



BTSI - Technical Review				
Company Name: Atuar Alkown أطوار الكون				
Technology Provider Name: T-BEAM BEDS				
Standard Technology: Insulated Precast Systems				
Proposed Technology: T-BEAM BEDS BLOCK and BEAM FLOORING SYSTEM				
Issue Date: 27 February 2024				
#	Requirements	Availability		Observations
		Yes	No	
1	Proposed Technology - Brief			
1.01	Company to provide brief on the proposed technology with technical write up and/or A/V presentation	✓		
1.02	Is this technology proven elsewhere			
	a. within KSA			
	b. within Middle East			
	c. elsewhere in the world	✓		
1.03	List of projects by region shall be submitted with its type and quantity of different prototypes	✓		
1.04	Is this technology uses patterned assembly or custom made assemblies?			
	If patterned assembly, list those patterns applicable for Villas, Townhouses and Apartments within KSA, complete with details of those patterns and its test reports?			
	If custom made assembly, how individual assemblies are designed, fabricated and tested against the requirements? eg: Structural stability, Fire resistance, Acoustic performance, Thermal performance, Seismic etc.,	✓		
1.05	Any other item which may illustrate on the proposed technology		✓	
2	Method of Construction			
2.01	Step by step method of construction from design, fabrication, handling, transportation, construction / assembly, completion, finishes etc., to be clarified with a method statement	✓		
2.02	On-site or Off-Site factory?			
	a. If on-site, Space and other requirements within or nearby project?			
	b. If off-site, Location of off-site factory and type of fabrication / production at factory to be clarified.			
	c. List of on-site and off-site works to be clarified	✓		Mixed
2.03	Logistics plan including type of modules, its size, handling at site factory & at site, transportation etc., to be clarified	✓		
2.04	List of dependencies from outside KSA such as molds, form works, machinery or any special materials etc., to be clarified	✓		
2.05	Submit drawings / sketches showing cross section of the proposed assembly with identification material and its specification	✓		
2.06	Clarify on the foundation type and its assembly / joint etc.,	✓		It's mentioned that "can used all diffrents types of foundations"



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2.07	Clarify on the method of assembly, joint and treatment for finishes, fire, ingress and acoustic protections	✓		
3 Code compliance of the proposed technology				
3.01	Is this technology approved within KSA? If yes, list those governmental agencies		✓	✓ 3. Regulatory Compliance of Proposed Technology Does your technology comply with the Saudi Building Code? No
3.02	Is this technology approved within Middle East? If yes, list those governmental agencies, countries and independent third parties		✓	
3.03	Is this technology approved elsewhere in the world? If yes, list those governmental agencies, countries and independent third parties	✓		
3.04	Is this technology complies with Saudi Building Code? a. If Yes, please demonstrate its extent of compliance. b. If No, what is the proposed method to get it complied?		✓	
3.05	Is this technology complies with KSA Civil Defense requirements? a. If Yes, please demonstrate its extent of compliance. b. If No, what is the proposed method to get it complied?	✓		
3.06	List of international codes and extent of compliance	✓		
4 List of material and its code compliance				
4.01	List of materials used to be clarified - Concrete, Steel, Polystyrene, Tiles etc.,	✓		
4.02	Specification of the individual material to be confirmed with its code compliance within KSA	✓		
5 Particular requirements				
5.01	Structural analysis & calculation sheet of the proposed assembly for various prototypes such as Villas (2 1/2 Story), Townhouses (2 1/2 Story) and Apartment G+6 Story Buildings to be clarified.	✓		
5.02	Technical limitations of the technologies, if any, to be clarified, such as number of storeys, size of modules etc.,	✓		
5.03	What is the tested fire rating of the wall and slab? Please provide with details of assembly and certifications	✓		
5.04	What is the tested thermal insulation of the wall and slab? Please provide with details of assembly and certifications	✓		



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5.05	What is the tested acoustic insulation of the wall and slab? Please provide with details of assembly and certifications	✓		Provide details on wall and slab acoustic insulation (with details on assembly and certifications) blocks and t-beam flooring system is acoustic system due to the use of acoustic insulated material as blocks spacers < polystyrene blocks and AAC blocks >
5.06	Any tests on seismic done? If yes, please share those details	✓		Seismic Load Analysis
5.07	If the slab or wall assembly be modified? eg: add opening or door etc.,			
	a. Can be done by the technology provider?			
	b. Anyone can carryout, what are the precautions to be taken?	✓		
5.08	How the ten years warranty for the structure and three years warranty for MEP Works will be supported by the company here in KSA, as per the requirements of the authorities having jurisdiction?	✓		How will your company support the 10-year warranty for the structure and 3-year warranty for MEP in KSA? (as per requirements of the authority having jurisdiction) yes we will
Recommendation				
From the data which submitted by Atuar Alkown أطوار الكون Company to approve the mentioned proposed technology , the following can be listed:				
<p>a) No objection to approve the proposed technology "T-BEAM BEDS BLOCK and BEAM FLOORING SYSTEM" provided by "Atuar Alkown أطوار الكون Company".</p> <p>b) There are some notes that should be taken care:</p> <ol style="list-style-type: none"> 1- This review is limited to Block and Prestressed Concrete T-Beam Beds Block & Beam Flooring System application only. 2- This acceptance doesn't mean commitment to use the factory's products in MOMRAH projects except after getting the approval from the committee of materials in the ministry. 3- Adaptation of the original technology is must to meet the local environmental conditions of Saudi Arabia. 4- Fire rating , thermal insulation & acoustic insulation subject to design to meet SBC & other concerning authorities requirements. 5- Mock-up sample is required and all technical tests will be applied before implementing any project to get the final approval according to the tests result. 6- The above comments shall be addressed and approved by the consultant, prior to commencement of construction. 				
Disclaimers				
<ol style="list-style-type: none"> 1- The above review is limited to technical aspects of the proposed technology only (Phase:1) which doesn't release the company from complying with the requirements of the local authorities having jurisdiction. 2- The capabilities of the company shall be demonstrated in the next phase to BTI team once technical review is complete and the team agreed to proceed to next phase (Phase: 2). 3- The proposed technology, it's specific assembly for the agreed housing products and materials used etc., are subject to approval of the authorized third party consultant who will be appointed by the developer during design and supervision phases of the project (Phase:3). 				