



**Republic of the Philippines  
Department of Education**

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**BIDDING DOCUMENTS  
PPP FOR SCHOOL INFRASTRUCTURE PROJECT  
NO. 2012-2  
UNDER BUILD- AND-TRANSFER MODALITY**

**PART III:  
MINIMUM PERFORMANCE STANDARDS  
AND SPECIFICATIONS(MPSS)  
REVISED DRAFT**

**10 July 2013**

## TABLE OF CONTENTS

	<b>Page</b>
<b>SECTION 1.0 PURPOSE</b>	
1.1 Other Documents for Use as Reference for this PPP	8
1.2 Governing Laws and Regulations for this PPP	8
<b>SECTION 2.0 DESIGN</b>	
2.1 Scope of Design Services	9
2.2 The Revised Conceptual Engineering Design (RCED) for DepEd and IC Approval	10
2.3 The Detailed Engineering Design (DED) for DepEd and IC Approval	12
2.4 Components and Outputs of Detailed Engineering Design (DED) by Proponent	12
2.5 Governing Codes and Specifications for Components I and II	15
2.6 Architectural Design Standards for Components I and II	15
2.7 Structural Design Standards for Components I and II	21
2.8 Electrical Design Standards for Components I and II	23
2.9 Sanitary and Plumbing Design Standards for Components I and II	25
2.10 Toilets	26
2.11 Materials for Components I and II	26
2.12 Design Standards for Component III	30
2.13 Other Requirements	31
<b>SECTION 3.0 CONSTRUCTION</b>	
3.1 Scope of Construction	32
3.2 Standards and Specifications for Construction	32
3.3 Detailed Construction Plan (DCP)	33
3.4 Test Requirements	34
3.5 Completion of Construction	34

## **LIST OF TABLES**

Table 1. PSIP Group No. 2012-2 Contract Packages	6
Table 2. PSIP Group No. 2012-2 School Building Types	7
Table 3. Paint Schedule Based on DepEd 2011 Standard Color Scheme	20
Table 4. Live Loads	22
Table 5. Minimum Dimensions of Armchair	31

## **ANNEX**

Annex A. Basic Requirements and Fixture Specifications for Toilet/s per School Building Type	37
Annex B. Minimum Number of Main and Service Staircases and Fire Exit Stairs per School Building Type	40
Annex C. Dimensional Criteria for New Stairs under Tables 2 and 4 of Section 10.2.5.4 (Stairs) of Rule 10 of the 2009 IRR of R.A. No. 9514 (2008 Fire Code of the Philippines/ FCP)	42
Annex D. Dimensional Criteria for Fire Escape Stairs under Tables 6 of Section 10.2.5.10 (Fire Escape Stairs, Ladders and Slide Escapes) of Rule 10 of the 2009 IRR of R.A. No. 9514 (2008 Fire Code of the Philippines/ FCP)	43
Annex E. Initial Architectural Interpretations (issued by DepEd PFSED)	44

## LIST OF ACRONYMS AND ABBREVIATIONS USED

°C	degree Celsius
ACI	American Concrete Institute (ACI)
ADR	Alternative Dispute Resolution
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials (ASTM)
AWS	American Welding Society
BPS	Bureau of Product Standards
BoQ	bill of quantities
BRS	Bureau of Research and Standards
BOT	Build-Operate-Transfer
BT	Build- and-Transfer
CCD	Construction Completion Deadline
CCN	Construction Completion Notice
CED	Conceptual Engineering Design
CO	convenience outlet
CoCA	Certificate of Completion and Acceptance
cu.ft.	cubic foot/ feet
cu.m.	cubic meter/s
dB(A)	decibel ampere/s
DBS	Design-Build Services
DCE	detailed cost estimate/s
DCMP	Detailed Construction Management Plan
DED	Detailed Engineering Design
DepEd	Department of Education
DIN	DeutscheIndustrie Norm
DLP	Defects Liability Period
DoLE	Department of Labor and Employment
DPWH	Department of Public Works and Highways
DTI	Department of Trade and Industry
E.O.	Executive Order
FCP	Fire Code of the Philippines
FCL	finished ceiling line
FFL	finished floor line
FGL	finished grade line
FRD	Final Rectification Deadline
IC	Independent Consultant
IMC	intermediate metallic conduit
IRR	Implementing Rules and Regulations
ISO	International Standard Organization
ITB	Instructions to Bidders
ITPB	Instructions to Prospective Bidders

kg	kilogram/s
kpa	kilopascals
kph	kilometers per hour
LD	Liquidated Damages
m	meter/s
m <sup>3</sup>	cubic meter/s
MDP	main distribution panel
mg	milligram/s
mm	millimeter/s
mpa	megapascal/s
mpm	meters per minute
m/s	meters per second
MPSS	Minimum Performance Standards and Specifications
MSDS	material safety data sheet
NBCP	National Building Code of the Philippines
NFPA	National Fire Protection Association
NGL	natural grade line
NSCP	National Structural Code of the Philippines
NTP	Notice to Proceed
OSHS	Occupational Safety and Health Service
P.D.	Presidential Decree
PCBs	polychlorinated biphenyls
PEC	Philippine Electrical Code
PNS	Philippine National Standards
PRLs	professional regulatory laws
psf	pounds per square foot
psi	pounds per square inch
PSIP	PPP for School Infrastructure Project
PVC	Polyvinyl Chloride
R.A.	Republic Act
RC	reinforced concrete
RCs	Referral Codes
RCN	Rectification Completion Notice
RH	relative humidity
RI	Rectification Inspection
RLAs	registered and licensed architects
SAR	Site Appraisal Reports
SIF	seismic importance factor
sqm	square meter/s
WIF	Wind Importance Factor

## MINIMUM PERFORMANCE STANDARDS AND SPECIFICATIONS (MPSS)

### SECTION 1.0 PURPOSE

The purpose of the Minimum Performance Standards and Specifications (MPSS) is to:

- Establish the minimum requirements that the Proponent must conform with in the design and construction of the Sub-Projects under PPP for School Infrastructure Project (PSIP) Group No. 2012-2, Contract Packages 1 through 5 (the “Project”), using the Build- and-Transfer (BT) modality; and
- Create certainty for both the Department of Education (DepEd) and the Proponent in the standards of performance expected of the Proponent.

The PSIP-II will involve construction of 10,679 classrooms in elementary and secondary schools in 14 regions (reference **Tables 1** and **2**), with the tender covering the following contract packages and school building types:

**Table 1. PSIP Group No. 2012-2 Contract Packages**

Contract Package	Regions	Expected Number of School Sites	Expected Number of Sub-Projects (Buildings)	Expected Number of Classrooms
A	CAR, I, II and III	985	1,056	2,440
B	IV-B and V	941	1,094	2,169
C	VI, VII and VIII	1,335	1,427	2,672
D	IX, XI, XII	651	734	1,468
E	X and CARAGA	750	873	1,930
<b>TOTAL</b>		<b>4,662</b>	<b>5,184</b>	<b>10,679</b>

**Table 2. PSIP Group No. 2012-2 School Building Types**

<b>School Building Type</b>	<b>No. of Storeys-Number of Classrooms per School Building</b>
I	1-Storey-1 classroom
II	1-Storey-2 classrooms
III	1-Storey-3 classrooms
IV	1-Storey-4 classrooms
V	1-Storey-5 classrooms
VI	1-Storey-6 classrooms
VII	2-Storeys-2 classrooms (1 per floor)
VIII	2-Storeys-4 classrooms (2 per floor)
IX	2-Storeys-6 classrooms (3 per floor)
X	2-Storeys-8 classrooms (4 per floor)
XI	2-Storeys-10 classrooms (5 per floor)
XII	2-Storeys-12 classrooms (6 per floor)
XIII	3-Storeys-6 classrooms (2 per floor)
XIV	3-Storeys-9 classrooms (3 per floor)
XV	3-Storeys-12 classrooms (4 per floor)
XVI	3-Storeys-15 classrooms (5 per floor)
XVII	4-Storeys-16 classrooms (4 per floor)
XVIII	4-Storeys-24 classrooms (6 per floor)

The Proponent is the Winning Bidder under the BT Agreement. This MPSS forms part of the BT Agreement and the Proponent is required to conform with all the MPSS provisions.

## 1.1 Other Documents for Use as Reference for this PPP

Being a PPP effort, the other key documents that shall primarily govern the procurement effort are:

- a) the Instructions to Bidders (ITB) and
- b) the Instructions to Prospective Bidders (ITPB) to the extent that this MPSS and the ITB refer to the ITPB.

