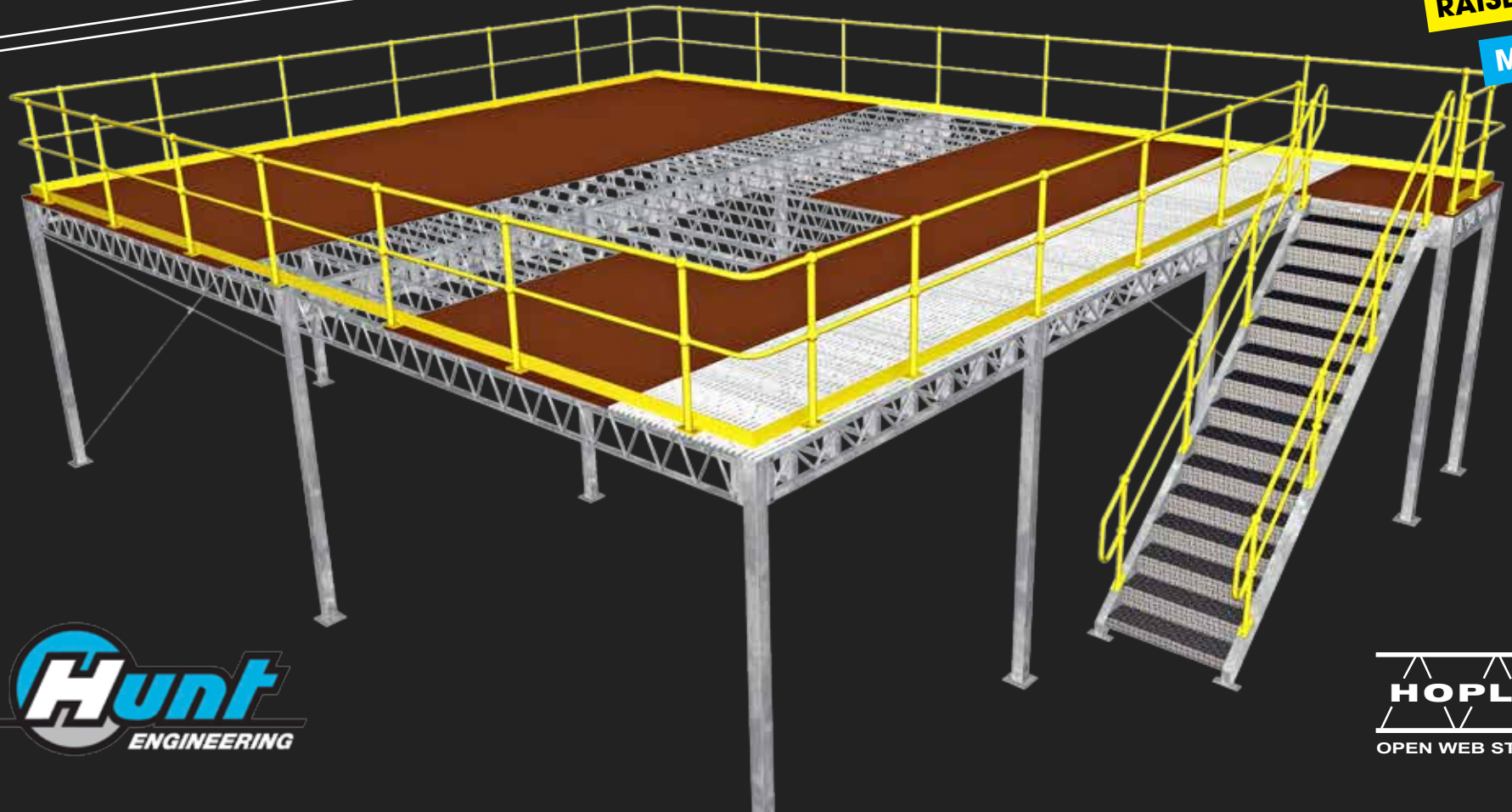
HOPLEYS

RAISED STORAGE SOLUTIONS

- INDEPENDENTLY CERTIFIED
- DESIGN & QUOTATION SERVICE
- RAISED STORAGE AREAS
- MEZZANINE FLOORS
- COMMERCIAL APPLICATIONS



