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LAMPIRAN



Optimization Software:
www.balesio.com

Catatan Perbaikan dan Saran Saat Seminar Hasil

1) Perbaikan dan saran dari Bapak Ir. Zulkifli, MT

No.	Saran dan Catatan Perbaikan	Penjelasan Singkat Hasil Perbaikan	Halaman Penyajian Pada Skripsi
1.	Masukkan warna dari setiap jenis cat dalam pembahasan	Warna dari setiap lapisan cat tertera sesuai dengan spesifikasi cat	Halaman 99
2.	Lakukan perhitungan kembali dalam menentukan durasi waktu pekerjaan pengecatan.	Penjelasan tentang durasi waktu pengerjaan pengecatan	Halaman 97
3.	Masukkan dalam tinjauan pustaka penjelasan tentang merek cat Internasional	Penjelasan tentang merek cat Internasional beserta pembagian setiap zona yang direkomendasikan	Halaman 63
4.	Buat batasan masalah penggunaan merek cat yang digunakan adalah Internasional Paint	Telah dimasukkan dalam batasan masalah	Halaman 3

2) Perbaikan atas saran dan catatan dari Bapak Dr. Ir. Syamsul Asri, MT.

No.	Saran dan Catatan Perbaikan	Penjelasan Singkat Hasil Perbaikan	Halaman Penyajian Pada Skripsi
1.	Buat batasan masalah bahwa pengukuran produktivitas dilakukan hanya pada <i>painter</i>	Telah dimasukkan dalam batasan masalah	Halaman 3
	Tambahkan teori gejala pusat pengukuran produktivitas	Penjelasan tentang teori gejala pusat	Halaman 53



3.	Buat alternatif dalam penggunaan jumlah tenaga kerja pengecatan beserta durasi waktu	Perencanaan alternative telah dimasukkan dalam BAB Pembahasan\	Halaman 104
4.	Buat perencanaan produktivitas untuk setiap layer	Perencanaan produktivitas setiap layer telah dimasukkan dalam pembahasan	Halaman 79
5.	Buat saran untuk penelitian selanjutnya seputar pengecatan lebih diarahkan kepada pengukuran produktivitas keseluruhan orang yang terlibat dalam pengecatan	Telah dimasukkan dalam BAB V kesimpulan dan saran	Halaman 117

3) Perbaiki atas saran dan catatan dari Bapak Wahyuddin, ST., MT.

No.	Saran dan Catatan Perbaikan	Penjelasan Singkat Hasil Perbaikan	Halaman Penyajian Pada Skripsi
1.	Masukkan dalam tinjauan pustaka pembagian zona pengecatan	Pembagian zona pengecatan menurut ISO 12944-2 <i>Classification Of Environment</i>	Halaman 22
2.	Buat perhitungan dalam pembahasan tentang penggunaan rumus kebutuhan material cat untuk mengetahui penggunaan rumus	Penerapan rumus telah dimasukkan dalam pembahasan	-
3.	Perbaiki kembali susunan tabel dalam setiap laporan.	Semua tabel telah diperbaiki	-



4) Perbaiki atas saran dan catatan dari Bapak Rizal Firmansyah, ST.,MT., M. Eng.

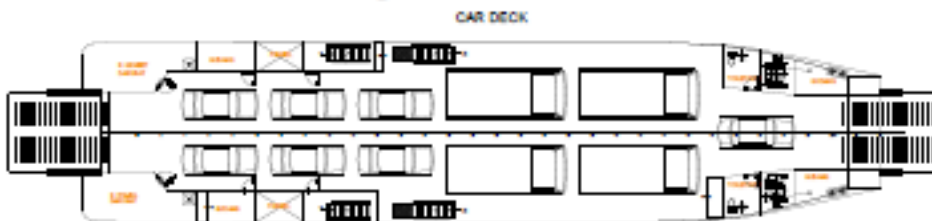
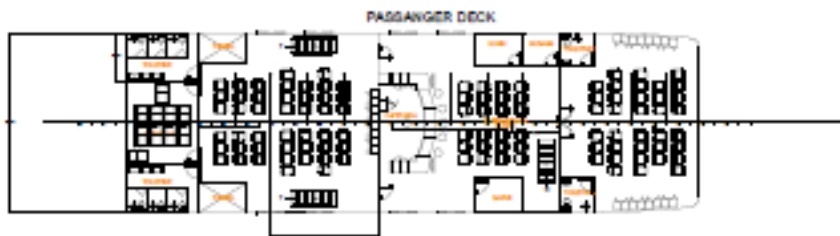
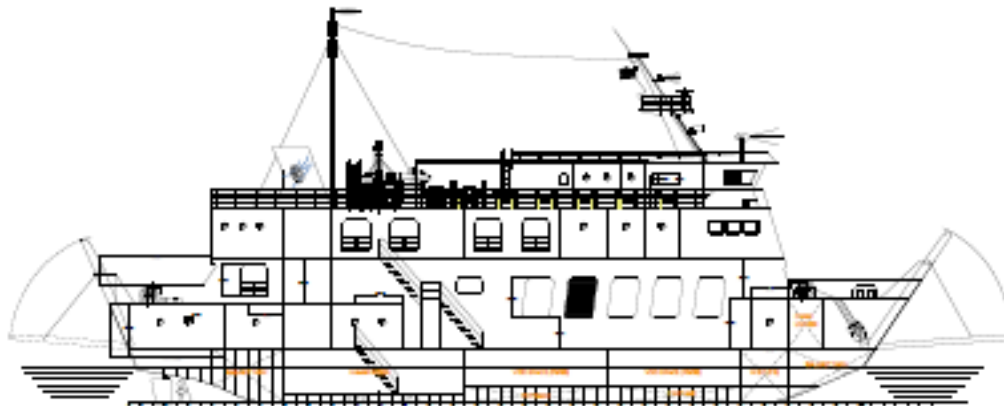
No.	Saran dan Catatan Perbaikan	Penjelasan Singkat Hasil Perbaikan	Halaman Penyajian Pada Skripsi
1.	Buat landasan dalam pengambilan sampling pengukuran waktu pengecatan	Landasan pengambilan sampling telah dimasukkan dalam BAB pembahasan	Halaman 79



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GAMBAR DESAIN KONSTRUKSI

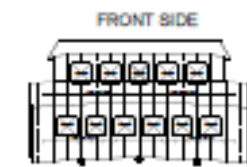
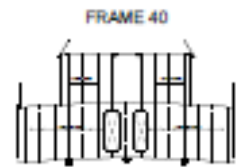
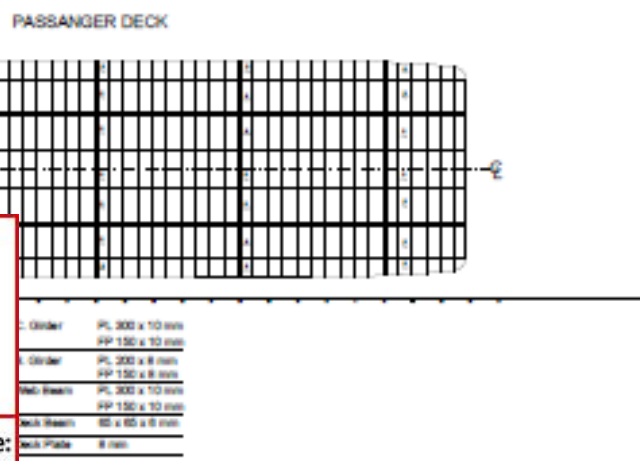
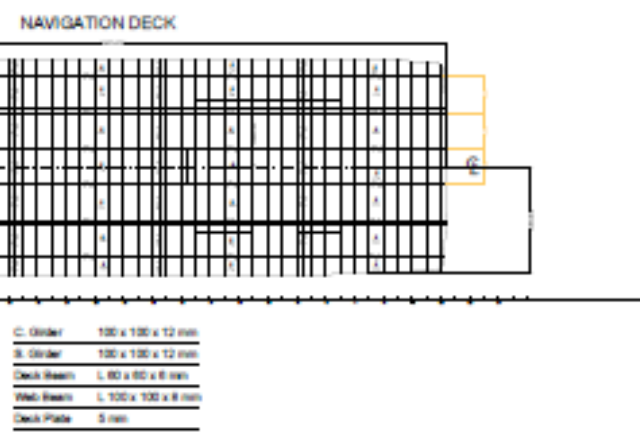
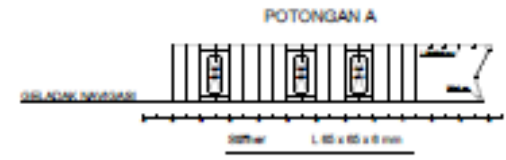
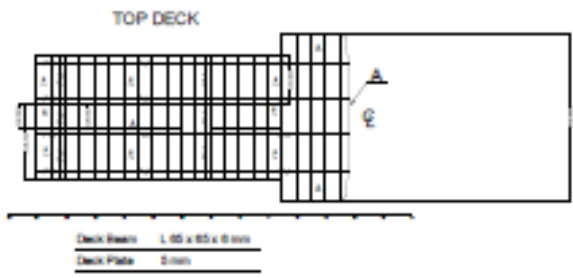




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REVISIONS		



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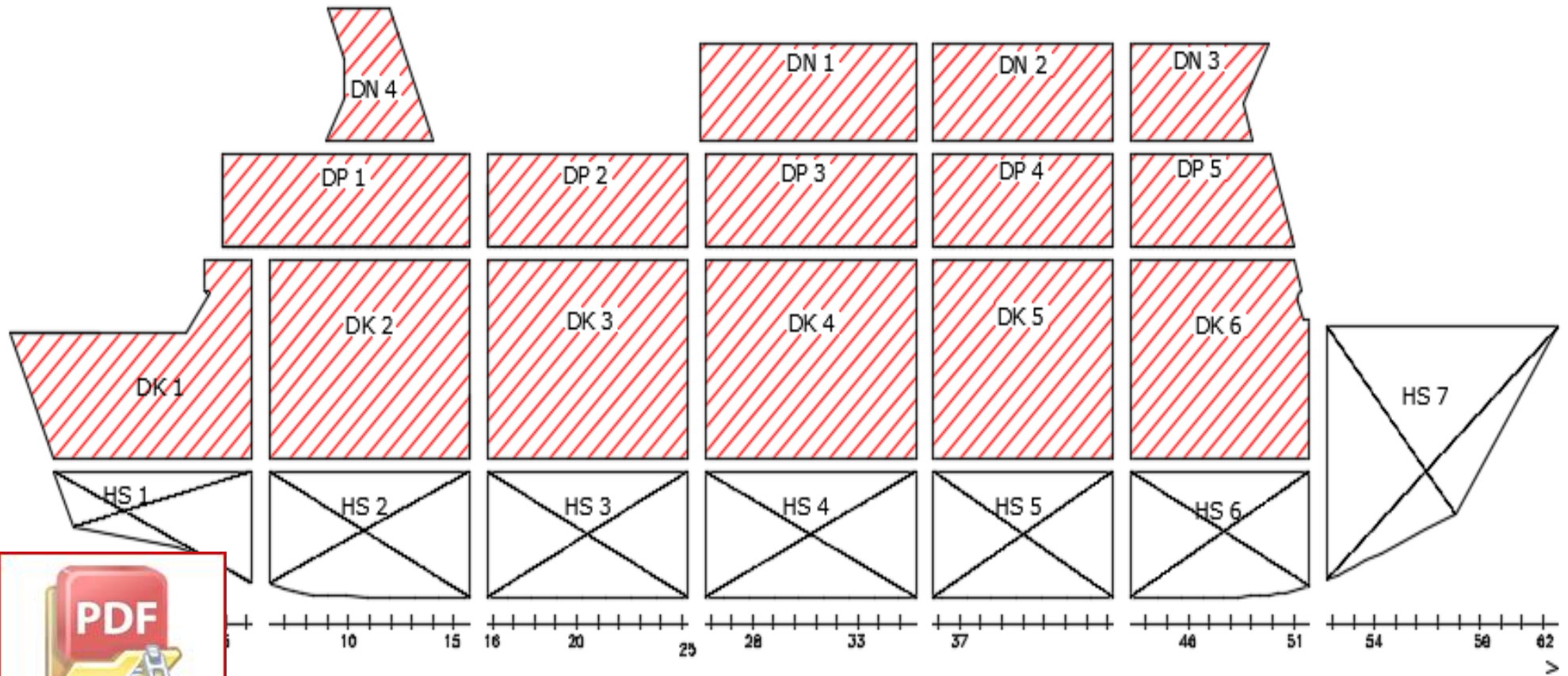