In case of conflict between any terms in the ITPB and the ITB, the ITB shall prevail. Unless otherwise specified in the ITB and these MPSS, all information contained in the ITB, these MPSS, and the BT Agreement supersede any information supplied in the Information Memorandum and drafts of the MPSS.

## 1.2 Governing Laws and Regulations for this PPP

- a) Republic Act (R.A.) No. 6957, as amended by R.A. No. 7718, the Build-Operate-Transfer (BOT) Law and its implementing rules and regulations (IRR) ;
- b) Presidential Decree (P.D.) No. 1096, the 1977 National Building Code of the Philippines (NBCP), its 2004 Revised Implementing Rules and Regulations (IRR) promulgated by the Department of Public Works and Highways (DPWH) and its various Referral Codes in their latest versions (RCs such as the National Structural Code of the Philippines/ NSCP), P.D. No. 1067, The Water Code of the Philippines and P.D. No. 856, the Sanitation Code of the Philippines, etc.;
- c) R.A. No. 9514, the 2008 Fire Code of the Philippines (FCP) and its 2009 IRR promulgated by the DILG;
- d) *Batas Pambansa* (B.P.) *Bilang* 344, The Law to Enhance the Mobility of Disabled Persons and its IRR/ Annex as well as the applicable provisions of R.A. No. 7277, otherwise known as The Magna Carta for Disabled Persons;
- e) The various applicable environmental laws, including the applicable physical planning and building design provisions under R.A. No. 9729, otherwise known as the Climate Change Act of 2009 and R.A. No. 10121, otherwise known as the Philippine Disaster Risk Reduction and Management Act of 2010 and their respective IRRs;
- f) The various professional regulatory laws (PRLs, e.g. R.A. No. 9266 in the case of State-registered and licensed architects/ RLAs, R.A. No. 544, as amended by R.A. No. 1582 for registered and licensed civil engineers, R.A. No. 1364 for Sanitary Engineering, R.A. No. 1378 for Master



Plumbing, R.A. No. 8560 for Geodetic Engineering, R.A. No. 4209 for Geology, R.A. No. 7920 for Electrical Engineering, R.A. No. 8495 for Mechanical Engineering, R.A. No. 9292 for Electronics and Communications Engineering, R.A. N. 9053 for Landscape Architecture and P.D. No. 1308 for Environmental Planning (the last 4 only as applicable), etc. and their derivative regulations);

- g) R.A. No. 4566, the 1965 Contractor's License Law and its 1981 or later rules and regulations;
- h) R.A. No. 8293, The 1997 Intellectual Property Code of the Philippines and its IRR; and
- i) R.A. No. 9285, The Alternative Dispute Resolution (ADR) Act of 2004 and its IRR and Executive Order (E.O.) No. 1008, the law on construction arbitration.

The foregoing supplements the pertinent sections of the ITB.

## **SECTION 2.0 DESIGN**

### **2.1 Scope of Design Services**

#### **2.1.1 The Conceptual Engineering Design (CED) Forming Part of the Bid**

- a. The Proponent shall prepare and submit to the DepEd the CEDs for each of the school types in the relevant Contract Package.
- b. The CEDs shall indicate the following elements and shall conform to the MPSS.

##### (1) Component I (Classroom buildings) and Component II (Toilets)

- i. Description of proposed technology and materials for all building components e.g. use of pre-fabricated components or conventional built-on-site technology; use of concrete/ steel/ other materials, etc. for the architectural, structural, electrical, sanitary/ plumbing elements of the buildings on A4 page size.
- ii. Architectural Perspectives (exterior and interior) and conceptual architectural and engineering floor/ reflected ceiling/ roof cavity/ roof plans, four(4) elevations, and cross/ longitudinal sections of each school type in the relevant Contract Package at a scale of 1:200 meters (m) on A1 sheet size.
- iii. Specifications, including accreditation from the Department of Public Works and Highways (DPWH) Bureau of Research and Standards (BRS) of

new materials/ technology to be used in the Project, if applicable, on A4 page size. If the Prospective Bidder intends to use any new materials/ technology which is not included in the existing DPWH design and construction standards or is not accredited by the DPWH BRS, the Prospective Bidder shall submit a certification from any of the institutions approved by the DepEd and DPWH BRS that the new materials/ technology meets the MPSS for this Project and that the new materials/ technology has been successfully used in existing structures with proven integrity.

- iv. Proof of structural quality and integrity of a completed building, particularly those which propose the use of new materials/ technology on the Project. Accepted proof may be in the form of structural plans/ designs, technical specifications, structural calculations, manuals, brochures or other graphic material such as photos and video containing details on the proposed system or its previous successful applications, certified test results which could be independently verified by third parties, BRS certification and the like, with documents preferably on A4 page size.
- v. Preliminary engineering design analyses and computations on A4 page size. Structural plans/ layouts, designs, schedules, specifications and computations shall be prepared, signed and sealed by a duly-qualified structural engineer.

(2) Component III

- i. Initial list of furniture items per classroom on A4 page size.
- ii. Conceptual design of pupil's armchairs, teacher's table and chair, indicating perspectives, plans, and elevations with dimensions at a scale of 1:20 m, and outline material specifications on A2 sheet size.

**2.2 The Revised Conceptual Engineering Design (RCED) for DepEd and IC Approval**

- a. The Proponent shall prepare the Revised CEDs for each of the school types in the relevant Contract Package. The Revised CEDs shall consider and address the relevant DepEd comments on the CEDs submitted by the Proponent during the bid for the Project. The Revised CEDs shall be submitted and approved in accordance with the procedure provided in the Build-Transfer Agreement.
- b. The Revised CEDs shall indicate the following elements and shall conform to the MPSS, and provide a level of detail that will enable quantities to be estimated up to the plus/minus fifteen percent (+15%) of the final quantities.

(1) Component I (Classroom buildings) and Component II (Toilets)

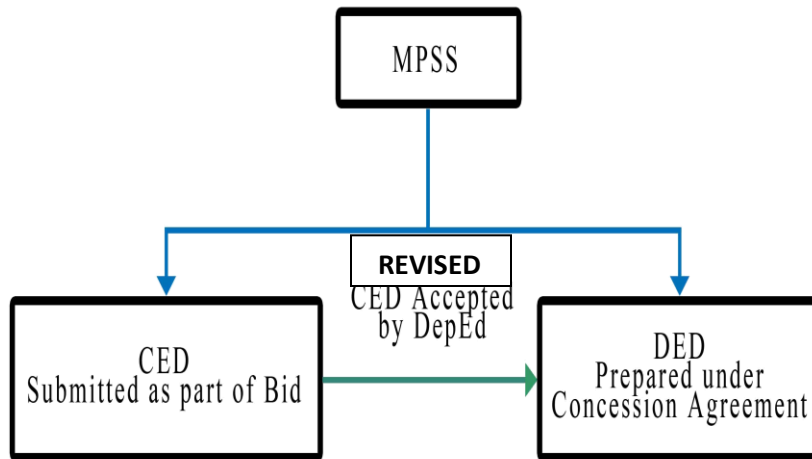
- i. Description of proposed technology and materials for all building components e.g. use of pre-fabricated components or conventional built-on-site technology; use of concrete/ steel/ other materials, etc. for the architectural, structural, electrical, sanitary/ plumbing elements of the buildings on A4 page size.
- ii. Architectural Perspectives (exterior and interior) and preliminary architectural and engineering floor/ reflected ceiling/ roof cavity/ roof plans, four(4) elevations, and cross/ longitudinal sections of each school type in the relevant Contract Package at a scale of 1:200 meters (m) on A1 sheet size.
- iii. Specifications, including accreditation from the Department of Public Works and Highways (DPWH) Bureau of Research and Standards (BRS) of new materials/ technology to be used in the Project, if applicable, on A4 page size. If the Prospective Bidder intends to use any new materials/technology which is not included in the existing DPWH design and construction standards or is not accredited by the DPWH BRS, the Prospective Bidder shall submit a certification from any of the institutions approved by the DepEd and DPWH BRS that the new materials/technology meets the MPSS for this Project and that the new materials/technology has been successfully used in existing structures with proven integrity.
- iv. Proof of structural quality and integrity of a completed building, particularly those which propose the use of new materials/ technology on the Project. Accepted proof may be in the form of structural plans/ designs, technical specifications, structural calculations, manuals, brochures or other graphic material such as photos and video containing details on the proposed system or its previous successful applications, certified test results which could be independently verified by third parties, BRS certification and the like, with documents preferably on A4 page size.
- vi. Preliminary engineering design analyses and computations on A4 page size. The Bidder is required to submit structural, electrical and sanitary calculations as part of the Preliminary Engineering Design. Structural plans/ layouts, designs, schedules, specifications and computations shall be prepared, signed and sealed by a duly-qualified structural engineer.

