

# UNIDO



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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION  
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## **Terms of Reference for Purchase of a CNC Working Centre for Stone**

**Project:** SAP 140212 – Strengthening Capacity of Palestinian Stone and Marble Center

### **A. General Background Information**

The project supports the Palestinian Stone and Marble Center (PSMC) to enhance its sustainability and effectiveness as a technical support centre for the development of Palestine's stone manufacturing base. The project consists of technical assistance to PSMC to institutionalize its quality management systems, broaden its delivery of specialized technical training and advisory services and disseminate industry-relevant information and research-evidence applications.

PSMC (herewith referred to interchangeably as "the Center" or "PSMC") is a public institution located on the premises of the Palestine Polytechnic University (PPU) in Hebron, Palestine. It encompasses an industrial workshop, a testing laboratory and a research unit.

The Center offers a 2-year post-secondary diploma on technology and management for stone processing and is equipped with a modern industrial workshop for practical exercises. As Palestinian fabricators have started investing in computer-numerical-controlled (CNC) machines to increase efficiency and reduce waste in stone processing, the Center intends to expand its technical/vocational education by equipping its diploma students with the basic skills necessary to program and operate CNC machines for shaping slabs and blocks pieces from limestone, marble, granite and composite stone.

### **B. Scope of the Supply**

The main purpose of these contractual services is to purchase a CNC working centre (or CNC machining centre) for machining kitchen counter tops, vanity tops, showers, flooring, architectural objects, 3D artistic decorations and the like. The CNC stone is to be used for educational purposes.

The successful Contractor shall be responsible for:

- supply, delivery and successful installation of the equipment (see sections B.1 and B.2)
- training (see section B.3)
- after-sales technical support (see section B.4)
- provision of an equipment maintenance contract (Section B.5)

## B.1 Technical specifications and origin of equipment

The equipment to be supplied is a 3 or 4 interpolated axes CNC working centre designed for carrying out a wide range of machining operations (e.g. edge contouring, routing, hollowing, embossing, shaping, tapering, making bas-relief, etc.) on slabs and blocs of natural and composite stone of low and medium thickness (10-200mm). It should be suitable for a small- or medium-size workshop to train diploma students and stone operators to acquire the basic skills to program and operate CNC machining centre for interior design and architectural art. Below are some examples of the type of stone artifacts that the machine should be able to process.



The equipment shall carry CE markings for the European Economic Area for proof of construction to International Standards. Where equipment or components do not carry CE marking, copies of conformity certificates shall be provided.

Specifically, the CNC working/machining centre should have the following characteristics.

Technical Requirements	
<b>Structural features</b>	<ul style="list-style-type: none"> <li>– X-axis stroke on linear guides with brushless motor,</li> <li>– Y-axis stroke on linear guides with brushless motor,</li> <li>– Z-axis stroke on linear guides with brushless motor,</li> <li>– steel base to be secured to the floor</li> <li>– work area (X-Y-Z) dimensions not less than 2000x1000mm of rectified aluminum or stain steel (geometrical tolerance less than +/- 0.5 mm)</li> <li>– manual and/or automatic grease lubrication system</li> <li>– suitable air pressure connection</li> <li>– internal and external cooling water system for the tools</li> <li>– spindle-holding carriage running on roller or linear slides</li> <li>– electrical spindle motor power equal or more than 4 Hp controlled by inverter and with tool fastening ISO 40 connection</li> <li>– tool rotation controlled by inverter for the variation of speed from 500 to 10.000 rpm (min) digitally-controlled CNC system with PC architecture and PC unit utilizing Windows as operating system</li> <li>– control console (for axes management, emergency- shut-down, input, etc.) mounted on a structure near to the machining centre (approx. 5 meters distance) with TFT display, keyboard, mouse and USB port for data transfer</li> <li>– slab fixing system with mechanical locking and at least 4 suction cups of diameter (100/150mm approximately), at least no. 2 suction cups squared (200x200mm approximately), at least no. 2 fixed rear stops, at least no. 3 fixed stops with removable upper part; all above components complete with related accessories, pipes, joints, etc.</li> <li>– vacuum pump of power minimum 1Hp</li> <li>– electrical connection voltage: 400 V three-phase+ Neutral - 50Hz</li> <li>– equipped with external and internal cables for all the necessary connections</li> </ul>
<b>Tool-store</b>	<ul style="list-style-type: none"> <li>– automatic tool-store with 10 positions (min.) on rack.</li> <li>– automatic tool change</li> <li>– laser point device for positioning of suction cups</li> <li>– tool positioning through a pneumatic system with pressure regulator and gauge (up to 6 bar) suitable for the easy connection to the workshop electro-compressor already on site and production capacity more than 50 Lt/min.</li> </ul>
<b>Software</b>	<ul style="list-style-type: none"> <li>– basic software to import files generated by the CAM program for pieces to be machined and simulate the entire workflow</li> </ul>

