QF003	Document:	Construction	of	houses	Ι	
	COP 10					

1	2	(3)	4	5	(6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the MB	Proposed change by the MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
TT	Title		ed	Spelling error	Replace with Practice	Agreed.	Accepted
TT	Foreword		Те	Include BS EN 1998-1 to address seismic provisions.		Agreed.	Accepted
TT	Foreword		te	Improper role of the document This seems unorthodox. For small projects such as most housing projects, the technical personnel comprise the persons representing the owner, and the persons representing the contractor. In the most lean case, such as a private house, the technical person is the state's Planning Organization and Regional Authority who approve the submitted drawings in terms of safety requirements. They are qualified persons and apply its previously stated standards that the drawings must adhere to. This is the approvals stage and is relevant to construction because what is to be built is what is shown on the approved drawings. Again in the most lean case, in the construction phase, the project is usually funded by a bank or similar institution. To ensure that the contractor is adhering to the approved drawings and the allied specifications as stated in the contract, the least number of relevant technical persons are the bank's technical officer, and the contractor. Monthly payment to the contract will not occur if the bank's measurement of the work in accordance with a standard, and acceptance of the materials and workmanship as stated in the contract's materials' specifications. To meet these requirements, the contractor must suitably qualified. This is usually accomplished by the bank and state ensuring that the contractor has engineering and technician staff trained in construction techniques and technologies to deliver the structure in accordance with the requirements. At periodic intervals, and especially at the end, the state's technical		The problems that this Code of Practise (CoP) is designed to overcome follow. Typical residential contractors do not normally have engineering staff or support. They rely, almost entirely, on their construction supervisors or foremen. This is not a Code of Practice for artisans, but for Construction Supervisors and Building Inspectors. The Banks normally use Quantify the cost of construction each month. They do not normally determine whether the work has been done to a structural standard. The building standards are normally developed to Category 2 or 3 hurricanes. This CoP is developed to hurricane Category 5 for all	Accepted Consultant's comment

2 Type of comment: ge = general te = technical ed = editorial

QF003	Document:	Construction	of	houses	Ι	
	COP 10					

1	2	(3)	4	5	(6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the MB	Proposed change by the MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
				officers also verify the construction and issue the completion certificate. The stated intention for the proposed code implies that the aforementioned technical persons do not know construction techniques and technology. But if they are qualified, this would not be the case. If the personnel are not suitably qualified, providing a standard for this cannot be sufficient due to the volume of the Body of Knowledge involved. The most appropriate solution would be for the state to provide the training and certification in construction. If the personnel are suitably qualified, then providing a standard would be both redundant and lacking comprehensiveness.		Caricom states except Guyana and Trinidad and Tobago.	
				Maybe it is more suitable to call this document "Key Considerations of House Construction In the Caribbean" rather than a standardized CP. Note that, as far as I am aware, no countries have developed a CP for how to build a house. They train their personnel. The document contains information that is design output and not construction information.			
Π	Foreword		ed	IBC 2006 and IBC 2018 should be listed in the references, in addition to ASCE 7-05 and ASCE 7-16 respectively as these are the governing codes. ASCE 7 is the "standard" and IBC would be the actual "code" document		Agreed.	Accepted
Antigu a	1.1			These standards only apply to single-storey houses up to 1000 square feet. These are small homes. What about larger homes?		A 1,000 sq ft house is a comfortable 3 bedrooms, 2 bathrooms starter house. If the house is a two storey house, with a 1,000 sq-ft floor plan area (resulting in 2,000	Accepted Consultant's comment