(2) Component III

- i. Preliminary list of furniture items per classroom on A4 page size.
- ii. Conceptual design of pupil's armchairs, teacher's table and chair, indicating perspectives, plans, and elevations with dimensions at a scale of 1:20 m, and preliminary material specifications on A2 sheet size.

### 2.3 The Detailed Engineering Design (DED) for DepEd and IC Approval

The Proponent shall prepare the DED and shall submit the same to the Independent Consultant for review and approval in accordance with the procedure provided in the Build-Transfer Agreement. The Certified DED, as the term is defined in the Build-Transfer Agreement, including all the pertinent plans, designs, drawings, specifications, calculations/ computations, estimates and related contract documents, duly signed and sealed by the correct State-registered and licensed professionals (RLPs), shall be the documents for use in securing the Building Permit for all Sub-Projects, in full accordance with P.D. No. 1096 (1977 NBCP) and its 2004 Revised IRR as well as with all other applicable issuances by the Secretary of the Department of Public Works and Highways (DPWH), in his capacity as the National Building Official (NBO).



**Figure 1. Scope of Design**

The Proponent's Certified CED, as the term is defined under the Build-Transfer Agreement, shall form part of the MPSS. The Certified CED, together with the MPSS provisions on Construction under Section 3.0 shall be reflected in the Certified DED, which shall govern the actual Construction of the five (5) Contract Packages to be undertaken by the Proponent/s.

### 2.4 **Components and Outputs of Detailed Engineering Design (DED) by Proponent**

The DED, which the Proponent shall prepare and submit to the IC for review and approval, shall cover the following components and outputs:

## Component I - School Buildings

The DED for School Buildings shall cover each school site – i.e., Sub-Project – based on the given School Building Types, as applicable to the different school sites under the Contract Package, as defined by the DepEd.

The DED for Classroom Buildings include the following outputs for each Sub-Project. These outputs shall conform to the MPSS for Design, and provide a level of detail that will enable quantities to be estimated up to the plus/ minus five percent ( $\pm 5\%$ ) of the final quantities.

- a. Description of the proposed technology and materials - e.g., use of pre-fabricated components or conventional built-on-site technology; use of concrete/ steel/ fiber cement/ other materials, etc.
- b. Detailed engineering design (DED) plans, elevations, and cross-sections of the buildings/structures at a scale of 1:100 meters (m), distinguishing between the substructure (i.e., foundation and ground floor slab) and the superstructure.
- c. Detailed specifications of materials and workmanship. These shall include the certificate of accreditation from the DPWH Bureau of Research and Standards (BRS) on the acceptance of new materials/ technology or of equivalencies in materials for use in the Sub-Project.
- d. Proof of structural quality and integrity of a completed building, which used new materials/ technology to be employed in the Project.
- e. Detailed engineering design (DED) analyses and computations/ calculations. Structural plans/ layouts, designs, schedules, specifications and computations shall be prepared, signed and sealed by a duly-qualified structural engineer.
- f. Quantity and cost estimates for the buildings/structures.
- g. Detailed Construction Management Plan (DCMP) including Construction Schedule.
- h. Supporting data:
  - (1) Simple longitudinal and cross sectional profiles of the Sub-Project site;
  - (2) Geotechnical investigation report (as applicable)/geological information report;  
and
  - (3) Building drainage design report based on primary hydrological information and/ or on secondary hydrological data from the last ten (10) years.

## Component II - Toilets

The Toilets for the two (2)-/ three (3)-/ four (4)-storey school buildings under School Types VII to XVIII shall be integrated into the School Buildings. Therefore, the DED for these Toilets shall be incorporated into the DED for the School Buildings.

The Toilets for the one-storey school buildings under School Types I to VI shall be either detached structures, i.e., separate from the School Buildings, or attached structures, i.e., connected to the School Buildings. In the case of detached Toilet Buildings, the DED for these Toilet Buildings may be shown separately from the DED of the School Buildings and shall include the following outputs based on the MPSS:

- a. Description of the proposed technology and materials - e.g., use of pre-fabricated components or conventional built-on-site technology; use of concrete/ steel/ fiber cement/ other materials, etc.
- b. Detailed engineering plans, elevations, and cross-sections of the structures at a scale of 1:100 m. Structural plans/ layouts, designs, schedules, specifications and computations shall be prepared, signed and sealed by a duly-qualified structural engineer.
- c. Detailed specifications of materials and workmanship. These shall include the certificate of accreditation from the DPWH Bureau of Research and Standards (BRS) of the acceptance of new materials/ technology or of equivalencies in materials for use in the Sub-Project.
- d. Proof of structural quality and integrity of a completed building, which used new materials/ technology to be employed in the Sub-Project.
- e. DED analyses and calculations/ computations.
- f. Quantity and cost estimates for the buildings/ structures.
- g. DCMP including Construction Schedule.
- h. Supporting data:
  - (1) Simple longitudinal and cross sectional profiles of the Sub-Project site;
  - (2) Geotechnical investigation report (as applicable)/ geological information report;  
and
  - (3) Building drainage design report.

## Component III – Classroom Furniture

The DED for Classroom Furniture shall include the following outputs based on the MPSS for furniture:

- a. Detailed Design of Pupil’s Armchairs, showing their dimensions; perspectives, plans, and elevations at a scale of 1:10 m, with details at a scale of 1:5 m; materials specifications; and other basic properties.
- b. Detailed Design of Teacher’s Table and Chair, showing their dimensions; perspectives, plans, and elevations at a scale of 1:10 m, with details at a scale of 1:5 m; materials specifications; and other basic properties.
- c. Detailed Design of other furniture items, showing their dimensions; perspectives, plans, and elevations at a scale of 1:10 m, with details at a scale of 1:5 m; materials specifications; and other basic properties.

## 2.5 Governing Codes and Specifications for Components I and II

The DED for Component I (Classroom Building) and Component II (Toilets) shall be governed by the following Design Codes and Specifications:

- (1) P. D. No. 1096, the 1977 National Building Code of the Philippines (NBCP), its 2004 Revised IRR and its various Referral Codes (RCs) such as R.A. No. 9514, the 2008 Fire Code of the Philippines (FCP), P.D. No. 1067, the Water Code of the Philippines, P.D. No. 856, the Sanitation Code of the Philippines, *Batas Pambansa* (B.P.) No. 344, the Law to Enhance the Mobility of Disabled Persons and its IRR/ Annexes, the National Structural Code of the Philippines (NSCP), Volume I, 2010, Philippine Electrical Code (PEC), 2009, Revised National Plumbing Code, the 2000 Architectural Code, etc.
- (2) Applicable US Standards:
  - American Institute of Steel Construction (AISC), as applicable
  - American Concrete Institute (ACI), as applicable
  - American Iron and Steel Institute (AISI), as applicable
  - American Welding Society (AWS), as applicable
  - American Society for Testing and Materials (ASTM), as applicable,
- (3) Philippine National Standards or PNS Appendix G of PEC1 – 2009.
- (4) R.A. No. 6716 anent rainwater collection systems.

## 2.6 Architectural Design Standards for Components I and II

### a. Classroom Size

The size of the classroom for elementary and secondary schools must be 7.0 meters (m) in width/ depth x 9.0 m in length measured from the centers of the walls.

b. Windows

- (1) The windows must be bilateral fenestration (transparent or translucent), operable louver type. The window must allow the entry of daylight even if it is closed.
- (2) The total area of window openings must be at least equal to 10.0 square meters (sqm) to provide for natural ventilation and illumination.
- (3) The window sill must not be lower than 600.0 millimeters (mm) nor higher than 900.0 mm from the finished floor line (FFL).
- (4) The minimum height of the fixed louver or transom window above the operable windows is 300.0 mm.
- (5) The window panels, when opened, must not be an obstruction along the corridor.
- (6) The window metal frames and jalousie holders must be sturdy enough to withstand vandalism.

c. Doors

- (1) There shall be two (2) doors for every classroom.
- (2) The swing-out should be 180.0 degrees.
- (3) The doors must be 900.0 mm in clear width and 2,100.0 mm in clear height.
- (4) The doors must withstand normal wear and tear and shall be provided with keyed lever-type locksets.
- (5) Polyvinyl chloride (PVC) doors shall not be used. If doors made of materials other than wood are to be introduced by the Proponent, these must be fire-rated and thoroughly tested for toxicity (normal and burning conditions) and shall have the prior acceptance/ approval by the DPWH BRS.
- (6) Toilet doors shall be of framed plywood flush door construction with *Yakal* jamb or equivalent jamb material, local or imported, duly accepted/ approved by the DPWH BRS. Toilet doors may also be of steel construction (frame and sheathing). However, for sites that are affected by salt air, ample protection against corrosion for the steel doors must be provided.



d. Floor

- (1) The floor must be of non-skid finish.
- (2) The classroom finished floor line (FFL) should be higher than the corridor FFL by 25.0 mm.
- (3) The first floor finish elevation at its corridor must be above the level of flood indicated/ identified in the Site Appraisal Reports (SAR) PLUS 0.2 m (8.0 inches).
- (4) A ramp must be provided with a maximum slope of 1:12 in compliance with the Accessibility Law (B.P. No. 344) and properly labeled.

e. Suspended Ceiling and Ceiling Cavity

The clear height of rooms from FFL to the finished ceiling line (FCL) must be at least 2,700.0 mm.

