

## DECISION OF PRE BID MEETING

### Tender for Supply, Delivery, Installation and Commissioning of laboratory Equipment for Faculty of Science & Technology

**Tender No** : UWU/G/NCB/17/02

**Date & Time** : 10<sup>th</sup> July 2017 at 11.00 am

**Venue** : Finance Division

At the Pre Bids Meeting following clarification were made against the bidders' questions.

- a. Changes in specifications – Specifications of following items were change at the Pre Bid Meeting( Refer annexure for new specification)


Item No.	Item	Reference Annexure
1	Fume Hood	Annexure 01
2	X Ray Defractometer	

Chairman,  
Department Procurement Committee  
Uva Wellassa University

## Technical Specifications

### Tender for Supply, Delivery, Installation and Commissioning of laboratory Equipment for Faculty of Science & Technology

No	Item	Specifications	Qty	Bidders' Response
1	<b>Fume Hood</b>	<p>Fume hood shall function as ventilated, enclosed workspaces, designed to capture, contain and exhaust fumes, vapors and particulate matter produced or generated within the enclosure.</p> <p><b>Structure and Materials of construction</b></p> <ul style="list-style-type: none"> <li>· Hood should be a double-wall construction</li> <li>· Chamber interior and exterior made from materials that has capability of HF handling and acid digestion and should be epoxy-coated, and heat resistivity</li> <li>· Chain and Sprocket Sash support system should be available</li> <li>· Energy-efficient hood lighting through a pre-wired, electronic ballast. Typical light intensity on work surface is 930 lux in zero ambient condition.</li> <li>· Hoods shall be equipped with sufficient fluorescent or incandescent lighting. The light fixture shall be easily accessible from the outside of the hood, shall be shielded from the hood interior by a laminated or tempered glass panel, and shall be vapor sealed.</li> <li>· U-PVC exhaust collar should be available to ensure superior chemical resistance.</li> <li>· Exhaust motors and duct systems for hoods are to be sized and designed to provide an average hood face velocity of 80-100 LFM, as measured at the face, with the sash wide open. Deviations in this value shall not be greater than 20% at any point across the hood face.</li> <li>· Standard service fixtures included: 1 remote-controlled water fixture, 1 remote-controlled gas fixture and 1 Polypropylene drip cup.</li> <li>· Four (4) single electrical outlets with splash-proof cover should be provided.</li> <li>· Hood sidewalls shall be properly formed to present a smooth airfoil to the inflowing air.</li> <li>· After fabrication and before final assembly, all component parts shall be given an acid, alkali and solvent resistant finish on both exterior and interior surfaces.</li> </ul>	5	

