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General Terms of Reference
Project: Grid integration of renewable energy and demand side energy efficiency
Project no.: 14.2298.9-004.00
Tender: Develop Catalogue of Replicable Designs for Energy Efficient Residential Buildings, IGEN-EERB
Contract No. XXXXX

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List of abbreviations

BAI	Building Association of India
BEE	Bureau of Energy Efficiency
CREDAI	Confederation of Real Estate Developers' Associations of India
DISCOMs	Distribution companies
ECBC	Energy Conservation Building Code
ECBC-R	Energy Conservation Building Code- Residential Building
EC Act	Energy Conservation Act
EE	Energy Efficiency
EEB	Energy Efficiency in Building
ESCOs	Energy Services Companies
FSI	Financial Services industry
GHG	Green House Gas
GRIHA	Green Rating for Integrated Habitat Assessment
IGEN	Indo German Energy Program
LCC	Life Cycle Cost
LEED	Leadership in Energy and Environmental Design
MEPS	Minimum Energy Performance Standards
MNRE	Ministry of New and Renewable Energy
MoP	Ministry of Power
MoUD	Ministry of Urban Development
M&V	Measurement and Verification
NAPCC	National Action Plan for Climate Change
NMEEE	National Mission on Enhanced Energy Efficiency
NDC	Nationally Determined Contributions
NREDCO	National Real Estate Development Council
NZEB	Net Zero Energy Building
PWD	Public Works Department
ULBs	Urban Local Bodies
TCs	Technical Co-operation
ToR	Terms of Reference

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1 Project description

1.1 Brief description of the project

Energy efficiency is one of the world's largest energy resources, and we are only just beginning to tap its potential. India has a tremendous opportunity to turn its building boom into an energy boom, simply by building in energy-efficient features and capturing the value of energy savings in its buildings.

The current policy environment is beginning to promote energy efficiency and the execution of national and state level programs will be the key determinants of its success. India's National Action Plan on Climate Change (2008) points to building efficiency measures as essential to carbon emission reduction.

Rapid urbanization is creating vast opportunities through an unprecedented demand for the construction of buildings, which already account for more than 30 percent of India's total electricity consumption. In line with expanding development, the country's buildings sector is expected to increase five-fold from 2015 to 2050. India is at a unique crossroads where two-thirds of the commercial and high-rise residential structures that will exist in 2030 are yet to be built. Implementing energy efficiency in buildings that are being constructed in the next ten years thus presents a singular opportunity to lock in energy and cost savings for the next several decades.

In 2012, residential buildings accounted for 20.4% of India's total electricity consumption and the electricity consumption in residential buildings is about 2.3 times more than that of commercial buildings. Projections shows that electricity consumption in residential buildings is expected to increase 7 fold during the period 2012-2032. The residential sector will become the largest consumer of electricity in the country with 36.5% share of the total electricity consumed in 2032.

The Ministry of Power and Bureau of Energy Efficiency (BEE) are entrusted with the task of implementation for the National Mission on Enhanced Energy Efficiency (NMEEE) under National Action Plan on Climate Change (NAPCC). This mission has a component which deals with the Commercial and Residential Building Energy

The Energy Conservation (EC) Act of 2001 provides the framework for energy efficiency imperatives in India followed by the National Mission for Enhanced Energy Efficiency (NMEEE) in 2008. India's Nationally Determined Contributions (NDC) aim to reduce the emissions intensity of our GDP by 33–35 per cent by 2030 from the 2005 level; mandates promotion of energy efficiency in the economy, notably in industry, transportation, buildings and appliances; as well as development of climate-resilient infrastructure. Over the past few years, BEE has introduced initiatives to promote design of energy-efficient commercial buildings based on ECBC so far related to commercial buildings; energy conservation in buildings and municipalities through performance contracting by ESCOs; adoption of energy-efficient consumer appliances through energy labeling; market transformation towards energy-efficient appliances through demand side management programs; energy efficient motors; and enhanced focus on energy-efficiency investments in industry due to energy data reporting and benchmarking practices.

The project is aligned with the commitments made by the Indian Government to meet its objectives submitted under NDCs.