Maintenance access to the ceiling cavity must be through the corridor.

The ceiling height of the toilets may be lower than 2,700.0 mm, only for as long as the same still fully satisfies the minimum requirements under P.D. No. 1096, the 1977 NBCP.

f. Roof and Roof Cavity

The Proponent's choice of roofing material must be adequately protected from rust/oxidation, salt air, acid rain or other sources and forms of corrosion and leaks. If of metal, the roofing sheets shall be of the thickest material commercially available in the Philippines. The roofing material and assembly work must not require leak proofing nor repair or replacement every two (2) years while the roof support system must not require repair during the 25-year design life.

The DepEd shall undertake the requisite periodic maintenance regimen on an annual basis. The Proponent shall warrant the performance and condition of the entire roofing system (including roof supports) and its adjunct drainage system and shall undertake the requisite repair/s at any point during the agreed Defects Liability Period (DLP).

The minimum horizontal clear length of eaves (excluding gutter, if introduced) shall be: front = 1.5 m; rear = 1.0 m; and sides = 0.6 m i.e. no interior gutter. For the 2-/ 3-/ 4-storey school buildings, maintenance access to the roof cavity must be through the corridor.

If the roof design is gutter-less for the 1- and 2-storey buildings only i.e. no gutter, downspout and catch basin, a trench drain shall be provided with both sides of the trench drain properly sloped towards the drain. The trench drain may be grated or filled with gravel such that it shall not constitute an obstruction to surface/ ambulatory movement. If the roof design is gutter-less, extreme care must be taken by Proponent such that falling water and spray shall not cause inconvenience or damage to DepEd users/ properties or the neighboring users/ properties.

For multi storey school buildings, the roof eaves shall be at least 1.1m longer than the width of the corridor.

g. Partitions

The partitions must be from floor to ceiling.

h. Circulation and Emergency Egress : Corridors (Single-Load), Main Staircases, Service/ Emergency Egress Staircases, Fire Exit Ladders and Railings

The minimum single-load corridor clear width shall be 2.5 m for all school building types. All main staircases (for 2-/3-/4-storey buildings with a single staircase) (reference Annex B) shall have a minimum clear flight width of 1.5 m while all main staircases (for 2-/3-/4-storey buildings with 2 staircases) shall also have a minimum clear flight width of 1.5 m (3.0 m total clear flight width). The minimum riser height, tread depth and headroom as well as the maximum height between landings shall be as per Table 2 (Dimensional Criteria for New Stairs) under Section 10.2.5.4 of Rule 10 of the 2009 IRR of R.A. No. 9514 (reference Annex C). The flight width for the service staircase/emergency egress/fire exit i.e. the second staircase, shall be from 1.2 m to 1.8 m (2.4 or 3.6 m total staircase width). The fire exit ladders shall have a minimum clear width of 0.6 m. All stair treads shall provide all weather traction, particularly if the treads are wet and shall have a sloped finished for easy drainage. The stair nosings shall be of sturdy metal and round-edged to prevent injury. The staircase, corridor and ramp railings shall be of metal pipe construction and securely anchored to the staircase, corridor and ramp.

The number of staircases in Annex E shall be followed for as long as the same complies with the maximum forty six meter (46.0 m) run length to the nearest fire exit or staircase required for school buildings under the 2008 Fire Code of the Philippines (FCP) and its 2009 IRR. The 46.0 m run distance shall be reckoned from the farthest distance inside a classroom, usually a corner of the classroom measured diagonally to the farthest door (assuming that the nearest door is closed/ inoperable).

Further, the number, width and capacity of staircases in Annex E shall be followed, whereby the service staircases (not the main staircase, which is usually the one on the left when facing the school building and which is normally wider) may also serve as the fire exit stairs for as long as the fire exit requirements and the requisite occupant load calculations for school buildings under the 2008 Fire Code of the Philippines

(FCP) and its 2009 IRR are fully satisfied. In the event that the same cannot be fully satisfied, additional fire exit ladders shall be provided by the Proponent to fully comply with FCP requirements.

Note: The term “Stairs” under this MPSS shall refer to a “Flight of Stairs” i.e. a set of steps between one floor or “Landing”, whereby the term “Landing” refers to an intermediate platform connecting two (2) flights of stairs. The combination of two (2) Flights of Stairs connected by a Landing shall constitute a “Staircase” to be situated in a “Stairwell” i.e. a “shaft” in the school building in which the Staircase is to be built.

i. Fire Protection

All school buildings shall comply with R.A. No. 9514, otherwise known as the Fire Code of the Philippines (FCP) and its latest IRR. The requirements shall include a fire alarm system, a standpipe system, hose boxes/ reels, extinguishers and other firefighting equipment, including an automatic sprinkler system (NFPA 13) for the 3-storey and 4- storey school buildings, all supported by ample fire reserves. Standpipe system inspection and testing shall be as per NFPA 25.

Sprinklers are not required except for floors that are below street access.

j. Chalkboard

The classroom must be provided with a built-in curved chalkboard measuring 4.88 m wide by 1.22 m tall with thicknesses of 0.13 m at center and 0.42 m at the 2 ends, with mounting heights and material and finish specifications as per DepEd standard.

k. Painting

Where applicable, metal, wood, and plastic components must be coated with off-white enamel paint, except for the classroom doors to be painted in light green enamel paint, subject to DepEd approval. Wall components must be coated with off-white latex paint, subject to DepEd approval.

The ceiling (suspended ceiling, suspended slab soffit and stair slab soffit) shall be flat white while the roof shall be colored light green. The paints/ coloring materials must maintain their quality based on DepEd standards for at least five (5) years.

The paint/ color schedule based on the approved DepEd 2011 Standard Color Scheme shall be as follows:

**Table 3. Paint Schedule Based on DepEd 2011 Standard Color Scheme**

A. Element	B. Masonry Paint (Latex)	C. Quick-dry Enamel (QDE) Paint for Wood, Metal, etc.
1. Roofing and Accessories (if introduced)	-	Reference: PANTONE* Color System (Paints + Interiors) Foam Green 14-0115 TPX
2. Doors	-	QDE Palmyra Green DepEd SCRF-11-00911
3. Columns and Beams	MCS Columns Beige DepEd SCRF-11-00911 (light shade)	QDE Columns Beige DepEd SCRF-11-00911 (light shade)
4. Exterior Wall	MCS Exterior Beige DepEd SCRF-11-00911 (very light shade)	QDE Exterior Beige DepEd SCRF-11-00911 (very light shade)
5. Interior Wall	MCS Interior Beige DepEd SCRF-11-00911 (lightest shade)	QDE Interior Beige DepEd SCRF-11-00911 (lightest shade)
6. Ceiling (suspended or slab/ stairslab soffit)	Flat White Latex DepEd SCRF-11-00911	Flat White Latex DepEd SCRF-11-00911

\*Website : [www.pantone.com/pages/paint/paintselector.aspx#paints](http://www.pantone.com/pages/paint/paintselector.aspx#paints) palettes

1. Ventilation

Natural ventilation shall be primarily supplied by the operable louver-type windows. However, whenever such windows are fully closed for good reason, the source of natural ventilation shall be fixed louvers above the operable louvers, particularly for classroom walls situated at 2.0 m or less from a perimeter wall (or firewall of an adjoining property) that measures higher than 3 m above the natural or finished grade line (NGL/ FGL). The Proponent must ensure that the firewalls of the adjoining property are not fitted with openings nor operable windows.

Artificial ventilation inside each classroom shall be supplied by 2 units of oscillating ceiling fans.

