Copy for: Records Div.

VISAYAS STATE UNIVERSITY

OFFICE OF THE PRESIDENT
2/F Administration Building, Visayas State University
Visca, Baybay City, Leyte PHILIPPINES
Phone/Fax: +63 563 7067
Email: op@vsu.edu.ph • Website: www.vsu.edu.ph

15 May 2019

RECORDS DIVISION RECEIVED
DATE: 5-16-19
TIME: 1:05 PM
BY:

MEMORANDUM NO. 236
Series of 2019

T O:	**Engr. Mario Lilio P. Valenzona**	-	**Director, General Services Div.**
	Engr. Dindo L. Sacay	-	**Engineer III, General Services Div.**
	Mr. Allan R. Salentes	-	**Draftsman III, General Services Div.**

SUBJECT: **Build Back Better (BBB) Monitoring Checklist for Adoption in the Monitoring of Vertical Structures**

This is in connection with the Build Back Better (BBB) Monitoring Checklist for Vertical Structures of DILG that was submitted to the RDC VIII – Regional Project Monitoring Committee (RPMC) for comments and duly endorsed by the Regional Development Council – Eastern Visayas Region in its RDC VIII Resolution No. 77 s. 2018 (*Endorsing the Build Back Better (BBB) Monitoring Checklist for Adoption in the Monitoring of Vertical Infrastructure Projects and for Incorporation in the Monitoring Mechanisms of the Department of Public Works and Highways (DPWH) VIII and Other Concerned Agencies*) dated 13 September 2018.

You are hereby directed to adopt the tool/checklist (please see attachment) as reference in planning, drafting of working drawings and plans and in the monitoring mechanism of infrastructure projects of the university. It shall be our guide to ensure that infrastructure projects of the university are designed and implemented in line with local and international standards of disaster resilience and recovery.

For your compliance.

EDGARDO E. TULIN
President

Republic of the Philippines
REGIONAL DEVELOPMENT COUNCIL
Eastern Visayas (Region VIII)

RDC VIII Resolution No. 77, Series of 2018

ENDORSING THE BUILD BACK BETTER (BBB) MONITORING CHECKLIST FOR ADOPTION IN THE MONITORING OF VERTICAL INFRASTRUCTURE PROJECTS AND FOR INCORPORATION IN THE MONITORING MECHANISMS OF THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS (DPWH) VIII AND OTHER CONCERNED AGENCIES

Whereas, the United Nations Sendai Framework for Disaster Risk Reduction 2015-2030 recognizes BBB as one of the key global priorities for action for both pre and post-disaster planning and implementation;

Whereas, in an attempt to localize this concept, especially after Supertyphoon Yolanda, the Department of the Interior and Local Government (DILG), with the assistance of the Australian Volunteers for International Development (AVID), initiated the formulation of the BBB Operations Manual in 2015 to ensure that infrastructure projects are designed and implemented in line with international standards of disaster resilience and recovery;

Whereas, in order to provide monitoring officers with a more concise tool/checklist that could serve as a reference during actual field monitoring activities, the DILG VIII led the preparation of the BBB Monitoring Checklist for Vertical Structures based on the BBB Operations Manual, the National Structural Code of the Philippines, and the Building Code of the Philippines;

Whereas, said Checklist shall be used to determine if projects conform to the cited local and international building codes, as well as with post-disaster BBB standards;

Whereas, the DILG VIII conducted a series of consultation workshops, participated in by its technical experts at the region and national offices and the RDC VIII – Regional Project Monitoring Committee (RPMC) members, where said Checklist was presented for comments;

Whereas, after a series of revisions following the consultation workshops, the BBB monitoring tool was finally presented to and favorably endorsed by the RDC VIII – RPMC through Resolution No. 6, Series of 2018, for adoption in the conduct of field monitoring of vertical infrastructure projects;

Whereas, a final copy of the Checklist is hereto attached as Annex A;

Whereas, this Council finds merit in the said recommendation, to ensure that the region's vertical structures are designed and implemented to withstand similar and even stronger disasters, and in consideration of the fact that Eastern Visayas is highly vulnerable to natural hazards, thus the greater need for more disaster-resilient infrastructure.

BUILD BACK BETTER (BBB)
MONITORING CHECKLIST
FOR VERTICAL STRUCTURES

BBB Monitoring Checklist Intro

Disasters, either natural or manmade, had increased dramatically over the past years. In fact, because of its increased occurrences, more people have become cognizant on the concept of risk reduction and resiliency.

