# Technical Specifications of the Shelters Rehabilitation Programme - GOAL

This document supplements the specifications in the bill of quantities.

### Scope:
Rehabilitating and maintaining Inhabited residential houses in Idlib governorate to provide privacy and ensure dignity and heat in winter for their residents and inhabitants. This is done through the implementation of a range of activities as included in the Bill of Quantities annexed to the present document. Works include but not limited to:

| 1. | Providing and constructing block walls |
| 2. | Providing and implementing Cement plastering for the walls and ceilings. |
| 3. | Providing and implementing ceramic and tiles for the walls and floors. |
| 4. | Providing and installing hewn stones. |
| 6. | Implementing fresh and saltwater fittings and supplying and installing water tanks. |
| 7. | Repairing doors and windows. |
| 8. | Providing and implementing concrete works. |
| 9. | Providing and implementing electrical and lighting works. |
| 11. | Providing and installing squat and/or flush toilets. |
| 12. | Providing and installing solar power panels, batteries, charge controllers, inverters, and all that is necessary for the conduct of operations. |
| 13. | Carrying out excavation and backfilling works, and removal of remnants to approved landfill. |

### General Notes
- The Contractor shall provide a generator for maintenance purposes and to access water when needed. It shall be strictly forbidden to use electricity or water provided by civilians.
- The scope of this technical specification is to determine the quality of the materials, the workmanship and techniques that

### ملاحظات عامة:
- إن مجال هذه المواصفات هو تحديد نوعية المواد ومستوى المصنعة والأساليب التي يجب إتباعها والتقيد بها أثناء تنفيذ صيانة الأبنية.
must be followed and abided by during implementation and maintenance of the buildings.

- The prices offered shall include all the items required to carry out the works (materials – labor – tools – transport). No payments additional to the items listed in the Bill of Quantities shall be accepted.

- All works shall start and finish without delay. All works shall be completed within the prescribed time frames. In the event of any delay in the delivery of the project because of default and underperformance on the part of the Contractor, it shall be acted in accordance with the provisions of the agreement between GOAL and the Contractor.

- All prices shall include the costs of removal and disposing of waste and residues resulting from maintenance and construction works and transporting them to a landfill approved by GOAL’s site engineer and local authority and any related fees.

- The supervising engineer shall have the right to request samples prior to the implementation of works for approval.

- Upon starting and during rehabilitation, or in case of works requiring particular attention as rehabilitation works are unstable, the Contractor should contact the Engineer prior to starting to implement the works that require particular attention to carry out a study and identify appropriate solutions and costs, in cooperation with the Engineer. The Study shall be submitted to the administration and owner of the building for approval. The Contractor shall be fully responsible in the event of any breach.

- Whenever names of some commercial products are mentioned in the specifications, this is so to determine the required level of the product, and the Contractor has the full right to provide alternative products that are of the same or better level, subject to approval by the engineer.

- The Contractor shall acknowledge that he/she has inspected the site prior to setting prices and that the Contractor is responsible for addressing whatsoever difficulties the Contractor finds himself/herself in due to the nature of the work during the implementation process. The Contractor shall personally ascertain the durability of the building components and annexes on which the works are going to be carried out.

- The Contractor shall protect the parts and service lines of the building at the work site, which the Contractor may find during the implementation of works, such as sewerage pipes and electrical cables, from damage and harm throughout the execution period and The Contractor shall be responsible for maintaining at his/her own expense any malfunction or damage caused by the execution of the works and restore the situation to what it was.

- During dismantling and breaking works, the intact parts should be preserved and not affected during breaking, peeling, dismantling, or doing implementing works. The Contractor shall be responsible for maintaining at his/her own expense any malfunction or damage caused by the execution of the works.

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- During dismantling and breaking works, the intact parts should be preserved and not affected during breaking, peeling, dismantling, or doing implementing works. The Contractor shall be responsible for maintaining at his/her own expense any malfunction or damage caused by the execution of the works.
The Contractor shall provide a generator for maintenance purposes and to access water when needed. It shall be strictly forbidden to use electricity or water provided by civilians.

The Contractor shall be solely and fully responsible for the security of the construction materials, tools, and other equipment in the worksite.

The contractor is obligated to the works entrusted to him by the supervising engineer and is responsible for the costs of any work not agreed and at his own expense.

Upon completion of the work and prior to invitation to the delivery of the completed work, the Contractor shall clean the site and remove all excess materials, waste, and debris from inside and outside the site and transfer them to the outside of the work site. The Contractor shall also clean and repair all works covered by the implementation of the contract works. The costs of cleaning are covered by the contacting notice.

The quantities shall be measured by cubic meter using suitable tool, the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work.
3- Providing and installing Masonry work:
Cement block’s dimensions that will be used in the construction shall follow the previous built blocks in the targeted houses and the block surface shall be flat with straight edges and free of any visible defects. The block must be dry and intact (newly made block and dump block will not be accepted). The cement to sand ratio in the mixture shall not be less than 1:3,5 to manufacture the block. The block work shall be built up straightly and free of any slope. The cement mixture between blocks shall be applied on all sides, not less than 1 cm thick.
The quantities shall be measured by squared meter by suitable tool, openings shall not be included and the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work.

4- Providing and installing stonework for wall (not for covering):
The stone masonry used for construction must be solid. The gaps between stone masonries must be filled with chips of stone and cement mixture, to strengthen the wall intactness. After finishing building up the stone masonries, gaps between masonries shall be filled by cement mixture to cover the gaps and strengthen the intactness of the wall.
The quantities shall be measured by squared meter by suitable tool, openings shall not be included and the price include all the costs related to materials, labor, equipment, transportation, and any other requirements to complete the work.

And the price includes all costs of materials, people, tools used, transportation and everything needed to complete the work properly.

