بسم الله الرحمن الرحيم

ދިވެހިރާއްޖޭގެ ޤައުމީ ޔުނިވަރސިޓީ
އިދާރީ މަރުކަޒު
ރަހްދެބައި ހިނގުން، މައްޗަންގޮޅި
މާލެ (20371)، ދިވެހިރާއްޖެ
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ނަންބަރު: MNU-CA-PAMD/2026/96

ބީލަން ހުށަހެޅުމުގެ ދަޢުވަތު

1. ދިވެހިރާއްޖޭގެ ޤައުމީ ޔުނިވަރސިޓީގެ ތ. ގަން ކެމްޕަސް 2 ގައި އެކޮމޮޑޭޝަން ޔުނިޓްތަކެއް އެޅުމުގެ މަސައްކަތްކޮށްދޭނެ ފަރާތެއް ހޯދުމަށް ކުރެވުނު ނަމްބަރު MNU-CA-PAMD/2026/66 އިއުލާނަށް ހުށަހެޅިފައިވާ ބީލަން އިވެލުއޭޝަން މަރުޙަލާއިން ޑިސްކޮލިފައިވެފައިވާތީ، އެ އިއުލާން ބާތިލްކޮށް އަލުން އިއުލާންކުރުމަށް ނިންމީމެވެ. ވީމާ، މި މަސައްކަތްކޮށްދިނުމަށް ޝައުޤުވެރިވާ ހުރިހާ ފަރާތްތަކަށް އަލުން ފުރުޞަތު ހުޅުވާލަމެވެ.

2. މި ބީލަމާއި ގުޅޭ މައުލޫމާތު ޝީޓް މި އިއުލާނާއި އެޓޭޗް ކުރެވިފައި ވާނެއެވެ. އަދި ހުށަހަޅަންޖެހޭ ފޯމުތައް އިއުލާނާ އެޓޭޗް ކުރެވިފައި ވާނެއެވެ.

3. މި ބީލަމަށް ކުރިމަތިލާ ފަރާތްތަކުން ހުށަހަޅާ ބީލަމުގެ އަގު 500،000.00ރ (ފަސްލައްކަ ރުފިޔާ) އަށްވުރެ މަތިވާނަމަ، މައުލޫމާތު ޝީޓުގައި ބަޔާންކޮށްފައިވާ ގޮތުގެ މަތިން ހުށަހަޅާ ބީލަމުގެ އަގަށް ބިޑް ސެކިއުރިޓީއެއް ހުށަހަޅަންޖެހޭނެއެވެ.

4. މި ބީލަމާ ގުޅިގެން ބާއްވާ ޕްރީ ބިޑް މީޓިންގ އަންގާރަ 22 ޖުލައި 2026 ވަނަ ދުވަހުގެ 13:00 ގައި އޮންލައިންކޮށެވެ. ޒޫމް މީޓް ލިންކު ސެކްޝަން 2 ގައި ބަޔާންކޮށްފައިވާނެއެވެ. ބީލަން ހުށަހެޅުން އޮންނާނީ 05 އޮގަސްޓް 2026 ވަނަ ދުވަހުގެ 10:00 ގައި ދިވެހިރާއްޖޭގެ ޤައުމީ ޔުނިވަރސިޓީގެ އިދާރީ މަރުކަޒު (ރަހްދެބައި ހިނގުން، މާލެ) ގައެވެ. ބީލަންތައް ހުށަހަޅަންވާނީ ސިޓީއުރައެއްގައި ބަންދުކޮށްގެންނެވެ. ސިޓީއުރައިގެ ބޭރުގައި ބީލަމަށް ދެވިފައިވާ ނަން، އިއުލާން ނަންބަރު އަދި ބީލަން ހުށަހަޅާ ފަރާތުގެ ނަން ލިޔެފައި އޮންނަންވާނެއެވެ.

1. އިސްތިހާރުކުރެވިފައިވާ ގަޑިއަށް ބީލަން ހުށަހެޅުމަށް ހާޒިރުނުވާ ފަރާތްތަކަށް ބީލަން ހުށަހެޅުމުގެ ފުރުޞަތު ނުދެވޭނޭކަމަށް ދަންނަވަމެވެ. ބީލަމާ ގުޅޭ އެންމެހައި ކަންކަމުގައި ޢަމަލުކުރާނެ އުސޫލު މި އިއުލާނާ އެޓޭޗް ކުރެވިފައިވާނެއެވެ. އަދި އެޓޭޗް ކުރެވިފައިވާ ލިޔުންތަކާއި ފުރިހަމަކޮށް ބީލަމާ އެކު ހުށަހަޅަންޖެހޭ އެންމެހައި ލިޔުންތަކާއި ހުށަހަޅަންޖެހޭނެއެވެ.

2. ބީލަމާ ގުޅޭގޮތުން އެއްވެސް ސުވާލެއްވާނަމަ، ތިރީގައިވާ އީ-މެއިލް އެޑްރެހަށް ސުވާލުކުރުން އެދެމެވެ. ނުވަތަ ބަޔާންކޮށްފައިވާ ފޯނު ނަންބަރަށް ގުޅުއްވުން އެދެމެވެ.

މަސައްކަތާ ގުޅޭ މައުލޫމާތަށްޓަކައި:	ބީލަމާ ގުޅޭ އިދާރީ މައުލޫމާތަށް ނަމަ؛
ޕްރޮޖެކްޓްސް ޑިޕާޓްމަންޓް	ޕްރޮކިއުމަންޓް އެންޑް އެސެޓް މެނޭޖްމަންޓް ޑިޕާޓްމަންޓް
ދިވެހިރާއްޖޭގެ ޤައުމީ ޔުނިވަރސިޓީ	ދިވެހިރާއްޖޭގެ ޤައުމީ ޔުނިވަރސިޓީ
ރަހްދެބައި ހިނގުން، މާލެ، ދިވެހިރާއްޖެ	ރަހްދެބައި ހިނގުން، މާލެ، ދިވެހިރާއްޖެ
ފޯން: 3345190	ފޯން: 3345111 ،3345109, 3345110, 3345148
އީ-މެއިލް: projects@mnu.edu.mv	އީ-މެއިލް: procurement@mnu.edu.mv

19 ޖުލައި 2026

ސެކްޝަން-1: ބީލަމުގެ އާންމު ބައިތައް

ބީލަމުގެ ނަން:	ދިވެހިރާއްޖޭގެ ޤައުމީ ޔުނިވަރސިޓީގެ ލ. ގަން ކެމްޕަސް 2 ގައި އެކޮމޮޑޭޝަން ޔުނިޓްތަކެއް އެޅުމުގެ މަސައްކަތްކޮށްދޭނެ ފަރާތެއް ހޯދުން
ބީލަމުގެ ނަންބަރު:	MNU-CA-PAMD/2026/96 ތާރީޚް: 19 ޖުލައި 2026
މަސައްކަތުގެ މުއްދަތު:	މި މަސައްކަތްކުރެވޭނެ މުއްދަތު ކޯޓޭޝަންގައި ބަޔާންކުރުމެވެ.
ބީލަން އެވޯޑްކުރާގޮތް:	މި ބީލަން އިވެލުއޭޓް ކޮށް އެވޯޑް ކުރާނީ މަޢުލޫމާތު ޝީޓުގައިވާ ހުރިހާ މަސައްކަތެއް އެއްކޮށް.
ބީލަމަށް ކުރިމަތިލެވޭ ފަރާތްތައް:	☐ ދިވެހިރާއްޖޭގެ ކުންފުންޏާބެހޭ ޤާނޫނު، ޕާޓްނަރޝިޕް ޤާނޫނު، ކޯޕަރޭޓިވް ސޮސައިޓީގެ ޤާނޫނު އަދި އަމިއްލަ ފަރުދުންގެ ވިޔަފާރީގެ ޤާނޫނުގެ ދަށުން ރަޖިސްޓްރީ ކުރެވިފައިވާ ވިޔަފާރިތައް އަދި އަމިއްލަ ފަރުދުން ☑ އެންމެ ކުދި، ކުދި އަދި މެދުފަންތީގެ ވިޔަފާރިއެއްގެ ގޮތުގައި ރަޖިސްޓްރީކުރެވިފައިވާ ފަރާތްތަކަށް އެކަނި
ޕްރީބިޑް ބައްދަލުވުން:	ތާރީޚް: **22 ޖުލައި 2026** ލިންކް: https://meet.google.com/gdv-aude-fay ގަޑި: **13:00**
ކްލެރިފިކޭޝަންގެ ސުންގަޑި:	ތާރީޚް: 02 އޮގަސްޓް 2026 ގަޑި: 14:00
ބީލަން ހުށަހެޅުން:	ތާރީޚް: **05 އޮގަސްޓް 2026** ތަން: ދިވެހިރާއްޖޭގެ ޤައުމީ ޔުނިވަރސިޓީގެ އިދާރީ މަރުކަޒު، ރަހްދެބައިހިނގުން، މާލެ ގަޑި: **10:00**
ބިޑް ސެކިއުރިޓީގެ އަދަދު:	ސެކްޝަން 3 ގައި ބަޔާންކޮށްފައިވާ ޕާފޯމަންސް ގެރެންޓީގެ އަދަދު:- ކޮންޓްރެކްޓް ވެލިއުގެ 5%
މަސައްކަތާ ގުޅޭގޮތުން މަޢުލޫމާތު ސާފުކުރުން:	ޕްރޮޖެކްޓްސް ޑިޕާޓްމަންޓް ދިވެހިރާއްޖޭގެ ޤައުމީ ޔުނިވަރސިޓީ ރަހްދެބައިހިނގުން، މާލެ، ދިވެހިރާއްޖެ ފޯން: 3345190 އީ-މެއިލް: projects@mnu.edu.mv
ބީލަމާ ގުޅޭ އިދާރީ މަޢުލޫމާތު ސާފުކުރުން:	ޕްރޮކިއުމަންޓް އެންޑް އެސެޓް މެނޭޖްމަންޓް ޑިޕާޓްމަންޓް ދިވެހިރާއްޖޭގެ ޤައުމީ ޔުނިވަރސިޓީ ރަހްދެބައިހިނގުން، މާލެ، ދިވެހިރާއްޖެ ފޯން: 3345111، 3345110 އީ-މެއިލް: procurement@mnu.edu.mv

ސެކްޝަން-2: ބީލަން ހުށަހަޅާ ފަރާތްތަކަށް ދެވޭ އިރުޝާދު

ތަޢާރަފު	1		މިއީ މަތީގައި ބަޔާންކޮށްފައިވާ ބީލަމާ ގުޅޭގޮތުން ބީލަން ހުށަހަޅާ ފަރާތްތަކަށް މައުލޫމާތު ދިނުމަށް އާންމުކުރެވޭ މައުލޫމާތު ޝީޓެކެވެ. މި މައުލޫމާތު ޝީޓާއި މިއާއެކުގައި އެޓޭޗްކޮށްފައިވާ އެންމެހައި ޑޮކިއުމަންޓްތަކަކީ މީގެ ބައެކެވެ.
ބީލަމަށް ކުރިމަތިލެވޭނެ ފަރާތްތައް	2	(ހ)	ޔުނިވަރސިޓީގެ ބީލަންތަކަށް ކުރިމަތިލެވޭނީ ދިވެހިރާއްޖޭގެ ކުންފުނިތަކާބެހޭ ޤާނޫނުން، ޕާޓްނަރޝިޕް ޤާނޫނުން، ކޯޕަރޭޓިވް ސޮސައިޓީގެ ޤާނޫނުން އަދި އަމިއްލަ ފަރުދުންގެ ވިޔަފާރީގެ ޤާނޫނުގެ ދަށުން ރަޖިސްޓްރީ ކުރެވިފައިވާ ވިޔަފާރިތަކަށެވެ.
	3	(ށ)	މީގެ އިތުރުން އެންމެ ކުޑަ، ކުދި އަދި މެދުފަންތީގެ ވިޔަފާރިތަކަށް އެކަނި ބައިވެރިވެވޭގޮތަށް ހުޅުވާލާފައި، އިއުލާނުގައި އަދި މި މައުލޫމާތު ކަރުދާހުގެ ސެކްޝަން-1 ގައި ބަޔާންކޮށްފައިވާނަމަ އެ އިއުލާނަކާ ގުޅިގެން ބީލަން ހުށަހެޅޭނީ މިނިސްޓްރީ އޮފް އިކޮނޮމިކް ޑިވެލޮޕްމަންޓްގައި އެންމެ ކުޑަ، ކުދި އަދި މެދުފަންތީގެ ވިޔަފާރިއެއްގެ ގޮތުގައި ރަޖިސްޓްރީކޮށްފައިވާ ފަރާތްތަކަށް އެކަނިއެވެ.
ގަންނަންބޭނުންވާ ތަކެތި / ކުރަން ބޭނުންވާ މަސައްކަތުގެ އަސާސީ މައުލޫމާތު	4		ކުރަންޖެހޭ މަސައްކަތުގެ ތަފްސީލު މި މައުލޫމާތު ޝީޓާ އެޓޭޗް ކުރެވިފައިވާނެއެވެ.
ބީލަމާއެކު ހުށަހަޅަންޖެހޭ ލިޔުންތައް	5		ބީލަމާއެކު ހުށަހަޅަންޖެހޭ ލިޔުންތައް މި މައުލޫމާތު ޝީޓާ އެޓޭޗްކޮށްފައިވާ ޗެކްލިސްޓް (ޖަދުވަލު-1) ގައި ވާނެއެވެ. މި ޗެކްލިސްޓް ފުރިހަމަކޮށް، ބީލަމާއެކު ހުށަހަޅަންޖެހޭނެއެވެ. މީގެ އިތުރުން އެ ޗެކްލިސްޓްގައި ބަޔާންކޮށްފައިވާ ލިޔުންތައްވެސް ބީލަމާއެކު ހުށަހަޅަންވާނެއެވެ.
މި މަސައްކަތުގެ މުއްދަތު	6		މި މަސައްކަތުގެ މުއްދަތު ސެކްޝަން-1 ގައި ބަޔާންކޮށްފައިވާނެއެވެ.
ބީލަމުގެ ވެލިޑިޓީ	7		މި އިޢުލާނާ ގުޅިގެން ހުށަހަޅާ ހުރިހާ ބީލަމެއްގައި މަދުވެގެން 60 (ފަސްދޮޅަސް) ދުވަހުގެ ވެލިޑިޓީ މުއްދަތެއް އޮންނަންވާނެއެވެ.
މި އަންދާސީހިސާބު އެވޯޑްކުރާނެގޮތް	8		ބީލަން އެވޯޑްކުރާނެގޮތް ސެކްޝަން-1 ގައި ބަޔާންކޮށްފައިވާނެއެވެ. މައުލޫމާތު ޝީޓްގައިވާ ހުރިހާ މަސައްކަތެއް އެއްކޮށް އެވޯޑްކުރާ ބީލަންތަކުގައިނަމަ، އަގު ހުށަހަޅާނީ ހުރިހާ މަސައްކަތެއް ކޮށް ނިންމުން އަގެވެ. އަދި ގުރޫޕްތައް ވަކިން އެވޯޑްކުރާ ބީލަންތަކުގައިނަމަ އަގު ހުށަހަޅާ ގުރޫޕެއްގައިވާ ހުރިހާ މަސައްކަތަކަށް އަގު ހުށަހަޅަންވާނެއެވެ. މަސައްކަތް ހަވާލުކުރުމަށް ހަމަޖެހިފައިވަނީ ހުށަހަޅާފައިވާ ހުށަހެޅުންތަކަށް އިވެލުއޭޝަން ހެދުމަށްފަހު އޭގެތެރެއިން ފާސްކޮށްފައިވާ ފަރާތްތަކުގެ ތެރެއިން އެންމެ މަތިން ޕޮއިންޓް ލިބޭ ފަރާތަކަށެވެ.
ޓެކްނިކަލް އިވެލުއޭޝަން	9		މި ބީލަމުގެ ޓެކްނިކަލް އިވެލުއޭޝަން ހެދުމުގައި ބަލާނީ މި މައުލޫމާތު ކަރުދާހުގެ ޖަދުވަލު-4 ގައި ބަޔާންކޮށްފައިވާ މިންގަނޑު ސްޕެސިފިކޭޝަން ކޯޓޭޝަންގައި ފުރިހަމަކޮށްގެންނެވެ. ސްޕެސިފިކޭޝަނާ ދިމާނުވާނަމަ ނުވަތަ އެއާ އެއް ކޮލިޓީ/މިންގަނޑުގެ ސްޕެސިފިކޭޝަނާ ދިމާނުވާނަމަ އެ ބީލަމެއް ބާތިލުކުރުމުގެ

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އިހުތިޔާރު ޔުނިވަރސިޓީއަށް ލިބިގެންވެއެވެ. މީގެ އިތުރުން ޝޯޓްލިސްޓްގައި ބަޔާންކޮށްފައިވާ ލިޔުންތައް ހުށަހަޅާފައިނުވާ ބީލަން ބާތިލުކުރެވޭނެއެވެ.

ބީލަން ވަޒަންކުރާ މިންގަނޑު 10

ބީލަން ވަޒަންކުރާ މިންގަނޑު ސެކްޝަން-3 ގައި ބަޔާންކޮށްފައިވާނެއެވެ.

ވަޒަންކުރުމަށްފަހުގެ ތަފްޞީލު 11

(ހ) މި މަސައްކަތް ކުރުމަށް ހުށަހަޅާފައިވާ އަންދާސީހިސާބު އިވެލުއޭޓް ކުރުމަށްފަހު ކޯޓުކޮށްފައިވާ އަންދާސީ ހިސާބުތަކުން ތިރީގައި ބަޔާންކޮށްފައިވާ ގޮތަށް ޕޮއިންޓް ދީ، ޕޮއިންޓުދިނުމަށްފަހު ކޮމިޓީއަށް ހުށަހަޅާނެއެވެ.

(ށ) އަގަށް މާކްސް ދޭނީ ހުށަހަޅާފައިވާ އެންމެ ކުޑަ އަގަށް ފުލް މާކްސް ލިބޭ ގޮތަށް ޕްރޯ-ރޭޓާ އުސޫލުންނެވެ.

(ނ) މުއްދަތަށް މާރކްސް ދޭ ބީލަންތަކުގައި މުއްދަތަށް މާރކްސް ދޭނީ ހުށަހެޅިފައިވާ އެންމެ ކުރު މުއްދަތަށް ފުލް މާރކްސް ލިބޭގޮތަށް ޕްރޯ-ރޭޓާ އުސޫލުންނެވެ.

(ރ) ތަޖުރިބާ: ވަޒަންކުރާނީ ފާއިތުވެދިޔަ 10 އަހަރު ދުވަހުގެ ތެރޭގައި ކޮށްފައިވާ ކަމާއި ގުޅޭ މަސައްކަތްތަކުގެ އަދަދަށް ބިނާކޮށެވެ. މިގޮތުން ޕޮއިންޓް ދެވޭނީ ގިނަވެގެން 10 މަސައްކަތަށެވެ، ކޮންމެ މަސައްކަތަކަށް 2 ޕޮއިންޓް އެވެ. އަދި ޕޮއިންޓް ދިނުމުގައި ބެލޭނީ ހުށަހަޅާ ބީލަމުގެ އަގުގެ 20% އިން ފެށިގެން މަތީން ކޮށްފައިވާ މަސައްކަތްތަކުގެ ލިޔުންތަކެވެ.

(ބ) ހުނަރު: ހާއްސަ ހުނަރެއް ބޭނުންވާ މަސައްކަތްތަކެއް ކަނޑައަޅާނީ ޔުނިވަރސިޓީއިންނެވެ. މިބައަށް ޕޮއިންޓް ދޭނީ ވަކި ވަކި ހާއްސަ ހުނަރު ބޭނުންވާ މަސައްކަތްތަކަށް އެކަނިއެވެ. މިސާލަކަށް ލީ ފޮރުވުމެއް ހަރުކަށި ކުރާނަމަ އެތަނެއްގައި ހުރިހާ ދިރުމެއްގެ ކެމިކަލްގައި ވަކާލާތު ކުރުމުގެ ހުއްދަ އޮތް ވަކިފަރާތުން ބޭނުން ކުރެވިދާނެއެވެ. އަދި އިމާރާތެއް ކުރާނަމަ އެތަނެއްގައި ސްޓީލްވަރކް އާރކިޓެކްޗަރ ތިބެން ވާޖިބުކުރެވިދާނެއެވެ. ނޯޓް: އެބޭނުންވާ ހުނަރެއް ބޭނުންކުރާ ފަރާތުން ފޯރުކޮށްދޭނެކަމުގެ ލިޔުންތަކެއް ހުށަހަޅަން ވާޖިބު ކުރެވިދާނެއެވެ. މިގޮތުގައި ބޭނުންވާ ހުނަރުހުރި ސްޓާފުން ފަރާތަކުން ބިޑް ހުށަހަޅާ ފަރާތަށް ހިދުމަތް ފޯރުކޮށްދޭނެކަމުގެ އެގްރީމެންޓް ނުވަތަ ކަމުގެ ލިޔުން ހިމެނޭނެއެވެ.

އަންދާސީ ހިސާބު ހުށަހަޅާފައިވާ މަސައްކަތަށް ބޭނުންވާ ހުނަރަށް ޕޮއިންޓް ދިނުމުގައި ބަލާނީ އަންދާސީ ހިސާބު ހުށަހަޅާފަރާތުން މަސައްކަތަކާ އެއްފަދަ މަސައްކަތްކޮށްފައިވާކަމުގެ ލިޔުންތަކުން ނުވަތަ މަސައްކަތް ކުރި ފަރާތްތަކުގެ ހުނަރު ހުރިކަން ސާބިތުކޮށްދޭ ލިޔުމާއި މަސައްކަތުގެ ތަޖުރިބާގެ ލިޔުންތަކަށް ބިނާކޮށެވެ. ވަކި ލައިސަންސެއްގައި ނުހިނގާ ނުވަތަ ގެރެޖް ފޯން ނަމްބަރު، އީ-މެއިލް، ކޮންޓެކްޓް އަދި، މަސައްކަތުގެ ނަން، މަސައްކަތުގެ މުއްދަތު، ލިޔުން ދޫކުރި ތާރީހު ފަދަ އަސާސީ މައުލޫމާތު ލިބޭން ނުހުންނަ ރިފަރެންސް ލިޔުންތަކާއި ބީލަމުގައި ބަޔާންކޮށްފައިވާ މުއްދަތުގެ ތެރޭގައި ނުނިމުނު ލިޔުންތައް މާރކްސް ދިނުމުގައި ރިޢާޔަތްނުކުރެވޭނެއެވެ.

(ޅ) މާލީ ގާބިލުކަން: މިބައަށް ޕޮއިންޓް ދޭނީ 500،000 ރުފިޔާއިން ފެށިގެން މަތީގެ މަސައްކަތްތަކަށް އެކަނިއެވެ. މާލީގާބިލުކަން ވަޒަންކުރަންޖެހޭ މަސައްކަތްތަކެއް ކަނޑައަޅާނީ، މަސައްކަތުގެ ރިކުއަރމަންޓަށްބަލައި ޔުނިވަރސިޓީއިންނެވެ.

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އެހެންނަމަވެސް [illegible] [illegible] 500،000 ރުފިޔާގެ މަތީގެ ބަޔެއް [illegible] މާލީ ގާބިލުކަން ވަޒަންކުރުން [illegible] [illegible]. މިސާލަކަށް [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]. 500،000 ރުފިޔާއިން މަތީ [illegible] [illegible] [illegible] މާލީ ގާބިލުކަން ވަޒަން ނުކުރާ [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]. މިބައިން ޕޮއިންޓު ދޭނީ "މާލީ ގާބިލުކަން ވަޒަން ކުރާ ފޯމު" އާއި އެއްގޮތަށެވެ.

[illegible] [illegible] 3 އަހަރު [illegible] [illegible] [illegible] [illegible]، [illegible] [illegible] 3 [illegible] [illegible]. [illegible] [illegible] [illegible] ޕޮއިންޓު [illegible] [illegible] 3 އަހަރުގެ [illegible] [illegible]، [illegible] ބަޖެޓުގެ 80% ހަމަވާނަމަ އެވެ. [illegible] 3 [illegible] [illegible] [illegible]، [illegible] [illegible] [illegible] [illegible] [illegible]. [illegible] 3 އަހަރުގެ [illegible] [illegible]، [illegible] ބަޖެޓުގެ 50% ހަމަވާނަމަ [illegible] [illegible]. [illegible] [illegible] [illegible] [illegible]، [illegible] ބަޖެޓުގެ އަހަރުގެ 80% [illegible] [illegible] "[illegible] [illegible] [illegible] [illegible]" ގެ ބައިން [illegible] ޕޮއިންޓު ލިބޭނެއެވެ. އަދި [illegible] ([illegible]) ބަޖެޓުގެ 50% އާއި [illegible] [illegible] [illegible] [illegible] [illegible] އަހަރުގެ 80% ހަމަވާނަމަ، "[illegible] [illegible] [illegible] [illegible]" ގެ ބައިން [illegible] ޕޮއިންޓު ލިބޭނެއެވެ. [illegible] [illegible] [illegible] [illegible] [illegible] ބަޖެޓުގެ 50% [illegible] [illegible] [illegible] [illegible] [illegible].

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

12 ޕޮއިންޓު ހިސާބު ކުރާނެގޮތް

- ހާއްސަ ހުނަރެއް ނުވަތަ މާލީ ގާބިލުކަން ބަލަން ނުޖެހޭ ޕެރަމީޓަރު ނަމަ ޕޮއިންޓު ދޭނީ ހަމައެކަނި ތަޖުރިބާގެ ބައިންނެވެ. މިގޮތުން މިބައިން ލިބޭނީ ޖުމްލަ 20 ޕޮއިންޓު އެވެ.
- ހާއްސަ ހުނަރެއް ބަލަންޖެހޭ ޕެރަމީޓަރުގައި ޕޮއިންޓު ދޭނީ ތަޖުރިބާއާއި ހާއްސަ ހުނަރުގެ ބައިންނެވެ. މިގޮތުން މިބައިން ޕޮއިންޓު ލިބޭނީ ތަޖުރިބާއަށް ލިބޭ 20 ޕޮއިންޓާއި، ހުނަރުގެ ބައިން ލިބޭ 10 ޕޮއިންޓު އާއިއެކު ޖުމްލަ 30 ޕޮއިންޓެވެ.
- ހާއްސަ ހުނަރެއް ބަލަން ނުޖެހޭ އެހެން ނަމަވެސް މާލީ ގާބިލުކަން ބަލަން ޖެހޭ ޕެރަމީޓަރުގައި ޕޮއިންޓު ދޭނީ ތަޖުރިބާ އާއި މާލީ ގާބިލުކަމުގެ ބައިންނެވެ. މިގޮތުން މިބައިން ޕޮއިންޓު ލިބޭނީ ތަޖުރިބާއަށް ލިބޭ 20 ޕޮއިންޓު އާއި މާލީ ގާބިލުކަމުގެ ބައިން ލިބޭ 20 ޕޮއިންޓާއި އެކު ޖުމްލަ 40 ޕޮއިންޓު އެވެ.
- ތަޖުރިބާއާއި ހުނަރާއި އަދި މާލީ ގާބިލުކަން ބަލަން ޖެހޭ ޕެރަމީޓަރުގައި މި 3 ބައިން ވެސް ޕޮއިންޓު ލިބޭނެއެވެ. މިގޮތުން މިބައިން ޕޮއިންޓު ލިބޭނީ ތަޖުރިބާއަށް ލިބޭ 20 ޕޮއިންޓާއި، ހުނަރަށް ލިބޭ 10 ޕޮއިންޓު އާއި މާލީ ގާބިލުކަމަށް ލިބޭ 20 ޕޮއިންޓު އާއިއެކު ޖުމްލަ 50 ޕޮއިންޓު އެވެ.