One of the primary reasons of extensive damage during disasters is the inadequate structural capacity of the *built environment*. In a study conducted in 2014 by the 4th International Conference on Building Resilience, it was emphasized that the *'built environment'* plays a significant role in providing protection to people and different facilities. Therefore, when structures are built, on must take into consideration the different factors that might weaken the project's built environment.

The destruction of the built environment may be attributed to several factors such as the inaccuracy of the design structure which may lead to higher risk hazard levels; the inexistence or negligence on building codes and regulations; the lack of consideration for climate change, disaster awareness in the community, and non-earthquake resistant building design; and finally, if not monitored closely, may also contribute to physical, social, political, and environmental vulnerabilities.

The BBB Monitoring Checklist will drill into detail the *"Resilient Infrastructure"* which focuses on ensuring that structures are of high standard; alongside discussions of best practice project management principles, construction techniques, quality engineering, architectural, site and urban design, and urban/environmental planning

What is BBB and why it is important?

BBB is about empowering local authorities and communities to incorporate planning, consultation, analysis, design, construction and community in post disaster recovery. BBB addresses not only building stronger buildings but also building stronger communities through inclusive planning and consultation & improved disaster preparedness.

Target Users of this tool:

1. Engineers/Planners/Designers/Inspectors
2. National Government Agencies
3. Non-government Organizations
4. Non-technical individual

Type of Vertical Structures/Projects for which the checklist shall be applied:

1. Government buildings
2. Educational buildings
3. Residential buildings
4. Medical buildings
5. Transport buildings
6. Civil buildings
7. Agricultural buildings

Republic of the Philippines
DEPARTMENT OF THE INTERIOR AND LOCAL GOVERNMENT
Kanhuraw Hill, Tacloban City

REGIONAL PROJECT MONITORING COMMITTEE (RPMC) VIII

BBB MONITORING CHECKLIST

PARTICULARS	NATIONAL STANDARD	AS PER APPROVED PLAN		AS PER ACTUAL		BBB CONCEPT	BBB CONCEPT		REMARKS/ RECOMMENDATION
		YES	NO	YES	NO		ADOPTED	NOT ADOPTED	
CONCRETE WORKS						**Design Considerartion: (2015 NSCP)** **Magnitude 8 of Earthquake** **300 km/hr Wind speed**			
Minimum Elevation of Finished Ground Floor Line of the structure from the recorded highest flood level of the vicinity						0.50m to 1.00m			
Physical Appearance of Reinforced Concrete: **'Beams, Slab, Columns, Shear walls, Retaining** walls	No cracks, Honeycombs, no exposed rebars no sagging or bulging.					Min. Concrete Proportions per Structural Members Footing, Beams, Columns = 1 bag Cement : 2 cu.ft. Sand : 4 cu.ft. Gravel Slabs, Ramps = 1 bag Cement : 2 1/2 cu.ft. Sand : 5 cu.ft. Gravel Filler Mortar, Plastering for CHB Wall = 1 bag Cement : 3 cu.ft. Sand			
Required Quality of Concrete Mix						**Water should be clean and free from salts, oils, and other organic substance. Fine aggregates/sand should not be beach sand.**			
Concrete fill/ Lean Concrete	Min. Strength: 2000PSI					Compression Test (Strength) Use DPWH accredited laboratories for testing @ 7, 14, 21 & 28 days for each.			
Basement and foundation walls and slabs, walks, patios, steps and stairs	Min. Strength: 2500PSI					Compression Test (Strength) Use DPWH accredited laboratories for testing @ 7, 14, 21 & 28 days for each.			
Driveways, garage and industrial floor slabs	Min. Strength: 3500PSI					Compression Test (Strength) Use DPWH accredited laboratories for testing @ 7, 14, 21 & 28 days for each.			
Reinforced concrete beams, slabs, columns and walls	Min. Strength: 3500PSI					Compression Test (Strength) Use DPWH accredited laboratories for testing @ 7, 14, 21 & 28 days for each.			
Driveways, garage and industrial floor slabs. Reinforced concrete beams, slabs, columns and walls	Class A Proportion: 1:2:4 Min. Strength: 3500 PSI					Compression Test (Strength) Use DPWH accredited laboratories for testing @ 7, 14, 21 & 28 days for each.			
Basement and foundation walls and slabs, walks, patios, steps and stairs	Class B Proportion: 1:2 1/2:5 Min. Strength: 2500 PSI					Compression Test (Strength) Use DPWH accredited laboratories for testing @ 7, 14, 21 & 28 days for each.			
Concrete fill/ Lean Concrete	Class C Proportion: 1:3:6 Min. Strength: 2000 PSI					Compression Test (Strength) Use DPWH accredited laboratories for testing @ 7, 14, 21 & 28 days for each.			
Required concrete cover for rebars									