5- Floor - Patching damaged areas and covering with plain Concrete 250kg/m3
Normal concrete shall be used when needed to patch damaged area and according to supervisor engineer’s instructions. In the concrete mixture, Cement shall be of Portland type, stored in sealed not damaged bags. Sand, gravel and water used in the cement mixture must be clean and free of impurities, dust and mud. The Aggregate gradation must be appropriate to give resistance to concrete of no less than 100 kg/cm2. Sand shall be free of lumps, impurities and harming materials. Water shall be clean from dirt, dust, organic materials and salts. In case of pouring concrete directly on soil, the soil shall be moist and compacted properly.
Concrete surface should be smoothed directly after the casting with cement by rate 5 kg/m2 with appropriate water drainage slope. Concrete should be watered at least 5 days after the drought.
The quantities shall be measured by cubic meter by suitable tool, openings shall not be included the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work and according to supervisor engineer’s instructions. In the concrete mixture, Cement shall be of Portland type, stored in sealed not damaged bags. Sand, gravel and water used in the cement mixture must be clean and free of impurities, dust and mud. The Aggregate gradation must be appropriate to give resistance to concrete of no less than 100 kg/cm2. Sand shall be free of lumps, impurities and harming materials. Water shall be clean from dirt, dust, organic materials and salts. In case of pouring concrete directly on soil, the soil shall be moist and compacted properly.
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The quantities shall be measured by cubic meter by suitable tool, openings shall not be included the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work.
6. **Roof - Patching damaged areas and covering with Concrete**

Normal concrete shall be used as needed patch damaged area and according to supervisor engineer’s instructions.

- Execution of all concrete, reinforced concrete, Concrete with stone and plain Concrete works in accordance with the attached drawings
- The use of spiral iron (brushes and cover) not exposed to rust.
- The use of (sand and gravel) clean free of organic materials of high hardness and approved by the supervision engineer
- Contractor shall provide casting method so as not to affect the safety of wooden mold or rebar and prevent voids in the element
- Watering of concrete elements cast at least twice a day according to the recommendations of the supervising engineer
- Reinforced concrete 350kg/m3
- Concrete with stone 250kg/m3
- plain Concrete 250kg/m3
  - FC= 180KG/CM2
  - FY= 3600 KG/CM2
  - CEMENT 42.5 BAG (50) KG
  - The amount of Reinforcement steel is (70-100) kg/m3
  - The percentage of the lean concrete materials is (30% aggregate – 70% concrete)

Cement must be of Portland type filled in sealed and undamaged bags. Sand and gravel and water that are used in the cement mixture must be clean and free of impurities, dust and mud.

Immediately after compaction, the concrete shall be protected from cold, heat, drying winds, rapid evaporation of water and from running water. The concrete shall be kept constantly damp for the first 7 days of its hardening by means of spraying, damp sand, waterproof paper, polythene, or other approved material.

Concrete surface should be smoothed directly after the casting with cement by rate 5 kg/m2 with appropriate water drainage slope. Concrete should be watered at least 5 days after the drought

The quantities shall be measured by cubic meter by suitable tool, openings shall not be included the price include all the costs related

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للتوصيات المهندس المشرف
- تتيح جميع أعمال البيتون العادي والمغمس والمسلح وفق المخططات المرفقة ولا يحق للمقاول إجراء تعديلات على التسليح
- استخدام حديد مهتز افي (فرش وغطاء) خالي من الصدأ
- استخدام حضارات نظيفة خالية من المواد العضوية وذات قساوة عالية ويوافق عليها جهاز الإشراف
- تربط الحديد بسلك رباط في جميع نقاط تقاطع الحديد
- يجب على المقاول أن يؤثر في خطة صب بحيث لا يؤثر على سلامة القالب أو الحديد والصيرفي ومنع حدوث التفعش ضمن العناصر المصبوبة
- سفينة المقاول البيتونية المصبوبة مرتين على الأقل يوميا ووفقا لتوصيات المهندس المشرف
- عيار البيتون المستعمل 350 كغ/م3 للعناصر المسلحة
- عيار البيتون المستعمل 250 كغ/م3 للعناصر المكونة من البيتون العادي والمغمس
- مقاومة الضغط البيتون 180 كغ/سم2
- مقاومة الشد لحديد التسليح 3600 كغ /سم2
- عيار الأسمنت 42.5 كيس 50 ك
- نسبة التسليح من (70 -100) كغ/م3 من البيتون المغمس (30% حجر +70% بيتوين)
- بعد عملية صب البيتون على المقاول التاكد من حمايته من عوامل الجو والبرودة والتدخين والمواد البيتون يجب أن يبقى طبند في ال 7 الألاب الأولى و ذلك من خلال الاستدلال المناسب من رش، رمل رطب، أو أي طريقة مناسبة و ذلك بعد موافقة المهندس المشرف.
- يجب على المقاول ملء القالب الخشبي على الأقل لثانية أيام وhiba توجيهات المهندس المشرف
to materials, staff, tools, transportation, and any other requirements to complete the work
And the price includes all costs of materials, people, tools used, transportation and everything needed to complete the work properly.

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7- supply & install cement plastering for Walls:
Plaster work, Using Angle board with walls preparation when is needed, (there is no need to adjust the verticality of the new plastered walls or the square of the corners to avoid the big thickness)
First, the wall must be prepared for the plasters work by cleaning it and smoothing it, then sprinkle water over the wall surface. Plastering shall be on one layer of coating: First coat (Scratch coat): the cement mixtures consist of a cement and sand in ratio of (1:1). This coat shall be applied by stroking it then sprinkle the surface with water till it become hard. The second coat shouldn't be added before the first one is totally hardened.
Finish coat: the thickness of this coat shall be (10 – 25) mm of the cement mixtures that consists of a cement and sand in ratio of 250 kg/m3. Used sand shall be very soft. After it is dry, it shall be polished with felt and the face shall be smooth and free of roughness. The total quantity shall be measured by square meters, openings shall not be included, and the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work.

8- Filling and repairing cracks and holes in walls, preparing, and cleaning the crack, remove damaged parts, level it with the existing wall plaster through three layers’ plaster
Each crack shall be treated according to its current state; the crack shall be filled with chips of stone if it exceeds 1 cm width. The damaged part of plaster around the crack shall be removed and the wall shall be cleaned and fixed according to item 7. Concrete should be watered at least 5 days after the drought. The quantities shall be measured by length meter by suitable tool, the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work.