13 [illegible] [illegible]

މި މަސައްކަތްކުރުމުގައި [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] މި [illegible] [illegible] [illegible] [illegible] [illegible] އަދި [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

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އަންދާސީހިސާބާއި ގުޅިގެން ބޭނުންކުރާ ފައިސާ	14	މި އަންދާސީހިސާބާއި ގުޅިގެން ހިނގާ ފައިސާގެ މުއާމަލާތްތަކުގައި ބޭނުންކުރާނީ ދިވެހި ރުފިޔާއެވެ.
ހުށަހެޅޭ އަންދާސީހިސާބުގެ ޢަދަދު	15	މި މަސައްކަތްކޮށްދިނުމަށް ކޮންމެ ފަރާތަކުންވެސް ހުށަހަޅާނީ އެއް ބީލަމެވެ.
އަންދާސީހިސާބު ހުށަހަޅަންޖެހޭ ގޮތް	16	އަންދާސީހިސާބު ހުށަހަޅާނީ އަންދާސީހިސާބު ހުށަހަޅަން ކަނޑައަޅާފައިވާ ގަޑީގައި މި ޔުނިވަރސިޓީގައި ބާއްވާ ބައްދަލުވުމުގައެވެ. އަންދާސީހިސާބު ހުށަހަޅަން ކަނޑައަޅާފައިވާ ސުންގަޑިޔާ ފަހުން ހުށަހަޅާ އަންދާސީހިސާބުތަކެއް ބަލައި ނުގަނެވޭނެއެވެ. އަންދާސީހިސާބު ހުށަހަޅަންވާނީ ސިޓީއުރައަކަށްލާ ބަންދުކޮށްފައެވެ. އަދި ސިޓީއުރައިގައި ބީލަމުގެ ނަން، އިޢުލާނު ނަންބަރު އަދި ބީލަން ހުށަހަޅާ ފަރާތުގެ ނަން ލިޔެފައި ހުންނަންވާނެއެވެ. މި ބީލަމާއި ގުޅޭ ހުރިހާ ލިޔުންތައް ހުށަހަޅަންވާނީ ދިވެހި ބަހުން ނުވަތަ އިނގިރޭސި ބަހުންނެވެ.
އަންދާސީހިސާބު ހުޅުވުން	17	އަންދާސީ ހިސާބު ހުޅުވުން އަންނާނީ އެކަމަށް ހާޒިރުވާން މި ޔުނިވަރސިޓީއިން ބާއްވާ ބައްދަލުވުމުގައެވެ. މި ބައްދަލުވުމުގައި ބީލަންހުށަހެޅި ފަރާތްތަކަށް އަންދާސީހިސާބު ހުޅުވުމުގެ ފުރުޞަތު ދެވޭނެއެވެ. މި ބައްދަލުވުމުގައި ހާޒިރުވާ މަތީގައި ބަޔާން ކަނޑައަޅާ "ބީލަން ހުށަހަޅަންޖެހޭ ތާރީޚް" ގައި ދިވެހިރާއްޖޭގެ ގަޑިއާ ހަމައަށް ހުށަހެޅޭ އަންދާސީހިސާބުތަކެވެ. އަންދާސީހިސާބު ހުޅުވާ ބައްދަލުވުމުގައި އަންދާސީ ހިސާބު ހުޅުވި ފަރާތްތަކާއި، އެފަރާތްތަކުން ހުށަހެޅި އަގު ހިމެނޭ ޝީޓު ތައްޔާރުކޮށް ބީލަން ހުށަހެޅި ފަރާތްތަކުން ސޮއިކުރުމުގެ ކުރިން ބަލައި، ބަލާ އަގުތަކުގައި ވާ ތަފާތުތައް ކަނޑައަޅާނެއެވެ. މި ބައްދަލުވުމުން ފަހު އަގުތަކަށް އެއްވެސް ބަދަލެއް ނުގެނެވޭނެއެވެ.
އެއްބަސްވުމުގައި ސޮއިކުރުން	18	އިވެލުއޭޝަން ކޮމިޓީން، އިވެލުއޭޝަނުން އެންމެ ގިނަ ޕޮއިންޓް ލިބޭ ފަރާތަކަށް އަންދާސީހިސާބު އެވޯޑްކުރެވުނުކަން ލިޔުމުން ނުވަތަ ފޯނުމެދުވެރިކޮށް އަންގާނެއެވެ. އަދި އެއްބަސްވުމުގައި ސޮއިކުރުމަށް ޔުނިވަރސިޓީން 03 (ތިނެއް) ދުވަހުގެ މުއްދަތެއް އެފަރާތަކަށް ދެވޭނެއެވެ. ދެންނެވުނު މުއްދަތުގެ ތެރޭގައި މަސައްކަތާ ބެހޭ ނުވައްޖެނަމަ، ނުވަތަ މަސައްކަތް ފަށަންޖެހޭކަމަށް އެއްބަސްވުމުގައިވާ މުއްދަތުގެ ތެރޭގައި މަސައްކަތް ނުފަށައިފިނަމަ، އެފަރާތުން މަސައްކަތް ވަކިކޮށް އެހެން ފަރާތަކާ މަސައްކަތް ހަވާލުކުރުމުގެ އިޚްތިޔާރު ޔުނިވަރސިޓީއަށް ލިބިގެންވެއެވެ. އިސްވެދެންނެވުނު މުއްދަތުގެ ތެރޭގައި އެއްބަސްވުމުގައި ސޮއި ނުކޮށްފިނަމަ ނުވަތަ ސޮއިކުރުމަށްފަހު މަސައްކަތް ފަށަން ނުކުތުން މަސައްކަތް ދޫކޮށްލައިފިނަމަ ހަމަޖެހިފައިވާ އުސޫލުން ބްލެކްލިސްޓް ކުރެވޭނެއެވެ.
ޑެލިވަރީ ކުރަންޖެހޭ ގޮތް	19	މަސައްކަތްތަކާއި ބަޔާނާއި ވަޞްފުން، އެ ވަޞްފުން ގާތްގަނޑަކަށް ކުރި ހުރިހާ އަރިހަށް ޑެލިވަރ ކޮންޓްރެކްޓުގައި ލިޔުމުގައިވާ އެއްވަރަށް ރަސްމީ ދޭނެއެވެ. އެކިއެކި ފަރުމާތަކުން ވަކިވަކިން އެއްބަސްވުމުގައިވާ ގޮތަށް މި ލިޔުމުގައިވާ ބައިތަކާއި ސުލްހަވެގެންނެވެ.
މަސައްކަތް ނިމުނުކަމުގެ ލިޔުން ދިނުން	20	މަސައްކަތް ނިމުމުން މަސައްކަތާ ބަލާލުމަށް ޑެލިވަރީ ނޯޓް ލިޔުމުގައިވާ ބަލާލުމަށްފަހު އެ ކުރިމަސައްކަތް ބަލާ ކަށަވަރުކުރުމަށްފަހު، ޑެލިވަރީގެ ރިސީވިންގއާއި އެއްގޮތަށް މަސައްކަތް ފުރިހަމަކޮށްދީފައިވާނަމަ، މަސައްކަތް ފުރިހަމަކުރި ކަމުގެ ލިޔުން ޑެލިވަރީއިން ދޫކުރެވޭނެއެވެ.

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ފައިސާ އަދާކުރާނެ ގޮތް 21

މަސައްކަތުގެ އަގުދޭނީ މަސައްކަތް ނިމުމުން މަސައްކަތް ބަލައިގަތުމަށްފަހު މަސައްކަތްކުރުވި ފަރާތުން ލިޔުން ދިނުމުން، މަސައްކަތް ކުރި ފަރާތުން އިންވޮއިސް ހުށަހެޅުމުންނެވެ.

ލިކުއިޑޭޓެޑް ޑެމޭޖަސް 22

މަސައްކަތް ނުނިމި ލަސްވާ ކޮންމެ ދުވަހަކަށް ލިކުއިޑޭޓެޑް ޑެމޭޖަސްގެ ގޮތުގައި ތިރީގައިވާ ގޮތުގެމަތިން ފައިސާ ކެނޑޭނެއެވެ.

- 0.005 x CP x LP = ލިކުއިޑޭޓެޑް ޑެމޭޖަސް
- CP (ކޮންޓްރެކްޓް ޕްރައިސް) = ކޮންޓްރެކްޓްގެ ޖުމްލަ އަގު
- LP (ލޭޓް ޕީރިއަޑް) = ކޮންޓްރެކްޓްގެ މުއްދަތަށްވުރެ އިތުރުވާ ދުވަސް
- ލިކުއިޑޭޓެޑް ޑެމޭޖަސްގެ ގޮތުގައި ގިނަވެގެން ކެނޑޭނީ މުޅި ކޮންޓްރެކްޓްގެ 15 (ފަނަރަ) އިންސައްތައަށް ވުރެ ބޮޑު ނޫން މިންވަރަކަށެވެ. އެމިންވަރަށްވުރެ އިތުރުވެއްޖެނަމަ އެފަރާތުން މަސައްކަތުން ވަކިކުރެވޭނެއެވެ.

ބީޑް ސެކިއުރިޓީ 23

(ހ) ބީޑް ސެކިއުރިޓީ ނަގާނަމަ އެކަން އިޢުލާނުގައި ބަޔާންކޮށްފައިވާނެއެވެ. ބީޑް ސެކިއުރިޓީ ހުށަހަޅަން އިޢުލާނުގައި ބަޔާންކޮށްފައިވާނަމަ ބީލަމާއެކު ބީޑް ސެކިއުރިޓީ ހުށަހެޅުން ލާޒިމުވާނެއެވެ.

(ށ) ބީޑް ސެކިއުރިޓީގެ މުއްދަތަކީ ބީޑް ހުޅުވާ ދުވަހުން ފެށިގެން 60 (ފަސްދޮޅަސް) ދުވަހެވެ.

(ނ) ބީޑް ސެކިއުރިޓީގެ ގޮތުގައި ހުށަހަޅަންޖެހޭނީ ސަރުކާރުން ޤަބޫލުކުރާ ބޭންކަކުން ނުވަތަ ދިވެހިރާއްޖޭގައި ޤާއިމުކުރެވިފައިވާ ފައިނޭންޝަލް އިންސްޓިޓިއުޝަނަކުން މި ޕްރޮޖެކްޓަށް ދޫކޮށްފައިވާ ސެކިއުރިޓީ ނުވަތަ ގެރެންޓީއެކެވެ. ބީޑް ސެކިއުރިޓީ އޮންނަންވާނެ ގޮތުގެ ނަމޫނާ ޖަދުވަލު 5 ގައި ވާނެއެވެ.

(ރ) ބީލަން ކާމިޔާބު ނުވާ ފަރާތްތަކަށް އެކަން އަންގާ ތާރީޚުން ފެށިގެން ރަސްމީ ބަންދު ނޫން 7 (ހަތެއް) ދުވަހުގެ ތެރޭގައި ބީލަން ކާމިޔާބު ނުވާ ފަރާތްތަކުގެ ބީޑް ސެކިއުރިޓީ އެފަރާތްތަކަށް ރައްދުކުރެވޭނެއެވެ.

(ބ) ބީލަން ހުށަހެޅުމަށްފަހު ބީލަން ހުށަހެޅި ފަރާތަކުން ބީލަމުން ވަކިވެއްޖެނަމަ ނުވަތަ ބީލަން ކާމިޔާބުވި ފަރާތަށް ބީލަން ކާމިޔާބުވިކަމުގެ ލިޔުން ލިބުމަށްފަހު ބީލަން ކެންސަލްކޮށްފިނަމަ އެ ފަރާތުން ހުށަހަޅާފައިވާ ބީޑް ސެކިއުރިޓީ ޔުނިވަރސިޓީއަށް ނެގޭނެއެވެ.

ޕާފޯމަންސް ގެރެންޓީ 24

(ހ) ބީލަން އިވެލުއޭޝަންކޮށްގެން އެވޯޑްކުރާފަރާތާއި ކޮންޓްރެކްޓްކުރާ އަގު 500,000 (ފަސް ލައްކަ) ރުފިޔާއަށްވުރެ ބޮޑުނަމަ ޕާފޯމަންސް ގެރެންޓީ ނެގޭނެއެވެ. ޕާފޯމަންސް ގެރެންޓީގެ ގޮތުގައި ހުށަހަޅަންޖެހޭ މިންވަރު ކޮންޓްރެކްޓްގައި ސޮއިކުރުމުގެ 5 (ސަރުކާރުގެ ރަސްމީ މަސައްކަތުގެ) ދުވަސް ކުރިން ހުށަހަޅަން އަންގާނެއެވެ.

(ށ) ހުށަހަޅާ ޕާފޯމަންސް ގެރެންޓީއަކީ ސަރުކާރުން ޤަބޫލުކުރާ ބޭންކަކުން ނުވަތަ ފައިނޭންޝަލް އިންސްޓިޓިއުޝަނަކުން މި މަސައްކަތަކަށް ދޫކޮށްފައިވާ ގެރެންޓީއެއް ކަމުގައި ވާންޖެހޭނެއެވެ. ޕާފޯމަންސް ގެރެންޓީ އޮންނަންވާނެ ގޮތުގެ ނަމޫނާ ޖަދުވަލު 6 ގައި ވާނެއެވެ.

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25 އެޑްވާންސް ފައިސާ އަދި އެޑްވާންސް ފައިސާގެ ގެރެންޓީ

(ހ) އެޑްވާންސް ފައިސާ ދިނުމަށް ހަމަޖެހިފައިވާ ޕްރޮޖެކްޓްތަކުގައި، އެޑްވާންސް ފައިސާއަށް އެދި ކޮންޓްރެކްޓަރު ހުށަހެޅުމުން ދައުލަތުގެ މާލިއްޔަތު ޤަވާއިދާ އެއްގޮތަށް އެޑްވާންސް ފައިސާ ދޫކުރެވިދާނެއެވެ.

(ށ) އެޑްވާންސް ފައިސާ ދޫކުރެވޭނީ ޕްރޮކިއުމަންޓްގެ ޖުމްލަ އަގު 250,000 (ދެލައްކަ ފަންސާސް ހާސް) ދިވެހި ރުފިޔާއަށްވުރެ ބޮޑުވާނަމައެވެ.

(ނ) އެޑްވާންސް ފައިސާ ހޯދުމަށް އެދި ހުށަހަޅާނަމަ، މަސައްކަތާ ހަވާލުވާތާ ގިނަވެގެން 45 (ސާޅީސް ފަހެއް) ދުވަހުގެ ތެރޭގައި އެޑްވާންސް ފައިސާއަށް އެދި ލިޔުމުން ހުށަހަޅަންވާނެއެވެ.

(ރ) އެޑްވާންސް ޕޭމަންޓް ހޯދުމަށް ހުށަހަޅާނަމަ، އެޑްވާންސް ޕޭމަންޓް ގެރެންޓީގެ ގޮތުގައި ސަރުކާރުން ގަބޫލުކުރާ ބޭންކަކުން ނުވަތަ ފައިނޭންޝަލް އިންސްޓިޓިއުޝަނަކުން މި މަސައްކަތަށް ދޫކޮށްފައިވާ ސެކިއުރިޓީ ނުވަތަ ގެރެންޓީއެއް ހުށަހަޅަންވާނެއެވެ. އެޑްވާންސް ޕޭމަންޓް ގެރެންޓީ އޮންނަންވާ ގޮތުގެ ނަމޫނާ ޖަދުވަލު 7 ގައި ވާނެއެވެ.

26 މަސައްކަތު ހުށަހެޅުމާއި މަސައްކަތު ބެލުން

(ހ) ދައުލަތުގެ މާލިއްޔަތު ޤަވާއިދުގައި ބަޔާންކޮށްފައިވާ ފަދައިން [illegible] [illegible] ޤަވާއިދާ [illegible] [illegible] [illegible] [illegible] މަސައްކަތު ހުށަހެޅުމާއި، ހުށަހެޅި މަސައްކަތްތައް ބެލުމުގައި ޢަމަލުކުރަންވާނީ ދައުލަތުގެ މާލިއްޔަތު ޤަވާއިދާއި ސަރކިއުލަރ ނަންބަރު -13 K/CIR/2018/01 ގެ ޖަދުވަލު 17 ގައިވާ "ބިލްތަކާ ގުޅިގެން މަސައްކަތު ހުށަހެޅުމާއި ހުށަހެޅޭ މަސައްކަތު ބެލުމުގެ ގޮތުގެ އުސޫލު" އާ އެއްގޮތަށެވެ.

(ށ) މަސައްކަތު ހުށަހަޅަންވާނީ މަތީގައި ހަވާލާދީފައިވާ ސަރކިއުލަރ ގެ ޖަދުވަލު 18 ގައިވާ ފޯމުންނެވެ. (މިފޯމު ޔުނިވަރސިޓީގެ ވެބްސައިޓުން ލިބެން ހުންނާނެއެވެ.)

(ނ) މަސައްކަތު ހުށަހެޅުމުން އެ މަސައްކަތާ ގުޅިގެން [illegible] ހަވާލާދީފައިވާ ޖަދުވަލުގެ 19 ގައިވާ ފޯމުންނެވެ. މި [illegible] [illegible] [illegible] [illegible] [illegible] އަދި ޔުނިވަރސިޓީގެ [illegible] [illegible] [illegible] ލިޔުމުން ހުށަހެޅިދާނެއެވެ.

27 ހާއްސަ އަންގުން

މި [illegible] ހުށަހަޅަންޖެހޭ [illegible] [illegible] [illegible] ހުށަހެޅުމުގައި [illegible]

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ޖަދުވަލު 1

ބީލަން ހުށަހަޅާ ފަރާތުން ހުށަހަޅަންޖެހޭ ލިޔުންތަކުގެ ޗެކްލިސްޓް

(ހުށަހަޅާ ބީލުމުގައި ތިރީގައިވާ މައުލޫމާތު ފުރިހަމަކުރެވިފައިވާނަމަ ☑ ފާހަގަ ޖަހާށެވެ.)

#	ތަފްސީލު	ލިޔުންތައް ހުށަހަޅާނަމަ ☑ ފާހަގަ ޖަހާށެވެ.	ޔުނިވަރސިޓީގެ ފަރާތުން ޗެކްކުރުމަށް
1	ބީލަން ހުށަހަޅާ ފަރާތުން ހުށަހަޅަންޖެހޭ ލިޔުންތަކުގެ ޗެކްލިސްޓް (ޖަދުވަލު-1 ގައިވާ މިޗެކްލިސްޓް)	☐	
2	ވިޔަފާރި ރަޖިސްޓްރީގެ ކޮޕީ. އަމިއްލަ ފަރުދަކުނަމަ އައި.ޑީ ކާޑުގެ ކޮޕީ.	☐	
3	ހުށަހަޅާ ކޯޓޭޝަން	☐	
4	ހުށަހަޅާ ފަރާތުގެ ޕްރޮފައިލް (ޖަދުވަލު-2 ގައިވާ ފޯމު)	☐	
5	މަސައްކަތުތަކުގެ ޚުލާސާ ޝީޓް (ޖަދުވަލު-4 ގައިވާ ފޯމު)	☐	
6	މޯލްޑިވްސް އިންލަންޑް ރެވެނިއު އޮތޯރިޓީން ދޫކުރާ ޓެކްސް ކްލިއަރަންސް (ލިޔުން ދޫކުރި ތާރީޚުން ފެށިގެން ބީލަން ހުށަހަޅާ ދުވަހަށް 3 މަސްދުވަސް ހަމަނުވާ)	☐	
7	ތަޖުރިބާ އާއި ޤާބިލުކަން އަދި މާލީ ޤާބިލުކަން ވަޒަންކުރާ ފޯމު (ޖަދުވަލު-3 ގައިވާ ފޯމު) **ނޯޓް: މި ފޯމު ހުށަހަޅާނީ ތަޖުރިބާއަށް މާރކްސްދޭ ބީލަންތަކުގައި އެކަންޏެވެ.**	☐	
8	މާލީ ޤާބިލުކަން ދަލީލުކުރާ ލިޔުންތައް (ބޭންކް ސްޓޭޓްމަންޓް/އޮޑިޓެޑް ފައިނޭންޝަލް ސްޓޭޓްމަންޓްސް) **- 500،000 ރުފިޔާ އިން މަތީގެ ބީލަންތަކުގައި އެކަނި**	☐	
9	މަސައްކަތުގެ ތަޖުރިބާ އަންގައިދޭ ލިޔުންތައް	☐	
10	ބިޑް ސެކިއުރިޓީ ލިޔުން (މި ލިޔުން ހުށަހެޅުމަށް ލާޒިމުކޮށްފައިވާ ބީލަންތަކުގައި)	☐	
11	ބީ.އޯ.ކިއު ފޯމު (މި ފޯމު ހުށަހެޅުމަށް ލާޒިމުކޮށްފައިވާ ބީލަންތަކުގައި)	☐	
12	މައުލޫމާތު ކަރުދާހުގައި ހުށަހެޅުމަށް ލާޒިމުކޮށްފައިވާނަމަ އެފަދަ ބީލަންތަކާއެކު ހުށަހަޅާ ތަކެތީގެ ސްޕެސިފިކޭޝަން، މޮޑެލް، ބްރޯޝަރ/ފޮޓޯގްރާފް ލިޔުން ނުވަތަ އިތުރު މައުލޫމާތު އަންގައިދޭ ލިޔުންތައް	☐	
13	އެންމެ ކުޑަ، ކުޑަ އަދި މެދުފަންތީގެ ވިޔަފާރި ރަޖިސްޓްރީގެ ކޮޕީ (މި ވިޔަފާރިތަކަށް ހާއްސަ ބީލަންތަކުގައި)	☐	
14	ހުށަހަޅަންޖެހޭ ލިޔުންތައް ތަރުތީބުކޮށްފައި ވަނީ މި ލިސްޓުގައި ވާ ތަރުތީބުން	☐	
15	ހުރިހާ ސަފުހާތަކެއްގައި ތަރުތީބުން ސަފުހާ ނަންބަރު ޖަހާފައި	☐	
16	ހުރިހާ ސަފުހާތަކުގައި ސޮއިކޮށްފައި	☐	
17	ބީލަމުގެ ގަނޑުތައް ވަކިނުވާގޮތަށް ބައިންޑްކޮށް / ރިބަސްޖަހާފައި	☐	
	މި ޗެކްލިސްޓް ފުރިހަމަ ކޮށް ބީލަމާއެކު ހުށަހަޅަންވާނެއެވެ.		

ނޯޓް: ޔުނިވަރސިޓީގެ ހުރިހާ ބީލަންތަކުގައިވެސް ނަންބަރު 1 ން 6 އަށް، ބަޔާންކޮށްފައިވާ ލިޔުންތައް ބީލަމާއެކު ހުށަހެޅުން ލާޒިމުވާނެއެވެ. ނަންބަރު 7 ގައި ބަޔާންކޮށްފައިވާ ލިޔުން ހުށަހަޅަންޖެހޭނީ ތަޖުރިބާއަށް މާރކްސްދޭ ބީލަންތަކުގައި އެކަންޏެވެ. މިހެންކަމުން ތަޖުރިބާއަށް މާރކްސްދޭ ބީލަންތަކަށް މި ލިޔުން ހުށަހަޅަންޖެހޭނެއެވެ. އެހެންކަމުން މިފަދަ ބީލަންތަކުގައި އެ ލިޔުން ހުށަހަޅާފައިނުވާނަމަ ބީލަން އިވެލުއޭޓްކުރުމުގައި އެބައިން މާރކްސް ނުދެވޭނެއެވެ. އަދި އެލިޔުން ހުށަހަޅާފައިވިނަމަވެސް އެއާ ގުޅިގެން ކިޔާބީ ހުރިގެ ޓޫގައި ނަންބަރު 9 ގައި ބަޔާންކޮށްފައިވާ ލިޔުންތައް ހުށަހަޅާފައިނުވާނަމަ ނުވަތަ ބޭނުންވާ އަސާސީ މައުލޫމާތު ފުރިހަމަކޮށްފައިނުވާނަމަ އިވެލުއޭޝަންގައި އެބައިން ލިބެންވާ ޕޮއިންޓް ނުލިބޭނެއެވެ. މީގެ އިތުރުން 500،000 ރުފިޔާއިން މަތީގެ ބީލަންތަކަށް ނަންބަރު 8 ގައިވާ ލިޔުންތައް ހުށަހެޅުން ލާޒިމުވާނެއެވެ. މީގެ އިތުރުން ނަންބަރު 6 ގައިވާ ލިޔުން ހުށަނާޅާނަމަ އެކަން ބީލަން ބަލައިގަންނަ ކަރުދާހުގައި ފާހަގަކުރެވޭނެއެވެ. ހަމައެހެންމެ ނަންބަރު 10، 11 އަދި 12 ގައިވާ ލިޔުންތައް ހުށަހަޅަންޖެހޭ ބީލަންތަކަށް އެލިޔުންތައް ހުށަހަޅާފައިނުވާނަމަ އިވެލުއޭޝަންގައި އެފަދަ ބީލަންތައް ބާތިލުކުރެވޭނެއެވެ. އަދި އެންމެ ކުޑަ، ކުޑަ އަދި މެދުފަންތީގެ ވިޔަފާރިތަކަށް ހާއްސަކޮށްފައިވާ ބީލަމުގައި އެންމެ ކުޑަ، ކުޑަ އަދި މެދުފަންތީގެ ވިޔަފާރީގެ ރަޖިސްޓްރޭޝަން ކޮޕީ ހުށަހަޅަންޖެހޭނެއެވެ.

ބީލަން ހުށަހަޅާ ފަރާތުގެ ޕްރޮފައިލް ފޯމު

ބީލަމަށް ހުރިމަތިލާ ފަރާތުގެ ނަން: ....

ރަޖިސްޓްރީ ނަންބަރު: .... ރަޖިސްޓްރީ ކުރި ތާރީޚް: ....

ފުރިހަމަ އެޑްރެސް: ....

ފޯނު ނަންބަރު: .... އީމެއިލް: ....

އާންމުކޮށް ކުރާ މަސައްކަތަށް:

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ޕްރޮފައިލްގައި ހިމަނަން ބޭނުންވާ އިތުރު މައުލޫމާތު:

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ޖަދުވަލު 3

އަންދާސީ ހިސާބު ހުށަހަޅާ ފަރާތްތަކުގެ ތަޖުރިބާ، ޤާބިލުކަން އަދި މާލީ ޤާބިލުކަން ވަޒަންކުރާ ޗާޓް

ޚިދުމަތް ދިނުމަށް އެދި ހުށަހަޅާ ފަރާތުން ފުރިހަމަކުރުމަށް

ބިޑްކުރާ ފަރާތުގެ ނަން:________________________ އެޑްރެސް: ________________________

ފޯން:________________________ އީމެއިލް: ________________________

ތަޖުރިބާ:	ލިބޭ އެންމެ މަތީ ޕޮއިންޓް	ލިބުނު ޕޮއިންޓް
1. (މި ޗާޓު ހުށަހަޅާ ތާރީޚުން ފެށިގެން) ފާއިތުވެދިޔަ 10 އަހަރުގެ ތެރޭގައި ކޮށްފައިވާ ކަމާއިގުޅޭ މަސައްކަތްތަކުގެ ޖުމްލަ އަދަދު: .__________ (ޕޮއިންޓް ދެވޭނީ ގިނަވެގެން ކަމާއި ގުޅޭ 10 މަސައްކަތަށް، މަސައްކަތަކަށް 02 ޕޮއިންޓް)	20	
ޖުމްލަ ޕޮއިންޓް	**20**	

މަތީގައި ބަޔާން ކުރެވިފައިވާ މައުލޫމާތަކީ އަންދާސީ ހިސާބު ހުށަހަޅާ ފަރާތާއި ބެހޭ ޞައްޙަ ތެދު މައުލޫމާތުކަމަށް އަޅުގަނޑު އެއްބަސްވަމެވެ.

ސޮއި: ....

ނަން: .... ކުންފުނީގެ ތައްގަނޑު:

މަޤާމު:......................................

ތާރީޚް: ....

ޔުނިވަރސިޓީއިން ފުރިހަމަކުރުމަށް

ޤާބިލުކަން:	ލިބޭ އެންމެ މަތީ ޕޮއިންޓް	ލިބުނު ޕޮއިންޓް
2- އަންދާސީ ހިސާބު ހުށަހަޅާފައިވާ މަސައްކަތަށް ބޭނުންވާ ހުނަރު ހުރިކަމަށް ބެލޭނެ ޑޮކިއުމަންޓް/ތައް ހުށަހަޅާފައިވާ: ☑ މިބައިން ޕޮއިންޓް ދޭނީ ވަކި ވަކި ހާއްސަ ހުނަރު ބޭނުންވާ މަސައްކަތްތަކަށް އެކަންޏެވެ.	10	
3- ކުރިމަތިލާފައިވާ ޚިދުމަތް ދިނުމަށް ބޭނުންވާ މާލީ ޤާބިލުކަން ހުރިކަމަށް ބެލޭނެ މިންވަރު: **މިބައިން ޕޮއިންޓް ދޭނީ 500،000 ރުފިޔާއިން ފެށިގެން މަތީގެ މަސައްކަތްތަކަށް އެކަންޏެވެ. މިބައިން ޕޮއިންޓް ދޭނީ "މާލީ ޤާބިލުކަން ވަޒަން ކުރާ ޗާޓް" އާއި އެއްގޮތަށެވެ.**	20	
ޖުމްލަ ޕޮއިންޓް	30	

ޕޮއިންޓް ލިބުނު ގޮތް:			
ތަޖުރިބާ ގިންތި	ފޯމުން ލިބޭ ޕޮއިންޓް	ކަނޑައެޅިފައިވާ އިންސައްތަ	ލިބޭ އިންސައްތަ
ތަޖުރިބާ			
ގާބިލުކަން (ހުނަރު)			
ގާބިލުކަން (މާލީ)			
ޖުމްލަ			

ޔުނިވަރސިޓީއިން ކޮޅު ފުރިހަމަ ކުރި :

ސޮއި:

ނަން: ....

މަޤާމު: ....

ތާރީޚް: ....

ޗެކްކުރި (ދާއިރާގެ ވެރިއެއްގެ)

ސޮއި:

ނަން: ....

މަޤާމު: ....

ތާރީޚް: ....

މާލީ ގާބިލުކަން ވަޒަން ކުރާ ފޯމު

ވޭތުވެދިޔަ 3 އަހަރުދުވަހުގެ އާމްދަނީ (މިބައިގައި ހިމަނަންވީ މާލީބަޔާންތަކުގައި ހިމަނާފައިވާ އާމްދަނީއެވެ.) : (05 ޕޮއިންޓް)

އަހަރު	20___	20___	20___
އާމްދަނީ			
ވޭތުވެދިޔަ 3 އަހަރުގެ އެވްރެޖް އާމްދަނީ:			

ބޭންކް ބެލެންސާއި ކްރެޑިޓް ފެސިލިޓީ : (15 ޕޮއިންޓް)

ކްރެޑިޓަށް ބަލާނީ ލޯނު ޕްރޮޖެކްޓްބަޖެޓުން ހިއްސާކުރާ އަދަދު މިނަވަރުން 50% އަށެވެ.