The Federal Republic of Germany and the Government of the Republic of India have, under the Indo-German Technical Cooperation, agreed to jointly promote the "Indo-German Energy

Programme" (IGEN) with the aim to promote energy efficiency/conservation in energy consumption so to use energy more efficiently and in turn improve the environment/climate protection.
GIZ is an international cooperation enterprise for sustainable development which operates worldwide, on a public benefit basis. GIZ is fully owned by the German Federal Government, GIZ implement development programs in partner country on behalf of the German Government in achieving its development policy objectives.
Under IGEN–EE, considerable amount of work has been done in different programs such as Standard and Labeling, Energy Manager Training and Examination, Energy efficiency in Industries under PAT Program. BEE and GIZ mutually agreed that there is a need for development of Energy Efficiency Building program in India through the International experience gained by GIZ.

GIZ seeks to contract a consultant that will support in Developing a Catalogue of Replicable Design options for Energy Efficient Residential Buildings. Buildings account for more than 30 percent of India's total electricity consumption in India and it also contributes significantly to peak load. In line with expanding development, the country's buildings sector is expected to increase five-fold from 2015 to 2050. Transformation to climate responsive design and effective use of efficient building materials can offer major energy and cost savings. Therefore, it is imperative to develop replicable design options for energy efficient residential buildings to promote market transformation.

1.2 Description of the measure of Technical Cooperation (TC)

1.2.1 Objectives

The objective of the proposed assignment is to select an agency that will support in Developing a Catalogue of Replicable Design options for Energy Efficient Residential Buildings. The building designs shall be aimed to be iconic landmark and symbol of energy efficient building which will set an example of energy and environmental performance that goes beyond existing standards. It shall implement energy efficiency, renewable energy technologies, low energy structure and materials. Planning and designing of the proposed residential buildings shall be for net zero criteria in respect of electrical power energy. Design philosophy should cover at least the following:

- Integrated designs of electrical, mechanical and other services with structural system and construction methodology with low maintenance.
- Climate responsive passive solar architecture with combination of approaches for optimization of day light, thermal comfort.
- Aim towards surpassing the onsite net zero energy concept with use of modern, latest and innovative technologies in new and renewable energy resources such as solar, wind, biomass, etc.
- Use of low embodied energy materials, local/reused materials and consideration of green building principles.

1.2.2 Target group and other stakeholders

The target group of the consulting work consists of the relevant staff members of MoP, MoHUA, BEE, State Designated Agencies, CPWD & State PWDs, State Urban Development Ministry, ULBs, City Planners, Building material manufacturers, Municipalities, and Green Building certification bodies in India.

1.2.3 Lead executing agency and implementing organization

Lead executing agency and implementation organization will be BEE on behalf of the Ministry of Power, Government of India. The Government of India set up Bureau of Energy Efficiency (BEE) on 1st March 2002 under the provisions of the Energy Conservation Act, 2001. The mission of the Bureau of Energy Efficiency is to assist in developing policies and strategies with a thrust on self-regulation and market principles, within the overall framework of the Energy Conservation Act, 2001 with the primary objective of reducing energy intensity of the Indian economy. This will be achieved with active participation of all stakeholders, resulting in accelerated and sustained adoption of energy efficiency in all sectors.

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2 Terms of Reference

2.1 Contractor's profile

The agency shall be consisting of team of experts in the field of climate responsive building design, building performance analysis (daylight analysis, energy modelling, CFD simulation, etc.), and green building certification. The contractor, must have designed energy efficient buildings certified by LEED, GRIHA or similar green building certification.
The agency should have worked on development of the Energy Efficiency projects in building and should have supported in several International and national programs on Energy Efficiency in building, training and awareness, impact assessment, and implementation. The experience of benchmarking, data collection & analysis, energy savings analysis, GHG impact assessment, and developing large scale implementation programs shall be an added advantage.