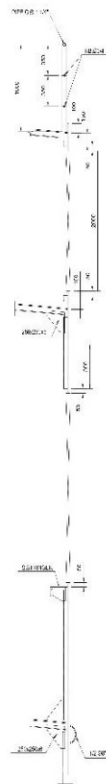
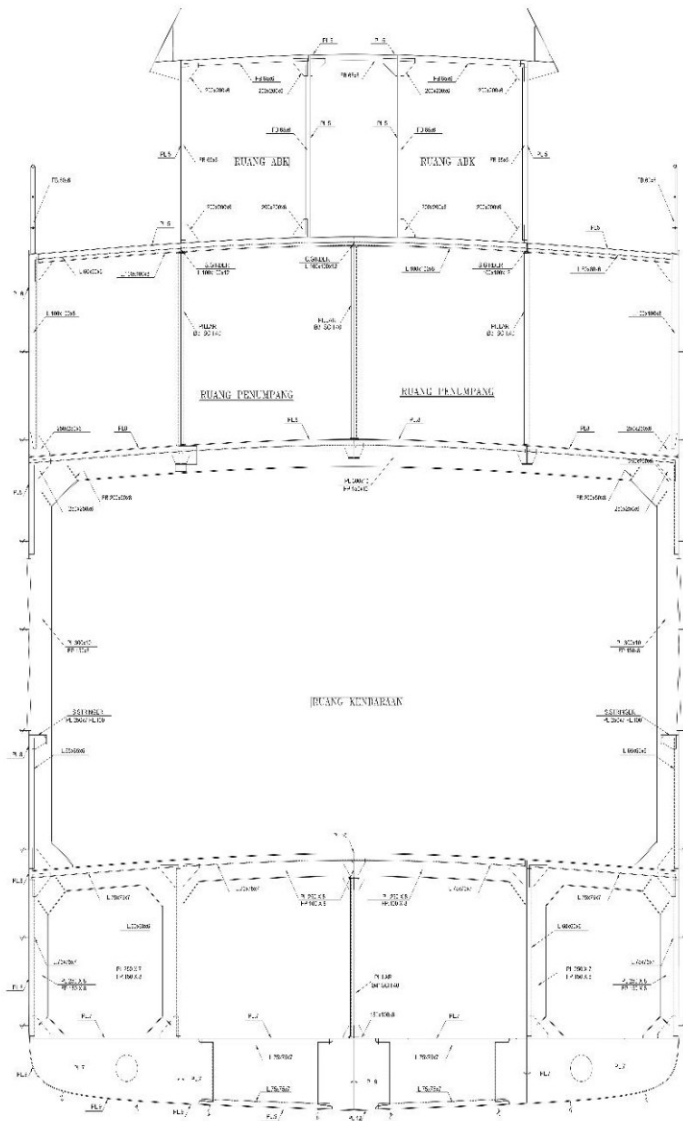
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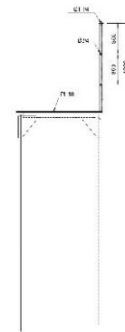
PEMBAGIAN BLOK UKURAN PELAT 20 FEET





UKURAN UTAMA

PANJANG SELURUH	37,30 M
PANJANG ANTARA GARIS TEGAK	35,00 M
L E B A R	9,00 M
TINGGI	2,70 M
SARAT AIR	1,00 M



NO. RUMAH KEMAH	NO. BANGUNAN	NO. BANGUNAN	No. of Ship
NO. BANGUNAN	NO. BANGUNAN	NO. BANGUNAN	Yard No./Clear
<p>MIDSHIP SECTION OFAL PENYEBERANGAN RO-RO 300 GT LINTAS MELONGJANE P. OMBELAN P. SALABAU</p>			
DATE	BY	CHK	APP
14/05/2014

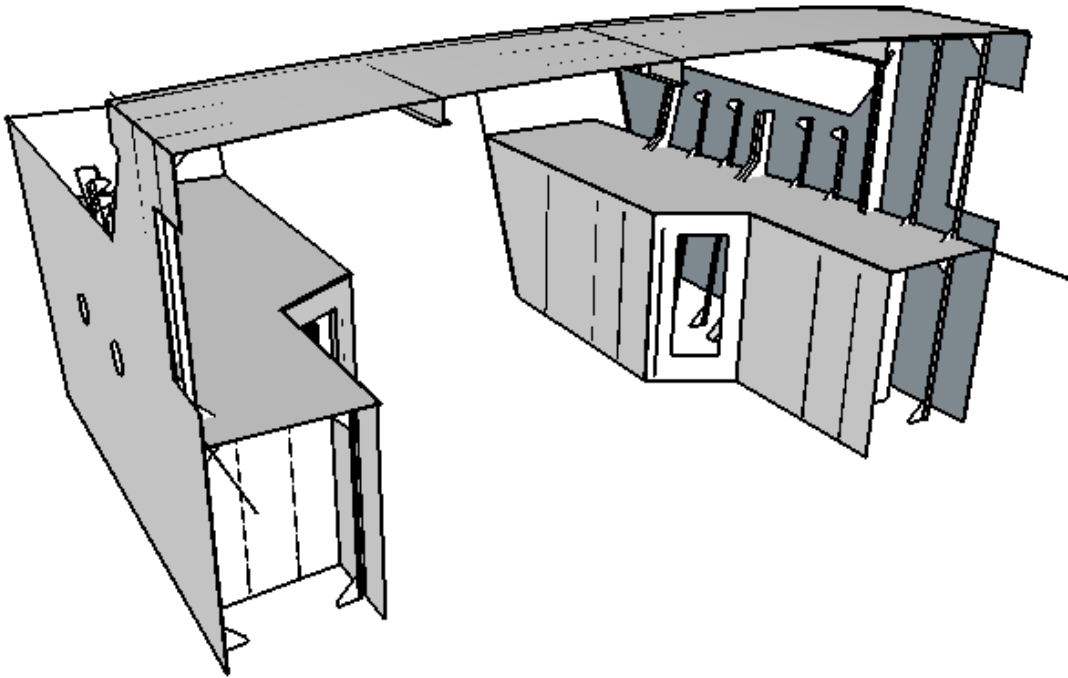
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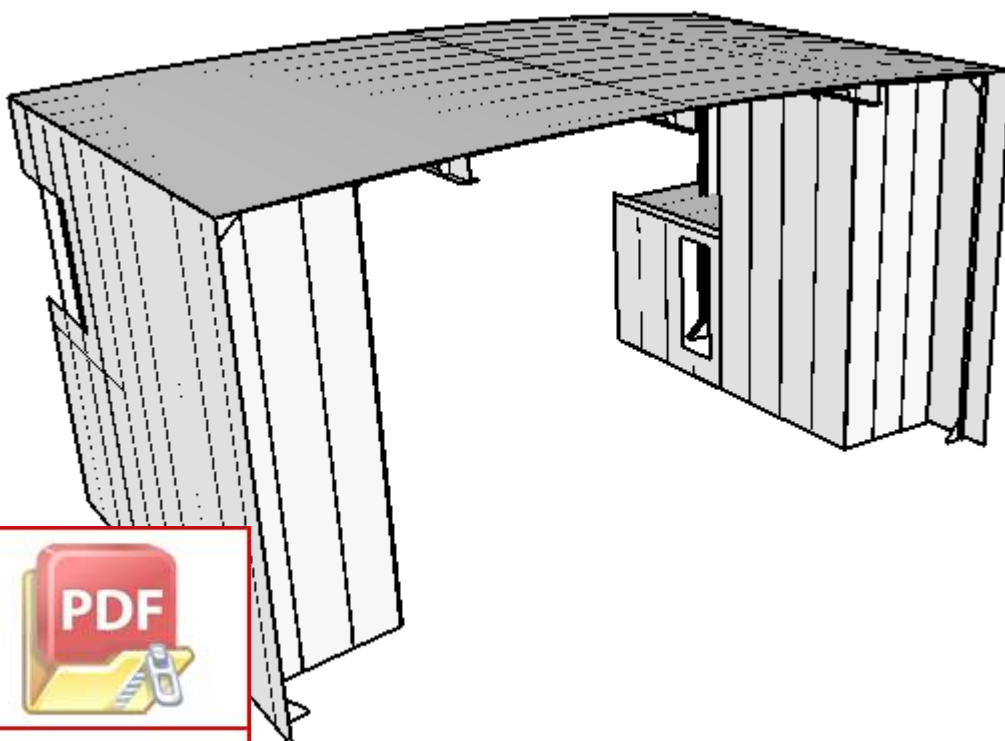
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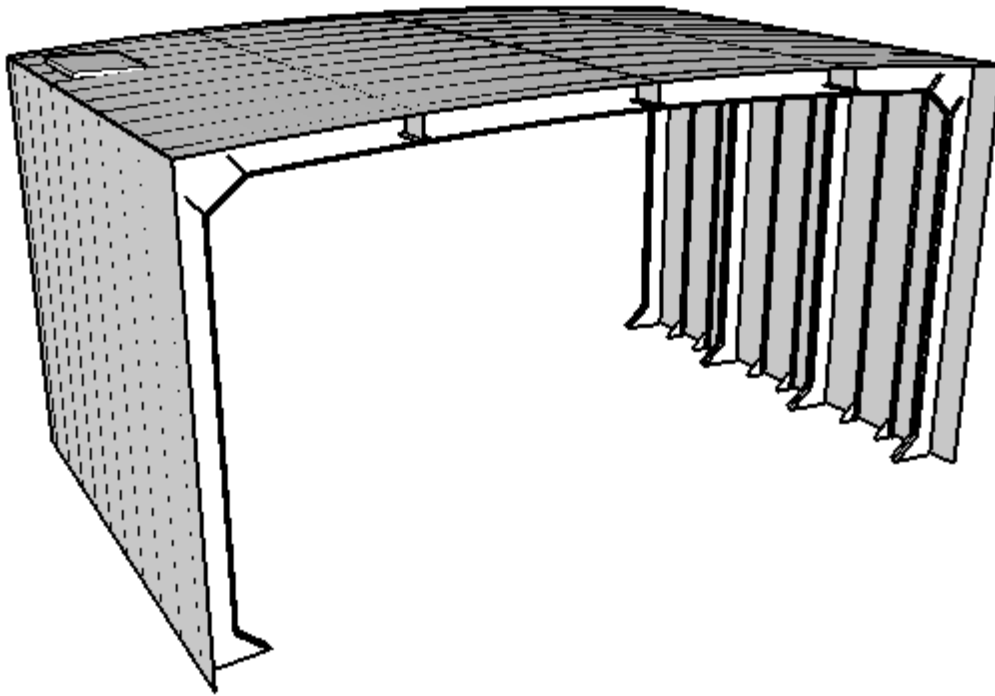
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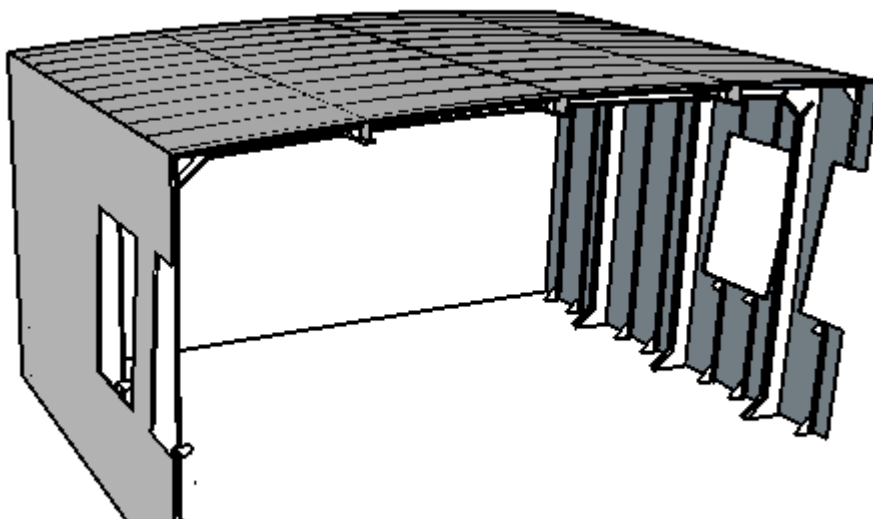
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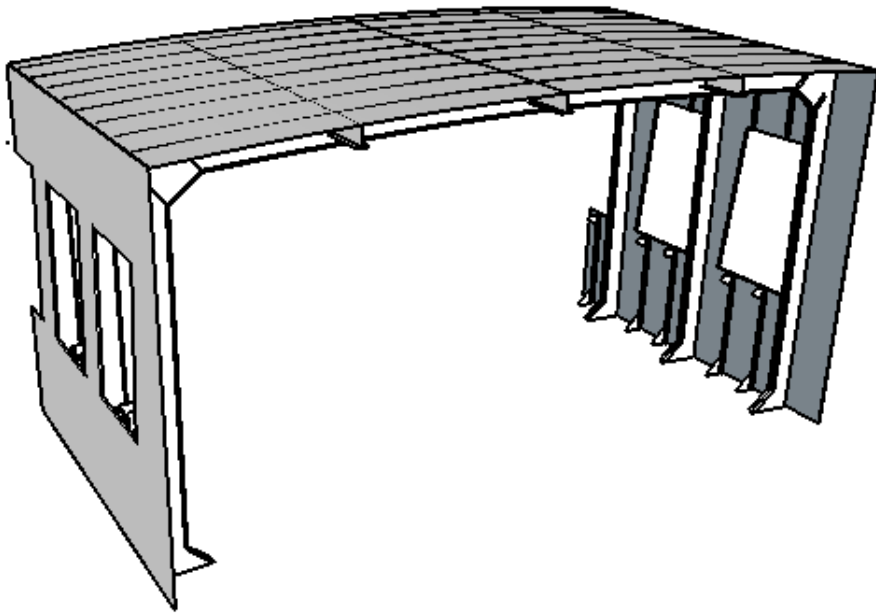