Hunt ENGINEERING

HOPLEYS
OPEN WEB STEEL JOIST

BESTPRACTICE CERTIFICATION
ISO9001 QUALITY MANAGEMENT SYSTEM

ABOUT US

HOPLEYS

OPEN WEB STEEL JOIST

Hopleys, the metal building products division of Hunt Engineering and Staff Pty. Ltd, has over 75 years combined experience in engineering design and fabrication. Over this period we've built our reputation on customer satisfaction, achieved through in-house expertise, reliability, cost effectiveness, and the highest standard of quality assurance.

As an Australian owned national business, we specialise in providing turn-key solutions from concept design to completion, ensuring the highest possible return on investment.

Having our own manufacturing facility allows us to specifically design to your individual requirements, with our experienced in-house team providing expert advice at each stage of your project to ensure a cost effective solution to meet your exact specifications.

CONTENTS

Contents/ About Us	2-3	Connection details	12-13
Raised Storage Areas/Mezzanines	4-7	Technical span tables	14-17
Commercial	8-9	Section properties	18
Special Projects	10-11	Notes	19

HOPLEYS

Howard Morley & Associates Pty. Ltd.
A.B.N. 17 418 026 122
Consulting Engineers

Suite 1/11 Blanche Ave., Parkdale 3195
Postal Address: P.O.Box 274, Mentone, 3194
Phone (03) 9580 7100 Fax (03) 9580 5667

FORM 11

Regulation 1507(a)

Building Act 1993
Building (Interim) Regulations 2005

CERTIFICATE OF COMPLIANCE – DESIGN

To
Relevant Building Surveyor
Postal Address Post Code

From
Building Practitioner **Howard. J. Morley** Category **Civil**
Postal Address **P.O.Box 274, Mentone** Post Code **3194**

Property Details (if applicable)
Number Street/Road City/Town
Lot/s Volume Folio
Crown Allotment Section Parish
County Municipal District

Compliance
I did/did-not* prepare the design and I certify that the part of the design described as:

Hopleys Steel Flooring and Roofing Solutions Manual

Complies with the following provisions of the regulations**...
B.C.A. Part S1, AS1170.1-2002, AS1170.2-2002, AS4100-1998

*Delete whichever is not applicable **Includes B.C.A. & Relevant Standards

Design Documents

Drawing No's	Prepared by	Date
Specifications	Prepared by	Date
Computations	Prepared by	Date
Test Reports	Prepared by	Date
Other Documentation		
12 Page Design Aid Manual	Prepared by **Hopleys**	Date **N/A**

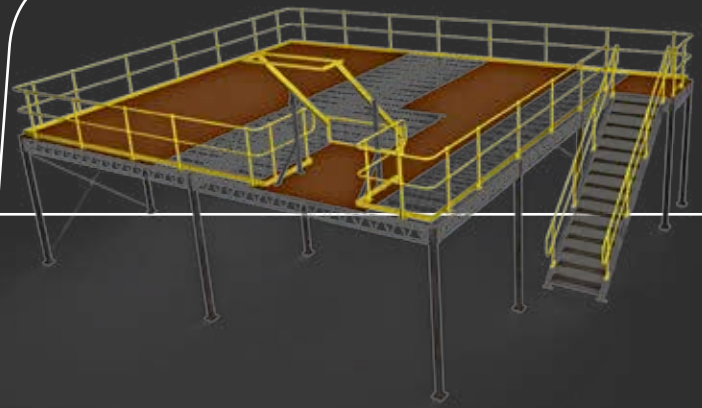
Signature
Building Practitioner ..... Registration No. **EC - 1350** Date **1/1/2015**

Letter of certification available

STEEL FLOORING AND ROOFING SOLUTIONS

Hopleys building products offer a wide range of steel flooring and roofing solutions for commercial, residential, raised storage, and individually designed projects. Manufactured from light weight galvanised steel, the Hopleys open web steel joist provides many advantages over rolled steel and timber alternatives, and is available in a range of standard heights from 150mm-450mm. A full range of connection accessories are available to allow easy integration into a wide variety of projects.