PARTICULARS	NATIONAL STANDARD	AS PER APPROVED PLAN		AS PER ACTUAL		BBB CONCEPT	BBB CONCEPT		REMARKS/ RECOMMENDATIONS
		YES	NO	YES	NO		ADOPTED	NOT ADOPTED	
Workmanship									
- Door Opening						Use of Stiffiner Column and Lintel Beam.			
- Doors are well fitted to door jambs						Doors are well fitted to door jambs			
Materials Quality									
Door panel									
- PWD consideration	Min. dim. = 1000mm x 2100mm					Min. dim. = 1000mm x 2100mm			
Fire Safety consideration									
- Single-door swing type	Min. dim. = 1000mm x 2100mm					Min. dim. = 1000mm x 2100mm			
- Double-door swing type	Min. dim. = 2000mm x 2100mm					Min. dim. = 2000mm x 2100mm			
Panel	Min. dim. = 900mm x 2100mm					Min. dim. = 900mm x 2100mm			
Flush	Min. dim. = 800mm x 2100mm					Min. dim. = 800mm x 2100mm			
PVC									
- With louver	Min. dim. = 600mm x 2100mm					Min. dim. = 600mm x 2100mm			
- Without louver	Min. dim. = 600mm x 2100mm					Min. dim. = 600mm x 2100mm			
Steel									
- With louver	Min. dim. = 900mm x 2100mm					Min. dim. = 900mm x 2100mm			
- Without louver	Min. dim. = 900mm x 2100mm					Min. dim. = 900mm x 2100mm			
Door jamb	Min. thk = 50mm					Min. thk = 50mm			
Door hinges (4 sets)	Min. dim. = 175mm x 200mm					Min. dim. = 175mm x 200mm			
WINDOWS						**Provision of shutters or wind breakers to all windows.**			
Materials Quality									
Louvered Windows	(NBC Sec. 1804) Shall not be thinner 5.6mm minimal & not longer than 1.2m					(NBC Sec. 1804) Shall not be thinner 5.6mm minimal & not longer than 1.2m			
Workmanship									
Window Openings	(NBC Sec. 808) Window Opening equal to at least ten percent of the floor area of room					Use of Lintel Beam above openings. Windows should be placed to optimaize cool breezes. Use of casement.			
True to alignment and elevation in conformance to the approved/specified tolerance						True to alignment and elevation in conformance to the approved/specified tolerance			
Windows are well fitted to the window frames						Use of tempered plexi-glass for external window facing windows (20mm thick) and aluminum/steel casing must be anchored (tied/welded) to the nearest wall rebar.			
Window conforms to specification requirements, e.g. sliding, jalousies (glass & wooden) steel casement windows						Consider the style of window (casement, awning, sliding) for appropriateness in each application			
Window accessories installed according to plans, e.g. handles, seals, glazing for glass window, etc.						Window accessories installed according to plans, e.g. handles, seals, glazing for glass window, etc.			
Free from any form of damage						Free from any form of damage			

REMARKS:

Prepared By:

Monitoring Team

Concurred by:

Contractor

Noted by:

Implementing Agency

PARTICULARS	NATIONAL STANDARD	AS PER APPROVED PLAN		AS PER ACTUAL		BBB CONCEPT	BBB CONCEPT		REMARKS/ RECOMMENDATIONS
		YES	NO	YES	NO		ADOPTED	NOT ADOPTED	
Materials are according to approved standards and specifications.	Materials with PS (PH Standard) mark or ICC Sticker for imported materials					Materials with PS (PH Standard) mark or ICC Sticker for imported materials			
Installation									
Installations must be as per approved material submittals, approved drawings and specifications.(e.g. Slope, alignment, connections, location, bracing/supports..)	Minimum slope = 2% gradient Horizontal and vertical distance between water and drain/sewer pipes = 0.30 m Bracing/supports = 1219 mm					Minimum slope = 2% gradient Horizontal and vertical distance between water and drain/sewer pipes = 0.30 m Bracing/supports = 1219 mm			
Water supply lines are connected as required and have been pressure tested.						Water supply lines are connected as required and have been pressure tested.			
Septic Tank	At least 2 Chambers, Minimum of 1000 gallons capacity & installed 1.5 m away from the building					Provision of 4 to 5 Chambers Septic Tank for water & Sanitation Purposes.			
All fixtures are new and free from damages	Materials with ICC Sticker for imported materials					All fixtures are new and free from damages			
Drainage works are completed and connected to the plumbing fixtures.	All drainage pipe must be connected to public drainage system					Provision of Rain Catchment & Storm Drain.			
Verify disinfection test reports of water supply lines connected to sanitary fixtures.						Verify disinfection test reports of water supply lines connected to sanitary fixtures.			
Leak Test and Disinfection for water lines have been conducted.						Leak Test and Disinfection for water lines have been conducted.			
Leak Test for water lines and drainage system have been conducted.						Leak Test for water lines and drainage system have been conducted.			
SPECIALTY WORKS PWD STANDARDS									
	In accordance to Batas Pambansa Blg. 344 An Act to Enhance the Mobility of Disabled Persons by Requiring Certain Buildings, Institutions, Establishments and Public Utilities to Install Facilities and Other Devices								
PWD Ramps	Min. Width (1.2m)					Min. Width (1.2m)			
	Min. gradient (1:20 min; 1:12max)					Min. gradient (1:20 min; 1:12max)			
	Landing (1.8m) for every 6m length					Landing (1.8m) for every 6m length			
	Handrail Circumference (30-50MM) Stainless Steel					Handrail Circumference (30-50MM) Stainless Steel			
	Handrail Height (0.7m lower HR, 0.9m Top HR)					Handrail Height (0.7m lower HR, 0.9m Top HR)			
PWD Comfort Room	water closet dimension clear space (1.7x1.8m)					water closet dimension clear space (1.7x1.8m)			
	Water Closet Height (0.50 M)					Water Closet Height (0.50 M)			
	Door (0.9M)					Door (0.9M)			
	Turning Space (1.5x1.5M)					Turning Space (1.5x1.5M)			
	Grab Bar Height (0.75M Max.) Stainless steel					Grab Bar Height (0.75M Max.) Stainless steel			
	Space between grab Bars and Flip-up Bar (0.75 M Max.)					Space between grab Bars and Flip-up Bar (0.75 M Max.)			
	Installation of non-skid tiles (0.20m x 0.20m)					Installation of non-skid tiles (0.20m x 0.20m)			
PWD Parking Area	Minimum width of 3.7 meters					Minimum width of 3.7 meters			
DOORS									
RAFTERS OR FRAMING									

PARTICULARS	NATIONAL STANDARD	AS PER APPROVED PLAN		AS PER ACTUAL		BBB CONCEPT	BBB CONCEPT		REMARKS/ RECOMMENDATIONS
		YES	NO	YES	NO		ADOPTED	NOT ADOPTED	
Rebars used free from rust	Proper storage (warehousing) should be considered in site. ASTM A82					Proper storage (warehousing) should be considered in site. ASTM A82			
PLASTER FINISH									
Conformance to designed mixture of plastering materials									
Aggregates	ASTM C144; ASTM C404					ASTM C144; ASTM C404			
Cement	ASTM C91-C93 (Cement Masonry); ASTM C150 (Portland Cement); ASTM C270 (Mortar Cement)					ASTM C91-C93 (Cement Masonry); ASTM C150 (Portland Cement); ASTM C270 (Mortar Cement)			
Plaster Mixture	Plaster Mixture 1:2 Class "A"					Plaster Mixture 1:2 Class "A"			
Conformance to specified method of application and thickness of plastering	at least 16mm thickness Class "A"					at least 16mm thickness Class "A"			
True to alignment	Plumbness to be consider from the start of CHB Laying and regularly monitored.					Plumbness to be consider from the start of CHB Laying and regularly monitored.			
Free from any form of damages e.g. cracks, peeled-off plaster finish	No cracks/ peeled-off plaster finish otherwise apply masonry sealant et al.					No cracks/ peeled-off plaster finish otherwise apply masonry sealant et al.			
ELECTRICAL WORKS									
(Electrical Plans must be approved by PEE)									
WIRE INSTALLATION						Design must be in accordance to Philippine Electrical Code			
Materials Quality									
Circuit Wirings	(PEC Table 2.10.2.6) 15A- #14, 20A-#12, 30A-#10,40A-#8, 50A-#6					(PEC Table 2.10.2.6) 15A- #14, 20A-#12, 30A-#10,40A-#8, 50A-#6			
Workmanship									
Installations must be as per approved material submittals, approved drawings and specifications.						Installations must be as per approved material submittals, approved drawings and specifications.			
Splicing and connection provided with adequate rubber and pvc tapes						Splicing and connection provided with adequate rubber and pvc tapes			
Workmanship									
Electrical testing and commissioning have been conducted and passed.						Electrical testing and commissioning have been conducted and passed.			
Installations must be as per approved material submittals, approved drawings and specifications.						Installations must be as per approved material submittals, approved drawings and specifications.			
Switches	(2017 NEC Sec 210.52) Installation Height is 1.4m from finished floor line					(2017 NEC Sec 210.52) Installation Height is 1.4m from finished floor line			
Convenience Outlet	(2017 NEC Sec 210.52) Installation Height is 0.3m from finished floor line					(2017 NEC Sec 210.52) Installation Height is 0.3m from finished floor line			
Panel Board	(2017 NEC Sec 210.52) Installation Height is 1.8m from finished floor line					Main Circuits Panel Board must be placed above highest water-level point in flood/storm surge prone areas.			
PLUMBING									
Materials						Design must be in accordance to Plumbing Code of the Philippines.			
For water supply:									
Pipes & Fittings used in conformity to PNS of uPVC.	PNS 65:1993					Materials with PS (PH Standard) mark or ICC Sticker for imported materials			
Pipes & Fittings used in conformity to PNS of PE pipe.	PNS 55:1986					Materials with PS (PH Standard) mark or ICC Sticker for imported materials			
Pipes & Fittings used in conformity to PNS of PB pipe.	PNS 152:1987					Materials with PS (PH Standard) mark or ICC Sticker for imported materials			
Pipes & Fittings used in conformity to PNS of Grey Iron Pipes.	PNS 1991:2002.					Materials with PS (PH Standard) mark or ICC Sticker for imported materials			

