



**REGIONAL PROCUREMENT HUB PROGRAM – REGION 7  
 SUPPLEMENTAL BID BULLETIN NO. 24-07  
 FOR THE  
 PROCUREMENT OF SUPPLY AND DELIVERY OF CONDUCTORS  
 (PB-ITB-R7-4-2024)**

In accordance with Section 4.3.2 of Annex "B" of the NEA Memorandum No. 2024-06, this Supplemental Bid Bulletin is hereby issued to clarify, modify or amend the following items for PB-ITB-R7-4-2024:


Section/Item No.	Issue in the Bidding Documents / Technical Specifications	Clarification / Amendment
<b>Section V. Terms of Reference</b>		
TOR 6.1 (Detailed Technical Specifications for Items A and B)	TOR 6.1, <b>Aluminum Wires, Testing</b> , required clarification on the updated ASTM B233 to be used.	For clarity, TOR 6.1, <b>Aluminum Wires, Testing</b> is <b>amended</b> to provide:  "The aluminum wire shall have tensile strengths depending on temper as shown in <u>ASTM B233</u> or its <u>latest revision</u> ."
TOR 6.1 (Detailed Technical Specifications for Items A and B)	TOR 6.1, <b>Scope</b> , Third Bullet, requires clarification on appropriate ASTM standard applicable for Aluminum Conductor Steel Reinforced (ACSR) Cables.  The Third Bullet refers to ASTM B399-86 and ASTM B398-6 Standards refer to All Aluminum Alloy Conductors (AAAC).  The more appropriate standard for Items A and B of the Bidding Documents) is ATM B232 which refer to ACSR Cables.	For Clarity, TOR 6.1, <b>General</b> , Third Bullet, is <b>deleted</b> .
TOR 6.1 (Detailed Technical Specifications for Items A and B)	TOR 6.1, <b>Construction</b> , requires clarification on appropriate ASTM standard applicable for Aluminum Conductor Steel Reinforced (ACSR) Cables.  The said portion of TOR 6.1 refers to ASTM B399-86	For clarity, TOR 6.1, <b>Construction</b> , is <b>amended</b> to provide:  "The number and diameter of aluminum alloy wires and the stranding shall conform to the requirements of Tables 1, 2 and 3 of <u>ASTM B232</u> ."



	<p>which refer to All Aluminum Alloy Conductors (AAAC).</p> <p>The more appropriate standard for Items A and B of the Bidding Documents is ATM B232 which refer to ACSR Cables.</p>	
<p>TOR 6.1 (Detailed Technical Specifications for Items A and B)</p>	<p>TOR 6.1, <b>Conductor Strength</b>, requires clarification on appropriate ASTM standard applicable for Aluminum Conductor Steel Reinforced (ACSR) Cables.</p> <p>The said portion of TOR 6.1 refers to ASTM B399-86 which refer to All Aluminum Alloy Conductors (AAAC).</p> <p>The more appropriate standard for Items A and B of the Bidding Documents is ATM B232 which refer to ACSR Cables.</p>	<p>For clarity, TOR 6.1, <b>Conductor Strength</b>, is <b>amended</b> to provide:</p> <p>“The rated conductor strength shall be the aggregate strength of the aluminum wires determined by the methods described in <u>Section 9.1 of ASTM B232.</u>”</p>
<p>TOR 6.1 (Detailed Technical Specifications for Items A and B)</p>	<p>TOR 6.1, <b>Material Density</b>, requires clarification on appropriate ASTM standard applicable for Aluminum Conductor Steel Reinforced (ACSR) Cables.</p> <p>The said portion of TOR 6.1 refers to ASTM B399-86 which refer to All Aluminum Alloy Conductors (AAAC), as well as the chemical compositions under ASTM B 398-85.</p> <p>The more appropriate standard for Items A and B of the Bidding Documents is ATM B232 which refer to ACSR Cables.</p>	<p>For clarity, TOR 6.1, <b>Material Density</b>, is <b>amended</b> to provide:</p> <p>“In accordance with Section 10 of ASTM B232, the density of aluminum alloy wire is assumed to be 2.705 gm/cm<sup>3</sup> (0.0975 lb/in<sup>3</sup>) at 20°C on the basis of 99.45 percent purity. The density of galvanized wire is assured to be 7.78 gm/cm<sup>3</sup> (0.281 lb/in<sup>3</sup>) at 20°C.”</p>
<p>TOR 6.1 (Detailed Technical Specifications for Items A and B)</p>	<p>TOR 6.1, <b>Weight and Electrical Resistance</b>, requires clarification on appropriate ASTM standard applicable for Aluminum</p>	<p>For clarity, TOR 6.1, <b>Weight and Electrical Resistance</b>, is <b>amended</b> to provide:</p>