The roof cavity of 2-/ 3-/ 4-storey school buildings (or a combination roof cum ceiling cavity for the 1-storey school buildings) must be naturally ventilated and pest-proofed. Whenever applicable, the ceiling cavity for the lower floor classrooms (which also acts as a noise insulator) shall likewise be naturally ventilated and pest-proofed.

m. Illumination

Illumination falling at desk or arm rest should not be less than 250.0 lux taken with combined artificial and natural lighting. Illumination at all staircases and fire exit stairs shall comply with R.A. No. 9514 and its 2009 IRR.

n. Grounds Development

The land area enveloping a school building at a maximum distance of 2.0 m from the exterior walls shall be treated as part of the Project since the same constitutes the building grounds in which pedestrian/ disabled access systems and the wastewater lines are situated above and below the surface respectively.

These areas shall be cleared and made safe for use.

o. Sustainable Design, Climate Change Adaptability and Disaster Resilience

The school buildings must exhibit physical planning and building design features/ provisions that directly address specific considerations of sustainable design, climate change adaptability and disaster resilience, the latter two in full compliance with law.

## 2.7 **Structural Design Standards for Components I and II**

- a. The structural design must be in accordance with the revised Implementing Rules and Regulations (IRR) of the 1977 National Building Code of the Philippines (NBCP) and the latest edition of the National Structural Code of the Philippines (NSCP), Volume 1, 2010.

b. Classification of Structure

In accordance with the NSCP, buildings under the Project shall be designed for the classification, based on the nature of occupancy, of “Essential Facilities.”

c. Wind Load

For school buildings in ALL Regions, the roofing and walls shall be designed to withstand a minimum BASIC wind speed (as defined in Sec. 207 of the NSCP) of 250.0 kilometers per hour (kph). The year-round effects of the southwest monsoon (“*habagat*”) wind and the northeast monsoon (“*amihan*”) wind as well as of the easterly winds must be taken into full consideration due to the extensive damage these may cause to roofing, walls and fenestrations.

A Wind Importance Factor (WIF) of 1.15, based on the NSCP, shall be used.

The structure should be fully sealed against rainwater intrusion during typhoons and heavy rains to protect sensitive materials and equipment. Doors and windows should be fully sealed against strong vertical and lateral rains.

d. Seismic Load

For school buildings in ALL Regions, the structure shall be designed to withstand earthquakes for Seismic Zone 4 with a corresponding Seismic Zone Factor of 0.4, or as otherwise specified in the NSCP.

A Seismic Importance Factor (SIF) of 1.5 shall be used.

As the finished floor line (FFL) shall be elevated to 0.20m above the level of flood indicated/ identified in the Site Appraisal Reports (SAR), the use of "containment wall" is prescribed to ensure the safety of the structure during the rainy season.

e. Live Loads

The minimum occupancy or live loads shown in **Table 4** shall be used in the design.

**Table 4. Live Loads**

Structure Part	Live Load
Classrooms	1.9 kpa
Corridors/ Stairs	4.8 kpa
Roof	1.0 kpa

Note: kpa = kilopascals

f. Design Life

The school building and its structure shall have a design life of at least 25.0 years.

g. Building Foundation

The foundation shall be designed for a net allowable soil bearing pressure of 96.0 kpa (2,000.0 pounds per square foot or psf). Consistent with best practices, the Proponent shall undertake the prior appropriate studies/ investigations for use as basis/ bases for the foundation and structural design of each Sub-Project.

Consistent with law and with industry practice, the Proponent's designers and builders shall assume the full professional responsibility and civil liability for the foundation and structural design, supervision and construction of the school buildings. In the case of foreign structural designers, the local civil/ structural engineer affixing his/her signature and dry seal on the structural plans, designs and computations (submitted for building permit application) shall solely assume the

same. As such, the DepEd cannot accept any form of waiver anent the attached responsibility or liability over the foundation/ structural design of the Sub-Projects.

i. Wall Vibration

Walls must not unduly vibrate due to impact caused by any part of an adult human body and must neither be dented nor punctured by deliberate punches or kicks by adult humans.

j. Sub-floor for the Upper Floors of the School Building

For school buildings which are 2-storeys or taller, the sub-floor shall only be of suspended concrete slabs (which are either cast-on-site/cast *in situ* concrete or pre-cast concrete). Sub-floor materials that are highly flammable, that do not uphold the fire integrity among the floors, that may contain formaldehydes or other potentially harmful substances, that conducts/ transfers radiant heat and which do not possess positive acoustical properties are not considered the equivalent of a suspended concrete slab and must not be used for the school building/ Sub-Project.

Rib type or double tee suspended slab soffits are acceptable but subject to the IC acceptance of the quality of their structural connections and finish.

## **2.8 Electrical Design Standards for Components I and II**

a. Roughing-ins

(1) Service Entrance

(a) Service entrance conduit shall be made of intermediate metallic conduit (IMC). Underground runs shall be encased in concrete envelope or reinforced concrete envelope when crossing a roadway. Ends of conduits shall be provided with a sealing compound.

(b) Exposed service entrance conduits shall be painted with epoxy primer in three (3) coats application.

(c) Conduits shall be properly reamed.

(d) The service entrance shall be at least 1.6 m above the natural grade line (NGL) or 0.3 m above the established high flood level during the last 10 years, as certified by the incumbent LGU City/ Municipal Engineer (CME), whichever is higher.

(2) Branch circuit conduits, boxes, fittings and supports shall run parallel to walls, columns and beams of the building.

- (a) Metal boxes, gutters, supports and fittings shall be painted with epoxy primer in three (3) coats prior to installation.
- (b) Polyvinyl Chloride (PVC) solvent shall be applied on all PVC pipe joints/connections
- (c) End bells shall be used at the end of PVC pipes and locknut and bushing shall be used for metallic conduit on all boxes and gutters termination.
- (d) Branch circuit conduits shall be either metallic or non-metallic as applicable.

(3) Ceiling-mounted lighting fixtures

Flexible metallic tubing shall be used as drop pipe from a junction box to a lighting fixture.

(4) In-sight disconnecting means

Watertight type straight or angle connectors shall be used from pumps, condensing units and other equipment that will be in possible contact with water or rain.

(5) Centralized paneling

Breaker and wire gutter shall be used for proper arrangement of main distribution panel (MDP).

(6) Stub-out conduits for spares

15-mm diameter PVC or IMC pipes shall be provided as stub-out conduits at different panel boards as per schedule of loads. Ends of stub-out conduits shall be threaded and capped.

b. Wires and Wiring Devices

- (1) Wires shall be properly designed in accordance with Article 3.10 and the grounding system shall conform to Article 2.50 of the PEC.
- (2) Wiring devices must be of modern type and approved for both location and purpose.

c. Lighting and Fixtures



- (1) Each classroom must be provided with a lighting product(s) that can produce 250.0 lux at tablet top level.
- (2) A duplex convenience outlet (CO) of the grounding type must be provided on each windowless side of the classroom.
- (3) The corridor must be provided with a lighting product(s) that can produce 5,000.0 lumens.

## **2.9 Sanitary and Plumbing Design Standards for Components I and II**

### a. Waste and vent line piping system

The drain, waste and vent line piping system must be according to American Society for Testing and Materials (ASTM) D-2729, International Standards Organization (ISO) 4435 and ISO 3633.

### b. Waterline piping system

The system must be according to Deutsche Industrie Norm (DIN) 1988 for Polypropylene Random Copolymer (PP-R) type 3 pipe and ASTM A53/ A53M. The system must provide for a waterline service entrance.

### c. Plumbing Fixtures

These must be according to American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME), A112.19.4m, A112.19.3, A112.19.5.

### d. Drainage system

The storm drainage system must be sized according to the rainfall intensities, slope, and roof areas of the school buildings. Provision shall be made for the future installation of rainwater collection system in compliance with R.A. No. 6716 “An Act Providing for the Construction of Water Wells, Rainwater Collectors, Development of Springs and Rehabilitation of Existing Water Wells in all *Barangays* in the Philippines“.

For the Sub-Projects, only provision/s for connections to future rainwater collectors, consistent with DPWH design standards are required of the Proponent. These provisions must be reflected in all CEDs and DEDs of the Sub-Project.

### e. Septic vault

All concrete septic tanks, if used as the sanitation solution, shall be protected from corrosion by coating with an approved bituminous coat or by other acceptable means.

## 2.10 Toilets

- a. For one-storey school buildings, the Toilets may be detached from or attached to the School Building. For 2-, 3- and 4-storey school buildings, the Toilets shall be integrated into the school buildings.
- b. The Toilets shall be properly ventilated and provided with running water through a piped water supply system. The Proponent shall construct the water supply connections up to 2.0 m away from the exterior wall while the DepEd shall link such connections to the water supply source. The supply of running water to the toilets shall be the responsibility of the DepEd.
- c. Toilet units shall be separate for boys and girls. For the Boys' Toilet, the main fixtures shall include: urinal, water closet, counter sink (with 2 faucets shared with girls) and facial mirror. For the Girls' Toilet, the main fixtures shall include: water closet, lavatory (with 1 faucet), facial mirror, and grab bar. Special facilities for differently-abled persons shall be provided. The specific types and numbers of fixtures shall depend on the School Type.
- d. The performance requirements, including areas and main fixtures, for the Toilets for each School Type are shown in **Annex A**, which represent the current DepEd standards.
- e. Sustainably-designed sanitation solutions are preferred over conventional solutions.