PARTICULARS	NATIONAL STANDARD	AS PER APPROVED PLAN		AS PER ACTUAL		BBB CONCEPT	BBB CONCEPT		REMARKS/ RECOMMENDATIONS
		YES	NO	YES	NO		ADOPTED	NOT ADOPTED	
- Alignment and level as referred from vertical and horizontal						Alignment and level as referred from vertical and horizontal			
- ALL bolt measured and tightened as specified						ALL bolt measured and tightened as specified			
- Joints are fully welded						Joints are fully welded			
METAL ROOFING AND ACCESSORIES									
MATERIALS QUALITY									
Quantity and specs as per parts list and plan									
- No scratch reaching the base metal						No scratch reaching the base metal			
- No scratch, flaking or discoloration of the roof panels						No scratch, flaking or discoloration of the roof panels			
- No dents, cracks or wavy edge of the roof panels						No dents, cracks or wavy edge of the roof panels			
Roof panels									
- Corrugated	Min. thk = 0.5mm					Use of J-bolt on Roof sheeting to Purlins connection			
- Rib-type	Min. thk = 0.5mm					Use of J-bolt on Roof sheeting to Purlins connection			
Fasteners (Tekscrew, J-bolt)	Min. dia. = 22mm Min. spacing = 2 2/3d, where d = nominal diameter					Fasteners such as teks screw, J-bolts, etc. are properly sealed.			
Gutter	Min. thk = 0.5mm					Installed downspout in true perpendicular to installed gutter and is properly sealed			
Fascia cover (steel, painted)	Min. thk = 0.6mm					Min. thk = 0.6mm			
Ridgeroll	Min. thk = 0.5mm					Ridgerolls securely fastened to purlins			
Downspout	Min. dia. = 3"								
Sealant	Min. thk = 2mm					Use of Silicon Sealant			
LAYOUT/INSTALLATION									
Slope	Min. Θ = 10°; Max. Θ = 30°					Roofing Design Slope = 30-45 degrees.			
Roof panels securely fastened at every rib and purlin row						Roof panels securely fastened at every rib and purlin row			
MASONRY WORKS									
CHB WALL(Availability of CHB Test Result)									
External Masonry	6" CHB; 1977 BCP Sec. 607.8					6" CHB for Exterior wall			
Internal Masonry	4" CHB; 1977 BCP Sec. 607.8					4" CHB for interior wall			
Conformance to required quality of CHB	At least 300 psi or more; 2015 NSCP					CHB 500 PSI Strength			
Conformance to required quality of mortar mix	ASTM C270; ASTM C780					Each CHB is filled using a mortar mixture 1:3			
Aggregates	ASTM C144; ASTM C404					CHB should be sound, dry, clean and freeof cracks before commencing laying.			
Cement	ASTM C91-C93 (Cement Masonry); ASTM C150 (Portland Cement); ASTM C270 (Mortar Cement)					ASTM C91-C93 (Cement Masonry); ASTM C150 (Portland Cement); ASTM C270 (Mortar Cement)			
Conformance to specified tolerances for dimension, location, plumbness and alignment	Regulary checked during construction. UBC Standards - Section 702					Use of Lintel Beam above openings			
Proper spacing of horizontal and vertical bars	Horizontal bar at every 3rd row of blocks and Vertical at 400mm. Lateral reinforcement shall be a minimum of 10mm dia. at a max. of 200mm spacing. Minimum Length of Boundary Member shall be 3 times wall thickness. ASTM A82 (NSCP).					Horizontal rebar is positioned at every 3rd row of blocks and vertical rebar at 400 mm spacing.			