2.2 General Terms of Reference for the Contractor

The Terms of Reference (ToR) covers the scope and deliverables by the Contractor to include the energy efficient building designs for buildings in India. The Contractor will be required to carry out market survey so as to assess material which is presently available in the market.. The tender involves coordination with BEE, GIZ, PWDs, UDDs, etc.
The main activities outlined in this tender document provide a guideline for the activities envisaged by the Contractor is expected to adjust flexibly to changing demands for support. This tender solicits to develop the list following the strict timelines; the mobilization of activities will be based on demand and needs of the project tasks, and coordinated by the GIZ project coordinator in India in close coordination with the Indian partners and experts of the contractors.
The Contractor is required to execute the work by involving pool of international and local experts who will be undertaking the desired survey and research activities. The pool has to consist of a mix of senior and mid level experts. A consortium or joint venture can be formed to submit one single bid. A consortium/joint venture needs to appoint one consortium/joint venture leader who will take over all communication and represents the contracted parties in front of GIZ and third parties. No cross-communication to GIZ (via other consortium/joint venture members) will be accepted by GIZ.
The staff members seconded by the Contractor must co-operate closely with the GIZ project co-ordinator. The Contractor will have to submit quarterly (and on request) project status report to GIZ in the prescribed format (in the format provided in annexure A).
The Contractor shall provide documented proofs of internationally acquired experience. The objective of the contract is to make available state of the art information about energy efficient building materials presently available in the Indian market. The final report must highlight impact of present as well as future material over policy roadmap in Indian residential building sectors for developing the energy efficiency for residential building.. The Contractor mandatorily needs to demonstrate adequate technical knowledge and experience in the Building Energy Efficiency domain. The Contractor is also expected to be familiar or to familiarize him/herself with:

- The objectives of the national energy policy, National Building Code, ECBC 2017, ECBC-R development stages, and the energy policy on state levels of India as well as other relevant documents and regulations.
- Green Building rating systems like GRIHA, LEED (USGBC-GBCI), IGBC, etc.
- The interests of all stakeholders.

2.3 Short description of the work packages

The scope of work for agency includes following tasks

- Develop concept/schematic Replicable Design options for Energy Efficient Residential Buildings
- Provide solutions to meet all requirements of ECBC-R[1] for applicable climatic zone
- Provide technical standards and specifications of material and equipment
- Develop guidelines for selection of equipment that are appropriate – high performance, certified wherever applicable
- Provide list of vendors/suppliers of energy efficient building materials, equipment, etc.
- Evaluate, endorse building design drawings for ECBC-R compliance, residential building energy label and assess EPI based on building simulation
- Develop and validate bill of quantities (BoQ) for materials and equipment
- Prepare BIM models for the developed design options
- Organize capacity development workshops for the stakeholders to enhance awareness

The Consultant shall provide comprehensive consultancy services in Project Conceptualization; space utilization, functional relations, preparation of master plan, preliminary project report, preliminary estimate, detailed architectural drawings, design and detailing including designing and detailing of all services, landscaping, detailed project report and preparation of Bid / Tender documents etc. Consultant shall prepare and supply all the drawings duly proof checked and approved.
The required internal and external services have to be planned with minimum cost, minimum maintenance and lowest consumption of energy, water and electricity.
The proposed designs should be amenable to latest systems of construction technologies for enabling repeatability and fast track and ease in construction, keeping in mind a lower embodied energy of material and lower energy consumption in the proposed complex.

The overall duration of the assignment is 12 months from the date of signing contract. The entire activity is divided into following work packages:

a. WP1: Develop Architectural Designs & Specifications of Replicable Design options for Energy Efficient Residential Building
b. WP2: Develop Budget Estimates of Replicable Design options for Energy Efficient Residential Building
c. WP3: Develop BIM and Simulation Models of Replicable Design options for Energy Efficient Residential Building to be uploaded in econiwas.com

[1] http://www.econiwas.com/pdf/publication/ECBC_BOOK_Web.pdf

d. WP4: Organize Awareness Workshops and Event for the Launch of Replicable Design Catalogue for Energy Efficient Residential Building

2.4 Detailed Specifications (Work Packages)

The Consultant will be responsible for successfully executing the following activities and tasks as part of the study. Execution of all activities and tasks must be conducted in close consultation with BEE and GIZ.