- All galvanised steel construction
- Open-web design allowing installation of services including plumbing, electrical and air-conditioning.
- Termite, fire and corrosion resistant.
- Light weight for ease of installation, saving you time and money on site.
- No welding required on site
- No shrinking, warping or twisting compared to alternative products, resulting in a longer lasting floor system
- Modular design to make relocating or expanding easy, future proofing your decision
- All lengths pre-cut to save time and labour on site. Standard lengths are also available.
- Complete range of connection accessories for ease of installation.
- Symmetric design reducing the need for bridging.
- Independently certified
- Manufactured to comply with Australian standards: AS1170.1, AS1170.2, AS4100, AS1657, AS4055, AS3623 and the Building Code of Australia.



RAISED STORAGE AREAS

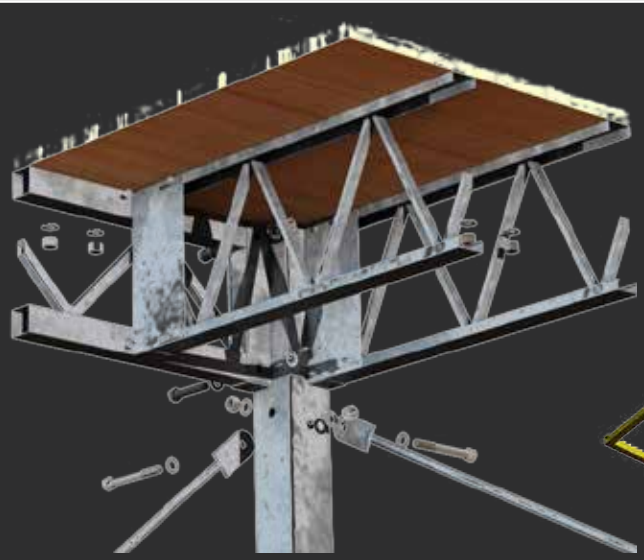
MEZZANINE FLOORS

Hopleys raised storage areas are designed to maximise your existing floor space, ensuring you get the highest return on investment per square metre.

Our in-house engineering team can custom design a complete raised storage solution to meet your individual needs, from concept design through to completion.

Our lightweight, open web construction provides superior span widths, maximising your overhead space without the need to compromise your existing floor requirements. Column spacing can be varied to match your existing floor plan, and a large range of sizes are available to suit your exact specifications.

- Raised storage solutions for your growing needs, from concept design to installation.
- Designed to maximise your overhead space without compromising your existing layout.
- Double or triple your floor capacity within the same space (multi-level options).
- Free standing systems that are not dependant on your existing structure.
- Modular system for ease of dismantling and relocation, future proofing your decision.
- Individually designed to meet your exact requirements
- Can be installed over existing pallet racking with minimal disruption to your business.
- No on-site welding required, eliminating fire hazards
- A full range of stairs, hand rails, safety gates and flooring available.
- Installation options available.



ENGINEERED & CERTIFIED

RSA - MEZZAZINE FLOORS

DOUBLE OR TRIPLE YOUR FLOORSPACE

Single and double level options available to maximise your existing premises.

EASY INTEGRATION

Infinite design options allow easy integration to suit your existing or proposed layout.

LARGE CLEAR SPANS

Allows unhindered access and movement below the mezzanine.

All Mezzanines (RSA) comply with the following provisions and regulations:

- AS1170.1- Structural Design Actions (Loading Code)
- AS4100 - Steel Structures
- AS1657 - Platforms, Walkways, Stairways and Ladders
- AS3600 - Concrete Structures

SMART MODULAR DESIGN

Totally customised solutions to fit your needs.