8- أعمال تعبئة وأصلاح الشقوق والفتحات في الاجدران مع تهيئة حول الشقوق
إزالة القسم المتأكسد وصولاً إلى زرجة الجدار عن طريق زرجة ثلاثة وجوه:
تم معالجة الشقوق كل حسب حاله، وجعل على الشقوق بالحفر إذا زاد الثقق عن 1 سم، وجعل إزالة كافة زرجة حول الشق الغير متضمنة وتوزيع الجدار والزريقة من جديد حسب البنود رقم (7).
اتخذ التفتيش بأعمال السقاية لمدة خمسة أيام بعد التفتيش. يتم حساب الكميات بالطرق (الطولية) باستخدام وسيلة قياس مناسبة و لا تحسب الفتحات من ضمن الكميات. 

7- أعمال الزريقة للجدران:
أعمال الزريقة باستخدام القدة مع تجهيز الجدار حيث لزم، (طينة القدة لضبط استقامة السطوح الملساء للشكل الصحيح ولا داعى لتفتيذ طينة الودع أو حصر الوضع الذي تضم الشاومية والروايا القائمة وذلك لتجنب السماكات العالية)
يجب أولا أن تجهيز الجدار لأعمال الزريقة بتطبيق وإزالة كافة الثقوب منها ورش الجدران بالماء ونقط الزريقة على طبقة واحدة فقط بعد تجهيز السطح بطبقة من زرجة القدة بحيث تكون المنطقة الأفلاطية لرشة الزريقة تكون من مونة من الأسمنت والرمل بنسبة (1:1)، ويدلع هذا الوجه بواسطة إلقاء المونة فقفا على الأسطح بقوة ويرش هذا الوجه بالماء إلى أن يصليب ولا تبدأ المرحلة التي تبقت الا بعد تصلب رشة القدة
الوجه النهائي (الزريقة الناعمة): يكون هذا الوجه بمادة (10-25) كم3 من الأسمنت والرمل بنسبة (250 كجم/م3). على أن يتم عمل رمل ناعم جدا، يمصق هذا الوجه بعد جفافه بالنبيذ ويجب أن لا تظهر أي خشونة على هذا الوجه.
يلزم التقيد بأعمال السقية لمدة ثلاثة أيام بعد التنفيذ لكل وجه كحد أدنى مع ترك الزريقة في كل وجه بعد التنفيذ خلال هذه المدة قبل البدء بالمرحلة التي تليها. يتم حساب الكميات بالطرق (الطولية) كما تتم حساب الفتحات من ضمن الكميات و السعر يشمل كافة تكاليف المواد والأصحاب المستخدمة والأساليب المستخدمة والتفاصيل وكل ما يلزم لإتمام العمل بالشكل الصحيح.
9. Providing and installing floor tiles and Ceramic:

The tiles shall be of high quality, right angled and free of defects with (3-5) cm thick. The tiles shall not be used before it is totally dry. The tile consists of two surface, front and bottom face. The ratio of mixture in the front face is 1:3, while the ratio of the mixture in the back face is 3:1.

The tiles shall be installed with appropriate slope percentage when it is needed and on clean sand layer with (7-10) cm thick and fixing it with mortar mixtures of sand and cement with ratio of 3:1. Finally, the tiled floor shall be soaked with white cement to fill the gaps.

The quantities shall be measured by square meter by suitable tool, the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work.

Ceramic works with the following specifications:

- This item is implemented by providing and installing ceramics for floors of a good type (first and second type) with appropriate water drainage slope.
- Flooring ceramics thickness not less than 4 mm and must be hardened and non-slippery ceramic according to the supervisor engineer.
- The size of the ceramic floor tiles shall be completely equal with a flat face, free of filaments without any difference in color.
- The ceramic shall be without bending tolerance and choose the color and pattern as directed by the supervisor engineer.
- Firstly, fill the floor of the toilet with coarse sand and cover the entire sewage and install ceramic ceramics with a mortar of 250 kg / m³ thickness of not less than 3 cm and provide all necessary to finish the work well and appropriate or as directed by the supervising engineer.
- The surface of the ceramic tile after installation should be flat and vertical and the labels should be regular and in the same layout. The mortar should fill the entire space behind the ceramic tile.
- The cement mortar should fill the spaces between the ceramics, cement mortar must be of pure cement, its color is identical to that of ceramic, the surplus must be removed.
- Ceramic is placed with water 24 hours before installation.
- It is forbidden to break the ceramics for sealing purposes or around the holes and pipes, but should use specially designed shear tools for that purpose provided that the shear is in the required sizes and that the shear is straight or round as required, without any breakage of the piece.
- Rough cement plaster layer of 250 kg cement/m³ should be implemented before installing the walls’ ceramic tiles.
- The price offer includes all the materials and work necessary to complete the work well.
- Clean the ceramic after installation.

The price offer includes all the materials and work necessary to complete the work well

HRM-S-29829 Shelter Repair Idleb:

9. تقديم وتركيب البلاط والسيراميك:

بجب أن يكون البلاط منقى الصنع قائم الزوايا خالياً من التلف والوقائع والتغرات والقرف والتلفق ومسامكة من (3-5) سم، يجب أن يستعمل البلاط قبل جافته تماماً، و يجب بمويل مناسب أن يتم تألف البلاط من طبقتين في طبقة الوجه وطبقة الخلفية، يجب أن تكون طبقة الوجه (1:1) وطبقية الظهر (3:1) ويبكي البلاط فوق طبقة الرمل المطحية ومسامكة (7-10) سم، بمونة الأسمنت والرمل بنسب خليط (1:3) يروج البلاط بالأسمنت الأبيض الصافي بحيث تمل أفراغات تماماً.

يتم جلي البلاط وتميجه وتمكيه.

يلزم التنفيذ بأعمال السفقة لمدة خمسة أيام بعد التنفيذ كحد أدنى، وتحسب الكميات بالعمير باستخدام وسيلة قياسية ويسرع، يشمل كافة تكاليف المواد والأفراد المستخدمة والنقلات، وكل ما يلزم لإتمام العمل بالشكل الصحيح.

