

**Terms of Reference (ToR)**  
**for the**  
**Manufacture, Supply and Complete Installation of**  
**Prefabricated Core-houses**  
**RFP 2023-008**

**17 July 2023**

The United Nations High Commissioner for Refugees (UNHCR) intends to procure prefabricated housing in Ukraine. This ToR describes various points that UNHCR considers important when assisting conflict-affected persons in Ukraine by supplying a Core-house.

A Core-house is defined as a small house that is simple to operate and maintain by inhabitants and with the full functionality (standard kitchen, furniture, toilet, bathroom, and appliances) of a home that the residents can further quickly adapt to their specific needs and expand with locally available materials as more private or public funds become available. Core-house has a minimum service life of 10 years with periodical maintenance without requiring specialised tools or skills. Supplier to supply 5 years of the minimum warranty period for appliances and furniture.

This solicitation is a “Request for **Proposal**” (RFP), meaning UNHCR asks for innovative proposals and solutions appropriate in both rural and urban areas. In addition to the financial cost (Annex C), UNHCR will evaluate the offers based on how well the proposed solutions align with points in this ToR (Annex A), as shown in the Technical evaluation form (Annex B). Therefore, the proposal must include detailed drawings, illustrations of proposed solutions, and listing and functional descriptions of the elements included.

UNHCR intends to start placing orders for these housing units in autumn 2023 for delivery later in 2023, 2024, and 2025. For administrative purposes, the tender is divided into 4 geographical areas/ lots: North, West, South and East, as shown in the map below. According to the number of houses in the table-1 below, any vendor can submit proposals for any number of lots divided into four geographical areas. UNHCR commits to building a minimum of 300 houses in 2023 (table –1 below), with Purchase orders (PO) for the areas North, South and East shown in the map below.


**TABLE 1**

Lot	Zone	Oblast	No. of total units	Minimum in 2023	2023	2024	2025	Total	Lot Totals
1	North	Kyiv	100		50	50		100	
1	North	Chernihiv	100	50	100			100	
1	North	Zhytomyr	50			25	25	50	250
2	West	Ternopil	50			25	25	50	
2	West	Rivne	50			25	25	50	
2	West	Lviv	100		25	25	50	100	
2	West	Ivano-Frankivsk	100			50	50	100	
2	West	Zakarpattia	100			50	50	100	400
3	South	Kirovohrad	100			50	50	100	
3	South	Mykolaiv	200	100	200			200	
3	South	Odesa	200			100	100	200	
3	South	Cherkasy	50			50		50	
3	South	Vinnytsia	100		25	25	50	100	
3	South	Khmelnyski	50			25	25	50	700
4	East	Summy	100	50	100			100	
4	East	Poltava	50			50		50	
4	East	Kharkiv	400	100	200	100	100	400	
4	East	Dnipropetrovsk	100			50	50	100	
4	East	Zaporizhzhia	200			100	100	200	
4	East	Donetsk	200			100	100	200	
4	East	Luhansk	200			100	100	200	
4	East	Kherson	400		100	200	100	400	1650
			<b>3000</b>	<b>300</b>	<b>800</b>	<b>1200</b>	<b>1000</b>	<b>3000</b>	<b>3000</b>

*The above Table 1 is an indication of planned units installed in each oblast but the numbers are subject to change after need assessments.*

It is not UNHCR’s intention to set up settlements of multiple units, so the units should be planned as self-contained and stand-alone living spaces in existing neighbourhoods with social and physical infrastructure. Most core houses are expected to be installed on existing land owned by people whose houses have been destroyed by the post-February 2022 hostilities.

The houses are to be delivered and installed on-site to any address within the government-controlled Ukraine (as per the map and Table-1above), but not closer than 50km from the active frontline (UNHCR can update the red dotted line on the map as security accessibility). Core houses can be installed in different villages or neighbourhoods in cities; therefore, suppliers' proposals prove abilities and plan to make instalments simultaneously. The offer for installation within one and all of the four geographical areas must include transportation, truck crane, all needed site preparations, foundations/ on-ground footings and the connections of the unit to existing and functioning public or private electricity-, gas-, water- and sewerage-points, including all needed administrative permits and assistance to the future owners for any technical support, and obtain required permits (as per Annex C). Suppliers are liable for the core homes' manufacture, transport, installation, testing and commissioning. If the homeowner's existing infrastructure utility or component is not operational, then a supplier to repair, replace, or service with UNHCR approval.