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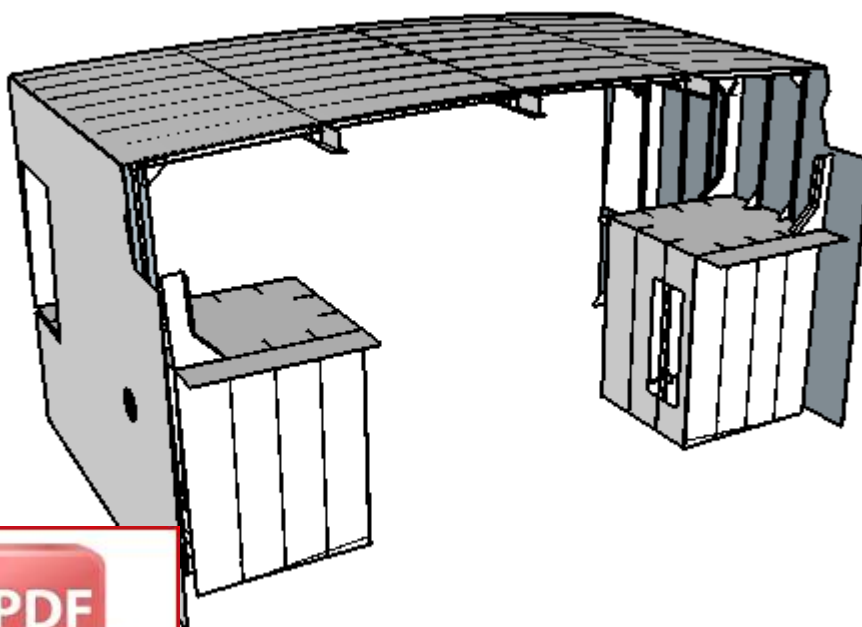


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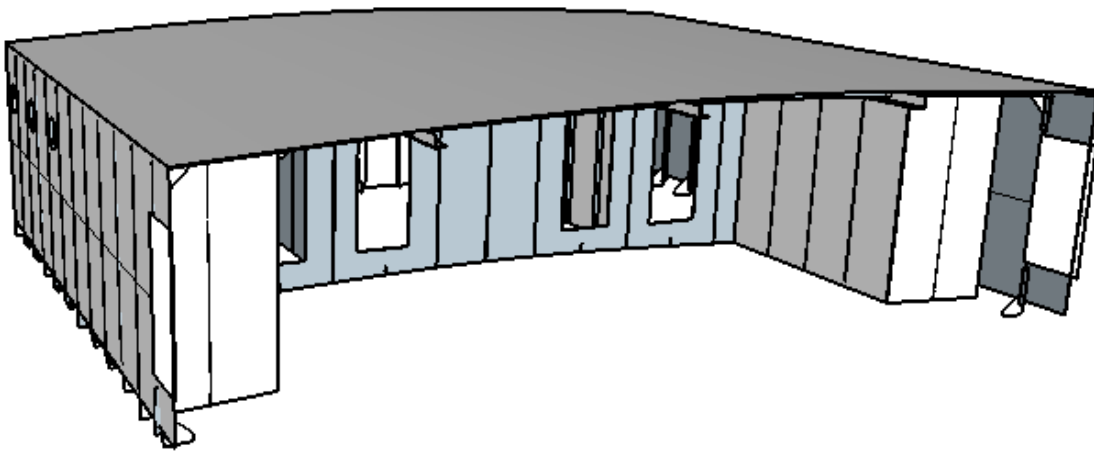


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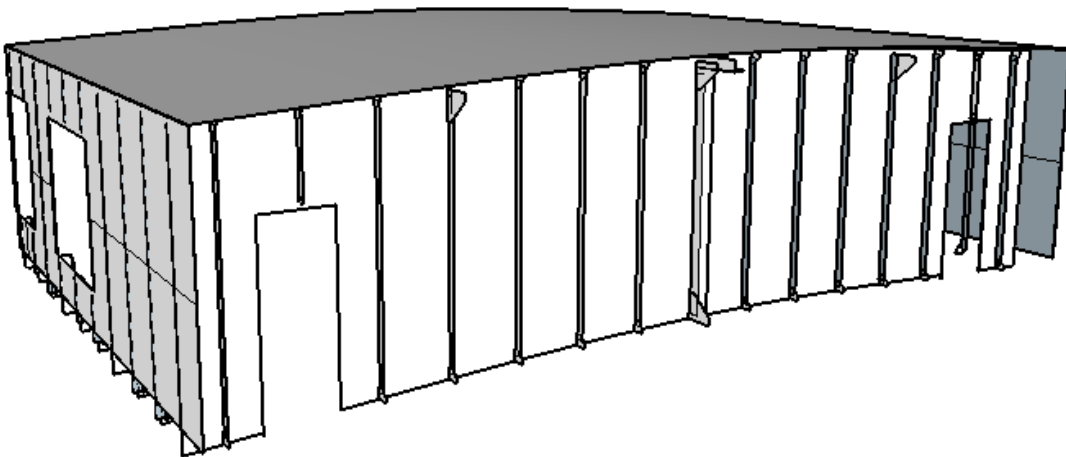


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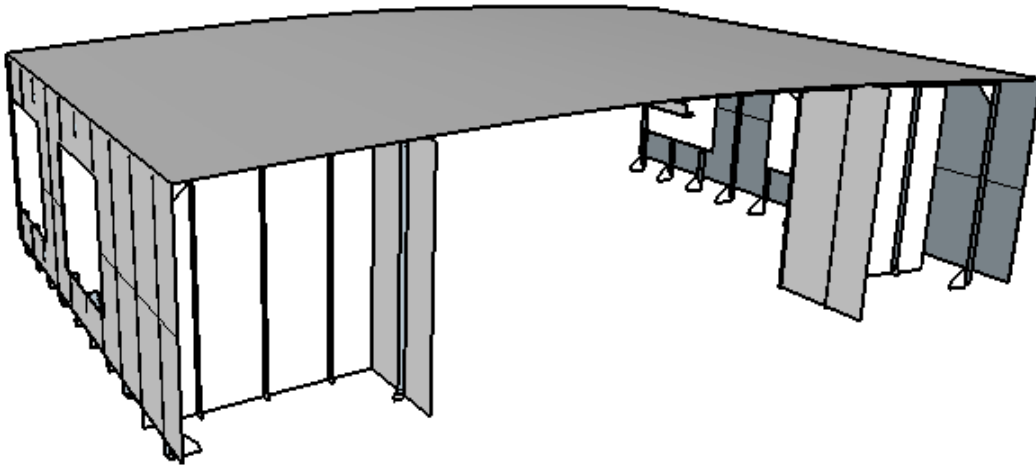
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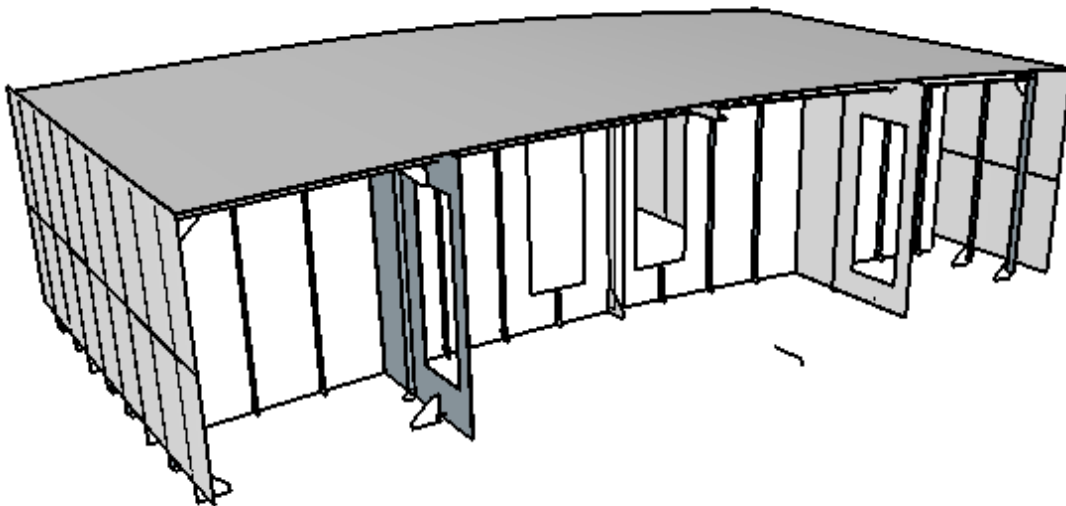
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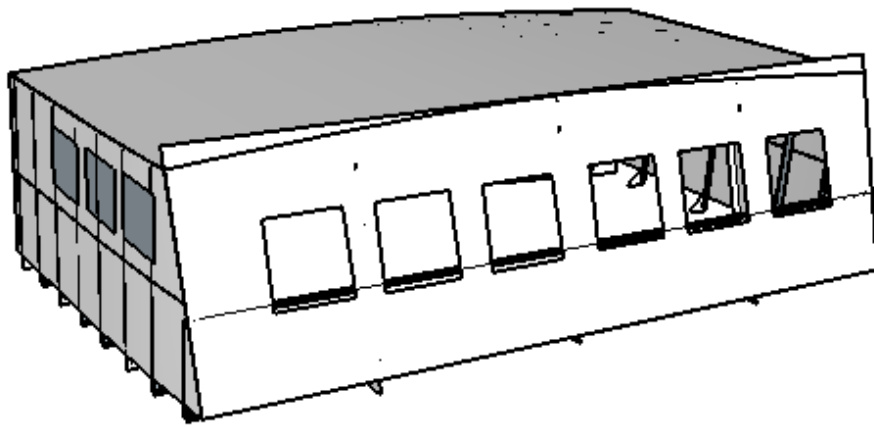