ބޭންކް ބެލެންސްގެ މައުލޫމާތު			
#	އެކައުންޓް ނަންބަރު	އެކައުންޓްގެ ބާވަތް	ވޭތުވެދިޔަ މަހުގެ ބެލެންސް (ދިވެހި ރުފިޔާއިން)
ޖުމްލަ			
ކްރެޑިޓް ފެސިލިޓީގެ މައުލޫމާތު			

	ކްރެޑިޓް ދޫކުރި ފަރާތުގެ ނަން	ދޫކުރެވުނު ތާރީޚް	ދޫކުރެވުނު މުއްދަތު	ފައިސާގެ އަދަދު (ދިވެހި ރުފިޔާއިން)
1				
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	ޖުމްލަ			

ޔުނިވަރސިޓީއިން ފޯމު ފުރިހަމަކުރީ :

ސޮއި:

ނަން: ……………………………………

މަޤާމު: ……………………………………

ތާރީޚް: ……………………………………

ޗެކްކުރީ ([illegible] ވެރިއެއްގެ)

ސޮއި:

ނަން: ……………………………………

މަޤާމު: ……………………………………

ތާރީޚް: ……………………………………

އަންދާސީ ހިސާބު ހުށަހަޅާފަރާތްތަކުން ވޭތުވެދިޔަ މުއްދަތުގައި ކޮށްފައިވާ މަސައްކަތްތަކުގެ ޚުލާސާ

ނަންބަރު	މަސައްކަތުގެ ތަފްސީލު	ޖުމްލަ އަގު (ރުފިޔާއިން)	މުއްދަތު (ދުވަހުން)	އިތުރުމަޢުލޫމާތު ދޭނެ ފަރާތުގެ ނަމާއި/ފޯން ނަންބަރު
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ނޯޓް: ޚުލާސާގައި ހިމަނާނީ ކުންފުނީގެ ފަރާތުން ވޭތުވެދިޔަ 10 އަހަރުތެރޭގައި ކޮށްފައިވާ އަދި މިހާރު ކުރަމުންދާ، މިއިޢުލާނާ ގުޅުންހުރި މަސައްކަތްތަކެވެ. އަދި ލިސްޓްކުރެވިފައިވާ މަސައްކަތްތަކަށް ކުރަމުންދާކަން/ނިމިފައިވާ ކަމުގެ ލިޔު ހުށަހަޅަންވާނެއެވެ. އެގޮތުން މަސައްކަތްކޮށްފައިވާ ގޮތުގެ ލިޔުން، ރިޕޯޓް ހުށަހެޅިދާނެއެވެ. ޕޮއިންޓް ދިނުމުގައި ބަލާނީ ހުށަހަޅާފައިވާ ލިޔުންތަކަށެވެ. ލިޔުންތަކުގައި ހުށަހަޅާފައިނުވާނަމަ ޕޮއިންޓް ނުދެވޭނެއެވެ.

ނަން:		
މަޤާމު:		ސޮއި:
ފޯން ނަންބަރު:		
ކުންފުނީގެ ތައްގަނޑު		

ޖަދުވަލު 5

BID SECURITY FORMAT

The Issuing Bank shall fill in this Bank Guarantee Form in accordance with the instructions indicated.

___________________________ *[Bank's Name, and Address of Issuing Branch or Office]*

Beneficiary: ___________________ *[Name and Address of Procuring Entity]*

Date: ________________

BID GUARANTEE No.: _________________

We have been informed that *[name of the Bidder]* (hereinafter called "the Bidder") has submitted to you its bid dated (hereinafter called "the Bid") for the execution of *[name of contract]* under Invitation for Bids No. *[Procurement Reference number]* ("the IFB").

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we *[name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[amount in figures]* (*[amount in words]*) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

(a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or

(b) having been notified of the acceptance of its Bid by the Procuring Entity during the period of bid validity, (i) fails or refuses to execute the Contract Form; or (ii) fails or refuses to furnish the performance security, if required, in accordance with the Instructions to Bidders.

This guarantee will expire: (a) if the Bidder is the successful Bidder, upon our receipt of copies of the contract signed by the Bidder and the performance security issued to you upon the instruction of the Bidder; or (b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of the Bidder's Bid.

Consequently, any demand for payment under this guarantee must be received by us at the office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

____

[signature(s)]

PERFORMANCE GUARANTEE FORMAT

[The issuing bank, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated]

Date: *[insert date (as day, month, and year)]*

Title of the procurement: *[Insert general title of the procurement]*

Procurement Reference No: *[insert reference]*

Bank's Branch or Office: *[insert complete name of Guarantor]*

Beneficiary: *[insert complete name of Procuring Entity]*

PERFORMANCE GUARANTEE No.: *[insert Performance Guarantee number]*

We have been informed that *[insert complete name of Supplier]* (hereinafter called "the Supplier") has entered into Contract No. *[insert number]* dated *[insert day and month], [insert year]* with you, for the supply of *[description of Goods and related Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a Performance Guarantee is required.

At the request of the Supplier, we hereby irrevocably undertake to pay you any sum(s) not exceeding *[insert amount(s*[1]*) in figures and words]* upon receipt by us of your first demand in writing declaring the Supplier to be in default under the Contract, without cavil or argument, or your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This Guarantee shall expire no later than the *[insert number]* day of *[insert month] [insert year]*,[2] and any demand for payment under it must be received by us at this office on or before that date. We agree to a one-time extension of this Guarantee for a period not to exceed [six months] [one year], in response to the Procuring Entity's written request for such extension, such request to be presented to us before the expiry of the Guarantee.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458, except that subparagraph (ii) of Sub-article 20(a) is hereby excluded.

……………………..

[signatures of authorized representatives of the bank]

---

[1] *The Bank shall insert the amount(s) specified in the SCC and denominated, as specified in the SCC, either in the currency(ies) of the Contract or a freely convertible currency acceptable to the Procuring Entity.*

[2] *Dates established in accordance with Clause 18.4 of the General Conditions of Contract ("GCC"), taking into account any warranty obligations of the Supplier under Clause 16.2 of the GCC intended to be secured by a partial Performance Guarantee.*

BANK GUARANTEE FOR ADVANCE PAYMENT

[The bank, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated.]

Date: *[insert date (as day, month, and year)]*

Title of the procurement: *[Insert general title of the procurement]*

Procurement Reference No: *[insert reference]*

[Issuing bank's letterhead]

Beneficiary: *[insert legal name and address of Procuring Entity]*

ADVANCE PAYMENT GUARANTEE No.: *[insert Advance Payment Guarantee no.]*

We, *[insert legal name and address of bank]*, have been informed that *[insert complete name and address of Supplier]* (hereinafter called "the Supplier") has entered into Contract No. *[insert number]* dated *[insert date of Agreement]* with you, for the supply of *[insert types of Goods to be delivered]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance is to be made against an advance payment guarantee.

At the request of the Supplier, we hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[insert amount(s)*[3] *in figures and words]* upon receipt by us of your first demand in writing declaring that the Supplier is in breach of its obligation under the Contract because the Supplier used the advance payment for purposes other than toward delivery of the Goods.

It is a condition for any claim and payment under this Guarantee to be made that the advance payment referred to above must have been received by the Supplier on its account *[insert number and domicile of the account]*

This Guarantee shall remain valid and in full effect from the date of the advance payment received by the Supplier under the Contract until *[insert date*[4]*]*. We agree to a one-time extension of this Guarantee for a period not to exceed [six months][one year], in response to the Procuring Entity's written request for such extension, such request to be presented to us before the expiry of the Guarantee.

This Guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

____

[signature(s) of authorized representative(s) of the bank]

---

[3] *The issuing bank shall insert the amount(s) specified in the SCC and denominated, as specified in the SCC, either in the currency(ies) of the Contract or a freely convertible currency acceptable to the Procuring Entity.*

[4] *Insert the Delivery date stipulated in the Contract Delivery Schedule.*

ސެކްޝަން-3: ޓެކްނިކަލް ސްޕެސިފިކޭޝަން / ގަންނަން ބޭނުންވާ ތަކެތި ނުވަތަ ޚިދުމަތާ ގުޅޭ ތަފްސީލް މަޢުލޫމާތު

THE MALDIVES NATIONAL UNIVERSITY
CENTRAL ADMINISTRATION

The Maldives National University

Project Implementation Unit

Radhdhebahi Hin’gun,

Male’ 2003,

Republic of Maldives
Phone: +(960) 3345190
Email: projects@mnu.edu.mv

SCOPE OF WORKS

Design and Build for L.Gan Accommodation Units

The Maldives National University (MNU)

1. PROJECT SUMMARY

The Maldives National University (MNU) is undertaking the development of accommodation units at L.Gan Campus 2. This Design and Build project cover the design, construction, and handover of a fully functional facility that includes specified structures, boundary and landscaping.

1.1 Building Specifications:

- **Land area:** 10,000 sqft
- **Number of Acommodation units :** 2
- **Reception area :** 1
- **Outdoor Huts :** 4

2. Land Allocation

Basic requirement for land allocations are as per the attached site layout. Minimun foot print areas defined in the building is to be maintained. Designer is to propose connecting paths and include the respective pavements and pathways in the Bill of quantities.

3. Deliverables

3.1 DESIGN, SITE CLEARANCE AND EARTHWORKS

- Complete all approvals for **Design for L.Gan Accommodation Units**
- Clear the site of all vegetation, temporary structures, and existing boundary elements.
- Obtain approvals on foundation method, and ensure long term stability.
- Excavate the basement and surrounding areas following approved methodologies.
- Protect and/or reroute any utility lines encountered during excavation, including electrical, water, or telecom systems.
- Maintain a safe working environment and prevent impact on neighboring properties.

3.2 SITE STUDIES AND PRELIMINARY ANALYSIS

- Conduct a detailed topographical survey, including boundaries, utilities, and elevations.
- Carry out designs providing considerations for the existing vegetation on site.

3.3 DESIGN DEVELOPMENT AND APPROVALS

- Prepare conceptual and detailed design packages, including architectural, structural, and building services layouts.
- Designs must address accessibility, sustainability, energy efficiency, and fire safety.
- Include detailed plans for:
    - Master planning of the 10,000 sqft land with circulation
    - Mechanical, electrical, and plumbing systems
    - HVAC, IT, PA, and security systems
    - Connection paths to adjust facilities.
    - Interior finishes, fixtures, and furniture layouts
    - Landscaping and hardscaping design
- Submit all design documents for MNU approval prior to construction.
- All design submissions must be prepared and signed/stamped by qualified architects, engineers, and service specialists. Scope includes all approvals.

3.4 CONSTRUCTION EXECUTION

The Construction consists of Complete construction of the structure, Finishing of the respective buildings and landscaping the site.

- Mobilize all resources, materials, and personnel required for construction.
- Execute structural works, including reinforced concrete frame, floors, walls, and roof systems.
- Complete architectural finishes, MEP installations, lifts, and other systems as per approved design.

- Maintain strict quality control, safety standards, and environmental compliance at all stages.
- Conduct periodic inspections and progress reporting to MNU.

3.5 INSTALLATION OF BUILDING SYSTEMS

- Electrical systems including lighting, power distribution, and emergency backup.
- Water supply, drainage, stormwater management, and rainwater harvesting.
- HVAC/AC systems for all occupied spaces, with special exhaust provisions for laboratories and kitchens.
- Fire detection and suppression systems compliant with MNDF regulations.
- IT network, audiovisual systems, and security camera networks.
- Design , Supply and installation of Durable – Rust proof outdoor seating structures 4 nos within the site.

3.6 FINALIZATION AND HANDOVER

- Conduct testing, commissioning, and calibration of all systems (mechanical, electrical, HVAC, IT, fire safety).
- Submit as-built drawings, operation manuals, and maintenance guides.
- Train MNU personnel on the operation and maintenance of all systems.

3.7 TESTING AND COMMISSIONING

- Conduct all required tests for structural integrity, electrical systems, HVAC, fire safety, IT, and security. All respective permits falls under contractors scope.
- MNU will verify compliance before accepting the facility.

4. Concept Drawings and Technical Specification (Attached)

5. Eligibility

The following criteria must be met by applicants:

- MNPHI Contractors Registration Certificate
- A minimum of two (2) years of experience in related fields. Proof of completion documents will be required
- A multidisciplinary team with expertise in Civil, Structural, and Concrete Works.

6. Inquiries

To ensure a fair and transparent procurement process, all inquiries, including questions related to technical issues, must be directed to:

Email: projects@mnu.edu.mv

7. Evaluation Criteria

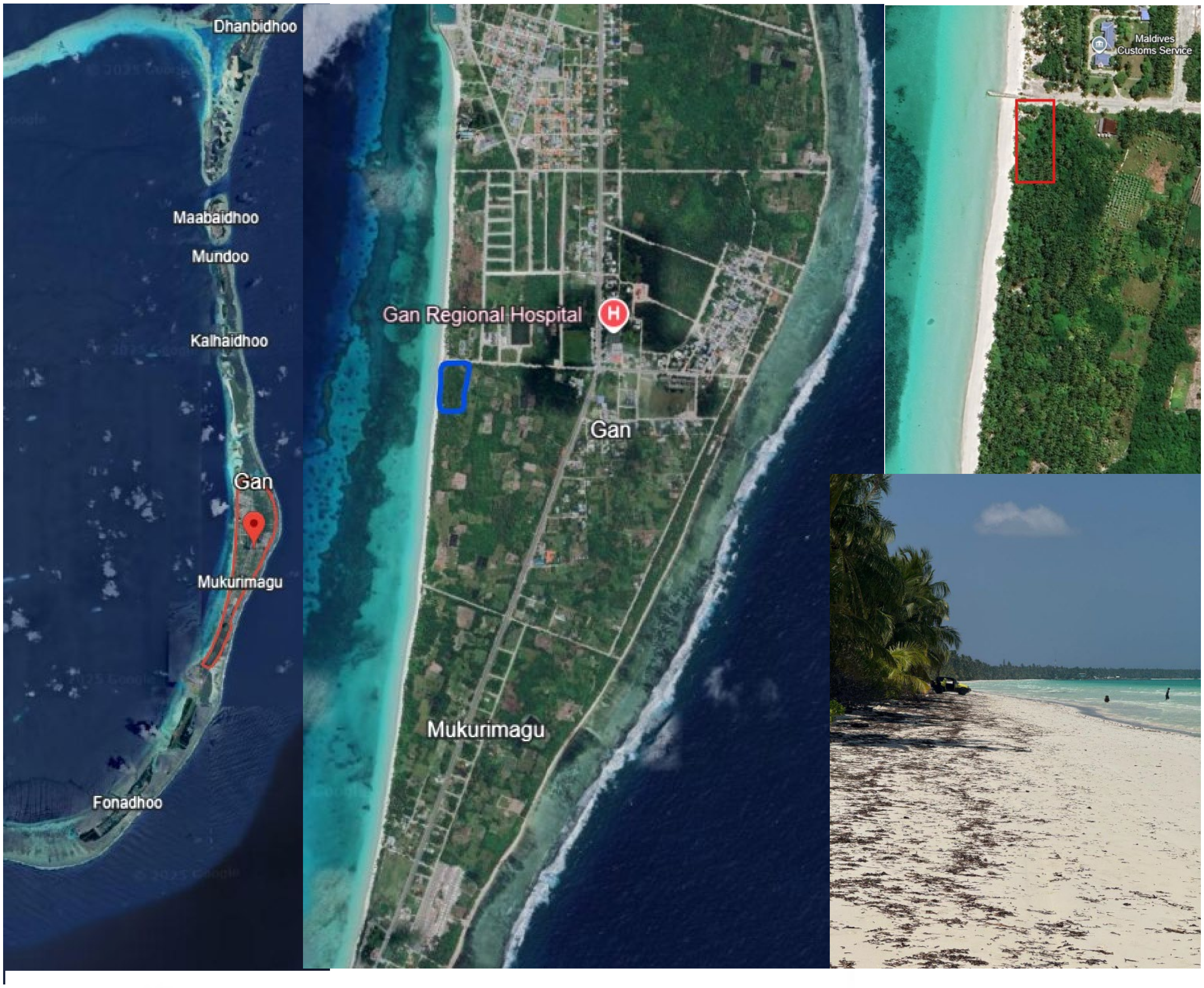
Criteria Weighting (%)

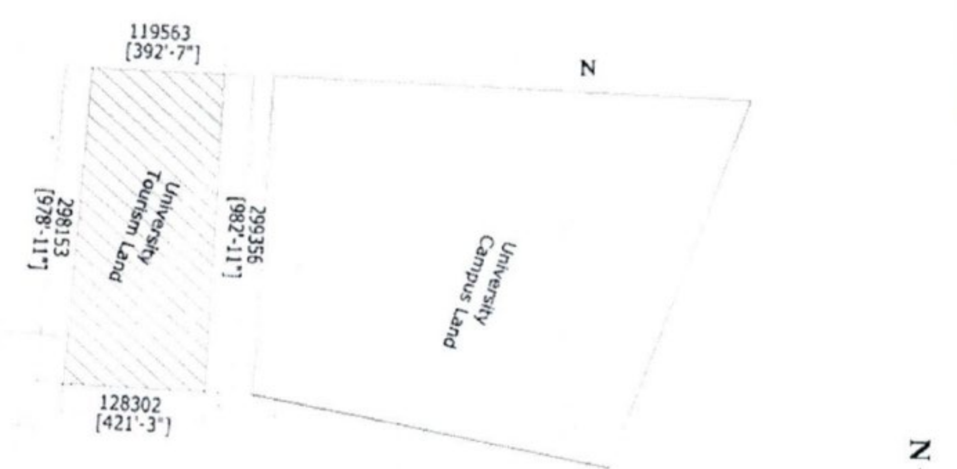
1 Price 70%

2 Experience 20%

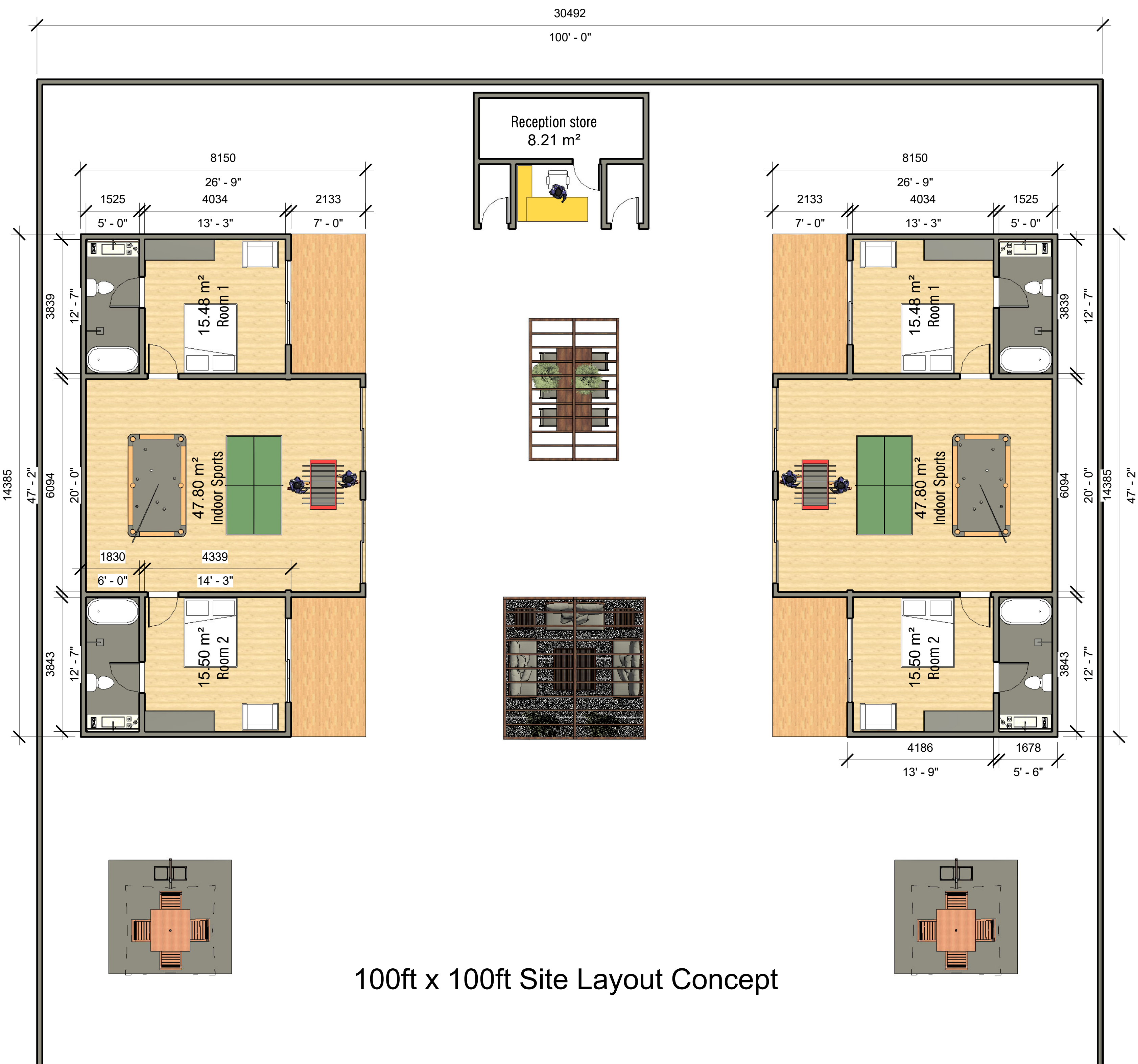
3 Duration 10%

Location Detials

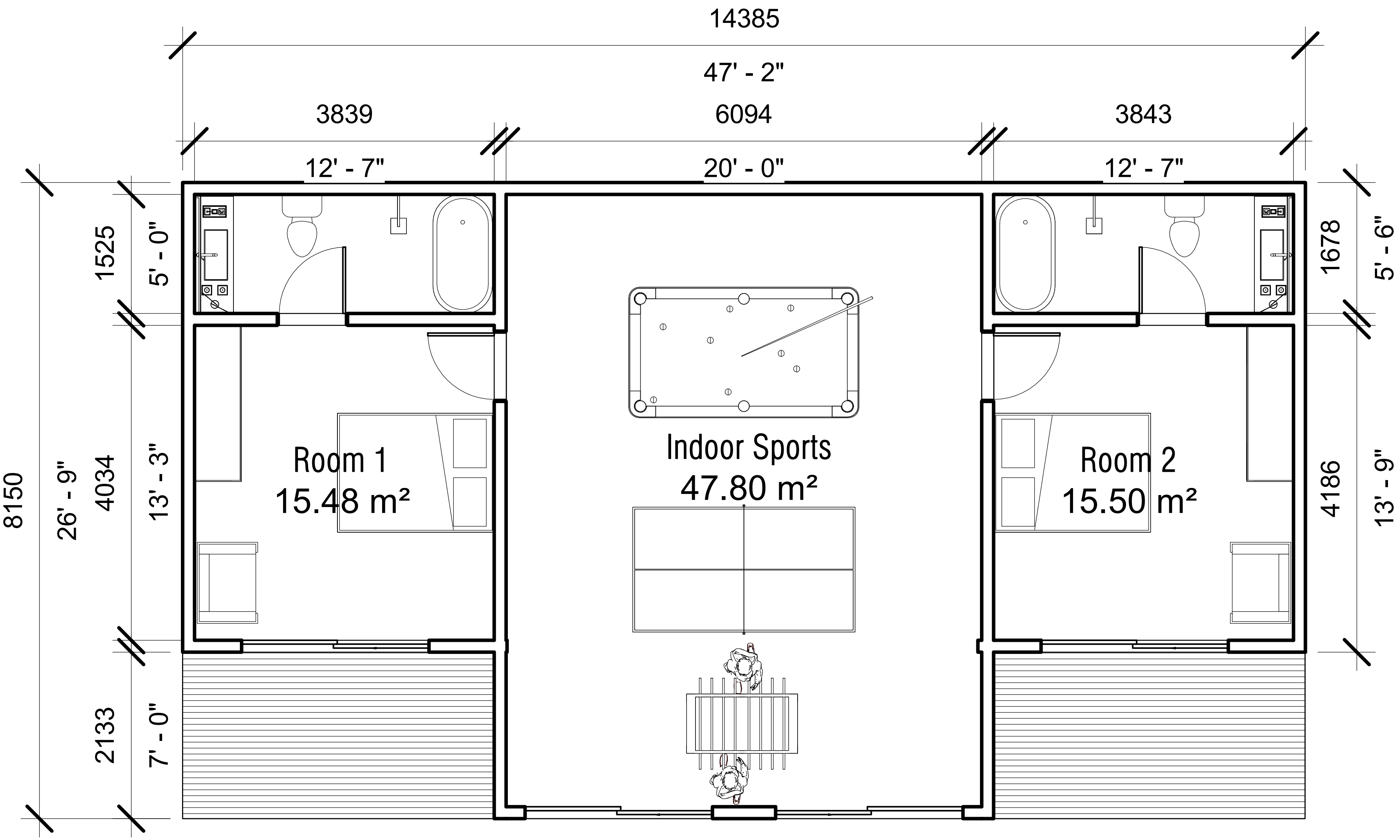

Dhanbidhoo
Maabaidhoo
Mundoo
Kalhaidhoo
Gan
Mukurimagu
Fonadhoo
Gan Regional Hospital
Gan
Mukurimagu
Maldives Customs Service


119563
[392'-7"]
N
University Tourism Land
298153
[978'-11"]
299356
[982'-11"]
University Campus Land
128302
[421'-3"]

Location: https://maps.app.goo.gl/zdTj4tW9ZYTe1hVG8


30492
100' - 0"
Reception store
8.21 m²
8150
26' - 9"
1525
4034
2133
5' - 0"
13' - 3"
7' - 0"
15.48 m²
Room 1
3839
12' - 7"
14385
47' - 2"
6094
20' - 0"
47.80 m²
Indoor Sports
1830
4339
6' - 0"
14' - 3"
15.50 m²
Room 2
3843
12' - 7"
8150
26' - 9"
2133
4034
1525
7' - 0"
13' - 3"
5' - 0"
15.48 m²
Room 1
3839
12' - 7"
6094
20' - 0"
14385
47' - 2"
47.80 m²
Indoor Sports
15.50 m²
Room 2
3843
12' - 7"
4186
1678
13' - 9"
5' - 6"

100ft x 100ft Site Layout Concept


14385
47' - 2"
3839
6094
3843
12' - 7"
20' - 0"
12' - 7"
1525
5' - 0"
1678
5' - 6"
8150
26' - 9"
4034
13' - 3"
4186
13' - 9"
2133
7' - 0"
Room 1
15.48 m²
Indoor Sports
47.80 m²
Room 2
15.50 m²

Typical Unit Concept

BILL OF QUANTITIES

L.Gan Campus 2 acommodation Units

PREPARED BY

THE MALDIVES NATIONAL UNIVERSITY

L.Gan Campus 2 acommodation Units MNU

SUMMARY			
1	Acommodation Units	MRF	
2	Reception and Store	MRF	
3	Misc	MRF	
	GRAND SUMMARY	MRfs.	-

1 Acommodation units

SUMMARY			
A	Concept, Detail Design & Permits	MRF	
B	Ground works & Preliminaries	MRF	
C	Concrete Works	MRF	
D	Finishing Works	MRF	
E	MEP & Services	MRF	
F	Miscellenious	MRF	
	SUMMARY	MRfs.	-

2 Reception and Store

SUMMARY			
A	Concept, Detail Design & Permits	MRF	
B	Ground works & Preliminaries	MRF	
C	Concrete Works	MRF	
D	Finishing Works	MRF	
E	MEP & Services	MRF	
F	Miscellenious	MRF	
	SUMMARY	MRfs.	-

3 Miscellenious works

SUMMARY			
A	Concept, Detail Design & Permits	MRF	
B	Supply and installation of seating structures	MRF	
C	Boundary Demarcations	MRF	
D	Site Clearance and Handover	MRF	
E	Connection of Main water , Sewerage and electricity	MRF	
F	Miscellenious	MRF	
	SUMMARY	MRfs.	-

TECHNICAL SPECIFICATIONS

Design and Build for L.Gan Accommodation Units

The Maldives National University (MNU)

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1. PRELIMINARIES

1.1 Standard and Codes

1.1.1 The Contractor shall, perform the Works in compliance with all regulations, standard specifications or statutes of the Government of Maldives unless otherwise conform to this specification.

1.1.2 The current British Standard Specifications and Codes of Practice shall apply to and form part of these specifications unless otherwise specified in respect of all materials and works to which they have application.

1.2 Drawings and Specifications

1.2.1 Drawings and Specifications are intended to complement each other, so that if anything is shown on the Drawings, but not mentioned in the specifications or vice versa, it is to be furnished and built as though specifically set forth in all three. If any discrepancies, errors, ambiguities or omissions occur in the Drawings or Specifications, the same shall be referred to the Consultant before proceeding with the Works, and the Consultant decision on such discrepancies, errors, ambiguities or omissions shall be final.

1.2.2 In addition to the Drawings and Specifications attached hereto, the Consultant will during the progress of the Works furnish additional Drawings, Specifications, and instructions as may be necessary, in the opinion of the Consultant for the purpose of the proper and adequate execution and maintenance of the Works, and the Contractor shall make his work conform. Such drawings and instructions shall be deemed to be part of the Contract Documents.

1.3 Transportation to the Site

1.3.1 The Contractor shall provide all necessary transport, handling and storage of all materials, components and the like to their points of installation on site including transport to and from storage. The Contractor shall provide all necessary transport of labour to and from the site.

1.4 Schedule and Execution Plan

1.4.1 The Contractor shall prepare and submit to the Consultant for approval the construction schedule and an execution plan of temporary facilities, stockyards, etc., before the start of the Works.

1.5 Repairing and Correction

1.5.1 Any breakage(s) or defect(s) of existing buildings, road utilities, or part(s) of them caused by the Works including transportation for the works shall be repaired or corrected by the Contractor with his responsibility.

1.6 Workmanship and Materials

1.6.1 All workmanship shall be of the best standard. All goods and materials to be incorporated in the Works must be new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the contract.

1.6.2 The Contractor shall submit for the approval of the Consultant a list of names and addresses of the manufacturers and trade marks or names of all the various types of materials and goods he propose to use in the Works. The list shall include reference to the specifications clause or article to which the materials and goods apply.

1.6.3 Materials shall be obtained from approved sources and used in accordance with the manufacturer's printed instructions. In the absence of a specification all materials shall comply with a relevant standard. The consultant shall order the removal of any materials, which he has not approved.

1.6.4 No orders for materials and goods shall be placed until approval has been obtained for the materials and goods from the consultant.

1.6.5 The Contractor shall note that it is his responsibility to include in his price for the cost of the materials and products as specified and no adjustment will be allowed should the consultant reject the alternatives.