Below are three elements that UNHCR considers to be of particular value when supplying Core-houses in Ukraine;

- I. A general and qualitative description of elements that can contribute to the strengthening and creation of homes and neighbourhoods rather than shelters and settlements.
- II. Technical specifications that are to be considered as minimum requirements for the prefabricated units.
- III. A menu of elements that can help the future residents transform the prefabricated units into a Home.

## I) GENERAL

- **Urbanism:** Numerous examples of unplanned or poorly and quickly planned residential areas have resulted in unforeseen economic, social, or environmental problems that society has subsequently struggled to deal with. UNHCR will not set up new “settlements” with tens, hundreds, or thousands of new prefabricated houses. The core houses will be installed either on existing plots replacing a destroyed house, or on other free spaces within existing neighbourhoods with social and physical infrastructure.
- **Private, semi-public, and public:** The installation of the core houses should consider the immediate surrounding areas allowing for future expansions of the core house, rebuilding the original home, as well as the possibility of private outdoor areas and their relation to public areas. The future owners of the Core houses need to be consulted in the decision process.
- **Access and entrance:** In many cases, the prefabricated core houses may be occupied, inhabited, or visited by persons with disabilities, as well as prams and young children. The core houses need to have access (ramp, doors, toilet, bathroom etc.) adapted to the terrain and preferably access with “universal design,” useable by anyone, independently of physical abilities.
- **Conducive to change and expansion:** A home is a house that can adapt to the different and changing needs of diverse inhabitants. These changes can be structural, infrastructural, protective, or decorative. The house can become a HOME more efficiently when the construction materials are easy to work with standard and readily available tools. The core houses should not be built with materials and techniques that require specialised tools or specialised workers in order to be adapted to the needs and wishes of the inhabitants. This could translate into:

- Timber frame instead of steel
- Fiber insulation instead of foam
- Natural materials instead of composites
- Painted instead of laminate surfaces
- Surface cabling instead of concealed cabling
- The project intends to have materials other than composite sandwich panel construction or not dismantled materials.

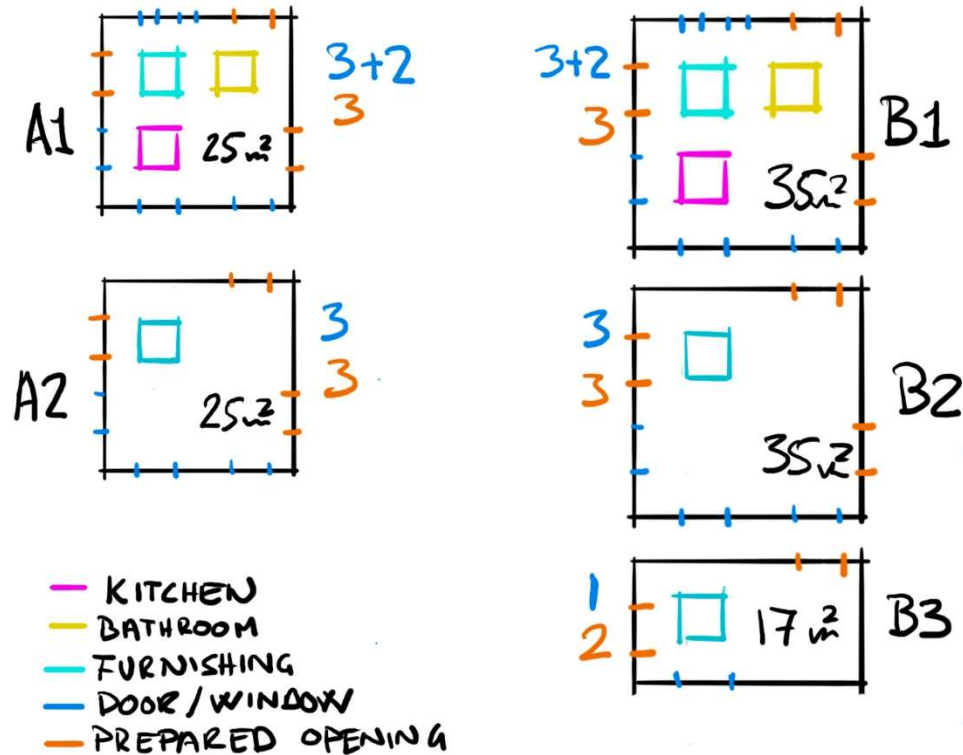
Supplier to supply practical tips for smooth operation, preventative maintenance, and possible expansion of the core home by future homeowners. The selected supplier must be willing and able to change the design and adjustment during the project in close consultation with UNHCR and Homeowner.

