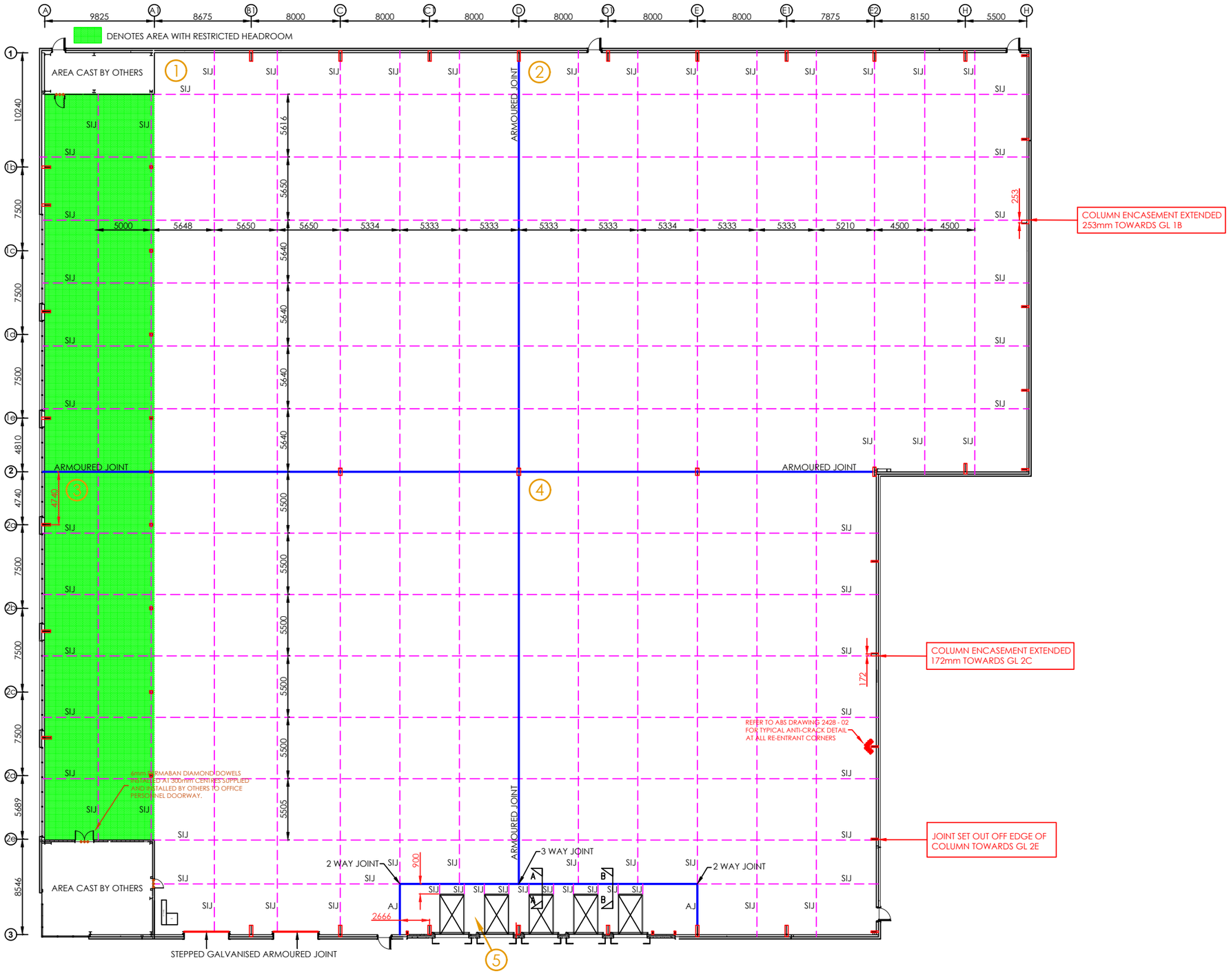
3.1 AS-BUILT DRAWINGS

Please note that all drawings below are hyperlinked to the drawings listed in the below register. Please click on the drawing title to go directly to the drawing you wish to view.

Drawing Register: ABS Brymar

WAREHOUSE CONCRETE FLOOR

DRAWING NUMBER	DRAWING TITLE	REV
P23025-ABS-XX-XX-DR-X-0001	Proposed Joint Layout	AB1
P23025-ABS-XX-XX-DR-X-0002	Typical Details	AB1



SLAB SPECIFICATION

175mm THICK INTERNAL CONCRETE SLAB

C40 WELL GRADED CONCRETE

1 LAYER OF A142 MESH FABRIC WITH 400mm LAPS (MIN 300mm) PLACED ONTO 40mm SHAKE SPACERS AT 800mm CENTRES AS WORK PROCEEDS

LAID ONTO ONE LAYER OF 1200g POLYTHENE WITH 150mm LAPPED AND TAPED JOINTS

SURFACE TO RECEIVE A POWER FLOAT FINISH

1 COAT OF SPRAY APPLIED COMBINED CURE AND SURFACE SEALER

LAID UTILISING LASER SCREED

TOLERANCE TR34 (2013) FM2 PROPERTIES E & F

SLAB DESIGN

THE SLAB CONSTRUCTION INDICATED ON THIS DRAWING FOR THE WAREHOUSING AREA HAS BEEN BASED UPON THE FOLLOWING DESIGN CRITERIA:-

- UNIFORMLY DISTRIBUTED LOAD – 50kN/M²

OR

- INDIVIDUAL RACK LEG LOAD OF 70kN
- TAKEN IN A BACK TO BACK CONFIGURATION AT 300mm CENTRES.
- MINIMUM SIZE BASE PLATES OF 100 x 100mm.
- CENTRE LINE OF RACKING BASE PLATE POSITIONED A MINIMUM DISTANCE OF 150MM AWAY FROM ANY JOINT.
- EDGE OF BASE PLATE POSITIONED A MINIMUM DISTANCE OF 250mm FROM SLAB EDGE.

THE MAXIMUM INDIVIDUAL MHE WHEEL LOAD ACTING IN COMBINATION WITH A SINGLE RACK LEG LOAD (AISLE SIDE) MUST NOT EXCEED 40kN

THE SLAB AS DESIGNED WILL SUSTAIN A LINE LOAD CAPACITY DIRECTLY ADJACENT A FLOOR JOINT OF 25kN/M. WHERE LINE LOADS EXCEED THIS VALUE UNDERSLAB THICKENINGS MAY BE REQUIRED AND SHALL BE DESIGNED AND INSTALLED BY OTHERS PRIOR TO SLAB WORKS COMMENCING.

THE DESIGN DETAILS INDICATED ON THIS DRAWING FORM THE BASIS OF THE DESIGN PROPOSALS FOR THE SPECIFIED MAGNITUDE OF LOADING WHICH ADOPTS A MINIMUM VALUE FOR THE MODULUS OF SUB GRADE REACTION ('K-VALUE') OF 0.054 N/mm3. THIS VALUE WILL REQUIRE TO BE CONFIRMED IN WRITING BY THE MAIN CONTRACTOR BY PLATE LOADING TESTS MEASURED AT A FIXED SETTLEMENT OF 1.25 MM CARRIED OUT (BY OTHERS) IN ADVANCE OF THE REGULATING LAYER BEING PLACED TO ALLOW CONFIRMATION THAT THE SLAB DESIGN/ THICKNESS IS CORRECT.

THE REQUIREMENT FOR ANY UNDERSLAB INSULATION (DESIGNED, SUPPLIED AND INSTALLED BY OTHERS) SHALL BE BASED UPON ACHIEVING AN EQUIVALENT SUB GRADE REACTION AS NOTED ABOVE.

ALLOWANCE HAS BEEN TAKEN FOR WHEEL LOADING ASSOCIATED WITH STANDARD UK HEAVY GOODS VEHICLES DRIVING ON THE SLAB.

LOADING CONDITIONS WITHIN THE DESIGN ARE NOT CONCURRENT BUT ARE ASSUMED TO ACT SEPARATELY UNLESS NOTED OTHERWISE.

REFER TO SEPARATE CALCULATIONS PREPARED BY "KONTRAD LLP – INDUSTRIAL FLOORING CONSULTANTS" FOR FULL DETAILS OF SLAB DESIGN

REFERENCE SHALL ALSO BE MADE TO THE "OPERATION AND MAINTENANCE DOCUMENT" WHICH PROVIDES GUIDANCE ON CLEANING AND ROUTINE INSPECTIONS TO BE CARRIED OUT BY THE END USER.

GENERAL NOTES

- PRIOR TO PLACING CONCRETE, ALL ROOF AND WALL SHEETING SHALL BE COMPLETED WHERE PRACTICAL TO PROVIDE PROTECTION FROM THE SUN, WIND AND RAIN. LOADING DOORS SHALL BE FIXED IN PLACED AND OPENINGS SHEETED.
- THE JOINTS ARE TO BE INITIALLY SEALED USING A SEALANT WITH A SHORE "A" HARDNESS IN THE RANGE OF 30–50 & M.A.F IN THE RANGE OF 25%–35%, INSTALLED BY OTHERS (UNLESS NOTED OTHERWISE). THE SEALANT IS DESIGNED TO BE A TEMPORARY APPLICATION AND THE INSPECTION AND MAINTENANCE OF SAID SEALANT IS THE RESPONSIBILITY OF THE TENANT / BUILDING USER. ALL INSPECTION, MAINTENANCE AND CLEANING OPERATIONS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS OF CHAPTER 13, TR34 4TH EDITION 2013. SEALING JOINTS SHOULD BE LEFT AS LATE IN THE CONSTRUCTION PROCESS AS POSSIBLE.
- SPACING BETWEEN FIXINGS INTO THE SLAB AND ANY SAWN OR FORMED JOINT IS TO BE A MINIMUM 5 X HOLE DIAMETER WITH AN EMBEDMENT THAT DOES NOT EXCEED 2/3 SLAB DEPTH.
- THE SLAB CAN BE USED BY LIGHT TRAFFIC 7 DAYS AFTER IT IS POURED. THE LOADS SHALL NOT EXCEED 30% OF THE DESIGN CAPACITY. THE FLOOR SHALL NOT BE LOADED TO ITS FULL DESIGN CAPACITY BEFORE 28 DAYS HAVE PASSED SINCE POURING.
- AREA NUMBERS DO NOT REPRESENT POUR SEQUENCE BUT ARE FOR IDENTIFICATION PURPOSES ONLY.
- SAWN INDUCED JOINTS AND ISOLATION JOINTS ONLY TO BE INITIALLY SEALED USING ARBOMERIC MP20. ARMOURED JOINTS TO BE SEALED BY OTHERS.
- THE EXACT POSITION OF SHUTTERING/JOINTS AT DOORWAYS IS TO BE CONFIRMED ON SITE BY MAIN CONTRACTORS SITE ENGINEER TO SUIT THE VARIOUS DOOR TYPES & FIXING REQUIREMENTS
- IT IS THE MAIN CONTRACTORS RESPONSIBILITY TO ENSURE THAT 'DOCK LEVELLERS' ARE FULLY SHUTTERED AND/OR SEALED TO PREVENT CONCRETE INFILL OR GROUT LOSS DROPPING INTO THE PIT BELOW DURING SLAB PLACEMENT. ABS BRYMAR ARE UNABLE TO ACCEPT ANY RESPONSIBILITY FOR LEAKAGES INTO THE PIT.
- IN ACCORDANCE WITH CS–TR34 CLAUSE 11.10. ABS BRYMAR FLOORS DO NOT RECOMMENDED THE USE OF PORTAL TIE BARS TO RESIST HORIZONTAL FORCES WHICH MAY INDUCE SLAB RESTRAINT AND COULD RESULT IN SIGNIFICANT CRACKING.
- THE JOINT LAYOUT SHOWN ON THIS DRAWING HAS NOT BEEN CO–ORDINATED WITH ANY RACKING. SHOULD A RACKING LAYOUT BE MADE AVAILABLE PRIOR TO CASTING THE FLOOR SLAB THE JOINT POSITIONS CAN BE ADJUSTED TO SUIT UPON RECEIPT OF THE FINALISED RACK LAYOUT.
- REFER TO ABS DRAWING 2428–02 FOR TYPICAL DETAILS

REV	DATE	DESCRIPTION
AB1	05.09.2024	AS BUILT STATUS.
C02	25.06.2024	JOINT LAYOUT UPDATED.
C01	14.06.2024	LV PIT ADDED ON PLAN AND SECTION DETAIL SLAB SPECIFICATION UPDATED JOINT SEALANT INFORMATION UPDATED
P02.	30.05.2024.	GENERAL UPDATES.
P01.	20.05.2024	PRELIMINARY ISSUE

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PLEASE NOTE:- THIS DRAWING WILL BE DEEMED ACCEPTABLE FOR CONSTRUCTION BY THE MAIN CONTRACTOR/CLIENT IF NO COMMENTS TO THE CONTRARY ARE RECEIVED PRIOR TO COMMENCEMENT ON SITE.

AS BUILT

DRAWN	DATE	SCALE	ABS DRAWING NO.	REV
SP	05.09.2024	DNS	2428-01	AB1

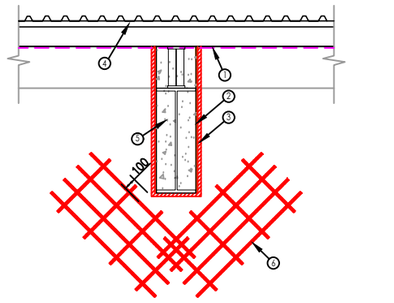
CLIENT
WINVIC CONSTRUCTION LTD

PROJECT TITLE
HORTON ROAD, POYLE

DRAWING TITLE
PROPOSED JOINT LAYOUT

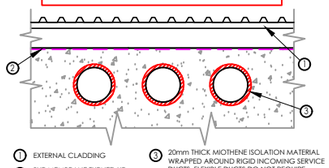
PROJECT–ORIGINATOR–ZONE–LEVEL–TYPE–ROLE–NO
P23025 -ABS - XX - XX - DR - X - 0001

1. SLIP MEMBRANE TURNED UP THE FACE OF PFC
2. 10mm GRC SHEET PLACED ACROSS COLUMN FLANGES
3. 20mm THICK MIOTHENE ISOLATION MATERIAL WRAPPED AROUND COLUMN EXTENDING TO FULL DEPTH OF SLAB
4. EXTERNAL CLADDING
5. INFILL CAST AT SAME TIME AS SURROUNDING AREA
6. PREFABRICATED B785 MESH MAT COMPRISING 4 No H10 / 800mm LONG BARS PLACED ACROSS RE-ENTRANT CORNERS SUPPORTED ON SUITABLE SIZED SNAKE SPACERS OFF BOTTOM MAT TO GIVE 75mm TOP COVER



PLAN ON PERIMETER COLUMN ENCASEMENT

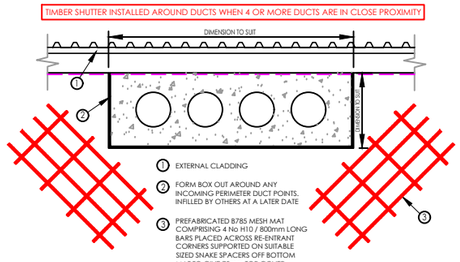
IF 3 OR LESS DUCTS ARE IN CLOSE PROXIMITY, 20mm MIOTHENE IS TO BE WRAPPED AROUND EACH INDIVIDUAL DUCT. REFER TO BOX OUT DETAIL FOR SCENARIOS WHERE 4 OR MORE DUCTS OCCUR.