2 Type of comment: ge = general te = technical ed = editorial

QF003	Document:	Construction	of	houses	I
	COP 10				

1	2	(3)	4	5	(6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the MB	Proposed change by the MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
						sq-ft), then this CoP is still relevant	
Antigu a	1.1			What about other types of homes? Recently, there has been a shift to other types of materials. There is no consideration for this?		This CoP is limited to the traditional concrete-block masonry and timber framed walls, that are used in the informal residential construction industry.	Accepted Consultants comment
						Developers using other materials should seek professional engineering advice.	
TT	1.1	2	Те	Improper word	Omit "structural".	The word (in line 1) is necessary since the next paragraph specifically states what is not included (non-structural components).	Accepted Consultant's comment
Antigu a	1.4			"Designing for disables persons"	"Designing for disabled persons"	Agreed.	Should read: 'Persons with disabilities'
						Agreed RTP United Nations declaration states: Declaration on the Rights of Disabled Persons	Verify online
Antigu a	4.			A small "g" is used to represent gravity. In SIU this is already the representation for "grams". I suggest using a different symbol.		Gravity was not used in the CoP, therefore, the abbreviation may be omitted	Accepted Consultant's comment
DM	5.1.4.	1	te	Impurities such a chlorides and sulphates should be included in the list for impurities. Chlorides directly attack the steel inside the concrete and sulfates directly attack the concrete and both can be present in the water, especially when the water comes from natural sources, the use of	Water should be clean and free of impurities such as salt, chlorides , sulphates and organic matter , which may affect the concrete quality. A continuous supply of water	Agreed.	Accepted

2 Type of comment: ge = general te = technical ed = editorial

QF003	Document:	Construction	of	houses	Ι	
	COP 10					

1	2	(3)	4	5	(6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the MB	Proposed change by the MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
				drinking or treated water is recommended. The absence of organic matter is also ensured.	should be available during all concrete mixing, placing and curing operations.		
TT	5.1.8		te	Section 5.1.8 should be recorded a cylinder strength. If you were to convert the cube strengths stated to its equivalent cylinder strength, the recommended concrete strength values would be lower than code specified minimum structural concrete strength in some cases. ACI 318 C1.1.1 states that minimum concrete strength should be 2500 psi (cylinder strength). In fact, it is recommended that all concrete strengths throughout the document, be represented as cylinder strength as this is the prevailing notation in both EC2 and ACI 318-14.		Reference can be made to Table 3 which provides both strengths. The CoP is not specifying any concrete in footings, columns, beams or slabs under 2,500 psi.	Accepted Consultant's comment
Antigu a	5.1.10			Do we really want to encourage the use of engine oil as a formwork release agent?		It is an inexpensive way of reusing an existing waste product. There is likely sulphur in used engine oil. However, the harmful compound to concrete is Sulphate (SO4). Sulphate is not normally found in engine oil. The note may be that the used oil does not contain sulphate.	Antigua to provide recommendation another type of release agent available in the Caribbean and possible Justification for comment Comment sent to Antigua to provide justification Note to include: Ensure that the used oil does not contain Sulphur Agreed to include the note
Antigu a	5.1.11.1			The rebar should be reasonably free from rust. This is very subjective and perhaps needs to be more clearly defined		Agreed. The iron component will rust; however, the rebar should be free from loose rust.	RPT recommendation: To include grade of the rebar in terms of corrosion and ways on which the rebar can be

2 Type of comment: ge = general te = technical ed = editorial

QF003	Document:	Construction	of	houses	-
	COP 10				

1	2	(3)	4	5	(6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the MB	Proposed change by the MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
						Agreed. The grade is already specified, but a note on removing any loose scale may be included.	brushed before concrete pour.
TT	5.1.14 Anchor bolts in concrete		te	The ASTM equivalent is not given as an option	Indicate that the equivalent ASTM option can be used	Agreed.	Accepted
TT	5.1.17	Clarif y	te	What are the water requirements for the concrete blinding mixture?		Will include. Approximately 5 gallons for one cubic foot (or bag) of cement.	Accepted Consultant's comment for inclusion
Bah	5.1.18.1		te	Strip footings are not used in the Bahamas - we dig into rock to secure our buildings from hurricanes. This is not a part of our Building Code.	Remove references to strip footing.	The strip footings are effective and specified in the Caribbean Uniform Building Code and in the IBC.	Accepted Consultant's comments
TT	5.1.19 Concrete spacer blocks	1	te	In the case of Concrete spacer blocks and concrete formed not being of same strength an additional element can be considered. Ribbed or deformed high tension steel rebars should be used to bond tightly to poured concrete for maximum strength. Due to climatic changes which promotes cracks and displacement in the earth the reinforcement used should aid for these movements as well as knowing that steel is to be protected by the alkaline in concrete.	State type of rebars to be used	Agreed. All main structural rebars are ribbed (or deformed). This will be clarified in 5.1.12.	Accepted
Antigu a	5.1.20.5			The documents makes reference to two-storey homes, while initially stating that this document is only applicable to single-storey homes.		It is provided should the developer want the option of expanding to two storeys later. Agreed.	Accepted Consultant's comment RPT Recommendation: In relation to the consistency of the document; where reference is made to two storey houses