	<p>Conductor Steel Reinforced (ACSR) Cables.</p> <p>The said portion of TOR 6.1 refers to ASTM B399-86 which refer to All Aluminum Alloy Conductors (AAAC).</p> <p>The more appropriate standard for Items A and B of the Bidding Documents is ASTM B233.</p>	<p>“The weight and electrical resistance of the stranded conductor shall be determined by the methods described in <u>ASTM B233 or its latest revision.</u>”</p>
<p>TOR 6.1 (Detailed Technical Specifications for Items A and B)</p>	<p>TOR 6.1, <b>Variation</b>, requires clarification on appropriate ASTM standard applicable for Aluminum Conductor Steel Reinforced (ACSR) Cables.</p> <p>The said portion of TOR 6.1 refers to ASTM B399-86 which refer to All Aluminum Alloy Conductors (AAAC).</p> <p>The more appropriate standard for Items A and B of the Bidding Documents is ATM B232 which refer to ACSR Cables.</p>	<p>For clarity, TOR 6.1, <b>Variation</b>, is <b>amended</b> to provide:</p> <p>“Limits of variation of the cross section of the aluminum wires shall be as described in <u>Section 12 of ASTM B232.</u>”</p>
<p><b>Section VII. Bid Forms</b></p>		
<p>Form#10 - Details of Technical Specifications</p>	<p>Bid Form#10 (Details of Technical Specifications) requires revisions to conform with the revisions to Clauses 6.1 of the TOR as provided above.</p>	<p>Bid Form#10 (Details of Technical Specifications) is <b>amended</b> to conform with the revisions to Clause 6.1 of the TOR as stated above.</p> <p>Please see further revised Details of Technical Specifications Form attached herein as <b>Annex “A”</b>.</p> <p><b>Note:</b> The revised Bid Form#10 attached herein already incorporates the previous revisions made under SBB No. 24-04 dated 15 July 2024.</p>

Issued this 26<sup>th</sup> day of July 2024 for the guidance and information of all concerned.

  
**ATTY. OSWALDO F. GABAT**  
Member  
NEA RPH SBAC

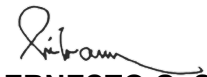
  
**MS. IRENE C. MARTIN**  
Member  
NEA RPH SBAC

  
**ENGR. EXEQUIEL T. EVALE, JR.**  
Member  
NEA RPH SBAC

(Sgd.)  
**MS. ROSIE M. ALAMILLO**  
Member  
NEA RPH SBAC

  
**ENGR. RODERICK N. PADUA**  
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**ENGR. ERNESTO O. SILVANO, JR.**  
Chairperson  
NEA RPH SBAC

APPROVED:

  
**ANTONIO MARIANO C. ALMEDA**  
Administrator

CONFORME:

  
**VIRGILIO C. FORTICH**  
President  
Region VII Electric Cooperative Association, Inc.  
Confirmed Regional Association.