- **Functionality:** Living in a small house with multiple family members, perhaps of different generations, can be challenging. Solutions that can reduce “social friction” and increase privacy are encouraged. This could be practical solutions, activity zone separations, night- and day transformations etc.

## II) TECHNICAL

- This performance-based technical specification outlines the requirements for prefabricated houses. The aim is to supply durable, flexible, comfortable, energy-efficient, and cost-effective housing solutions for displaced populations. The technical specification focuses on performance criteria rather than prescribing specific materials or construction methods, allowing for flexibility and innovation while ensuring compliance with relevant standards and regulations. Supplier to propose innovative and effective solutions that meet the performance criteria and outcome described in this Annex A (ToR), Annex B, and Annex C, according to Ukrainian regulations and standards (DBN). Supplier to supply 10 years home warranty and 5 years for appliances and furniture from recognized manufacturers in Ukraine.
- The financial offer form starts with five line-items of prefabricated units schematically illustrated below with:
  - Two sizes for complete Core houses; A1: 25m<sup>2</sup> up to + 2m<sup>2</sup> (max. 27m<sup>2</sup>) and B1: 35m<sup>2</sup> up to + 2m<sup>2</sup> (max. 37m<sup>2</sup>)

- Three sizes for expansion units: A2: 25m<sup>2</sup>, B2: 35m<sup>2</sup>, and B3: 17m<sup>2</sup> (half B2 unit) without bathroom and kitchen but with heating, electricity connection and furniture as per table 2 below.



*The shapes are purely schematic and do not represent expected floor plans.*

*Blue indicates installed windows or doors,*

*Orange indicates structural preparations in the walls for simplified future wall openings for windows or doors.*

The supplier can present multiple layout options for the units A1 and B1 showcasing space efficiency and activity zones (See “Functionality” above). All options must fall within the price range as offered on Annex C Sections 1.1 and 1.2. These options will be evaluated as indicated in Annex B point 15 “Functionality and space efficiency”

The units A2, B2 and B3 are expansion units for added flexibility in size and shape to adapt the Core house to different family sizes, plots, or even non-housing constructions.

1. **Structural integrity and thermal insulation:** The prefabricated houses must be designed to withstand Ukrainian climatic conditions, including wind, snow loads, seismic activity, and other relevant environmental factors and be liveable throughout summer and winter. The connections between the foundation and the frame structure elements shall be secure and capable of transferring loads effectively. The design must consider transportation, installation in rural unsurfaced areas and dense urban fabric. The structure shall be designed and engineered to supply sufficient strength, stability, and resistance to external loads. The manufacturer shall provide detailed drawings, in compliance with design DBN standards and regulations.

	<u>Maximum U-Values</u>	<u>Minimum R-Values</u>
• Roofs	0,17 W/(m <sup>2</sup> K),	5,88 K·m <sup>2</sup> /W
• Walls	0,21 W/(m <sup>2</sup> K),	4,76 K·m <sup>2</sup> /W
• Floors	0,18 W/(m <sup>2</sup> K)	5,55 K·m <sup>2</sup> /W