2 Type of comment: ge = general te = technical ed = editorial

QF003	Document:	Construction	of	houses	Ι	
	COP 10					

1	2	(3)	4	5	(6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the MB	Proposed change by the MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
							Include Note to read: Requirements are also suitable for two storey houses.
TT	5.1.21.2		te	The cores at the openings for windows and door openings should also be reinforced and grouted	At wall openings the core adjacent to the opening shall be reinforced and grouted	Agreed.	Accepted
тт	5.1.24.4		te	Concrete block walls should not be cut diagonally or horizontally to install pipes	Concrete or clay block walls should not be cut diagonally or horizontally to install pipes	Agreed.	
Antigu a	5.2			5.2 should be placed in a separate section		It comes in chronological order - before the section on site preparation. Agreed – But it is already in a separate section, namely Section 5.2. Further guidance is needed on where it should go.	RPT agreed to include separate section
Antigu a	5.2.2.1			It is important to also include that the materials used must meet the appropriate standards. Also, this section does not make provision for changes in cost of materials, and other factors that may affect this part of the contract (supply chain issues etc.)		The material standards were included in "specified construction standards". The material cost variation may be specified in the contract as an allowed Variation – where the Employer may also benefit from reduced cost of materials.	RPT Recommendation: Reference relevant clause

2 Type of comment: ge = general te = technical ed = editorial

QF003	Document:	Construction	of	houses	Ι
	COP 10				

1	2	(3)	4	5	(6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the MB	Proposed change by the MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
TT	5.2 2.1 Contractors obligation 5.2 2.2 Employers obligation	1	ge	Contractors and or Employers obligation apart from having plans approved by authorities is to provide notification to Local Authority prior to commencement of construction to assure conformity	Contractors and Employers must be informed of the Authorities functions and responsibilities.	Agreed. Will include in 5.2.2.1 and 5.2.2.2.	Accepted
Antigu a	5.3.7 Table 9			No mention of hardhats		Hardhats are to protect the head from falling objects. There is limited risk of falling objects during site preparation activities. Hard hats are required during permanent construction work.	RPT recommended that Hard Hats should be included at all phase of the construction project
Antigu a				There is no section which speaks to waste management. Construction activities generate a significant amount of waste. All of this waste should be managed while on the site and during the disposal process. This is particularly true for construction activities near to waterways. This needs to be taken into further account when it comes to if a storm or extreme weather events occurs during construction.	It may be good to mention that the contractor/employer should have an Environmental Management Plan in place. This will encompass many different aspects of environmental concerns.	Included in Section 5.3.1. Agreed.	RPT recommended: Specify waste management plan. Consultant to review and modify accordingly
Antigu a				Health & Safety should at least be referenced in the document for construction activities. The contractor should take all measures possible to prevent injury to anyone on the site. For this, it may be easier to reference international standards/agencies (e.g. OSHA)		Included in the Risk Assessments, eg 5.3.7. <mark>Agreed.</mark>	Consultant to provide clarification and modify accordingly
Antigu a	5.3.7 Table 9			There is no mention of hurricane straps being required. If this is in another standard/code, I suggest referencing it in this document.		This is for Site Preparation activities only.	Accepted consultant's comments