1. EXTERNAL CLADDING
2. SLIP MEMBRANE TURNED UP THE FACE OF PFC
3. 20mm THICK MIOTHENE ISOLATION MATERIAL WRAPPED AROUND RIGID INCOMING SERVICE DUCTS. FLEXIBLE DUCTS DO NOT REQUIRE ISOLATION

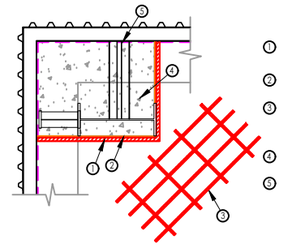
TYPICAL PLAN ON PERIMETER FLOOR DUCTS

TIMBER SHUTTER INSTALLED AROUND DUCTS WHEN 4 OR MORE DUCTS ARE IN CLOSE PROXIMITY



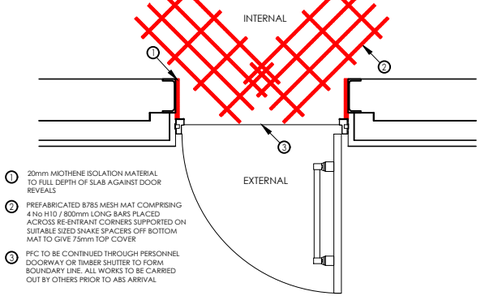
1. EXTERNAL CLADDING
2. FORM BOX OUT AROUND ANY INCOMING PERIMETER DUCT POINTS. INFILLED BY OTHERS AT A LATER DATE
3. PREFABRICATED B785 MESH MAT COMPRISING 4 No H10 / 800mm LONG BARS PLACED ACROSS RE-ENTRANT CORNERS SUPPORTED ON SUITABLE SIZED SNAKE SPACERS OFF BOTTOM MAT TO GIVE 75mm TOP COVER

TYPICAL PLAN ON PERIMETER FLOOR DUCTS BANK



1. 20mm THICK MIOTHENE ISOLATION MATERIAL WRAPPED AROUND COLUMN EXTENDING TO FULL DEPTH OF SLAB
2. 10mm GRC SHEET PLACED ACROSS COLUMN FLANGES
3. PREFABRICATED B785 MESH MAT COMPRISING 4 No H10 / 800mm LONG BARS PLACED ACROSS RE-ENTRANT CORNERS SUPPORTED ON SUITABLE SIZED SNAKE SPACERS OFF BOTTOM MAT TO GIVE 75mm TOP COVER
4. INFILL CAST AT SAME TIME AS SURROUNDING AREA
5. SLIP MEMBRANE TURNED UP THE FACE OF PFC

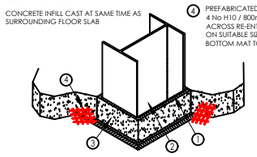
PLAN ON CORNER PERIMETER COLUMN ENCASEMENT



1. 20mm MIOTHENE ISOLATION MATERIAL TO FULL DEPTH OF SLAB AGAINST DOOR REVEALS
2. PREFABRICATED B785 MESH MAT COMPRISING 4 No H10 / 800mm LONG BARS PLACED ACROSS RE-ENTRANT CORNERS SUPPORTED ON SUITABLE SIZED SNAKE SPACERS OFF BOTTOM MAT TO GIVE 75mm TOP COVER
3. PFC TO BE CONTINUED THROUGH PERSONNEL DOORWAY OR TIMBER SHUTTER TO FORM BOUNDARY LINE. ALL WORKS TO BE CARRIED OUT BY OTHERS PRIOR TO ABS ARRIVAL

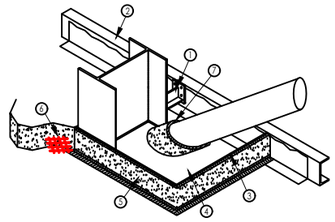
DETAIL AT PERSONNEL DOORWAYS

1. 10mm GRC SHEET PLACED ACROSS COLUMN FLANGES
2. CONCRETE INFILL CAST AT SAME TIME AS SURROUNDING FLOOR SLAB
3. 20mm THICK MIOTHENE FULL DEPTH OF SLAB
4. PREFABRICATED B785 MESH MAT COMPRISING 4 No H10 / 800mm LONG BARS PLACED ACROSS RE-ENTRANT CORNERS SUPPORTED ON SUITABLE SIZED SNAKE SPACERS OFF BOTTOM MAT TO GIVE 75mm TOP COVER



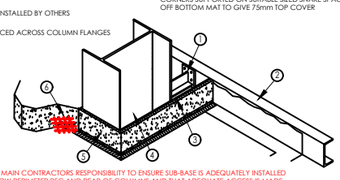
TYPICAL CENTRAL COLUMN ENCASEMENT

1. TO ALLOW SUCCESSFUL INFILL OF THE COLUMN ENCASEMENT IT IS ESSENTIAL THAT THE STRUCTURAL TEE SUPPORTING THE PFC EDGE BEAM IS ORIENTATED "TOE UP" TO ALLOW THE PLACEMENT OF CONCRETE TO FORM THE COLUMN ENCASEMENT. INVERTED STRUCTURAL TEES ARE NOT SUITABLE (I.E. TOE DOWN AS INADEQUATE ACCESS IS AVAILABLE TO TO SUCCESSFULLY PLACE CONCRETE)
2. PERIMETER CHANNEL INSTALLED BY OTHERS
3. 10mm GRC SHEET PLACED ACROSS COLUMN FLANGES
4. CONCRETE INFILL CAST AT SAME TIME AS SURROUNDING FLOOR SLAB
5. 20mm THICK MIOTHENE FULL DEPTH OF SLAB
6. PREFABRICATED B785 MESH MAT COMPRISING 4 No H10 / 800mm LONG BARS PLACED ACROSS RE-ENTRANT CORNERS SUPPORTED ON SUITABLE SIZED SNAKE SPACERS OFF BOTTOM MAT TO GIVE 75mm TOP COVER
7. 20mm MIOTHENE WRAPPED AROUND BRACE STEELWORK WHERE STEEL ENTERS FLOOR SLAB



TYPICAL PERIMETER COLUMN ENCASEMENT AT BRACED BAYS

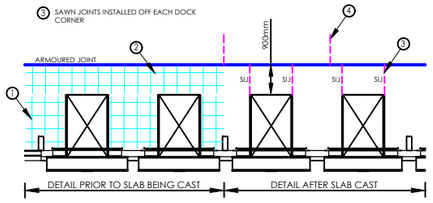
1. TO ALLOW SUCCESSFUL INFILL OF THE COLUMN ENCASEMENT IT IS ESSENTIAL THAT THE STRUCTURAL TEE SUPPORTING THE PFC EDGE BEAM IS ORIENTATED "TOE UP" TO ALLOW THE PLACEMENT OF CONCRETE TO FORM THE COLUMN ENCASEMENT. INVERTED STRUCTURAL TEES ARE NOT SUITABLE (I.E. TOE DOWN AS INADEQUATE ACCESS IS AVAILABLE TO TO SUCCESSFULLY PLACE CONCRETE)
2. PERIMETER CHANNEL INSTALLED BY OTHERS
3. 10mm GRC SHEET PLACED ACROSS COLUMN FLANGES
4. CONCRETE INFILL CAST AT SAME TIME AS SURROUNDING FLOOR SLAB
5. 20mm THICK MIOTHENE FULL DEPTH OF SLAB
6. PREFABRICATED B785 MESH MAT COMPRISING 4 No H10 / 800mm LONG BARS PLACED ACROSS RE-ENTRANT CORNERS SUPPORTED ON SUITABLE SIZED SNAKE SPACERS OFF BOTTOM MAT TO GIVE 75mm TOP COVER



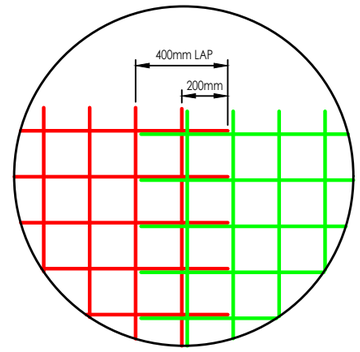
IT IS MAIN CONTRACTORS RESPONSIBILITY TO ENSURE SUB-BASE IS ADEQUATELY INSTALLED BELOW PERIMETER PFC AND REAR OF COLUMNS AND THAT ADEQUATE ACCESS IS MADE AVAILABLE TO LAY CONCRETE

TYPICAL PERIMETER COLUMN ENCASEMENT

1. MESH REINFORCEMENT AS SPECIFIED (400mm LAP)
2. ADDITIONAL LAYER OF A 142 MESH FABRIC THROUGHOUT DOCK ISOLATION STRIP WITH 75mm TOP COVER.
3. SAWN JOINTS INSTALLED OFF EACH DOCK CORNER
4. WAREHOUSE SAWN JOINTS TO TERMINATE AT ARMOURED JOINT PARALLEL TO DOCK LEVELLERS

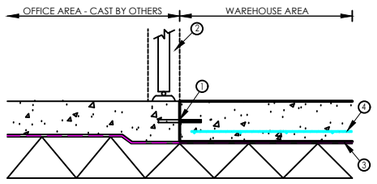


TYPICAL DETAIL AT DOCK ISOLATION STRIP



TYPICAL "ECO MESH" LAP DETAIL

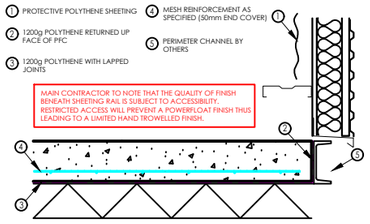
1. PERMABAN 6mm DIAMOND DOWELS WITH ONE HALF OF DOWELS DEBONDED USING PLASTIC SLEEVES AT 450mm CENTRES SUPPLIED AND INSTALLED BY OTHERS
2. PERSONNEL DOORWAY
3. 1200g POLYTHENE WITH LAPPED AND TAPED JOINTS
4. MESH REINFORCEMENT AS SPECIFIED (50mm END COVER)



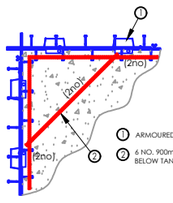
OFFICE / WAREHOUSE INTERFACE AT PERSONNEL DOORWAYS ONLY

1. PROTECTIVE POLYTHENE SHEETING
2. 1200g POLYTHENE RETURNED UP FACE OF PFC
3. 1200g POLYTHENE WITH LAPPED JOINTS
4. MESH REINFORCEMENT AS SPECIFIED (50mm END COVER)
5. PERIMETER CHANNEL BY OTHERS

MAIN CONTRACTOR TO NOTE THAT THE QUALITY OF FINISH BENEATH SHEETING RAIL IS SUBJECT TO ACCESSIBILITY. RESTRICTED ACCESS WILL PREVENT A POWERFLOAT FINISH THUS LEADING TO A LIMITED HAND TROWELLED FINISH.



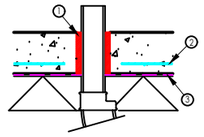
TYPICAL PERIMETER DETAIL



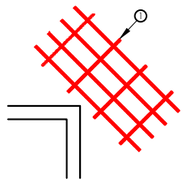
1. ARMOURED JOINT
2. 6 NO. 900mm LONG H12 BARS WIRED BELOW TANGS ON ARMOUR JOINT

DETAIL SHOWING ADDITIONAL ANTI-CRACK BARS AT 2/3 WAY ARMOUR JOINT INTERSECTIONS

1. 20mm MIOTHENE WRAPPED AROUND RIGID INCOMING SERVICE DUCTS. FLEXIBLE DUCTS DO NOT REQUIRE ISOLATION.
2. MESH REINFORCEMENT AS SPECIFIED
3. 1200g POLYTHENE WITH LAPPED JOINTS



TYPICAL ISOLATION DETAIL AT DRAINAGE PIPES/DUCTS

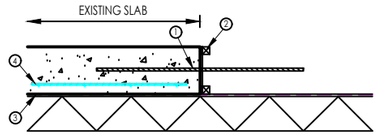


1. PREFABRICATED B785 MESH MAT COMPRISING 4 No H10 / 800mm LONG BARS PLACED ACROSS RE-ENTRANT CORNERS SUPPORTED ON SUITABLE SIZED SNAKE SPACERS OFF BOTTOM MAT TO GIVE 75mm TOP COVER (100mm END COVER)

TYPICAL CRACK CONTROL TO ALL RE-ENTRANT CORNERS BOX OUTS & COLUMN ENCASEMENTS

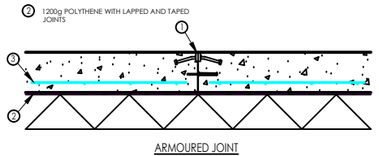
WHERE VNA AISLES OCCUR IT IS ESSENTIAL FOR A DEFECT FREE FLOOR THAT ANY LONGITUDINAL FLOOR JOINT WITHIN DEFINED MOVEMENT AREAS (I.E AISLES) ARE KEPT A MINIMUM DISTANCE OF 300mm FROM THE CENTRE LINE OF ANY MHE WHEEL TRACKS AND WIRE GUIDANCE

1. FORMED JOINT CONSISTING OF 900mm LONG H12 BARS AT 150mm CENTRES
2. TIMBER SHUTTER
3. 1200g POLYTHENE WITH LAPPED AND TAPED JOINTS
4. MESH REINFORCEMENT AS SPECIFIED



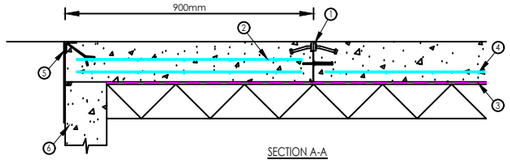
EMERGENCY STOP END / TERMINATION DETAIL

1. PROPRIETARY ARMOURED JOINT SYSTEM HAVING 8mm PLATE DOWELS @ 600mm CENTRES. ONE HALF OF DOWEL DEBONDED USING PLASTIC SLEEVE
2. 1200g POLYTHENE WITH LAPPED AND TAPED JOINTS
3. MESH REINFORCEMENT AS SPECIFIED



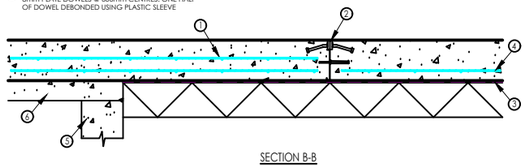
ARMOURED JOINT

1. PROPRIETARY ARMOURED JOINT SYSTEM HAVING 8mm PLATE DOWELS @ 600mm CENTRES. ONE HALF OF DOWEL DEBONDED USING PLASTIC SLEEVE
2. ADDITIONAL LAYER OF A142 MESH FABRIC 75mm TOP COVER WITHIN THE DOCK ISOLATION STRIP
3. 1200g POLYTHENE WITH LAPPED AND TAPED JOINTS
4. MESH REINFORCEMENT AS SPECIFIED (50mm END COVER)
5. DOCK FRAME BOX BY OTHERS
6. PRE-CAST DOCK WALL BY OTHERS



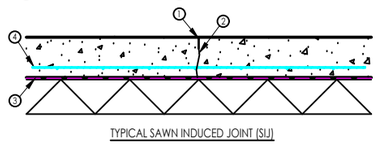
SECTION A-A

1. ADDITIONAL LAYER OF A142 MESH FABRIC 75mm TOP COVER WITHIN THE DOCK ISOLATION STRIP
2. PROPRIETARY ARMOURED JOINT SYSTEM HAVING 8mm PLATE DOWELS @ 600mm CENTRES. ONE HALF OF DOWEL DEBONDED USING PLASTIC SLEEVE
3. 1200g POLYTHENE WITH LAPPED AND TAPED JOINTS
4. MESH REINFORCEMENT AS SPECIFIED (50mm END COVER)
5. PRE-CAST DOCK WALL BY OTHERS
6. BISCUIT SLAB BY OTHERS



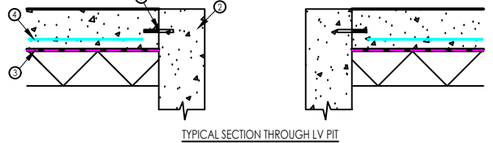
SECTION B-B

1. 50mm x 3mm WIDE SAWN GROOVE
2. INDUCED CRACK
3. 1200g POLYTHENE WITH LAPPED AND TAPED JOINTS
4. MESH REINFORCEMENT AS SPECIFIED



TYPICAL SAWN INDUCED JOINT (SIJ)

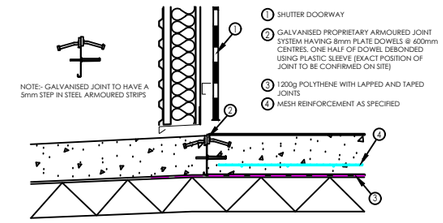
1. PERMABAN 6mm DIAMOND DOWELS WITH ONE HALF OF DOWELS DEBONDED USING PLASTIC SLEEVES AT 450mm CENTRES SUPPLIED AND INSTALLED BY OTHERS
2. PIT WALLS BY OTHERS
3. 1200g POLYTHENE WITH LAPPED AND TAPED JOINTS
4. MESH REINFORCEMENT AS SPECIFIED (50mm END COVER)



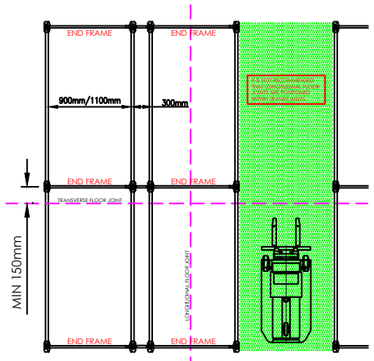
TYPICAL SECTION THROUGH LV PIT

NOTE:- GALVANISED JOINT TO HAVE A 5mm STEP IN STEEL ARMOURED STRIPS

1. SHUTTER DOORWAY
2. GALVANISED PROPRIETARY ARMOURED JOINT SYSTEM HAVING 8mm PLATE DOWELS @ 600mm CENTRES. ONE HALF OF DOWEL DEBONDED USING PLASTIC SLEEVE (EXACT POSITION OF JOINT TO BE CONFIRMED ON SITE)
3. 1200g POLYTHENE WITH LAPPED AND TAPED JOINTS
4. MESH REINFORCEMENT AS SPECIFIED



TYPICAL SECTION THROUGH ROLLER SHUTTER DOORWAY



TYPICAL RACKING / TRUCK JOINT ARRANGEMENT ADOPTING STANDARD 2 LEG END FRAMES

SLAB SPECIFICATION

175mm THICK INTERNAL CONCRETE SLAB

C40 WELL GRADED CONCRETE

1 LAYER OF A142 MESH FABRIC WITH 400mm LAPS (MIN 300mm) PLACED ONTO 40mm SHAKE SPACERS AT 800mm CENTRES AS WORK PROCEEDS

LAID ONTO ONE LAYER OF 1200g POLYTHENE WITH 150mm LAPPED AND TAPED JOINTS

SURFACE TO RECEIVE A POWER FLOAT FINISH

1 COAT OF SPRAY APPLIED COMBINED CURE AND SURFACE SEALER

LAID UTILISING LASER SCREED

TOLERANCE TR34 (2013) FM2 PROPERTIES E & F

SLAB DESIGN

THE SLAB CONSTRUCTION INDICATED ON THIS DRAWING FOR THE WAREHOUSING AREA HAS BEEN BASED UPON THE FOLLOWING DESIGN CRITERIA:-

- UNIFORMLY DISTRIBUTED LOAD – 50kN/M²

OR

- INDIVIDUAL RACK LEG LOAD OF 70kN
- TAKEN IN A BACK TO BACK CONFIGURATION AT 300mm CENTRES.
- MINIMUM SIZE BASE PLATES OF 100 x 100mm
- CENTRE LINE OF RACKING BASE PLATES POSITIONED A MINIMUM DISTANCE OF 150mm FROM ANY JOINT.
- EDGE OF BASE PLATE A MINIMUM DISTANCE OF 250mm FROM THE SLAB EDGE.

THE MAXIMUM INDIVIDUAL MHE WHEEL LOAD ACTING IN COMBINATION WITH A SINGLE RACK LEG LOAD (AISLE SIDE) MUST NOT EXCEED 40kN

THE SLAB AS DESIGNED WILL SUSTAIN A LINE LOAD CAPACITY DIRECTLY ADJACENT A FLOOR JOINT OF 25kN/M. WHERE LINE LOADS EXCEED THIS VALUE UNDERSLAB THICKENINGS MAY BE REQUIRED AND SHALL BE DESIGNED AND INSTALLED BY OTHERS PRIOR TO SLAB WORKS COMMENCING.