- Windows 1,1 W/(m<sup>2</sup>K)
2. **Durability and longevity:** Considering the expected environmental conditions and usage patterns, the houses should have a minimum design life of 10 years. The materials used must resist decay, rot, pests, and other forms of deterioration. The choice of material, grade, and sizes should be based on DBN standards and ensure long-term durability with normal maintenance. Weather protection measures to improve the life of the house, such as the roof over the entrance, and rainwater gutter, downpipes and age to be included in the design.
  3. **Accessibility and universal design:** The design and layout of the houses should be adaptable for accessibility to persons with disabilities, considering their mobility and usability requirements. Doorways, ramps, steps, grab bars, handrails, toilets, and all spaces should allow easy maneuverability for wheelchairs. Unites A1 and B1 include standard specifications as per Annex C. Supplier to provide only cost differences to cover the upgrade of standard items table-2 below and Annex C (1.1-1.2) to be universally accessible for Person with Physical Limitations, including wheelchair access.
  4. **Health and safety:** The materials used should follow Ukrainian health and safety standards, ensuring they are free from hazardous substances. The design incorporates adequate ventilation for healthy indoor air quality, and natural lighting should be per DBN standards ventilation with suction from the kitchen area and bathroom and a small ventilation window in these spaces. Supplier to submit Health and Safety Plan for the project life cycle.
  5. **Thermal comfort and energy efficiency:** The houses should supply adequate thermal insulation to keep comfortable indoor temperatures throughout the year. The design should minimize thermal bridging and air leakage to reduce energy consumption. An alternative heating source, preferably a solid fuel heater with a cooking possibility, including sufficient exterior air intake and a chimney for a smoke outlet, should be provided. Installation as per Ukrainian fire safety regulations. Electric heaters with front ceramic panels and portable Air conditioners.
  6. **Structural frame:** The structural system should be engineered for strength, stability, and resistance to external loads. The framing components must be securely fastened and withstand transportation and installation stresses.
  7. **Construction of foundation:** The foundation system should be adapted to the local soil conditions and ensure stability, the structure's load-bearing capacity, the potential for soil settlement and proper drainage. Consideration should be given to prefabricated or easily assembled foundation systems.
  8. **Wall and roof systems:** The wall and roof systems should supply sufficient insulation, weatherproofing, and structural integrity. Various cladding options that meet performance requirements may be considered.
  9. **Floor system:** The floor system should be robust, insulated, and withstand regular usage. Consideration should be given to design options that minimize the risk of moisture infiltration and pest infestation. The waterproof and anti-slip floor in the bathroom is as per DBN standards.
  10. **Doors and windows:** The exterior door should be insulated, waterproof and withstand all weather. Door frames incorporate adequate thermal isolation from thermal bridges. All windows double-glazed tempered glass window should be durable, weather-resistant, and supply sufficient security. Glazing should be energy-efficient and capable of minimizing heat loss.
  11. **Plumbing and electrical systems:** Plumbing installations should be designed to provide a clean water supply, sanitation facilities, and proper drainage. Complete electrical installation, such as Indoor & outdoor lights, switches, and sockets, shown in drawings according to Ukrainian electrical building regulations. Electrical system installation (load not less than 6 KW) should be safe and supply adequate power to function the house.
  12. **Quality assurance and control:** The manufacturer should provide documentation certifying the compliance of materials, components, and systems with relevant DBN standards. Quality control processes should be implemented during the manufacturing and implementation process.
  13. **Space requirement:** Sleeping spaces for a family of 2 adults and 2 children for the 25m<sup>2</sup> unit and 3 adults and 3 children for the 35m<sup>2</sup> unit. Have a total livable area not less than 25m<sup>2</sup> and 35m<sup>2</sup> (+ 2m<sup>2</sup>) for the core house, with extension possibilities. For larger or different family compositions, the core houses should be ready to be expanded with expansion units as extensions of the main core house unit without compromising the quality.
  14. **Interior:** The interior/ furniture included should be from a recognized manufacturer as per the specification in Annex C and installation as per DBN standards with a minimum of 5 years of product warranty in Ukraine. A fully functional kitchen unit, cabinets, sink, tables, chairs, cooking stove (induction), and fridge. Living space with beds/sofa-beds and wardrobes. Fully functional bathroom with toilet, shower unit, sink, hot water boilers, and washing machines. Appliance's energy rating of not less than A++ to reduce energy bills, the CO<sub>2</sub> footprint and

the load on Ukraine's energy infrastructure. Core houses A1 and B1 include standard items per the table below and specifications in Annex C. Core houses may be customized to meet individual needs. Supplier to provide only costs for different items in Annex C (SN2), if needed extra items by the UNHCR for customization. Supplier to provide Material Proposal Form, indicating the brand/model of the proposed materials, furniture and appliances with warranty period cover in Ukraine. This should be accompanied by brochures/catalogues of the related items where applicable.