- أصول السيراميك والمزايا التالية

- يتم تنفيذ هذا البند بنقدم وتركيب سيراميك أرضيات من النوع الجيد
- يتم استخدام أدوات القص المعدة خصيصاً للغرض.
- سيراميك الأرضيات سمكها لا تقل عن 4 سم يجب أن يكون ميوال
- يكتب أن يكون قبلاً سيراميك متساوية تماماً ذو وجه مستوي، خالي من التلف دون أي اختلاف في اللون، ويعود السيراميك خالي من أي عيب واحترار اللون وحالة حسب توجيهات المهندس المشرف.
- يتم أولاً بردم الشبكة سقف سيراميك ميوال من الأسمنت عبر 250 سك وسمكها لا تقل عن 3 سم ويتم قيادة ما يلزم لإتمام العمل بشكل جيد وواضح، وحسب توجيهات المهندس المشرف.
- يجب أن يكون وجه البلاط السيراميك بعد التركيب مستويةً وشاقولةً.
- ولأن تكون التصفية متزامنة وعلى نفس التخطيط كما يجب أن تكون مونة كامل الفراغ خلف البلاط السيراميك.
- يتم التربيب بروباً جاهزة من الأسمنت الصافي مقاومة ومماثلة للشققات تتناسب بلوس السيراميك بحيث تعيش الروعة غامد الحلول على أن يزال القاذف عنها بنفسه عن السيراميك.
- يتم وضع السيراميك بالباء قبل 24 ساعه من التركيب.
- يجب حظر كسر السيراميك لأغراض الغلق أو حوالف الفتحات والأواني، 

وقالتم يجب استعمال أدوات القص المعدة خصيصاً للكاغي على أن يتم القص بالمزايا المطلوبة تماماً وأن يكون القص مستقيماً.
10- أعمال تصليح أبواب ونوافذ خشبية أو حديدية أو آلمنيوم (الأكسسوارات):

يتضمن هذا البند تركيب كافة الأكسسوارات للأبواب، والتي هي بحاجة لتركيب أو تبديل الأكسسوارات (مثال: أقفال لا تعمل- قناعات مصدقة- مكابس ذات عمر افتراضي منتهي و .......) تكون الأكسسوارات نوع أول وحسب المتوفر في الأسواق.

يتم تركيب الأكسسوارات الإيطالية للأبواب أو النوافذ أو مايعادلها حسب توجيهات الإشراف.

بالإضافة للأكسسوارات تشمل الصيانة لحام وتشتيك الثقوب وقص أي جزء مهترئ من الباب واستبدالها مع الحف واللحام للمنجور المعدني.

بالإضافة لما سبق تشتمل الصيانة أيضا تركيب أو استبدال الأجزاء التالية من (بلاستر- بولي كربون - فيبر) مع التثبيت بالسيليكون أو الجبر من الطين.

المحمور للبيور

البند يشمل أعمال الدهان اللازمة وجهة اساس ووجهين دهان مع ازالة الدهان القديم لتم إتمام العمل بالشكل الصحيح.

يتم حساب الكميات بـ 10

والمصرح يشمل كافة تكاليف المواد والأدوات المستخدمة والنقلات وكل ما يلزم لإتمام العمل بالشكل الصحيح.
11- Providing and installing Plexiglas to existing windows or doors with all required works.

Plastic Glass (Plexiglas) must match the British standard specifications and with 4 mm minimum thickness and the poly carbon with 5 mm minimum thickness. In general, the Plastic Glass panel must be free of from flaws, fractures, or any other defects. The quantity shall be measured by square meter for actual installed panels.

The quantities shall be measured by square meter by suitable tool, openings shall not be included, the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work.

Fastening with silicone and putty on all edges for metal windows with fixing with metal sheets, maximum width of 20 mm with the necessary screws and silicone for metal doors.

The aluminum doors and windows are also installed by providing and installing the necessary rubber. It is also fastened with nails and putty together for wooden doors and windows, or by the method of joining or fixing with eaves and wooden beams.

This item includes installing and providing frames, fillings, all accessories (The type of Accessories should be Italian or similar with handle long lever.)

12- Providing and installing woodwork (doors or windows)

Where it is necessary with the installation of a frame, if it is not found, so that its width is not less than 9.5 cm with 5 cm minimum thickness. It is also required to install a 7 cm wide visor on the edges of the door and from both ends. Note: The drill must match the dimensions of the original hole.

The wood must be of the fourth-grade Sweden-Russian type and free from all defects, especially the following defects:

- Linear, longitudinal, circular or widen cracks.
- Capillary cracks wider than a quarter of a millimeter.
- Any kind of nodes in the surface with a diameter exceeding 2 cm.
- Any kind of nodes in small pieces of wood no matter how small its size is (i.e. blades of the windows).
- Nodes are wider than the half width of the surface of the wood board.
- Wood worm holes.
- Oily sapwood, which is still moist.
- Twist or warp.
- Non-dry and moist wood.

This item includes installing and providing frames, fillings, all accessories (The type of Accessories should be Italian or similar with handle long lever.)
It is responsibility of the contractor to take all measurement on site. The quantities shall be measured by square meter by suitable tool, the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work. If a door or window is installed with the presence of an old masonry and the installation of surrounding eyebrows, the door or window is measured without the frame, and half the area of the installed eyebrows is added to the area. And the price includes all costs of materials, people, tools used, transportation and everything needed to complete the work properly.

13 - Providing and Installing Iron work (doors and windows), glass normal or Plexiglass and accessories, paste and paint. And all required work. Note: Frame will match the existing opening and type and after the supervisor engineer’s approval.

• All Metal works shall be fixed in its place by a strong and good suitable rail
• Required drilling work in the stone wall, concrete, floor or stairs, and in any needed place shall be done carefully with no harm to the building. All hole’s drilling and paste filling expenses shall be covered in the pricing.
• Windows and doors design shall follow the instruction of the supervisor engineers. It shall be manufactured in good quality and of high standard.
• Welding shall be done by skilled technicians, and all welded points shall be treated mechanically till smooth texture with no protrusions is insured.
• The frame shall be fixed to the wall by metal angled profile of 3 mm thickness, 5 cm width, 20 cm length, it shall be in right angled shape, and one part is welded to the frame while the other is fixed to the block by plaster.

The frame shall be fixed to the wall by metal angled profile of 3 mm thickness, 5 cm width, 20 cm length, it shall be in right angled shape, and one part is welded to the frame while the other is fixed to the block by plaster. It is responsibility of the contractor to take all measurement on site. The quantities shall be measured by square meter by suitable tool, the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work. If a door or window is installed with the presence of an old masonry and the installation of surrounding eyebrows, the door or window is measured without the frame, and half the area of the installed eyebrows is added to the area. And the price includes all costs of materials, people, tools used, transportation and everything needed to complete the work properly.