2.4.1 WP1: Develop Architectural Design & Specifications for Replicable Design options for Energy Efficient Residential Building

The agency will be responsible to develop a catalogue of replicable energy efficient design options. The following number of design options shall be developed for Five Indian climatic zones and Four Energy Efficiency levels (ECBC-R and Three incremental Levels)

S.No	Type	No. of design options
1.	*High-rise building (Multi-family)*	
1.1.	Type I: ~ 40 sq.m	10
1.2.	Type II: ~ 55 sq.m	10
1.3.	Type III: ~ 65 sq.m	10
1.4.	Type IV: ~ 105 sq.m	10
1.5.	Type IV(S): ~ 125 sq.m	10
1.6.	Type V: ~ 165 sq.m	10
1.7.	Type VI: ~ 225 sq.m	10
1.8.	Type VII: ~ 310 sq.m	8
1.9.	Type VIII: ~ 425 sq.m	8
2.	*Plotted development (Single-family)*	
2.1.	Plot area ~80 sq.m	10
2.2.	Plot area ~150 sq.m	10
2.3.	Plot area ~200 sq.m	10
2.4.	Plot area ~250 sq.m	10
2.5.	Plot area ~300 sq.m	10
2.6.	Plot area ~400 sq.m	10

The numbers of design option stated above are the permutation and combination based on different orientations, site conditions and design elements. The bidder needs to device a strategic approach to optimize the number of iteration to arrive at the desired catalogue.

1. Architectural Planning and Design package:
   a. Assess the requirement for preparation of concept and comprehensive Master Plan. A brief document for the strategic approach for preparation of Master Plan shall be prepared with best practices available in the global market confirming to model building bye laws and National Building Code guidelines.

b. The Consultant shall prepare the drawings as per the Model Building Bye Laws, 2016. The architectural design shall be carried in terms of specifications of latest additions of Bureau of Indian Standards (BIS) Codes, National Building Code, and CPWD Disability Act Guidelines etc. and in compliance to various other approvals/guidelines in India and applicable to this work.
c. The proposed design options shall be developed in consultation with technical committee formulated BEE/GIZ. The consultant is required to submit preliminary design to BEE/GIZ for approval.
d. Preparation of Building-wise Floor plans in 1:100 scale or any other suitable scale.
e. Preparation of Elevations and Sections wherever required.
f. Preparation of Typical details in 1:50 or any other suitable scale.
g. Preparation of interior design and Room wise Equipment / furniture layout / furnishing. Layout drawings to be at 1:100 scale or any other suitable scale.
h. Any other designing and detailing required for comprehensive planning and designing of the proposed building and for obtaining ECBC-R compliance.

2. Technical specification documents:
   a. Preparation of Data sheet showing Room wise and Building wise finishing, flooring and Door window, and other schedules
   b. Preparation of Technical Specification for civil Consultancy works, electrical Consultancy works, other services, equipment, furniture, furnishing etc. for all items.

Deliverables:

1. Concept report on Strategic approach, planning and best practices available in the market confirming to model building bye laws and National Building Code guidelines.
2. Architectural design package and Technical specification documents of all the developed design options for Composite & Hot Dry climate zones.
3. Architectural design package and Technical specification documents of all the developed design options for Warm Humid climate zone.
4. Architectural design package and Technical specification documents of all the developed design options for Temperate climate zone.
5. Architectural design package and Technical specification documents of all the developed design options for Cold climate zone.

2.4.2 WP2: Develop Budget Estimates of Replicable Design options for Energy Efficient Residential Building

The agency shall develop the following supporting documents for Estimate and Costing to enhance the usability of the developed design options:

1. Preparation of floor wise area statement, Preliminary Project cost estimate(s) for the entire scope of the project involved based on applicable Plinth Area Rates and Market rates for non-schedule items as per the prescribed format of CPWD.
2. Preparation of detailed cost estimate(s) of the entire scope of the project by considering individual/group of buildings/structures, Civil Services/Electrical Services/ Other Services/ Furniture/ Landscaping etc., based on latest PWD Schedule of Rates &

Market rates for non-schedule items. The Detailed Estimate showing details of measurement, BOQ, draft bid document, analysis of rates, at-least three makes of product, specifications etc. shall have to be prepared and submitted by the consultant.

3. A techno-commercial feasibility report shall be prepared and submitted by the consultant. The Techno-Commercial Feasibility Report should elaborate on:
    - Baseline specification and costing
    - Methodology for technical analysis or assessment
    - Definition of inputs and assumptions
    - Outputs and results
    - Conclusions and Recommendations
    - Specifications of proposed strategies/technologies; and
    - Financial feasibility analysis

Deliverables:

1. Preliminary Project cost estimate of all the developed architectural design options for all climate zones.
2. Detailed cost estimate of all the developed architectural design options for all climate zones.
3. Report on Techno-Commercial Feasibility of all the developed architectural design options for all climate zones.