**Form#10: Details of Technical Specifications**

(Letterhead of the Bidder)

Date: \_\_\_\_\_, 2024

**NEA Special Bids and Awards Committee (NEA SBAC)**

#57 NEA Building, NIA Road,  
Barangay Pinyahan, Government Center Diliman,  
Quezon City

**Attention:** **Engr. Ernesto O. Silvano, Jr.**  
*Chairperson of the NEA SBAC  
for the RPH Program*

**Subject:** Details of Technical Specifications of [Name of Bidder]

<i>Detailed Technical Specifications for: Conductors (Lot No. IV, Items A and B)</i>			
Particulars	Specifications Prescribed in Bidding Documents	Statement of Compliance	Details of Added Technical Specifications (if any)
<b>Scope</b>	<ul style="list-style-type: none"> <li>• The conductors shall be bare coated steel-reinforced concentric-lay-stranded aluminum conductors (ACSR), to be used on electric cooperative distribution lines. These conductors are made of round aluminum wires wrapped around a central zinc-coated round steel-wire core.</li> <li>• All conductors offered must conform and passed Philippine standard certified by the Department of Trade and Industry (DTI) and Philippine Electrical Code (PEC).</li> </ul>		
<b>General</b>	<ul style="list-style-type: none"> <li>• ACSR conductors shall conform in all respects to the dimensional and performance requirements provided herein, which covers: (a) Steel Core Wire; (b) Aluminum Wire.</li> <li>• The ACSR conductors shall be classified as Class A as designated in ASTM B232.</li> </ul>		
<b>Steel Core</b>	<p><u>Material</u></p> <p>The steel wire shall be fabricated from steel obtained by the open-hearth, electric furnace, of basic oxygen process and conforms to the chemical composition specified in Section 3 of ASTM B498 as follows:</p>		

	<b>Element</b>	<b>Composition, Percent (%)</b>			
	Carbon	0.50 to 0.85			
	Manganese	0.50 to 1.10			
	Phosphorous, max.	0.035			
	Sulphur, max.	0.045			
	Silicon	0.10 to 0.35			
	<p><u>Testing</u></p> <p>The steel wire shall be tested in accordance with Section 5, 6 and 10 of ASTM B498.</p>				
	<p><u>Corrosion Protection</u></p> <ul style="list-style-type: none"> <li>• The steel wire shall be coated with Zinc to Class A requirements with coating weight described in Table 4 of ASTM B498.</li> <li>• Additional protection for ACSR conductor against corrosion of the steel core shall be provided by use of a suitable corrosion inhibition, grease or oil.</li> </ul>				
<b>Aluminum Wires</b>	<p><u>Material</u></p> <p>The round aluminum wire shall be drawn from rods that conform to the chemical requirements of Table 2, ASTM B230.</p>				
	<p><u>Testing</u></p> <p>The aluminum wire shall have tensile strengths depending on temper as shown in ASTM B233 or its latest revision.</p>				
	<p><u>Resistivity</u></p> <p>The electrical resistivity limits and values of the aluminum rods are presented in Table 4 of ASTM B230.</p>				
	<p><u>General</u></p> <p>The aluminum wires used shall meet the requirements of ASTM B230.</p>				
<b>Lay Factor</b>	<p>The lay factor of the aluminum alloy wire shall be in a right-hand direction and shall be not less than 10 or more than 16 times the outside diameter of the conductor. The preferred lay factor is 13.5 times the diameter.</p>				
<b>Construction</b>	<p>The number and diameter of aluminum alloy wires and the stranding shall conform to the requirements of Tables 1, 2 and 3 of ASTM B232.</p>				