13 - أعمال تقنيو توريد معدني

• مع تركيب الزجاج عادي أو بليكسي والأكريليك والمعدني، وكل ما
• يلزم: الملاحظة يجب أن يطابق أبعاد الفتحة الأصلية.
• يجب أن يكون الحديد المستعمل لجميع الأشكال مطلي واستعماله كذلك يجب أن يكون خالياً من جميع شروط الصداقة ولا يسمح بعمل أي وصلة بالطقعة الواحدة يجب أن تكون الأشكال الحديدية متصلة ببعضها خلايا مطابقة للقياسات والأبعاد الموجودة على أرض الواقع وتحوز على معايير المهندس.
• تكون المقاطع المعدنية المستعملة سلسلة خالية من العيوب كالألتواء والثنائي والشفاء وغيرها، ولا يزيد التفاوت البديهي للمقاطع فيها عن 0.3 ملم للسماكة و0.5 ملم للأشكال الأخرى.
• الكشف والأنظمة الجلدية روابط دوم لا تقل عن 4 سم بسماكة لثقل
• عن 3 ملم، الباب مغطى بصاج بمسمى لا تقل عن 1.4 مم، و 3 مفصلات

(16) ملم
• جميع الأعمال الحديدية تثبت في أماكنها في المبنى بواسطة سكك تتناسب
• مع الطلبات بشكل مثالي وجيد
• يجب أن يتم عمل جميع الثقوب بالجرдан الجلدي أو الخرسانية أو البلاط
• أو الأدوات حيث يجب أن تتحلي الأشكال الحديدية بكل دقيقة وعناية بواسطة
• الآلات الخاصة دون التأكد أي ضرر في الجدران أو أدنى أو تكون تكافف
• عمل الثقوب بشكل دقئ حتى واعظة واعظة تمكن من جميع الأعمال
• الحديدية ولا يعطى لها أي علاوة خاصة.
• تنفيذ النواص الأدوات كاملاً حسب المواصفات والمبيادرة وتعليمات المهندس
• المشرف حيث يجت تصنفه واتنان حسب الأصول.

عملات التحم يجب ان تم من قبل فنيين ومهور ذو خبرة في هذا المجال
• على أن تجلب الوصلات الملحومة آلياً وتحت الوصول على سطح ناعم بدون
• نتوءات.
The glass shall be installed and fixed to the metal window frames by using special metal pieces, paste or rubber.

All labors shall be provided with masks, protective glasses, gloves and any needed tools in order to protect them during welding process.

Painting work:

Painting stages on metal surface:

- Cleaning the metal surface and ensure it is free of rust by using air pressure, or iron brush or paper sands.
- Treating the surface by Painting a foundation layer Iron Oxide (undercoat).
- Painting with two layers of oily paint at least and doing all required work to ensure good color and texture.

The quantities shall be measured by kg by suitable tool, the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work properly.

14- Providing and installing PVC work (White color) normal/ foggy tempered glass and all required work.

Note: Frame will match the existing opening

Doors and windows are prepared to be customized and pre-manufactured is not accepted

The average dimensions of the door is (90*205 cm) (structural opening without the casing)

The average dimensions of the window (100*120 cm) (structural opening without the casing)

All the provided PVC profile must be manufactured according to the international standards, and the sections used must be manufactured and homogeneous and without any defect in terms of dimensions and according to the plans and the thickness of the section is not less than 2 mm, and that the contractor presents his samples before starting the work.

The average dimensions of the door is (90*205 cm) structural opening without the casing

The average dimensions of the window (100*120 cm) structural opening without the casing

All provided PVC must be manufactured according to the international standards, and the sections used must be manufactured and homogeneous and without any defect in terms of dimensions and according to the plans and the thickness of the section is not less than 2 mm, and that the contractor presents his samples before starting the work.

The average dimensions of the door is (90*205 cm) structural opening without the casing

The average dimensions of the window (100*120 cm) structural opening without the casing

All provided PVC must be manufactured according to the international standards, and the sections used must be manufactured and homogeneous and without any defect in terms of dimensions and according to the plans and the thickness of the section is not less than 2 mm, and that the contractor presents his samples before starting the work.
The frame must be fixed with non-dissolving rubber gaskets on both ends, absorbing any resulting vibration, and fixed with walls using appropriate screws. The frame must also be well fixed and the spaces between the wall and the door frame filled with foam or silicone.

The door frame, the detection frame and under the hinges must be supported by metal sheets of not less than 1.2 mm good quality glass shall be installed, and first-class locks _internal iron, springs_. Appropriate locks must be provided as directed by the supervision team and a number of hinges not less than four as well. Provided that all sections are armed with a metal section of not less 1.2 mm. And that the used glass panels are of the normal type or quarry and galvanized to protect against shattering when shelling occurs, and of the best types, free from veins, scratches, and other defects, and not used in construction before they are presented to the supervising engineer.

- The edges of the openings should be plastered with rough cement plaster layer before installing any doors or windows (the entire internal surfaces with 10cm width of wall faces from the two side)

**15- Providing and installing aluminum work (doors and windows), glass normal or Plexiglas and accessories and all required work.**

Note: Frame will match the existing opening

Aluminum utilized must be of good quality new and free from defects and unused before (The thickness of all parts and accessories shall not be less than 1.2 mm and the window detection section shall be at least 9.5 cm wide and the main and secondary sections shall be 3 × 6 cm.)

- It must be coated by polyester powder while heating (thickness not less than 35 microns), the color shall be suitable and according to the engineer’s instructions.
- Glass panel use must be quarry and galvanized, 4 mm thickness, unless otherwise specified.
- The sieve screen shall be provided.
- The frame shall be fixed by high quality hangers and the used screw must be made of Aluminum or rust resisting metal with appropriate length and strength.
- Wheels shall be spherical pedestals type (BALL BEARING)
- Locks shall be "safe lock" type and must be an Italian brand of good quality or equivalent to the international brands and available in the local market.