THE DESIGN DETAILS INDICATED ON THIS DRAWING FORM THE BASIS OF THE DESIGN PROPOSALS FOR THE SPECIFIED MAGNITUDE OF LOADING WHICH ADOPTS A MINIMUM VALUE FOR THE MODULUS OF SUB GRADE REACTION ('K-VALUE') OF 0.054 N/mm3. THIS VALUE WILL REQUIRE TO BE CONFIRMED IN WRITING BY THE MAIN CONTRACTOR BY PLATE LOADING TESTS MEASURED AT A FIXED SETTLEMENT OF 1.25 MM CARRIED OUT (BY OTHERS) IN ADVANCE OF THE REGULATING LAYER BEING PLACED TO ALLOW CONFIRMATION THAT THE SLAB DESIGN/ THICKNESS IS CORRECT.

THE REQUIREMENT FOR ANY UNDERSLAB INSULATION (DESIGNED, SUPPLIED AND INSTALLED BY OTHERS) SHALL BE BASED UPON ACHIEVING AN EQUIVALENT SUB GRADE REACTION AS NOTED ABOVE.

ALLOWANCE HAS BEEN TAKEN FOR WHEEL LOADING ASSOCIATED WITH STANDARD UK HEAVY GOODS VEHICLES DRIVING ON THE SLAB.

LOADING CONDITIONS WITHIN THE DESIGN ARE NOT CONCURRENT BUT ARE ASSUMED TO ACT SEPARATELY UNLESS NOTED OTHERWISE.

REFER TO SEPARATE CALCULATIONS PREPARED BY "KONTRAD LLP – INDUSTRIAL FLOORING CONSULTANTS" FOR FULL DETAILS OF SLAB DESIGN

REFERENCE SHALL ALSO BE MADE TO THE "OPERATION AND MAINTENANCE DOCUMENT" WHICH PROVIDES GUIDANCE ON CLEANING AND ROUTINE INSPECTIONS TO BE CARRIED OUT BY THE END USER.

GENERAL NOTES

- PRIOR TO PLACING CONCRETE, ALL ROOF AND WALL SHEETING SHALL BE COMPLETED WHERE PRACTICAL TO PROVIDE PROTECTION FROM THE SUN, WIND AND RAIN. LOADING DOORS SHALL BE FIXED IN PLACED AND OPENINGS SHEETED.
- THE JOINTS ARE TO BE INITIALLY SEALED USING A SEALANT WITH A SHORE "A" HARDNESS IN THE RANGE OF 30–50 & M.A.F IN THE RANGE OF 25%–35%, INSTALLED BY OTHERS (UNLESS NOTED OTHERWISE). THE SEALANT IS DESIGNED TO BE A TEMPORARY APPLICATION AND THE INSPECTION AND MAINTENANCE OF SAID SEALANT IS THE RESPONSIBILITY OF THE TENANT / BUILDING USER. ALL INSPECTION, MAINTENANCE AND CLEANING OPERATIONS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS OF CHAPTER 13, TR34 4TH EDITION 2013. SEALING JOINTS SHOULD BE LEFT AS LATE IN THE CONSTRUCTION PROCESS AS POSSIBLE.
- SPACING BETWEEN FIXINGS INTO THE SLAB AND ANY SAWN OR FORMED JOINT IS TO BE A MINIMUM 5 X HOLE DIAMETER WITH AN EMBEDMENT THAT DOES NOT EXCEED 2/3 SLAB DEPTH.
- THE SLAB CAN BE USED BY LIGHT TRAFFIC 7 DAYS AFTER IT IS POURED. THE LOADS SHALL NOT EXCEED 30% OF THE DESIGN CAPACITY. THE FLOOR SHALL NOT BE LOADED TO ITS FULL DESIGN CAPACITY BEFORE 28 DAYS HAVE PASSED SINCE POURING.
- AREA NUMBERS DO NOT REPRESENT POUR SEQUENCE BUT ARE FOR IDENTIFICATION PURPOSES ONLY.
- SAWN INDUCED JOINTS AND ISOLATION JOINTS ONLY TO BE INITIALLY SEALED USING ARBOMERIC MP20. ARMOURED JOINTS TO BE SEALED BY OTHERS.
- THE EXACT POSITION OF SHUTTERING/JOINTS AT DOORWAYS IS TO BE CONFIRMED ON SITE BY MAIN CONTRACTORS SITE ENGINEER TO SUIT THE VARIOUS DOOR TYPES & FIXING REQUIREMENTS
- IT IS THE MAIN CONTRACTORS RESPONSIBILITY TO ENSURE THAT 'DOCK LEVELLERS' ARE FULLY SHUTTERED AND/OR SEALED TO PREVENT CONCRETE INFILL OR GROUT LOSS DROPPING INTO THE PIT BELOW DURING SLAB PLACEMENT. ABS BRYMAR ARE UNABLE TO ACCEPT ANY RESPONSIBILITY FOR LEAKAGES INTO THE PIT.
- IN ACCORDANCE WITH CS–TR34 CLAUSE 11.10. ABS BRYMAR FLOORS DO NOT RECOMMENDED THE USE OF PORTAL TIE BARS TO RESIST HORIZONTAL FORCES WHICH MAY INDUCE SLAB RESTRAINT AND COULD RESULT IN SIGNIFICANT CRACKING.
- THE JOINT LAYOUT SHOWN ON THIS DRAWING HAS NOT BEEN CO–ORDINATED WITH ANY RACKING. SHOULD A RACKING LAYOUT BE MADE AVAILABLE PRIOR TO CASTING THE FLOOR SLAB THE JOINT POSITIONS CAN BE ADJUSTED TO SUIT UPON RECEIPT OF THE FINALISED RACK LAYOUT.
- REFER TO ABS DRAWING 2428–01 FOR JOINT LAYOUT.

REV	DATE	DESCRIPTION
AB1	05.09.2024	AS BUILT STATUS.
C02	25.06.2024	SECTION THROUGH LV PIT UPDATED.
C01	14.06.2024	LV PIT ADDED ON PLAN AND SECTION DETAIL SLAB SPECIFICATION UPDATED JOINT SEALANT INFORMATION UPDATED
P02.	30.05.2024.	GENERAL UPDATES.
P01.	20.05.2024	PRELIMINARY ISSUE

ABS BRYMAR FLOORS LTD
Unit 40
Drumhead Road
Chorley North Ind Park
Chorley
PR6 7BX
Tel: 0161 972 5000.
E: general@absbrymarfloors.co.uk

AS BUILT

DRAWN	DATE	SCALE	ABS DRAWING NO.	REV
SP	05.09.2024	DNS	2428- 02	AB1

CLIENT
WINVIC CONSTRUCTION LTD

PROJECT TITLE
HORTON ROAD, POYLE

DRAWING TITLE
TYPICAL DETAILS

PROJECT–ORIGINATOR–ZONE–LEVEL–TYPE–ROLE–NO
P23025 - ABS - XX - XX - DR - X - 0002

5. Testing & Commissioning Results and Certificates

FACE CONSULTANTS LTD
Global Flooring Consultants

FREE MOVEMENT SURVEY REPORT

For Floor Classification FM2

PROJECT REFERENCE: FS/24/1861

August 2024

ABS Brymar Floors
at
c/o Winvic Construction Ltd
Poyle 80
Horton Road
Poyle
Slough
SL3 0BB

ABS BRYMAR FLOORS

CoGri GROUP

Superior Floor Technology

design > consultancy > Q.A. > surveying > testing

TABLE OF CONTENTS

ABS BRYMAR FLOORS | POYLE

CONTRACT DETAILS

ABS BRYMAR FLOORS | POYLE

BRIEF:

To conduct an as built Free Movement Survey to check compliance with the FM2 flatness and levelness classification.

APPOINTED BY:

George Baker
ABS Brymar Floors

SITE ADDRESS:

c/o Winvic Construction Ltd
Poyle 80
Horton Road
Poyle
Slough
SL3 0BB

FLOORING CONTRACTOR:

ABS Brymar Floors

SURVEY DATES:

07/08/2024 – 08/08/2024

FREE MOVEMENT SURVEY METHOD:

PROPERTY F
Property F readings were recorded using the Face Digital Property II Meter.

PROPERTY E
Property E readings were recorded using an Engineers Precise Level, PPM and Invar Staff.

LEVEL TO DATUM
Level to datum readings were recorded using an Engineers Precise Level, PPM and Invar Staff.

FLATNESS CLASSIFICATION:

The Free Movement area has been surveyed for compliance with the FM2 classification defined by table 3.1 of the Fourth Edition of the Concrete Society's Technical Report Number 34.

FM2 Property E permissible 95th percentile limit: 6.5mm

FM2 Property F permissible 95th percentile limit: 2.0mm

FM2 Level to datum maximum limit:
+/-15mm

DESCRIPTION OF WORKS

ABS BRYMAR FLOORS | POYLE

DETAILS:

The floor was tested for Properties E & F by setting out a 3-metre grid over the Free Movement area. Level readings were taken at the intersection points of the 3 metre grid lines (see survey plan in this report) and the differences in elevation between adjacent intersection points have been calculated to determine compliance with Property E.

Property F readings were measured using the Face Digital Property II Meter.
Property F data is available in Annex A of this report.

For detailed survey method see further explanatory information in this report.

ENVIRONMENTAL CONDITIONS:

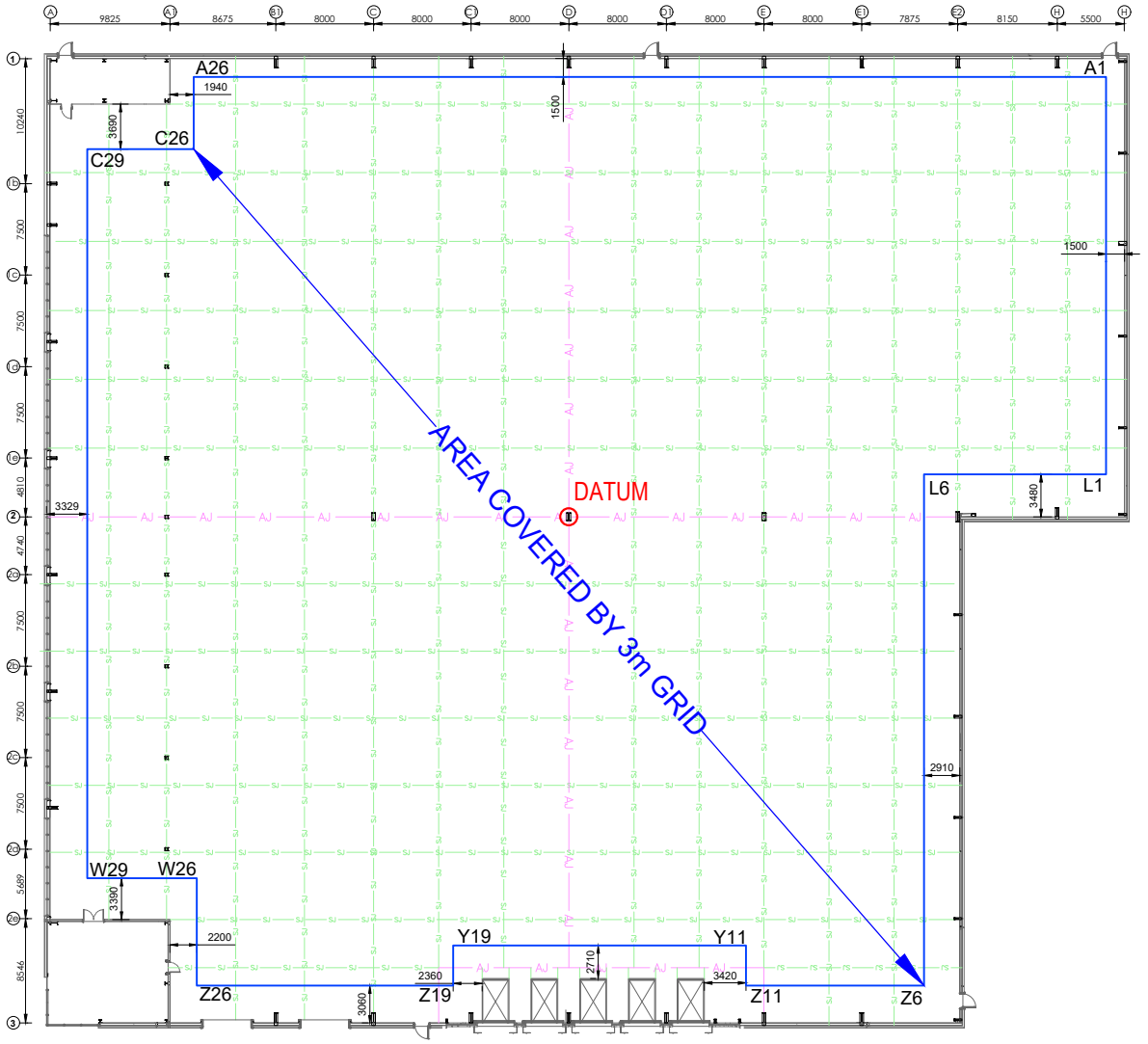
Building Conditions - Incomplete
Floor Conditions - Mild Debris/Materials/Plant
Weather Conditions - Good
Lighting Conditions - Good

PROPERTY II METER SERIAL NUMBERS:

P2B 012

SURVEY PLAN

ABS Brymar Floors
at
c/o Winvic Construction Ltd
Poyle 80
Horton Road
Poyle
Slough
SL3 0BB



Notes:

H Datum +1.4m FFL on column near M15 on 3m grid

AJ Armoured Joint

SJ Saw Joint

Site Address:	Poyle 80 Horton Road Poyle Slough SL3 0BB	Drawing No:	FS.24.1861.FM
		Survey Date:	AUGUST 2024
Client:	ABS Brymar Floors ltd.	Scale A4:	NTS
Drawing Title:	Free Movement Survey Plan	Drawn:	RT

FACE CONSULTANTS LTD
Global Flooring Consultant

Dene House,
North Road, Kirkburton,
Huddersfield
HD8 0RW
www.face-consultants.com

PROPERTY F

LOCATION OF SURVEY RUNS

ABS Brymar Floors
at
c/o Winvic Construction Ltd
Poyle 80
Horton Road
Poyle
Slough
SL3 0BB

Property II Meter File Name:		ABS1861	
60m			
Run Number	**Run Location**	**Run Number**	**Run Location**
1	C6 – W6	4	F2 – F22
2	W12 – C12	5	U27 – U7
3	W29 – C29		
6	C7 – W7	8	D26 – D6
7	W18 – C18	9	J8 – J28
		10	S28 – S8

PROPERTY F

SUMMARY OF RESULTS

ABS Brymar Floors
at
c/o Winvic Construction Ltd
Poyle 80
Horton Road
Poyle
Slough
SL3 0BB

Summary of Results

Job Name:	ABS1861	**Job Number:**	FS241861
Location:	Poyle	**Date:**	2024-08-07
Surveyor:	AM	**Device Serial:**	P2B012

Specification	Description	Limit
FM2 4th Edition	95th Percentile	2.00 mm

95th Percentile Limit	Achieved	Pass/Fail
2.0	2.0	Pass

PROPERTY E

RESULTS

ABS Brymar Floors
at
c/o Winvic Construction Ltd
Poyle 80
Horton Road
Poyle
Slough
SL3 0BB