<b>Conductor Strength</b>	The rated conductor strength shall be the aggregate strength of the aluminum wires determined by the methods described in Section 9.1 of ASTM B232.																																																	
<b>Material Density</b>	In accordance with Section 10 of ASTM B232, the density of aluminum alloy wire is assumed to be 2.705 gm/cm <sup>3</sup> (0.0975 lb/in <sup>3</sup> ) at 20°C on the basis of 99.45 percent purity. The density of galvanized wire is assumed to be 7.78 gm/cm <sup>3</sup> (0.281 lb/in <sup>3</sup> ) at 20°C.																																																	
<b>Weight and Electrical Resistance</b>	The weight and electrical resistance of the stranded conductor shall be determined by the methods described in ASTM B233 or its latest revision.																																																	
<b>Variation</b>	Limits of variation of the cross section of the aluminum wires shall be as described in Section 12 of ASTM B232.																																																	
<b>General Characteristics</b>	<ul style="list-style-type: none"> <li>ACSR conductors shall have the following characteristics:</li> </ul> <table border="1" data-bbox="408 639 1457 826"> <thead> <tr> <th rowspan="2">SIZE AWG or MCM</th> <th colspan="2">STRANDS No. &amp; Size-Inches</th> <th rowspan="2">OVERALL DIAMETER (inches)</th> <th rowspan="2">DC Resistance Ohms/mile @ 25°C</th> <th rowspan="2">Ultimate Strength Pounds</th> </tr> <tr> <th>Aluminum</th> <th>Steel</th> </tr> </thead> <tbody> <tr> <td>#1/0</td> <td>6 x .1327</td> <td>1 x .1327</td> <td>0.398</td> <td>0.885</td> <td>4,280</td> </tr> <tr> <td>#4/0</td> <td>6 x .1878</td> <td>1 x .1878</td> <td>0.563</td> <td>0.441</td> <td>8,420</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>Bare Aluminum Conductor Steel Reinforced. Reference: ASTM B232-01 (Standard Handbook for Electrical Engineers)</li> </ul> <table border="1" data-bbox="408 932 1425 1170"> <thead> <tr> <th rowspan="2">Size AWG</th> <th rowspan="2">Code Name</th> <th colspan="2">CONSTRUCTION</th> <th rowspan="2">STRANDED BARE DIAMETER (mm)</th> <th rowspan="2">TOTAL WEIGHT (Kg/Km)</th> <th rowspan="2">DC RESISTANCE @ 20 Deg. (Ohm/Km)</th> <th rowspan="2">CURRENT AMPACITY (Amp.)</th> </tr> <tr> <th>ALUMINUM (pc X mm)</th> <th>STEEL (pc X mm)</th> </tr> </thead> <tbody> <tr> <td>1/0</td> <td>Raven</td> <td>6 X 3.371</td> <td>1 X 3.371</td> <td>10.110</td> <td>216</td> <td>0.538</td> <td>230</td> </tr> <tr> <td>4/0</td> <td>Penguin</td> <td>6 X 4.770</td> <td>1 X 4.770</td> <td>14.300</td> <td>433</td> <td>0.268</td> <td>340</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>All Conductors must be aluminum cable steel-reinforced (ACSR), Steel wire must be coated with zinc. Additional protection of conductor against corrosion must be provided by corrosion inhibition. Diameter and strength of conductor shall conform to ANSI/IEC standards, guy wire must be galvanized, 3/8" dia., 7-strand, high strength. The conductor / wire cable shall be free of imperfections, sharp protrusions and blemishes not consistent with good commercial practice. Test for the individual aluminum alloy wire shall include, but not limited to:</li> </ul>		SIZE AWG or MCM	STRANDS No. & Size-Inches		OVERALL DIAMETER (inches)	DC Resistance Ohms/mile @ 25°C	Ultimate Strength Pounds	Aluminum	Steel	#1/0	6 x .1327	1 x .1327	0.398	0.885	4,280	#4/0	6 x .1878	1 x .1878	0.563	0.441	8,420	Size AWG	Code Name	CONSTRUCTION		STRANDED BARE DIAMETER (mm)	TOTAL WEIGHT (Kg/Km)	DC RESISTANCE @ 20 Deg. (Ohm/Km)	CURRENT AMPACITY (Amp.)	ALUMINUM (pc X mm)	STEEL (pc X mm)	1/0	Raven	6 X 3.371	1 X 3.371	10.110	216	0.538	230	4/0	Penguin	6 X 4.770	1 X 4.770	14.300	433	0.268	340		