As for the windows:

- The aluminum used must be of the best types, free from veins, scratches, and other defects, and not used before. The thickness of glass shall not be less than 1.2 mm and the window detection section shall be 3.5 cm wide and the main and secondary sections shall be 3 × 6 cm.
- Note: The thickness shall be calculated according to the engineer’s instructions.
- The glass should be coated by polyester powder while heating (thickness not less than 35 microns), the color shall be suitable.
- The sieve screen shall be provided.
- The frame shall be fixed by high quality hangers and the used screw must be made of Aluminum or rust resisting metal with appropriate length and strength.
- Wheels shall be spherical pedestals type (BALL BEARING)
- Locks shall be "safe lock" type and must be an Italian brand of good quality or equivalent to the international brands and available in the local market.

**Note:** Frame will match the existing opening.
Rubber tape shall be installed between the aluminum frame and glass from both sides (outdoor and indoor) to prevent water leakage made of polyvinyl chloride (PVC) or vinyl.

Weatherproof tapes shall be used to isolate house from any weather conditions made of polypropylene, silicon rubber or neoprene.

The contractor shall submit plans of all aluminum work and samples Aluminum frame sections, accessories or any other materials or tools to take approval from the supervisor engineer before starting manufacturing it. Color shall be according to what is agreed on by the supervisor engineer.

The Aluminum frames shall allow tight closure of the windows and doors. This is by forming canals, ducts and grooves to install weatherproof tapes, doors and windows sliding frames shall have special holes for rainwater drainage.

Aluminum horizontal bars should be applied to windows approximately 40 cm apart when using plexiglass horizontal bars applied to windows between gaps glass thickness of 4 mm with fixing with rubber on two side according the field and the directive of site engineer.

Accessories (with lock type Rs, AB, GACO chines origin with the Royal National grab and with a key lock with the or similar)

- the lower half of the door with fiber (the color is not clear) and the upper half part with form litter H of aluminum section, between gaps glass thickness of 4 mm with fixing with rubber on two side according the field and the directive of site engineer.

- The gaps between the aluminum frames and architectural surfaces (except rustproof steel or zinc coated with nickel) are prohibited unless these surfaces are treated with the zinc chromate coating and one layer of the aluminum coating or using of inhibitors rubber ionization.

- The door sheets shall be installed with a thickness of not less than 1.8 mm and in the appropriate color as directed by the supervision.

The contractor shall submit plans of all aluminum work and samples Aluminum frame sections, accessories or any other materials or tools to take approval from the supervisor engineer before starting manufacturing it. Color shall be according to what is agreed on by the supervisor engineer.

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Accessories (with lock type Rs, AB, GACO chines origin with the Royal National grab and with a key lock with the or similar)

- the lower half of the door with fiber (the color is not clear) and the upper half part with form litter H of aluminum section, between gaps glass thickness of 4 mm with fixing with rubber on two side according the field and the directive of site engineer.

The contractor shall submit plans of all aluminum work and samples Aluminum frame sections, accessories or any other materials or tools to take approval from the supervisor engineer before starting manufacturing it. Color shall be according to what is agreed on by the supervisor engineer.

The Aluminum frames shall allow tight closure of the windows and doors. This is by forming canals, ducts and grooves to install weatherproof tapes, doors and windows sliding frames shall have special holes for rainwater drainage.

Aluminum horizontal bars should be applied to windows approximately 40 cm apart when using plexiglass horizontal bars applied to windows between gaps glass thickness of 4 mm with fixing with rubber on two side according the field and the directive of site engineer.
16- supply and install of terrazzo sink,stone risers.
This work includes providing and installing a sink thickness at least 2.5 cm, according to what is available in the market. This work includes providing supports to the sink with 4 cm minimum thickness when it is needed, installing, insulation, and connecting the drain to the sewage. In case of the sewage is not functioning, it shall be fixed and included in the related work.

The quantities shall be measured by Numbers.
If it need Install a good quality Turkish marble kitchen counter thickness at least 2.5 cm, installed on marble legs, thickness between (3-5) cm The quantities shall be measured by square meters.

the price includes all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work.

17- Providing and installing galvanized metal Water Tank ( 250 L – 1000L – 2000 L )

- Water tank with capacity 250L, thickness 1mm (weight at least 25 kg)
- Water tank with capacity 1000L, thickness 1.4mm (100*100*100 cm) (weight at least 70 kg)
- Water tank with capacity 2000L, thickness 1.8mm (100*100*200 cm) (weight at least 145 kg)

The contractor shall provide water tanks. The water tanks shall be made of galvanized iron sheets. Sides and angles shall be welded carefully and accurately. The joint points shall be at the same level. The tank shall not leak from its bottom or sides.

Manufactured from galvanized sheet with a ceiling opening and lock 50 * 50 cm, with the introduction and installation of the faucet, a 1/2- or 3/4-inch copper valve, 2 and the necessary accessories and all that It is taken into account that the seams of the sides and corners are smooth and carefully executed, and that all the levels of the wall joints are at the same level above the board, and that the tank has the feature of non-leaching from its sides and bottom.

Each water tank shall have a hole to empty wash water with 0.5’’ size with metal stopper water on the bottom of the tank.
The work includes the need works to connect to the existing network or as per the supervisor’s recommendations according to the condition of the house

The quantities shall be measured by Numbers

The price includes all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work

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<td>18</td>
<td>Providing and installing Faucet</td>
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<tr>
<td>The faucets and connections shall be made of chrome plated brass and of first quality.</td>
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<td>The water mixer and connections shall be made of chrome plated brass and of first quality.</td>
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<tr>
<td>Providing and installing ceramic sink.</td>
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<td>The sink shall be made of Porcelain and of appropriate color. Size minimum of 55*43 cm. Each sink includes drain of 1 ¼ inch of chrome with lid or UPVC pipe for drainag</td>
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<td>Providing and installing Squat Toilet</td>
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<td>Squat toilet basins shall be made of porcelain of size minimum 43 x 56 cm. Flush shall be installed to each toilet with all required drainage pipes by UPVC pipes 4-inch diameter.</td>
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<tr>
<td>Providing and installing Pipe PPR (0.5-0.75) inch, 10 bar</td>
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<td>حسب المكان والحالة بضغط لابط عن 10 بار</td>
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Supply and installation PPR pipes (0.5-0.75 inch), for water network. The used material in drinking water system must be good quality. Pipes thickness not less than 3.5mm, pressure 10bar. All fitting and accessories of metal joints, ends and fixing with cement and drilling are included in the meter price, With the pressure test of the water network at a pressure of 10 bar with a pressure test device. For 24 hours, the work shall be conducted as per the drawings & Specifications & instructions of the engineer.