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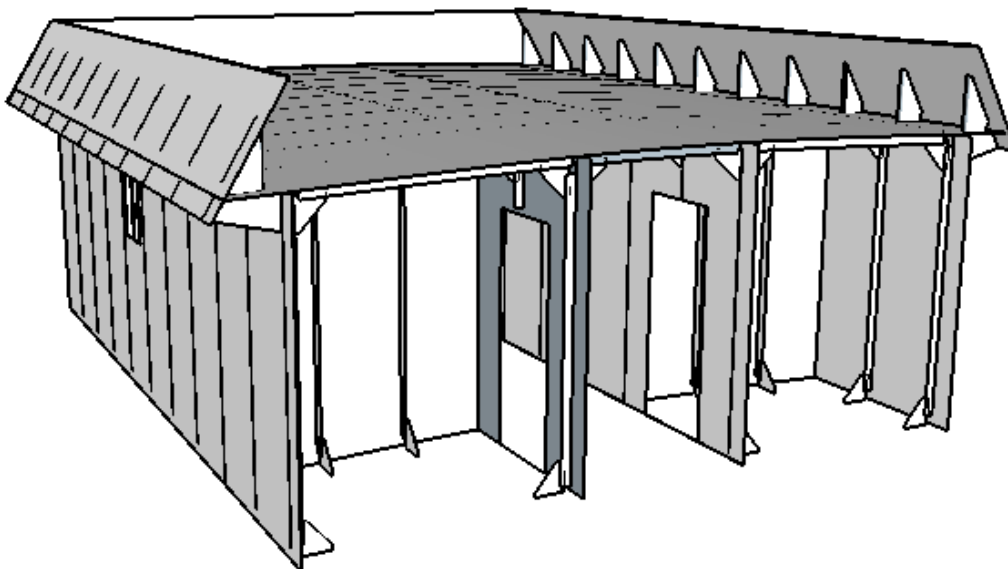


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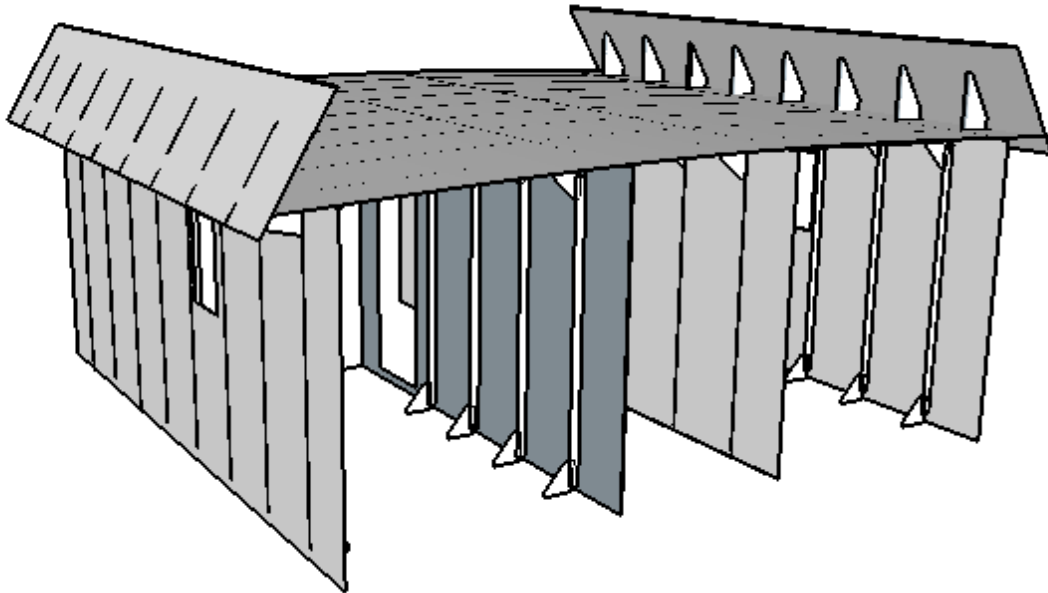




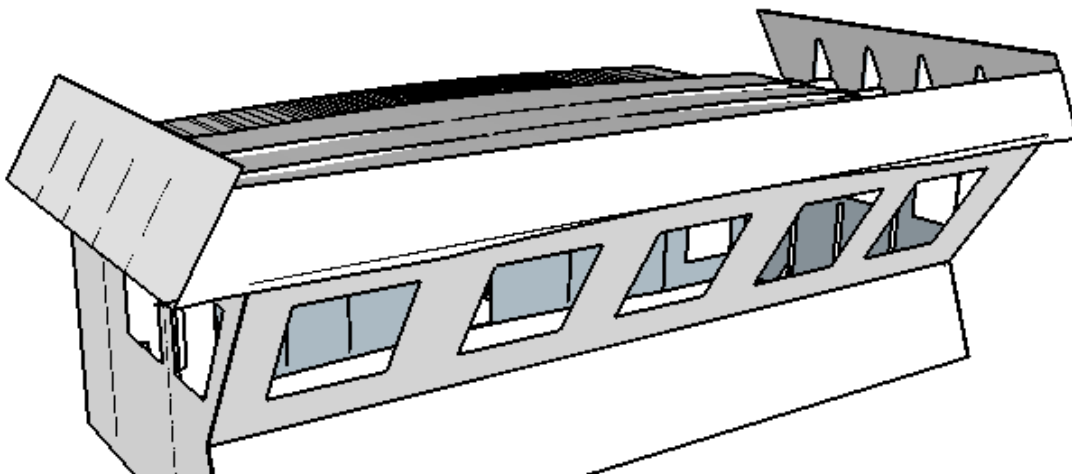
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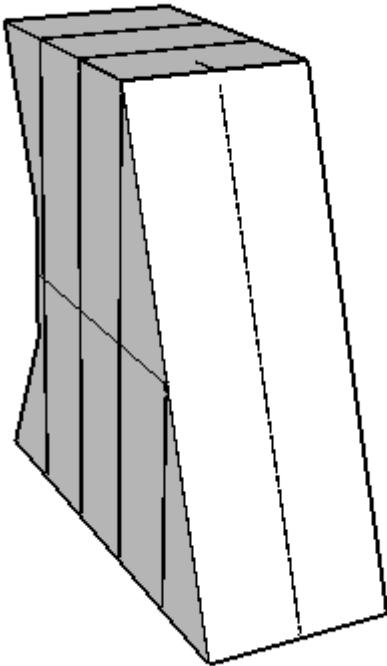


DECK NAVIGASI 3



Optimization Software:
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DECK NAVIGASI 4



DATA PENGUKURAN WAKTU PENGECATAN



Optimization Software:
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DATA PENGUKURAN WAKTU PENGECATAN DI PT. INDUSTRI KAPAL INDONESIA

Nama Pengukur : Zein Akbar dan Muhammad Guntur

Kontraktor Cat : PT. Safina Laras Persada

No.	Ukuran Pelat		Luasan Pekerjaan(m ²)	Waktu (Detik)	Ukur WFT (Detik)
	P	L			
1	6096	1529	9,320784	441	131,00
2	6096	1529	9,320784	437	131,00
3	6096	1529	9,320784	491	131,00
4	6096	1529	9,320784	512	131,00
5	6096	1529	9,320784	495	131,00
6	6096	1529	9,320784	534	131,00
7	6096	1529	9,320784	477	131,00
8	6096	1529	9,320784	507	131,00
9	6096	1529	9,320784	513	131,00

Keterangan =

	Reparasi KN Alicia
	Reparasi KP Wishnu
	Reparasi Kapal KM kota Muna
	Reparasi Kapal Bontoharu

No.	Nama Elemen	Satuan /Notasi	Pengukuran								
			1	2	3	4	5	6	7	8	9
1	Pengecatan		(detik)								
		OT	441	437	491	512	495	534	477	507	513
		Allowance	0	321	0	0	0	143	0	0	0
	Keterangan Allowance			Merokok				Mengobrol			



DATA PENGUKURAN WAKTU SANDBLASTING DI PT. INDUSTRI KAPAL INDONESIA

Nama Pengukur : Zein Akbar dan Muhammad Guntur

Kontraktor Cat : PT. Safina Laras Persada

No.	Area (m ²)	Volume (kg)	Waktu (Menit)	Waktu (Detik)	Pengisian Sand pot (detik)
1	6,00	100	20	1200	459
2	7,56	100	19	1140	459
3	7,89	100	21	1260	459
4	8,20	100	20	1200	459
5	7,20	100	20	1200	459
6	7,91	100	21	1260	459
7	7,20	100	19	1140	459
8	6,95	100	17	1020	459
9	7,32	100	22	1320	459

Keterangan :

Objek Kapal "Cahaya Attapange"
 Objek Kapal "Fortuna Samudra 1"
 Kondisi Permukaan pelat sampai Sa2

No.	Nama Elemen	Satuan /Notasi	Pengukuran								9
			1	2	3	4	5	6	7	8	
1	Pengecatan		(detik)								
		OT	1200	1140	1260	1200	1200	1260	1140	1020	1320
		Allowance				385	0	0	0	352	0
	Keterangan Allowance				merokok				merokok		



SPESIFIKASI JENIS CAT



Epoxy Primer/Finish

PRODUCT DESCRIPTION TEMPERATE

A hard wearing, surface tolerant, two pack epoxy primer/finish offering corrosion protection in one coat.
A low temperature version of Interbond 201 is available for use down to -5°C.

INTENDED USES

As an anticorrosive primer/finish for decks, deck fittings and cargo holds.
For use at Maintenance & Repair or On Board Maintenance.