INNOVATIVE PLATFORMS FOR CONVEYOR AND SHELVING SOLUTIONS

STAIRS , GATES & HANDRAILS

COMMERCIAL

SUPERIOR SPAN CAPABILITY

Eliminating structural beams and bulkheads.

COMPOSITE FLOOR SOLUTIONS

Utilising steel and concrete to create an efficient floor structure, saving installation time and reducing overall costs. The smart way to construct a suspended floor!

COST-EFFECTIVE DESIGN AND CONSTRUCTION

Budget specific design, manufacture and installation, producing significant cost savings for any size project

Hopleys has provided commercial flooring and roofing solutions for the Australian market for over 30 years. Our experienced engineering team have designed cost-effective, innovative solutions for a wide variety of projects including aged care, council developments, public facilities, sporting and retail developments.

Our range of open web steel joists and structural trusses allow easy integration into a wide range of commercial projects and with superior span widths, we can eliminate structural beams and unsightly bulkheads. Mechanical services are easily installed through the open web construction providing a flexible, future proof design.

Our products are manufactured to comply with Australian standards AS1170.1, AS1170.2, AS4100, AS1657, and the Building Code of Australia.

FLEXIBILITY AND SPEED OF INSTALLATION

Open web design allowing electrical, plumbing and air-conditioning services in intermediate floors. Future proofing by allowing changes to services.

EASE OF INTEGRATION WITH OTHER BUILDING PRODUCTS

ENGINEERED SOLUTIONS

SPECIAL PROJECTS

TRANSPORTABLE BUILDINGS

ECO-FRIENDLY HOMES

MODULAR TRANSPORTABLE GRANDSTANDS

Hopleys steel flooring and roofing systems offer design flexibility to suit the most challenging projects, providing solutions to leading edge architectural design, sporting grandstands, transportable homes, loading docks, and many other project applications.

Our in-house engineering design team assist clients through each stage of their project, providing expert advice to ensure every design is manufactured to exacting specifications.

ARCHITECTURAL DESIGN

STADIUMS

LOADING DOCKS

SELF STORAGE

HJ

STANDARD CONNECTION DETAILS

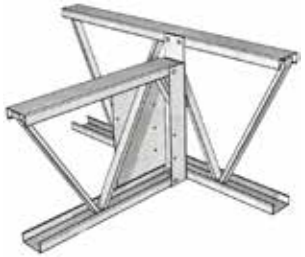
1 **HJ** Joist to whaling plate using HJ shoe

2 **HJ** to HB shoe connection

3 **HJ** over wallplate using triple grip

4 **HJ** Shoe to column

5 **HJ** to wallplate using nail clip (end-clip welded by Hopleys)



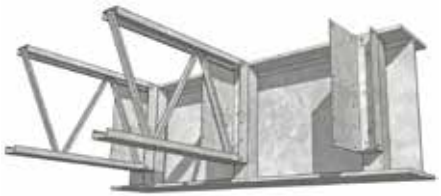
6 **HJ** Balcony setdown shoe

7 **HJ** Top hung shoe (weld on site)

8 **HJ** Top hung shoe to PFC using timber plate (bolted to PFC)

9 **HJ** Vertical hung shoe to suit nominated structural PFC (weld on site)

10 **HJ** Vertical hung shoe to suit nominated structural UB/UC (weld on site)



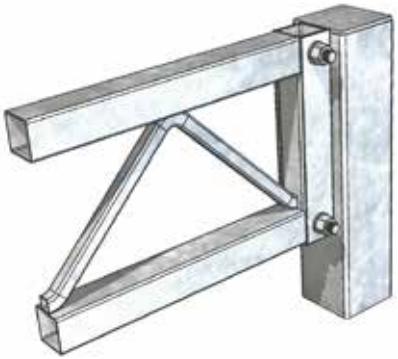
11 **HJ** Larger Beam with vertical SHS Stubs welded to flanges by Hopleys or Steel fabricator