- Diameter, thickness, and pressure are printed on the pipes.
- Brand name is known.
- These pipes are made of plastic material polypropylene type (PPR) and used for the implementation of all clean water (hot and cold) pipes.
- Both layers (inside and outside) for these pipes and their accessories must be completely colored.
- All accessories shall manufacture according to the international standards, and especially the ones related to steadily of the accessories and joints to the pressure.
- Jointing and connecting process between the pipes and accessories shall done by "thermal fusion" mode without using any chemicals or cement materials may affect human health, this process implemented by using a special welding machine, as it is heated at high temperatures and reach the time specified in the "heating schedule" that provided by the manufacturer, the pipes or accessories would fusion and become one piece without losing its shape or strength, the "thermal fusion" mode prevent any leakage from connecting points, in general jointing points must be completely sealed and impermeable in order to withstand the pressure of test stage and all loads that will applied.

The quantities shall be measured by linear meter by suitable tool, the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work.

23- Providing and installing sewage pipes (2 inch – 4 inch – 6 inch – 8 inch) with all needed accessories.

- Supply and installation PVC pipes (4”) for sewage network, Pipes shall be of good quality with good pressure and suitable thickness, it not less than 4 mm with the necessary accessories (tee, elbow) with all necessary to connect to the septic tank or main sewage network, and the price include the excavation works by (Standard excavation dimensions), backfilling by sand (10 to 15 cm) under & above the PVC pipes, Until reaching the septic tank, work shall be conducted as per the drawings & Specifications & instructions of the engineer.

- Providing an installation PPR pipes (0.5-0.75 inch) from 3.5 to 7.5 bar, you need to know the pressures used in the tapping network, which are generally less than 0.5 to 7.5 bar, depending on the manufacturer, the pressure of test stage and all loads that will be applied.

- Diameter, thickness, and pressure are printed on the pipes.

- These pipes are made of plastic material polypropylene type (PPR) and used for the implementation of all clean water (hot and cold) pipes.

- Both layers (inside and outside) for these pipes and their accessories must be completely colored.

- All accessories shall manufacture according to the international standards, and especially the ones related to steadily of the accessories and joints to the pressure.

- Jointing and connecting process between the pipes and accessories shall done by "thermal fusion" mode without using any chemicals or cement materials may affect human health, this process implemented by using a special welding machine, as it is heated at high temperatures and reach the time specified in the "heating schedule" that provided by the manufacturer, the pipes or accessories would fusion and become one piece without losing its shape or strength, the "thermal fusion" mode prevent any leakage from connecting points, in general jointing points must be completely sealed and impermeable in order to withstand the pressure of test stage and all loads that will applied.

The quantities shall be measured by linear meter by suitable tool, the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work.

23- Actual supplying and installation of the drain pipe (1/4 inch – 1 inch – 2 inch – 4 inch – 8 inches) with all needed accessories.

- Actual supplying and installation of the drain pipe (1/4 inch – 1 inch – 2 inch – 4 inch – 8 inches) with all needed accessories.

- Diameter, thickness, and pressure are printed on the pipes.

- These pipes are made of plastic material polypropylene type (PPR) and used for the implementation of all clean water (hot and cold) pipes.

- Both layers (inside and outside) for these pipes and their accessories must be completely colored.

- All accessories shall manufacture according to the international standards, and especially the ones related to steadily of the accessories and joints to the pressure.

- Jointing and connecting process between the pipes and accessories shall done by "thermal fusion" mode without using any chemicals or cement materials may affect human health, this process implemented by using a special welding machine, as it is heated at high temperatures and reach the time specified in the "heating schedule" that provided by the manufacturer, the pipes or accessories would fusion and become one piece without losing its shape or strength, the "thermal fusion" mode prevent any leakage from connecting points, in general jointing points must be completely sealed and impermeable in order to withstand the pressure of test stage and all loads that will applied.

The quantities shall be measured by linear meter by suitable tool, the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work.
Sewage pipes and accessories, inside and outside the building, must be made of UPVC materials, the pressure endurance shall be (10 bar), free of cracks and other defects, have a fixed section dimension along pipe length, and all pipes must match with the international standard specifications.

Pipes shall connect with (Push Fit) mode using special rubber ring existing in duct inside start of the pipe. If the Pipes were visible, they shall be fixed with special metal rings.

All pipes shall be laid on a layer of clean, soft sand of minimum 10cm and with appropriate slope no less than 2%

The quantities shall be measured by linear meter by suitable tool, the price include all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work

UPVC

• All needed

• The price

• The quantities shall be measured by electrical point

• This item includes providing and installing all wires, switches, and sockets according to the plans and standards

• All tube shall be of high quality and made of PVC

• The wires tube shall be installed in areas far away from high mechanical pressure, heat, and humidity

• The wire shall be 1 cm extended from the tube and 5 cm of the electrical panel

• The number of wires of 2.5 mm in the tube shall not exceed three, while the wires of 1.5 mm in the tube shall not exceed five

• The tube shall be implemented with less possible intersections, joints, diversion and overlaps with other services. The tubes shall be fixed by clasps made of PVC

• Wires shall be made of copper and insolated with PVC of 500 kv

• The Wire diameter shall not exceed 1.5 mm2 for the lighting circles and 2.5mm2 for electric circuit and according to the supervisor engineer.

• The wire shall be loosed on both ends to not cause pressure because of attachment.

• The height of switches and sockets shall follow the supervisor instructions and it shall be located nearby doors and from the opening side of the door.

The quantities shall be measured by electrical point

The price includes all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work

HRM-S-29829 Shelter Repair Idleb

Chapter six

Electrical work

25- Providing and installing replacement components

(Switches or sockets) to be minimally functional with all needed internal cables or providing external cables through plastic conduits when needed according to supervisor engineer.