Technical Requirements	
	<ul style="list-style-type: none"> <li>– basic software</li> <li>– compatibility with other software such as those produced by TAGLIO</li> </ul>
<b>Tools and Accessories</b>	<ul style="list-style-type: none"> <li>– min Kg 5 of lubrication grease</li> <li>– 1 core drill for marble/limestone D35xL.U.55 A=1/2 Gas</li> <li>– 1 vacuum brazed router for marble/limestone 1A1W BS 16x45 A=1/2 Gas</li> <li>– 1 set profile A30mm for marble/limestone (sequence of 5 grains – half bull nose)</li> <li>– 1 set of hard metal or widia pointed and milling tools for monumental works in marble/limestone</li> </ul>

## **B.2 Installation and commissioning**

Equipment shall be installed, tested and connected to PSMC's electric circuit and ITC network. Prior to the actual installation of the equipment, the successful Contractor shall prepare and submit detailed instructions for installation requirements to UNIDO. Should it be a viable option, installation could be done by the Center's staff and UNIDO Expert once they have been show how to do so during the pre-shipment practices at the factory's workshop (see point B.3 below). In this case, the Contractor is requested to indicate this option in its offer.

Commissioning of the equipment and inspection of installation will be carried out at PSMC, in presence (physical or virtual) of a representative of the Contractor, PSMS and an expert nominated by UNIDO. Once the correct operation of the equipment is confirmed, commissioning shall be considered as completed and a certificate of acceptance shall be prepared and signed by the parties.

## **B.3 Training**

At the time of the pre-shipment test (see section C.2 below), the successful Contractor shall organize a practical basic training on how to install, operate and maintain the CNC machine at the factory. The training, in English, would be for two persons accompanied by an expert nominated by UNIDO. The successful Contractor shall be responsible for the training and local transportation of the trainees from/to hotel to/from factory during the training. The duration of the training is to be determined by the successful Contractor on the basis of its hand-on experience but, it is expected that it will not exceed four full days (six hours per day).

A synopsis of the training program should be included in the offer (see point f in section H below).

## **B.4 After-sales technical support**

After installation of the CNC machining centre, the successful Contractor should provide technical assistance to the staff of PSMC and/or UNIDO expert(s) to clarify technical doubts about how to operate the CNC machining centre and CAD/CAM software by on-line support service, or skype, e-mail, visits, and

the like. The present offer should include a distance technical assistance package for an amount to 20 hours within a year, starting from the successful installation of CNC equipment.

#### **B.5 Equipment maintenance contract**

The Contractor should include in its present offer a contract agreement for equipment maintenance services between its company and PSMC to provide adequate maintenance services beyond the 24 months guarantee period. Equipment maintenance contract should detail the terms under which the Contractor will offer to the Center maintenance services including inspections, repairs and the replacement of parts on routine- and as-needed-basis. Emergency repairs will also be made when necessary whenever the Equipment becomes inoperable unexpectedly.

### **C. General Requirements**

#### **C.1 Submission of offer**

The Contractor shall take into account all the details presented in these Terms of Reference. The Appendix to this Terms of Reference reproduces the recommended format for the technical and commercial offer. Any clarification(s) in respect to the submission of the offer as well as any further information considered necessary for the delivery of the equipment and services shall be raised, in writing, to UNIDO prior to the submission deadline.

For the technical evaluation of the offers, UNIDO reserves the right to send an expert(s) to visit companies where the Contractor has installed identical or similar equipment to determine compliance with the technical specifications indicated in these Terms of Reference. As a part of the offer, the Contractor is requested to submit a list of client companies that can act as references.

The commercial offer should be a fixed-price offer, not subject to any adjustment and valid for at least six months. Should the Contractor have reservations in this regard, such reservations have to be made clear in the offer.

#### **C.2 Pre-shipment inspection and commissioning**

The successful Contractor is obliged to receive a visit from representative of PSMC and an expert nominated by UNIDO to check the equipment prior to shipment. In conjunction with this pre-shipment visit, the successful Contractor will organize and conduct the required training (see section B.3 above)

Commissioning of the equipment will take place after its successful installation in the industrial workshop of the Center, in Hebron, Palestine.

#### **C.3 Customs clearance**

All equipment entering Palestine must be approved by the Israeli Ministry of Defense, which requires, *inter alia*, a comprehensive list of all the items imported with corresponding detailed technical

specifications and the pro-forma invoice. UNIDO will select a clearing agent and coordinate the Customs clearance process. To this end, the successful Contractor shall provide promptly any information regarding the shipment required by the Israeli authorities for clearance of the imported equipment. This process usually takes two-three months.