		<p><b>Baffles</b></p> <ul style="list-style-type: none"> <li>· Perforated primary baffle should be designed to pull air in horizontal streams to minimize the air roll pattern associated with traditional fume hoods.</li> <li>· Baffle slot pattern should be designed to optimize face velocity profile.</li> <li>· A secondary baffle should be located behind the primary perforated baffle to counteract upward air streams that produce roll.</li> </ul> <p><b>Safety Features</b></p> <ul style="list-style-type: none"> <li>· Shaping vanes increase airflow “sweep” at the critical area at the sidewall to improve containment, especially when laboratory personnel walk fast in front of the hood.</li> <li>· Sash should be made from polycarbonate to prevent hydrofluoric acid fume etching</li> <li>· Hood should be incorporated a perforated sash handle to bleed air into the hood chamber directing fume concentrations away from the user's breathing zone.</li> <li>· Sash stop limits sash movement beyond 450mm (18.0”), ‘encouraging’ user to work a safe positions.</li> <li>· When sash is raised above 450mm (18.0”), it should automatically and gently fall back to the safe level (Creep-down mechanism) unless held in place. This allows the sash to be raised temporarily to the full open position for set up of equipment and apparatus in hood, while enforcing regular operation of the hood with lowered sash</li> <li>· Sash key lock feature should be available to allow laboratory managers to restrict access to the fume hood.</li> <li>· Hot zone baffle system rapidly draws contaminants out of the fume hood's work zone, thereby, facilitating quick thermal heat relief.</li> <li>· Aerodynamic airfoil design should be available (aids in the efficient flow of air towards the hood. It also helps reduce turbulence and eliminate back flow)</li> <li>· Should be Ergonomic sash handle to gently direct air into the hood without sacrificing visibility.</li> </ul> <p><b>Required Standards</b></p> <ul style="list-style-type: none"> <li>· ASHRAE Standard 110.1995 - Method of Testing Performance of Laboratory Fume Hoods</li> <li>· EN 14175 – 2003 - Method of testing performance</li> <li>· SEFA 1:2006 – Recommended Practice for Laboratory Fume Hoods</li> </ul>		
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2	<b>X Ray Defractometer</b>	<p>Specification for X-Ray Diffractometer</p> <p>Instrument must have the relevant accessories to probe wide-angle x-Ray scattering and small-angle x-Ray in addition to the powder diffraction measurements.</p> <p>X-ray generator and necessary cooling system (if applicable) must be provided with the instrument.</p> <p>Following specifications for X-ray generator is desired.</p> <p>Maximum rated output: between 2 kW to 4 kW (higher output is preferred)</p> <p>Rated tube voltage: 20 to 60 kV</p> <p>Rated tube current: 2 to 60 mA</p> <p>Target: Cu is preferred</p> <p>Goniometer should have the following specifications</p> <p>Scanning mode: <math>\theta_s/\theta_d</math> coupled or <math>\theta_s</math>, <math>\theta_d</math> independent</p> <p>2<math>\theta</math> linearity <math>\pm 0.01</math> or better</p>	1	



	Minimum step size: At least 0.0001° is preferred	
	Sample size:	
	For WAXS/Powder diffraction	
	At least 2 cm diameter sample cell with automatic sample positioning is needed (at least 6 samples positioning holder/cabinet or relevant accessory is needed)	
	Individual sample rotation capability is needed	
	Standard samples must be provided with the instrument to check the precision of the instrument configuration	
	Zero-background sample holders must be provided	
	For Small angle X-ray Scattering	
	Necessary sample loading accessories to load solid as well as liquid samples must be provided.	
	If liquid samples are loaded into quartz capillaries, branded quartz capillaries (at least 100 numbers) must be provided	
	Sample holders for liquid as well as solid must be provided with the instrument	
	Temperature controller (if available) is preferred	
	Inert sample environment (if available) is preferred	
	If vacuum path is needed for the measurement, branded vacuum pump must be provided with the instrument	
	If the instrument have to align for the SAXS measurements, the standard sample to check the precision of alignment must be provided	
	Necessary optics must be provided for both powder diffraction and SAXS	
	Divergence slit: Fixed or automatic variable:	
	Scattering slit: Fixed or automatic variable	
	Receiving slit: Fixed or automatic variable	
	If above slits are used, they must be provided with the instrument	
	If Monochromator is needed it must be provided	
	Maximum weight: Less than 1500 kg	
	Branded desktop computer, UPS, branded laser printer and all the related software to run the samples as well as analyze the data, and standard database must be provided with the instrument	
	ICDD reference database must be included. If supported open source data base must be provided	
	Power supply must be compliance with the Sri Lanka Standards. If voltage convertor is needed, it must be provided with the instrument	
	Full-automated alignment under computer control is preferred	
	Additional Required Features	

		<p>If possible accessories for X-ray reflectivity should be provided/or quoted as optional</p>		
		<p>Ability to do micro-crystalline diffraction, thin-film diffraction, small angle scattering, and in-plane scattering, X-ray reflectivity. If the accessories are needed it should be quoted</p>		
		<p><b><u>Important.</u></b></p>		
		<p>Quoted X-ray instrument must have the Small angle X-ray scattering, wide angel X-ray scattering and powder diffraction capability and necessary equipment and necessary software to do the measurements and analyze the data.</p>		
		<p>If possible accessories for X-ray reflectivity should be provided/or quoted as optional</p>		
		<p><b>Warranty:</b> One Year warranty is required Five year service agreement should be quoted as Optional</p>		
		<p>Foreign application training at Manufacture site after installations of 3- 6 month should be quoted as optional</p>		