Property E	Ref		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
			0m	3m	6m	9m	12m	15m	18m	21m	24m	27m	30m	33m	36m	39m	42m	45m	48m	51m	54m	57m	60m	63m	66m	69m	72m	75m
Reduced Reading	1	0m	COL	1.0	COL	-2.4	1.2	COL	-0.6	COL	-1.4	0.5	COL	-3.4														
Diff. In Elev.				0.1		1.4	-3.4		-2.7		-2.0	-3.0		1.0														
	2	3m	COL	1.1	-2.0	-0.9	-0.1	-1.0	-1.2	-2.2	-0.3	-2.5	-0.8	-3.3	-0.4	-3.7	0.3	-3.4	0.9	-2.5	1.0	-1.5	-0.9	-2.4						
				-1.0		-0.1		-1.3		0.1		0.7		0.4		-2.6		0.9		-0.3		-1.1		1.2						
	3	6m	0.8	0.1	-1.1	-1.0	-1.3	-2.3	0.2	-2.1	0.3	-1.8	-1.1	-2.9	-3.4	-6.3	3.8	-2.5	-0.3	-2.8	0.2	-2.6	1.4	-1.2						
			1.7		-1.6		-0.7	1.2		-3.1		0.4		0.5		3.3		2.0		0.6		-1.6		4.7						
	4	9m	2.5	-4.0	-1.5	-0.2	-1.7	0.6	-1.1	-4.1	-5.2	3.8	-1.4	-1.0	-2.4	-0.6	-3.0	2.5	-0.5	-1.7	-2.2	-2.0	-4.2	7.7	3.5						
					1.0		1.3		0.1		3.6		-2.3		1.8		2.8		0.2		2.3		3.4		-3.3						
	5	12m	COL		-0.5	0.1	-0.4	-0.6	-1.0	-0.6	-1.6	-2.1	-3.7	3.1	-0.6	0.4	-0.2	-0.1	-0.3	0.4	0.1	-0.9	-0.8	1.0	0.2						
					-1.2		-0.4		0.1		0.5		1.8		-2.5		-3.3		-2.1		-3.8		0.0		-2.4						
	6	15m	-2.2	0.5	-1.7	0.9	-0.8	-0.1	-0.9	-0.2	-1.1	-0.8	-1.9	-1.2	-3.1	-0.4	-3.5	1.1	-2.4	-1.3	-3.7	2.9	-0.8	-1.4	-2.2	3.0	0.8	-1.5	-0.7	1.0	0.3	-0.7	-1.9	-2.6	0.6	-2.0	0.4	-1.6	-1.1	-2.7	1.3	-1.4	1.5	0.1
			3.2		1.5		-2.4	1.8		0.6		1.2		-0.2		2.0		0.5		7.6		1.7		0.3		2.1		2.1		-1.3		2.9		1.5		0.2		1.1		3.5		2.8		0.9		3.3		0.2		-3.7
	7	18m	1.0	-1.2	-0.2	-3.0	-3.2	4.1	0.9	-1.4	-0.5	-0.2	-0.7	-2.6	-3.3	1.8	-1.5	-0.4	-1.9	5.8	3.9	-3.0	0.9	-2.8	-1.9	4.8	2.9	-1.5	1.4	-2.4	-1.0	3.5	2.5	-1.6	0.9	-0.3	0.6	0.5	1.1	-0.7	0.4	0.5	0.9	-0.1	0.8	-1.5	-0.7	1.3	0.6	-1.8	-1.2	-2.4	-3.6
					0.0		2.4		-1.1		-0.2		-0.5		3.3		1.1		-0.4		-4.3		-3.9		-2.4		-3.9		1.0		1.6		-1.5		0.4		0.8		-0.3		0.5		-0.2		-1.2		-3.2		0.2		3.5
	8	21m	COL		-0.2	-0.6	-0.8	0.6	-0.2	-0.5	-0.7	-0.5	-1.2	1.2	0.0	-0.4	-0.4	-1.9	-2.3	1.9	-0.4	-2.6	-3.0	-1.3	-4.3	3.3	-1.0	3.4	2.4	-1.8	0.6	0.4	1.0	0.3	1.3	-0.3	1.0	0.9	1.9	-1.8	0.1	1.3	1.4	-0.8	0.6	-2.5	-1.9	-0.7	-2.6	1.6	-1.0	0.9	-0.1
					-1.5		0.0	1.0		2.7		2.9		-0.7		1.0		1.8		-0.4		0.0		0.5		4.9		-1.0		-0.7		-0.9		-1.8		-1.2		-2.1		-2.1		0.2		-1.4		-1.2		0.5		2.7		-0.2		-2.5
	9	24m	-0.4	-1.3	-1.7	0.9	-0.8	1.6	0.8	1.2	2.0	-0.3	1.7	-2.4	-0.7	1.3	0.6	-1.1	-0.5	-0.3	-0.8	-2.2	-3.0	-0.8	-3.8	7.7	3.9	-2.5	1.4	-1.5	-0.1	0.2	0.1	-0.6	-0.5	-0.6	-1.1	0.9	-0.2	0.5	0.3	-0.3	0.0	-0.6	-0.6	-0.8	-1.4	1.5	0.1	-1.3	-1.2	-1.4	-2.6
					2.6		0.8		-3.2		-2.7		-2.1		1.6		-0.6		-4.3		-0.6		1.9		2.6		-3.0		-1.9		-3.6		-2.7		-0.6		-1.9		-2.8		-2.7		-0.7		-2.8		-2.0		-0.3		3.1		3.5
	10	27m	COL		0.9	-0.9	0.0	-2.4	-2.4	1.7	-0.7	0.3	-0.4	1.3	0.9	-0.9	0.0	-4.8	-4.8	3.4	-1.4	0.3	-1.1	-0.1	-1.2		COL		-1.6	2.4	0.8	-4.3	-3.5	2.4	-1.1	-1.9	-3.0	0.0	-3.0	0.6	-2.4	1.7	-0.7	-2.7	-3.4	0.0	-3.4	3.2	-0.2	2.1	1.9	-1.0	0.9
					-2.7		-0.3	0.3		0.4		-2.9		-3.4		-5.0		2.1		-0.2		-0.5		-0.6				1.6		-0.8		1.8		0.4		2.6		3.8		2.0		0.6		2.7		7.0		-1.2		-6.0		4.5
	11	30m	-1.6	-0.2	-1.8	1.5	-0.3	-1.8	-2.1	1.8	-0.3	-3.0	-3.3	0.8	-2.5	-2.5	-5.0	2.3	-2.7	1.1	-1.6	0.0	-1.6	-0.2	-1.8	0.2	-1.6	1.6	0.0	0.0	0.0	-1.7	-1.7	1.0	-0.7	0.3	-0.4	1.2	0.8	-1.2	-0.4	0.3	-0.1	-0.6	-0.7	4.3	3.6	-5.0	-1.4	-2.7	-4.1	9.5	5.4
			-1.4		3.1		-1.3	5.4		-0.4		3.1		1.5		1.6		0.9		0.6		0.5		0.7		1.9		-0.6		-0.9		2.0		0.1		-1.3		-0.4		0.2		-0.1		-2.4		-3.2		1.7		4.1		
	12	33m	-3.0	4.3	1.3	-2.9	-1.6	4.9	3.3	-4.0	-0.7	0.5	-0.2	-0.8	-1.0	-2.4	-3.4	1.6	-1.8	0.8	-1.0	-0.1	-1.1	0.0	-1.1	1.4	0.3	-0.9	-0.6	-0.3	-0.9	1.2	0.3	-0.9	-0.6	-1.1	-1.7	2.1	0.4	-0.6	-0.2	0.0	-0.2	-2.9	-3.1	3.5	0.4	-0.1	0.3	-0.3	0.0		
					-1.9		1.5		-3.7		-2.3		-0.3		0.5		1.3		-1.0		-1.6		-0.2		-0.8		-2.9		-1.3		-2.5		-3.9		-1.3		-0.4		-1.8		0.3		0.1		0.6		-1.4		-1.3		-0.7			
	13	36m	COL		-0.6	0.5	-0.1	-0.3	-0.4	-2.6	-3.0	2.5	-0.5	0.0	-0.5	-1.6	-2.1	-0.7	-2.8	0.2	-2.6	1.3	-1.3	-0.6	-1.9	-0.7	-2.6	0.7	-1.9	-1.5	-3.4	-0.2	-3.6	1.7	-1.9	-0.2	-2.1	0.7	-1.4	1.5	0.1	-0.2	-0.1	-2.4	-2.5	1.5	-1.0	0.0	-1.0	0.3	-0.7		
					-0.9		-0.9	1.0		1.4		-1.9		-1.7		-1.3		1.3		1.7		-2.2		2.2		0.0		1.0		-0.2		2.0		1.0		0.7		-3.3		-2.7		-1.6		0.8		3.3		-1.0		0.5			
	14	39m	-1.3	-0.2	-1.5	0.5	-1.0	1.6	0.6	-2.2	-1.6	-0.8	-2.4	0.2	-2.2	-1.2	-3.4	1.9	-1.5	0.6	-0.9	-2.6	-3.5	3.8	0.3	-2.9	-2.6	1.7	-0.9	-2.7	-3.6	2.0	-1.6	0.7	-0.9	-0.5	-1.4	-3.3	-4.7	2.1	-2.6	0.9	-1.7	0.0	-1.7	4.0	2.3	-4.3	-2.0	1.8	-0.2		
			-4.4		-2.2		-0.4	-2.4		-1.4		-3.8		-0.9		0.3		-2.9		-0.4		2.6		-4.0		3.5		-1.2		0.9		0.5		-0.2		-0.2		5.6		3.2		0.6		1.3		-4.5		2.5		0.0			
	15	42m	-5.7	2.0	-3.7	2.3	-1.4	-0.4	-1.8	-1.2	-3.0	-3.2	-6.2	3.1	-3.1	0.0	-3.1	-1.3	-4.4	3.1	-1.3	0.4	-0.9	-2.8	-3.7	4.6	0.9	-3.0	-2.1	-0.6	-2.7	1.6	-1.1	0.0	-1.1	-0.5	-1.6	2.5	0.9	-0.3	0.6	-1.7	-1.1	0.7	-0.4	-1.8	-2.2	2.7	0.5	-0.7	-0.2	BAYS	
					2.2		-2.6	2.6		3.5		5.8		4.7		2.8		6.7		4.9		-1.5		5.0					5.0		8.0		3.1		2.4		2.6		1.9		2.5		4.9		0.4		3.6		2.4		-0.3			
	16	45m	COL		-1.5	-2.5	-4.0	4.8	0.8	-0.3	0.5	-0.9	-0.4	2.0	1.6	-1.9	-0.3	2.6	2.3	1.3	3.6	-6.0	-2.4	3.7	1.3		COL		2.9	2.4	5.3	-3.3	2.0	-0.7	1.3	-0.3	1.0	1.8	2.8	0.3	3.1	0.7	3.8	-3.8	0.0	1.4	1.4	1.5	2.9	-3.4	-0.5			
					-1.0		2.3		-3.7		-4.5		-1.6		-3.6		-4.1		-2.7		-5.7		-1.9		-3.1				0.9		-0.9		1.9		-0.2		-1.1		-1.3		-2.2		-3.4		0.3		-2.5		-2.8		-0.6			
	17	48m	-2.3	-0.2	-2.5	0.8	-1.7	-1.2	-2.9	-1.1	-4.0	2.0	-2.0	0.0	-2.0	-2.4	-4.4	4.0	-0.4	-1.7	-2.1	-2.2	-4.3	2.5	-1.8	-0.4	-2.2	6.0	3.8	0.6	4.4	-0.5	3.9	-2.8	1.1	-1.2	-0.1	1.6	1.5	-0.6	0.9	-0.5	0.4	-0.1	0.3	-1.4	-1.1	1.2	0.1	-1.2	-1.1		
					1.8		-2.3		-0.1		0.2		2.8		3.0		6.4		2.6		0.9		6.5		-0.6		1.2		1.3		-1.0		-3.4		-2.5		1.5		-1.0		-0.4		0.4		0.6		1.4		-1.0		0.5			
	18	51m	COL		-0.7	-3.3	-4.0	1.0	-3.0	-0.8	-3.8	4.6	0.8	0.2	1.0	1.0	2.0	0.2	2.2	-3.4	-1.2	3.4	2.2	-4.6	-2.4	1.4	-1.0	6.1	5.1	-1.7	3.4	-2.9	0.5	-1.9	-1.4	2.8	1.4	-0.9	0.5	0.0	0.5	0.3	0.8	0.1	0.9	-0.6	0.3	-1.2	-0.9	0.3	-0.6		
					2.0		1.8		-1.2		2.6		-0.3		-1.8		-5.1		-5.3		-1.1		-3.0		-1.6		0.4		-3.2		3.5		0.0		3.8		4.4		-2.4		-3.6		-0.8		-0.3		-1.4		0.5		-2.0			
	19	54m	-6.0	7.3	1.3	-3.5	-2.2	-2.0	-4.2	3.0	-1.2	1.7	0.5	-1.3	-0.8	-2.3	-3.1	0.0	-3.1	0.8	-2.3	1.5	-0.8	-3.2	-4.0	3.4	-0.6	2.5	1.9	5.0	6.9	-6.4	0.5	1.9	2.4	3.4	5.8	-7.7	-1.9	-1.2	-3.1	3.1	0.0	0.6	0.6	-1.7	-1.1	0.7	-0.4	-2.2	-2.6	10.0	7.4
			6.0		-1.2		0.8	1.9		-2.6		-4.0		-0.7		1.4		-0.3		3.1		2.9		0.0		-2.4		1.7		-4.8		4.1		-0.5		-3.5		4.3		2.5		-0.4		-0.8		-0.3		-0.5		0.6		-8.0
	20	57m	0.0	0.1	0.1	-1.5	-1.4	-0.9	-2.3	-1.5	-3.8	0.3	-3.5	2.0	-1.5	-0.2	-1.7	-1.7	-3.4	4.2	0.8	1.3	2.1	-6.1	-4.0	1.0	-3.0	6.6	3.6	-1.5	2.1	2.5	4.6	-2.7	1.9	0.4	2.3	0.1	2.4	-3.0	-0.6	0.2	-0.4	0.2	-0.2	-1.2	-1.4	0.5	-0.9	-1.1	-2.0	1.4	-0.6
					-1.2		-0.7	-0.1		5.3		3.4		1.6		0.0		-0.1		-0.3		-2.0		1.4				3.0		0.8		-2.3		0.1		3.1		-1.5		0.6		-0.2		-0.7		-0.6		-0.7		-1.1		-3.0	
	21	60m	COL		-1.1	-1.0	-2.1	-0.3	-2.4	3.9	1.5	-1.6	-0.1	0.2	0.1	-1.8	-1.7	-1.8	-3.5	4.0	0.5	-0.4	0.1	-2.7	-2.6		COL		6.6	-3.7	2.9	-0.6	2.3	-0.3	2.0	3.4	5.4	-4.5	0.9	-0.9	0.0	-0.6	-0.6	-0.3	-0.9	-1.1	-2.0	0.4	-1.6	-1.5	-3.1	-0.5	-3.6	
					0.3		0.8	1.4		-4.7		0.9		-2.3		-0.9		0.5		-3.8		-3.1		-0.9				-0.3		1.4		-1.3		-1.1		-6.5		1.0		-1.7		3.0		-1.0		-2.7		-2.0		1.6		0.9	
	22	63m	-4.6	3.8	-0.8	-0.5	-1.3	0.3	-1.0	-2.2	-3.2	4.0	0.8	-3.0	-2.2	-0.4	-2.6	-0.4	-3.0	-0.3	-3.3	0.3	-3.0	-0.5	-3.5	4.1	0.6	5.7	6.3	-2.0	4.3	-3.3	1.0	-0.1	0.9	-2.0	-1.1	3.0	1.9	-3.6	-1.7	4.1	2.4	-4.3	-1.9	-2.8	-4.7	1.1	-3.6	2.1	-1.5	-1.2	-2.7
					0.8		-0.2	-2.1		3.5		-0.6		1.5		0.6		1.8		3.7		3.9		1.4		-4.3		0.0		-0.2		2.4		1.9		5.4		0.2		-0.2		-2.4		-1.2		2.2		1.6		-2.0		2.8	
	23	66m	COL		0.0	-1.5	-1.5	-1.6	-3.1	3.4	0.3	-0.1	0.2	-0.9	-0.7	-1.3	-2.0	0.8	-1.2	1.6	0.4	0.5	0.9	-3.0	-2.1	-1.6	-3.7	10.0	6.3	-2.2	4.1	-0.7	3.4	-0.6	2.8	1.5	4.3	-2.2	2.1	-4.0	-1.9	1.9	0.0	-3.1	-3.1	0.6	-2.5	0.5	-2.0	-1.5	-3.5	3.6	0.1	
					-0.9		0.1	-1.8		-1.9		-0.2		0.7		2.7		-0.5		-1.1		-2.6		0.5		2.1		-3.0		-0.5		-1.5		-3.4		-5.0		-7.8		-0.2		-4.6		0.5		-4.1		-2.6		5.8		1.8	
	24	69m	COL		-0.9	-0.5	-1.4	-3.5	-4.9	3.3	-1.6	1.6	0.0	0.0	0.0	0.7	0.7	-2.4	-1.7	1.0	-0.7	-1.0	-1.7	0.1	-1.6	0.0	-1.6	4.9	3.3	0.3	3.6	-1.7	1.9	-2.5	-0.6	-0.1	-0.7	-5.0	-5.7	3.6	-2.1	-2.5	-4.6	2.0	-2.6	-4.0	-6.6	2.0	-4.6	6.9	2.3	-0.4	1.9	
					0.6		1.2	5.2		0.4		1.3		0.7		0.7		3.7		1.2		-0.5		-0.6		-0.5		-1.9		-2.7		-0.8		1.7		0.7		-1.4		0.1		2.7		-1.3		3.9		1.7		-3.0		-4.0	
	25	72m	0.3	-0.6	-0.3	0.1	-0.2	0.5	0.3	-1.5	-1.2	2.5	1.3	-0.6	0.7	0.7	1.4	0.6	2.0	-1.5	0.5	-2.7	-2.2	0.0	-2.2	0.1	-2.1	3.5	1.4	-0.5	0.9	0.2	1.1	0.0	1.1	-1.1	0.0	-7.1	-7.1	5.1	-2.0	0.1	-1.9	-2.0	-3.9	1.2	-2.7	-0.2	-2.9	2.2	-0.7	-1.4	-2.1
			-0.3		2.5		-1.2	-2.5		0.7		0.0		-1.8		0.9		-0.4		-2.2		0.3		1.1		-0.1		-0.4		1.5		0.2		0.9		-0.9		3.7		1.5		-1.2		-0.1		-1.3		-2.0		-6.4		4.9	
	26	75m	0.0	2.2	2.2	-3.6	-1.4	-0.8	-2.2	1.7	-0.5	1.8	1.3	-2.4	-1.1	3.4	2.3	-0.7	1.6	-3.3	-1.7	-0.2	-1.9	0.8	-1.1	-1.1	-2.2	3.2	1.0	1.4	2.4	-1.1	1.3	0.7	2.0	-2.9	-0.9	-2.5	-3.4	2.9	-0.5	-2.6	-3.1	-0.9	-4.0	0.0	-4.0	-0.9	-4.9	-2.2	-7.1	9.9	2.8
			AREA CAST BY OTHERS				-0.6		0.5		1.6		-3.3						0.4				-0.1						-0.6				-3.7				1.8		0.8				0.9				-0.9		AREA CAST BY OTHERS					
	27	78m					-2.0		COL		0.0		COL		0.5	-1.5	-1.0		COL		-1.3		COL		-1.2		COL		0.4		COL		-2.4		COL		0.9	-3.5	-2.6		COL		-2.2		COL		-4.9					
							1.5		-1.0						0.0		4.8				-0.1				-0.4		-2.5						4.8				0.0		-0.3				3.0				5.9					
	28	81m					-0.5	-1.2	-1.7	0.7	-1.0	1.0	0.0	0.5	0.5	3.3	3.8	-4.3	-0.5	-0.9	-1.4	1.7	0.3	-1.9	-1.6	4.2	2.6	-4.7	-2.1	3.5	1.4	1.0	2.4	-1.3	1.1	-0.2	0.9	-3.8	-2.9	2.3	-0.6	1.4	0.8	-2.0	-1.2	2.2	1.0							
							2.6	1.7		0.5		-0.8		-2.8		0.1		1.1		1.5		0.0		3.7		-2.2		4.0		0.0		-1.0		1.2		-0.5		-4.8		0.1		3.4									
	29	84m					2.1	-2.1	0.0	-0.5	-0.5	-0.3	-0.8	-1.5	-2.3	6.2	3.9	-3.3	0.6	-0.5	0.1	0.2	0.3	1.8	2.1	-1.7	0.4	1.5	1.9	-0.5	1.4	0.0	1.4	0.9	2.3	-3.2	-0.9	1.0	0.1	-1.2	-1.1	-2.9	-4.0	2.9	-1.1	5.5	4.4							

Key:

	Indicates area is over the 95th Percentile Limit (6.5mm)
UTS	Indicates Unable to Survey due to obstruction
COL	Indicates a Column within 1.5m radius
VOID	Indicates a Void area (not surveyed)

Results

Datum	Actual	Target
Datum =	1702.3 mm	
Lowest Elev. from datum =	-7.1 mm	+/-15 mm
Highest Elev. from datum =	7.4 mm	+/-15 mm

PASS

95th Percentile Limit

95th Percentile Limit	6.5 mm
95th Percentile Calculated	4.8 mm

PASS

Additional Info

Greatest Diff. in Elev. over 3m=	10.0 mm
% of Results over 6.5mm =	1.4 %
Range (Max - Min) =	14.5 mm

CONCLUSION

ABS BRYMAR FLOORS | POYLE

PROPERTY E

From the Property E readings gathered it can be seen from the as built survey that the floor area surveyed **complies** with the required FM2 classification as defined by table 3.1 of the Fourth Edition of the Concrete Society's Technical Report Number 34.