## 2.11 Materials for Components I and II

Construction materials for the Project must conform to the DPWH Standard Specifications for Public Works Structures, Volume III, 1995 (Blue Book).

New materials which are not covered by the Blue Book, however, must pass the requirements of the Product Accreditation Scheme prescribed under DPWH Department Order No. 189, series of 2002, and be accredited by the DPWH before they are used in the Project.

- a. Reinforced Concrete (RC)
  - (1) For structural members, minimum compressive strength of 20.7 megapascals (mpa) (3,000 pounds per square inch or psi).
  - (2) For non-structural members minimum compressive strength of concrete shall be 17.0 mpa (2,500.0 psi).

(3) Reinforcing bars shall be ASTM A706 with a minimum yield strength,  $f_y$ , of 413 mpa for 16.0-mm diameter and larger, and 275.0 mpa (33,000.0 psi) for 12.0-mm diameter and smaller. Alternately, ASTM 615 can be used subject to the conditions specified in the code, as follows:

- a. The actual yield strength based on mill tests does not exceed  $f_y$  by more than 125.0 mpa; and
- b. The ratio of the actual tensile strength to the actual yield strength is not less than 1.25.

b. Structural Steel

This shall be ASTM A36 with a minimum yield strength,  $f_y$ , 248 mpa (36,000.0 psi). All structural steel works shall be painted with red oxide primer and shall be final coated in accordance with the DepEd-approved paint colors (reference Table 3 of this MPSS).

c. Protection from Heat

Air Supply

- (1) Under applicable conditions, clean fresh air shall be supplied to enclosed spaces at an average rate of not less than 20.0 to 40.0 cubic meters/ cu.m. (700.0 to 1,400.0 cubic feet/ cu.ft.) an hour per occupant, or at such a rate as to effect a complete change of air a number of times per hour varying from four (4) for sedentary occupants to eight (8) for active occupants.
- (2) Where an adequate supply of fresh air cannot be obtained by natural ventilation or where it is difficult to get the desired amount of air at the center of the workroom without creating uncomfortable drafts near inlets, mechanical ventilation devices that are capable of generating fresh air (and not merely recirculating air inside the classroom or other confined spaces such as toilets), shall be provided.

Air Movement

The air movement in enclosed workplaces shall be arranged such that the occupants are not subjected to objectionable drafts. The air velocity shall not fall below 15.0 meters per minute (mpm) during the rainy season and 45.0 mpm during the summer season.

The classroom and component materials must provide for a suitable inside room temperature compliant with safety and health standards on air temperature, humidity and air movement.

Provision shall be made to control radiant heat from roofing in case of single-storey classroom buildings by installing ceilings, which may be provided with fire retardant and thermal insulation materials.

Insulating material and ventilation inside the classroom should reduce infiltration of too much radiant and convective heat and should result in the classroom temperature (measured at the center of the room) being at least one degree Celsius (1.0°C) lower than the outside temperature.

The air velocity in enclosed rooms shall be from 0.25 meters per second (m/s) to 0.75 m/s based on the requirements of the Occupational Safety and Health Service (OSHS) of the Department of Labor and Employment (DoLE).

d. Resistance to Termites

Where applicable, the structure must be resistant to termites for at least five (5) years.

e. Protection from Corrosion

Where applicable, the structure must be protected from corrosion/ rust up to at least five (5) years.

f. Fire Protection

Fire protection requirements for the school building shall mainly be as per R.A. No. 9514, the 2008 Fire Code of the Philippines (FCP) and its 2009 or later IRR. However, the Proponent must always check which of the following is the most stringent : 1) P.D. No. 1096, the 1977 National Building Code of the Philippines (NBCP) and its 2004 Revised IRR; 2) R.A. No. 9514, the 2008 FCP and its 2009 IRR; 3) the National Fire Protection Association (NFPA) codes, standards or related issuances; or 4) other applicable local fire safety standards. The most stringent rule shall always be applied for all Sub-Projects.

g. Noise Level Limit

The sound transmission class/noise reduction rating of the building/ structure and its component materials, including walls partition and floor slabs, must reduce noise level such that it will comply with accepted standards on noise reduction.

Appropriate sound-absorbing or sound insulation material must be used on walls and partitions to reduce sound transmission inside the classroom.

For 2-/ 3-/ 4-storey school buildings, acoustic materials, finishes or treatments shall be used at interior walls, ceilings and ceiling cavities in the event of reverberation/ echoing of sound inside the lower floor classrooms.

Pertinent occupational safety and health standards such as the permissible noise exposure limit, threshold limit value and other applicable occupational and safety standards must be complied during the construction of the school buildings.

Acoustic material or finish used should offer reduction of noise and noise level which should not exceed 55.0 decibel amperes/ dB(A) measured in an unoccupied classroom (to include ambient noise) and must comply with ASHRAE provisions on indoor air quality. Ambient noise must necessarily exclude intermittent heavy noise sources such as passing vehicles e.g. airplanes, trains, tricycles, *calesas*, old trucks/ buses and the like.

#### h. Protection from Toxicity

The classroom must be designed in such a way that its location is far from sources of noxious elements such as paint, varnish, toilet, chemical storage and garbage collection/ storage/ handling points.

The building and finishing material to be used like panel/ ceiling boards, paints, varnish, etc. must not contain or emit any carcinogenic or toxic substances which may pose risk on the health of occupants (such as asbestos, polychlorinated biphenyls/ PCB, benzene and the like). A material safety data sheet (MSDS) detailing the composition of the construction materials used, must be presented by the Proponent for joint OSHC/ DPWH/ DepEd/ IC evaluation and possible OSHS certification (on an absolute need basis).

Newly refurbished, renovated or constructed rooms should be well ventilated prior to students' occupancy to purge and remove the airborne contaminants trapped and emitted inside the room during painting, sanding, varnishing, etc. Purging of airborne contaminants and ventilation of the rooms should be for at least one week or until such time that discernable odor is gone. There should be no toxic airborne contaminants prior to building occupancy.

Adequate air movement and supply of fresh air should be provided via natural or artificial means to dilute any contaminants, which may be emitted in the course of occupancy.

The non-skid flooring should help prevent the accumulation of dust in small cracks and crevices.

Based on US Environment Protection Agency Air Quality Standards, the dust concentration for total dust particulates should not exceed 0.26 mg/ m<sup>3</sup>, and for respirable dust should not exceed 0.15 mg/ m<sup>3</sup>.

**Rule 1076.03 Cleanliness:**

- (1) Dust, gases, vapors or mists generated and released in work process shall be removed at the points of origin and not permitted to permeate the atmosphere of the workrooms.

**Rule 1093.07 Prevention of Dust Accumulation:**

- (1) In rooms where materials producing flammable dusts are processed, handled and stored;
  - a. dusts shall be removed daily from floors, equipment and other horizontal surfaces, preferably by means of appropriate vacuum apparatus; and
  - b. all fixtures, ledges, projections, bearings, sidewalks, ceilings and other parts shall be cleaned and freed of dusts at least once a week.
- (2) Floors: Where practicable, floors or rooms in which harmful dust is liberated shall:
  - a. be smooth, impervious and easy to clean; and
  - b. not be covered with loose sheets, metal or other materials under which dust can accumulate.

i. Resistance to water penetration

The structure shall be free from water leaks.

j. Relative Humidity (RH) Range

RH range shall be at 55.0% plus or minus 5.0%

**2.12 Design Standards for Component III**

- a. The set of furniture items under Component III must harmonize, in terms of functionality and design, with the Classroom Buildings (Component I).
- b. For each classroom, the following furniture items shall be included:
  - a. One set of teacher's table and chair.
  - b. 45 armchairs for pupils: 43 for right-handed and 2 for left-handed pupils.
  - c. Materials may be wood or non-wood, resistant to termites for at least two (2) years, and protected from rust for at least five (5) years. These should not contain or emit any carcinogenic or toxic substance. New materials must

first be certified by the Bureau of Product Standards (BPS) of the Department of Trade and Industry (DTI).

- d. The armchair must be able to carry a pupil with a weight of 40.0 kilograms (kg) for Elementary level, and 50.0 kg for Secondary level. The armchair shall have the minimum dimensions shown in **Table 5**.