1.7 Obvious Work

1.7.1 Where an item of work is obviously required for the type of work being undertaken then it shall be deemed to have been included even though the item is not specifically mentioned or shown in the Drawings or Specifications.

1.8 Protection

1.8.1 The Contractor shall have the Works and adjoining properties protected from inclement weather. Any loss or damage caused by weather, carelessness or lack of skill of workers, accident or otherwise shall be of such property that is affected. The Contractor shall provide all necessary dustsheets, barriers and guardrails and clear away at completion.

1.8.2 The work shall be suspended for such time as may be directed and/or approve by the Consultant if the specified quality of work is difficult to maintain during inclement weather.

1.9 Scaffolding

1.9.1 The Contractor shall provide, erect, maintain, dismantle and clear away at completion proper and adequate including that required for subcontractor and suppliers. Putlog holes shall be made good to match the adjacent surface as the scaffolding is dismantled.

1.9.2 The Contractor shall be responsible for all safety precautions in connection with the scaffolding including the provision of all bracing, scaffold boards, toe boards and the like and for entire sufficiency for the work.

1.10 Construction Machinery, Plants and Equipment's

1.10.1 All necessary construction machines shall be provided and maintained by the Contractor and shall be approved by the Consultant.

1.10.2 If cranes or any other type of plant which places any load on the structure are proposed, all details of such plant shall be submitted to the Consultant for approval before the work is actually commenced. If approved by the Consultant and Consultanturally acceptable, permission may be given for the structure to be strengthened, in order to carry out loads, and the Contractor shall be responsible for any resulting additional costs.

1.10.3 The Contractor shall be responsible for making good to the satisfaction of the Consultant any damage to the permanent structure that may be caused by his plant and equipment.

1.11 Samples

1.11.1 The Contractor shall furnish for the approval with reasonable promptness, all samples as directed by the consultant. The Consultant shall check and approve such materials with reasonable promptness only for conformance with the design concept of the Works and for compliance with the information given in the Contract Document. The Work shall be in accordance with the approved samples

1.11.2 All samples shall be delivered to the Consultant's office with all charges in connection therewith paid by the Contractor and deemed to be included in the Contract Price.

1.11.3 Duplicate final approved samples, in addition to any required for the Contractor's use, shall be furnished to the Consultant, one for office use and one for the site.

1.11.4 Samples shall be furnished so as not to delay fabrication, allowing the consultant reasonable time for consideration of the sample submitted.

1.11.5 Each sample shall be properly labelled with the name and quality of the material, manufacturer's name, name of project, the contractor's name and date of submission, and the specification clause to which the sample refers.

1.12 Ordering Materials

1.12.1 The Bills of Quantities shall not be used as a basis for ordering materials and the Contractor is entirely responsible for assessing the quantities of materials to be ordered.

1.12.2 Upon receipt of the Consultant's order to commence the Works, the Contractor shall immediately place orders for all required materials and will be held responsible for any delays occurring due to late placing of such orders.

1.12.3 The Contractor shall pay all expenses, taxes and dues etc. incurred on the procurement of materials from abroad

1.13 Water and Electricity for the Works

1.13.1 The Contractor shall make all necessary arrangements and provide all water for the proper execution of the Works, together with all transport, temporary plumbing, storage and distribution, pay all charges and alter, adept and maintain temporary work as necessary and remove and make good at completion.

1.13.2 The Contractor shall make all necessary arrangements and provide all artificial lighting and power (maintain a generator if necessary) for the proper execution and security of the Works and its protection, with all meters, temporary wiring and fittings, pay all charges and alter adapt and maintain the temporary work as necessary and remove and make good at completion.

1.14 Site Offices for Contractor

1.14.1 The Contractor shall provide maintain and clear away on completion of the Contract all necessary site offices, canteens, messing and welfare facilities, temporary buildings, toilets and the like for all site staff employed by the Contractor and required by subcontractors and suppliers.

1.14.2 The offices shall be open at all normal working hours to receive instructions, notices and other communications.

1.14.3 The Contractor shall obtain the approval of the Consultant of the proposed site layout, type and drainage arrangement of all the buildings prior to erection of same. All buildings shall be supplied and maintained in good condition and of neat appearance; all maintenance to same as instructed by the Consultant shall be carried out at the Contractor's expense.

1.14.4 Under no circumstances shall overnight accommodation be permitted on Site except for the site watchman in carrying out his duties.

1.15 Contractor’s Site Area

1.15.1 Throughout the period of the Contract the Contractor shall maintain the area of his operation within the limits of the Site in a clean, tidy and safe condition by arranging materials and the like in an orderly manner. All rubbish, debris, waste materials and the like shall be systematically cleared from the Site as it accumulates.

1.15.2 The Contractor shall take all steps necessary as directed by the Consultant to minimize or eliminate dust, noise or any other nuisance, which may occur. Plant emitting dust, smoke, excessive noise or other nuisance shall not be permitted.

1.16 Progress Meetings

1.16.1 During the course of the Works, progress meetings shall be held at fortnightly intervals for the purpose of co-ordinating the Contractor's works and to ensure that full compliance is maintained.

1.16.2 Minutes of such meetings should be recorded; copies will be distributed to all persons concerned and full effect shall be given to all instructions contained therein.

1.16.3 Prior to such meetings the Contractor shall give to the Consultant's Representative details in writing of that portion of the Works he proposes to construct during the coming two weeks with details of the plant and method he proposes to employ. These proposals shall be discussed at the meeting and no work based on such proposals shall proceed without the approval of the Consultant's Representative.

1.16.4 The Contractor shall submit all reports as instructed by the Consultant in connection with progress meetings and the day to day management of the Works.

1.17 Progress Photographs

1.17.1 The Contractor shall supply once a month, at the time of submitting his Interim Certificates, twelve photographs from 36 exposures showing the progress of the Works. The Consultant shall direct the times and position from which the photographs are to be taken.

1.17.2 The photographs shall be submitted in three copies un mounted of a size not less than 15 x 10 centimeters with the description of the viewpoint stamped in ink on the back. The negative shall have the date on it and remain the property of the Consultant and no prints from these negatives may be supplied to others unless previously authorized in writing by the Consultant.

1.18 Setting Out

1.18.1 The Contractor shall be responsible for accurately setting out the Works to the specified positions, dimension, levels and Building Lines and also checking the site surveys for dimensional and level accuracy and reporting any discrepancies before building work commences.

1.18.2 The Contractor shall provide the Consultant with all facilities, equipment and labour to enable him to check the setting out and levels of the Works at all times. The checking of any setting out point, line or level by the Consultant shall not in any way relieve the Contractor of his responsibility

1.18.3 All setting out points, benchmarks, site rails, pegs and other survey points shall be clearly marked and protected from damage or disturbance during the execution of the Works

1.19 Bill boards

1.19.1 The Contractor shall provide and maintain one billboard for the Site consisting of a plastic board panel of size not more than 2.4m x1.2m ($2.88m^2$)supported 2.5m above the ground with steel angle framing or similar material and fixed in concrete foundations.

1.19.2 The board shall have the following written in both Dhivehi and English (letter height not to exceed 100mm) by a skilled sign writer:

The name of Project

The name of Employer

The name and address of Consultant

The name and address of Contractor

1.19.3 A scaled layout shall be prepared and submitted for the Consultant's approval before fabrication.

1.19.4 No advertising material other than the above will be permitted.

1.19.5 The location and layout of Sub-Contractors or Manufacturer's billboards, if allowed, must be submitted for the Consultant's approval.

1.20 Loading in Excess of Design Load

1.20.1 No loading in excess of the design loading shall be placed on any portion of the structure without the written permission of the Consultant

1.20.2 If such permission is granted, all beams or other members of the structure which are subjected to loading other than the designed loading shall be strengthened and supported to the satisfaction of the Consultant, and the Contractor shall be responsible for any resulting additional costs

1.20.3 The Contractor shall be responsible for making good to the satisfaction of the Consultant any damage to the permanent structure that may be caused by such excess loading.

1.21 Building Permit

1.21.1 The Contractor shall allow for obtaining the building permit and for paying all fees in connection therewith.

1.22 Permanent Drainage, Electricity and Water connection

1.22.1 The Contractor shall allow for arranging and obtaining the permanent drainage, water and electricity connections to the proposed development and he shall be responsible for making all payments in connection therewith.

1.23 Handing Over

1.23.1 Prior to handing over the proposed development the Contractor shall gain the approvals and respective Completion Certificates from all the local government authorities and the like that the work has been completed in accordance with their requirements.

1.23.2 Any payment in connection therewith shall be paid by the Contractor.

2. SITE WORKS

2.1 Site Clearing

2.1.1 The Site shall be cleared of all vegetation (excluding trees more than 0.5m girth), rock, boulders, etc. and surface soil shall be removed as directed by the Consultant. The trees which are to be retained shall be protected from damage

2.1.2 Spreading, leveling and consolidating on site where required, shall be made with suitable surplus excavated material obtained from the Site. Other soils used for filling shall be approved by the Consultant

2.1.3 The Contractor shall dispose all unsuitable and surplus excavated material

2.1.4 The Contractor shall tidy up and leave the Site in a clean and sanitary condition at all times during the execution of the Works.

2.2 Excavation

2.2.1 Excavation shall be performed to the required depth as shown in the Drawings.

2.2.2 A survey of the existing site shall be made and the results of same submitted to the Consultant before commencement of the work

2.2.3 Excavation area shall be protected from any water flowing in. Sides of excavations shall be shored or inclined to retain excavation unless otherwise specified

2.2.4 Excavation near adjoining structures shall be executed with care so as not to damage those structures.

2.2.5 The Contractor shall take all necessary precautions during the excavation for the Works particularly those excavation which are adjoining existing buildings and shall protect such buildings from the damage or collapse by means of temporary or permanent shoring, strutting, sheet piling or underpinning or excavation in short lengths and/or other methods as he deems fit and also he shall properly support all foundations, trenches, walls, floors, etc. affecting the safety of the adjoining existing buildings.

2.2.6 The Contractor shall alter, adopt and maintain all such works described above for the whole period of the Contract and shall finally clear away and make good all damages done.

2.2.7 The construction and efficiency of the shoring, underpinning, strutting and the like for the purpose for which it is erected shall be the responsibility of the Contractor, should any subsidence or any other damage occur due to the inefficiency of the shoring, underpinning, strutting and the like or any other support provided, the damage shall be made good by the Contractor at his own expense and responsibility.

2.2.8 The shoring, strutting, piling and the like, shall be executed in such a manner as to cause as little inconvenience as possible to adjoining owners or the public and the Contractor shall be responsible for negotiating with the adjoining owners the means to safeguard their property and for the use of any portion of their land for the purpose of executing the excavations and no claims submitted on this ground will be entertained.

2.2.9 The Contractor shall be held solely responsible for the safety of the adjoining existing buildings, the sufficiency of all temporary or permanent shoring, underpinning, piling, and the like.

2.2.10 The Contractor shall keep the Consultant informed as to manner in which he intends to proceed with the execution of the excavations and obtain his approval. Such approval if given shall not absolve the Contractor of his responsibility.

2.2.11 Excavation shall extend a sufficient distance from walls, footings, etc. to allow space for placing and removing shoring and formwork, for performing all work in the excavations and for the inspection of same.

2.2.12 Excavated material shall be deposited within specified areas as directed unless otherwise specified.

2.2.13 The Contractor is deemed to have inspected the site and to leave ascertained for himself as to the nature of the soil, etc. and also the areas where to collect and stack the materials for which necessary site clearance shall have to be made at his own cost.

2.2.14 Stacking or excavated materials shall be done at places approved by the Consultant and he shall have recorded the original ground levels of such places jointly with the Contractor before commencement of stacking operation.

2.2.15 Extra excavation and allied lead/lift required specifically for providing working space to workmen or shuttering to walls of basement etc. shall be measured for payment, no extra claim being allowed for such work incidental to development and executions of allied jobs. Only authorized excavation approved by the Consultant shall be paid for

2.2.16 Sufficient clear working space shall be left all around excavated area. The disposal of waste/unserviceable materials may be in filling and/or in embankment according to nature of place of disposal. The appropriate specifications for filling and/or embankment shall apply

2.2.17 All foundation trenches shall be excavated to the full widths and depths shown on the drawings or to such greater or smaller depths as may be found necessary in the opinion of the Consultant and so instructed by his representative.

2.2.18 Should any excavation be taken down below the specified levels, the Contractor shall fill in such excavation at his own cost with cement concrete specified for foundations, well rammed in position until it is brought up to the level.

2.2.19 The Contractor shall notify to the Consultant when the excavation is completed and no concrete or masonry shall be laid until the Consultant has inspected of the soil for each individual footing.

2.2.20 All foundation pits shall be refilled to the original surface of the ground with approved materials, which shall be well consolidated as instructed by the Consultant.

2.2.21 The Contractor shall erect temporary barricades around the excavations and if necessary make provisions of red lamps.

2.2.22 The Contractor shall remove/maintain/restore all service lines like telephone, water supply, electricity etc. without any extra charges.

2.3. De-watering

2.3.1 Where the excavation level is below the natural water table and it is necessary to pump continuously from the excavation or to install a specialist type of dewatering equipment around the perimeter of the site or excavation, the Contractor will be responsible for ensuring the safety and stability of all adjoining structures and services or utilities above or below ground level.

2.3.2 It will also be the responsibility of the Contractor that the equipment installed shall ensure that the excavation and subsequent construction is carried out in dry conditions.

2.3.3 Continuous or permanent de-watering of the excavation or Site may not be undertaken without the written approval of the Consultant and the methods to be employed shall also comply with Codes of Practice and Local Authority requirements.

2.3.4 The water pumped from the excavations or well points shall be pumped to disposal points or sumps approved by the Consultant and the Local Ward Office and if so required be passed through settling tanks before disposal.

2.3.5 Unless prior approval has been obtained no water must be disposed of in the Municipality's sewer systems.

2.4 Backfill

2.4.1 All earth used for filling shall unless otherwise stated, be selected hard dry material from the excavation The maximum dry density of the fill material shall be not less than 1600 kg/m^3.

2.4.2 The backfill of excavations shall be placed in horizontal layers not exceeding 300mm in thickness. Each layer shall be compacted by hand or other mechanical means to the required density before the next layer is added

2.4.3 Care shall be taken when filling or back-filling to avoid any wedging action or eccentric action upon or against the structure of the work.

2.4.4 Before placing of fill, the surface of the sub-grade shall be compacted at optimum water content to the same percentage of maximum dry density required of subsequent lay.

2.4.5 The Consultant will inspect all compacting devices that the Contractor proposes and shall have the right to reject any device which he feels is unsuitable for the job.

2.4.6 Heavy equipment for spreading and compacting fill and backfill shall not be operated closer to walls than a distance to the difference in height between the top of the footings and the layer being compacted.

2.4.7 When back-filling behind retaining walls, basement walls and the like the said structures shall be kept propped during the complete operation. The hydraulic compaction of fill shall not be permitted and the back filling shall be carried out in layers not exceeding 150mm thick.

2.4.8 Each layer shall be compacted to 90% of the modified compaction. No back filling shall be carried out until the wall concrete has achieved its full works cube strength and care shall be exercised so as not to damage the external tanking membrane and its protection.

3.CONCRETE WORKS

3.1 General

3.1.1 Materials used in the Works shall be new, of the qualities and kinds specified herein and equal to approved samples. Delivery shall be made sufficiently in advance to enable further samples to be taken and tested if required. No materials shall be used until approved and materials not approved shall be immediately removed from the Works.

3.1.2 Materials shall be transported, handled and stored on the site or elsewhere in such a manner to prevent damage, deterioration or contamination.

3.2 Cement

3.2.1 Cement shall be Ordinary Portland cement of an approved brand.

3.2.2 Cement shall conform to BS 12.

3.2.3 Cement shall be of recent manufacturer and used within 6 months of manufactured date.

3.2.4 The Contractor shall with each fresh consignment of cement delivered to the site furnish the Consultant with a copy of the Manufacturer's statement of compliance with the above Standard Specifications together with the date of manufacture, certified by an independent agency in the country of origin and its date of delivery to Site.

3.2.5 Check tests will be required by the Consultant. These tests shall be carried out at the Contractor's expense.

3.2.6 Any cement failing to meet the required standards will be rejected and replaced at the Contractor's expense.

3.2.7 Any cement not conforming to BS 12 shall not be used unless otherwise approved by the Consultant.

3.3 Aggregate

3.3.1 Fine aggregate shall be river sand conforming to BS 882.

3.3.2 Coarse aggregate shall be crushed stone excluding limestone or derivatives of limestone conforming to BS 812.

3.3.3 Aggregate shall not contain injurious amount of rubbish, dirt, organic impurities and other foreign matters.

3.3.4 Strength of aggregate shall be more than that of hardened concrete paste.

3.3.5 Shape of coarse aggregate shall not be flat or slender.

3.3.6 Aggregate to be used in concrete shall possess the qualities indicated in the following tables.

Quality of Aggregates

Aggregate type	**Open dry specific gravity**	**Percentage of water absorption (%)**	**Percentage of solid volume for the evaluation of particle shape (%)**	**Clay lump (%)**	**Loss in washing test (%)**	**Organic impurity (%)**	**Water soluble chloride (%)**
Coarse aggregate	≤ 2.5	≤ 3.0	≥ 55	≤ 0.25	≤ 1.0	0	≤ 0.25
Fine aggregate	≥ 2.5	≤ 3.5	-	≤1.0	≤ 3.0	0	≤ 0.01

* Colour of test solution not to be darker than standard solution

Grading requirements for aggregates

Percentage passing each sieve by weight (%)

Agg.	**Max. size (mm)**	**Nominal sieve size (mm)**											
		40	30	25	20	15	10	5	2.5	1.2	0.6	0.3	0.15
Coarse	25	100	100	90 ↓ 100	60 ↓ 90		20 ↓ 50	0 ↓ 10	0 ↓ 5				
	20			100	90 ↓ 100		20 ↓ 55	0 ↓ 10	0 ↓ 50				
Fine							100	90 ↓ 100	80 ↓ 100	50 ↓ 90	25 ↓ 65	10 ↓ 35	2 ↓ 10

3.3.7 Manufactured sand and blast furnace slag to be use in concrete shall not be used unless otherwise specified or approved by the Consultant.

3.3.8 In case of using fine aggregate of 0.01% or more water soluble chloride content, the necessary measures for corrosion inhibiting of reinforcement shall be instructed by the Consultant.

3.3.9 The maximum size of coarse aggregate shall be 25 mm.

3.3.10 Sources of aggregate shall be to the approval of the Consultant and samples of aggregate from the proposed source shall be submitted to the Consultant atleast 28 days before its intended use.

3.4 Water

3.4.1 Water shall not contain injurious amount of impurities that may adversely affect concrete and reinforcement.

3.4.2 Ground water shall not be used for concrete works.

3.4.3 Water shall be obtained from a public supply where possible, and shall be taken from any other sources only if approved by the Consultant.

3.4.4 Only water of approved quality shall be used for washing out formwork, curing concrete and similar surfaces.

3.5 Handling and Storage of Material

3.5.1 Cement

3.5.1.1 Cement shall be stored in a manner to prevent weathering.

3.5.1.2 Bagged cement shall be piled no more than 10 bags so as to permit easy inspection

3.5.2 Cement caked even to the slightest extent shall not be used. Such cement and rejected cement shall be immediately separated from other bags of cement so that they shall not be mistaken for others.

3.5.3 Aggregate

3.5.3.1 Aggregate shall be stored in a manner effectively separating coarse and fine aggregate according to type and shall be prevented from inclusion of dirt, rubbish and other undesirable foreign matters.

3.5.3.2 Coarse aggregate shall be unloaded and piled in a manner not to cause segregation of small and large particles. Aggregate to be stored in piles shall be in mounds of moderate height and at a location where good drainage is provided.

3.6 Mix Proportion and Strength

3.6.1 Mix ratio for reinforced concrete shall be in the proportion 1:2:3 (cement: fine aggregate: coarse aggregate) by dry volume.

3.6.2 Mix ratio for lean concrete shall be in the proportion 1:2:6 (cement: fine aggregate: coarse aggregate) by dry volume.

3.6.3 Water-cement ratio for concrete shall be 0.4% to 0.45%

3.6.4 The specified design strength of reinforced concrete shall be 25 N/mm^2

3.6.5 The required slump of concrete shall be 100 mm.

3.6.6 Design mix proportion shall be to obtain required workability, consistency and durability.

3.7 Production of Concrete

3.7.1 Field-mixed Concrete Plant

3.7.1.1 The Contractor shall select the necessary facilities for storage, batching, mixing and transporting of each of the materials and submit them for approval of the Consultant prior to start work.

3.7.2 Measuring

3.7.2.1 All materials shall be measure by volume for each batch and water may be measured volumetrically.

3.7.2.2 Cement shall be measured by number of bags unless automatic cement weight measure is in use.

3.7.3 Mixing Control

3.7.3.1 Concrete mixture shall be constantly controlled to obtain required workability and mixed strength. Mixing time for each batch shall be not more than 3 minutes.

3.7.4 Quality Control

3.7.4.1 The Contractor shall conduct tests for quality control toward insuring that concrete of the required quality is constantly produced.

3.7.4.2 The Contractor shall have all quality control tests report ready for submission as required by the Consultant.

3.7.5 Quality Inspection of Concrete at the Point of Placement

3.7.5.1 The Contractor shall conduct tests on concrete at the point of placement. When test results meet the tolerances given below, the concrete shall be qualified to have passed the tests.

(a) The tolerance between actual slump and required slump of the concrete shall be ± 2.0 mm

3.7.5.2 For the estimation of compressive strength of concrete in compressive strength tests, when the average value of compressive strength of concrete obtained in a test is not less than the specified design strength, it shall be qualified to have passed the test. In case of failure to the above requirements, the Contractor shall take necessary measures such as to perform appropriate test as instructed by the Consultant.

3.8 Transporting and Placing

3.8.1 General

3.8.1.1 The Contractor shall establish manner and schedule for transporting and placing of concrete and obtain approval of the Consultant.

3.8.1.2 Concrete shall be transported in a manner to minimize segregation, spill, age and other changes in quality thereof.

3.8.1.3 Concrete shall be placed and consolidated in a manner to insure uniformity and optimum density.

3.8.1.4 In case of rain or other conditions that may affect the quality of concrete during concreting, the Contractor shall take necessary measures as instructed by the Consultant.

3.8.2 Time Limit

3.8.2.1 The time limit from start of mixing to completion of placing of a batch as rule, shall be 30 minutes.

3.8.3 Preparation prior to Placing.

3.8.3.1 The place where concrete is to be deposited shall be cleaned and sheathing shall be sprinkled with water. Subsequently, water accumulated in the form shall be removed.

3.8.4 Construction Joint

3.8.4.1 Joint surfaces shall be cleaned, made free of laitance and other foreign matters, and wetted prior to concreting. Joint surface shall be roughened if directed by the Consultant.

3.8.4.2 The locations of shapes of construction joints shall be consulted and approved by the Consultant.

3.8.5 Concrete Placing

3.8.5.1 Concrete placing shall be proceeded to keep the surface of placed concrete as horizontal as possible.

3.8.5.2 Concrete shall be continuously poured to compact around reinforcing bars and corners of formwork.

3.8.5.3 The maximum time interval between placement of continuous concreting shall not exceed 0.5 hours. However, when special measures are taken this time limit may be changed according to instruction or approval of the

Consultant.

3.8.6 Consolidation

3.8.6.1 Vibrating of concrete and tapping of formwork shall be performed to wall, column and other places difficult for concrete to proceed. Proper number of workers for placing and compacting concrete shall be arranged.

3.8.6.2 Vibrator shall be operated for concrete called for water tightness, difficult portion for concrete to proceed and other cases directed by the Consultant. However, vibrator shall not be touched reinforcing bars and shall not be operated more than 30 seconds at same spot.

3.8.6.3 Concrete shall be placed 300 - 600 mm thickness at once in case vibrator is performing. In case flexible-insert-vibrator is called for, concrete shall not be placed thicker than the length of the insert or vibrator at one pouring.

3.8.7 Placing Speed

3.8.7.1 Concrete shall be placed at the speed suited for the workability of the concrete and condition of the place of placement, which insures proper consolidation of concrete.

3.9 Concrete Curing

3.9.1 Curing Method

3.9.1.1 After concrete has been placed, the concrete surface shall be kept moist by sprayed with water or by other appropriate methods, and shall be protected from direct sunlight and rapid drying. The top surface of slabs shall be kept flooded with water at all times after concreting for the duration of curing period. This curing period shall be for not less than 14 days.

3.9.1.2 As a rule, no foot traffic or loads shall be permitted on concrete for at least 24 hours after placement.

3.10 Test

3.10.1 General

3.10.1.1 The contractor shall be required to conduct all tests according to BS method and procedure.

3.10.1.2 Test, as a rule, shall be conducted at the locations directed or at the testing institutions approved by the Consultant.

3.10.1.3 The Consultant shall conduct test, as a rule.

3.10.1.4 In case of failure in test, measure shall be taken as instructed by the Consultant.

3.10.1.5 The Contractor shall keep test records during the work and for 2 years after completion of the contracted work.

3.10.2 Material

3.10.2.1 Cement Test

(1) Setting test.
(2) Soundness test.
(3) Compressive strength test.

Note: Item (1) shall be conducted once in every manufacturer.
Item (2) & (3) shall be conducted once in every 2,000 bags.

3.10.2.2 Aggregate test:

(1) Grading and fineness modules.

3.11 Concrete

3.11.1 Fresh concrete

Slump, air content, shall be conducted daily, and more often at request of the Consultant.

3.11.2 Compressive strength test of concrete

Test for estimation on strength of concrete in structure:

3.11.2.1 In order to assume estimated strength of concrete in structure, compressive strength test shall be conducted for prepared test pieces on the 7th day and 28th day and those test pieces shall be made for sampling at placing of concreting.

3.11.2.2 Strength test shall be conducted for each of the following conditions: each days pour, each class of concrete, each change of supplies or source and each 100 cubic meter of concrete or fraction thereof. The number of test pieces to be used in a test shall be not less than 3 for each test of the 7th day and the 28th day unless otherwise instructed by the Consultant.

3.11.2.3 Test pieces shall be made in accordance with British Standards, and sampling shall be taken as near as possible at the point of placement.

3.11.2.4 Test pieces shall be stored without being disturbed and shall be covered during the first 24 hours, and carefully transported specimens to the testing laboratory. Test pieces shall be cured in water after demoulding. The temperature of test pieces shall be kept as close as possible to the temperature of the concrete in structure until the time of testing.

3.11.2.5 The test results shall be expressed in the average value by calculating the average compressive strength of all test pieces. The average value must be equal to or greater than the specified strength.

3.12 Defective Concrete and Finishes

3.12.1 Honeycombed surfaces shall be made good or on the instruction of the Consultant be cut out by the Contractor and make good at his own expense.

3.12.2 Concealed concrete faces shall left as from the formwork except honeycombed surfaces shall be made good. Faces of concrete to be rendered shall be roughened by approved means to form a key. Faces of concrete that are to have finished other than those specified shall be prepared in an approved manner as instructed by the Consultant.

4.CONCRETE FORMWORK

4.1 Structure and Material

4.1.1 Structure

4.1.1.1 Formwork shall be performed to obtain accurate concrete in accordance with the designated drawings.

4.1.1.2 Formwork shall be firmed and secured to bear the force of concreting and tightened to avoid cement paste seeping.

4.1.2 Materials

4.1.2.1 Sheathing for formwork shall be waterproof plywood of not less than 12 mm thick. Joint of sheathing shall be butt joint and firmly assembled. In case of using wood board for sheathing, boards shall be 15 mm thick and applied planer. Joint shall be tongued and grooved unless otherwise approved by the Consultant.

4.1.2.2 Form liners shall be sound and suitable materials to accurately and safely cast the insitu concrete structure as shown on the Drawings.

4.1.2.3 Timber form boards for sheathing where used for fair-faced concrete shall be of such new materials as not to cause any defects to the surface of the concrete. Special care shall be taken in fabrication, storage and protection of these boards.

4.1.3 Other Material

4.1.3.1 Fastening hardware to be used shall be those with allowable tensile strength guaranteed by manufacturer through strength tests.

4.1.3.2 Form oil shall not have injurious effects on quality of concrete nor to bonding of surface finishing materials and shall be subject to approval of the Consultant.

4.2 Performance

4.2.1 Design of formwork

4.2.1.1 Formwork shall be designed to withstand construction leads during concreting, lateral pressure of fresh concrete, shock and vibrators due to concrete placing.

4.2.1.2 Formwork shall be free of injurious leakage of water, easy to remove, and shall not damage concrete at removal.

4.2.1.3 Supports shall be provided with the adequate horizontal and diagonal bracing and/or stays to prevent collapsing, heaving and twisting of formwork due to horizontal loads working during concrete placing.

4.2.2 Tolerance

4.2.2.1 The dimensional tolerances in location and cross section of concrete member used for designing and construction of formwork shall conform to the following table.

Standard Values of Dimensional tolerances

Item	Tolerance (mm)
Tolerance in distance from datum line of each floor to respective members	+ 10
Tolerance in cross section of columns, beams and walls	- 5 , + 10
Tolerance in thickness of floor and roof slabs	0, +10

4.2.3 Fabrication and Erection

4.2.3.1 Erection of formwork, and transportation and storage of materials thereof shall be started only after previously placed concrete has reached an age which acceptance of these loads will not have any adverse effect on the concrete.

4.2.3.2 Sheathing shall be fabricated and installed accurately to match the locations, shapes and dimensions of members called for in the Drawings.

4.2.3.3 Sheathing shall be installed tightly so as not to permit cement paste or mortar to escape from joints.

4.2.3.4 Pipes, boxes and other embedded hardware shall be properly secured to sheathing or others so that they will not move during concrete placing.

4.2.3.5 Supports shall be erected plumb. Supports at any two vertically consecutive floors shall be erected as near as possible to identical locations on a common plane.