PRODUCT INFORMATION

Colour	KDL549-Signal Green, KDL274-Red, KDK724-Storm Grey, KDF684-Surf Grey
Finish/Sheen	Semi-gloss
Part B (Curing Agent)	KDA100 (temperate)
Volume Solids	74%±2% (ISO 3233:1998)
Mix Ratio	4.00 volume(s) Part A to 1 volume(s) Part B
Typical Film Thickness	150 microns dry (203 microns wet)
Theoretical Coverage	4.93 m ² /litre at 150 microns dft, allow appropriate loss factors
Method of Application	Airless Spray, Brush, Roller
Flash Point (Typical)	Part A 28°C;Part B 34°C;Mixed 29°C (Product produced and supplied in North America has flash points of Part A 43°C , Part B 39°C and Mixed 39°C respectively due to locally sourced solvents. There is no detrimental effect on product performance.)
Induction Period	30 minutes at temperatures below 25°C for KDA100

Drying Information	5°C	10°C	25°C	35°C
Touch Dry [ISO 9117/3:2010]	9 hrs	7 hrs	4 hrs	3 hrs
Hard Dry [ISO 9117-1:2009]	47 hrs	29 hrs	9 hrs	5 hrs
Pot Life	8 hrs	7 hrs	4 hrs	2 hrs

Overcoating Data - see limitations

Substrate Temperature

	5°C		10°C		25°C		35°C	
Overcoated By	Min	Max	Min	Max	Min	Max	Min	Max
Interbond 201	24 hrs	28 days	18 hrs	28 days	6 hrs	28 days	4 hrs	15 days
Interbond 201	24 hrs	3 mths	18 hrs	2.5 mths	6 hrs	2 mths	4 hrs	28 days
Interbond 501	24 hrs	21 days	18 hrs	21 days	6 hrs	21 days	4 hrs	21 days
Interbond 740	24 hrs	28 days	18 hrs	20 days	6 hrs	14 days	4 hrs	7 days



Intersheen 579	24 hrs	3 days	18 hrs	3 days	6 hrs	3 days	4 hrs	3 days
Interthane 990	-	-	-	-	9 hrs	24 hrs	5 hrs	24 hrs

Note Stated figures for pot life, drying times and overcoating intervals are for temperate product. For low temperature product data see separate data sheet.

REGULATORY DATA

VOC

279 g/ltr as supplied (EPA Method 24)

229 g/kg of liquid paint as supplied. EU Solvent Emissions Directive (Council

Directive 1999/13/EC)

274 g/ltr Chinese National Standard GB23985

Note: VOC values are typical and are provided for guidance purposes only. These may be subject to variation depending on factors such as differences in colour and normal manufacturing tolerances.

Marine Coatings



Epoxy Primer/Finish

CERTIFICATION

When used as part of an approved scheme, this material has the following certification:

- Food Contact - Carriage of Grain (NOHA)
- Fire Resistance - Surface Spread of Flame (Exova Warringtonfire)
- Fire Resistance - Smoke & Toxicity (Exova Warringtonfire)
- Fire Resistance - Marine Equipment Directive compliant

Consult your International Paint representative for details.

SYSTEMS AND

Consult your International Paint representative for the system best suited for the surfaces to be protected.

COMPATIBILITY

When using in cargo holds, consult the Interbond 201 Cargo Hold Application Guidelines.

SURFACE PREPARATIONS

Use in accordance with the standard Worldwide Marine Specifications.

All surfaces to be coated should be clean, dry and free from contamination.

High pressure fresh water wash or fresh water wash, as appropriate, and remove all oil or grease, soluble contaminants and other foreign matter in accordance with SSPC-SP1 solvent cleaning.

MAJOR REFURBISHMENT

Abrasive blast clean to Sa2 (ISO 8501-1:2007). If oxidation has occurred between blasting and application of Interbond 201, the surface should be reblasted to the specified visual standard.

Surface defects revealed by the blast cleaning process, should be ground, filled, or treated in the appropriate manner.

Interbond 201 may be applied to surfaces prepared to International Paint Hydroblasting Standard HB2 which have flash rusted to no worse than HB2M.

REPAIR/OBM - Exposed steel and corrosion:

Hand or power tool clean to a minimum St2 (ISO 8501-1:2007). Note, all scale must be removed and areas which cannot be prepared adequately by chipping or needle gun should be spot blasted to a minimum standard of Sa2 (ISO 8501-1:2007). Typically this would apply to C or D grade steel in this standard.

Or - Abrasive blast clean to Sa2 (ISO 8501-1:2007). If oxidation has occurred between blasting and application of Interbond 201, the surface should be reblasted to the specified visual standard.

Surface defects revealed by the blast cleaning process, should be ground, filled, or treated in the appropriate manner.

Or - Interbond 201 may be applied to surfaces prepared to International Paint Hydroblasting Standard HB2 which have flash rusted to no worse than HB2M.



Interbond 201 is suitable for overlap onto most aged coating systems. Loose or flaking coatings should be removed to a firm edge and Interbond 201 should be applied to overlap the existing coating by 2-3 centimetres (one inch). Glossy epoxies and polyurethanes may require abrasion.

Discontinuous Coatings:

This product may be applied as a full coat over most generic types of paint that have been aged for at least 3 months. It is advisable that a small trial be carried out before applying a full coat over certain generic types. Consult International Paint for acceptable generic types and extent of surface preparation required. Accurate film thickness control is essential, particularly when overcoating existing systems.

Wet Holds

Abrasive blast clean to Sa2½ (ISO 8501-1:2007).

or - Interbond 201 may be applied to surfaces prepared to International Paint Hydroblasting Standard HB2½ which have flash rusted to no worse than HB2½L.

Notes on Overcoating at Repair/OBM

Interthane 990 may be applied to weathered (chalked) temperate Interbond 201 more than 3 months old, provided that the surface is treated by fresh water washing to remove all dirt and contamination followed by degreasing according to SSPC-SP1 solvent cleaning. Interthane 990 should not be used to overcoat Interbond 201 low temperature. For good cosmetics Interbond 201 low temperature should be overcoated with Intergard 740 or Intersheen 579.

Consult your International Paint representative for specific recommendations.

NOTE

For use in Marine situations in North America, the following surface preparation standards can be used:

SSPC-SP10 in place of Sa2½ (ISO 8501-1:2007)

SSPC-SP6 in place of Sa2 (ISO 8501-1:2007)

SSPC-SP2 in place of St2 (ISO 8501-1:2007)

Marine Coatings

Page 2 of 4

Issue Date:06/11/2017

AkzoNobel

Ref:



Epoxy Primer/Finish

APPLICATION

- Mixing** Material is supplied in 2 containers as a unit. Always mix a complete unit in the proportions supplied.
- (1) Agitate Base (Part A) with a power agitator
(2) Combine entire contents of Curing Agent (Part B) with Base (Part A) and mix thoroughly with power agitator.
- Thinner** International GTA220. Thinning is not normally required. Consult the local representative for advice during application in extreme conditions. Do not thin more than allowed by local environmental legislation.
- Airless Spray** Recommended
Tip Range 0.53-0.84 mm (21-33 thou)
Total output fluid pressure at spray tip not less than 176 - 246 kg/cm² (2500 - 3500 p.s.i.)
- Conventional Spray** Application by conventional spray is not recommended.
- Brush** Application by brush is recommended for small areas only. Multiple coats may be required to achieve specified film thickness.
- Roller** Recommended
- Cleaner** International GTA220/GTA822
- Work Stoppages and Cleanup** Do not allow material to remain in hoses, gun or spray equipment. Thoroughly flush all equipment with International GTA220/GTA822. Once units of paint have been mixed they should not be resealed and it is advised that after prolonged stoppages work recommences with freshly mixed units.
Clean all equipment immediately after use with International GTA220/GTA822. It is good working practice to periodically flush out spray equipment during the course of the working day. Frequency of cleaning will depend upon amount sprayed, temperature and elapsed time, including any delays. Do not exceed pot life limitations. All surplus materials and empty containers should be disposed of in accordance with appropriate regional regulations/legislation.
- Welding** In the event welding or flame cutting is performed on metal coated with this product, dust and fumes will be emitted which will require the use of appropriate personal protective equipment and adequate local exhaust ventilation. In North America do so in accordance with instruction in ANSI/ASC Z49.1 "Safety in Welding and Cutting."

SAFETY

All work involving the application and use of this product should be performed in compliance with all relevant national Health, Safety & Environmental standards and regulations.

Prior to use, obtain, consult and follow the Material Safety Data Sheet for this product concerning health and safety information. Read and follow all precautionary notices on the Material Safety Data Sheet and container labels. If you do not fully understand these warnings and instructions or if you can not strictly comply with them, do not use this product. Proper ventilation and protective measures must be provided during application and drying to keep solvent vapour concentrations within safe limits and to protect against toxic or oxygen deficient hazards. Take precautions to avoid skin and eye contact (ie. gloves, goggles, face masks, barrier creams etc.) Actual safety measures are dependant on application methods and work environment.



EMERGENCY CONTACT NUMBERS:

USA/Canada - Medical Advisory Number 1-800-854-6813

Europe - Contact (44) 191 4696111. For advice to Doctors & Hospitals only contact (44) 207 6359191

China – Contact (86) 532 83889090

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Marine Coatings

Page 3 of 4

Issue Date:06/11/2017

AkzoNobel

Ref:430



Epoxy Primer/Finish

LIMITATIONS

When spraying large areas, application of a brush coat is recommended over pitted or rough surfaces to ensure full penetration. Stripe coating of complex structures is recommended.

Interbond 201 low temperature grade is not suitable for use in Ballast Holds.

Optimum performance is achieved when Interbond 201 is applied over blasted steel.

In common with all epoxy based coatings Interbond 201 will exhibit chalking of the film on UV exposure.

Overcoating information is given for guidance only and is subject to regional variation depending upon local climate and environmental conditions. Consult your local International Paint representative for specific recommendations.

Apply in good weather. Temperature of the surface to be coated must be at least 3°C above the dew point. For optimum application properties bring the material to 21-27°C, unless specifically instructed otherwise, prior to mixing and application. Unmixed material (in closed containers) should be maintained in protected storage in accordance with information given in the STORAGE Section of this data sheet. Technical and application data herein is for the purpose of establishing a general guideline of the coating application procedures. Test performance results were obtained in a controlled laboratory environment and International Paint makes no claim that the exhibited published test results, or any other tests, accurately represent results found in all field environments. As application, environmental and design factors can vary significantly, due care should be exercised in the selection, verification of performance and use of the coating.

UNIT SIZE	Unit Size	Part A		Part B	
		Vol	Pack	Vol	Pack
	20 lt	16 lt	20 lt	4 lt	5 lt
	5 US gal	4 US gal	5 US gal	1 US gal	1 US gal

For availability of other unit sizes consult International Paint

UNIT SHIPPING WEIGHT (TYPICAL)	Unit Size	Unit Weight
	20 lt	28.93 Kg
	5 US gal	59 lb

STORAGE	Shelf Life	12 months minimum at 25°C. Subject to re-inspection thereafter. Store in dry, shaded conditions away from sources of heat and ignition.
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WORLDWIDE AVAILABILITY Consult International Paint.

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Marine Coatings

Page 4 of 4

Issue Date:06/11/2017

Ref:430

AkzoNobel



Alkyd Primer

PRODUCT DESCRIPTION A quick drying, one pack primer. Interprime 198 is surface tolerant, compatible with most substrates and can be overcoated with a wide range of finishes.

INTENDED USES For the maintenance of above water areas. Approved for the carriage of grain when used as part of an approved scheme.
For use at Maintenance & Repair or On Board Maintenance.