• This item includes providing and installing all wires, switches, and sockets according to the plans and standards

• All tube shall be of high quality and made of PVC

• The wires tube shall be installed in areas far away from high mechanical pressure, heat, and humidity

• The wire shall be 1 cm extended from the tube and 5 cm of the electrical panel

• The number of wires of 2.5 mm in the tube shall not exceed three, while the wires of 1.5 mm in the tube shall not exceed five

• The tube shall be implemented with less possible intersections, joints, diversion and overlaps with other services. The tubes shall be fixed by clasps made of PVC

• Wires shall be made of copper and insolated with PVC of 500 kv

• The Wire diameter shall not exceed 1.5 mm2 for the lighting circles and 2.5mm2 for electric circuit and according to the supervisor engineer.

• The wire shall be loosed on both ends to not cause pressure because of attachment.

• The height of switches and sockets shall follow the supervisor instructions and it shall be located nearby doors and from the opening side of the door.

The quantities shall be measured by electrical point

The price includes all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work

UPVC

• All needed

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• This item includes providing and installing all wires, switches, and sockets according to the plans and standards

• All tube shall be of high quality and made of PVC

• The wires tube shall be installed in areas far away from high mechanical pressure, heat, and humidity

• The wire shall be 1 cm extended from the tube and 5 cm of the electrical panel

• The number of wires of 2.5 mm in the tube shall not exceed three, while the wires of 1.5 mm in the tube shall not exceed five

• The tube shall be implemented with less possible intersections, joints, diversion and overlaps with other services. The tubes shall be fixed by clasps made of PVC

• Wires shall be made of copper and insolated with PVC of 500 kv

• The Wire diameter shall not exceed 1.5 mm2 for the lighting circles and 2.5mm2 for electric circuit and according to the supervisor engineer.

• The wire shall be loosed on both ends to not cause pressure because of attachment.

• The height of switches and sockets shall follow the supervisor instructions and it shall be located nearby doors and from the opening side of the door.

The quantities shall be measured by electrical point

The price includes all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work

UPVC

• All needed

• The price

• The quantities shall be measured by electrical point

• This item includes providing and installing all wires, switches, and sockets according to the plans and standards

• All tube shall be of high quality and made of PVC

• The wires tube shall be installed in areas far away from high mechanical pressure, heat, and humidity

• The wire shall be 1 cm extended from the tube and 5 cm of the electrical panel

• The number of wires of 2.5 mm in the tube shall not exceed three, while the wires of 1.5 mm in the tube shall not exceed five

• The tube shall be implemented with less possible intersections, joints, diversion and overlaps with other services. The tubes shall be fixed by clasps made of PVC

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• The height of switches and sockets shall follow the supervisor instructions and it shall be located nearby doors and from the opening side of the door.

The quantities shall be measured by electrical point

The price includes all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work
This item is implemented by providing and installing:
1- A solar panel of first-class or good quality, after the approval of the supervising engineer with the installation on the metal base. 
Accept monocryrstalline or polycrystalline panels. The panels must be of good quality available in the market and free from defects. They must be installed on a base tilted at an angle of 32 degrees.

- 250 wat ±3, 24 volt
- Dimenstions (164cm*99cm)
- VOC =38V
- VMP =31V
- ISC = 9.5A
- I = 7A
- W = 18Kg
- Aluminum outer frame, 3 cm wide
- The possibility of connecting in series 1000 volts

Quantities are calculated by piece.
And the price includes all costs of materials, people, tools used, transportation and everything needed to complete the work properly.

2- A good quality 20 amp (12V/24V) charging regulator approved by the supervising engineer.

3- Providing and installation of metal bases for the solar panel from the metal corners (4 * 3) cm or a profile of 3 * 3 cm, with dimensions suitable for the dimensions of the power panel, thickness of 2 mm, and coated with anti-rust paint as directed by the supervising engineer.

4- A liquid battery with a capacity of 180-Ah and a weight of not less than 42 kg with a battery cable head of 2 numbers of copper or a good quality approved by the supervising engineer.

5- A capillary copper solar cable, diameter 10 mm of the type of “Shark” or according to the directions of the supervising engineer.

6- Providing and installing an inverter with a capacity of 1500 watts, single phase, 12 volts.

26 - Surface Insulation

This item is implemented according to the following works:
1 - Thoroughly clean the surface of dirt.
2 - Filling the cracks with cement grout with polybond in a ratio of 1:1.

The quantities shall be measured by point. The price includes all the costs related to materials, staff, tools, transportation, and any other requirements to complete the work.

25 - Solar energy system:

This item is implemented according to the following works:
1 - Providing and installing an inverter with a capacity of 20 amp (12V/24V) regulated charging approved by the supervising engineer.

3 - Providing and installation of metal bases for the solar panel from the metal corners (4 * 3) cm or a profile of 3 * 3 cm, with dimensions suitable for the dimensions of the power panel, thickness of 2 mm, and coated with anti-rust paint as directed by the supervising engineer.

4 - A capillary copper solar cable, diameter 10 mm of the type of “Shark” or according to the directions of the supervising engineer.

5 - Providing and installing an inverter with a capacity of 1500 watts, single phase, 12 volts.
3 - Placing a cement braid consisting of (cement - powder) on the edges of the surface (5 * 5) cm, or according to the directions of the supervising engineer.

4 - Implementing a final layer (paint - anti-leakage and sealing of pores - number of layers - one faces) for the walls and floor of the tank from the inside with a height of 1 m using epoxy materials (polymeric cement paint consisting of two components consisting of a cement bag weighing 20 kg and a liquid can of 5 kg, which are materials available in local market - application rate 1 kg / 2 m² of surface per layer)

The water leakage test shall be conducted for a period of no less than 72 hours, with all that is necessary to complete the work properly and appropriately, or as directed by the supervising engineer.

Works are estimated in square meters of surface

The price offer includes all materials and works necessary to complete the work completely and well

28 - Creation of a ramp for people with special needs

Provide and install a Ramp at the places specified by the supervisor to be used by people with special needs. The shaft should be 110 cm wide and 1.2.5 meters long. The slope of the dune does not exceed 25 degrees. The ramp is made of a tamped gravel with a top surface layer with a concrete floor of 250 kg / m³ thickness of 5 cm with roughness. The limb ends should be of half-filled block. All work required to complete the work properly rests with the Contractor. The executed works are estimated in square meters, so that the area applied is calculated from the top surface of the ramps.

The quantities for concrete bricks shall be measured by squared meter by suitable tool

The quantities for plain concrete shall be measured by cubic meter by suitable tool

----- The End -----