PARTICULARS	NATIONAL STANDARD	AS PER APPROVED PLAN		AS PER ACTUAL		BBB CONCEPT	BBB CONCEPT		REMARKS/ RECOMMENDATIONS
		YES	NO	YES	NO		ADOPTED	NOT ADOPTED	
Rebars are installed according to plans and specifications	Minimum Splice Length For Reinforcement: Tension Bars 25 x Bar Ø +150mm Compression Bars 20 x Bar Ø+160mm					Minimum Splice Length For Reinforcement: Tension Bars 25 x Bar Ø +150mm Compression Bars 20 x Bar Ø+160mm			
Bars are stable and well supported of chairs and concrete spacers.	Minimum Concrete Cover Cast against and permanently in contact w/ ground = 75mm Exposed to weather or in contact w/ ground = 50mm					Minimum Concrete Cover Cast against and permanently in contact w/ ground = 75mm Exposed to weather or in contact w/ ground = 50mm			
Bars are free of loose mortar, rust, greese, or other substance capable of destroying bond.						Bars are free of loose mortar, rust, greese, or other substance capable of destroying bond.			
Slab Reinforcements									
Rebars are installed according to plans and specifications	Minimum Splice Length For Reinforcement: Tension Bars 25 x Bar Ø +150mm Compression Bars 20x Bar Ø+160mm					Minimum Splice Length For Reinforcement: Tension Bars 25 x Bar Ø +150mm Compression Bars 20x Bar Ø+160mm			
Bars are stable and well supported of chairs and concrete spacers.	Minimum Concrete Cover = 25mm					Minimum Concrete Cover = 25mm			
Bars are free of loose mortar, rust greese, or other substance capable of destroying bond.						Bars are free of loose mortar, rust greese, or other substance capable of destroying bond.			
ROOFING WORKS						**Design Consideration:** **- Curved Roofing, Concrete Parapet Wall**			
RAFTERS OR FRAMING									
MATERIALS QUALITY									
Quantity and specs as per parts list and plan									
Purlins						Use of Bolt on Purlins to Rafter Connection			
- C-purlins	Min. thk = 2.5mm					Min. thk = 2.5mm			
- Channels	Min. thk = 3/16"					Min. thk = 3/16"			
- Timber	Min. dim. = 2" x 4"					Min. dim. = 2" x 4"			
Sagrod (bolted)	Min. dia. = 5/8"					Min. dia. = 5/8"			
Truss						Use of base plate with Anchor Bolt on Truss to Column connection			
- Angle bar	Min. thk = 3/16"					Min. thk = 3/16"			
- Channel	Min. thk = 3/16"					Min. thk = 3/16"			
- Timber	Min. dim. = 2" x 6"					Min. dim. = 2" x 6"			
Connections									
- Supports									
- Pinned / Bolted	Min. Grade = 4.6					Use of Gusset Plate			
Members									
Bolted / Fully-welded	Min. Grade = 4.6, Min. throat = 3mm Max. throat = 0.7d					Min. Grade = 4.6; Min. throat = 3mm Max. throat = 0.7d			
-Type, size, section as per plan and specification									
- With proper primer applied (Red oxide prime, 2 coats)	Min. thk = 30 micron					Min. thk = 30 micron			
- Free from rust, bending, buckling, breaking, denting, cuts or notches									
LAYOUT/INSTALLATION									
Section, size, and layout as per plan and specs checked						Section, size, and layout as per plan and specs checked			