PRODUCT INFORMATION	Colour	CPA097-White, CPA098-Grey, CPA099-Red
	Finish/Sheen	Matt
	Part B (Curing Agent)	Not applicable
	Volume Solids	41% ±2% (ISO 3233:1998)
	Mix Ratio	Not applicable
	Typical Film Thickness	75 microns dry (183 microns wet)
	Theoretical Coverage	5.47 m ² /litre at 75 microns dft, allow appropriate loss factors
	Method of Application	Airless Spray, Brush, Roller
	Flash Point (Typical)	Single Pack 35°C

Drying Information	Substrate Temperature							
	-5°C	5°C	25°C	35°C				
Touch Dry [ISO 9117/3:2010]	8 hrs	3 hrs	60 mins	30 mins				
Hard Dry [ISO 9117-1:2009]	48 hrs	24 hrs	4 hrs	2 hrs				
Overcoating Data - see limitations	Substrate Temperature							
	-5°C		5°C		25°C		35°C	
Overcoated By	Min	Max	Min	Max	Min	Max	Min	Max
Interfine 5703	-	-	-	-	2 hrs	3 days	2 hrs	24 hrs
Interfine 599	-	-	9 hrs	3 days	3 hrs	2 days	60 mins	24 hrs
Interlac 665	24 hrs	3 days	6 hrs	3 days	2 hrs	2 days	60 mins	24 hrs
Interprime 198	8 hrs	ext	3 hrs	ext	60 mins	ext	30 mins	ext
Interfine 579	24 hrs	3 days	24 hrs	3 days	12 hrs	2 days	6 hrs	24 hrs
Interfine Alkyd	-	-	6 hrs	3 days	2 hrs	2 days	60 mins	24 hrs
Interfine Polyurethane	-	-	24 hrs	7 days	12 hrs	7 days	6 hrs	3 days
Interfine 990	-	-	24 hrs	7 days	12 hrs	7 days	6 hrs	3 days
Interfine 891	24 hrs	28 days	6 hrs	28 days	2 hrs	28 days	60 mins	28 days



REGULATORY DATA

VOC

506 g/ltr as supplied (EPA Method 24)

416 g/kg of liquid paint as supplied. EU Solvent Emissions Directive (Council Directive 1999/13/EC)

Note: VOC values are typical and are provided for guidance purposes only. These may be subject to variation depending on factors such as differences in colour and normal manufacturing tolerances.

Marine Coatings

Page 1 of 4

Issue Date:04/02/2015

Ref:169

AkzoNobel



Alkyd Primer

CERTIFICATION

When used as part of an approved scheme, this material has the following certification:

- Fire Resistance - Surface Spread of Flame (Exova Warringtonfire)
- Fire Resistance - Surface Spread of Flame (Korean Register of Shipping)
- Fire Resistance - Smoke & Toxicity (Exova Warringtonfire)
- Food Contact - Carriage of Grain (NOHA)
- Fire Resistance - Marine Equipment Directive compliant

Consult your International Paint representative for details.

SYSTEMS AND

Consult your International Paint representative for the system best suited for the surfaces to be protected.

COMPATIBILITY

SURFACE PREPARATIONS

Use in accordance with the standard Worldwide Marine Specifications.

All surfaces to be coated should be clean, dry and free from contamination.

High pressure fresh water wash or fresh water wash, as appropriate, and remove all oil or grease, soluble contaminants and other foreign matter in accordance with SSPC-SP1 solvent cleaning.

REPAIR/OBM

Prepare area to be repaired to a minimum of St2 (ISO 8501-1:1998). Higher levels of surface preparation by abrasive blasting to Sa2 (ISO 8501-1:2001) or hydroblasting to HB2M (International Paint Hydroblasting Standards), will enhance product performance.

Feather or chip back surrounding area to a sound edge.

Ensure that the area is clean and dry prior to application of Interprime 198.

Overlap the primer onto existing coatings by approximately 2-3cm.

Consult your International Paint representative for specific recommendations.

NOTE

For use in Marine situations in North America, the following surface preparation standards can be used:

SSPC-SP6 in place of Sa2 (ISO 8501-1:2007)

SSPC-SP2 in place of St2 (ISO 8501-1:2007)



Marine Coatings

Page 2 of 4

Issu

Ref:



AkzoNobel

Alkyd Primer

APPLICATION

Mixing	This material is a one pack coating and should always be mixed thoroughly with a power agitator before application.
Thinner	Not recommended. Use International GTA007 only in exceptional circumstances. DO NOT thin more than allowed by local environmental legislation.
Airless Spray	Recommended Tip Range 0.53-0.66 mm (21-26 thou) Total output fluid pressure at spray tip not less than 176 kg/cm ² (2500 p.s.i.)
Conventional Spray	Application by conventional spray is not recommended.
Brush	Recommended. Multiple coats may be required to achieve specified dft.
Roller	Recommended. Multiple coats may be required to achieve specified dft.
Cleaner	International GTA007
Work Stoppages and Cleanup	Thoroughly flush all equipment with International GTA007. All unused material should be stored in tightly closed containers. Partially filled containers may show surface skinning and/or a viscosity increase of the material after storage. Material should be filtered prior to use.
Welding	In the event welding or flame cutting is performed on metal coated with this product, dust and fumes will be emitted which will require the use of appropriate personal protective equipment and adequate local exhaust ventilation. In North America do so in accordance with instruction in ANSI/ASC Z49.1 "Safety in Welding and Cutting."

SAFETY

All work involving the application and use of this product should be performed in compliance with all relevant national Health, Safety & Environmental standards and regulations.

Prior to use, obtain, consult and follow the Material Safety Data Sheet for this product concerning health and safety information. Read and follow all precautionary notices on the Material Safety Data Sheet and container labels. If you do not fully understand these warnings and instructions or if you can not strictly comply with them, do not use this product. Proper ventilation and protective measures must be provided during application and drying to keep solvent vapour concentrations within safe limits and to protect against toxic or oxygen deficient hazards. Take precautions to avoid skin and eye contact (ie. gloves, goggles, face masks, barrier creams etc.) Actual safety measures are dependant on application methods and work environment.

EMERGENCY CONTACT NUMBERS:

A/Canada - Medical Advisory Number 1-800-854-6813

Europe - Contact (44) 191 4696111. For advice to Doctors & Hospitals only contact (44) 207 6359191

India - Contact (86) 532 83889090

S.W. - Contact Regional Office



Marine Coatings

Page 3 of 4

Issue Date:04/02/2015

AkzoNobel

Ref:169



Alkyd Primer

LIMITATIONS

It is recommended that Interprime 198 is not overcoated with epoxy coatings.

In certain regions, for specific customer requests and where cosmetic properties are not of concern, Interprime 198 may be applied without a cosmetic finish. Consult your regional technical centre for guidelines and details of colours available.

Overcoating information is given for guidance only and is subject to regional variation depending upon local climate and environmental conditions. Consult your local International Paint representative for specific recommendations. Apply in good weather. Temperature of the surface to be coated must be at least 3°C above the dew point. For optimum application properties bring the material to 21-27°C, unless specifically instructed otherwise, prior to mixing and application. Unmixed material (in closed containers) should be maintained in protected storage in accordance with information given in the STORAGE Section of this data sheet. Technical and application data herein is for the purpose of establishing a general guideline of the coating application procedures. Test performance results were obtained in a controlled laboratory environment and International Paint makes no claim that the exhibited published test results, or any other tests, accurately represent results found in all field environments. As application, environmental and design factors can vary significantly, due care should be exercised in the selection, verification of performance and use of the coating.

UNIT SIZE	Unit Size	Vol	Pack
	1 US gal	1 US gal	1 US gal
	5 US gal	5 US gal	5 US gal
	5 lt	5 lt	5 lt
	20 lt	20 lt	20 lt

For availability of other unit sizes consult International Paint

UNIT SHIPPING WEIGHT (TYPICAL)	Unit Size	Unit Weight
	1 US gal	12.2 lb
	20 lt	26.7 Kg
	5 lt	6.71 Kg
	5 US gal	60.9 lb

STC Shelf Life 24 months minimum at 25°C. Subject to reinspection thereafter. Store in dry, shaded conditions away from sources of heat and ignition

WO Consult International Paint.

IMP Optimization Software: www.balesio.com Information in this data sheet is not intended to be exhaustive; any person using the product for any purpose other than that specifically

recommended in this data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at their own risk. All advice given or statements made about the product (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability at all for the performance of the product or for (subject to the maximum

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Marine Coatings

Page 4 of 4

Issue Date:04/02/2015

Ref:169

AkzoNobel



Alkyd Finish

PRODUCT DESCRIPTION A one pack alkyd gloss finish.

INTENDED USES For use as an easily maintained cosmetic finish coat on areas above the waterline.
For use at Newbuilding, Maintenance & Repair or On Board Maintenance.

PRODUCT INFORMATION	Colour	CLB000-White, CLD260-Intl. Orange, CLK724-Storm Grey, CLL274-Red, CLL549-Signal Green, CLY999-Black ; and a wide range of colours.
	Finish/Sheen	High Gloss
	Part B (Curing Agent)	Not applicable
	Volume Solids	48% ±3% (ISO 3233:1998)
	Typical Film Thickness	40 microns dry (83 microns wet)
	Theoretical Coverage	12 m ² /litre at 40 microns dft, allow appropriate loss factors
	Method of Application	Airless Spray, Brush, Conventional Spray, Roller
	Flash Point (Typical)	Single Pack 40°C (Product produced and supplied in North America has a flashpoint of 41°C due to locally sourced solvents. There is no detrimental effect on product performance.)

Drying Information	Substrate Temperature							
	5°C		10°C		25°C		35°C	
Touch Dry [ISO 9117/3:2010]	18 hrs		14 hrs		6 hrs		5 hrs	
Hard Dry [ISO 9117-1:2009]	62 hrs		48 hrs		24 hrs		12 hrs	
Overcoating Data - see limitations								
Overcoated By	5°C		10°C		25°C		35°C	
	Min	Max	Min	Max	Min	Max	Min	Max
Interlac 665	36 hrs	ext	24 hrs	ext	24 hrs	ext	16 hrs	ext

RECOATING



420 g/lt as supplied (EPA Method 24)

364 g/kg of liquid paint as supplied. EU Solvent Emissions Directive (Council Directive 1999/13/EC)

407 g/lt Chinese National Standard GB23985

Note: VOC values are typical and are provided for guidance purposes only. These may be subject to variation depending on factors such as differences in colour and normal manufacturing tolerances.

Marine Coatings

Page 1 of 4

Issue Date:13/11/2015

AkzoNobel

Ref:161



Alkyd Finish

CERTIFICATION

When used as part of an approved scheme, this material has the following certification:

- Fire Resistance - Surface Spread of Flame (Exova Warringtonfire)
- Fire Resistance - Surface Spread of Flame (Korean Register of Shipping)
- Fire Resistance - Smoke & Toxicity (Exova Warringtonfire)
- Fire Resistance - Marine Equipment Directive compliant
- Food Contact - Carriage of Grain (NOHA)
- Meets Petrobras Standard N-2492 - Alkyd Finish Gloss

Consult your International Paint representative for details.

SYSTEMS AND COMPATIBILITY

Interlac 665 should only be applied over recommended anticorrosive primers. The primer to be used will depend upon vessel area, existing coatings, coating condition and application location. Typical primers include:

Interprime 198

Intertuf 203

Interprime 128 (in Europe)

Interprime 222 (in South America)

Interprime 234 (in North America)

Interprime 538 (in Europe)

Interlac 497 (applied as a sympathetically coloured undercoat over Interprime 198)

In the Americas, Interlac 665 may also be applied over epoxy primers or epoxy tie coats. Consult International Paint.