4.2.3.6 Shoring shall be erected paying special attention to safety.

4.2.3.7 If sheathing is reused, the surface in contact with the concrete shall be thoroughly cleaned off and sufficiently repaired before reuse. In case of using for fair-faced concrete, the same sheathings shall be used twice after approval of the Consultant.

4.2.4 Inspection

4.2.4.1 Formwork shall be inspected by the Consultant prior to placing of concrete.

4.2.5 Striking of forms

4.2.5.1 The minimum period for keeping the forms in position and for watering after laying the concrete shall be as stated below, except otherwise specified in drawings. Forms shall be removed in such a manner as to ensure the complete safety of the structure, so that there is no shock or vibration as would damage the reinforced concrete.

4.2.5.2 The responsibility for the safety of the concrete shall rest entirely with the Contractor and the Contractor shall be held liable for any damage done and shall have to make good the same at his own expenses.

4.2.5.3 The Contractor shall inform the Consultant when he intends to remove shuttering and shall obtain his consent, but the consent of the Consultant shall not relieve the Contractor of his responsibility.

4.2.5.4 The minimum time for formwork to remain in place shall be as per the following table.

Vertical sides of beams, slabs and columns	24 hours
Soffits of slab	10 days
Soffits of beams	21 days
Cantilevers	28 days

4.2.6 Relocation of Support

4.2.6.1 Supports under concrete shall be not relocated

4.2.7 Removal of formwork

4.2.7.1 Formwork shall be removed gently, after its removal has been approved by the Consultant.

4.2.7.2 Inspection by the Consultant shall be obtained immediately after the removal of sheathing and defects shall be immediately remedied according to instruction of the Consultant.

4.2.7.3 After shoring have been removed, members shall be carefully observed for cracking and deflection, when found, they shall be reported immediately to the Consultant.

5. STEEL REINFORCEMENT

5.1 Material

5.1.1 Reinforcing steel shall be of the dimensions given in the Drawings.

5.1.2 Reinforcing bars shall comply with the requirement of B.S.4449. and welded wire fabric, square bar fabric and expanded metal shall comply with appropriate part of B.S.4483.

5.1.3 Dia 6mm reinforcing steel shall be round mild steel bars, and 12mm, 16mm, 20mm and 25mm shall be deformed high strength bars.

5.1.4 Any other non-specified reinforcing steel shall be used only with the approval of the Consultant.

5.1.5 All reinforcing steel and binding wire shall be stored under cover and shall be at least 250mm above the ground.

5.2 Cleaning

5.2.1 Reinforcing bars shall be cleaned before use so that it is free from rust, oil, dirt or other coatings that reduce bond.

5.3 Bending and Laps

5.3.1 The reinforcement shall be bent cold in an approved bar bending machine.

5.3.2 Preferably bars of full length shall be used. Lapping of bars where necessary shall conform to BS1487 ‘Bending Dimensions of Bars of Concrete reinforcement.’

5.4 Reinforcement Cover

5.4.1 Concrete cover for reinforcement shall be as follows:

FOR ANY STEEL IN UNDER GROUND CONRETE	50	MM
CLEAR COVER IN SLABS	25-30	MM
CLEAR COVER IN BEAMS SOFFIT	30-35	MM
CEAR COVER IN SIDES OF BEAMS	30	MM
CLEAR COVER IN COLUMNS	40	MM

5.5 Placing

5.5.1 Reinforcement intended for contact when passing each other shall be securely tied together with binding wire.

5.5.2 Binders and stirrups shall tightly embrace the longitudinal reinforcement to which they shall be security bound or spot welded.

5.5.3 Binding wire shall be turned in from the formwork and shall not project beyond reinforcing bars.

5.5.4 All reinforcement shall be inspected by the Consultant and approved before concrete is placed in the forms.

6.WATER PROOFING

6.1 Description of work

6.1.1 Extent of water proofing work is shown on drawings.

6.1.2 Install slurry type waterproofing to top surfaces of balcony slabs and external surfaces of underground concrete work.

6.1.3 Install crystalline type water proofing to underground water tanks and roof slabs in strict accordance with the approved manufacture's printed instructions.

6.1.4 Install water proofing membrane to top surfaces of terrace slab.

6.2 Materials

6.2.1 Crystalline Type: Material used shall be a cementatious coating containing catalytic chemicals which migrate in to the concrete using moisture present in the concrete as the migrating medium, and which cause the moisture and the un-hydrated cement in the concrete to react causing the growth of non-soluble crystals of dendritic fibers in the void and capillary tracks of the concrete that allow passage of water, there by rendering the concrete it self water proof.

6.2.2 Acceptable products: Xypex concentrate, modified, ultra plug and quick set as manufactured Xypex chemicals (Canada) Limited (or equivalent).

6.3 Storage of materials

6.3.1 General: All materials shall be stored in original undamaged containers with manufactures seals and labels intact. Material shall be stored off the ground in a dry enclosed area.

6.4 Surface preparation

6.4.1 General: All surfaces shall be examined for form tie holes and defects such as honeycombing, rock pockets, cracks, etc. These areas shall be repaired in accordance with these specifications and the manufactures printed instructions.

6.4.2 Concrete finish: concrete surfaces shall have an open capillary system to provide tooth and suctions shall be clean; free from scale, excess form oil, laitance, curing compounds and other foreign matter.

6.4.3 Smooth surfaces or surfaces covered with excess form oil or other contaminants shall be washed lightly sandblasted, water blasted, or acid -etched with muriatic acid, as required to provide a clean absorbent surface.

6.4.4 Horizontal surfaces shall not be troweled or power - troweled, and shall be left with a rough float finish or a broom finish. Vertical surfaces may have a sacked finish. Comply with manufactures specifications for requirements pertaining to minimum 'age' of concrete deck surface scheduled to receive water proofing.

6.4.5 Surface moisture: Water proofing shall be applied to 'green' concrete as soon as possible after forms have been stripped or to older pours which have been thoroughly moistened with clean water prior to application. Free water shall be removed prior to application.

6.4.6 Mixing of crystalline water proofing compound: comply with manufactures specification for 2-coat installation

6.5 Application

6.5.1 General: Apply all materials under the direction of the manufacturer's representative.

6.5.2 Constructions joints and surface defects: Comply with waterproofing material manufacturer's printed directions in the preparation, and treatment of construction joints and surface defects.

6.5.3 Surface application: After all repair, patching and sealing strip placement has been prepared in accordance with manufacturer's recommendations and approved by manufacturer's representative, treat concrete surface with first coat slurry mix of crystalline waterproofing compound.

6.5.4 Brushing: Use a short bristle or broom to work the slurry well into the concrete, filing all hairline cracks and surface pores.

6.5.5 Second coat: Apply second coat while first coat is still 'green' but after it has reached an initial set, all as recommended by the water proofing material manufacturer.

6.6 Curing

6.6.1 General: Curing shall begin as soon as the waterproofing materials have set up sufficiently so as not to be damaged by a fine spray. Treated surface shall be sprayed three times a day for a three-day period. Allow material to set 12 days before filling the structure with liquid

6.6.2 Protect treated surfaces from damage due to wind, sun, rain and temperatures below 35 degrees F. For a period of 48 hours after application, arrange protections to permit proper curing conditions for waterproofing material.

6.6.3 Clean up: Remove all surplus materials from the premises and leave all areas broom-clean. In the case of temporary protections remove all such items carefully to avoid damage to treated surfaces. Assemble all such materials and remove from premises followed by broom cleaning as noted.

7. EMBEDDED DAMPPROOF MEMBRANE

7.1 General

7.1.1 This section deals with laying of flexible sheet as damp proof membranes or has chemical or vapour barriers embedded in the fabric of the building. It does not deal with the weatherproof roof sheeting, or with vapour barriers.

7.2 Products

7.2.1 Polythene sheets for under slab DPM: gauge 500, manufacturer and reference to approval.

7.2.2 Adhesive tape: A type recommended by the sheet manufacturer.

7.3 Workmanship

7.3.1 Manufacturers Recommendations: to be strictly followed for all products and materials. Apply sheets to clean, dry surfaces with all joints sealed to give a completely water proof continuous membrane.

7.3.2 Polythene Sheet Under-Slab Dpm: lay a level bed of fine sand, not less than 13mm thick or as specified to receive membrane.

7.3.3 Polythene Sheet Dpm: ensure that sheets are clean and dry. Lay single layer loose on base, lap edges 150mm and seal with mastic or adhesive tape.

7.3.4 Pipe Etc: where pipe etc. pass through sheeting make junction completely watertight by forming collars fully bonded / sealed to both pipes and sheeting.

7.3.5 Project: finished sheeting adequately and prevent puncturing during following work. sheet to be covered by permanent over laying construction as soon as possible.

8. STRUCTURAL STEEL

8.1 Scope

8.1.1 This section shall apply to the work involved with structural steels. All incidental items of structural steel shall be stated in the particular specification.

8.2 Materials

8.2.1 Steel

8.2.1.1 Shape of steel shall be precise and straight and free of injurious scratches and rust.

8.2.1.2 All steel sections shall be galvanized sections of strength class 43 A.

8.2.1.3 Dimensions of steel section and tolerance of dimension shall conform to standard dimension of steel regulated in ASTM or BS standard.

8.2.2 Bolt

8.2.2.1 Shape of bolt, nut, washer shall be in accordance with requirement of BS 4190 & BS 3692.

8.2.2.2 Quality of bolt shall be SC 43 A.

8.2.3 Welding Rod

8.2.3.1 Arc welding rod shall conform to materials to be welded, and position.

8.3 Fabrication

8.3.1 Main fabrication shall be done in workshop unless otherwise specified or approved by the Consultant.

8.3.2 Full scale drawing of each section shall be drawn prior to fabrication and checked by the Consultant.

8.3.3 Section of each material shall be cut perpendicular to axis unless otherwise specified in the drawing.

8.3.4 Saw and angle cutter shall be used for cutting, and cut section shall be free of any noticeable defect.

8.3.5 Deformation caused by cutting shall be corrected.

8.3.6 Normal temperature or hot drawn process shall do bending process. Steel shall be red heat in hot drawn process.

8.3.7 Those directed in the drawing shall be chiseled finish and completely attached.

8.3.8 Materials shall be checked for bend, distortion, warp, etc. before fabrication.

8.4 Bolt

8.4.1 Bolt Hole

8.4.1.1 Spacing of boltholes shall be as directed in the following table.

Diameter of Bolt	Standard Pitch	Minimum Pitch	End Distance	Edge Distance
12	50	30	30	25
16	50	40	40	30

8.4.1.2 Minimum pitch and end distance for lightweight steel shape shall be more than 3 times and 2.5 times a Bolt diameter respectively.

8.4.1.3 Diameter of hole shall not be over 0.5 mm larger than bolt diameter. However, for anchor bolt 5mm clearance shall be allowed between bolt diameter and diameter of hole unless otherwise specified.

8.4.1.4 Bolthole shall either be drilled open or reamed after sub punching. Punching can only be permitted for a material thickness less than 13 mm.

8.4.1.5 Rolled edge around a hole shall be removed.

8.4.1.6 Position of a bolthole shall be precise so that the center of all holes aligns.

8.4.2 Protection against loosing of Nuts

8.4.2.1 Nuts shall be protected against loosing by concrete covering, double nuts or other proper means.

8.5 Welding

8.5.1 Welding

8.5.1.1 Welder shall have an authorized qualification in Maldives and approved by the Consultant.

8.5.1.2 Other tests shall be conducted to confirm welder's skill in accordance with type of work.

8.5.1.3 Tack welding shall be carried out by the welder approved by the Consultant.

8.5.2 Welding Machine

8.5.2.1 Arc welding machine shall be alternate or direct current type, which provides sufficient and adequate current.

8.5.3 Preparation

8.5.3.1 Welding shall be done as much downward as possible using a jig such as Rotary frame.

8.5.3.2 Welding rod shall be always kept in a dry area and if necessary, dried by drying equipment.

8.5.3.3 Welding surface shall be free of water, scale or others injurious to welding work. Slag appeared on the created surface in the middle of welding shall be cleaned before starting again.

8.5.4 Fabrication

8.5.4.1 Welding edge shall be smoothed by automatic gas cutting or other proper finishes.

8.5.8 Finishes

8.5.8.1 Surface of welds shall be as smooth as possible and size and length of welds shall not be less than designed dimensions.

8.5.8.2 Reinforcement of weld shall not exceed 0.1s + 1 mm (s: Designated size) in fillet welds.

8.5.8.3 Welded parts shall be free of undercut, overlap, crack, blow hole, lack of welds, lack of weld settlement, rolled up slag or other defects.

8.5.8.4 Crater at the end of bead shall be carefully heaped up and slag, sputter, etc. shall be completely removed after welds.

8.5.9 Safety

8.5.9.1 Safe scaffoldings shall be provided for the field welds work.

8.5.9.2 Welding facilities shall be such that there shall be no electric leakage of electric shock. There also shall be sufficient protection for fire.

8.5.9.3 Electric shock protection device shall be used and also care shall be taken not to get suffocated or intoxicated by gas when welding in small area.

8.5.10 Inspection

8.5.10.1 Welding parts shall be inspected before, during and after welding in accordance with work schedule.

8.6 Erection and Field Painting

8.7.1 Erection

8.7.1.1 Erection procedure shall be prepared by the contractor and be approved by the Consultant prior to the erection.

8.7.1.2 Material shall be stored on flat surface in order not to get distortion, twist or other defects. Correction shall be made to those distortions or twisted before erection.

8.7.1.3 Horizontal reinforcement and bracing shall be placed and bolts are temporary tightened as trusses are put up.

8.7.1.4 Connection of materials by bolts, etc. shall be made after distortion on plumb is thoroughly corrected.

8.7.1.5 Temporary bracing or other reinforcement shall be placed to resist wind pressure or other loads erection.

8.7.1.6 When heavy objects are placed on a horizontal element in the course of erection, they shall be reinforced with prior approval of the Consultant.

8.7.1.7 Care shall be taken on all facilities so that there is no accident.

8.7.2 Field Painting

8.7.2.1 All steel work shall delivered to site unprimed shall be cleaned of impurities, scrapped and wire brushed to remove rust and painted with one coat of priming paint applied by brush.

8.7.2.2 Steelwork delivered to Site primed shall be cleaned of impurities and damage to the priming paint and made good with priming paint.

8.7.2.3 Galvanized steelwork to be painted shall be cleaned of impurities. Where rusting has occurred the rust shall be removed by wire brushing and made good with an approved rust inhibitor.The surfaces shall be coated with a mordant solution, washed with clean water and painted with two coats of priming paint applied by brush.

8.7.2.4 Steelwork, which is to be concealed shall be prepared and primed as above and shall be painted with two priming coats and one finishing coat of paint applied by brush.

8.8 Anchor Bolt

8.8.1 The other methods for movable burying shall be as directed by the Consultant.

9. MASONRY

9.1 Materials

9.1.1 Material used for masonry and plastering work shall conform to Section 3 - CONCRETE WORKS.

9.1.2 Masonry work shall be done with 100 / 150mm thick cement solid blocks.

9.1.3 The blocks shall be free from excessive amounts of salt or other impurities and shall be inspected and approved by the Consultant.

9.2 General

9.2.1 Execution Drawing

9.2.1.1 Work shall be complied with this specification unless otherwise stated on particular Specification or Drawings. Any work not specified shall be discussed and directed by the Consultant. Execution drawing of block or brick alignment (inclusive of indication for hanging bolt, wood plug and conduit pipe), detail reinforcement, window opening, and other requirement shall be prepared and submitted for the Consultant.

9.2.2 Stake-Board

9.2.2.1 Stake-board shall be provided at each 5m in length and shall be inspected by the Consultant for the accuracy, firmness and secureness. However, suitable ruler, plumb bob and leveler shall be provided for minor performance of cement block and bricks.

9.2.3 Transportation and storing

9.2.3.1 Care shall be taken for damage during transportation of materials and any defect of natural finished concrete blocks or bricks shall be rejected.

9.2.3.2 Different size of material shall be stored separately and projected from dirt and other impurities.

9.2.4 Curing

9.2.4.1 Any shock or load shall not be applied until concrete mortar or other fills hardened. Corner, projection and top of cement block or brick work shall be protected from rain, dryness, cold, damage and stain by covering.

9.2.4.2 Void between blocks or bricks shall not be intruded by rainwater.

9.3 Blockwork

9.3.1 Material

9.3.1.1 Blocks shall be of standard quality low permeability blocks with no defects and sample shall be submitted for approval of the Consultant.

9.3.1.2 Blocks shall be cement solid blocks 100 / 150mm thick walls as specified on drawings. The average compression strength should be not less than 2.8N/mm^2 and shall comply with physical requirements of ISO 6073: 1981

9.3.2 Horizontal reinforcement for concrete block wall;

9.3.2.1 Horizontal reinforcement shall be provided at end of wall adjoining to concrete column. Reinforcing bar shall be anchored into end block and column.

9.3.2.2 Horizontal reinforcing bar for block wall shall be 6 dia. @ 1000 mm.

9.3.3 Placing Blocks & Bricks

9.3.3.1 Cement blocks shall be saturated with water and joint shall be cleaned.

9.3.3.2 Bonding mortar shall be used immediately after mix, and mixed mortar left for more than one hour shall be rejected.

9.3.3.3 Vertical and horizontal joint of blocks shall be filled completely and suitable with mortar on line shall not be moved or rearranged. Joint and surface of block of exposed finished block wall shall be cleaned immediately after joint is filled.

9.3.3.4 In case concrete block wall is attached to structural concrete, block wall shall be placed before concreting structure.

9.3.3.5 Mortar for joint shall be touched with steel trowel before hardened and exposed joint shall be finished with uniform width and planned without roughness or cavity.

9.3.3.6 Height for placing block per day shall be maximum 1.2 m unless otherwise specified.

9.3.3.7 Blocks shall be placed with cavity side under.

9.3.4 Joints

9.3.4.1 The thickness of joints shall not exceed 10 mm and the joints shall be rated (13 mm dup.) when the mortar is still floor, so as to provide for proper bond for the plaster. Any mortar which falls on the floor from these joints or removed due to raking of joints shall not be reused.

9.3.5 Lintel

9.3.5.1 Lintel shall be reinforced concrete as approved or directed by the Consultant.

9.3.5.2 Main reinforcing bar shall be anchored more than 40D (40 x diameter of the bar) at both end.

9.3.5.3 In case lintel is prefabricated, shop drawing shall be submitted for approval of the Consultant.

9.3.6 Frame of Opening

9.3.6.1 In case frame is temporarily installed before placing of blocks, frame shall be firmly placed and joiner shall be bonded with mortar as placing each block at side and top of frame.

9.3.6.2 In case frame is installed after placing of blocks, joiner shall be bonded with additional mortar at space or every two blocks or more.

9.3.6.3 Back of frame shall be filled and compacted with mortar by providing shuttering board.

9.3.6.4 Wood plug and anchor bolt shall be covered with mortar or concrete.

9.3.7 Piping

9.3.7.1 Principally, piping shall not be placed in block wall unless piping block is in use.

9.3.7.2 In case electric conduit pipe is placed in cavity of concrete blocks, care shall be taken not to obstruct reinforcing bar, and cavity shall be completely filled.

9.3.7.3 In case chipping and piping on face of blocks is unavoidable, performance shall confirm to instruction of the Consultant.

9.3.7.4 Joiner and supporter for exposed piping shall be buried at joint which back is filled or otherwise approved by the Consultant.

10. PLASTERING

10.1 General

10.1.1 All masonry walls shall have smooth finished cement plaster on both sides with a surface setting coat of neat cement applied within an hour of the completion of rendering.

10.1.2 Cement rendering to floor shall be same as above.

10.2 Materials and Storage

10.2.1 Plaster materials which are affected by moisture such as plaster and cement shall be stored properly

10.2.2 Materials used for plastering shall conform to those of Section 3 - Concrete Works. Grading of sand, however, shall be as in table below

Grading of sand	Mortar plastering	Plastering
5mm sifting thorough 100% 0.15mm sifting less than 10%	for first coat for finish coat	for first coat and dubbing out
2.5mm sifting through 100% 0.15mm sifting less than 10%	for finish coat	for second coat

10.2.3 White cement or filler or similar shall confirm to the requirements of Portland cement, BS.12.

10.2.4 A Plasticizer shall be used in all external plastering.
The use of mixtures shall be approved by the Consultant's representative. The amount of admixture shall be such that it affects mortar strength to a minimum.

10.3 Mixing ratio

10.3.1 Mixing volume ratio of mortar shall be as in table below:

Base	area of application	first coat cement: sand	Dabbing out cement: sand	Finish coat cement: sand
Masonry blocks	Floor	-	-	1:4
	Interior wall	1:4	1:4	1:4
	Exterior wall	1:4	1:4	1:4

10.4 Thickness of Coating

Standard thickness of coating (mm)

Base	Area of application	First coat	Dubbing out	Second coat	Finish coat	Total
Masonry block	Floor	-	-	-	as per dwg	as per dwg
	Interior wall	3	-	-	12	15
	Exterior wall	3	-	-	12	15

10.4.1 Thickness of coating shall be standard thickness of coating unless otherwise indicated on the Drawings.

10.5 Finish

10.5.1 Type of finish and work schedule

Type	Work Schedule	Notes
1.Smooth Trowel finish	1. Shall be applied flat by metal trowel 2. Shall be finished by pressing with the trowel.	Before applying second coat, corner and edge shall be screed well.
2. Wooden float finish	Shall be applied by wooden float	

10.6 General Preparation

10.6.1 Remove efflorescence, laitance, dirt and other loose material by thoroughly dry brushing.

10.6.2 Remove all traces of paint, grease, dirt and other materials incompatible with coating by scrubbing with water containing detergent and washing off with plenty applying coatings unless specified other wise.

10.6.3 In Situ Concrete Surfaces: Scrub with water containing detergents to ensure complete removal of mould oil, surface retarders and other materials in compatible with coating. Rinse with clean water and allow to dry unless specified otherwise.

10.6.4 Organic Growths: Treat with fungicide to manufacturer’s recommendations and bush off.

10.6.5 Hacking For Key: roughen specified surfaces thoroughly and evenly by removing the entire surface to a depth of 3mm by scabbling, bush hammering or abrasive blasting. Clean surfaces by washing and brushing.

10.6.6 Smooth Concrete Surfaces: where no keying or mix or bonding agent is specified, wet smooth concrete surfaces immediately before plastering.

10.7 External Plastering

10.7.1 Dissimilar Solid Backgrounds for Plastering: where plaster is to be continued with out break across joints between dissimilar solid backgrounds which are rigidly bonded together, cover the joints with a 200mm wide mesh strip (back grounds in the same plane) or with the corner mesh (internal angle) fixed at not more than 600mm centers along both edges, unless specified or otherwise.

10.7.2 Dissimilar Solid Backgrounds for Plaster: where plaster is to be continued without break and without change of plane across the face of a 300mm and rigidly bonded to the background.

10.7.2.1 Cover the face of the column /beam/ lintol with building paper extending 25 mm on the adjacent background.

10.7.2.2 Over lay with expanded metal lathing extending 50mm beyond the edges of the paper and securely fixed with masonry nails at not less than 100mm centres along both edges.

Alternatively, an approved paper and mesh lathing may be used.

10.7.3 Dissimilar Solid Backgrounds for Rendering: where rendering is to be continued without break across joints between dissimilar solid backgrounds which are in the same plan and rigidly bounded together, cover joints with a 150mm wide strip of building paper overlaid with 300mm wide metal lathing fixed at not more than 600mm centers along both edges unless specified other wise.

10.7.4 Service Chases: cover with steel mesh strip fixed at not more than 600mm centers along both edges.

10.7.5 Conduits bedded in under coat to be covered with 90mm wide jute scrim budded in finishing coat mix, pressed flat and trowelled in. Do not lap ends of scrim.

10.8 Internal Plastering

10.8.1 Accuracy of plaster 15mm thick or more: maximum permissible gap between an 1800mm straight edge and any point on the surface to be 3mm.

10.8.2 Dubbing Out: if necessary to correct inaccuracies, dub out in thickness of not more than 10mm in same mix as first coat. Allow each coat to set before the first is applied. Cross scratch surface of each dubbing out coat immediately after set.

10.8.3 Metal Mesh Lathing: Work undercoat well in to interstices to obtain maximum key.

10.8.4 Under Coats: generally to be not less than 8mm with thickness greater than 16mm applied as two equal coats. Rule to an even surface and cross scratch - end coat to provide a key for the next hand applied coat.

10.8.5 Cement Based Under Coats: all to dry out thoroughly but not rapidly, to ensure that drying shrinkage is substantially complete before applying next coat.

10.8.6 Dissimilar Backgrounds: where scrim or lathing or beads are not specified, cut through plaster with a fine blade in a neat, straight line at junctions of:

10.8.6.1 Plastered rigid sheet and plastered solid backgrounds.

10.8.6.2 Dissimilar solid backgrounds.

10.8.7 Smooth Finish: trowel or float to product a tight matt, smooth surface with no hollows abrupt change of level or trowel marks. Do not use water brush and avoid excessive trowelling and over polishing.

10.9 External Rendering

10.9.1 Dubbing Out: if necessary to correct inaccuracies, dub out in thicknesses of not more than 10mm in same mix as first coat. Allow each coat to dry before the next is applied. Cross scratch surface of each dubbing out coat immediately after set.

10.9.2 Under Coats for hand applied finishes:

10.9.2.1 Apply first undercoat or dubbing out coat by throwing from a trowel.

10.9.2.2 Coats to be no less than 8mm thick, with thickness greater than 16mm applied as two equal coats. On weak backgrounds first under coat to be not less than 10mm thick.

10.9.2.3 Brush down each under coat to remove dust and loose particles and wet thoroughly before application of next coat.

10.9.2.4 Cross scratch under coat without penetrating the coat, to provide key for following coat(s).

10.9.3 Drying: Keep each coat damp for the first three days by covering with polythene sheet and/or spraying with water. Thereafter prevent from drying out too rapidly. Work in shade when ever possible.

10.9.4 Allow each coat to dry out thoroughly to ensure that drying shrinkage is substantially complete before applying next coat.

10.9.5 Playing Floated Finish: Finish with wood or other suitably faced float to give an even texture.

10.9.6 Do not draw excessive laitance to surfaces.

10.10 Metal Mesh Lathing / Reinforcement For Plastered/Coatings.

10.10.1 Lathing to be provided as reinforcement for plastering in columns , walls or specified in drawings products.

10.10.2 Products:

10.10.2.1 Plain Expanded Metal Lathing: To B.S 1369 with a minimum weight of 1.9 kg/mm^2. Manufacturer to approval of the Consultant.

10.10.2.2 Wire Ties: Unless other specified, annealed iron, galvanized to B.S 443.

10.10.2.3 Clout Nails: galvanized steel or stainless steel nails to B.S 1202: Part 1, table 3.

10.10.2.4 Staples: Galvanized steel wire staples to B.S 1494: Part 2.

10.10.3 Workmanship

10.10.3.1 Framing: fix securely and accurately to help ensure that coatings on lathing , when finished, are true to line and level , within specified tolerances and free from cracks, rippling, hollows, ridges and sudden changes of levels.

10.10.3.2 Runners/Bearers spanning between concrete beams/ribs: fix with 3mm wire ties twisted around 38 mm X 10 gauge screws driven well into fixing blocks or plugs in sides of beams/ribs.

10.10.3.3 Wire Ties: twisted ends tightly together, cut off surplus and bend ends of wire away from face of coating.

10.10.3.4 Plain Expanded Metal Lathing:

(a) Stretch lathing and fix securely in accordance with manufacturers recommendations to give a taut , firm base for plaster/ rendering.

(b) Fix with the long way of the mesh at right angles to supports and with all strands sloping in the same direction.

(b) Lap side edges not less than 25mm. Lap ends 50mm at supports and 75mm between supports. Laps must not occur within 100mm of angles or bends.

11. CARPENTRY AND JOINERY

11.1 Materials

11.1.1 Timber shall be in accordance with the requirements of BS 1186 'Quantity of Timber and Workmanship in Joinery', Part 1, 'Quality of Timber'.

11.1.2 Timber and timber products shall be subject to the inspection and approval of the Consultant.

11.1.3 Timber shall be seasoned to stable moisture content compatible with the finished use, straight and true and free from wind, warp and distortion and in lengths suitable for the members required.

11.1.4 All timber shall be in long lengths and laps, scars or splices shall be over a bearing surface. Where obtainable, finishing timber exposed to view shall be in single lengths.

11.2 Preservation of Timber

11.2.1 All timber shall be treated for insect attack and is to be of the correct moisture content and free from surface moisture content and dirt.

11.2.2 All rafters, purlins, framing scribe pieces, wall plates, and trusses etc. shall be treated for insect attack with approved timber preservative. No extra payment shall be made for such coating and will be considered inclusive in the rate of the respective item in the BOQ.

11.2.3 Treatment shall be carried out after all cutting and shaping is completed.

11.3 Hardware

11.3.1 Hardware shall be standard quality and samples shall be submitted to the Consultant for approval.

11.3.2 All hinges shall be stainless steel or brass and shall be approved by the Consultant.

11.3.3 The dimensions and quality of hardware shall meet the requirements and shall not be rested, deformed or defective.

11.4 Dimensions and Finish

11.4.1 All dimensions of timber given are finished dimensions.

11.4.2 All elements and others of structural nature, which are exposed, must be machine planed to a smooth finish.

11.4.3 All unexposed timber shall be machine planed to a rough finish.

11.4.4 All joinery work shall be dressed on all four sides and hand dressed where necessary and sanded to all exposed surfaces. All arises in any way accessible shall be sanded and smoothed off.

11.5 Workmanship

11.5.1 All connections whether nailed, screwed, glued, moticed or dove-tailed shall be accurately made and properly executed to provide sound, satisfactory connections for the class of work required.

11.5.2 Timbers containing defects or distortions shall not be used.

11.5.3 All joinery shall be manufactured by skilled tradesman with accurate tolerances and set out and with tools, jigs, machines and equipment appropriate for the work.