PROPERTY F

From the Property F readings gathered it can be seen from the as built survey that the floor area surveyed **complies** with the required FM2 classification as defined by table 3.1 of the Fourth Edition of the Concrete Society's Technical Report Number 34.

LEVEL TO DATUM

From the Property E readings gathered it can be seen from the as built survey that the floor area surveyed **complies** with the required FM2 classification as defined in section 3.1 of the Fourth Edition of the Concrete Society's Technical Report Number 34.

THIS REPORT SHOULD NOT BE REPRODUCED EXCEPT IN FULL

Report Compiled By:	David Stockwell
Signed	
Date:	09/08/2024
Report Checked By:	Rickardo Dirige
Signed:	
Date:	09/08/2024

FREE MOVEMENT SURVEYS

Concrete Society's
Technical Report Number 34 2013 Edition
Table 3.1

Further Explanatory Information

FREE MOVEMENT SURVEYS

Method statement to survey a floor's surface regularity, in accordance with The Concrete Society's Supplement to Technical Report No:34

Data analysis and permissible limits

Floor Class	Typical Floor Use	E	F
FM1	Where very high standards of flatness and levelness are required. Reach trucks operating at above 13m without side-shift.	**4.5**	**1.8**
FM2	Reach trucks operating at 8 to 13m without side-shift.	**6.5**	**2.0**
FM3	Retail floors to take directly applied finishes. Reach trucks operating at up to 8m without side-shift. Reach trucks operating at up to 13m with side-shift.	**8.0**	**2.2**
FM4	Retail floors to take applied screeds.	**10.0**	**2.4**

A representation of Table 3.1, showing the permissible values on Properties E and F levelness and flatness for free movement floor areas.

The Concrete Society's TR34 (table 3.1) recommends that 2 basic properties of the floor's surface regularity should be surveyed:-

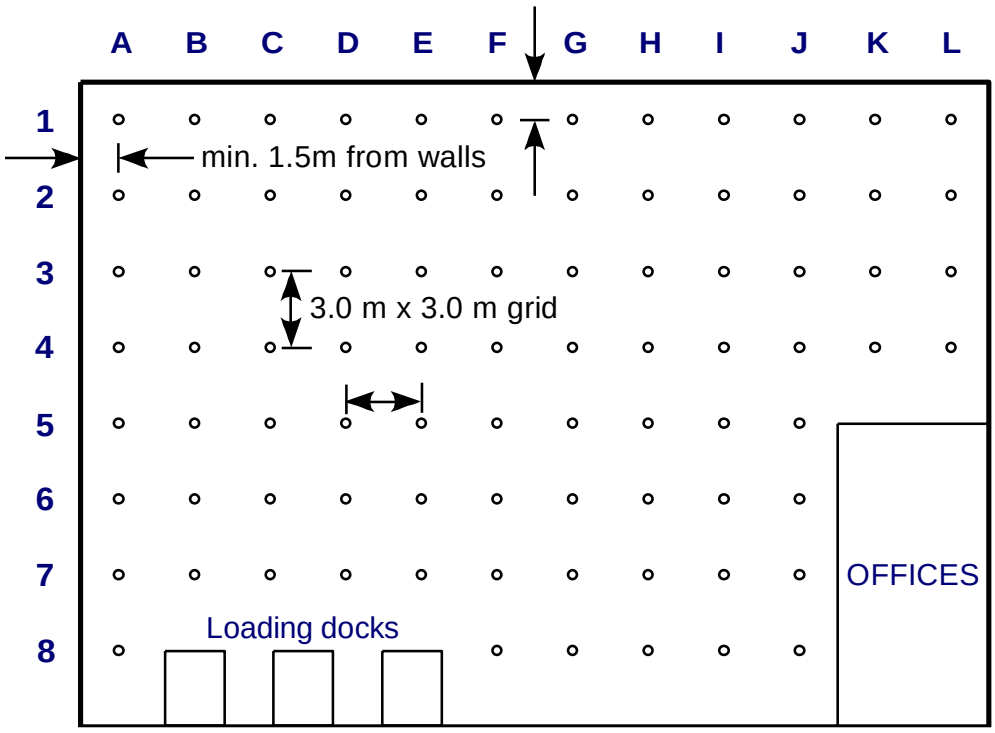
1. Flatness - Property F, the change in elevational difference between two consecutive measurements of elevational difference each measured over 300mm.

2. Levelness - Property E, as the difference in elevation between two opposing points 3.0 metres apart, set out on a 3.0 x 3.0 metre grid.

In addition, the deviation in height of the surface of all new floor construction should be within +/-15mm of a fixed datum plane. The level data from the Property E survey is used for this purpose.

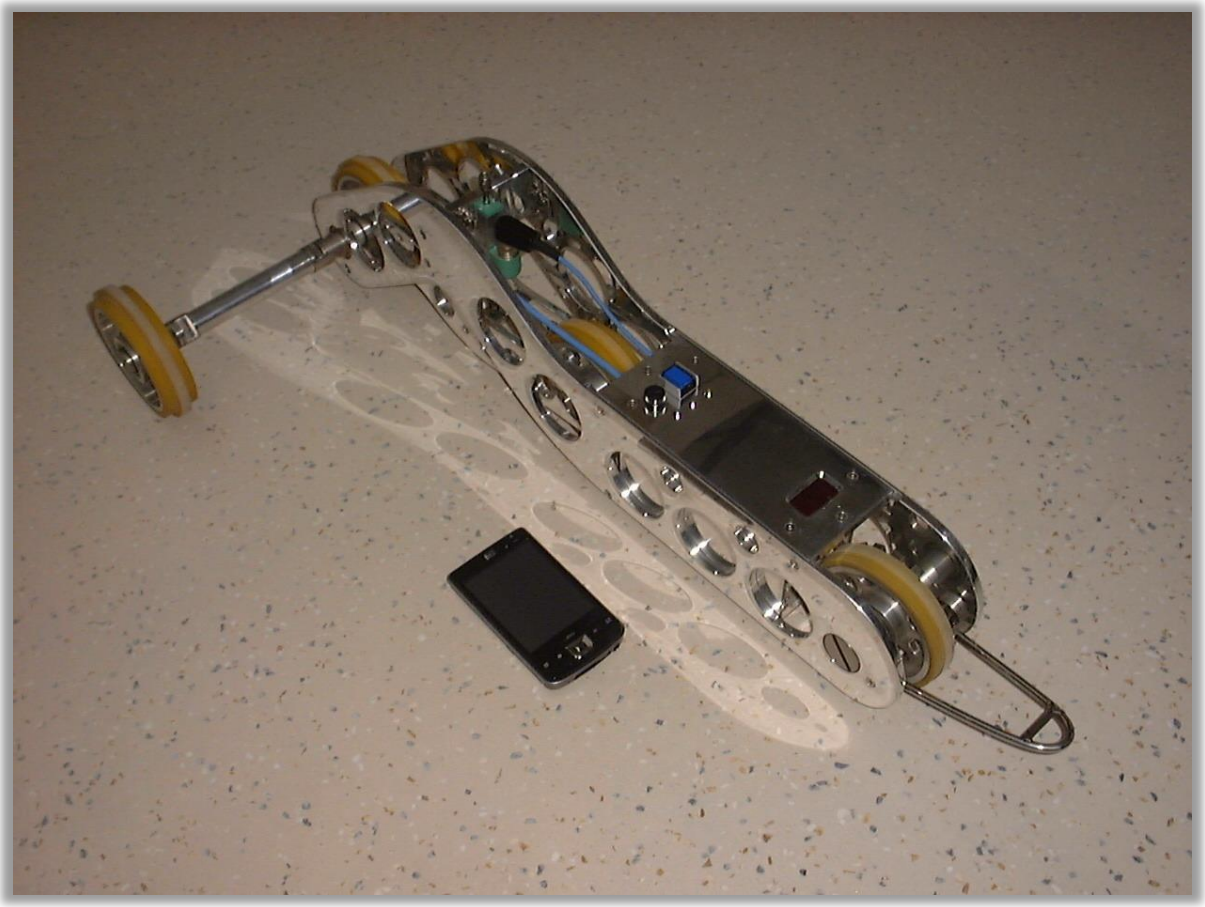
The above properties should be tested, by random sampling, in the following manner:

a) The area is accurately set out on a 3 metre grid pattern. Areas within 1.5m of a wall, column or other existing structure are not surveyed.

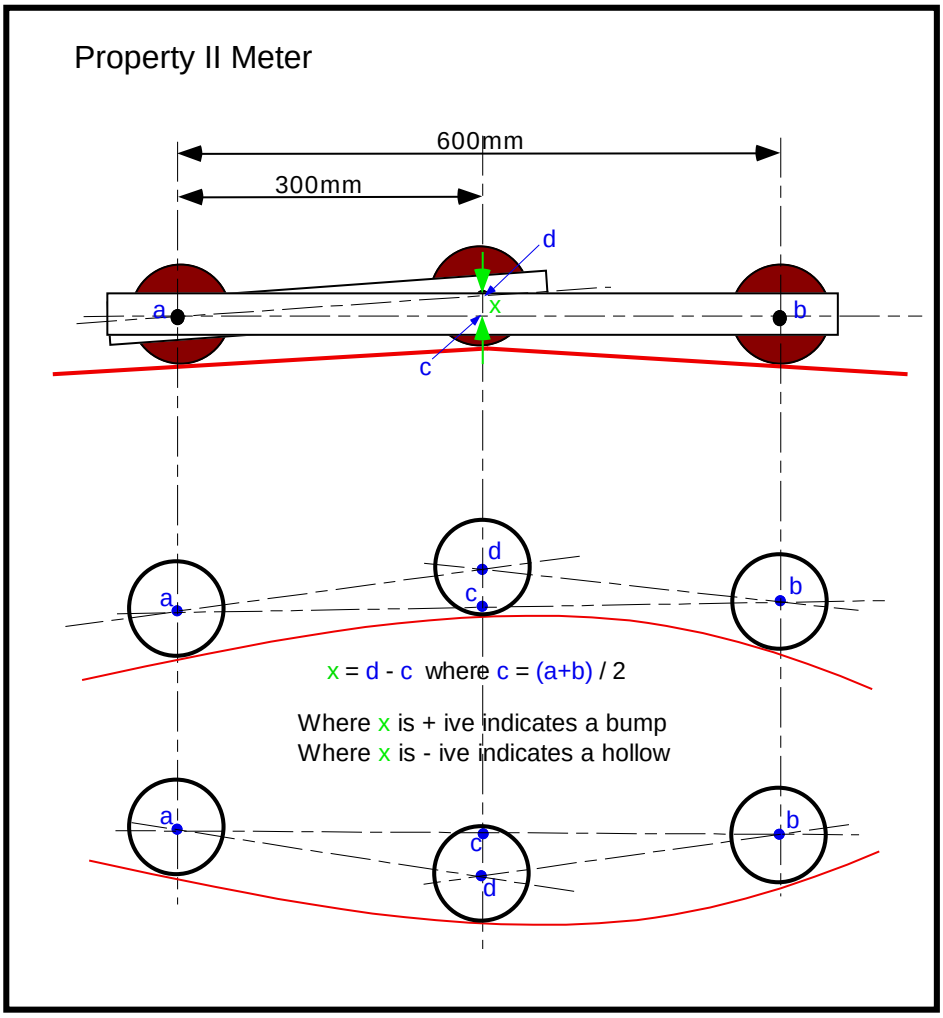


b) Level readings are taken at each grid intersection point, using an engineer's precise optical level, a parallel plate micrometer and an invar staff. This equipment takes readings to 0.1mm accuracy and the figures are used to calculate the Property E results.

c) The Property F element is measured by means of the Face Property II meter.

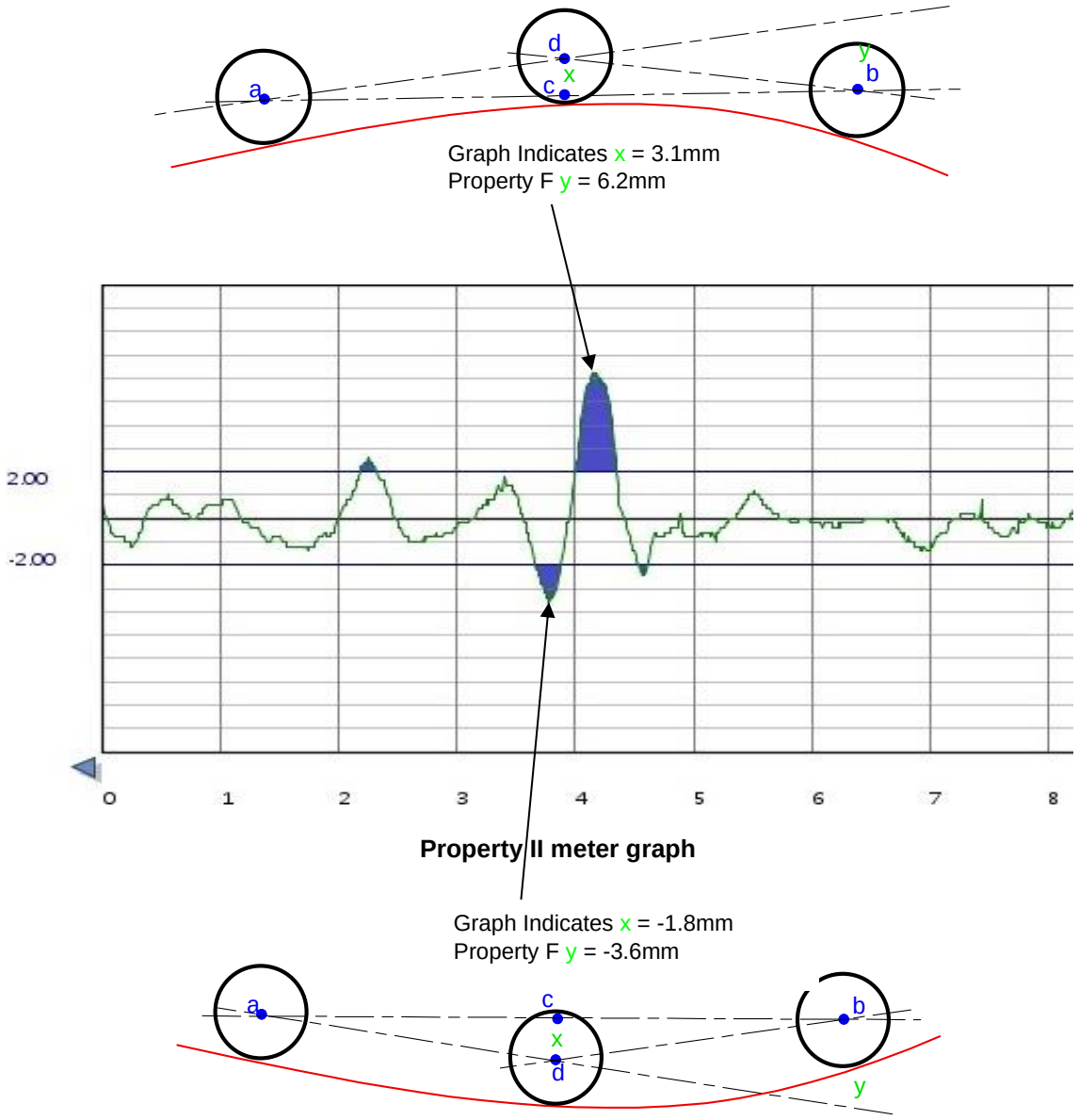


The Property II meter is simply walked along the floor and the data is collected digitally. At the end of a survey run the data is downloaded to a hand held computer and then the next run can start. When the required length is surveyed the data is then transferred from the SD card in the hand held computer to a laptop or PC. At the touch of a button the data is analysed by the Face Property F software, the 95th percentile is calculated from all survey runs and the Property F graphs produced.



Property F graphic traces are presented for each run. Where the resultant graphs cross the tolerance limit lines this indicates the Property F 95th percentile is being exceeded at this particular point of the run. The values exceeding the 95 percentile limits are highlighted in blue.

The Property F data for the total sample of Property F runs are analysed and the 95th percentile value of the total sample is calculated and stated in the results table.



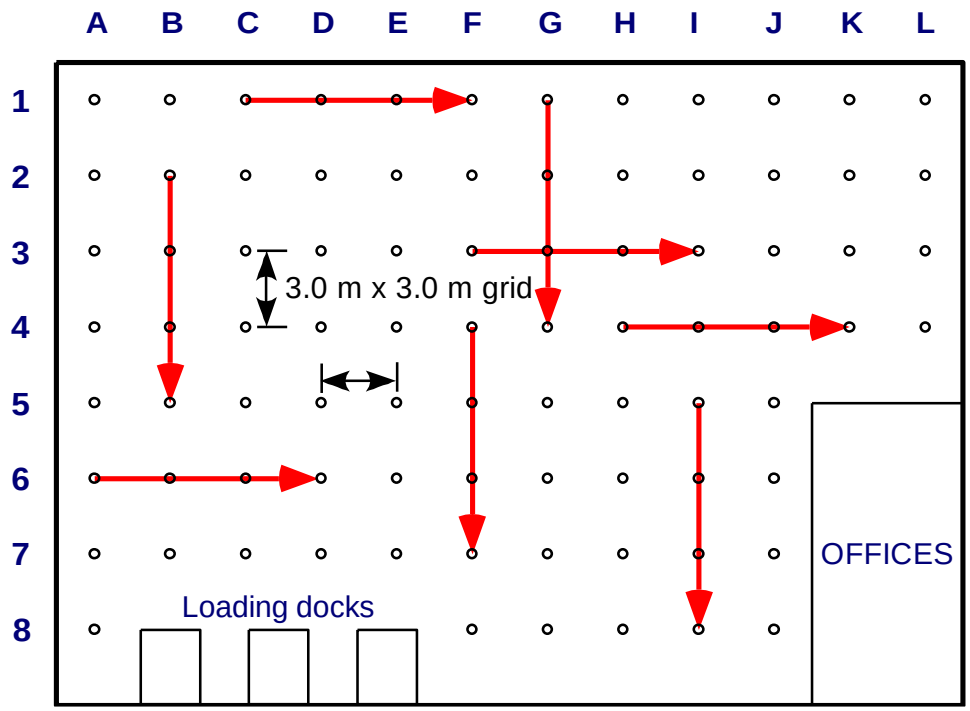
Property II meter graph

The Property II meter is simply run down sections of the floor at walking speed and the Property F rate in change values are collected continuously. The minimum total length of survey runs in metres is calculated as the floor area surveyed in square metres divided by 10. i.e. Minimum length of the survey runs (L in metres) equals Total floor Area (A) divided by 10.