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	<ul style="list-style-type: none"> <li>a) Chemical composition test</li> <li>b) Tension Test</li> <li>c) Electrical Resistivity Test</li> <li>d) Dimensional Check</li> </ul> <ul style="list-style-type: none"> <li>• Certified test reports in two (2) copies shall be furnished for each conductor/ wire cables prior to shipment. The bidder shall furnish with his bid sufficient information to correct evaluation of the bid in relation to this specification. Such as: <ul style="list-style-type: none"> <li>a) Manufacturers guaranteed chemical physical and electrical characteristic of the conductor offered.</li> <li>b) Shipping details dimension and construction details of the shipping reels offered.</li> <li>c) Complete catalog information.</li> </ul> </li> <li>• Conductor shall be shipped on non-returnable reels constructed from new treated lumber which shall be square sawn, be of smooth surface, with no splits , warps, crooks, loose fibers, decay or insect infestation.</li> <li>• Tagging shall be attached to the inside and outside of the reel containing the following information: <ul style="list-style-type: none"> <li>a) Gross and net weights</li> <li>b) Conductor size, type and number of strands</li> <li>c) Conductor length</li> <li>d) Manufacturers name and identification symbol.</li> </ul> </li> </ul>														
<b>Finish</b>	The conductor shall be free of imperfections, sharp protrusions and blemishes no consistent with good commercial practice.														
<b>Test &amp; Inspection</b>	The manufacturer shall conduct conductor tests and inspections in accordance with Section 16 of ASTM B232 or IEC 888, in so far as applicable. The Member ECs reserve the right to witness ANY OR ALL factory tests and the Supplier shall notify the Member ECs fifteen (15) days before each test is to be conducted. The manufacturer shall also conduct conductor reel tests and inspections and submit test reports before shipment to verify that the reels and lagging comply with the requirements of the Standards provided herein. The Member ECs shall have the prerogative to inspect conductor reels at any time to ensure compliance of this standard. Non-conforming reels and lagging are unacceptable.														
<b>Packaging &amp; Shipping</b>	<ul style="list-style-type: none"> <li>• Conductors shall be shipped on non-returnable reels manufactured from aluminum steel or export quality preservative treated wood lagging. Wood reels and all lagging shall be constructed from new lumber which shall be square sawn, be of smooth surface, with not splits, warps, crooks, loose fibers, decay or insect infestation. The lumber used for wood reels and all lagging shall be preservative treated in accordance with "American Wood Preservers Associates Standards" and as stipulated below:</li> </ul> <table border="1" data-bbox="406 1273 1564 1425"> <thead> <tr> <th>Description</th> <th>Requirements/Methods</th> <th>AWPA Standards</th> </tr> </thead> <tbody> <tr> <td>Lumber:</td> <td>All Softwood Species</td> <td>C1-82, C-2-82 and C16-82</td> </tr> <tr> <td>Preservatives: (any one)</td> <td>Acid copper Chromate (ACC) Ammoniacal Copper Arsenate (ACA) Chromated Copper Arsenate Type C (CCA-C)</td> <td>C1-82, C2-83 and C16-82</td> </tr> <tr> <td>Treatment:</td> <td>Pressure treatment after all carpentry works</td> <td>C1-82, C2-83, and C16-82</td> </tr> </tbody> </table>	Description	Requirements/Methods	AWPA Standards	Lumber:	All Softwood Species	C1-82, C-2-82 and C16-82	Preservatives: (any one)	Acid copper Chromate (ACC) Ammoniacal Copper Arsenate (ACA) Chromated Copper Arsenate Type C (CCA-C)	C1-82, C2-83 and C16-82	Treatment:	Pressure treatment after all carpentry works	C1-82, C2-83, and C16-82		
Description	Requirements/Methods	AWPA Standards													
Lumber:	All Softwood Species	C1-82, C-2-82 and C16-82													
Preservatives: (any one)	Acid copper Chromate (ACC) Ammoniacal Copper Arsenate (ACA) Chromated Copper Arsenate Type C (CCA-C)	C1-82, C2-83 and C16-82													
Treatment:	Pressure treatment after all carpentry works	C1-82, C2-83, and C16-82													