12 **HJ** Smaller Beam with vertical SHS Stubs welded to flanges by Hopleys or Steel fabricator

Note: More connection details available upon application

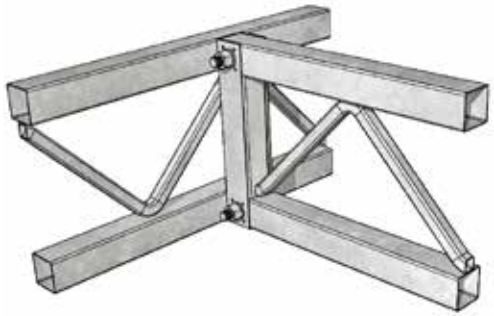
STANDARD CONNECTION DETAILS

HB

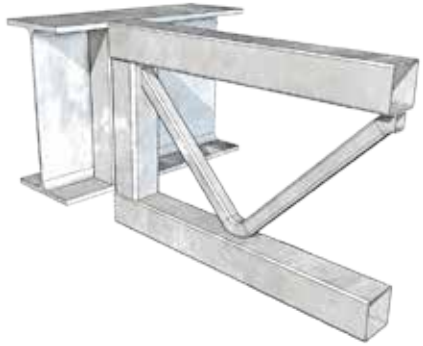


1 **HB** single HB to column using HB shoe (shoe welded to column by Hopleys)

2 **HB** Double HB - to Column (shoe welded to column by Hopleys)

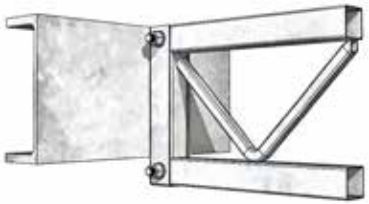


3 **HB** to HB shoe connection (bolts or tek-screw options)

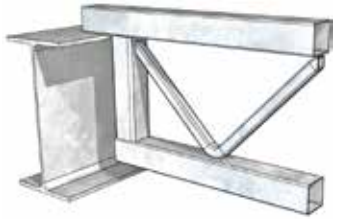


4 **HB** vertical hung (weld to beam on site)

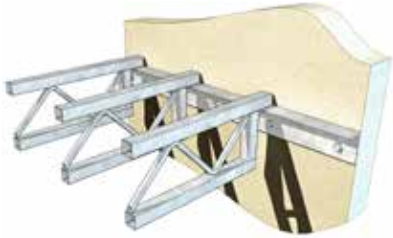
5 **HB** Joist to wall plate using hold-down angles



6 **HB** Shoe on nominated structural beam (shoe welded by Hopleys or steel fabricator)



7 **HB** Top hung on nominated structural beam (weld on site)



8 **HB** Top hung to shelf angle (weld on site)

Note: More connection details available upon application

TECHNICAL SPAN TABLES

INDUSTRIAL

INDUSTRIAL FLOORING
- MEZZANINES AND RSA'S (5.0KPA LL)

JOIST SIZE	SPACING 300	360	400	450	600
HJ150	-	-	-	-	-
HJ200	4560	4280	4130	3975	3030
HJ250	5330	5010	4830	4615	4000
HJ300	6050	5670	5380	5070	4400
2/HJ250	-	-	-	5870	5330
2/HJ300	-	-	-	6660	6050
HB300	6880	6470	6240	6000	5440
HB350	7690	7290	7030	6760	6120
HB400	8300	7920	7710	7480	6770
HB450	8850	8450	8220	7980	7380

Allows for 25mm Ply flooring (29kg/m2)
Max Deflection
Dead Load - Span / 300 or 20mm
Live Load - Span / 300 or 25mm
Minimum Vibration frequency = 4Hz
Note: HJ150 fails the 4.5kN point load

INDUSTRIAL FLOORING
- LIGHT INDUSTRIAL WORKROOMS (3.0KPA LL)