E.g. A floor area (A) of 30m x 30m = 900m^2

Minimum total length of survey lines L = 900 / 10 = 90 metres

Half of the total length of survey line is to be run in one direction and the other half at right angles.



THE SURVEY RESULTS

The survey results are calculated from the data collected on site, to check compliance with the following:-

a) TR34 table 3.1, Property F

b) TR34 table 3.1, Property E

Property F

Below is an example of the summary sheet of results from a Face Property II meter survey.

The upper section of the table shows:

Project name, location, surveyor's initials, job number & date of survey
Classification tested against, FM1, FM2, FM3 or FM4.
The 95th percentile limit relating to the Classification tested against.

Summary Of Results

Job Name:	Example	Job Number:	fc.xx.xxxx
Location:	Unit 1	Date:	15/07/2013
Surveyor:	DB		

Specification	Description	
FM2 4th Edition	95th Percentile	

95th Percentile Limit	Achieved	Pass/Fail
2.0	2.2	Fail

The lower section of the summary sheet shows:

95th Percentile Limit
95th Percentile Achieved
Pass/Fail Percentile limit

Property E

From the level readings taken at the intersection points of the 3.0m grid, the difference in elevation between adjacent points can then be calculated. Any differences in elevation exceeding the 95th percentile value in table 3.1 dependent on classification are highlighted, and the total 95th percentile calculated to check compliance with the Property E classification. The highest and lowest elevation from datum is also calculated to check if any point on the grid falls outside the tolerance +/-15mm from datum.

Example, FM2 (TR34 4th Edition), Property E

Property E	Ref		A 0m		B 3m		C 6m		D 9m		E 12m		F 15m		G 18m
Level Reading	1	0m	1695.5	-3.4	98.9	1.8	97.1	2.5	94.6	0.5	94.1	-1.1	95.2	3.2	92.0
Diff. In Elev.			1.5		1.7		-0.2		-2.7		-0.9		-2.5		2.0
	2	3m	94.0	-3.2	97.2	-0.1	97.3	0.0	97.3	2.3	95.0	-2.7	97.7	7.7	90.0
			-0.5		2.7		5.8		5.8		6.5		6.1		-1.1
	3	6m	94.5	0.0	94.5	3.0	91.5	0.0	91.5	3.0	88.5	-3.1	91.6	0.5	91.1
			3.8		10.5		2.4		-0.2		2.1		-3.1		-1.2
	4	9m	90.7	6.7	84.0	-5.1	89.1	-2.6	91.7	5.3	86.4	-8.3	94.7	2.4	92.3
			0.0		-1.8		0.1		2.7		-1.2		3.1		-0.7
	5	12m	90.7	4.9	85.8	-3.2	89.0	0.0	89.0	1.4	87.6	-4.0	91.6	-1.4	93.0
							1.6		0.6		0.1		0.2		0.5
	6	15m	UTS		COL		87.4	-1.0	88.4	0.9	87.5	-3.9	91.4	-1.1	92.5

	Indicates area is over the 95th Percentile Limit (6.5mm)
	Indicates construction joint
UTS	Indicates Unable to Survey due to obstruction
COL	Indicates a Column within 1.5m radius
VOID	Indicates a Void area (not surveyed)

Results

Datum

Datum =	1692.1	mm
Tolerance	+/-15	mm
Highest Elev. from datum =	8.1	mm
Lowest Elev. from datum =	-6.8	mm

PASS

95th Percentile Limit

95th Percentile Limit	6.5	mm
95th Percentile Calculated	6.6	mm

FAIL

Additional Info

Greatest Diff. in Elev. over 3m =	10.5	mm
% of Results over 6.5mm =	6.0	%
Range (Max - Min) =	14.9	mm

Non Compliance

Where the required property limits are exceeded, it is recommended that individual measurements are examined in detail to determine the significance of any possible effect on the performance of a floor. Remedial actions will affect the appearance of the floor.

Further queries on these specifications or on any other floor flatness issue can be answered by calling Face Consultants Limited direct on:

TEL: 01484 6000 90 FAX: 01484 6000 95

Copies of the 2013 edition of the Concrete Society's Technical Report No.34 (TR34) can be purchased through Face Consultants Ltd, or direct from the Concrete Society on:

TEL: (01276) 607140 FAX: (01276) 607141

ANNEX A

PROPERTY F
GRAPHIC TRACES

This data is available upon request

ABS Brymar Floors
at
c/o Winvic Construction Ltd
Poyle 80
Horton Road
Poyle
Slough
SL3 0BB

END OF REPORT

Global Flooring **Consultants...**

Proving the World is **Flat...**

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Website: www.face-consultants.com

KONTRAD LLP DRUMHEAD ROAD CHORLEY	JOB NO. B 2428		PROJECT POYLE	
	SECTION FLOOR SLAB		DRAWING NO. 2428 /01	
	Calcs By: SP GMICE	Date: 15/05/2024	Chkd By: MT	Date: 15/05/2024

Floor Slab Calculations for :-

NEW DISTRIBUTION WAREHOUSE

POYLE

WINVIC

Prepared by :-

KONTRAD LLP

INDUSTRIAL FLOORING CONSULTANTS

winvic

Kontrad LLP Unit 40, Drumhead Road Chorley Lancashire PR6 7BX	**JOB NO.** B 2428		**PROJECT** POYLE	
	SECTION FLOOR SLAB		**DRAWING NO.** 2428 /01	
	Calcs By: SP GMICE	Date: 15/05/2024	Chkd By: MT	Date: 15/05/2024

Quotation Ref	***Date***
B 23160 C	**03/04/2024**

IMPOSED LOAD CRITERIA USED IN THE DESIGN HAS BEEN TAKEN FROM THE FOLLOWING DOCUMENTATION:

Parameters

Material Properties

SECTION: 1

Racking Leg Loads

1, 1	Individual Rack Leg loads in a B2B situation positioned away from any joints in the slab, greater than "L" (Radius of Relative Stiffness)
1,	Individual Rack Leg loads in a B2B situation positioned a specified distance from a Sawn Induced Joint but within "L" (Radius of Relative Stiffness)
1, 3	Individual Rack Leg loads in a B2B situation positioned a specified distance from an Armoured Joint but within "L" (Radius of Relative Stiffness)
1, 4	Individual Rack Leg loads (Aisle Side) Combined with a single FLT Wheel Load applied adjacent a joint.
1, 5	Individual Rack Leg Load positioned a specified distance from the free slab edge.

SECTION: 2

General Loading Conditon

2, 1	Uniformly Distributed Load

SECTION: 3

Wall Line Load

3, 1	Linear Line Load built off the slab due to Masonry Construction

Appendix A

Derivation of Punching Shear Load Due to Racking (Inner)
Derivation of Punching Shear Load Due to Racking (Edge Field)
Derivation of Punching Shear Load Due to Racking (Slab Edge)

Conclusion

Kontrad LLP Jnit 40, Drumhead Road Chorley Lancashire PR6 7BX	JOB NO. B 2428		PROJECT POYLE	
	SECTION FLOOR SLAB		DRAWING NO. 2428 /01	
	Calcs By: SP GMICE	Date: 29/06/2024	Chkd By: MT	Date: 29/06/2024

PARAMETERS

Depth	175	mm
Reinforcement	142	mm
Bar Diameter	6	mm

Ground Properties: **The calculations form the basis of the design proposals for the specified magnitude of loading which adopts a minimum value for the modulus of sub grade reaction (k-value). This value will require to be confirmed in writing by the main contractor by plate loading tests measured at a fixed settlement of 1.25mm carried out(by others) in advance of the regulating layer being placed to allow confirmation that the slab design/thickness is correct.**

Modulus of Sub-grade Reaction , k = 0.054 N/mm^3

Concrete Strength values at 28 days shall be C:

fck	fcu	
32	40	N/mm^2

Cover to Bottom Steel 40 mm

Racking Systems

Single Leg Load	70	kN		
Back to Back Spacing	300	mm		
Rack Depth	1100	mm		
Rack Length	2750	mm		
Base Plate Edge Clearance	150	mm		
Base Plate Size	100	x	100	mm
Perimeter Slab Edge Clearance	250	mm	**TO EDGE OF BASEPLATE**	

MHE

Maximum Static Wheel Load	40		**ASSUMED MAX LOAD**	
Wheel Contact Area	100	x	100	
Spacing With Rack	250	mm	**CONSERVATIVE ASSESSMENT**	

UDL

Load per Square Metre	50	kN/m^2

Line Loads

Line Load Per Lin Metre	25	kN/m	**ASSUMED MAX VALUE**

Mezzanine

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	SECTION FLOOR SLAB		DRAWING NO. 2428 /01	
	Calcs By: SP GMICE	Date: 15/05/2024	Chkd By: MT	Date: 15/05/2024

Material Properties

Slab Description		**Fabric Reinforced**			
Effective Depth	175 - 40 - 6 ***depth - cover - bar dia***	**129**	mm		
Reinforcement Details					
	f_y	**500**	N/mm^2		
	Bi-Directional As	**142**	mm^2		
% of Reinforcement Provided	100 x142 / 175x 1000	**0.081**	%		OK
Partial Safety Factors					
	ULS Plain/fibre reinf **concrete**		**1.5**	ɣm	
	Bar and Fabric **reinforcement**		**1.15**	ɣm	
	Permanent Loads (Mezzanine)		**1.35**	ɣG	
	Permanent Loads (Racking)		**1.2**	ɣG	
	Variable actions		**1.5**	ɣQ	
	Dynamic actions		**1.6**	ɣD	
	All partial Safety Factors		**1**		
Concrete Properties					
Characterisic Concrete Strength (cylinder)	f_{ck}		**32**	N/mm^2	
Characteristic Compressive strength (cube)	f_{cu}		**40**	N/mm^2	
Mean Compressive Strength (cylinder)	$f_{cm} = f_{ck} + 8\ N/mm^2$		**40**	N/mm^2	
Mean Axial Tensile Strength	$fctm = 0.3\ N/mm^2 \times (fck / 1\ N/mm^2)^{0.66}$		**3.023**	N/mm^2	
Youngs Modulus of Elasticity	$Ecm = 22{,}000\ N/mm^2 \times (fcm/10N/mm^2)^{0.3}$		**33.346**	kN/mm^2	
Design Flexural Strength of Concrete	fctd_fl = fctm x (1.6 - h/1000)/ɣm		**2.872**	N/mm^2	
Properties of Reinforced Concrete Slab					
Negative Moment Capacity	2.87x175/6 x 1000 $M_{un} = fctd\_fl \times h^2 / 6$		**14.659**	kNm/m	
Positive Moment Capacity	0.95 x 142 x 500 x 129 / ɣm x 10^6 ***Mpfab = 0.95 x As x Fy x d / ɣm***		**7.566**	kNm/m	
					OK
Poissons Ratio	v = 0.2		**0.2**		
Radius of Relative Stiffness	$L = (Ecm \times h^3 / (12 \times (1-v^2) \times k))^{0.25}$		**0.732**	m	
Charecteristic of System	$ɣ = (3 \times k / (E_{cm} \times h^3))^{0.25}$		**0.976**	m^{-1}	
Calculated Radius Ratio	118.14mm/0.732 **a/l**		**0.161**		

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	Calcs By: SP GMICE	Date: 15/05/2024	Chkd By: MT	Date: 15/05/2024

SECTION 1:

Racking Loads

No. Point Loads 2

Factored Load Applied to Slab 168 kN

SECTION 1.1 : INNER SPAN

Individual Rack Leg loads in a B2B situation positioned away from any joints in the slab, greater than "L" (Radius of Relative Stiffness)

Pu Interpolated at calculated a/l 265.11 kN Capacity Exceeds Design Load

PUNCHING SHEAR AT LOADED AREA

Maximum Load Capacity in Punching 5.5808 x 800mm x 129 575.939 kN Capacity Exceeds Design Load

PUNCHING SHEAR AT CRITICAL PERIMETER

Maximum Punching Capacity at 2d 0.56 x 2620.24 x 129 189.29 kN Capacity Exceeds Design Load

SECTION 1.2: ADJACENT TO SIJ

Individual Rack Leg loads in a B2B situation positioned a specified distance from a Sawn Induced Joint but within "L" (Radius of Relative Stiffness)

Pu Interpolated at calculated a/l 128.55 kN

USE LOAD TRANSFER VALUE OF 44.36 kN

Load Applied to Slab Edge after Load Transfer 123.64 kN Capacity Exceeds Design Load

PUNCHING SHEAR AT LOADED AREA

Maximum Load Capacity in Punching 5.5808 x 800mm x 129 575.94 kN Capacity Exceeds Design Load

PUNCHING SHEAR AT CRITICAL PERIMETER

Maximum Punching Capacity at 2d 0.56 x 1610.12 x 129 116.32 kN Rcp Value Required

Rcp Required = 7.33 kN

Rcp Provided = 31.93 kN PASS

SECTION 1.3: ADJACENT A PROPRIETARY ARMOURED JOINT

Individual Rack Leg loads in a B2B situation positioned a specified distance from an Armoured Joint but within "L" (Radius of Relative Stiffness)

Load applied to Slab Edge After Load Transfer 99.42 kN Capacity Exceeds Design Load

PUNCHING SHEAR AT LOADED AREA

Maximum Load Capacity in Punching 5.5808 x 800x129 575.94 kN Capacity Exceeds Design Load

PUNCHING SHEAR AT CRITICAL PERIMETER

Maximum Punching Capacity at 2d 0.56 x 1610.12 x 129 116.32 kN Capacity Exceeds Design Load

SECTION 1.4: INDIVIDUAL RACK LEG LOAD COMBINED WITH FLT WHEEL LOAD ADJACENT TO SIJ

Factored Load (Combination of Racking Leg and FLT Wheel) 148.00 kN

Pu Interpolated at Calculated at a/l 124.27 kN

Ultimate Load Capacity of Slab Edge due to an Offset Wheel Load of "H1" 250 **mm (TR34, Appendix A) when the rack leg is positioned** 100 **mm from the joint.**

By interpolation, the slab capacity at the offset wheel load position = 153.13 kN

USE LOAD TRANSFER VALUE OF 43.72 kN

Load Applied After Load Transfer 109.41 kN Capacity Exceeds Design Load

PUNCHING SHEAR AT LOADED AREA

Maximum Load Capacity in Punching 5.5808x800x129 575.94 kN Capacity Exceeds Design Load

PUNCHING SHEAR AT CRITICAL PERIMETER

Maximum load capacity in punching at 2d from face of load 0.56 x 1760.53 x 129 127.18 kN Capacity Exceeds Design Load

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	Calcs By: SP GMICE	Date: 15/05/2024	Chkd By: MT	Date: 15/05/2024

SECTION 1.5: INDIVIDUAL RACK LEG LOAD AT SLAB EDGE

Radius Ratio (Reduced due to Singular Point Load, Instead of Dual)	0.05641/0.732	**0.077** ***a/l***	**1**	No. Point Load
Load Applied to Slab	1 x 1.2 x 70	**84.00**	kN	
For Calculated a/l, Interpolated Capacity		**91.659**	kN	
Slab Capacity at Offset Leg Load Position		**162.735**	kN	**Capacity Exceeds Design Load**

PUNCHING SHEAR AT LOADED AREA

Maximum Load Capacity In Punching	5.5808x400x129mm	**287.969**	kN	**Capacity Exceeds Design Load**

PUNCHING SHEAR AT CRITICAL PERIMETER

Maximum load capacity in punching at 2d from face of load	0.56 x 1610.53 x 129	**116.345**	kN	**Capacity Exceeds Design Load**

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	Calcs By: SP GMICE	Date: 15/05/2024	Chkd By: MT	Date: 15/05/2024

SECTION 2:

General Loading Condition

2.1 UNIFORMLY DISTRIBUTED LOAD

	Design Load	**50**	kN/m^2	
The load Capacity Per Unit Area, q, is given by	q = 5.95 x γ^2 x M_{un}		**(Eq 35)**	
	q = **5.95 x 0.975^2 x14.65**			
		82.864	kN/m^2	**Capacity Exceeds Design Load**

SECTION 3:

3.1 : WALL LINE LOAD

Linear Line Load built off the slab due to Masonry Construction

Line capacity remote from joints or slab edges > 3/γ :-	P_{lin} = 4 γ M_{un}		Eq 34	
	4 x 0.975 x 14.65 =	**57.214**	kN/m	**Capacity Exceeds Design Load**
Line capacity adjacent a sawn induced joint :-	P_{lin} = 3 γ M_{un}			
	3 x 0.975 x 14.65 =	**42.911**	kN/m	**Capacity Exceeds Design Load**

For a joint with a minimum load transfer capacity of 15% the capacity increases to 4 γ Mun at a distance of 1/γ

	1/γ =	**1.02**	m

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APPENDIX A

INNER FIELD - RACKING

As the slab is assumed to be in contact with the the sub base , a proportion of the slab load within the punching shear perimeter can be considered to be applied directly to the sub grade, thus reducing the design force . A method for calculating the ground reaction is set out below

Rcp = sum of ground pressures within the critical perimeter

Rcp = $[1.4(d/l)^2 P] + [0.47 (x + y) dP/l^2]$ **Eq (31)**

P	**168**	kN
d	**129**	mm
L	**732.11136**	mm
L_W	**100**	mm
L_L	**100**	mm
B2B	**300**	mm
y	**100**	*stiff bearing*
x	**400**	*stiff bearing*

Rcp = 7.30 + 9.50

Rcp = **16.804** kN

EDGE FIELD - RACKING

Rcp = $[2.4(d/l)^2 P] + [0.8 (x + 2y) dP/l^2]$ **Eq (32)**

Rcp = 12.52 + 19.41

Rcp = **31.927** kN

SLAB EDGE - RACKING

Rcp = $[2.4(d/l)^2 P] + [0.8 (x + 2y) dP/l^2]$ **Eq (32)**

P	**84**	kN
d	**129**	mm
L	**732.11136**	mm
L_W	**100**	mm
L_L	**100**	mm
B2B	**300**	mm

Rcp = 6.26 + 4.85

Rcp = **11.111** kN

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CONCLUSION

THE CALCULATIONS CONFIRM THAT THE SLAB DESIGN SHALL BE CONSTRUCTED TO THE FOLLOWING KONTRAD SPECIFICATION.