<b>Table 2:</b> Standard items that should comply with specifications in Annex C and installation as per DBN standards. Core houses A1 and B1 include all items. Core house B1 consists of all items with doubled quantities of <b>YELLOW</b> highlighted items. Core houses A2, B2, and B3 <b>ONLY</b> include items highlighted in the <b>BLUE</b> boxes.					
<b>Items</b>	Kitchen unit	<b>Fridge</b>	Cooking stove	<b>Dining table</b>	<b>Chair</b>
Quantities	1	1	1	1	4
<b>Items</b>	<b>Single bed</b>	<b>Two level bunk bed</b>	<b>Wardrobe</b>	<b>Ventilation fan</b>	<b>Free standing air conditioner</b>
Quantities	2	1	1	4	1
<b>Items</b>	Washing machines	Water heater	Shower unit	Toilet	Washbasin
Quantities	1	1	1	1	1
<b>Items</b>	<b>Steps</b>	<b>Roof over entrance</b>	Electric kettle	<b>Free standing heater</b>	<b>Solid fuel heater</b>
Quantities	1	1	1	2	1

15. **Infrastructure connection:** Connection directly to utilities - water, gas, electricity, and sewage. Supplier to support homeowners to get needed permits from authorities and installation follow DBN standards and regulations. Supply recommendations for routine maintenance procedures and schedules for all infrastructure system components. Repair or replace infrastructure components if needed (Annex C). Including 10 years of service life from the supplier or recognised manufacturer with the availability of spare parts and service support in Ukraine.
16. **Fire safety:** Electrical systems and installations should adhere to Ukrainian DBN/ safety standards to minimize the risk of fire spreading and ensure the safety of occupants
17. **Fabrication and installation:** Delivery and installation should be prepared beforehand, with direct installation at the destination to reduce the need for temporary storage space and added logistical administration. However, suppliers need to have contingency storage space if, for unforeseen reasons, implementation is delayed. All prefabrication activities should be carried out in an indoor weatherproof area for prefabrication all year around. Installation includes site preparations, unit connections to electricity, gas, water, sewerage, and administration and assurance of connection permits. Installation of expansion units (A2, B2, B3) intended to be attached to the Core home or on the same site; therefore, the proposal reflects shared cost savings during the installation (Annex C, 1.3, 1.4, 1.5). Suppliers are liable to cover any damage to the core home or expansion unit or damage to the homeowner or adjacent property during transport and installation. Core house installation and operation can occur in all Ukraine weather conditions for 12 months in a dense urban area or rural context, including access on unsurfaced roads. Proposal to display innovative ideas for the installation process, ensuring the core home's structural integrity or increasing costs. A creative solution can be an installation and transportation process such as on-site assembly of house or can access complex, difficult sites in a rural area or dense urban fabric. Supply and installation work of core home includes all skilled and unskilled man-hours in Annex C Section-1 (SN-1). Additional man hours can only be commenced with UNHCR's prior written instruction.
18. **Project management:** The supplier must provide a clear Construction Project Management plan. The contractor will provide an implementation plan with the milestones payment plan as per Annex C-1, The GANTT chart for the committed quantities in 2023, the Insurance plan, Health and Health and Safety plan.

### III) RESIDENT MENU

Building a HOME is more than building a house. One essential element in this is the residents' sense of ownership of the house, emotional ownership, in addition to legal ownership. Participation in the construction and completion of the house can strengthen the sense of ownership and, perhaps more important, the sense of dignity.

Although there is a need for standardisation in larger-scale construction, there might also be areas where the future residents, or their family or neighbours, can actively take part in the process.

This could include options of:

- Interior painting
- Site clearance
- Digging for site flattening
- Digging for foundations
- Digging of trenches for pipes
- Assembly of furniture
- Use of own furniture
- Own purchase of furniture
- Use of own appliances
- Own purchase of appliances
- Optional choices between different items and works

UNHCR may want to set up a system for resident participation in collaboration with the contractor, where the contractor can engage the residents in activities. Supplier to supply a clear proposal of how the families can be included in the preparations and completion of the core house to qualify points for Annex B, T2-14.

Collaboration:

- Supplier to collaborate and keep good relations with the homeowner. Suppliers have a dedicated contact person for coordination of installation, operational and post-installation issues with each core homeowner.
- Collaboration with local authorities for permission to install core home, infrastructure and any issue that may require.
- Supplier to conduct joint site assessment with UNHCR/partner team. Supplier to take part weekly progress meetings with UNHCR. Lease all aspects of project management with UNHCR's different units.
- Suppliers have the ability in English for all communication with UNHCR.
- UNHCR may supply added items and suppliers to distribute to individual sites, such as space dividers etc.