**Table 5. Minimum Dimensions of Armchair**

Item	Dimension in mm	
	Elementary	Secondary
Seat height	380.0	400.0
Seat depth	370.0	430.0
Seat width	390.0	430.0
Writing board height	623.0	640.0
Writing board width	250.0	250.0
Writing board depth	255.0	255.0
Writing board length	625.0	625.0
Backrest height	710.0	800.0

A built-in bookshelf shall be provided under the seat of the armchair.

### 2.13 Other Requirements

- a. Since the Proponent will undertake Design-Build Services (DBS), the conduct of the soil investigations and of the requisite environmental investigations, should all be undertaken by the Proponent on their account.
- b. All architectural and engineering design plans, designs, drawings/ details, schedules, specifications, bill of quantities (BoQ), detailed cost estimates (DCE) and similar State-regulated professional practice documents must be signed and dry-sealed by registered and licensed Filipino professionals in accordance with law. The "As-Built" Drawings for each Sub-Project and its Components are to be transmitted to DepEd by the Proponent within two (2) months after the issuance of the Certificate of Completion for each Sub-Project.
- c. During construction, the Sub-Project site must be protected by a 3.0 m tall temporary *sawali*(meshed bamboo strips) or new/ slightly used galvanized iron (G.I.) sheets as perimeter enclosure, where the height shall be reckoned from either the natural or finished grade line (NGL/ FGL).

## **SECTION 3.0 CONSTRUCTION**

### **3.1 Scope of Construction**

The Proponent shall undertake the Construction Works for the Contract Package as described in Annex A of the Information Memorandum.

#### **3.1.1 The Mock-up Building forming part of the Bid**

- a. The mockup building shall be subjected to DepEd evaluation as part of the Proponent's Bid.
- b. DepEd shall evaluate the construction and finishing on the mock-up building, and decide whether it is acceptable or not. The Bid Proponent must provide for the possibility that the construction and finishing may not be approved by the DepEd for use in the actual construction of the school buildings.

### **3.2 Standards and Specifications for Construction**

- a. The Construction of the Project shall be implemented according to the DED prepared by the Proponent, as reviewed and concurred to by the Independent Consultant (IC).
- b. The Construction of the Project shall also comply with the MPSS for Construction herein prescribed. The MPSS for Construction includes conformance to the provisions pertaining to building under the DPWH Blue Book, Volume III.

The Blue Book prescribes, among other things, the material requirements and construction requirements for different items of work, including the tests to be conducted during Construction by the Proponent. The Blue Book incorporates provisions of the ASTM and ACI, among others, pertaining to construction. Attention shall be given to the relevant items of work in the following Parts of the Blue Book:

- Part A - Earthwork
- Part B – Plain and Reinforced Concrete Works
- Part C – Finishing
- Part D – Electrical
- Part E – Sanitary/ Plumbing Works

For materials and technologies not covered by the Blue Book, or if the Proponent intends to use any new material/ technology, the structural properties of the non-conventional materials to be



used should be certified by accredited DPWH BRS laboratories and these properties should be used as inputs to structural analysis and designs to prove compliance to the MPSS.

### **3.3 Detailed Construction Plan**

The Proponent shall prepare a Detailed Construction Management Plan (DCMP) as part of the DED that it shall submit to the IC for review and concurrence. The DCMP shall be based on the preliminary Construction Plan submitted in the Technical Proposal of the Proponent's Bid, as updated and detailed to fit the elements of the DED. The DCMP must identify the procedures, processes and management systems that the Proponent will apply to ensure the implementation of the Construction Works in accordance with the BT Agreement.

As a minimum, the DCMP must define the following:

- a. Construction organization and management structures for the Contract Package, identifying key personnel and positions, Contractors, and sub-contractors.
- b. Construction methodology and procedures, including pre-fabrication if any.
- c. Quality control and assurance system for all Works, specifically the Proponent's QA/ QC Plan in coordination with the proposed QA/QC Plan of the IC.
- d. Construction schedule, milestones, and S-curve covering all Contract Package components and each Sub-Project, i.e., school site.
- e. Major construction equipment and materials to be used.
- f. Health, safety, and security program in accordance with Department Order No. 13, series of 1998, of the Department of Labor and Employment (DoLE).
- g. Measures and procedures for:
  - (1) Control and monitoring of the Construction schedule as against actual Construction works;
  - (2) Supervision and monitoring of the quality control and assurance system for the Works, including the integrity of tests conducted;
  - (3) Monthly updating of the Construction Plan and monthly progress reports;
  - (4) Development and approval of Construction documentation; and
  - (5) Survey and condition monitoring;

- h. Strategies for:
  - (1) Managing risks;
  - (2) Obtaining all necessary approvals and permits from national and local government authorities; and
  - (3) Details of records management and indexing protocols that will enable referencing of all design and construction records to the Contract Package components, Sub-Projects, work type and location.
- i. Logistics Plan and Subcontractor Procurement Plan.

### **3.4 Test Requirements**

The Proponent shall undertake tests during Construction in accordance with the schedule of minimum testing requirements for items of work and materials covered by the Blue Book.

If any new Construction materials proposed by the Proponent are not covered by the Blue Book, these materials shall first pass the evaluation and accreditation system of the DPWH BRS, certified by the IC, and approved by the DepEd, before the new materials are used in the Project.

If the Bidding Proponent is able to submit as part of its Technical Proposal a certification from the institutions listed in Schedule 2 of the Instructions to Bidders (ITB) (Schedule 1 of the Build-Transfer Agreement) in lieu of a DPWH BRS certification, there is no more need to submit a DPWH BRS certification as a Post-Award Requirement.

The Proponents are required to provide certified on-site testing for concrete mixes at every sub-project site i.e. slump test, particularly for site-mixed or hand-mixed concrete. Other duly-certified off-site tests such as rebar strength may be on a province-wide basis.

### **3.5 Completion of Construction**

- a. The Proponent shall fully comply with the following requirements for the completion of Construction:
  - (1) All Tests for Construction comply with the pertinent provisions of the Blue Book and other test requirements of the MPSS for Construction.

- (2) All parts of the Sub-Project have been completed in accordance with the DED, as certified by the IC, and with the MPSS for Construction, including the rectification of all defects.
- (3) The completed Sub-Project can be safely and reliably placed into normal use and occupancy by the school authorities and students.
- b. The Proponent must deliver all the Sub-Projects to the DepEd no later than the Construction Completion Deadline (CCD). As evidence of delivery, the Proponent shall send the DepEd a Construction Completion Notice (CCN) for the Sub-Project when the Proponent has finished Construction on such Sub-Project. For Sub-Projects for which the Proponent has sent the DepEd a CCN by the CCD, the IC and a representative from the DepEd shall jointly conduct and finish the Punchlist Inspection (PI) of the Sub-Project and monitor recording of the results within fifteen (15) days from the receipt of the CCN. For Sub-Projects which are not Excluded Sub-Projects as defined in the BT Agreement, and for which the Proponent sends the DepEd a CCN after the CCD, the IC and a representative from the DepEd shall jointly conduct and finish the PI of the Sub-Project and monitor recording of the results, within twenty-five (25) days from the receipt of the CCN.
- c. The IC shall notify the Proponent and the DepEd at least three (3) days before the conduct of the PI of the Sub-Project. The Proponent shall have the right to be present during the conduct of the PI; provided, that the PI shall continue even if the Proponent fails to be present on the date of the PI, as set by the IC in the notice provided.
- d. If the IC and the representative from the DepEd determine after the PI that no items need to be rectified, the DepEd shall accept the Sub-Project and issue the Certificate of Completion (CoC) no later than the last day of the month following the month when the Sub-Project successfully passed the PI. If the IC and the representative from the DepEd determine after the PI that there are items that need to be rectified, the IC shall generate and send to the Proponent, on the day following the end of the PI, a punchlist of the items that need to be rectified in the Sub-project before the Sub-Project will be acceptable to the DepEd.
- e. Upon completion of its rectification works the Proponent shall notify the IC and the DepEd by sending a Rectification Completion Notice (RCN) in writing, stating that a Rectification Inspection (RI) may be conducted. The IC and a representative from the DepEd shall jointly conduct and finish the RI of the Sub-Project within fifteen (15) days from receipt of the RCN. If the IC and the DepEd have determined that all the items stated in the punchlist have been rectified, the DepEd shall accept the Sub-Project and issue the CoC for such Sub-Project no later than the last day of the month following the month when the Sub-Project successfully passed the RI. If there are still defects discovered

after the first RI, the process shall be repeated until all the items in the punchlist have been rectified by the Proponent as determined by the IC and the representative from the DepEd; provided, that rectification must be completed, and RCN must be sent to the DepEd, no later than the Final Rectification Deadline (FRD). The FRD with respect to a Sub-Project is the date which is sixty (60) days from the relevant Construction Completion Deadline (CCD).