JOIST SIZE	SPACING 300	360	400	450	600
HJ150	4400	4145	3100	2760	2260
HJ200	5410	5090	4910	4720	3030
HJ250	6330	5950	5740	5520	5010
HJ300	7180	6760	6520	6270	5610
2/HJ250	-	-	-	6970	6330
2/HJ300	-	-	-	7810	7180
HB300	7990	7630	7420	7130	6470
HB350	8740	8350	8130	7890	7290
HB400	9440	9010	8780	8520	7920
HB450	10000	9610	9360	9090	8450

Allows for 25mm Ply flooring (29kg/m2)
Max Deflection
Dead Load - Span / 300 or 20mm
Live Load - Span / 300 or 25mm
Minimum Vibration frequency = 4Hz

TECHNICAL SPAN TABLES

COMMERCIAL

COMMERCIAL FLOORING - SHOPS (5.0KPA LL)

JOIST SIZE	SPACING 300	360	400	450	600
HJ150	-	-	-	-	-
HJ200	4500	4250	4100	3970	3370
HJ250	5300	5000	4740	4470	3880
HJ300	5920	5500	5220	4925	4270
2/HJ250	-	-	-	5750	5330
2/HJ300	-	-	-	6300	5920
HB300	6400	6150	6000	5850	5440
HB350	6900	6700	6550	6350	5970
HB400	7500	7200	7050	6850	6400
HB450	8000	7700	7500	7300	6850

Allows for 19mm particleboard flooring, 6mm cement sheet, 13mm tiling (46kg/m2)
Allows for 10mm Plaster, Pink Batt insulation and fittings (14kg/m2)

Max Deflection
Dead Load - Span / 400 or 20mm
Live Load - Span / 300 or 25mm
Minimum Vibration frequency = 8Hz

COMMERCIAL FLOORING - OFFICES (3.0KPA LL)

JOIST SIZE	SPACING 300	360	400	450	600
HJ150	4420	4240	4140	3900	3500
HJ200	5150	4950	4830	4700	4390
HJ250	5790	5560	5420	5280	4930
HJ300	6300	6100	5950	5750	5400
2/HJ250	-	-	-	6150	5800
2/HJ300	-	-	-	6750	6400
HB300	6800	6550	6400	6250	5850
HB350	7470	7190	7030	6850	6400
HB400	8000	7750	7580	7350	6930
HB450	8580	8260	8080	7880	7350

Allows for 19mm particleboard flooring, (18kg/m2)
Allows for 10mm Plaster, Pink Batt insulation, wiring and fittings (14kgm2)

Max Deflection
Dead Load - Span / 300 or 20mm
Live Load - Span / 300 or 25mm
Minimum Vibration frequency = 8Hz

TECHNICAL SPAN TABLES

DOMESTIC

DOMESTIC FLOORING (1.5KPA LL)

	SPACING			
JOIST SIZE	300	400	450	600
HJ150	3730	3480	3390	3160
HJ200	4350	4060	3940	3680
HJ250	4880	4560	4430	4120
HJ300	5360	5000	4860	4520
2/HJ250	-	-	5220	4880
2/HJ300	-	-	5730	5360
HB300	6170	5780	5630	5260
HB350	6740	6320	6150	5740
HB400	7270	6810	6620	6190
HB450	7740	7250	7050	6580

Allows for 19mm particleboard flooring, 6mm cement sheet, 13mm Tiles (49kg/m2) Allows for 10mm Plaster, Pink batt insulation, wiring, sis lation and fittings (14kg/m2)

Max Deflection
Dead Load - Span / 400 or 15mm
Live Load - Span / 360 or 9mm
Minimum Vibration frequency = 9Hz

All Span Tables comply with the following provisions and regulations:

- AS1170.1- Structural Design Actions (Loading Code)
- AS1170.2 - Structural Design Actions (Wind Code)
- AS4100 - Steel Structures
- AS4055 - Wind Loads for Housing
- AS3623 - Domestic Metal Framing
- NASH Residential and Low-Rise Steel Framing Part 1: Design Criteria 2005