Consult your International Paint representative for the system best suited for the surfaces to be protected.

SURFACE PREPARATIONS

Use in accordance with the standard Worldwide Marine Specifications.

All surfaces to be coated should be clean, dry and free from contamination.

High pressure fresh water wash or fresh water wash, as appropriate, and remove all oil or grease, soluble contaminants and other foreign matter in accordance with SSPC-SP1 solvent cleaning.

NEWBUILDING/MAJOR REFURBISHMENT

Interlac 665 should always be applied over a recommended primer coating scheme. The primer surface should be clean and free from all contamination, and Interlac 665 must be applied within the overcoating intervals specified in the relevant product data sheet. Areas of breakdown, damage etc., should be prepared to the specified standard (e.g. Sa2½ (ISO 8501-1:2007) and primed prior to the application of Interlac 665



PAIR

Repair corroded areas with an appropriate International Paint primer (consult the primer data sheet).

OBM

Interlac 665 should always be applied over a recommended primer coating scheme. The primer surface should be dry and free from all contamination, and Interlac 665 must be applied within the overcoating intervals specified (consult the relevant product data sheet). Areas of breakdown, damage etc., should be prepared to the specified standard (e.g. Sa2½ (ISO 8501-1:2007) and primed prior to the application of Interlac 665

Interlac 665 may be applied directly over aged Interlac 665 following thorough fresh water washing and degreasing provided the coating to be overcoated is in an intact and tightly adherent condition. Loose or flaking coatings should be removed back to a firm edge and Interlac 665 or an appropriate primer should be used to repair the area before application of the full coat.

Consult your International Paint representative for specific recommendations.

NOTE

**For use in Marine situations in North America, the following surface preparation standards can be used:
SSPC-SP10 in place of Sa2½ (ISO 8501-1:2007)**

Marine Coatings

Page 2 of 4

Issue Date:13/11/2015

AkzoNobel

Ref:161



Alkyd Finish

APPLICATION

Mixing	This material is a one pack coating and should always be mixed thoroughly with a power agitator before application.
Thinner	International GTA004. Thinning is not normally required. Consult the local representative for advice during application in extreme conditions. Do not thin more than allowed by local environmental legislation.
Airless Spray	Recommended Tip Range 0.33-0.48 mm (13-19 thou) Total output fluid pressure at spray tip not less than 141 kg/cm ² (2010 p.s.i.)
Conventional Spray	Use suitable proprietary equipment. Thinning may be required.
Brush	Suitable.
Roller	Suitable.
Cleaner	International GTA004
Work Stoppages and Cleanup	Thoroughly flush all equipment with International GTA004. All unused material should be stored in tightly closed containers. Partially filled containers may show surface skinning and/or a viscosity increase of the material after storage. Material should be filtered prior to use.
Welding	In the event welding or flame cutting is performed on metal coated with this product, dust and fumes will be emitted which will require the use of appropriate personal protective equipment and adequate local exhaust ventilation. In North America do so in accordance with instruction in ANSI/ASC Z49.1 "Safety in Welding and Cutting."

SAFETY

All work involving the application and use of this product should be performed in compliance with all relevant national Health, Safety & Environmental standards and regulations.

Prior to use, obtain, consult and follow the Material Safety Data Sheet for this product concerning health and safety information. Read and follow all precautionary notices on the Material Safety Data Sheet and container labels. If you do not fully understand these warnings and instructions or if you can not strictly comply with them, do not use this product. Proper ventilation and protective measures must be provided during application and drying to keep solvent vapour concentrations within safe limits and to protect against toxic or oxygen deficient hazards. Take precautions to avoid skin and eye contact (ie. gloves, goggles, face masks, barrier creams etc.) Actual safety measures are dependant on application methods and work environment.

EMERGENCY CONTACT NUMBERS:

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Japan - Contact (86) 532 83889090
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Marine Coatings

Page 3 of 4

Issue Date:13/11/2015

Ref:161

AkzoNobel



Alkyd Finish

LIMITATIONS

Interlac 665 is not suitable for use on immersed areas.

Overcoating information is given for guidance only and is subject to regional variation depending upon local climate and environmental conditions. Consult your local International Paint representative for specific recommendations. Apply in good weather. Temperature of the surface to be coated must be at least 3°C above the dew point. For optimum application properties bring the material to 21-27°C, unless specifically instructed otherwise, prior to mixing and application. Unmixed material (in closed containers) should be maintained in protected storage in accordance with information given in the STORAGE Section of this data sheet. Technical and application data herein is for the purpose of establishing a general guideline of the coating application procedures. Test performance results were obtained in a controlled laboratory environment and International Paint makes no claim that the exhibited published test results, or any other tests, accurately represent results found in all field environments. As application, environmental and design factors can vary significantly, due care should be exercised in the selection, verification of performance and use of the coating.

In the overcoating data section 'ext' = extended overcoating period. Please refer to our Marine Painting Guide - Definitions and Abbreviations available on our website.

UNIT SIZE	Unit Size	
	Vol	Pack
20 lt	20 lt	20 lt
5 lt	5 lt	5 lt
5 US gal	5 US gal	5 US gal
1 US gal	1 US gal	5 US gal

For availability of other unit sizes consult International Paint

UNIT SHIPPING WEIGHT (TYPICAL)	Unit Size	Unit Weight
	1 US gal	10 lb
20 lt	23.9 Kg	
5 lt	6.01 Kg	
5 US gal	49.5 lb	

STORAGE	Shelf Life
	24 months minimum at 25°C. Subject to reinspection thereafter. Store in dry, shaded conditions away from sources of heat and ignition



Consult International Paint.

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Marine Coatings

Page 4 of 4

Issue Date:13/11/2015

Ref:161

AkzoNobel



Polyurethane

PRODUCT A two component acrylic polyurethane finish giving excellent durability and long term recoatability.

DESCRIPTION

INTENDED USES Suitable for use in both new construction and as a maintenance finish which can be used in a wide variety of environments including offshore structures, chemical and petrochemical plants, bridges, pulp and paper mills, and in the power industry.

PRACTICAL INFORMATION FOR INTERTHANE 990

Colour	Wide range via the Chromascan system
Gloss Level	High Gloss
Volume Solids	57% ± 3% (depends on colour)
Typical Thickness	50-75 microns (2-3 mils) dry equivalent to 88-132 microns (3.5-5.3 mils) wet
Theoretical Coverage	11.40 m ² /litre at 50 microns d.f.t and stated volume solids 457 sq.ft/US gallon at 2 mils d.f.t and stated volume solids
Practical Coverage	Allow appropriate loss factors
Method of Application	Airless Spray, Air Spray, Brush, Rolle
Drying Time	

Overcoating Interval with recommended topcoats

Temperature	Touch Dry	Hard Dry	Minimum	Maximum
5°C (23°F)	8 hours	60 hours	60 hours	Extended ¹
10°C (41°F)	5 hours	24 hours	24 hours	Extended ¹
15°C (59°F)	150 minutes	10 hours	10 hours	Extended ¹
20°C (77°F)	90 minutes	6 hours	6 hours	Extended ¹
25°C (104°F)	60 minutes	3 hours	3 hours	Extended ¹



REGULATORY DATA	Flash Point (Typical)	Part A 34°C (93°F); Part B 49°C (120°F); Mixed 35°C (95°F)	
	Product Weight	1.21 kg/l (10.1 lb/gal)	
	VOC	3.50 lb/gal (420 g/l)	EPA Method 24
		341 g/kg	EU Solvent Emissions Directive (Council Directive 1999/13/EC)

See Product Characteristics section for further details



Polyurethane

SURFACE PREPARATION All surfaces to be coated should be clean, dry and free from contamination. Prior to paint application all surfaces should be assessed and treated in accordance with ISO 8504:2000.

Primed Surfaces

Interthane 990 should always be applied over a recommended anti-corrosive coating scheme. The primer surface should be dry and free from all contamination and Interthane 990 must be applied within the overcoating intervals specified (consult the relevant product data sheet).

Areas of breakdown, damage etc., should be prepared to the specified standard (e.g. Sa2½ (ISO 8501-1:2007) or SSPC-SP6, Abrasive Blasting, or SSPC-SP11, Power Tool Cleaning) and patch primed prior to the application of Interthane 990.

APPLICATION	Mixing	Material is supplied in two containers as a unit. Always mix a complete unit in the proportions supplied. Once the unit has been mixed it must be used within the working pot life specified.				
		(1) Agitate Base (Part A) with a power agitator. (2) Combine entire contents of Curing Agent (Part B) with Base (Part A) and mix thoroughly with power agitator.				
	Mix Ratio	6 part(s): 1part(s) by volume				
	Working Pot Life	-5°C (23°F)	5°C (41°F)	15°C (59°F)	25°C (77°F)	40°C (104°F)
		26 hours	12 hours	4 hours	2 hours	45 minutes
	Airless Spray	Recommended	Tip Range 0.33-0.45 mm (13-18 thou) Total output fluid pressure at spray tip not less than 155 kg/cm ² (2204 p.s.i.)			
	Air Spray	Recommended	Gun	DeVilbiss MBC or JGA		
	(Pressure Pot)		Air Cap	704 or 765		
			Fluid Tip	E		
	Spray	Recommended	Use suitable proprietary equipment			
	(Conventional)					
	Brush	Suitable	Typically 40-50 microns (1.6-2.0 mils) can be achieved			
	Roller	Suitable	Typically 40-50 microns (1.6-2.0 mils) can be			



achieved

Thinner	International GTA713 Do not thin more than allowed by local (or International GTA733 environmental legislation or GTA056)
Cleaner	International GTA713 (or International GTA733 or GTA056)
Work Stoppages	Do not allow material to remain in hoses, gun or spray equipment. Thoroughly flush all equipment with International GTA713. Once units of paint have been mixed they should not be resealed and it is advised that after prolonged stoppages work recommences with freshly mixed units.
Clean Up	Clean all equipment immediately after use with International GTA713. It is good working practice to periodically flush out spray equipment during the course of the working day. Frequency of cleaning will depend upon amount sprayed, temperature and elapsed time, including any delays.

All surplus materials and empty containers should be disposed of in accordance with appropriate regional regulations/legislation.



Polyurethane

PRODUCT
CHARACTERISTICS

SYSTEMS COMPATIBILITY



after weathering or ageing, ensure the coating is fully cleaned to remove all surface contamination such as oil, grease, salt crystals and traffic fumes, before application of a further coat of Interthane 990.

Interthane 990 is available in a range of metallic finishes - please consult the separate Interthane 990 Metallic Working Procedures document for further information.

Absolute measured adhesion of topcoats to aged Interthane 990 is less than that to fresh material, however, it is adequate for the specified end use.

This product must only be thinned using the recommended International thinners. The use of alternative thinners, particularly those containing alcohols, can severely affect the curing mechanism of the coating.

Surface temperature must always be a minimum of 3°C (5°F) above dew point.

When applying Interthane 990 in confined spaces ensure adequate ventilation.

Level of sheen and surface finish are dependent on application method. Avoid using a mixture of application methods whenever possible.

Interthane 990 is capable of curing at temperatures below 0°C (32°F). However, this product should not be applied at temperatures below 0°C (32°F) where there is a possibility of ice formation on the substrate. Condensation occurring during or immediately after application may result in a matt finish and an inferior film. Premature exposure to ponding water will cause colour change, especially in dark colours and at low temperatures.

This product is not recommended for use in immersion conditions. When severe chemical or solvent splashing is likely to occur contact International Protective Coatings for information regarding suitability.

Best results in terms of gloss and appearance will always be obtained by conventional air spray application.