2.4.3 WP3: Develop BIM and Simulation Models of Replicable Design options for Energy Efficient Residential Building to be uploaded in econiwas.com

The agency shall develop Building Information Model (BIM) and Simulation Models to support optimization of the developed design options based on future scenarios:

1. Building Information Model (BIM):
    - 3D BIM model for entire building complex shall be developed on Revit software and Co-ordinated construction drawing shall be issued from 3D BIM model for all the services in the building.
    - Develop energy simulation model of the buildings on Energy Simulation software for detailed analysis and optimization

2. Simulation Models (Light & Energy):
    - Develop energy simulation model of the buildings on EnergyPlus based Energy Simulation software for detailed analysis and optimization.
    - Develop natural & artificial lighting simulation model of the buildings on Radiance based Lighting Simulation software for detailed analysis and optimization.

3. Development of Tool for selection and filtration to be uploaded in econiwas.com
    - Develop a database of design options having cost details, energy performance parameters, , other selection related parameters, for web-based tool;

- Develop an intuitive web-based tool to visualize and compare building design options based on energy performance and other selection criteria. The objective of the tool is to assist the user in taking informed decision w.r.t building design;
- Support in the possible linkage of developed database with the existing building performance tool on ECO-NIWAS portal.

Deliverables:

1. Building Information Model (BIM) of all the developed architectural design options for all climate zones.
2. Energy Simulation Model (including .IDF file) of all the developed architectural design options for all climate zones.
3. Natural & artificial lighting Simulation Model of all the developed architectural design options for all climate zones.
4. Web-based tool to visualize and compare building design options.

2.4.4 WP4: Organize Workshops and Event for the Launch of Replicable Design Catalogue for Energy Efficient Residential Building

The agency shall organize Awareness Workshops, Stakeholder Consultations and Launch Event to enhance the outreach and acceptability of the developed Replicable Design Catalogue for Energy Efficient Residential Buildings. Cost of venue, food etc. for organizing round-tables, workshops, and launch event shall be borne by GIZ separately. All the logistics shall be arranged by the consultant.
The consultant shall organize and lead the following events under the assignments:

1. Round-table Meetings:
   - The consultant shall organize at least four (4) round-table meetings with identified stakeholders (e.g. Developers, Financial Institutions, PWDs, etc.) and incorporate the feedback received from stakeholders in the proposed activities.

2. Regional Stakeholder Workshops:
   - The consultant shall organize at least four (4) regional stakeholder workshops to present the outcomes under the assignment and incorporate the feedback received from stakeholders.

3. Launch Event:
   - The consultant shall organize an Event for the Launch of Replicable Design Catalogue for Energy Efficient Residential Buildings.

4. Training Programs:
   - The consultant shall organize at least four (4) training workshops targeting building design professionals and government stakeholders.

Deliverables:

1. Prepare concept note, schedule, workshop material, and presentations for round-table meetings with different stakeholders. Submit proceedings of the organized meetings highlighting received feedback/suggestions.
2. Prepare concept note, workshop material, presentations for Regional Stakeholder Workshops. Submit proceedings of the regional stakeholder workshops.
3. Organize an Event for the Launch of Replicable Design Catalogue for Energy Efficient Residential Buildings. Printing of 200 coffee table books (Size: 11” x 11”, Pages: 200 approx., Paper : 160 GSM Matt, Hard bound with 2.5 mm board duly pasted with matt PLC) including 16 GB, USB drive, credit card type equipped with the fully functional tool software for selection and filtration of Building design and BOQ
4. Prepare concept note, workshop material, training manual, presentations for training programs for building design professionals. Submit proceedings of the organized training programs and Report on process for capacity building of down the line stakeholders.

2.5 Specification of Inputs

2.5.1 Assignment of personnel

In total, the contract is projected to have a volume of 650 man-days; however, bidders are expected to draw a detail expert-days distribution as per the table of Expert-day schedule & activities, to optimize the project timeline with a streamlined and efficient approach. Out of 650 man-days at least 150 days have to be from senior consultant level.