TECHNICAL SPAN TABLES

ROOFING

ROOFING WITH PLASTER

JOIST SIZE	SPACING									
	450	600	750	900	1200	1500	1800	2400	3000	3600
HJ150	5660	5400	5130	4900	4560	4310	4120	3830	3620	3460
HJ200	6800	6330	5980	5720	5320	5030	4800	4470	4220	4030
HJ250	7650	7120	6730	6430	5980	5650	5400	5020	4740	4530
HJ300	8420	7830	7400	7070	6580	6220	5930	5520	5210	4970
2/HJ250	8760	8300	7940	7620	7120	6730	6430	5980	5650	5380
2/HJ300	9610	9120	8730	8380	7830	7400	7070	6580	6220	5910
HB300	8920	8460	8090	7760	7240	6850	6540	6080	5740	5470
HB350	9740	9240	8840	8480	7920	7490	7150	6640	6280	5970
HB400	10510	9970	9530	9150	8550	8080	7710	7070	6770	6430
HB450	11210	10630	10170	9760	9120	8610	8220	7640	7210	6850

Allows for 0.50mm Metal Roof Sheets, Sislation, Insulation, Wiring and Fittings (10kg/m2)

Allows for 13mm Plaster, Pink batt Insulation, Wiring and Fittings (18kg/m2)

Max Deflection (0.4Q + G = 12mm Max)

Dead Load - Span / 400 or 8mm

Live Load - Span / 250 or 8mm

Wind Load - Span / 150 or 10mm

Note: Assumes ceiling battens at 600c/c fixed to bottom chord

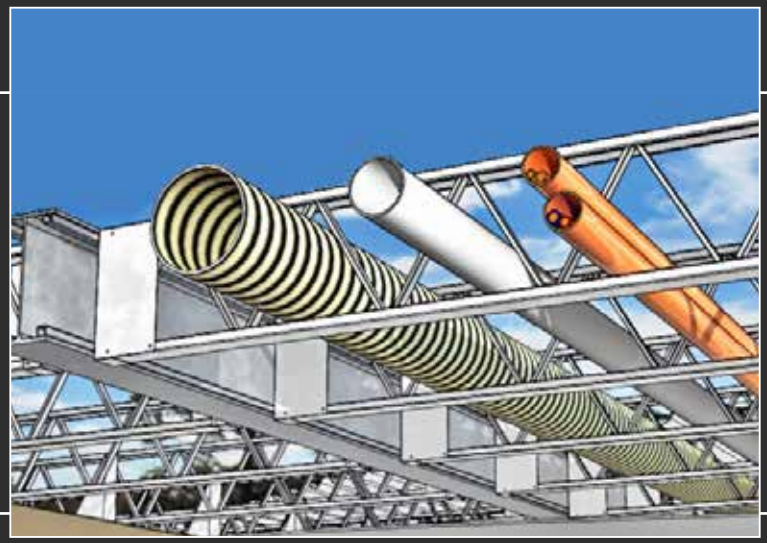
ROOFING - SKILLION ROOFS, METAL SHEETING, NO CEILING, LEAN-TO'S (N2 WIND LOAD)

JOIST SIZE	SPACING									
	450	600	750	900	1200	1500	1800	2400	3000	3600
HJ150	5910	5680	5370	5110	4690	4290	3980	3520	3190	2930
HJ200	7190	7120	6740	6300	5670	5170	4780	4220	3810	3490
HJ250	8320	8230	7810	7280	6530	5950	5490	4830	4350	3980
HJ300	9370	9260	8780	8170	7310	6650	6120	5380	4840	4420
2/HJ250	9970	9870	9760	9620	9440	9200	8950	8220	7380	6732
2/HJ300	11170	11040	10910	10750	10540	10260	9970	9110	8170	7450
HB300	10200	10090	9970	9820	9640	9390	9140	8620	8080	7380
HB350	11350	11220	11080	10910	10700	10410	10110	9430	8820	8060
HB400	12430	12270	12120	11920	11680	11360	10940	10180	9510	8690
HB450	13420	13250	13080	12860	12590	12220	11670	10860	10140	9270