- f. The Proponent must submit (1) the As-Built Drawings, (2) an Asset Register to include a description of all assets constructed, and (3) the Construction Completion Report for each Sub-Project under the Contract Package, to the DepEd not later than two (2) months after the issuance of the Certificate of Completion for the Sub-Project.

**Annex A. Basic Requirements and Fixture Specifications for Toilet/s per School Building Type**

<b>School Building Type</b>	<b>No. of Storeys – No. of Classrooms per School Building</b>	<b>Boys’ Toilet</b>	<b>Girls’ Toilet</b>	<b>Differently-Abled Person/Teacher</b>
I	1-Storey-1 classroom	Not Applicable	Not Applicable	Not Applicable
II	1-Storey-2 classrooms	1 water closet 1 lavatory top 1 urinal 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
III	1-Storey-3 classrooms	1 water closet 1 lavatory top 1 urinal 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
IV	1-Storey-4 classrooms	1 water closet 1 lavatory top 1 urinal 1 facial mirror	2 water closets 2 lavatory tops 2 facial mirrors	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
V	1-Storey-5 classrooms	2 water closets 2 lavatory tops 2 urinals 1 facial mirror	2 water closets 2 lavatory tops 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
VI	1-Storey-6 classrooms	2 water closets 2 lavatory tops 2 urinals 1 facial mirror	2 water closets 2 lavatory tops 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
VII	2-Storeys-2 classrooms (1 per floor)	1 water closet 1 lavatory top 1 urinal 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
		1 water closet	2 water closets	1 water closet

<b>School Building Type</b>	<b>No. of Storeys – No. of Classrooms per School Building</b>	<b>Boys' Toilet</b>	<b>Girls' Toilet</b>	<b>Differently-Abled Person/Teacher</b>
VIII	2-Storeys-4 classrooms (2 per floor)	1 lavatory top 1 urinal 1 facial mirror	2 lavatory tops 1 facial mirror	1 lavatory top 1 facial mirror Grab bar (1 set)
IX	2-Storeys-6 classrooms (3 per floor)	2 water closets 2 lavatory tops 2 urinals 1 facial mirror	3 water closets 3 lavatory tops 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
X	2-Storeys-8 classrooms (4 per floor)	3 water closets 3 lavatory tops 3 urinals 1 facial mirror	4 water closets 4 lavatory tops 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
XI	2-Storeys-10 classrooms (5 per floor)	4 water closets 4 lavatory tops 4 urinals 1 facial mirror	5 water closets 5 lavatory tops 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
XII	2-Storeys-12 classrooms (6 per floor)	5 water closets 5 lavatory tops 5 urinals 1 facial mirror	6 water closets 6 lavatory tops 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
XIII	3-Storeys-4 classrooms (2 per floor)	1 water closet 1 lavatory top 1 urinal 1 facial mirror	2 water closets 2 lavatory tops 1 facial mirror	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
XIV	3-Storeys-9 classrooms (3 per floor)	3 water closets 3 lavatory tops 3 urinals 1 facial mirror	4 water closets 4 lavatory tops 2 facial mirrors	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
XV	3-Storeys-12 classrooms (4	5 water closets 5 lavatory tops	6 water closets 6 lavatory tops	1 water closet 1 lavatory top

<b>School Building Type</b>	<b>No. of Storeys – No. of Classrooms per School Building</b>	<b>Boys' Toilet</b>	<b>Girls' Toilet</b>	<b>Differently-Abled Person/Teacher</b>
	per floor)	5 urinals 2 facial mirrors	2 facial mirrors	1 facial mirror Grab bar (1 set)
XVI	3-Storeys-15 classrooms (5 per floor)	6 water closets 6 lavatory tops 6 urinals 2 facial mirrors	7 water closets 7 lavatory tops 2 facial mirrors	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
XVII	4-Storeys-16 classrooms (4 per floor)	6 water closets 6 lavatory tops 6 urinals 2 facial mirrors	7 water closets 7 lavatory tops 2 facial mirrors	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)
XVIII	4-Storeys-24 classrooms (6 per floor)	10 water closets 10 lavatory tops 10 urinals 3 facial mirrors	12 water closets 12 lavatory tops 3 facial mirrors	1 water closet 1 lavatory top 1 facial mirror Grab bar (1 set)

**Annex B. Minimum Number of Main and Service Staircases and Fire Exit Stairs per School Building Type**

<b>School Building Type</b>	<b>No. of Storeys - No. of Classrooms per School Building</b>	<b>No. of Main Staircases</b>	<b>No. of Service Staircases</b>	<b>No. of Fire Exit Stairs (or as otherwise prescribed by R.A. No. 9514, the 2008 FCP and its latest IRR)</b>
VII	2-Storeys-2 classrooms (1 per floor)	1		1
VIII	2-Storeys-4 classrooms (2 per floor)	1		1
IX	2-Storeys-6 classrooms (3 per floor)	1	1	1
X	2-Storeys-8 classrooms (4 per floor)	1	1	2
XI	2-Storeys-10 classrooms (5 per floor)	1	1	2
XII	2-Storeys-12 classrooms (6 per floor)	1	1	2
XIII	3-Storeys-6 classrooms (2 per floor)	1	1	2
XIV	3-Storeys-9 classrooms	1	1	2



<b>School Building Type</b>	<b>No. of Storeys - No. of Classrooms per School Building</b>	<b>No. of Main Staircases</b>	<b>No. of Service Staircases</b>	<b>No. of Fire Exit Stairs (or as otherwise prescribed by R.A. No. 9514, the 2008 FCP and its latest IRR)</b>
	(3 per floor)			
XV	3-Storeys-12 classrooms (4 per floor)	1	1	2
XVI	3-Storeys-15 classrooms (5 per floor)	1	1	2
XVII	4-Storeys-16 classrooms (4 per floor)	1	1	2
XVIII	4-Storeys-24 classrooms (6 per floor)	1	1	2

**Annex C. Dimensional Criteria for New Stairs\*** under Tables 2 and 4 of Section 10.2.5.4 (Stairs) of Rule 10 of the 2009 IRR of R.A. No. 9514 (2008 Fire Code of the Philippines/ FCP)

\*Note: The term “Stairs” under this MPSS shall refer to a “Flight of Stairs” i.e. a set of steps between one floor or “Landing”, whereby the term “Landing” refers to an intermediate platform connecting two (2) flights of stairs. The combination of two (2) Flights of Stairs connected by a Landing shall constitute a “Staircase” to be situated in a “Stairwell” i.e. a “shaft” in the school building in which the Staircase is to be built.

Feature	Millimeters (mm)	Inches (in)
Minimum Width (for a Total Cumulative Occupant Load of less than 2,000 persons)	1120	44
Maximum Height of Risers	180	7
Minimum Height of Risers	100	4
Minimum Tread Depth	280	11
Minimum Headroom	2000	80
Maximum Height between Landings	3660	144

**Annex D. Dimensional Criteria for Fire Escape Stairs\*** under Tables 6 of Section 10.2.5.10 (Fire Escape Stairs, Ladders and Slide Escapes) of Rule 10 of the 2009 IRR of R.A. No. 9514 (2008 Fire Code of the Philippines/ FCP)

\*Note: The term “Stairs” under this MPSS shall refer to a “Flight of Stairs” i.e. a set of steps between one floor or “Landing”, whereby the term “Landing” refers to an intermediate platform connecting two (2) flights of stairs. The combination of two (2) Flights of Stairs connected by a Landing shall constitute a “Staircase” to be situated in a “Stairwell” i.e. a “shaft” in the school building in which the Staircase is to be built.

Particulars	Dimensions
Minimum Width	60 centimeters (cm) clear between rails
Minimum Horizontal Dimension Any landing or platform	60 cm
Maximum Rise	23 cm
Minimum Tread, exclusive of nosing	23 cm
Tread Construction	Solid, 13 mm diameter perforation permitted
Maximum Height between Landings	3.66 meters (m)
Headroom, Minimum	2.0 m
Access to Escape	Door or casement windows 61 cm by 1.98 m or double-hung windows 76.2 cm by 91.44 cm clear
Level of Access Opening	Not over 30.5 cm above floor; steps if higher
Discharge to ground	Swinging stair section permitted
Capacity Number of persons	45 per unit access by door; 20 if access by climbing over window rail

**Annex E.** Initial Architectural Interpretations (issued by DepEd PFSED)

*Nothing follows.*