11.5.4 Assembly of the joinery units and joinery frames, etc. shall be by means of glued connections appropriate to the work - motice and tennon, housing and doweling, etc. where practicable including the use of glued blocks wherever required. Nailing, screwing shall only be used with prior approval of the Consultant, corrugated fasteners shall not be used for effecting connections.

12. ALUMINIUM DOORS AND WINDOWS

12.1 Aluminium Doors and Windows

12.1.1 All windows and doors are to be constructed by approved specialist suppliers of medium section to the particular requirements noted on the drawings as to weight and profile. All sections shall generally conform to relevant British Standard Specifications.

12.1.2 All frames should be made to fit the actual openings with a 3 mm clearance all around. Discrepancies in overall width or height exceeding 3mm will not be allowed and the frames will be rejected in such cases. Any small discrepancies shall have the gaps suitably backed and filled with gun-applied water repellent mastic sealant.

12.1.3 All sealants used in the assembly of, and in the fixing of cladding and window framing, shall be non-setting to allow thermal movement without detriment to those joint sealants used for peripheral caulking and shall be one part silicone sealant and shall conform to BS 4245. All spliced joints between mullions should be sealed with an approved silicone product, compatible with other sealants and packings used.

12.1.4 The auxiliary components in sashes as locks, pivots, sliding gear etc. shall comprise of stainless steel or resisting materials.

12.1.5 The tolerances are to be as follows:

a) Inside width of frame	3mm Maximum
b) Inside height of frame	3mm Maximum
c) Depth of frame	2mm Maximum
d) Opposite side, Inside distance	2mm Maximum

12.1.6 The performance - associated requirements are

1) Strength (resistance to wind pressure and other forces applied in use)
2) Air tightness or ability to cut out drafts.
3) Water - tightness against rain or dew.
4) Sound arresting effect to (shut off noise from outside as well as inside).

12.1.7 All surfaces shall have an anodized protective surface layer of minimum 25 Micron thickness.

12.1.8 Glazing shall be done as specified by the Consultant. Glass shall be tinted, or as specified in the drawings. Thickness shall be according to the size of panels as given hereunder.

Not exceeding 1 sq. ft.	2mm
Exceeding 1 sq. ft. but not exceeding 2 sq. ft.	3mm
Exceeding 2 sq. ft. but not exceeding 4 sq. ft	4mm
Exceeding 4 sq. ft. but not exceeding 6 sq. ft	5mm
Exceeding 6 sq. ft.	6mm

12.1.9 Prior to import and / or purchase of the Aluminium Doors and Windows, the relevant specification of the manufacturer, along with samples has to be submitted to the Consultant for approval. This clause shall not be contravened on any account.

12.1.10 The fitting shall be done with utmost care not to spoil the finishes given by the manufactures, and any cleaning done shall be done with cleaners etc. as specified by the Manufactures.

11.1.11 The Contractor shall provide all items, articles, materials, operations, mentioned, or scheduled on the drawings, including all the labour materials, including fixing devices, equipment and incidentals necessary as required for their completion.

12.1.12 The Contractor shall submit shop drawings and/or samples of each type of doors, windows, railings and other items of metal work to the Consultant for approval. The shop drawings shall show full size sections of doors and windows etc. thickness of metal, details of construction hardware as well as connection of windows, doors and other metal work to adjacent work.

12.1.13 Aluminium doors and shutters shall be manufactured by an approved manufacturer and shall be of sections, sizes combination and details shown on the drawings. The frame member shall be one piece, corners shall be electrically welded, ground smooth and true and glazing bare shall be threaded or interlocked as approved by the Consultant.

12.1.14 Glazing for doors and windows shall be of specified thickness and of approved quality and shall conform to specification of glazing. Fixing for glazing shall be done with aluminium Snap-On beading as per detail drawing and instructions. Necessary continuous rubber gaskets of approved make shall be provided.

12.1.15 Colour for doors and windows shall be approved by the Consultant.

12.1.16 For SAFE ROOM doors, Burglary resistant stainless steel (anti-arc and drill alloy) jamb with built-in Alarm and Air Lock switch shall be used.

12.2 Aluminium louvers

12.2.1 Samples shall be submitted for approval.

12.2.2 All metal louvers shall be installed according to manufacturer’s instructions.

12.2.3 All units shall be installed plum, well fitted and securely attached to supporting frames.

12.3 Top hung windows, ventilators and side hung doors

12.3.1 All windows and doors should be weather stripped. The weather protection should be achieved by a positive compressive action against the section and should not depend on external contact. At every contact between two profiles two weather stripping sections should be provided to complete weather protection.

12.3.2 The bottom section for hinges must be capable of being adjusted vertically if necessary.The gap between section and the floor should be covered with a pair of special splay-tube sections.

12.3.3 The shutter sections for both windows as well as doors shall be hollow section type and shall be overall size 57 x 45 mm and the door sections shall be overall size 81 x 45 mm (including flanges).

12.3.4 The shutters of the windows and doors should be assembled with stainless steel pins and nylon washers. Handles shall be anodised aluminium finished to match the aluminium sections and mounted with self lubricating nylon washers.

12.3.5 A mortice cylinder rim automatic deadlock of high quality with double pin tumbler shall be used.

12.3.6 Windows shall have anodised aluminium handles, colour as framing and a latching mechanism securing the shutter to the frame both at the top and bottom.

12.3.7 Required fittings;

12.3.7.1 Single action door closer concealed in the head bar of the outer frame and mounted on an adjacent pivot at the threshold and deadlock fitted.

12.3.7.2 The left hand leaf of double doors with flush bolts at head and sill with deadlock fitted to the right hand leaf.

12.3.7.3 Escape doors to have panic bolts assembly with vertical elements concealed in the sill and door closer as in 13.3.7.1.

12.4 Installation

12.4.1 Aluminium work shall be installed adjusted and glazed by experienced workmen all in accordance with the manufacturer's installation instructions and in full conformity with the approved shop drawings, samples and other submitted data. Under no circumstances shall materials be installed on surfaces that contain condensation, dirt, grease or other foreign encountered materials that would hinder or prevent proper installation and functioning for the use intended.

12.4.2 Aluminium work shall be carefully and accurately assembled with proper and approved provision for contraction and expansion and set in correct locations as per approved detailed shop drawings, all level, square, plumb and aligned with other work. All joints between framing and structural building shall be sealed in order to be watertight and weatherproof and to satisfy all other requirements of the Consultant.

12.4.3 Frames shall be designed and manufactured with a maximum 2.5mm tolerance around the opening in the structure. These joints are to be finished by applying an approved sealant into a polystyrene foam backing strip.

12.4.4 All aluminium works are to be fully protected for the duration of the contract from damage by other trades. The Consultant shall approve the method of protection.

12.4.5 If for any reason final finishes become scratched, abraded or damaged during transport, delivery, storage or erection, it shall be the Contractor's responsibility to remove or repair those defective areas or components as directed and to the complete satisfaction of the Consultant.

12.4.6 Repair work shall be identitical to the manufacturer's applied finish with regard to gloss, finish and visual appearance. Field touch up of painted aluminium is permitted only with the written permission of the Consultant. Where touch up is not an authorised means of repair the damaged materials must be replaced by new.

12.4.7 Upon completion of work all protective coverings from all exposed surfaces shall be removed. All surfaces shall be cleaned using soap or detergents as recommended by the aluminium manufacturers to remove sealants, discolouration and any other foreign material. Defection of any type determined by the Consultant shall be repaired at the Contractor's expense.

12.4.8 Extreme care shall be taken when cleaning the exterior portion to protect all other adjacent works.

12.5 Sealing joints

12.5.1 The Contractor shall ensure that joints are dry and remove all loose material, dust and grease.

12.5.2 Joints shall be prepared in accordance with sealant manufacturer's recommendations using recommended solvents and primers where necessary.

12.5.3 Adjoining surfaces which would be impossible to clean if smeared with sealant shall be masked.

12.5.4 Backing strips shall be inserted in all joints to be pointed with sealant. When using backing strips, the Contractor shall not leave gaps and shall not reduce depth of joint for sealant to less than the minimum recommended by the manufacturer.

12.5.5 Cavities shall be filled and jointed with sealant in accordance with the manufacturer's recommendations. Sealant shall be tooled to form a smooth flat bead.

12.5.6 Excess sealant shall be removed from adjoining surfaces using cleaning materials recommended by the sealant manufacturer, and shall be left clean.

12.6 Glass installation

12.6.1 Workmanship shall generally be in accordance with CP 152 and respective British Standards.

12.6.2 The glass is to be delivered to the site with adequate protection to prevent damage and where possible it is to be fixed in position immediately after delivery. When fixed the Contractor is to take all necessary precautions to prevent damage during succeeding building operations and will be entirely responsible for the replacement of any broken or damaged glass at his own cost.

12.6.3 The Contractor is to be solely responsible for determining the exact sizes of glass required, including a tolerance of 2mm to each edge and he is recommended to check the necessary dimensions on site.

12.6.4 No glazing is to be carried out until rebates have been painted with primer. Glazing beads as applicable are also to be primed before fixing.

12.6.5 All mastic is to be neatly struck off to agree exactly with site lines inside and out.

12.6.6 Rates are to include for all necessary springs, clips, setting blocks, location blocks and distance pieces and for taking off and later re-fixing loose beads

12.6.7 Glass apertures in timber doors are to be bedded in chamois leather glazing strip, black ribbon velvet or P.V.C. glazing strip to the approval of the Consultant.

13. ROOFING

13.1 Scope

13.1.1 This Section deals with steel profiled sheeting used as external weatherproof cladding of roofs.

13.2 Roof Cladding

13.2.1 Sheet type: Zinc Aluminium colour bond metal roofing sheets by “Lysaght” or equivalent.

13.2.2 Structural support: Kiln dried timber roof truss with galvanized steel gang nail connector plates.

13.2.3 Fastening: No. 12-14x45mm hexagonal head self drilling and tapping screw seal.

13.2.4 End laps: 200mm and should be sealed with a recommend sealant for pitches below 7 degrees.

13.2.5 Side laps: as per manufacturer’s recommendations.

13.3 Products

13.3.1 The profiled sheeting shall be in galvanized sheet steel with a factory per finished protective PVC film with colour to approval.

13.4 Workmanship

13.4.1 Accessories: Flashing, trims, filler pieces, spacers, tapes, sealant, etc. where not specified to be the types recommended by the sheet manufacturer.

13.4.2 Fastening: Select types and location of fastenings to meet the following requirements.

13.4.2.1 Wind suction loaded: Calculate in accordance with CP 3: Chapter5: Part2, making due allowance for any internal pressure.

- Basic wind speed: 45 m/sec.
- Topography factory S1 : 1.0
- Ground roughness, building size and height Factory (S2): as determined from CP3:Chapter5: Part 2, Table 3.
- Statistical factor (S3) : 1.0

13.4.3.2 Imposed loads other than wind and maintenance load, 1.5 KN/m2 concentrated on a 300mm^2 which ever produces the greater stress. Maintenance point load: 0.9 KN concentrated on any 125mm^2.

13.4.3.3 Dead load: allow for self weight of sheeting.

13.4.3.4 Roof pitch: as indicated on drawings.

13.4.3.5 Distance between not less than 900mm or as indicated on the drawings.

13.5 Fixing

13.5.1 Quality of Work: Handle and store to preserve surface using clean dry gloves. Do not slide sheets over rough surface or each other. Packs of all sheets must be kept dry in transit and stored clear of the ground under cover to prevent water and /or condensation being trapped between adjacent surfaces. If packs become wet, sheets should be separated, wiped with a clean cloth without delay and placed so that air calculation completes the drying process.

13.5.2 Structure: Check that structure is in a suitable state to receive sheets before commencing fixing. Contractor must confirm acceptance to consultant

13.5.3 Structure: Do not fix profiled sheeting until final coats of paints have been applied to outer surfaces of supporting structure.

13.5.4 Isolating Tape: Apply to those surfaces of supports which would otherwise be in contact with sheeting or accessories after fixing.

13.5.5 Cutting and drilling:

13.5.5.1 Cuts sheets accurately with clean, true lines and no distortion with a power saw with abrasive cutting disc.

13.5.5.2 Cut openings in sheet for out lets, vent pipes , flues etc. to the minimum size necessary . Reinforce edges of openings with structural members.

13.5.5.3 Drill all holes. Position at regular intervals in straight lines. Holes for primary fastenings to be 1.5mm larger than the diameter of fastening unless self drilling type is used.

13.5.5.4 Remove burrs, drilling swarf, lubricant, dust and any other foreign matter before finally fixing sheets into position.

13.5.6 Direction of Laying: Lay sheets with exposed joints of side lap away from prevailing wind.

13.5.7 End Laps: to be fully supported.

13.5.8 Sealant:

13.5.8.1 Install to manufactures recommendation.

13.5.8.2 Position in straight, unbroken lines parallel to edges of sheets. Placed into corrugations. Do not allow to sag into position.

13.5.8.3 Ensure continuity and effectiveness of seal, especially at corners of sheets.

13.5.8.4 Do not over compress.

13.6 Fittings and Features

13.6.1 Profile Fillers: use where specified and wherever necessary to close off corrugation cavities from the outside and inside of the building. Position on the line of, or above, fastening and ensuring a tight fit and leaving no gaps. Where sealed laps are specified bed profile fillers in sealant on top and bottom surface, but do not obstruct channels for ventilation or condensation drainage.

13.6.2 Flashing Trims: All fittings for flashing / trim shall be as per manufacturers recommendation and lapped at joints as follows:

13.6.2.1 Vertical and sloping flashing / trims: end lap to be the same as for adjacent sheeting.

13.6.2.2 Horizontal flashing / trims: end laps to be 150mm and sealed.

13.6.3 Gutter: Ensure that gutters are fully supported at each joint and at intermediate position not more than 900mm apart. Fix with spigot ends up the slope and make all the joints fully watertight. Position sheeting to leave a clear width across the gutter of not less than 230mm.

13.6.4 Insulation:

- 50mm thick Rock Wool insulation blanket with aluminium foil backing on both sides laid between purlins at 1000 centres, including wire mesh. Manufacturer and reference - to approval.

14. TILING

14.1 General

14.1.1 Glazed Ceramic Tile shall comply with British Standard specification No. 1281 and shall be approved sizes as shown on Drawings and the product of a reputable manufacturers approved by the Consultant.

14.1.2 Unglazed Ceramic Tile shall comply with the requirements of British Standard No.1286 and shall be of approved sizes as shown on the drawings and the product of a reputable manufacturer.

14.2 Manufacturers

14.1.3 All tiles, ceramic or homogenous, for the project shall be manufactured by one of the following manufacturers.

1. Guocera Cermiche of Spain
2. Horse brand Ceramic of Malaysia
3. R.A.K Ceramic of United Arab Emirates

Tiles from manufacturers not listed above shall only be used with prior written approval of the Consultant.

14.3 Ceramic and Vitreous Tile Materials

14.3.1 Ceramic and Vitreous clay Wall Tiles:

14.3.1.1 All tiles for wall installation shall have cushion edge, impervious porcelain and highly glazed surface. Colours shall be as selected by the Consultant and shall include trimmers, corner pieces, bullnose and all other special shapes indicated or required. All this shall be free from flaws, cracks and crazing.

14.3.2 Floor Ceramic and Vitreous Tiles

14.3.2.1 Non-slip ceramic tile for shall be used on all floor locations. Floor tiles shall be specially prepared for floor use but shall have all the qualities of ceramic tiles listed above for wall use.

14.4 Mortar Materials

14.4.1 Standard brand of light grey or white Portland Cement as specified in drawings, conforming to current British Standard specifications shall be used.

14.4.2 Sand: shall be clean, sharp, river sand, conforming to British Standard Specifications and graded fine to coarse within the following limits: 100% passing 8 sieve, 90% to 100% passing 16 sieve, 60% to 90% passing 30 sieve, 25% to 55% passing 50 sieve and 0% to 15% passing 100 sieve.

14.5 Cement Colour

14.5.1 Dry cement colour, chemically inert, non fading, alkalifast, mineral pigment, as approved shall be used wherever refinished.

14.6 Waterproofing

14.6.1 Floors of toilet areas, corridors and planter boxes shall be treated with an appropriate water proofing coating, approved by the Consultant

14.6 Installation Requirements

14.6.1 As far as possible, tile lay out work should be in such a way that no tile less than half size occurs.

14.6.2 Align joints in wall tile vertically and horizontally except where other patterns are shown or specified, Align joints in floor tiles at right angles to each other straight with walls to conform to the patterns selected.

14.6.3 Verify locations of accessories before installing tiles. Work shall be coordinated with plumbing and other trades before starting of tile work.

14.6.4 Installation of ceramic and vitreous tile shall be in accordance with manufacturer's instructions.

14.7 Floor Tile Installation

14.7.1 All ceramic and vitreous clay tile floors shall be in Portland cement setting beds. Concrete surfaces shall be cleaned and surface of concrete shall be wetted prior to placing of setting bed mortar. Tiles shall be immersed in water for minimum of 4 hours before laying.

14.7.2 Setting Bed Mortar Mix: shall consist of one (1) part Portland cement and two (2) parts dry sand, by volume, to which not more than 1/10 part of hydrated lime may be added.

14.7.3 When mixed with water, the mortar mix shall be of such consistency and workability as to produce maximum density. Determine consistency by stroking the mortar surface with a trowel. Whereof correct consistency, the trowlled surface readily assumes a smoothed, slickened appearance.

14.7.4 Spread setting bed mortar and screed to provide smooth, dense beds with true planes pitched to drains. The thickness of bed shall be such that the floor tile will finish flush with adjacent finished flooring, but bedding shall have average thickness of 38mm.

14.7.5 After bed has set sufficiently to be worked over, trowel or brush a thin layer, 3mm in thickness, of neat Portland cement paste over the surface of the back of tile.

14.7.6 Do not prepare larger setting bed than can be covered with tile before the mortar sets.

14.7.7 Press tile firmly into the bed tapping with wood blocks to obtain firm bedding of total tile area and a smooth top surface.

14.7.8 All tile shall be properly aligned with straight joints in even widths. Joints width shall be determined by spacers on ceramic tiles. Tamping shall be completed within one (1) hour after placing tile. Adjust work out of line within this period.

14.7.9 Tiles shall be fitted closely around pipes running through walls and floors. Pitch floors to drains.

14.8 Wall Tile Installation

14.8.1 Base Plaster 15mm thick applied to masonry wall shall be one-part Portland cement, three-parts of river sand by volume. Where additional thickness build-up is required to conform to indicated lines, apply as separate coat at no cost to employer.

14.8.2 Setting bed of tiles shall be done with cement slurry. The thickness of slurry bed shall be 3mm thick minimum for setting tiles and walls.

14.8.3 Installation of tiles shall be in accordance with standards and applicable requirements previously specified for floor tile.

14.8.4 Tiles shall be installed in perfect vertical plumb and as per the pattern and joints if shown on drawings

14.9 Grouting

14.9.1 Grouting shall not commence for at least 24 hours after placing of tiles.

14.9.2 Grout for floor and wall ceramic and vitreous tiles shall be waterproof, neat white Portland cement with dry cement colour added as directed by the Consultant. If white grout is selected, cement shall be white.

14.9.3 Grout mixed to a creamy consistency in accordance with manufacturer's directions shall be used for joint filling. Maximum width of joints shall be 3mm.

14.9.4 Force maximum grout into the joints with trowel. Before grout sets, strike or tool joints to base of cushion and fill all skips and gaps. Do not permit setting bed materials to show through grouted joints.

14.9.5 Cure grout joints by maintaining damp condition for three (3) days by sponging down, or other methods approved by the Consultant. Allow floors to set 48 hours before permitting ordinary foot traffic.

14.10 Defects in Tiles and Tile Laying

14.10.1 The surface of all tiled floors shall be perfectly in level and shall be executed by experienced workers in the field of tile laying.

14.10.2 A sample panel of laid tiles of each type shall be approved by the Consultant before commencement of tile laying.

14.10.3 Mismatches of colour, chipped or damaged tiles installed by the Contractor shall be rejected and shall have to be replaced by the Contractor at his own cost and risk.

14.10.4 Mismatches of colour in tiles installed by the Contractor shall be rejected and shall have to be replaced by the Contractor at his own cost and risk.

14.11 Guarantees

14.11.1 Manufacturer shall be provide his standard guarantees for work under this section. However, such guarantees shall be in addition to not in lieu of all other liabilities which manufacturers and Contractor may have by other provisions of the Contract Documents.

15. PLUMBING

15.1 General

15.1.1 The materials used and workmanship shall be of highest quality and grade unless otherwise specified shall conform to the latest specifications of British Standards and Codes of Practice for " Water Supply "Sanitary, Pipe Work "Building Drainage " Surface Water and Sub- Soil Drainage" and applicable to details and work indicated on the Drawing and Bill of Quantities. In case of any discrepancy / ambiguity the decision of the Consultants shall be final, and the contractor will act and perform accordingly.

15.1.2 The work shall be executed strictly in accordance with the rules and regulations set by the relevant local authority of the Maldives.
15.1.3 The Contractor shall be responsible for obtaining the necessary approvals and test certificates from the concerned departments of Maldives.
15.1.4 Plumbing work shall be carried out by licensed plumbers and shall produce the copy of the license along with the tenders, or approved by the Consultant.
15.1.5 Any damage done by the Contractor to any existing work during the course of execution of his work, shall be made good by him at his own cost. Failing which it shall be get done by the Consultants at Contractor's risk and cost.
15.1.6 The Contractor shall be responsible to connect the drainage and water supply to the mains and to obtain the necessary approvals and certificates from the relevant authorities of the Maldives.
15.1.7 All connections to mains and meter installation shall be arranged by the Contractor and payment of fees thereof, if any, shall also be made by him.
15.1.8 The Contractor shall be responsible for the watch and ward of all fittings until the Works is fully completed and handed over to the owner.
15.1.9 The levels, measurements and other information concerning the existing site as shown on the drawings or as described as are supposed to be correct. The Contractor shall, however, verify them by himself and no extra claim whatsoever shall be entertained on account of the errors or omissions in such matters or on account of the descriptions turning cut to be different from what was excepted.
15.1.10 The Consultant shall instruct the Contractor to purchase and use such materials of particular make or from particular source as may in his opinion be necessary for proper and reasonable compliance with the specification and execution of the Works.
15.1.11 After all plumbing fixtures and equipment have been set ready for use, and before the Contractor leaves the job, he shall thoroughly clean all fixtures installed by him, removing all plaster, stickers, rust stains and other foreign matter of discolouration on fixtures, leaving every part in acceptable condition and ready for use to the satisfaction of the Consultants.

15.2 Drawings and Information Required

15.2.1 The Contractor shall submit shop drawing for the entire installation including installation details for all items required or asked for approval of the Consultant.

15.2.2 Approved by the Consultant of shop drawing for any material, apparatus, devices and layout, shall not relieve the Contractor from the responsibility of furnishing same of proper dimension, size, quantity and all performance characteristic to efficiently perform the requirements and intent of the Contract Documents. Such approval shall not relieve the Contractor from responsibility for errors of any sort in the shop drawing.
15.2.3 If the shop drawings deviate from the contract Documents the Contractor shall advise the Consultants of the deviations in writing accompanying the shop drawings including the reasons for the deviations. At the start of the Project the Contractor shall periodically and thereafter submit to the Consultants list of all shop drawings which will be submitted in the course of the project. The list shall show the disposition of each item including date of submission approval etc. The list shall be kept upto date through the entire course of construction.

15.3 Record Drawing

15.3.1 During Construction the Contractor shall keep an accurate record of all deviations between the work as shown on the Contract Drawings and that which is actually installed.

15.3.2 The Contractor shall secure from the Consultants after approval of his Shop Drawing a complete set of drawing and note changes thereon in ink.

15.3.3 The Contractor shall make a complete record of all changes and revisions in the original design which exist in the completed work.

15.3.4 The cost of furnishing above prints and preparing these for record " shall be deemed to be include in the tendered cost and its effects spread over other items of work, and as such item shall not be a subject to payment". When all revisions showing the work as finally installed the corrected Original Transparencies shall be submitted to the Consultants before final payment for the completed work will be made.

15.4 Operating and Maintenance Instructions

15.4.1 Three sets of operating and maintenance instruction covering completely the operation and maintenance of all plumbing equipment, controls, heaters, pumps and the like shall be furnished to the Owner, by the Contractor.

15.5 Tests

15.5.1 The entire system of drains, waste and vent piping inside and outside the building shall be tested by the Contractor under a water test, which shall include the entire system from the lowest point to the highest pipes above the roof.

15.5.2 The water test shall be made in accordance with all local requirement. Every portion of the system shall be tested to a hydrostatic pressure equilent to latest 15 feet head of water. After filling, the Contractor shall shut off water supply and shall allow it to stand 2 hours under test during which time there shall be no loss or leakage.

15.5.3 The Contractor shall furnish and pay for device, material supplies, labour and power require for all tests. All tests shall be made in the presence and to the satisfaction of Consultant.

15.5.4 Defects disclosed by the test shall be repaired or if required by the Consultant defective work shall be replaced with new work without any extra charge to the Owner. Test shall be operated as directed until the work is proved satisfactory.

15.5.5 Fixture shall be tested for soundness, stability of support and satisfactory operation.

15.5.6 The Contractor shall notify the Consultant at least one week in advance of making the required test, so that arrangements may be made for their presence to witness the test.

15.5.7 Equipment shall be tested in service and the Contractor shall demonstrate that the equipment performs the work intended for it and that it complies with the requirement of these specification for such equipment, to the satisfaction of Consultants.

15.5.8 The rates shall include for all costs associated with tests.

15.6 Work in Common Piping

15.6.1 Material

15.6.1.1 Piping and fitting material shall be uP.V.C, and approved by the Consultant.

15.6.1.2 Piping material shall comply with requirements of water supply and sewerage and other relevant authorities.

15.6.1.3 Materials for the piping and service requirements shall basically conform to the service pressures encountered.

15.6.2 Providing Drawings and Manuals

15.6.2.1 The Contractor shall submit one set of originals and further two copies of layout drawings to the Consultant after completion of the Works. These drawings must give the following information:

(a) Run of all piping and diameter on all floors and the vertical stacks.
(b) Location and sizes of all control valves, access panels and other equipment.
(c) Location of all manholes and their sizes.

15.6.2.2 No completion certificate will be issued until the drawings are submitted.

15.6.2.3 The Contractor shall submit to the Consultant for approval, samples, shop drawings, manufacturer's drawings, equipment characteristics and capacity data etc. of all equipment, accessories devices etc. that he proposes to use in the installation.

15.6.3 Samples

15.6.3.1 The Contractor shall provide samples of all sanitary fittings, pipes and specials man-hole cover and frames, gratings and water supply pipes and fittings etc. and shall be deposited with the Consultant (which will be returned to the Contractor at the completion of the Works) and shall obtain approval from the Consultant before using in the Works. Any material rejected by the Consultant shall be removed from the site within 24 hours of rejection.

15.6.4 Drawings

15.6.4.1 The works shall be done in conformity with the plans and within the requirements of the general architectural, electrical and structural plans. This work shall be properly coordinated with the work of the other trades. Hangers and sleeves shall be furnished in time for their installation as other work proceeds.

15.6.4.2 The plumbing drawings are diagrammatic, but shall be followed as closely as actual construction. All deviations from drawings required to conform to the building construction shall be made by the Contractor at his own expense.

15.6.4.3 The architectural drawings shall take precedence over the plumbing drawings as to all dimensions.

15.6.4.4 Large size details shall take precedence over small size drawings. The special dimensions in the specifications or schedule of quantities or instructions of the Consultant shall supersede the drawings. The Contractor shall verify all dimensions at site.

15.6.4.5 The recommend position of the fittings, fixtures, control valves, tanks etc. as shown on the drawings will be adhered to as far as practicable.

15.6.4.6 Should there be any discrepancy due to incomplete description ambiguity or omission in the drawings and other documents, whether original or supplementary, forming the contract, either found on completion or during the currency of the installations work, the Contractor shall immediately, on discovering the same, draw the attention of the Consultants and the Consultants decision in final and binding on the Contractor.

15.6.5 Existing pipes

15.6.5.1 The site shall be examined for field drains and those, when found, shall be either entirely removed or diverted, trenches filled with dry earth in 200mm to 300mm layers and consolidated as directed by the Consultant.

15.6.6 Spare Parts

15.6.6.1 Necessary spare parts of the plumbing equipment for the one (1) year operation shall be supplied by the Contractor.

15.6.7 Excavation

15.6.7.1 All excavations shall be timbered to the satisfaction of the Consultant and the type of timber shall be suitable to the kind of earth encountered. Fixing of timber and removal after completion of work shall be done as directed by the Consultant.

15.6.7.2 Should any water accumulated in the trenches, headings or other excavation, the Contractor shall do such work as may be necessary to drain away the accumulated water and shall install pumps as may be required to keep the excavation and trenches dry. The Contractor shall ensure that the flow water in trenches or excavation does not injure or remove cement or aggregate of any concrete that has not set. No subsoil water shall be discharged into open drains or sewer at the site.

15.6.7.3 In refilling trenches after excavation this should be done in layers of 150mm after consolidating each layer. Special care shall be to see that the earth is packed uniformly and no injury to the pipe.

15.6.7.4 Rates for excavation should include for backfilling in consolidated layers where necessary and as directed by the Consultant.

15.6.8 Piping

15.6.8.1 The Contractor shall, as soon as possible after the award of the contract, prepare and submit to the Consultant for approval, working drawings showing exact locations and pipe runs for all pipework, the layout and setting up of equipment and the connection of piping to the equipment. Such drawings shall include details and methods of supports, anchors and sleeves etc.

15.6.8.2 Pipe runs shown in the drawings are approximate and intended to indicate the general run and locations only. The exact locations of all pipework shall be determined on Site.

15.6.8.3 All pipes, fittings etc. shall be kept closed against moisture and foreign matters when stored at site and during installation.