2 **Type of comment: ge** = general **te** = technical **ed** = editorial

QF003	Document:	Construction	of	houses	Ι
	COP 10				

1	2	(3)	4	5	(6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the MB	Proposed change by the MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
						The requirements for hurricane straps is included in sections: 5.5.4.3, 5.6.1.4, 5.6.5.3, 5.7.4, 5.7.5 and 5.7.7.	
TT	5.4 Foundations 5.5 Floors 5.5.5. Stairs 5.6 Walls and beams 5.6.2 Concrete Stiffeners		te	Throughout the tables and the general document reference is made to H bars for reinforcement details, However if ASTM A615 Grade 60 rebar are to be used what will be the size and spacing of the reinforcement?		Will note that the equivalent Grade 60 bar sizes are stated in Table 4, and the minimum specified spacings should remain.	Agreed
TT	5.4.1 Bearing capacity Table 10		ge	Provide more details on how the table to be applied		Will explain that Table 10 was used to determine the prescriptive footing sizes in Tables 11 and 12, and that building of other soils will require e Engineering advice.	Agreed
TT	5.4.1 Bearing capacity Table 10		ed	50 [0] Is this value correct? what are the units of the numbers in []		The values are correct. The units are as noted on the second line. They are reduced bearing capacities when the soil is wet. The values are correct.	RPT recommendation: Review values and units If information omitted; it should be included
TT	5.4.4.2		te	"with 2 H12 longitudinal rebars and R6 @ 200 links) to prevent them from moving during seismic loads" Avoid interchangeable use of both BSI and ASTM bar terminology.		Same BSI terminology is used. H = high tensile, R = mild as in Section 5.1.11.4.	RPT recommendation: To use both BSI Terminologies
Bah	5.4.4.6.1		te	While inexpensive, this method of construction is not suitable for areas that are susceptible to hurricanes. As observed during Hurricane Dorian, downed forest trees twisted in place and	Remove clause.	Understood. However, it will be used in the informal sector. Therefore, guidance	Accepted Consultant's comment

2 **Type of comment: ge** = general **te** = technical **ed** = editorial

QF003	Document:	Construction	of	houses	Ι	
	COP 10					

1	2	(3)	4	5	(6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the MB	Proposed change by the MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
				snapped in two should be be good enough lesson for us to not entertain this.		must be provided on how to use it safely – which is by bracing all corners to reduce movement that may lead to weakening of the joints.	
TT	5.5.4.1		Те	The caption says strength and size. Is strength being denoted as "Pine SS and Purpleheart"?		Agreed. Will remove "strength".	Accepted
TT	5.5.4.4		te	Should this be bolt instead of bold in (iii) bolt a 75 mm x 150 mm timber?		Agreed. Will replace 'bold' with 'bolt'.	Accepted
TT	5.6.5 Timber walls.		te	Is this for external walls and internal walls? Were hurricane loads considered?		Diagonal members are for internal walls also, since they are included in the shear wall system for timber walled houses.	RPT Recommendation: Reference relevant clause
TT	5.6.5 Timber walls.		ge	What is the recommended cladding?		Agreed – will clarify. Cladding is specified in 5.6.5.4. Agreed.	RPT Recommendation: Reference relevant clause
ТТ	A 2.3 Doors and Corridors	1	te	External doors should be open inwards. It is practical and easier for disabled or differently abled bound to a wheelchair to open doors inwardly. Door opening outwardly would make the disabled become the obstruction from free access on entering freely.		It is standard practise for fire safety – when exiting.	Accepted consultant's comment
TT	Annex A		te	Consideration for installation of moisture barriers below ground floor slabs to be included in A.1.3		Agreed.	Accepted
TT	Figure 27 – Rafter connections at the ridge.		te	The specification of the connectors is not given		Specified in Section 5.7.7. "The hurricane connectors should be 1.0 mm thick (18 gauge) galvanised metal with a	RPT Recommendation: Reference relevant clause

2 Type of comment: ge = general te = technical ed = editorial

QF003	Document:	Construction	of	houses	-	
	COP 10					

1	2	(3)	4	5	(6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the MB	Proposed change by the MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
						<i>minimum tensile strength of 450 MPa."</i>	
Π	Figure 28 – Collar tie at ridge.		te	The specification of the connectors is not given		Specified in Section 5.7.7. Agreed.	RPT Recommendation: Reference relevant clause
TT	Figure 29 – Truss anchor		te	The specification of the connectors is not given		Specified in Section 5.7.7. Agreed.	RPT Recommendation: Reference relevant clause
ТТ	Figure 5 – Strip footing.		ed	Ring beam at floor level is not shown	add ring beam at floor level	The Figure was mainly to show the strip footing's components. The beam is shown in Figure 11.	RPT Recommendation: Reference relevant clause/figure
ТТ	Figure 6		te	Lap splices are not required in the circled regions. In fact, ACI recommends that at both "column to pad" and "column to beam" joints, the rebar should be curtailed towards the centroid of the column (if fixity is assumed). Lap splices are required to ensure rebar stresses are properly transferred between two adjacent rebar segments. In this application, rebar anchorage is more of a concern, ensue there is absolutely no requirement to enforce lap splices between column and beam reinforcement or even column and pad reinforcement. Section 5.1.13 of the COP document recommends a minimum lap splice of 50 bar		Understood, but this is our recommended design. Further, the laps can be achieved once the links (stirrups) are not fixed in place during the fabrication of the beam cage. If they are fixed, then the tie wire may be loosened and the links temporarily shifted out of the way. In the foundation, moments are expected	Accepted RPT Reocmmendation: Fig 6 to read"Recommended design for Pad Footing and Columns"