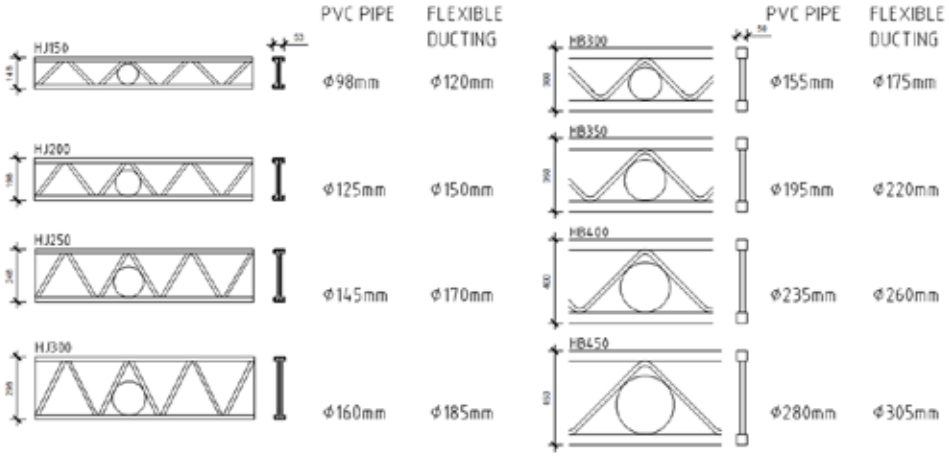
Note: No lateral restraints are required to the bottom chord

SECTION PROPERTIES

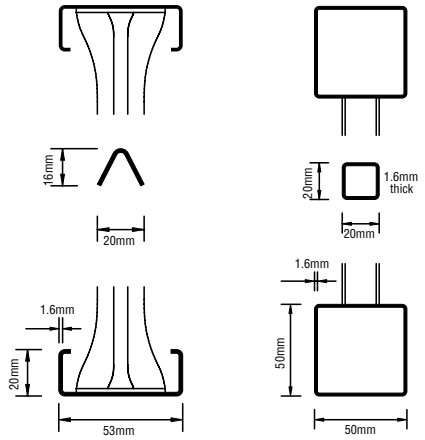
JOIST TYPE	CHORD AREA	JOIST MASS	RADIUS OF GYRATION	MOMENT OF INERTIA
HJ150	288mm²	2.78kg/m	r_{yy} = 20mm	Ixx = 1.52 x 10^6mm4
HJ200	288mm²	2.89kg/m	r_{yy} = 20mm	Ixx = 2.82 x 10^6mm4
HJ250	288mm²	3.04kg/m	r_{yy} = 20mm	Ixx = 4.52 x 10^6mm4
HJ300	288mm²	3.11kg/m	r_{yy} = 20mm	Ixx = 6.62 x 10^6mm4
HB300	606mm²	6.00kg/m	r_{yy} = 19.6mm	Ixx = 9.70 x 10^6mm4
HB350	606mm²	6.10kg/m	r_{yy} = 19.6mm	Ixx = 13.9 x 10^6mm4
HB400	606mm²	6.20kg/m	r_{yy} = 19.6mm	Ixx = 18.9 x 10^6mm4
HB450	606mm²	6.30kg/m	r_{yy} = 19.6mm	Ixx = 24.5 x 10^6mm4



PASS THROUGH SERVICES



HJ Section	HB Section
G300 Z275	G350 *DURAGAL*®



NOTES:

SKETCH:

Hunt ENGINEERING

SALES ENQUIRIES

Hunt Engineering & Staff Pty Ltd

8-16 Redwood Drive

Dingley, Victoria 3172, Australia

Phone (03) 9551 3077

Fax (03) 8558 1213

enquiries@hopleys.com.au

www.hunteng.com.au

hopleys General Fabricators

HOPLEYS OPEN WEB STEEL JOIST

HUNT LASERCUT

TANK INDUSTRIES