15.6.8.4 All pipes shall be fixed clear of one another and be so arranged as to provide easy access for maintenance and repair.

15.6.8.5 All plumbing work shall be carried out by suitably qualified plumbers in accordance with the British Code of Practice and Regulations and requirements of related Authorities.

15.6.8.6 Materials for the piping and service requirements shall basically conform to the service pressures encountered.

15.6.8.7 Each part of the installation of the plumbing work shall be completed in all details as shown in the drawings or as specified and provided with all necessary control valves, etc. that will be necessary for their satisfactory operation.

15.6.8.8 All piping shall be run plumb, and straight and parallel to walls, except drain line which shall pitch 6mm per 300mm in the direction of flow.

15.6.8.9 Pockets, unnecessary traps, turns and off-sets shall be avoided. When traps or pockets are unavoidable they shall be valved drains.

15.6.8.10 Piping installed on the concrete slab shall be firmly fixed or anchored to the floor with packing to prevent damage to pipes. Pipes shall not be bent with bender where cross with other pipe or change to upward.

15.6.8.11 Where pipes are to be laid directly in the ground, bed shall be sufficiently compacted, necessary protection for piping shall be taken.

15.6.8.12 Backfill shall be done after the approval of the Consultant in such a manner not to damage the pipe line and shall be restored to the original stage.

15.6.8.13 Where pipes penetrate through waterproof part or fire partition or fire wall, pipe sleeves shall be provided and clearance between pipe sleeve and pipe shall be filled with caulking material approved by the Consultant.

15.6.8.14 Pipes, fittings, valves and accessories shall be thoroughly cleaned, both nternally and externally before installation and shall be cleaned before putting into service.

15.6.8.15 Plumbing work shall be completed in accordance with the details shown on the Drawings or as specified and provided with all necessary control valves, etc. that will be necessary for their satisfactory operation.

15.6.8.16 All pipes shall be cut square and true to the pipe axis by means of suitable tools without reducing pipe diameter and cut ends shall be finished smooth. Before making connections, chips, dirt and other foreign matter shall be removed from inside interior of each pipe. Fixing of hangars and embedding of pipe sleeves shall be carried out without delay along with the progress of the work where required.

15.6.8.17 Pipe connections for the water supply system shall be by uP.V.C high pressure. Jointing shall be generally by means of solvent cement according to manufacturer’s instructions

15.6.8.18 Vertical pipe shall be braced at more than 2 point in every story.

15.7 Water Supply Work

15.7.1 Materials

15.7.1.1Pipes, joints and fittings for water supply work shall be high pressure uP.V.C.

15.7.1.2Materials and workmanship shall comply with the local water supply authority requirements.

15.8 Water Pumps

15.8.1 The specification herein stated are basic guides only. Other items not so indicated but which are obviously necessary for the proper operation of the system as intended shall be supplied and installed, in accordance with accepted Consulting standard.

15.8.2 Manuals of operation and maintenance and list of spare parts shall be supplied together with the equipment.

15.8.3 The contractor shall submit at least four copies of pump performance curves showing among others, the pump rating and efficiency, properly marked out.

15.8.4 A metal name plate indication in indelible letters for the correct specification of the pump and motor shall be properly attached to the assembly at a location such that the information written thereon can be conveniently read by all concerned.

15.8.5 Well water pump and Fresh water pump: Flow rate = 60L/min, Head = 70m, Type : End suction Hydro pneumatic pump, 220/440V, 3-Phase, 50 Hz. Alternate and parallel operation. Fire pump: 50L/min, 70m head, Vertical multistage pump with alternative operations.

15.9 Spacing of supports

15.9.1 Support spacing for uP.V.C pipes shall be as follows

Nominal Dia.	upto 40	more than 50
Space (m)	1.2	1.5

15.10 Drainage Work

15.10.1 General

15.10.1.1 High Pressure uP.V.C pipe and fittings shall be used for all drainage work including vent pipes.

15.10.1.2 Joints shall be made by the cold-jointing method, and the pipe interior shall have not offset at the joint interfering with the flow. Joint adhesive shall be good quality and shall not be affected by heat and shock.

15.10.1.3 Where horizontal drain branch joints the main, such branch shall be connected to the main in a substantially horizontal position and at an acute angle of not more than 45 degree to the main in all cases.

15.10.2 Vent stack pipes

15.10.2.1 Vent pipe shall be vertically branched out upward from a horizontal drain branch pipe or other appropriate point. Horizontal branching of the vent pipe shall be done on approval of the Consultant.

15.10.2.2 Where vent pipes on each floor are to be connected to the vent stack, all connections shall be made at least 150mm above the respective overflow edges of fixture on that floor.

15.10.2.3 The provision of the preceding item shall also apply to the connection of vent stack vent pipe.

15.10.2.4 Vent stack shall be connected to the waste stack or soil stack at the lowest part to stack pipe.

15.10.2.5 Where vent pipe is to be connected to the horizontal drain pipe, such angle shall be more than 45 degree to upward.

15.10.2.6 Vent stack shall be extended 600 mm from the top of the roof or lead to the wall and top of pipe shall be covered with vent cap.

15.11 Laying of Pipes

15.11.1 The pipes shall be laid to proper lines and levels as shown in the plans and directed by the Consultant, as the main is laid, the front pipes in the trench shall always be closed with a plug either of iron or wood and security fastened. The plug shall not be removed except when pipe laying is resumed or for purposes of testing.

15.12 Laying of sewer water Mains

15.12.1 All mains shall be laid on a good solid, bottom to prevent subsidence and consequent fracture.

15.12.2 Mains running under buildings, if unavoidable, shall be completely surrounded by 150mm of concrete.

15.12.3 In case of mains passing through a well, the weight of the latter shall be carried by a lintel or suitable relieving arches.

15.12.4 All rising mains shall be properly plugged to all wall brackets at regular intervals as given in the drawings.

15.12.5 All mains shall be concealed inside wall as far as possible except for vertical sewer mains, cleaning doors shall be provided in the walls whenever necessary and as directed by the Consultant.

15.13 Sewers

15.13.1 After the cement has had time to set, the pipes shall be tested in length between manholes in following manner.

15.13.2 In the lowest manhole/intercepting trap as the case may be, a plug shall be inserted in the pipe. The disc in the pipe at the upper manhole shall be fitted with a filling pipe with a right angle bend and an air cook.

15.13.3 The pipe line shall then be filled with water by means of the pipe connection on the upper disc. The air cock on the upper disc shall be kept open while the pipe line is being filled to permit the escape of air.

15.13.4 When the pipes are filled with water and air excluded, the air cock shall be shut and the water shall be poured into conical filler, attached to the filling pipe until the water remains in the filter.

15.13.5 The filling pipe shall then be raised and fastened so that the height of surface of the water in the filler above the invert of the pipe is 1828 mm which will be usual test pressure for S.W pipes.

15.13.6 If the water level does not fall more than 16mm (12mm) in a length of 91.4 metre the test may be considered satisfactory.

15.13.7 The Contractor shall make good all defective work at his own expense

15.14 U.P.V.C Pipes

15.14.1 Manufacturer’s instruction should be followed in pipes to be used for water mains. Where specified, pipes shall have integral rubber ring joints and where solvent cement joints are specified, a sufficient number of expansion/contraction joints shall be incorporated in the length of mains to allow for variation of temperature to the recommendation of the pipe manufacturers.

15.14.2 These pipes shall be effectively protected from the direct rays of sun immediately after they are laid and until permission is given for the trenches to be refilled by the Consultant. Subject to such permission being obtained, trenches shall be refilled without delay. Final connection at a fixed point shall be deemed unto the majority of the length of the pipe line has been covered by backfill in order to reduce the effect of expansion and contraction caused by temperature variations.

15.15 Bends and other Specials

15.15.1 In fixing bends care shall be taken to see that the axis of the bend is truly vertical or horizontal as the case may be and the spigot of the bend is well in the socket of the pipe with which a joint has to be formed. The Contractor shall be called on to replace any faulty work at his own expense.

15.16 Flanged Joints

15.16.1 All flanged joints shall be made by painting the faces of the flanged with red lead freely and bolting the flanges evenly on all sides. A thin fiber of lead wool may be used in making the joints water tight when facing of the flanges is not true. Rubber insertions may be used with approval. Sewage resistant rubber insertion is to be used for sewer lines.

15.17 Support for U.P.V.C Pipes

15.17.1 When U.P.V.C pipe lines incorporate metal valves or other heavy fittings, it is essential to support the valves directly rather than allowing their weight to be carried by the uP.V.C pipe and support shall be placed on either side of the fittings mentioned above. Moulded plastic fitting also should be supported.

15.17.2 Maximum allowable horizontal support distance for uP.V.C is given below.

Nominal bore	12 mm (1/2”)	18 mm (3/8”)	25 mm (1”)	32 mm (1¼”)	38 mm (1½”)	50 mm (2”)
Support distance	533 mm (1’9”)	616 mm (2’0”)	686 mm (2’3”)	764mm (2’6”)	840 mm (2’9”)	915 mm (3’0”)
Nominal bore	75 mm (3”)	100 mm (4”)				
Support distance	1220 mm (4’0”)	1290 mm (4’6”)				

15.17.3For vertical installation supports, distances shall be doubled.

15.18 Sewer pipes

15.18.1 All ‘P’, ‘S’, ‘I’ junctions bends etc. required shall be furnished and set without extra charge and shall confirm to the pipe specifications as to quality

15.19 Air Valves

15.19.1 These valves to be fitted as per drawings and Bill of Quantities shall be tested and accompanied by a certifying their efficiency.

15.19.2 The floating ball in the valve shall be suitable metal or vulcanite or rubber specially manufactured for tropical conditions.

15.20 Scour Washout Valve

15.20.1 These shall be provided at portions shown in place and shall contain in one unit a flanged scour valve with short connection pieces, cast iron bend and T pieces for connection to main pipe.

15.20.2 The rate shall also provide for short length of straight pipe to a convenient as per details complete with covers and surface boxes

15.21 Foot valves and Strainers

15.21.1 Foot valve and strainers should be of reputable manufacture approved by the Consultant and shall be fitted with flushing lever attachment where specified.

15.22 Pressure Reducers

15.22.1 Pressure reducing valves shall be of the equilibrium type of approved manufacture and capable of reducing the pressure to the valve required as per plan and Bill of Quantities.

15.23 Water Meter

15.23.1 The water meters shall be from a reputed manufacture and shall be approved by the consultant before installation.

15.24 Equilibrium Ball Valves

15.24.1 These should be of reputable manufacture approved by the Consultant and be of the angle pattern with gun metal valve seats guide bush, copper float with wrought iron lever and links with bronze pins.

15.25 Fittings

15.25.1 All sanitary pipes, gullies, water closets/bidets, squatting basins, sinks bath tubs etc. to be of approved design and to be obtained from approved Manufacture and to be of the best stoneware, glazed inside and outside, with burnt hard and sound, free from flaws, blisters, cracks and other imperfections and best quality commonly called ‘Firsts’.

15.25.2 Rates should include for all bends, junctions, traps, cleaning, painting, fixing clear of wall etc. complete as specified as per Bill of Quantities.

15.25.3 All pipes, fittings, flushing cisterns, valves, stop cocks, taps, tanks, surface boxes etc. to be of the best of their kinds and in addition to complying with previous clauses to be from approved Manufacturers and all taps, cocks, valves etc. to be screwed down pipe. Taps to be of brass/nickel coated and valves to be of gun metal. All tanks to be made fly-proof and to the complete satisfaction of the Consultant.

15.25.4 Rates should include for all cutting and waste, bends, taps junctures, cleaning eyes, tees.

15.26 Manholes, Manhole covers and Frames

15.26.1 Concrete cover slabs or top rings of manholes shall provide a suitable seating for a rectangular cover.

15.26.2 The frame shall have a clear opening of 0.61m x 0.61m or alternatively a circular or double triangular cover depending on the type of cast iron manhole cover to be used. The rate for manholes shall allow for such provision.

15.26.3 Where the supply of cast iron manhole cover and frames is payable separately the cost of setting, surrounding, painting and materials for same shall be allowed for in the rate for manholes.

15.26.4 Suitable lifting rings, hooks or brackets shall be provided in the precast manhole sections. Box holes shall be separately grouted with 1:2 cement mortar.

15.26.5 The contractor shall supply two manhole keys for each pattern of cover without additional charge over the rate for covers (or manholes).

15.26.6 Heavy duty (grade a) cast iron manhole cover and frames shall be of the double triangular type to BS and having a clear opening of 550mm dia.

15.26.7 Medium duty (grade b) cast iron manhole covers and frames shall be of the circular type having a clear opening of 550mm dia or the rectangular type having a clear opening of 0.61m x 0.61m and confirm to BS. They shall be of the single seal type, the weight of cover frame being approximately 127.00 kgs.

15.26.8 Light duty (grade c) cast iron manhole cover and frames shall be of the doubles seal flat type having a clear opening of 0.61m x 0.61m conforming to BS. Weight of cover and frame approximately 50.75kgs.

15.26.9 All manhole covers and frames shall be supplied, coated with a black bituminous composition and be given two coats of bituminous paint after bedding.

15.26.10 No extra rate is payable for drop and/or junction manholes but piping in and surrounds of drop lines are payable at that relevant rates for s.w piping and manholes.

15.26.11 In drop manholes where the difference in level between the incoming drains and the sewer does not exceed 0.610m in 75mm and there is sufficient room in the manhole, the connecting pipe may be brought directly through the manhole wall, and the fall accommodated by constructing a ramp in the benching of the manhole. The ramp shall be of concrete and finished equal to that of the benches. No extra rate is payable.

15.27 Interceptor Manhole

15.27.1 All gravity sewer lines should be, connected through an intercepting inspection chamber before connecting to the main sewer line, and the dimensions of the manhole and trap to be in conformity with the Maldives Water and Sanitation Authority.

15.28 Fixtures and Accessories

15.28.1 All sanitaryware shall be manufactured by one of the following manufacturers.

1. American Standard
2. Ideal Standard
3. American Briggs
4. Armitage Shanks
5. Cotto
6. Star Sanitaryware

Sanitary ware from manufacturers not listed above shall only be used with prior written approval of the Consultant

15.29 As built Drawings

15.29.1 The Plumbing Contractor shall mark down with red pencil on two sets of plumbing plans all the revisions, omissions and/or additions to the various plumbing installation drawings as the construction progress. One set of the plans as marked shall be submitted to the Consultant after completion of the work.

15.29.2 Before the final payment is made to the Contractor, he shall submit to the Owner through the consultant, all As-Built Drawings incorporating the changes made and noted in the marked plans retained by him. The As-Built Drawing incorporating all the changes made and noted in the marked plans retained by him. The As-Built Drawings shall be prepared on reproducible form

15.29.3 The Plumbing contractor shall prepare and submit the As-Built Drawings without extra cost to the Owner.

15.30 Miscellaneous

15.30.1 Throughout the construction period, open ends of all installed pipelines shall be kept closed by temporary plugs. Drainage lines shall not be used to conduct dirty construction wash-washer, especially, those with cement, to avoid possible clogging.

15.30.2 A temporary fire protection system at each building shall be provided by the Contractor during the construction period. This shall be of sufficient capacity to put out any fire that may break out at any of the building floors due to construction period. This in addition to temporary fire extinguishers required.

15.30.3 A temporary potable water supply shall be available to construction workers at each building floor as construction work progresses.

15.30.4 A temporary human Excrete Disposal System shall be provided by the Contractor to serve the workers during the construction period.

15.31 Height of Fixture Installation

Height of fixture shall be as follows unless otherwise specified on the Drawings

Fixture		**Height (mm)**
Wash Basin	Floor finish to front top edge - Male	700
	Floor finish to top of mirror - Male	1675
	- Female	1660
Lavatory	Floor finish to front top edge	760
Shelf	Floor finish to top of shelf - Male	1005
	- Female	990
Cistern	Floor finish to bottom of cistern	
	Floor mounted Japanese type	500
	Western type	550
Drinking fountain	Floor to front top edge	765
Flush valve, WC	Floor to center of valve	600
Paper holder	Floor to center of holder - Japanese type	400
	- Western type	750
Faucets		
Sink	Sink floor to top of faucet	300
Lavatory	Lav. top to top of faucet	150
Bath room	Floor finish to top faucet	400

16. PAINTING

16.1 Material

16.1.1 All paints shall be approved by the Consultant for colour, quality and type.All painting work shall be carried out in accordance with the paint manufacturer's specifications unless otherwise directed by the Consultant.

16.1.2 All paints and finishes used for the project shall be manufactured by or under license from one of the following manufacturers;

(a) Nippon Paints (Japan)

(b) Imperial Chemical Industries (UK)

(c) Sigma Paints (Saudi Arabia)

(d) Macpherson Paints Limited (UK)

(e) Crown Decorative Products (UK)

Paints from manufacturers not listed above shall only be used with prior written approval of the Consultant

16.1.3 Paint shall be ready mixed and all paints, varnishes, enamels, lacquer stains, paste fillers and similar materials shall be delivered to the site in the original containers with the seals unbroken and labels intact. Each container shall give the manufacturer's name, type of paint, colour of paint and instructions for reducing. Thinning shall be done only in accordance with the manufacturer's directions.

16.1.4 Use of product by the same manufacturer shall be a general rule in each stage of work in this Specification.

16.1.5 Colour, lustre, colour scheme, finish shall be decided by the Consultant after checking sample paint test.

16.1.6 The painting shall be performed by experienced and competent painter.

16.1.7 Where walls are specified to be painted, all columns arises, groove, rough surfaces, reveals, soffits and returns, etc. shall be included and no extra shall be payable.

16.2 Definition of Terminology

Surface Sealing

Surface to be painted shall be sealed to have uniform suction and prevent lye from oozing out.

Spot Puttying

All cracks and depressions shall be filled flush with putty.

Puttying

All surfaces to be painted shall be puttied uniformly flat surface.

Spot painting

Spot puttied area shall be touched up by paint

Touch-up

Any damaged area after the prime coat has been applied shall be touched up

Drying hour

The drying time of double-coated paint shall be measured at the temperature of 20°C and humidity of 70%.

Amount of paint

The amount shall be standard amount of paint itself not including thinner. It shall increase or decrease depending on shape and surface condition in the process of painting.

16.3 Paint Finish Symbols

OP	Synthetic resin mix paint finish
VP	Solvent-polyvinyl chloride resin paint finish
EP	Polyvinyl acetate resin emulsion paint finish
AEP	Synthetic resin emulsion paint finish
CL	Clear lacquer finish
EXP	Epoxy resin paint finish
Stipple (OP)	Stippled finish (oil mix paint finish)
Stipple (EP)	Stippled finish (polyvinyl acetate resin emulsion paint finish

16.4 Painting in General

16.4.1 Preparation of Paint

16.4.1.1 Mixing: Paint content with pigment shall be thoroughly stirred to make a uniform consistency.

16.4.1.2 Thinning: Portable water shall be used for thinning of emulsion paint and water-soluble paint. Proper thinner, product of the same manufacturer as paint, as a rule, shall be used for other types of painting. Percentage of thinning and viscosity shall be conducted with direction of manufacturer or catalogue as they vary with the method of paint, temperature, type of material to be painted.

16.4.1.3 Allowable period of Use: Paint mixed with more than 2 types shall be used with direction of a manufacturer or catalogue as allowable period of use, mixing ratio and mixing method vary. The paint which has passed allowable period of use shall not be used.

16.4.2 Conditions of Painting

16.4.2.1 Work shall not be executed in the following situations

16.4.2.1.1 When humidity is above 85%

16.4.2.1.2 When raining or it is forecast

16.4.2.1.3 When dusts are present

16.4.2.1.4 When temperature of surface is high under hot weather and bubbles are likely to develop on the painted surface.

16.4.2.2 Conditions of Surface to be painted: Work shall not be executed or proper means shall be taken in the following situations.

16.4.2.2.1 When surface is damp and wet

16.4.2.2.2 When condensation is likely to develop on the surface.

16.4.2.2.3 All nail holes on veneer, board. etc., shall be covered with proper rust-proof paint before the subsequent painting is applied in accordance with this specification.

17.4.3 Performance

17.4.3.1 Paint shall be evenly and uniformed applied on the surface. Areas of difficult application such as pointed part, internal angle, welded part, etc. shall be thoroughly painted and double coated as necessary to deep uniform coating thickness.

17.4.3.2 Painting shall be properly done by carefully selecting the painting method by the shape of surface and types of paint.

17.4.4 Protection

17.4.4.1 Dangerous material such as paint, thinner, etc., excluding emulsion paint and water-soluble paint shall be kept in accordance with regulations concerned.

17.5 Procedure of Painting

17.5.1 Exterior – Exterior Textured Paint finish

AEP- Synthetic resin emulsion paint.

Coating Process	**No. of Coats**	**Type of Paint**	**Drying hour**	**Amount (kg/m^2)**
1. Surface preparation		Dry, clean and free from impurities		
2. Surface sealing	1	Sealer for emulsion paint	longer than 4 hours	
3. Puttying		Putty for emulsion paint		
4. Grinding		Grind with proper grinding tool		
5. Spot painting		Synthetic resin emulsion paint		
6. Second coating	1	Synthetic resin emulsion paint	longer than 4 hours	0.10-0.13
7. Finish coating	2	Synthetic resin emulsion paint	longer than 4 hours	0.10-0.13

Notes:

(a) Degree of dryness on the surface to be painted shall be kept under 6% in water content and below PH 9.5

(b) Puttying and sanding process shall be allowed to omit depending on the conditions of the surface.

(c) Drying time of putty shall be long enough for sanding to proceed.

(d) Amount of sealer for surface sealing shall be adjusted with direction of the Consultant as it varies with the surface conditions.

17.5.2 Exterior - Iron Products in General

OP - Synthetic resin mix paint

Coating Process	**No. of Coats**	**Type of Paint**	**Drying hour**	**Amount (kg/m^2)**

1. Surface preparation		Completely remove rust, moisture, oil and other impurities by sander, cleaner and surface.		
2. First Coating 24 hours	1	Rust proof oil paint	longer than 24 hours	0.13-0.15
3. Touch-up		Touch-up rustproof oil paint		
4. First Coating	1	Rustproof oil paint	longer than 24 hrs	0.13-0.15
5. Second coating	1	Synthetic resin mix paint	longer than 15 hrs	0.11-0.15
6. Finish coating	1	Synthetic resin mix paint	longer than 15 hrs	0.11-0.15

Note:

Paint for touch-up painting shall be the same as used for first coat in process No. 2

17.5.3 Exterior - Wood

OP - Synthetic resin mix paint finish

Coating Process	**No. of Coats**	**Type of Paint**	**Drying hour**	**Amount (kg/m²)**
1. Surface preparation		Clean and sand to plane surface		
2. Knot treatment	1-2	Lacquer varnish	longer than 24 hours	
3. First coating	1	First coat paint of oil mix paint	longer than 24 hrs	0.13-0.15
4. Second Coating	1	Oil mix paint	longer than 24 hrs	0.11-0.13
5. Finish coating	1	Oil mix paint	longer than 24 hrs	0.11-0.13

Note: Puttying and sanding shall be done after process No.2 when there are cracks, etc. on the surface putty shall be oil-putty, but drying time shall vary depending on conditions.

17.5.4 Interior - Mortar, board, etc.

Stipple (EP) - Polyvinyl acetate resin emulsion paint finish

Coating Process	**No. of Coats**	**Type of Paint**	**Drying hour**	**Amount (kg/m²)**
1. Surface preparation		Dry, clean and free from impurities		
2. Surface sealing	1	Sealer for emulsion paint	longer than 4 hours	
3. Puttying		Putty for emulsion paint		
4. Grinding		Grind with proper grinding tool		
5. Spot painting		Second coating paint of polyvinyl acetate resin emulsion paint		
6. Second Coating	2	Polyvinyl acetate resin emulsion paint	longer than 4 hrs	1.11-0.13
7. Finish Coating	1	Polyvinyl acetate resin emulsion paint for stipple-finish	longer than 4 hrs	0.25-0.35

Notes:

(a) Degree of dryness on the surface to be painted shall be kept under 6% in water content and below PH 9.5

(b) Puttying and sanding process shall allowed to omit depending on the conditions of the surface.

(c) Drying time of putty shall be long enough for sanding to proceed.

(d) Amount of sealer for surface sealing shall be adjusted with direction of the Consultant as it varies with the surface conditions.

17.5.5 Interior - Mortar, plaster, concrete, etc.

VP Solvent - Polyvinyl chloride resin paint finish

Coating Process	**No. of Coats**	**Type of Paint**	**Drying hour**	**Amount (kg/m²)**
1. Surface preparation		Dry, clean and free from impurities		
2. Surface sealing	1	Sealer for emulsion paint	longer than 2 hours	
3. Puttying		Putty for polyvinyl chloride resin paint		
4. Grinding		Grind with proper grinding tool		
5. Spot painting		Solvent-polyvinyl chloride resin enamel emulsion paint		
6. Second Coating	1	Solvent-polyvinyl chloride resin enamel emulsion paint	longer than 4 hrs	0.11-0.14
7. Finish Coating	2	Solvent-polyvinyl chloride resin enamel emulsion paint	longer than 4 hrs	0.11-0.14

Notes:

(a) Degree of dryness on the surface to be painted shall be kept under 6% in water content and below PH 9.5

(b) Puttying and sanding process shall allowed to omit depending on the conditions of the surface.

(c) Drying time of putty shall be long enough for sanding to proceed.

(d) Amount of sealer for surface sealing shall be adjusted with direction of the Consultant as it varies with the surface conditions.

17.5.6 Interior - Mortar, plaster, concrete, etc.

EP Polyvinyl acetate resin emulsion paint finish

Coating Process	**No. of Coats**	**Type of Paint**	**Drying hour**	**Amount (kg/m²)**
1. Surface preparation		Dry, clean and free from impurities		
2. Surface sealing	1	Sealer for emulsion paint	longer than 4 hrs	
3. Puttying		Putty for emulsion paint		
4. Grinding		Grind with proper grinding tool		
5. Spot painting		Polyvinyl acetate resin emulsion paint		
6. Second Coating	1	Polyvinyl acetate resin emulsion paint	longer than 4 hrs	0.11-0.13
7. Finish Coating	1	Polyvinyl acetate resin emulsion paint	longer than 4 hrs	0.11-0.13

Notes:

(a) Degree of dryness on the surface to be painted shall be kept under 6% in water content and below PH 9.5

(b) Puttying and sanding process shall be allowed to omit depending on the conditions of the surface.
(c) Drying time of putty shall be long enough for sanding to proceed.
(d) Amount of sealer for surface sealing shall be adjusted with direction of the Consultant as it varies with the surface conditions.

17.5.7 Interior - Iron products, steel.

OP - Synthetic resin mix paint

Coating Process	**No. of Coats**	**Type of Paint**	**Drying hour**	**Amount (kg/m²)**
1. Surface preparation		Completely remove rust, moisture, oil and other impurities by sander, cleaner and surface		
2. First Coating	1	Synthetic resin rust-proof. Red lead-type, lead compound-type	longer than 24 hrs	0.18-0.22 0.13-0.15
3. Touch-up		Touch-up rust proof paint		
4. First Coating	1	Synthetic resin rust-proof paint. Red lead-type, Lead compound-type	Longer than 24 hrs	0.18-0.22 0.13-0.15
5. Second Coating	1	Synthetic resin mix paint	longer than 15 hrs	0.11-0.13
6. Finish Coating	1	Synthetic resin mix paint	longer than 15 hrs	0.11-0.13

Notes:

(a) Paint for touch-up painting shall be the same as used for first coat in process No.2
(b) When oil rust-proof paint is used instead of synthetic resin rust proof, its specification shall conform to No. 5 and No.6.

17.5.8 Floor - Concrete and Mortar

EXP - Epoxy resin paint finish

Coating Process	**No. of Coats**	**Type of Paint**	**Drying hour**	**Amount (kg/m²)**
1. Surface treatment		Dry, clean and free from impurities		
2. First coating	1	First coating paint for epoxy	Longer than 24 hrs	
3. Finish Coating	2	Epoxy resin paint	Longer than 24 hrs	

Notes:

(a) Degree of dryness on the surface to be painted shall be kept under 6% in water content and below PH 9.5.
(b) Amount of paint and number of paint shall be as directed by the Consultant as they vary with the conditions of surface and required thickness of coating.
(c) Painted surface shall be kept out of use for more than 7 days after application of final coat.

18. ELECTRICAL INSTALLATIONS

18.1 General

18.1.1 The work shall be carried out strictly in accordance with the standard specifications and shall also conform to the requirements of Electricity Rules in force in Male', Republic of Maldives.

18.1.2 All materials to be used in the Works shall be of standard make and shall bear the certification marks of local authorities. All materials shall be approved by the Consultant before use in the Works.

18.1.3 Earthing shall invariably be done in the presence of the Consultant or his representative.

18.1.4 All the conduits shall be continuously earthed. Check nuts shall be provided at the point where the conduct enter the I.C. box and junction box.

18.1.5 The Contractor shall arrange for the inspection of all Medium Pressure Installation by the Electrical inspector of the local electric supply authority from where the electricity connections has to be obtained, and see that they are passed by him.

18.1.6 The Contractor shall be responsible for all necessary permits, approvals, fees, deposits etc., required to complete the Electrical works in accordance with the Contract.

18.1.7 Scope of work

18.1.7.1 The work consists of furnishing all tools, plants, labour, materials and equipment and performing the internal electrical Works comprising of:

(a) Light and power wiring
(b) Fans and fixtures
(c) Wires and Cables
(d) Telephone System
(e) Sub- Station Equipments:
(f) Distribution Fuse gear
(g) Earthing System
(h) Lightening Protection System
(i) Fire Alarm System
(j) Air Conditioning System
(k) Computer Network Cabling outlet work

18.1.8 Prequalification

18.1.8.1 The Electrification Work shall be carried out only by a licensed contractor authorized to under take such work under the Maldives Electricity Bureau.