S.no.	Expert Category	man-days
1	Team Lead	50 days
2	Pool of Experts (senior level)	100 days
3	Pool of Experts	500 days

2.5.2 Brief Profile of Experts

1. **Team Lead**: The team lead should be an Architect registered with Council of Architecture, India. S/he should be a senior consultant having at least 15 years of experience and proven understanding of passive design, Net-Zero energy buildings (NZEB), building energy standards/codes, and related policy. S/he should also have experience of managing and implementing large and complex architectural projects wherein co-ordination with multiple stakeholders is required.

2. **Pool of Experts on Building Performance Analysis:** The contractor should propose a pool of experts in the area of building performance analysis (Energy Modelling, CFD simulation, daylight analysis, etc.). At least 40 man-days should be proposed in the category of senior consultant in this pool.

3. **Pool of Experts on Building Information Modelling (BIM):** The contractor should propose a pool of experts in the area of building information modeling (BIM). At least 40 man-days should be proposed in the category of senior consultant in this pool.

4. **Pool of Experts on Building Services (MEP):** The contractor should propose a pool of experts in the area of building services (lighting system, electrical services, HVAC, etc.). At least 20 man-days should be proposed in the category of senior consultant in this pool.

Definition of senior consultant level: At least 10 years of experience in the area of expertise the professional is supposed to cover in the project context and should be an Engineering graduate or Architect.

Definition of consultant level: At least 5 years of experience in the area of expertise the professional is supposed to cover in the project context and should be an Engineering graduate or Architect.

Efforts from Interns cannot be taken into consideration here.
All the Senior Consultants / Consultants should have good command over English language (reading, writing and speaking)

The contractor has to assign no. of personnel, national and International Experts of different level for different activities during the course of project completion. It is expected from contractor to provide the list of assigned personnel for the activities along with expected man days as per format provided. In the case of a tender being submitted by a consortium or joint venture, for each of the consortium/joint venture partner a separate listing shall be provided.

Expert-day schedule & activities						
Sr. No.	Expert Category	Expert International /National	Activities Involved	Job Description	Tentative experts-days	Brief Profile Attached (Yes/No)
1	Team Lead					
2	Expert 1					
3	Expert 2…					
4	Expert ….					
5	etc……					

2.5.3 Timeframe of the contract

Timeframe: The assignment shall tentatively begin from 1st May 2019, and duration of contract shall be for 12 months.

2.5.4 Workshops, Meetings and Launch event

Cost of venue, food etc. for organizing round-tables, workshops shall be borne by GIZ separately. All travel, accommodation, food etc. for the staff of the Contractor has to be borne by them and have to be budgeted in their proposal. Expenses incurred can only be reimbursed after cost proposals have been submitted to and approved by GIZ prior to the acceptance and if sufficient bills / proofs are submitted to GIZ as desired. All costs related to participants shall be borne either by the participants themselves or by GIZ separately.

2.5.5 Flexible remuneration item

This position is supposed to allow for flexible reaction to changing situations and new requirements, if necessary for reaching the objective of the project. INR 1.0 million is to be included for this. Use of this remuneration item has to be initiated and approved by the responsible person on GIZ side.

2.6 Further Requirements

a) The entire proposal including approach and methodology, including tool and software's proposed, CVs etc., needs to be in English. The CVs need to be in uniform format with a maximum of three pages.

b) All activities including travels, meetings and tasks in different focus areas need to be aligned with the GIZ project co-ordinator (to be nominated by GIZ in the beginning of this assignment)

c) In case the bidder is a consortium or joint venture, the lead bidder should as well take up tasks in the assignment and shall be involved as the responsible coordinator among the group. The share of tasks shall be evaluated on the basis of the proposal submitted as above. The Team Lead shall be from the Lead Bidder.

d) All communication with media (TV, radio, print and other media) related to the assignment has to be approved by the responsible person of BEE/GIZ.

e) All reports, slides, presentations and other media and information material need to be submitted to GIZ in English language in soft copy and in hard copy (at least 3 copies) as required.

f) The Contractor should at all times of the assignment possess the copyrights (licenses in the case of software packages) of the documents, pictures, technical papers, standards used in the study.