2 Type of comment: ge = general te = technical ed = editorial

QF003	Document:	Construction	of	houses	-	
	COP 10					

1	2	(3)	4	5 (6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the Proposed change by the MB MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
				diameters. This would be very impractical and onerous to achieve at the locations designated. top steel could also be removed from the pad foundation as this is generally not required unless the footing is experiencing negative flexure or moment reversals.	from the lateral loads on the building. Agreed.	
TT	Specifications 5.1.6		te	The section specifies what a Grout is.For consistency either the times should be included in the individual sections for the grout and mortar or in the section 5.1.8.1 that addresses mixing cementitious materials.This is inconsistent with the approach used in 5.1.7 which speaks about mortar and includes the time for use.For consistency either the times should be included in the individual sections for the grout and mortar or in the section 5.1.8.1 that addresses mixing cementitious materials.	Agreed. Will add the time in 5.1.6.	Accepted
TT	Table 1		ed	Cement for footings is listed as 1 cu-ft but the information after that is incomplete. Open brackets missing in several fields.	Open brackets to be closed.	Accepted

2 Type of comment: ge = general te = technical ed = editorial

QF003	Document:	Construction	of	houses	I	
	COP 10					

1	2	(3)	4	5	(6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the MB	Proposed change by the MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
TT	Table 1 – Mixtures for concreted and grouted elements		ge	Why is the specified concrete strength for the footings less than that of the columns and beams?	The concrete strength should be changed to match that of the beams and columns	The minimum was specified to keep the cost of the houses economical.	Accepted
TT	Table 1 – Mixtures for concreted and grouted elements		ed	1 cu-ft x 5 gal	1 cu-ft 1.5 x 5 gal	Agreed.	Accepted
TT	Table 12, Column 3		te	State minimum compressive strength as cylinder strength Cube strength values when converted to equivalent cylinder strengths are lower than minimum values specified in the ACI Codes.		Agreed.	Accepted
ТТ	Table 14 – Slab thickness and reinforcement		te	Was the deflection of the slab considered?		L/720 for stone tiles, which are now commonly used (eg porcelain). Agreed.	RPT Recommendation: Consultant to include
TT	Table 15 – Cantilever slab thickness and reinforcement Notes		te	Clarify whether this is a cantilever slab or a suspending slab		Cantilevered.	Accepted
TT	Table 2			The column indicating quantity of water appears to be a copy and paste of the Slump column of Table 1.		Agreed. Will correct.	Accepted
ТТ	Table 20 – Beam sizes and rebars		te	The recommendations of this table do not appear to conform to seismic requirements of chapter 21 of the ACI 318		These are internal suspended beams that support internal masonry walls in masonry construction. Lateral (seismic) loads are to be taken by the shear walls.	Accepted

2 Type of comment: ge = general te = technical ed = editorial

QF003	Document:	Construction	of	houses	I	
	COP 10					

1	2	(3)	4	5	(6)	(7)	(8)
MB ¹	Clause No./ Subclause No./ Annex / Figure / Table	Line Num ber	Type of com- ment ²	Comment (justification for change) by the MB	Proposed change by the MB	Consultant observations on each comment submitted	RPT Observation and action take on Comments submitted
ТТ	Tables 11 and 12		ed	Given that technical and likely non-technical people will be using the document, the inclusion of simple sketches can Figure 16.enhance the understanding of Tables 11 and 12.		Figure 5 describes Table 11 and Figure 6 describes Table 12. Agreed – will clarify.	Consultant to take note
DM	N/A		te	There are no specification relating to concrete roof. Specifications such a minimum slope of 1.5%, surface treatment to prevent leaks, and minimum size of pipes for drains. Post Hurricane Maria, this type of construction is becoming common place.	Include specifications for concrete roofs	Section 5.5.2 will be amended to include concrete roofs.	Accepted consultant's comment

2 Type of comment: ge = general te = technical ed = editorial