18.1.9 Qualification

18.1.9.1 A licensed Electrical Contractors should have the following qualifications:

(a) Must have in his employment a competent Electrical Engineer registered with Maldives Electricity Bureau.
(b) Must have in its employment an Electrical Consultant having certificate of competency who will exclusively supervise this work.
(c) Must have necessary tools, plant and instruments.
(d) Must have adequate experience of similar works.
(e) If a contractor does not posses the above qualifications he shall be allowed to sublet the Work to a competent Sub-Contractor provided an application for his prequalification is made to the engineer for his approval. Decision of the Engineer in this case shall be binding on the Contractor.

18.1.10 Rules and Regulations

18.1.10.1 The installation in general shall be carried out in conformity with the Electricity Rules, 1937 (UK), and the latest edition of the Regulations for the Electrical Equipment of Buildings issued by the Institution of Electrical Engineers, London (I.E.). However, in case of conflict between these Specifications and the I.E. Regulations, these Specifications shall be followed.

18.1.11 Standards

18.1.11.1 The latest relevant British Specifications, and I.E. recommendations shall be applicable and be followed for the equipment specified herein.

18.1.12 Climatic Conditions

18.1.12.1 All equipment supplied shall withstand, without developing any detect, the following climatic conditions:-

Maximum Ambient Temperature = 113° F or 45° C
Minimum Ambient Temperature = 28° F or - 2.2° C
Maximum Humidity = 98%

18.1.13 Specifications

18.1.13.1 The Contractor shall furnish all material and equipment at site, confirming fully to the specifications given herein and to the accepted standards, the Institution of Electrical Engineers, London, and the Maldives Energy Resource Unit.

18.1.13.2 It is not the intent of these Specifications to include all details of design and construction of various material and equipment to be supplied under this contract.

18.1.13.3 The Contractor shall supply and install all material and equipment specified herein and also all installation and small material such as nuts, bolts, washers, shims angles, leveling material, insulation, tape, solder, etc. and all such required for complete installation as intended by the Specifications.

18.1.13.4 The contractor shall provide for all the required technical and non - technical personnel, skilled and non - skilled labour, construction equipment, transportation etc., as required for the completion of Work in strict accordance the Technical Specifications laid herein-after.

18.1.13.5 All material and equipment supplied by the Contractor shall be new and in all respects conforming to the high standard of engineering design and workmanship.

18.1.13.6 All material and equipment which have to be supplied and installed by the Contractor shall be passed/approved by the Consultant; even if the same is exactly in accordance with the Bill of Quantities and Drawings.

18.1.14 Submittal

18.1.14.1 The Contractor, after the award of work, shall submit for approval of the Consultant all drawings and cuts of equipment, appliances, fixtures and accessories. Cuts, catalogues and drawings shall be clearly marked to indicate, the items furnished.

18.1.15 Approval of Drawings and Data

18.1.15.1 The Contractor shall provide detailed electrical drawings, wire diagrams, etc.

for all electrical switchgear, fusegear and all other systems etc. for the Consultant to review and approval. Three sets of equipment drawings shall be provided for obtaining approval.

18.1.16 Drawings & Data

18.1.16.1 Three sets of drawings and data for each equipment shall be furnished by the Contractor for the Consultant approval before commencement of work. The drawings to be supplied by the Contractor shall be as follows:-

Electrical Drawings showing:-
(a) Single-Line diagram
(b) Detailed wiring diagram
(c) All interconnections
(d) Relays, their locations, and internal wiring diagrams
(e) Other electrical devices including meters instruments and their wiring diagram

18.1.17 Shop Drawings

18.1.17.1 The design drawings do not show conduit routes and depict only the position of various fixtures and outlets. All the planning for the conduit routes shall be carries out, well in advance of the actual execution of work, by the Contractor to the satisfaction of the Consultant. For this purpose the Contractor shall prepare shop drawings and obtain prior approval of the Consultant. There prints of each shop drawings shall be submitted for obtaining approval.

18.1.17.2 No piece of work shall be allowed to be executed at site without the availability of these approved shop drawings. These shop drawings shall clearly depict the load balancing chart of each Distribution Board.

18.1.17.3 Time required for the preparation and approval of shop drawings shall be considered to have been included in the total time allowed for the completion of the work.

18.1.18 Spare Parts list

18.1.18.1 A list of spare parts required for the one year’s operation of each equipment where deemed necessary together with unit price of each part, shall be supplied by the contractor.

18.1.19 Guarantee

18.1.19.1 The Contractor shall furnish written guarantee in triplicate of the manufacturer for successful performance of each equipment. Such guarantee shall be for replacement which may be found defective in material or workmanship.

18.1.19.2 The guarantee shall cover a minimum period of 12 months effective from the date of completion certificate.

18.1.20 As-Built Drawings

18.1.20.1 The Contractor shall, during the progress of work keep a careful record of all changes and revisions where the actual installation differs from that shown on shop drawings. These changes and revisions shall be accurately carried out on the shop drawings and submitted to the Consultant for approval. After approval these drawings shall become the property of the Owner. These updated and approved shop drawings depicting clearly all changes and revisions made on site shall be called As-Built Drawings.

18.1.20.2 Reproducible tracings of all these As-Built Drawings shall be handed over to the Consultant. Final payment will be withheld until the receipt of the approved As-Built Drawings.

18.1.21 Test Reports

18.1.21.1 The Contractor shall be responsible for the submitting the test reports/certificates and get the installation inspected passed by the Maldives Electricity Bureau.

18.2 Conduit and Conduit Accessories

18.2.1 Conduit Pipe

18.2.1.1 The conduit for the wiring of lights, socket outlets and other systems shall be made of PVC confirming to BSS 3505/1968 Class-D.

The conduit shall have following wall thickness and standard weights:

Pipe Size	Wt/100Rft.	Wall thickness
20mm dia	3.4 Kg	0.04 to 0.05
25mm dia	4.5 Kg	0.045 to 0.055

18.2.1.2 Steel conduit shall conform to BSS 31/latest. The conduit shall be enameled with good quality non- cracking and non-flaking black paint.

18.2.2 Conduit Accessories

18.2.2.1 The use of factory made round PVC junction boxes shall be used and should have nipples to receive PVC pipe with force fit, shall be used for ceiling outlets. The wall type junction box shall also be PVC.

18.2.2.2 Each junction box shall be provided with one piece cover which shall be fitted on the box with screws.

18.2.2.3 Conduit accessories such as switch boxes, socket outlet boxes, pull boxes and inspection boxes shall be made of PVC having dust tight covers. All boxes shall have required number of conduit entry holes. All the rectangular or square shaped boxes shall have nipples to receive PVC conduit force fit.

18.2.2.4 Manufactured smooth bends shall be used where conduit changes direction. Bending of Conduit by heating or otherwise shall be allowed only at special situations with the permission of the Consultant. Use of sharp 90 degree bends and tees is prohibited.

18.2.2.5 Bends shall have enlarged ends to receive the conduit without any reduction in the internal diameter of the PVC pipe.

18.2.2.6 All accessories e.g. boxes, coupling, bends, solid plugs, bushes, reducers, checknuts etc. shall be equal in quality to the specified conduit.

18.2.2.7 The drawings do not show conduit routes and all the planning for arranging conduit routes shall be carried out by the Contractor to the satisfaction of the Consultant.

18.2.2.8 The entire conduit system shall be essentially completed before the wiring pulling is taken in hand. Each conduit run shall be tested for continuity and obstructions. All obstructions shall be cleared in an approved manner. Water and moisture that has entered any section of the conduit installation must be dried with suitable swabs to the satisfaction of the Consultant.

18.2.2.9 Adequate expansion joints shall be provided in all conduit runs passing across the expansion joints in the concrete slab of the buildings.

18.2.2.10 All the free ends of conduit shall be solidly plugged till such time as final and proper terminations are made.

18.3 Wires, Cables and Cords

18.3.1 Wires & Cords

18.3.1.1 The wires & cords for the conduit wiring shall be single core, made of stranded copper conductors, PVC insulated, tested to B.S. 6004, 1975. The voltage grade shall be 300/500 volts or 450/750 V unless otherwise specified on Drawings and Bills of Quantities.

18.3.1.2 All the wire and cables shall be of the approved standard of Maldives Electricity Bureau.

(a) For light or fan point wiring with 1.5 mm square or as specified in the BOQ.

(b) For light circuit wiring with 2.5 mm square or as specified in the BOQ.

(c) For power plug 15A wiring with 4mm square or as specified in the BOQ.

18.3.2 Installation Instructions

18.3.2.1 All wiring shall be continuous between terminations and use of connectors or joints is not be allowed. Spur and tee connections are strictly prohibited.

18.3.2.2 Manufacturers recommended lubricant shall be allowed to facilitate pulling of wires. Use of any kind of oil and soap is prohibited.

18.4 Wiring Accessories

18.4.1 Switches

18.4.1.1 Indoor switches controlling lights and fans shall be single pole, 5A, one or two way, suitable for 250V,50 Hz. The body of the switches shall be made of moulded plastic, one, two, three or four gang with integral built in moulded plastic face plate.

18.4.1.2 Weatherproof switches shall conform to B.S. standard.

18.4.2 Switch Socket Outlet Units

18.4.2.1 Switch & socket units shall be single, pole, 3 pin rated 5A. 15A or 20A, 250V, 50 Hz. These shall be moulded plastic type with white integral built-in face plate. Each socket shall have its control switch by the side of it on a common face plate. Thus the complete unit specified in BOQ shall be as switch and a socket outlet unit.

18.4.3 Fans

18.4.3.1 All fans shall be capacitor type Deluxe models or equivalent and suitable for operation on 200/220 volts, 50 Hz, A.C Supply. All ceilings fans shall have five speed dimmers. The air displacement shall be 10,000 c.f.m for 48” (1219 mm) Sweep and 12,000 c.f.m. for 56” (1423 mm) Sweep at maximum speed. The fan motor shall be capacitor type and bearings shall be groove type to give noiseless and quiet operation. The noise level relative to a frequency of range 1000 Hz should be within the limits of +3 dB.

18.4.4 Dimmer

18.4.4.1 The dimmer shall be recessed type as required and shall be approved by the Consultant.

18.4.5 Fan Hook

18.4.5.1 The fan hook shall be made of 12 dia mild 5/5 steel rod bent to shape of approved design. It should be in the form of a loop about 3-1/4” (87.5 mm) long and about 2” (50 mm) wide. The rod shall be bent to have at least 8” (200 mm) extension on both sides for tieing to the reinforcement steel of the slab. All ceiling fan shall be of one make only.

18.4.5.2 The fan hook shall be installed in the RCC slab of the ceiling at the time of pouring concrete.

18.5 Light Fixtures

18.5.1 General

18.5.1.1 The description of light fixtures is given in the Bills of Quantities, and stated on the Drawings, and all relevant materials are described in this Section.

18.5.1.2 The determination of quality is based on certified photometric data covering the coefficient of utilization, light distribution curves, construction material, shape, finish, operation, etc.

18.5.1.3 The Contractor shall submit samples of each and every lighting fixture specified for approval of the Consultant.

18.5.1.4 The type of fixtures with manufacturer catalogue reference are given in Bill of Quantities.

18.5.1.5 The lighting fixtures shall be manufactured by M/s. Philips, M/s.RZB Lighting, M/s Thorn or equivalent as approved by Consultant.

18.5.2 Incandescent Light Fixture

18.5.2.1 The glass globes/ shades/ diffusers of the incandescent light fixtures shall be first class quality glass free from any air bubbles or voids. The glass shall generally be of opal white colour unless otherwise specified. The shape of the glass may be spherical, hemispherical, flattened bottom or tablet shaped as required.

18.5.2.2 Surface mounted fixture shall have stove enamelled sheet steel body. It may also be satin brass or aluminium anodised finish as required. The fixing holes shall match the outlet box. Wall bracket light fixtures shall have back plates with matching holes of the outlet box and decorative finish as required.

18.5.2.3 All the lighting fixtures shall be suitable for local climatic conditions.

18.5.2 Fluorescent Light Fixture

18.5.2.1 All the light fixtures shall have lamps and electronic ballasts of the wattage specified. The fluorescent lamp shall be either 2 ft - 18 watts or 4 - 35 watts and the colour shall generally be day light, cool day light in the order of preference or as mentioned specifically.

18.5.2.2 The fluorescent lamps shall be Philips to BSS 1853 or equivalent but having a minimum useful life of 5000 hours. The new generation of 26mm dia 18 watts and 36 watts energy efficient lamps shall be preferred.

18.5.2.3 The ballast shall be totally enclosed electronic type suitable for operation on 220 V, 50 Hz, single phase supply, a wiring diagram, wattage, voltage and current ratings shall be printed on the body of the ballasts. The power loss shall not more than 10 watts for 36 watts ballast. The ballast shall be noiseless in operation without any whistling sound.

18.5.2.4 The manufacture shall be called upon to guarantee a trouble free life of 3 years, effective from the date of completion certificate.

18.5.2.5 The starters shall have radio-interference suppressers.

18.5.2.6 The internal wiring of the light fixtures shall be carried out at manufacturers factory with heat resistance wires of size not less than 1.5 mm square.

18.5.2.7 The louvers of light fixtures shall be made of anodized aluminium and/or moulded plastic. The diffusers shall be made of acrylic Perspex.

18.5.2.8 All the lighting fixtures shall be suitable for local climatic conditions.

18.5.3 Installation Instructions

18.5.3.1 The light fitting shall be installed according to manufacturer's recommendations or as approved by the Consultant.

18.5.3.2 Flexible connecting wires from outlet box to the fixture shall be provided by the contractor; connector made of porcelain or thermoplastic material shall be provided and installed in the outlet boxes for connecting flexible wires to the point wires.

18.5.3.3 Outlet boxes or any openings in the ceilings and walls shall be covered with appropriately fabricated accessories to provide an architectural entity to conceal them.

18.5.4 Main L.T. Switchboard

18.5.4.1 The L.T. switchboard shall be indoor type, free standing, free supporting, floor mounted, totally enclosed, sheet clad, dust and suitable for operation on 3 phase 4 wire system, 415 V, 50 Hz, AC supply.

18.5.4.2 The board shall be suitable for installation back to the wall and capable of front attendance. The switch board shall be designed to suit service conditions and ensure security and safety during operation, inspection, cleaning and maintenance.

18.5.4.3 The switch board shall be designed and tested to IEC recommendations. Each panel shall withstand strain of 2000 volts insulation level for one minute power frequency test.

18.5.4.4 The L.T. switch board shall consist of the following:

(a) Maldives Energy Resource Unit incoming panel.
(b) KWh meters (To be approved and checked by MEB)
(c) Out going distribution feeders.

18.5.5 Distribution Feeder Panel

18.5.5.1 Single line diagram of the L.T. switch board shall be approved by the consultant and Maldives Electricity Bureau before placing order for the switch board.

18.5.6 Earthing

18.5.6.1 The switchboard shall be effectively earth by means of a copper strip of 25mm x 3mm (1" x 1/8") cross -section bolted to connections near the bottom of the switchboard.

18.5.7 Accessories

18.5.7.1 Designations labels, lifting lugs, foundation bolts, interconnecting nuts blots, and washers, thimbles, lugs, levelling shims cable glands and/or cable end box for all the sizes of incoming and outgoing cable shall be supplied with the switchboard.

18.6 Testing

18.6.1 The following tests shall be conducted on each completed switchboard.

18.6.1.1 Type Tests

(a) Temperature rise test
(b) Mechanical endurance test
(d) Making/Breaking Capacity test

18.6.1.2 Routing Test

(a) High Voltage test

18.6.2 The Switchboard shall be tested to British/Electricity Council Standard 41-5. Preference shall however, be given to Switchboards fabricated from all components manufactured by only one manufacturer.

18.6 Installation Instruction

18.6.1 All labour, equipments, tools and plants required to complete the installation shall be provided by the contractor. The Switchboard shall be fixed firmly on the floor in perfect line, plumb and level position.

18.6.2 All incoming and outgoing cable connections shall be made from the bottom including Earth connections.

18.7 Distribution Board

18.7.1 The distribution boards shall be either free standing, cubical type or wall mounting type suitable for recessed mounting. Each distribution board (d.b.) shall be tropical in design, fully dust and vermin proof and liquid repellent.

18.9 Lightning Protection System

18.9.1 General

18.10.1.1 The Contractor shall be under obligation to design, supply and install "Eritech" or equivalent Lightning Protection System. The Contractor shall also provide all labour material, services and skilled supervision necessary. Shop drawing for the lighting system shall be submitted to the Consultant at least 4 weeks before commencing the work.

18.9.2 Workmanship

18.10.2.1 The installation shall be carried out by skilled and competent workmen so as to achieve high class workmanship.

18.10 Telephone System

18.10.1 General

18.11.1.1 The design drawings do not show conduit routes and depict only the position of various telephone outlets. All the planning for the conduit routes shall be carried out, well in advance of the actual execution of work, by the Contractor to the satisfaction of the Consultant. For this purpose the

Contractor shall prepare shop drawings and obtain prior approval of the Consultant. Three prints of each shop drawings shall be submitted for obtaining approval before commencement of work.

18.11.1.2 No piece of work shall be allowed to be executed at site without the availability of these approved shops drawings. Time required for the preparation and approval of shop drawings shall be considered to have been included in the total time allowed for the completion of the work.

18.11.1.3 The contractor shall furnish and install the type of Telephone outlets approved by Dhiraagu.

18.11.1.4 Both ends of each set of conductors shall be properly identified with durable tags with the same identifications of both ends, at the outlet and the telephone terminal cabinets to facilitate the installations of the telephone instrument in the future and for trouble shouting purposes. Cable used shall be twisted and shielded 3 cables.

18.13 Fire Alarm System

18.13.1 General

The contractor shall be under obligation to, supply, install, test, commission and maintain for the period specified elsewhere, a fire alarm system as specified in the drawings, for this building.

18.13.2 Specifications

The system shall facilitate the detection of fires occurring in any part of the building by subsequent audible and visual indications. The system shall generally comprise of the following:

18.13.2.1 Main Control Panel

(a) The control panel will be Perspex fronted panel and will display all screened labelling and indications by block LEDs mounted behind the front hinged cover. The control panel shall be mounted in pressed steel housing and provide the following functions and indications.

(b) Fully monitored two wire circuit for each sensor zone (24V D.C.) as required.

(c) Fully monitored two wire sounded circuit (24V D.C.) as required.

(d) Change over relay contacts each rated 5 amps 240V A.C. (Resistive load).

(e) Full test and isolate functions via a key-board located on the facia of the main termination housing to provide the following:-

(i) Ability to isolate sensor zones.

(ii) Ability to isolate sounder zones.

(iii) Ability to test automatically zones with an auto reset facility to enable a single person to carry out testing

(f) Full LED display of all functions comprising of:-

(i) System on, system fault, processor fault, alarm, zone supply fault, system supply fault, battery fault, charger/mains fault, sounder fault and sensor fault together with a test mode display which provides zone clears , zone open circuit and zone short circuit indication for individual sensor and sounder (bells) lines.

(ii) Sequence of sounder operation- All sounder (bells) and relay output sequences shall be completely programmable to enable future changes to be carried out with only soft ware changes.

(g) The control panel shall provide the following functions and indications:-

a) Twin LED display for system on , system fault ,sounder fault, alarm, mains/ charger fault, main processor fault, sensor fault, alarm silenced , battery fault, supply fault and earth fault.

b) Also five dedicated control functions on illuminated push buttons which are key - isolated. These shall provide Evacuate, Buzzer Mute, Alarm silence, Lamp test and Reset controls.

(h) Battery charger - the battery charger shall be an integral part of the main fire alarm control panel cabinet and shall be capable of fully recharging the stand - by batteries after a main's failure within 12 hours. The capacity of the batteries shall be sufficient to supply the standing load for the least 24 hours and the maximum alarm load for one hour. The system shall be suitable for operation on 220v single phase or 415v , 3- phase 50 Hz supply.

(i) Mimic diagram showing all the floors shall be incorporated in the control panel.

18.13.2.2 Sensors and Sounders

(a) The main control panel as described in the foregoing shall be capable of working with the following devices having common specification as under :-

(a) Operating voltage	10-30 volts d.c (two wire system)
(b) Ambient temperature	10 C to +80 C.
(c) Humidity range	20 to 90 RH
(d) Altitude range	Sea level to 6000 meters
(e) Alarm mode	Self latching producing a resistance of 680 ohms across the supply line.

(b) Photocell (optical) smoke detectors- the units shall operate on light scattering principle. An internal infra-red light source shall be pulsed , with the light beam ranged so as to by-pass a receiving unit. The presence of smoke shall scatter the light beam, causing it to be reflected on to the receiving photocell. An evaluation circuit shall measure the amount of light and shall compare it to a reference. The detector shall trigger in to an alarm state when the amount of smoke exceeds a pre-set level. To ensure against false alarms several pulse readings shall be taken and compared before the detector shall be triggered into alarm. The detectors shall conform to b.s.s. 5446 part -1 and shall have the following specifications:-

(a) Quiescent Current	Less than 100 micro amps at 20 volts.
(b) Alarm Current	Maximum 60 mA
(c) Maximum Coverage	300 cubic meters
(d) Weight	250 grams approx.
(e) Diameter x Height	92 mm x 80 mm

(c) Manual stations - this unit also named call point shall be break glass type that do not require a hammer. The frangible glass is pressed hand to break the glass which shall activate the alarm. The call point shall conform to b.s. 5839 part-2.

(d) Alarm bells - the alarm bells shall be centrifugal type and the gong shall be 100 mm diameter or as specified. The unit shall be suitable for an input of 24 v d.c. And shall provide a normal output of 94 db at 1 meter.

(e) Electronic sounders - the unit shall be primarily designed to operate on 24v.d.c. And arranged easily to generate a variety of sound signals: intermittent, continuous or warble tones.

18.13.2 Wiring

The wiring for the fire alarm system shall be carried out in PVC conduit in accordance with instructions contained herein relevant section. 2x2.5 mm square or 4x2.5 mm square PVC heat resistance insulated single core cable 300/500 volts grade shall be pulled in 1” dia PVC conduit laid for the purpose. Any spurs and tee joints in the wiring are strictly prohibited. Instructions contained in section -E.2.2 and 2.3 shall be followed.

18.13.3 Installation

The installation as a whole shall be tested and commissioned, in accordance with manufacturer’s instructions, to the entire satisfaction of the Consultant.

18.13.4 Shop Drawings

Shop drawing of the fire alarm system layout shall be submitted to the Consultant for approval.

ބީލަން ހުށަހަޅުއްވާ ފަރާތްތަކުގެ ސަމާލުކަމަށް

1. މި އިޢުލާނަށް އަގު ހުށަހަޅާއިރު މި އިޢުލާނާއެކު ހިއްސާކޮށްދެވިފައިވާ ބީ.އޯ.ކިއު ފޯމެޓާ އެއްގޮތަށް އަގު ހުށަހަޅަން ޖެހޭނެއެވެ. އަދި އަގު ހުށަހަޅަންވާނީ ޖީ.އެސް.ޓީ ހިމެނޭ އަގެކެވެ.

2. މި އިޢުލާނާއެކު ހިމަނާފައިވާ ބީ.އޯ.ކިއު ގައި މި އިޢުލާނަށް ކޮލިފައިވާ ކްރައިޓީރިއާ ހިމަނާފައިވާނެއެވެ. މި ގޮތުން މި ކްރައިޓީރިއާ ހަމަނުވާ ފަރާތްތަކުން އިވެލުއޭޝަން މަރުޙަލާގައި ޑިސްކޮލިފައި ކުރެވޭނެއެވެ.

3. ބީލަން ހުށަހަޅާއިރު ކޯޓޭޝަނުގެ ވެލިޑިޓީއެއް ޖަހާފައިނުވާނަމަ، އިޢުލާނާއެކުގައިވާ އުސޫލުގައި ބަޔާންކޮށްފައިވާ ގޮތުން ވެލިޑިޓީ 60 ދުވަސް ދޭނެއެވެ. އަދި ކޯޓޭޝަން ވެލިޑިޓީ 60 ދުވަސް ނުދޭނަމަ އިލްތިޒާމުނުވާ ފަރާތްތަކުގެ، ބީލަން ބާތިލުކުރެވޭނެއެވެ.

4. މިއީ މުއްދަތެއް ވަކިން ކަނޑައެޅިފައިވާ ބީލަމެއްކަމުން، މި މަސައްކަތް ނިންމާނެ މުއްދަތު ކޯޓޭޝަނުގައި ބަޔާންކުރަންޖެހޭނެއެވެ.

5. ބީލުގެ އަގު 500،000ރ (ފަސްލައްކަ ރުފިޔާ) އަށްވުރެ މަތިނަމަ، ބިޑް ސެކިއުރިޓީ ހުށަހަޅަންޖެހޭނެއެވެ.

6. ހުށަހަޅާ ބީލުގެ ހުރިހާ ސަފްހާއެއްގައި ނަންބަރު ޖަހައި ސޮއިކޮށް އަދި ސްޓޭމްޕް ޖަހަންވާނެއެވެ. އަދި ބީލަންތައް ހުށަހަޅަންވާނީ [illegible] ނުވަތަ ބައިންޑުކޮށްގެންނެވެ. މިފަދައިން ނުހުށަހަޅާ ބީލަންތައް އިވެލުއޭޝަން މަރުޙަލާގައި ބާތިލުކުރެވޭނެއެވެ. ވީމާ، ބީލަން ހުށަހަޅުއްވާ ހުރިހާ ފަރާތްތަކުންވެސް މިކަމަށް ސަމާލުކަން ދެއްވުން އެދެމެވެ.

ބީލުގެ އަގު 500،000ރ (ފަސްލައްކަ ރުފިޔާ) އަށްވުރެ މަތިނަމަ، ބިޑް ސެކިއުރިޓީ ހުށަހަޅަންޖެހޭގޮތް ތިރީގައި މިވަނީއެވެ.

Bid value range (estimated MVR)		Bid security (in%)	Bid security amount
500,000	1,000,000	0.1	1,000.00
1,000,001	1,500,000	0.15	2,250.00
1,500,001	2,000,000	0.2	4,000.00
2,000,001	2,500,000	0.25	6,250.00
2,500,001	3,000,000	0.3	9,000.00
3,000,001	3,500,000	0.35	12,250.00
3,500,001	4,000,000	0.4	16,000.00
4,000,001	4,500,000	0.45	20,250.00
4,500,001	5,000,000	0.5	25,000.00

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ބީލަން އިވެލުއޭޓް ކުރުމަށް ބޭނުންކުރާނެ މިންގަނޑު، އަދި ދެވޭ މާކްސް

ބީލަން އިވެލުއޭޓް ކުރުމަށް ބޭނުންކުރާނެ މިންގަނޑުތައް		
އަގު	- ހުށަހެޅި އެންމެ ހެޔޮ އަގު/ ހުށަހެޅި އަގު × 70 (އަގަށް މާކްސް ދޭނީ ހުށަހަޅާފައިވާ އެންމެ ކުޑަ އަގަށް ފުލް މާކްސް ލިބޭ ގޮތަށް، ދެން ހުށަހެޅުން އަގުތަކަށް ޕްރޯ-ރާޓާ އުސޫލުންނެވެ.)	70
މުއްދަތު	- މުއްދަތަށް މާކްސް ދޭނީ ހުށަހަޅާފައިވާ އެންމެ ކުރު މުއްދަތަށް ފުލް މާކްސް ލިބޭ ގޮތަށް، ދެން ހުށަހެޅުން މުއްދަތުތަކަށް ޕްރޯ-ރާޓާ އުސޫލުންނެވެ. (ދުވަސް ގުނާނީ ހުކުރުދުވަހާއި ހޮނިހިރު ދުވަސް އަދި ރަސްމީ ބަންދު ދުވަސްތައްވެސް ހިމަނައިގެންނެވެ.)	10
މަސައްކަތުގެ ތަޖުރިބާ އާއި ޤާބިލުކަން	- ތަޖުރިބާއަށް މާކްސް ދޭނީ ގޮތް މައުލޫމާތު ޝީޓުގެ ސެކްޝަން-2 ގެ 11 ވަނަ ނަންބަރުގައި ތަފްސީލުކޮށްފައި ވާނެއެވެ. - ތަޖުރިބާއަށް މާކްސް ދިނުމުގައި ބަލާނީ ފާއިތުވި 10 އަހަރު ދުވަހުގެ ތެރޭގައި، ކޮށްފައިވާ މި މަސައްކަތާގުޅޭ އެއްވައްތަރުގެ މަސައްކަތްތަކެވެ. މަސައްކަތްތަކުގެ ތަޖުރިބާގެ ގޮތުގައި ގުނާނީ އެމަސައްކަތެއް ކުރުވި ފަރާތުގެ މަސައްކަތެއް ކުރި ތާރީޚު އެނގޭގޮތަށް ހުށަހަޅާފައިވާ ލިޔުންތަކަކެވެ. (މި މަސައްކަތާގުޅުން ނެތް ލިޔުންތައް ހުށަނާޅުން އެދެމެވެ.) - ބީލަމުގެ އަގު -/500,000ރ އަށް ވުރެއް ބޮޑު ނަމަ ސެކްޝަން 2 ގައި ބަޔާންކޮށްފައިވާ އުސޫލުން މާލީ ޤާބިލުކަމަށް މާކްސް ދެވޭނެއެވެ. ނޯޓް: މި ބީލަމާއި ގުޅިގެން ހުށަހަޅާ ފާއިތުވި 03 އަހަރުގެ ފައިނޭންޝަލް އޮޑިޓެޑް ރިޕޯޓް ނުވަތަ މާލީ ބަޔާންތަކުގެ ގޮތުގައި 2023، 2022 އަދި 2024 ވަނަ އަހަރުގެ އޮޑިޓެޑް ފައިނޭންޝަލް ރިޕޯޓް ހުށަހަޅަންވާނެއެވެ.	20
ޖުމްލަ		**100**