SLAB DEPTH			175		
REINFORCEMENT		*Type A*	142		
CONCRETE	C	32	40	N/mm^2	
COVER (B)			40		
SAW CUTS			50	mm	
ARMOURED JOINTS		*8mm @*	600	ctrs	**(or R12 @ 300 ctrs)**

SLAB DESIGN HAS BEEN BASED ON THE FOLLOWING LOADINGS

Racking Systems

(Modular End Frame with 2 Legs at 1050-1200 ctrs)

Single Leg Load	70	kN			
Back to Back Spacing	300	mm			
Rack Depth	1100	mm			
Rack Length	2750	mm			
Base Plate Edge Clearance	150	mm			
Base Plate Size	100	mm x	100	mm	**TO CTR LINE OF BASE PLATE**
Perimeter Slab Edge Clearance	250	mm			**TO EDGE OF BASE PLATE**

MHE

Maximum Static Wheel Load	40	kN			**Assumed MAX Value**
Wheel Contact Area	100	x	100	mm	

UDL

Load per Square Metre	50	kN/m^2

Line Loads

Load per Linear Metre	25	kN/m	**Assumed MAX Value**

Mezzanine

Not Specified

The Slab Design Is Based Upon A Minimum "K" Value / Modulus Of Rigidity Being Available On Top Of The Sub Grade / Capping Material of **0.054** **N/mm^3**

The Calculations Form The Basis Of The Design Proposals For The Specified Magnitude Of Loading Which Adopts A Minimum Value For The Modulus Of Sub Grade Reaction (K-Value). This Value Will Require To Be Confirmed In Writing By The Main Contractor By Plate Loading Tests Measured At A Fixed Settlement Of 1.25mm Carried Out (By Others) In Advance Of The Regulating Layer Being Placed To Allow Confirmation That The Slab Design/Thickness Is Correct.

Sub Bases May Be Lightly Blinded Suitable To Receive The Polythene Slip Membrane However The Depth Of Any Blinding Must Not Exceed 10 Mm In Order To Allow Access For Construction Traffic Without Excessive Rutting.

The Requirement For Any Under slab Insulation Shall Be Designed Supplied And Installed By Others To Achieve The Same Support Parameters As The Soil Below.

The Design Of Holding Down Bolts For Racking Installations Shall Be The Responsibility Of Others Based Upon The Slab Thickness Specified Above And Appropriate Edge Dimensions To Prevent Bursting Of The Concrete.

Slab Design Conditions Are Not Taken Concurrently Except Where Noted For Example Load Case 4 - Single Rack + Flt Wheel Load.

The Slab Construction Will Be Suitable For Standard (Uk) Road Vehicles Ingressing And Egressing The Building In Forward And Reverse Gear At Slow Speed

REFER TO ABS BRYMAR JOINT LAYOUT FOR PROPOSED DETAILS. 2428 /01 & 2428 /02

000100001355
Isotest Ltd
8, Hood Road,
Daventry,
Northmptonshire
NN11 4JS
Email: info@isotest.org.uk

ISO TEST

TEST REPORT

TEST CERTIFICATE - CONCRETE CUBES

Tested to BS EN 12390-3: 2019

Client Name & Address: ABS Brymar Floors Limited, Unit 40 Drumhead Road, Chorley North Industrial Park, Chorley, PR6 7BX	**Client Address:** CO Winvic Construction Ltd, Panattoni-Poyle, Unit 80, Horton Road, Poyle, Slough. SL3 0BB	**Report Number:**22149/24/ISO223007-02
Location in Works: Area 2	**Time Made**: 09:00am	**Ticket Number:** 2091239462 — **Air Content %: 0.5**
Mix Details: C32/40, CIIB-S	**Consistency of Concrete:** 140mm	

Lab Ref.	Cube Ref.	Cast Date	Date Received	Age of Test	Date Tested:	Saturated Density (kg/m3)	Measured Size of Sample (mm)	Load at Failure (kN)	Compressive Strength (N/mm2)	Comments
ISO223007-01	1A	23/07/2024	24/07/2024	7	30/07/2024	2440	100x100x100	271.9	27.1	
ISO223007-02	1B	23/07/2024	24/07/2024	28	20/08/2024	2450	100x100x100	453.2	45.3	

Condition of Cubes when Received:	Wet	**Rate of Loading 0.4 to 0.8 N/mm² /sec**	Making Certificate Available:	Yes
Laboratory Curing Range:	18˚-22˚C		Cube Made By:	Isotest Ltd
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	**Dimensions**		Concrete Failure:	Normal

Date of Issue: 20 August 2024

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Signed By ..... [✓] S. Hudspeth (Director)
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ISO TEST

TEST REPORT

TEST CERTIFICATE - CONCRETE CUBES

Tested to BS EN 12390-3: 2019

Client Name & Address: ABS Brymar Floors Limited, Unit 40 Drumhead Road, Chorley North Industrial Park, Chorley, PR6 7BX	**Client Address:** CO Winvic Construction Ltd, Panattoni-Poyle, Unit 80, Horton Road, Poyle, Slough. SL3 0BB	**Report Number:**22149/24/ISO223008-02
Location in Works: Area 2	**Time Made**: 09:40am	**Ticket Number:** 2091240118 — **Air Content %: 0.6**
Mix Details: C32/40, CIIB-S	**Consistency of Concrete:** 150mm	

Lab Ref.	Cube Ref.	Cast Date	Date Received	Age of Test	Date Tested:	Saturated Density (kg/m3)	Measured Size of Sample (mm)	Load at Failure (kN)	Compressive Strength (N/mm2)	Comments
ISO223008-01	2A	23/07/2024	24/07/2024	7	30/07/2024	2440	100x100x100	296.5	29.6	
ISO223008-02	2B	23/07/2024	24/07/2024	28	20/08/2024	2450	100x100x100	487.3	48.7	

Condition of Cubes when Received:	Wet	**Rate of Loading 0.4 to 0.8 N/mm² /sec**	Making Certificate Available:	Yes
Laboratory Curing Range:	18˚-22˚C		Cube Made By:	Isotest Ltd
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	**Dimensions**		Concrete Failure:	Normal

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Location in Works: Area 2	**Time Made**: 14:05pm	**Ticket Number:** 2091243156 — **Air Content %: 0.4**
Mix Details: C32/40, CIIB-S	**Consistency of Concrete:** 150mm	

Lab Ref.	Cube Ref.	Cast Date	Date Received	Age of Test	Date Tested:	Saturated Density (kg/m3)	Measured Size of Sample (mm)	Load at Failure (kN)	Compressive Strength (N/mm2)	Comments
ISO223009-01	3A	23/07/2024	24/07/2024	7	30/07/2024	2410	100x100x100	276.1	27.6	
ISO223009-02	3B	23/07/2024	24/07/2024	28	20/08/2024	2440	100x100x100	480.6	48.0	

Condition of Cubes when Received:	Wet	**Rate of Loading 0.4 to 0.8 N/mm² /sec**	Making Certificate Available:	Yes
Laboratory Curing Range:	18˚-22˚C		Cube Made By:	Isotest Ltd
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	**Dimensions**		Concrete Failure:	Normal

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Location in Works: Area 2	**Time Made**: 15:10pm	**Ticket Number:** 2091243732 — **Air Content %: 0.6**
Mix Details: C32/40, CIIB-S	**Consistency of Concrete:** 150mm	

Lab Ref.	Cube Ref.	Cast Date	Date Received	Age of Test	Date Tested:	Saturated Density (kg/m3)	Measured Size of Sample (mm)	Load at Failure (kN)	Compressive Strength (N/mm2)	Comments
ISO223010-01	4A	23/07/2024	24/07/2024	7	30/07/2024	2420	100x100x100	307.7	30.7	
ISO223010-02	4B	23/07/2024	24/07/2024	28	20/08/2024	2430	100x100x100	514.5	51.4	

Condition of Cubes when Received:	Wet	**Rate of Loading 0.4 to 0.8 N/mm² /sec**	Making Certificate Available:	Yes
Laboratory Curing Range:	18˚-22˚C		Cube Made By:	Isotest Ltd
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	**Dimensions**		Concrete Failure:	Normal

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Location in Works: Area 4	**Time Made**: 08:26am	**Ticket Number:** 2091254059 — **Air Content %: 0.1**
Mix Details: C32/40, CIIB-S, 150	**Consistency of Concrete:** 160mm	

Lab Ref.	Cube Ref.	Cast Date	Date Received	Age of Test	Date Tested:	Saturated Density (kg/m3)	Measured Size of Sample (mm)	Load at Failure (kN)	Compressive Strength (N/mm2)	Comments
ISO223041-01	1A	25/07/2024	26/07/2024	7	01/08/2024	2430	100x100x100	280.3	28.0	
ISO223041-02	1B	25/07/2024	26/07/2024	28	22/08/2024	2440	100x100x100	477.0	47.7	

Condition of Cubes when Received:	Wet	**Rate of Loading 0.4 to 0.8 N/mm² /sec**	Making Certificate Available:	Yes
Laboratory Curing Range:	18˚-22˚C		Cube Made By:	Isotest Ltd
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	**Dimensions**		Concrete Failure:	Normal

Date of Issue: 22 August 2024

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Location in Works: Area 4	**Time Made**: 11:10am	**Ticket Number:** 2091256361	**Air Content %: 0.1**
Mix Details: C32/40, CIIB-S, 150		**Consistency of Concrete:** 170mm	

Lab Ref.	Cube Ref.	Cast Date	Date Received	Age of Test	Date Tested:	Saturated Density (kg/m3)	Measured Size of Sample (mm)	Load at Failure (kN)	Compressive Strength (N/mm2)	Comments
ISO223042-01	2A	25/07/2024	26/07/2024	7	01/08/2024	2450	100x100x100	279.3	27.9	
ISO223042-02	2B	25/07/2024	26/07/2024	28	22/08/2024	2480	100x100x100	453.9	45.3	

Condition of Cubes when Received:	Wet	**Rate of Loading 0.4 to 0.8 N/mm² /sec**	Making Certificate Available:	Yes
Laboratory Curing Range:	18˚-22˚C		Cube Made By:	Isotest Ltd
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	**Dimensions**		Concrete Failure:	Normal

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Location in Works: Area 4	**Time Made**: 14:01pm	**Ticket Number:** 2091258304	**Air Content %:**
Mix Details: C32/40, CIIB-S, 150		**Consistency of Concrete:** 160mm	

Lab Ref.	Cube Ref.	Cast Date	Date Received	Age of Test	Date Tested:	Saturated Density (kg/m3)	Measured Size of Sample (mm)	Load at Failure (kN)	Compressive Strength (N/mm2)	Comments
ISO223043-01	3A	25/07/2024	26/07/2024	7	01/08/2024	2410	100x100x100	259.7	25.9	
ISO223043-02	3B	25/07/2024	26/07/2024	28	22/08/2024	2440	100x100x100	481.0	48.1	

Condition of Cubes when Received:	Wet	**Rate of Loading 0.4 to 0.8 N/mm² /sec**	Making Certificate Available:	Yes
Laboratory Curing Range:	18˚-22˚C		Cube Made By:	Isotest Ltd
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	**Dimensions**		Concrete Failure:	Normal

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Location in Works: Area 4	**Time Made**: 15:31pm	**Ticket Number:** 2091259213	**Air Content %:**
Mix Details: C32/40, CIIB-S, 150		**Consistency of Concrete:** 170mm	

Lab Ref.	Cube Ref.	Cast Date	Date Received	Age of Test	Date Tested:	Saturated Density (kg/m3)	Measured Size of Sample (mm)	Load at Failure (kN)	Compressive Strength (N/mm2)	Comments
ISO223044-01	4A	25/07/2024	26/07/2024	7	01/08/2024	2420	100x100x100	283.6	28.3	
ISO223044-02	4B	25/07/2024	26/07/2024	28	22/08/2024	2450	100x100x100	461.8	46.1	

Condition of Cubes when Received:	Wet	**Rate of Loading 0.4 to 0.8 N/mm² /sec**	Making Certificate Available:	Yes
Laboratory Curing Range:	18˚-22˚C		Cube Made By:	Isotest Ltd
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	**Dimensions**		Concrete Failure:	Normal

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Client Name & Address: ABS Brymar Floors Limited, Unit 40 Drumhead Road, Chorley North Industrial Park, Chorley, PR6 7BX	**Client Address:** CO Winvic Construction Ltd, Panattoni-Poyle, Unit 80, Horton Road, Poyle, Slough. SL3 0BB	**Report Number:**22149/24/ISO223045-02
Location in Works: Area 3	**Time Made**: 08:38am	**Ticket Number:** 2091261576 **Air Content %:**
Mix Details: C32/40, CIIB-S, 150	**Consistency of Concrete:** 180mm	

Lab Ref.	Cube Ref.	Cast Date	Date Received	Age of Test	Date Tested:	Saturated Density (kg/m3)	Measured Size of Sample (mm)	Load at Failure (kN)	Compressive Strength (N/mm2)	Comments
ISO223045-01	1A	26/07/2024	27/07/2024	7	02/08/2024	2390	100x100x100	299.0	29.9	
ISO223045-02	1B	26/07/2024	27/07/2024	28	23/08/2024	2420	100x100x100	469.2	46.9	

Condition of Cubes when Received:	Wet	**Rate of Loading 0.4 to 0.8 N/mm² /sec**	Making Certificate Available:	Yes
Laboratory Curing Range:	18˚-22˚C		Cube Made By:	Isotest Ltd
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	**Dimensions**		Concrete Failure:	Normal

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Location in Works: Area 3	**Time Made**: 10:34am	**Ticket Number:** 2091263107	**Air Content %:**
Mix Details: C32/40, CIIB-S, 150		**Consistency of Concrete:** 160mm	

Lab Ref.	Cube Ref.	Cast Date	Date Received	Age of Test	Date Tested:	Saturated Density (kg/m3)	Measured Size of Sample (mm)	Load at Failure (kN)	Compressive Strength (N/mm2)	Comments
ISO223046-01	2A	26/07/2024	27/07/2024	7	02/08/2024	2410	100x100x100	324.7	32.4	
ISO223046-02	2B	26/07/2024	27/07/2024	28	23/08/2024	2440	100x100x100	471.0	47.1	

Condition of Cubes when Received:	Wet	**Rate of Loading 0.4 to 0.8 N/mm² /sec**	Making Certificate Available:	Yes
Laboratory Curing Range:	18˚-22˚C		Cube Made By:	Isotest Ltd
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	**Dimensions**		Concrete Failure:	Normal

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Location in Works: Area 3	**Time Made**: 12:01pm	**Ticket Number:** 2091263983 **Air Content %:**
Mix Details: C32/40, CIIB-S, 150		**Consistency of Concrete:** 160mm

Lab Ref.	Cube Ref.	Cast Date	Date Received	Age of Test	Date Tested:	Saturated Density (kg/m3)	Measured Size of Sample (mm)	Load at Failure (kN)	Compressive Strength (N/mm2)	Comments
ISO223047-01	3A	26/07/2024	27/07/2024	7	02/08/2024	2410	100x100x100	273.5	27.3	
ISO223047-02	3B	26/07/2024	27/07/2024	28	23/08/2024	2440	100x100x100	460.4	46.0	

Condition of Cubes when Received:	Wet	**Rate of Loading 0.4 to 0.8 N/mm² /sec**	Making Certificate Available:	Yes
Laboratory Curing Range:	18˚-22˚C		Cube Made By:	Isotest Ltd
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	**Dimensions**		Concrete Failure:	Normal

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Tested to BS EN 12390-3: 2019

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Location in Works: Area 3	**Time Made**: 14:17pm	**Ticket Number:** 20912265419	**Air Content %:**
Mix Details: C32/40, CIIB-S, 150		**Consistency of Concrete:** 170mm	

Lab Ref.	Cube Ref.	Cast Date	Date Received	Age of Test	Date Tested:	Saturated Density (kg/m3)	Measured Size of Sample (mm)	Load at Failure (kN)	Compressive Strength (N/mm2)	Comments
ISO223048-01	4A	26/07/2024	27/07/2024	7	02/08/2024	2390	100x100x100	296.3	29.6	
ISO223048-02	4B	26/07/2024	27/07/2024	28	23/08/2024	2410	100x100x100	453.9	45.3	

Condition of Cubes when Received:	Wet	**Rate of Loading 0.4 to 0.8 N/mm² /sec**	Making Certificate Available:	Yes
Laboratory Curing Range:	18˚-22˚C		Cube Made By:	Isotest Ltd
Cube Moisture Condition at Testing:	Saturated		Concrete Appearance:	Normal
Volume determined by:	**Dimensions**		Concrete Failure:	Normal

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6. Operation

DOCUMENT REF	00001
ABS PROJECT NO	B2428
CLIENT	WINVIC CONSTRUCTION LTD
PROJECT	POYLE 80
LOCATION	POYLE

SECTION 2 - OPERATION & USE

The floor slab on this project has primarily been designed to support the loads placed upon it & to provide a working platform for personnel and operational vehicles to function in a safe manner.
Concrete floors are not maintenance free & to remain in a safe and serviceable condition the concrete slab will require regular inspections and maintenance.
Maintenance includes regular cleaning, re-filling of joints, repairs to damaged joints edges and surface repairs to damaged or worn areas, failure to adhere to a strict cleaning and maintenance regime will result in higher long-term maintenance & repair costs.
ABS Brymar Floors Ltd recommend that a thorough inspection of the floor is carried out periodically on at least a 3-monthly cycle, together with a cleaning regime and inspection of joints, carried out on a more regular basis.
Floor slabs can vary significantly in their construction and whilst it is not important for the "end user" to understand the design of the floor it may be helpful to understand the construction techniques and the terminology used later in this document.