<b>Results of Treatment:</b>		
Penetration:	Minimum 0.4 inches from the surface of any face	C16-82
Assay Zone:	0-0.6 inch zone	C16-82
Retention:	0.62 bcf for ACC, 0.40 for ACA and CCA. Copper shall be calculated as CuO, Chromium as CRO <sub>3</sub> and Arsenic as AS <sub>2</sub> O <sub>5</sub>	C1-82, C2-83, and C16-82
Tests:	1)Wet ash analysis for oxides 2)X-ray 3)Atomic Absorption	A7-75, A2-85 Section 2, 5, 6 A9-86 A7-75 and A11-83

- A typical wooden reel and lagging are shown in Figures 1A and 1B and shall have the following dimensions:

<b>Dimensions (Inches)</b>					
Reel Designation	Flange Diameter	Drum Diameter	Width		Arbor Hole Diameter
			Inside	Outside	
NRX-30.22	30	18	22	25.5	3
NRX-42.25	42	21	28	31.5	3
NRX 60.28	60	28	28	31.5	3

- The reel shall be prepared for shipping by:
  - a) Nailing one-inch (1") lagging strips to the flanges using two (2) eight-penny (8d) nails at each end.
  - b) Binding the lagging strips circumferentially with at least four (4) galvanized strips.

<b>Dimensions (Inches)</b>					
Reel Designation	Flange Diameter	Drum Diameter	Width		Arbor Hole Diameter
			Inside	Outside	
NRX-30.22	30	18	22	25.5	3
NRX-42.25	42	21	28	31.5	3
NRX 60.28	60	28	28	31.5	3

ACSR CONDUCTOR			REEL SIZE	WEIGHT lbs/1000FT	NOMINAL LENGTH (FT)	WEIGHT OF NOMINAL LENGTH (LB)
AWR	OR	MCM				
1/0		6.1	30.22	145.2	3,300	480
4/0		6/1	30.22	291.1	1,900	550

- Cutting length shall be 2,000 Meters per Reel.
- Each reel shall contain one length of conductor. The Member ECs permit a variation in length of plus or minus five percent(+/- 5%) of the nominal shipping length.
- The Member ECs shall also allow an amount of conductor not exceeding ten percent (10%) of the total weight of the order to be shipped in random lengths none of which shall be shorter than fifty percent (50%) of the nominal shipping length.

	<ul style="list-style-type: none"> <li>• Metal tags shall be attached to the inside and outside of the reel containing the following information: <ul style="list-style-type: none"> <li>a) Gross and net weights;</li> <li>b) Conductor size, number of strands;</li> <li>c) Length (Feet);</li> <li>d) Catalog number;</li> <li>e) Manufacturer's name and/or identification symbol; and</li> <li>f) Shipping data.</li> </ul> </li> </ul>		
<b>Other Standards</b>	The dimensional and performance requirements of bare ACSR conductors, based on other internationally recognized standards, are acceptable only if the requirements of such standards are equivalent to or exceed the requirements quoted in this Technical Specifications.		
<b>Applicable Standards</b>	<p>ASTM B232 Standard Specification for Concentric-Lay-Stranded Aluminum Conductors, Coated-Steel Reinforced (ACSR).</p> <p>ASTM B498 Standard Specification for Zinc Coated (Galvanized) Steel Core Wire for Aluminum Conductors, Steel Reinforced (ACSR),</p> <p>ASTM B230 Standard Specification for Aluminum 1350 H19 Wire for Electrical Purposes.</p> <p>ASTM B233 Standard Specification for Aluminum 1350 Redraw Rod for Electrical Purposes.</p> <p>IEC 888 Zinc-coated steel wires for stranded conductor</p> <p>All other applicable standards</p>		

**Company Name:**

\_\_\_\_\_ [Name of Bidder]

**Authorized Representative:**

\_\_\_\_\_ [Name and Signature of Authorized Representative]

**Contact Details:**

\_\_\_\_\_