#### **C.4 Shipment**

The successful Contractor is responsible for arranging carriage and delivery of goods, unloaded from the arriving conveyance, at the place communicated by UNIDO in writing (DAT). Please note that all equipment for Palestine procured by UNIDO's projects must enter via Israel's ports or the Allenby Bridge or Ben Gurion International airport. UNIDO is responsible for obtaining the required permits and licenses to transport the items to the final destination and pay all costs in bringing the goods to the destination including import duties and taxes.

#### **D. Language**

The official project communication language shall be English. The drawings, catalogues, illustrations, printed specifications and other documentation related shall be in English and, if possible, in Arabic.

#### **E. Guarantee Requirements**

At least 24 months guarantee is required. The warranty refers to defects in materials, excluding materials subject to normal wear and tear (i.e. tools, piece clamping suction cups, etc.). In addition, the equipment should be insured for the same period.

#### **F. Delivery Period and Place**

The equipment should be delivered at Israeli terminal designated by UNIDO within 8 (eight) weeks from the date of written communication from UNIDO about approval to import from the Israeli Ministry of Defense and subsequent signature of the contract. Should delays arise, the successful Contractor must inform UNIDO promptly.

#### **G. Award Conditions**

UNIDO will award the contract only after it has received the authorization to import such equipment from the Israeli Authorities. Should the Contractor have reservations in this regard, such reservations have to be made clear in the offer. By the submission of an Offer, the Contractor thereby authorizes UNIDO to disclose the same to the aforementioned Israeli Authorities.

#### **H. Contents and Submission of the Proposal**

The quotation should be prepared as described in Annex 1. In addition, the quotation should include the following:

- a) short presentation of the Contractor's company and its capacity of operation and post-delivery services in Palestine;
- b) certified copy of Certificate of Incorporation or other documents setting forth the legal basis of the Contractor's company;
- c) proven experience in manufacturing and installation of CNC machining centres identical or similar to the one offered (*evidence*: name of three clients where similar machines have been installed in the past 5 years);
- d) technical specifications and drawings of the CNC machining centre and accessories, manufacturer's name, country of origin, Declaration of Conformity to CE marking and photos (see section B.1 above);
- e) estimated time of delivery ex-works and DAT from signature of the purchase order;
- f) brief description of training offered at factory and cost breakdown (see section B.3 above) (*evidence*: topics covered, number of hours of practical training, hand-on experience of trainers);
- g) brief description of after-sales technical support and cost breakdown (see section B.4 above);
- h) draft Equipment Maintenance Contract Agreement (see section B.5 above);
- i) technical and commercial offer duly completed as in the Appendix to this Terms of Reference;
- j) acceptance of attached UNIDO Terms and Conditions.

## I. Evaluation Criteria

The offers will be assessed against the following criteria:

- Performance and safety of equipment as documented in the technical specification of the equipment offered
- Quality of pre-shipment training programme at Contractor's factory
- Proven availability of the Contractor to provide after-sales support in Palestine
- Declaration of conformity to CE marking or equivalent
- Price (as per submitted detailed budget)
- Terms and conditions of the equipment maintenance contract

**APPENDIX: Technical and Commercial Offer**

UNIDO REQUIREMENTS			TO BE COMPLETED BY THE INVITEE			
Item	Name and required parameters	Quantity	Unit price	Total item price	Compliance <sup>1</sup>	Remarks
			Currency	Currency	Yes/no	
	<b>GENERAL REQUIREMENTS</b>					
<b>A.</b>	<b>Equipment, parts, supplies</b>					
<b>1 Lot</b>	CNC machining centre for natural and composite stone	1				
<b>2 Lot</b>	- lubrication grease	Kg. 5 (min)				
	- core drill for marble/limestone D35xL.U.55 A=1/2 Gas	1				
	- vacuum brazed router for marble/limestone 1A1W BS 16x45 A=1/2 Gas	1				
	- set profile A30mm for marble/limestone (sequence of 5 grains – half bull nose)	1				
	- spare parts as required					

<sup>1</sup> Compliance to the technical specification of this Terms of Reference must be confirmed in detail by the Contractor(s). It will be verified by UNIDO during technical evaluation. If not compliant with UNIDO parameters, the Contractor(s) must indicate their parameters in the 'Remarks' column.

UNIDO REQUIREMENTS			TO BE COMPLETED BY THE INVITEE			
Item	Name and required parameters	Quantity	Unit price	Total item price	Compliance <sup>1</sup>	Remarks
			Currency	Currency	Yes/no	
		Total amount				
A	Total equipment cost: ex-works					
B	Cost of packaging equipment for international shipment					
C	Cost of shipment from factory to terminal and insurance for transport (see C.4 below)					
D	Installation costs at the Center in Hebron (see B.1 above)					
E	Pre-shipment training costs (see B.3 above)					
F	Costs for after-sales technical assistance (see B.4 above)					
G	Insurance of equipment for 24 months					
H	GRAND TOTAL					