g) Any data to be purchased from external sources if necessary for the purpose of execution of the contract shall be purchased by the Contractor on its own expense.

h) Cost of venue, food etc. for organizing round-tables, workshops shall be borne by GIZ separately. All travel, accommodation, food etc. for the staff of the Contractor

has to be borne by them and have to be budgeted in their proposal. Expenses incurred can only be reimbursed after cost proposals have been submitted to and approved by GIZ prior to the acceptance and if sufficient bills / proofs are submitted to GIZ as desired. All costs related to participants shall be borne either by the participants themselves or by GIZ separately.

i) The bidder should consider all the relevant and related activities, including but not limited to the activities proposed above in the work packages, to ensure the successful completion of all Work Packages.

j) All deliverables under Work Packages shall be considered final after incorporating all the comments and Feedbacks from the stakeholders and final approval from GIZ.

k) Tendering shall be executed in two stages, where the agencies have to be assessed through the Assessment grid for eligibility for qualification in next stage for opening of Technical bid. The technical assessment of the proposals will be undertaken for the bidders, who qualify in eligibility.

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Annexure A: Sample Template for Progress Report

Activity	Responsible Consultant	Timeline as per work plan	Actual % Work Progress	Status	Remarks
WP 1					
Sub task 1.1					
…					
…					
WP 2					
…					
Brief summery in bullets to justify the status					
	Completed (100%)				
	in progress (26%-99%)				
	Progress less than 25%				

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S.no	Deliverables/Activities	Reporting	Milestone
0.1	Project kick-off meeting to discuss approach for the study and expected outcomes.	Within 10 days from award	
0.2	Inception Report: The consultant shall provide an overview for all sub activities mentioned under each Task.	Within 15 days from award	
0.3	Monthly Progress Reports: summary of progress on activities and tasks	monthly until project completion	
WB1	**Architectural Designs & Specifications of Replicable Design options for Energy Efficient Residential Building**		
1.1	Concept report on Strategic approach, planning and best practices available in the market confirming to model building bye laws and National Building Code guidelines.	May – 19	
1.2	Architectural design package and Specification documents of all the developed design options for Composite & Hot Dry climate zones.	Jun – 19	1
1.3	Architectural design package and Specification documents of all the developed design options for Warm Humid climate zone.	July – 19	
1.4	Architectural design package and Specification documents of all the developed design options for Temperate climate zone.	Aug – 19	
1.5	Architectural design package and Specification documents of all the developed design options for Cold climate zone.	Sep – 19	2
WB2	**Budget Estimates of Replicable Design options for Energy Efficient Residential Building**		
2.1	Preliminary Project cost estimate of all the developed architectural design options for all climate zones.	Sep – 19	
2.2	Detailed cost estimate of all the developed architectural design options for all climate zones.	Nov – 19	3
2.3	Report on Techno-Commercial Feasibility of all the developed architectural design options for all climate zones.	Nov – 19	4
WB3	**BIM and Simulation Models of Replicable Design options for Energy Efficient Residential Building**		
3.1	Building Information Model (BIM) of all the developed architectural design options for all climate zones.	Dec – 19	
3.2	Energy Simulation Model (including .IDF file) of all the developed architectural design options for all climate zones.	Dec – 19	
3.3	Natural & artificial lighting Simulation Model of all the developed architectural design options for all climate zones.	Dec – 19	5

3.4	Web-based tool to visualize and compare building design options	Dec-19	
WB4	**Organize Workshops and Event for the Launch of Replicable Design Catalogue for Energy Efficient Residential Building**		
4.1	Prepare concept note, schedule, workshop material, and presentations for round-table meetings with different stakeholders. Submit proceedings of the organized meetings highlighting received feedback/suggestions.	Jan - 20	
4.2	Prepare concept note, workshop material, presentations for Regional Stakeholder Workshops. Submit proceedings of the regional stakeholder workshops.	Jan - 20	
4.3	Organize an Event for the Launch of Replicable Design Catalogue for Energy Efficient Residential Buildings. Printing of 200 coffee table books with USB.	Feb - 20	6
4.4	Prepare concept note, workshop material, training manual, presentations for training programs for building design professionals. Submit proceedings of the organized training programs and Report on process for capacity building of down the line stakeholders.	Mar - 20	7