The following pages within this section have been compiled as a first point of reference & guidance for building owners & tenants regarding their floor slab, its construction & ongoing inspection & maintenance.

Design Loadings & Setting Out of Racking / Equipment

The magnitude and location of high bay racking, elevated mezzanine floors and equipment supported on the slab must be installed fully in accordance with the design parameter documented on the design drawings and calculations taking full recognition of maximum loads and spatial requirements away from floor joints.

7. Maintenance Procedures and Planned Maintenance

CLIENT PROJECT No	**P23025**
ABS PROJECT No	**B2428**
CLIENT	**WINVIC CONSTRUCTION LTD**
PROJECT	**POYLE 80**
LOCATION	**POYLE**

CLEANING & MAINTENANCE TABLE & INFORMATION

Please refer to the following maintenance table and information to help you understand your floor slab construction and ongoing care for your floor slab.

Cleaning and Maintenance Regimes

This maintenance schedule for P23025 Panattoni, Poyle is to be followed from 16.09.2024 year on year to ensure all plant and equipment is kept within warranty.

Please keep a log of these inspections so that records can be checked should an issue arise.

Code; ✓ **Blue – Recommended** ✓ **Red – To Maintain Warranty**

Item	Daily	Weekly	Monthly	3 Months	6 Months	9 Months	12 months	5 Yearly	Certificates	Regime
General cleaning & mopping	✓									***Daily-*** Local cleaning of loose /spilled materials liquids etc.
Mechanical cleaning		✓								***Weekly-*** Thorough cleaning with mechanical cleaning equipment i.e., with floor scrubber fitted with nonabrasive pads
General inspection		✓							No certificate mandatory element	***Weekly-*** General inspection of floor slab. Joints, cracks & joint sealant. Arrange repair as necessary using a specialist concrete repair & or joint sealant contractor
Thorough inspection				✓					No certificate mandatory element	***3 Months-*** Full inspection of floor slab, attention to high forklift trafficked areas, arrange repair as necessary using a specialist concrete repair & or joint sealant contractor.

Item	Daily	Weekly	Monthly	3 Months	6 Months	9 Months	12 months	5 Yearly	Certificates	Regime
Sacrificial floor joint sealant replacement							✓		No certificate mandatory element	***12 Months-*** ABS recommend any initial joint sealant is treated as sacrificial and should be raked out and replaced once all initial slab shrinkage has occurred.

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CLEANING & MAINTENANCE INFORMATION

The floor slab on this project has primarily been designed to support the loads placed upon it & to provide a working platform for personnel and operational vehicles to function in a safe manner.
Concrete floors are not maintenance free & to remain in a safe and serviceable condition the concrete slab will require regular inspections and maintenance
Maintenance includes regular cleaning, re-filling of joints, repairs to damaged joints edges and surface repairs to damaged or worn areas, failure to adhere to a strict cleaning and maintenance regime will result in higher long-term maintenance & repair costs.
ABS Brymar Floors Ltd recommend that a thorough inspection of the floor is carried out periodically on at least a 3-monthly cycle, together with a cleaning regime and inspection of joints, carried out on a more regular basis.
Floor slabs can vary significantly in their construction and whilst it is not important for the “end user” to understand the design of the floor it may be helpful to understand the construction techniques and the terminology used later in this document.

The following pages within this section have been compiled as a first point of reference & guidance for building owners & tenants regarding their floor slab, its construction & ongoing inspection & maintenance.

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Introduction

Concrete slabs are constructed from natural elements e.g.: - cement and gravel materials and as such are affected like any other natural element by volumetric changes associated with contraction and expansion due to climate and ambient temperature changes.

Your floor slabs incorporate reinforcement which consists of steel fabric reinforcement to control expansion and contraction. Reinforcement together with appropriately designed construction joints help to minimise the effects of early drying shrinkage, thermal effects and provide structural integrity to the slab to support equipment/material loads applied to the floor.

The floor slab will incorporate construction joints as follows: -.

“Contraction Joints” spaced at 40m to 50m centres formed using proprietary steel armoured joints.

“Sawn Induced Joints” approximately 3 mm wide installed at 5m to 6m centres. Sawn joints are positioned between the more widely spaced Contraction Joints as described above.

Stepped Galvanised Armoured joints were installed at the vehicular level access doorways.

The visible edges of floor joints at the surface of the slab are called “edge arrises”

Maintenance regime

The Floor Slab shall be monitored by the Building User or Representative, to inspect and carry out maintenance issues including but not limited to: -

1.0 General Cleaning Issues.

2.0 Construction Joints and Sealants.

3.0 Surface Wear and Abrasion.

4.0 Impact Damage.

5.0 Floor Slab Restraint Cracking.

6.0 Health & Safety Issues.

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1.0 General Cleaning Issues

It is important to establish a cleaning regime that prevents dirt and dust from building up on the surface of the slab.

The operation of many types of Material Handling Equipment (MHE) on dirty/dusty floors will create increased wear of the floor.

Power-floated concrete floors can normally be easily cleaned with a wet scrubber and vacuum type machine using neutral non-acidic and non-abrasive detergents. Dry vacuum and sweeping will also remove dust and dirt deposits.

For large floor areas “walk behind” or “ride on” scrubber-driers, vacuums and sweepers are recommended for speed and effectiveness.

Manufacturers and specialist floor cleaning contractors should be consulted at an early stage to provide advice and product selection for individual circumstances.

1.1 Oil, Grease and Chemical Spillages

Spillages should be cleaned up immediately and the surface cleaned as outlined in Clause 1.0

Specialist advice may be required to adopt an appropriate cleaning product to safely remove and clean the affected surface.

Spillages should be rectified as soon as possible or “cordoned off” to prevent the spillage being trafficked and then dispersed or transported around the floor by foot traffic or machine wheels etc.

Chemical attack on concrete floors usually arises from the spillage of aggressive chemicals. The intensity of attack depends on many factors, principally the composition and concentration of the aggressive agent, the pH and permeability of the concrete, and the contact time.

Examples of common substances that may meet concrete floors are acids, wines, beers, milk, sugars, and mineral and vegetable oils.

Further guidance can be obtained from the Concrete Society Technical Report No 54.

Any agent that attacks concrete will eventually cause surface damage if it remains in contact with the floor for long enough. Although frequent cleaning to remove aggressive agents will reduce deterioration, repeated cycles of spillage and cleaning will cause long-term surface damage.

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Where further chemical attack is likely, consideration should be given to protecting the floor with a chemically resistant material or system that will resist the action of the aggressive agent. Advice on resin coatings is available in BS 8204-6 and from specialist suppliers and applicators.

1.2 Loose Debris/Dust

These are divided into ‘soft’ and ‘hard’ dusts. The soft type, such as talc, flour and cement dust, form a thin layer on both the concrete and the shoe sole which modifies the frictional performance of the two, potentially reducing the slip resistance. The hard type of dust, usually of much larger grain size, can act like ball bearings, particularly if the grains are rounded rather than angular, again potentially reducing slip resistance.

A regular routine of sweeping with mechanical or manual brushes is required.

If mechanical sweepers are adopted, ensure abrasive bristles are not used as these may abrade the slab surface.

Manufacturers and specialist floor cleaning contractors should be consulted at an early stage to provide advice and product selection for individual circumstances.

1.3 Tyre Deposits

The removal of tyre deposits is extremely difficult to achieve and MHE drivers should be encouraged not to speed, spin, skid or apply brakes harshly, any of which may result in excessive tyre wear and deposits on the surface of the slab.

Scrape the surface to remove any build-up of rubber. Clean stubborn deposits with spray applied floor polish speed stripper (used sparingly) allow to stand for approximately 5 minutes and then scrub with mechanical rotary brush and rinse thoroughly with clean water using wet vacuum equipment to remove surplus.

All floors that are cleaned or degreased should be rinsed thoroughly and the areas cordoned off and safety notices posted until the floor is dry to prevent accidents whilst the floor is wet and greasy.

Manufacturers and specialist floor cleaning contractors should be consulted at an early stage to provide advice and product selection for individual circumstances.

2.0 Construction Joints and Sealants

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Floor Joints typically require the most attention in any maintenance plan, as they are the weakest feature of any floor.

The visible edges of “Contraction Joints” are prone to damage as these types of joints are designed to open as the slab contracts. The joints are constructed with proprietary armoured steel edges comprising of two 10 mm wide steel strips cast in the slab. This type of joint is more able to withstand heavy wear, although regular inspection and maintenance is still required.

The visible edges of “Sawn Induced Joints” generally perform well in service although they can be susceptible to heavy trafficking by small hard nylon wheels (e.g., pallet trucks). In heavily trafficked areas, any unprotected arrises of these joints may suffer damage if the joints are not maintained.

Initial ‘soft’ elastomeric mastic should be installed in all joints; this sealant will allow a degree of movement as the joint opens during the first 12 - 18 months. This sealant provides nominal support to the edge arris and will keep the joint free from dirt and debris. Once the sealant has reached the limit of its elasticity, it may de-bond from one of the joint faces and should be replaced. This is not a defect and replacement must be undertaken by the Tennant as part of the planned maintenance regime.

Joint sealants should be inspected regularly and their ability to protect the edge arris assessed. Once edge arrises are damaged the sealant will need to be replaced. Damage to arrises should be repaired as soon as possible as they will very quickly deteriorate leading to expensive slab repairs.

Dependent upon the ambient temperatures and heating conditions within a building, slabs can take between 12 – 18 months to fully cure i.e., dry out. When movement of the joints has stabilised, the initial sacrificial sealant should be replaced with a final sealant with nominal elasticity that can provide full support to the edge arris. Continued regular inspection locating any further natural deterioration of the sealant can be successfully treated at an early stage before significant damage to the joint occurs.

It may be necessary to replace sealants in heavily trafficked transfer aisles or circulation areas on a more frequent basis and this type of ongoing maintenance should be allowed for within a building maintenance budget.

It is essential that armoured joints are similarly inspected to ensure that joints sealants remain intact, whilst armoured joints work extremely well in practice it has been documented that a lack of

sealant in the joint can be a contributory factor to the joint deteriorating and this can be observed as a hairline crack occurring at the back of the steel plate.
All armoured joints should be filled with a soft elastomeric sealant to ensure that adequate provision is left for the joint to contract.
Hard solid sealants are not suitable in armoured joints as they do not offer sufficient elasticity throughout a lifetime cycle.
With the use of modern construction methods comprising large slab areas, it is not unusual for contraction joints to open more than 25 mm during a lifetime cycle and accordingly sealants should be replaced as necessary to accommodate such movement.
ABS Brymar Floors do not accept any responsibility to carry out slab repairs where in-adequate maintenance has been carried out other than for when a genuine latent defect has occurred.

3.0 Surface Wear and Abrasion

Providing a floor is regularly cleaned and maintained, the surface should remain serviceable for its design life although some wear may occur, which may require maintenance.
For power-trowelled floors in normal warehouse working conditions, abrasion is not usually an issue.
Rates of wear of concrete floors depend on the types of MHE and traffic intensity using the facility and the cleaning regime.

4.0 Impact Damage

Areas of impact damage occurring from dropped goods or scouring from MHE forks, etc. should be treated with a suitable epoxy mortar or resin to prevent further degradation of the affected area.
Often the scraping of pallets and forks across the floor can damage the surface and cause joint edges to spall. It is important to maintain pallets in good condition and to avoid unnecessary pushing of pallets and other equipment across the floor surface.

5.0 Floor Slab Restraint Cracking

As with joints, any cracks that develop should be monitored and, where appropriate, repaired by a specialist.

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Fine cracks may only be a consideration of appearance, in which case they are best left untreated although they should be monitored as part of the floor inspection and maintenance regime. If the edge arris of a crack begins to spall or if the crack widens, it should be treated to avoid further deterioration. However, this should be balanced against a need to leave new cracks untreated until they have become dormant i.e., not undergoing any further opening after approximately 12 months of curing.
Where cracks are not dormant and it is considered essential to provide some degree of arris support, then semi-flexible sealants may be used.

Cracks less than 0.5mm wide and showing no signs of degradation are generally better left alone as aesthetically the repair of such cracks may be more noticeable to the naked eye.

6.0 Health & Safety Issues

Concrete floors have been shown to be slip resistant in clean and dry conditions, when wet, the floor may become more slippery and areas prone to becoming wet should be given special consideration, it is also important to note that moisture may not always be visible.
Build-up of dust around less trafficked areas may cause a slip hazard and should be routinely cleaned or prevented.

The floor slab has been designed to meet specific loading requirements, where ABS Brymar Floors have been responsible for the design of the slab, the specific loading parameters will have been specified and can be identified in the “As Built” General Arrangement drawings which will be located within the Building Manual.
The Design Loading criteria should not be exceeded and where a specific “change of use” is required it will be necessary to allow a specialist Consulting Engineer to review the slab construction and comment on the new requirements.

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Aesthetical Issues

Introduction

In many completed concrete floors, there will always be a risk of some minor aesthetical blemishes, small defects and cracking occurring. Even high standards of workmanship will not eliminate the risk of surface imperfections.

1.0 Colour & Appearance

Concrete floors are constructed primarily from naturally occurring materials and finished by techniques that cannot be controlled as precisely as would be expected in a factory production process. Good materials and workmanship may reduce variations in colour and appearance, but they will not eliminate them, and the final appearance of a floor will never be as uniform as a painted surface finish, some features evident on the surface of newly laid concrete floors can be related to the early drying of the floor and become less visible with time.

2.0 Cracking

In a well designed and constructed floor the risk of random cracking will be low, but it is virtually impossible to totally prevent cracking. The risk of cracking occurring increases with the size of the floor and increased distance between shrinkage control joints.

Cracking occurs when the tensile stress in a section of slab exceeds the tensile strength of the concrete. This situation most often occurs when the long-term drying shrinkage of the slab is restrained for some reason. Such cracks do not generally have any structural significance.

Many factors affect the formation of restrained shrinkage cracks and it is impossible to guarantee that a floor will be completely crack-free.

3.0 Crazing

Many power trowelled concrete floors exhibit an irregular pattern of fine cracks. This is known as surface crazing. It is an inherent feature of power trowelled concrete surfaces and is considered to be a matter of appearance only, and generally no structural or serviceability issues are associated. It tends to be more visible on floors that are wetted and cleaned as the extremely fine cracks trap moisture and dust. The mechanisms of crazing in floors are not fully understood but it is known that

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the surface zone consists predominantly of mortar paste. In power-finished floors, this paste is intensively compacted by the trowelling process and can have a very low water/cement ratio. The heat build-up by the final power trowel finishing process may also be a contributory factor. As the mechanism is poorly understood it is not possible to recommend measures that can reduce its occurrence. There is no appropriate treatment for crazing.

4.0 Curling

Curling is quite common at joints and edges of slabs. Floor panels sometimes curl to such an extent that truck performance is affected. Where necessary, departures from the required surface regularity can be corrected by grinding.

Curling can cause the loss of sub-base support causing the floor to move under the passage of trucks. This movement can be a major contributor to joint arris breakdown, particularly where there is weak or non-existent load transfer across the joint. Movement should be monitored as part of the maintenance regime and dealt with as required. Under-slab grouting can restore support.

Care should be taken at personnel doors as curled slab can introduce a trip hazard and this should be considered during the design process using dowels and sleeves to maintain load transfer

5.0 Delamination

There is a risk of surface delamination on power trowelled concrete surfaces. The risk of occurrence of delamination increases with the variability of the concrete used or changes in curing conditions.

Delamination is the process whereby a thin (2–4mm) layer becomes detached from the surface and breaks down usually under trafficking. The mechanisms of delamination are not fully understood but are believed to result from several factors, including differential setting of the surface concrete, air content and bleed characteristics of the concrete. Accelerated drying of the surface by cross winds from open environments can significantly affect bleeding and set characteristics.

Delamination is repaired by cutting away the affected surface in areas bounded by shallow saw cuts and then filling with cement- or resin-based mortar systems.

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6.0 Surface Aggregates

Occasionally, aggregate particles lie exposed at or are very close to the surface. If they are well 'locked into' the surface, they are unlikely to affect durability although their appearance may be considered an issue. However, particles can be dislodged by materials handling equipment or other actions, leaving small surface voids. These voids can be drilled out and filled with resin mortar.

Where soft particles, such as naturally occurring mudstone or lignite, are exposed in the surface, they should be removed by drilling and replaced with mortar as described above.

7.0 Surface Finishing Marks

Trowel marks such as 'swirls or discolouration from burnishing are often a consequence of the normal variations in setting of the concrete, the visual impact of these marks will reduce significantly with time.

Excess curing compound or multiple layers of curing compound cause darker areas. These will wear and disappear with time and use of the floor without adverse effect on the surface.

8. Spares Information

N/A

9. Guarantees and Warranties

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WARRANTIES

For all matters regarding slab warranty documents please contact ABS Brymar Floors on the general office telephone number 01619725000 or email general@absbrymarfloors.co.uk

EMERGENCY CONTACT INFORMATION

In the unlikely event of emergency or for any further information or clarification please contact ABS Brymar floors on Tel No 01619725000, or email General @absbrymarfloors.co.uk

ABS BRYMAR ADDRESS

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10. Replacement Strategy

N/A

11. Demolition Decommissioning or Disposal

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MODIFICATION/ DEMOLITION /DISOSAL INFORMATION

Modification

Under no circumstances should any modifications take place without the approval of ABS Brymar Floors Ltd

Demolition

In the event of demolition, a competent demolition contractor should be appointed to undertake the works

Disposal

Concrete is recyclable, your appointed demolition contractor should be consulted as to where your material is being recycled