A modified version of Interthane 990 is available for use within the Korean marketplace in order to provide improved workability.

Note: VOC values are typical and are provided for guidance purpose only. These may be subject to variation depending on factors such as differences in colour and normal manufacturing tolerances.

Low molecular weight reactive additives, which will form part of the film during normal ambient cure conditions, will also affect VOC values determined using EPA Method 24.

For brush and roller application, and in some colours, two coats of Interthane 990 may be required to give uniform coverage, especially when applying Interthane 990 over dark undercoats, and when using certain lead free bright colours such as

The following primers/intermediates are recommended for Interthane 990:

Intercure 200	Interseal 670HS
Intercure 200HS	Interzinc 315
Intercure 420	Interzinc 52
Intergard 251	Interzinc 52HS
Intergard 269	Interzone 505
Intergard 345	Interzone 954
Intergard 475HS	Interzone 1000



Interthane 990 is designed only to be topcoated with itself.

When overcoating

For other suitable
primers/intermediat
es consult
International
Protective
Coatings.



Polyurethane

ADDITIONAL INFORMATION

Further information regarding industry standards, terms and abbreviations used in this data sheet can be found in the following documents available at www.international-pc.com:

- Definitions & Abbreviations
- Surface Preparation
- Paint Application
- Theoretical & Practical Coverage
- Interthane 990 Metallic Finish Working Procedures

Individual copies of these information sections are available upon request.

This product is intended for use only by professional applicators in industrial situations in accordance with the advice given on this sheet, the Material Safety Data Sheet and the

SAFETY PRECAUTIONS

container(s), and should not be used without reference to the Material Safety Data Sheet (MSDS) which International Protective Coatings has provided to its customers.

All work involving the application and use of this product should be performed in compliance with all relevant national, Health, Safety & Environmental standards and regulations.

In the event welding or flame cutting is performed on metal coated with this product, dust and fumes will be emitted which will require the use of appropriate personal protective equipment and adequate local exhaust ventilation.

If in doubt regarding the suitability of use of this product, consult International Protective Coatings for further advice.



Warning: Contains isocyanate. Wear air-fed hood for spray application.

PACK SIZE	Unit Size	Part A		Part B	
		Vol	Pack	Vol	Pack
	20 litre	17.14 litre	20 litre	2.86 litre	3.7 litre
	5 US gal	4.29 US gal	5 US gal	0.71 US gal	1 US gal

For availability of other pack sizes, contact International Protective Coatings.

SHIPPING WEIGHT (TYPICAL)	Unit Size	Part A	Part B
		20 litre	23.1 kg
	5 US gal	47.6 lb	7.1 lb

STORAGE	Shelf Life	24 months (Part A) & 12 months (Part B) minimum at 25°C (77°F)
		Subject to re-inspection thereafter. Store in dry, shaded conditions away from sources of heat and ignition.

Important Note

The information in this data sheet is not intended to be exhaustive; any person using the product for any purpose other than that specifically recommended in this data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at their own risk. All advice given or statements made about the product (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability at all for the performance of the product or for (subject to the maximum extent permitted by law) any loss or damage arising out of the use of the product. We hereby disclaim any warranties or representations, express or implied, by operation of law or otherwise, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose. All products supplied and technical advice given are subject to our Conditions of Sale. You should request a copy of this document and review it carefully. The information contained in this data sheet is liable to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to check with their local representative that this data sheet is current prior to using the product.

This Technical Data Sheet is available on our website at www.international-marine.com or www.international-pc.com, and should be the same as this document. Should there be any discrepancies between this document and the version of the Technical Data Sheet that appears on the website, then the version on the website will take precedence.

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SPEKIFIKASI CAT BANGUNAN BARU



Optimization Software:
www.balesio.com

VESSEL NAME : FERRY RORO
 OWNER :
 SHIPYARD : PT IKI MAKASSAR

Keterangan:

VOLUME SOLID	Kekentalan Cat
DFT	Ketebalan Cat
TSR	Teory Daya Sebar Cat Per Liter
PSR	Pratek Daya Sebar Cat Per Liter
Loss Factor	Kehilangan saat aplikasi

1. Lambung Luar, Bawah Garis Air, Estimasi Luasan 841,97 m²

Surface Preparations

Where necessary remove all weld spatter, smooth weld seams and sharp edges. Fresh water wash 9300 Psi/211kg cm²) to remove all dirt and contamination. Degrease according to SSPC-SP1 solvent cleaning. Spot Blast on rusted & damaged area to Sa 2.5 ISO 8501-1 or SSPC SP10. Ensure the surface have to Degrease according to SSPC-SP1 solvent cleaning. Spot Blast on rusted & damaged area to Sa 2.5 ISO 8501-1 or SSPC SP10, Ensure the surface have to free of saif, oil, grease, dust, clean and dry prior to the application of each coat of the specification paint scheme.

No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Primer	Primer Pure Epoxy	Intertuf 262	Red	73	100	7,30	30%	5,11	841,97	164,77
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						32,95
2nd	Intermediate/S ealer	Anti Corrosive (A/C)	Intergard 263	Grey	57	75	7,60	30%	5,32	841,97	158,27
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						31,65
3rd	Finish	Anti Fouling (A/F)	Interspeed 6200	Red	58	75	7,73	30%	5,41	841,97	155,54
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						31,11
4th	Finish	Anti Fouling (A/F)	Interspeed 6200	Red	58	75	7,73	30%	5,41	841,97	155,54
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						31,11
Total Ketebalan = 325										Jumlah =	760,93

2. Lambung Luar, Botton Area, Estimasi Luasan 214,18 m²

No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Primer	Primer Pure Epoxy	Intertuf 262	Red	73	100	7,30	30%	5,11	214,18	41,91
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						8,38
2nd	Intermediate/S ealer	Anti Corrosive (A/C)	Intergard 263	Grey	57	75	7,60	30%	5,32	214,18	40,26
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						8,05
3rd	Finish	Polyurethane Finish	Interthane 990	Caribbean Blue	57	50	11,40	40%	6,84	214,18	31,31
		Thinner	GTA 733	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						6,26
4th	Finish	Polyurethane Finish	Interthane 990	Caribbean Blue	57	50	11,40	40%	6,84	214,18	31,31
		Thinner	GTA 733	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						6,26
Total Ketebalan = 275										Jumlah =	173,76

3. Lambung Bagian Luar, Top Side Area & Semua Dinding Luar, Estimasi Luasan 391,34 m² (10,49 + 380,85=391,34)

No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Primer	Alkyd Primer	Interprime 198	Red	41	50	8,20	30%	5,74	391,34	68,18
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						13,64
2nd	Finish	Alkyd Finish	Interlac 665	White	48	75	6,40	40%	3,84	391,34	101,91
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						20,38
Total Ketebalan = 125										Jumlah =	204,11

Dalam, Deck & Kamar Mesin Area, Estimasi Luasan 4.250,43 m² (2.881,15 + 1369,28 = 4.250,43)

No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Primer	Alkyd Primer	Interprime 198	Grey	41	50	8,20	30%	5,74	4.250,43	740,49
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						148,10
2nd	Finish	Alkyd Finish	Interlac 665	White	48	75	6,40	40%	3,84	4.250,43	1.106,88
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						221,38
Total Ketebalan = 125										Jumlah =	2.216,85

4. Lantai, Estimasi Luasan 734,71 m²

No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Primer	Primer Pure Epoxy	Intertuf 262	Red	73	100	7,30	30%	5,11	734,71	143,78
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						28,78
2nd	Finish	Epoxy Primer/Finish	Interbond 201	Signal Green	74	100	7,40	30%	5,18	734,71	141,84
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						28,37
Total Ketebalan = 200										Jumlah =	342,74

6. Geladak Ruang Akomodasi yang dilengkapi pelindung geladak, Estimasi Luasan 358,69 m²

No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Finish	Epoxy Primer/Finish	Interbond 201	Signal Green	74	150	4,93	30%	3,45	358,69	103,87
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat ->	20%						20,77
Total Ketebalan = 150										Jumlah =	124,64



7. Top Deck. Estimasi Luasan 81.17 m ²											
No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Finish	Epoxy Primer/Finish	Interbond 201	Signal Green	74	100	7,40	30%	5,18	214,18	41,35
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					8,27
2nd	Finish	Polyurethane Finish	Interthane 990	Signal Green	57	75	7,60	30%	5,32	214,18	40,26
		Thinner	GTA 733	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					8,05
Total Ketebalan = 175										Jumlah =	87,93

Langit Geladak yang dilengkapi panel penutup. Estimasi Luasan 965,63 m ²											
No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Primer	Alkyd Primer	Interprime 198	Grey	41	50	8,20	30%	5,74	965,63	168,23
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					33,65
2nd	Finish	Alkyd Finish	Interlac 665	White	48	75	6,40	40%	3,84	965,63	251,47
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					50,29
Total Ketebalan = 125										Jumlah =	503,63

Langit Geladak Kendaraan & Geladak lainnya yg tidak dilengkapi panel penutup. Estimasi Luasan 1.954,01 m ²											
No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Primer	Alkyd Primer	Interprime 198	Grey	41	50	8,20	30%	5,74	1.954,01	340,42
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					68,08
2nd	Finish	Alkyd Finish	Interlac 665	White	48	75	6,40	40%	3,84	1.954,01	508,86
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					101,77
Total Ketebalan = 125										Jumlah =	1.019,13

10. Dinding luar rumah geladak. Estimasi Luasan 118,57 m ²											
No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Primer	Alkyd Primer	Interprime 198	Grey	41	50	8,20	30%	5,74	118,57	20,66
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					4,13
2nd	Finish	Alkyd Finish	Interlac 665	White	48	75	6,40	40%	7,20	118,57	16,47
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					3,29
Total Ketebalan = 90										Jumlah =	44,55

11. Dinding dalam rumah geladak. Estimasi Luasan 478,57 m ²											
No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Primer	Alkyd Primer	Interprime 198	Grey	41	50	8,20	30%	5,74	478,57	83,37
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					18,67
2nd	Finish	Alkyd Finish	Interlac 665	White	48	75	6,40	40%	3,84	478,57	124,63
		Thinner	GTA 007	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					24,93
Total Ketebalan = 125										Jumlah =	249,60

12. Kamar Mandi. Estimasi Luasan 33,71 m ²											
No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Finish	Epoxy Primer/Finish	Interbond 201	Signal Green	74	150	4,93	30%	3,45	33,71	9,76
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					1,95
Total Ketebalan = 150										Jumlah =	11,71

Estimasi Luasan 271,71 m ²											
No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Primer	Epoxy Primer/Finish	Interseal 670HS	Grey	82	125	6,56	30%	4,59	271,71	59,17
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					11,83
2nd	Finish	Epoxy Primer/Finish	Interseal 670HS	White	82	125	6,56	30%	4,59	271,71	59,17
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					11,83
Total Ketebalan = 250										Jumlah =	142,01

Estimasi Luasan 361,19 m ²											
No	Coating System	Item	Product	Colour	Volume Solid	DFT	TSR	Loss Factor	PSR	Area	Qty
1st	Primer	Epoxy Primer/Finish	Intergard 403	Light Red	68	125	5,44	30%	3,81	361,19	94,85
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					18,97
2nd	Finish	Epoxy Primer/Finish	Intergard 403	Aluminium Grey	68	125	5,44	30%	3,81	361,19	94,85
		Thinner	GTA 220	Jumlah Thinner adalah 20% dari Qty Cat -->		20%					18,97
Total Ketebalan = 250										Jumlah =	227,84

