

Section 6 – Works Requirements

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Housing for Integrated Rural Development Investment Program

1. ADB Supported Multisector Investment Program. The Housing for Integrated Rural Development (HIRD) Investment Program (the Program) is the Government's multisector program for achieving more inclusive growth through improved rural living standards and livelihood opportunities. Supported by ADB, the Program focuses on increasing access to improved rural housing and improving the investment climate in rural areas, as a catalyst for improving living conditions and creating new job and livelihood opportunities in rural areas. ADB support is provided as a multitranche financing facility, and is comprised of a series of financial intermediary loans to help finance affordable housing loans to purchase new modern rural housing for moderate to low-income borrowers (young families and first-time home owners, teachers and health care workers [two occupations in which women predominate]) and other skilled professionals (targeted beneficiaries) under the Government's Rural Housing Scheme (RHS).

2. Program Design and Monitoring Framework. HIRD is strategically designed to improve rural living standards, provide improved housing for targeted beneficiaries in rural communities, and stimulate the rural construction sector and create rural construction jobs. Under the three components, HIRD will have three outputs: (i) housing loans provided by participating commercial banks to targeted creditworthy subborrowers to purchase new residential housing in rural areas, (ii) improved capacity of local governments (*hokimyats*) to prepare and implement integrated rural development plans and investment promotion strategies, and (iii) and improved enabling environment for MSEs to expand or establish new businesses and create jobs in rural areas.

3. Program Executing and Implementing Agencies. The Ministry of Economy (MOE) is the Program's executing agency and will establish a Program Implementation Unit (PIU) that will be responsible for overall management, coordination, and implementation of the Program. The PIU will also provide technical support for capacity development and monitoring and evaluation of the Program. Participating commercial banks (PCBs) will be the implementing agencies for Component 1, and the MOE/PIU will be the implementing agencies for Component 2 and 3.

4. Local Government (*Hokimyat*). Provincial *hokimyats* and the Council of Ministers of the Republic of Karakalpakstan, together with district level *hokimyats* have important HIRD roles. Provincial and district level *hokimyats* are responsible for:

- a) identifying and allocating state land for rural residential housing development under the RHS.
- b) preparing and implementing integrated masterplans for the new rural housing communities (massifs) to ensure access to (i) basic utilities (water supply and sanitation, electricity, and gas), (ii) communication networks, (iii) main roads and public transport, (iv) social services, i.e., schools and health care facilities, and (v) commercial and cultural facilities;
- c) completing site due diligence of social and environmental safeguards in accordance with national and ADB standards;
- d) coordinating road access to the massif/site, site access to utility services - electricity, gas, water supply and sanitation, and completion of street roads and community and commercial facilities;
- e) determining district/provincial development priorities;
- f) promoting HIRD and delivering important HIRD messages to stimulate demand among HIRD targeted beneficiaries;
- g) reviewing and approving prioritization of RHS beneficiaries in accordance with predefined prioritization criteria; and

h) undertaking contractor selection for construction of the new RHS houses and supporting regulatory oversight of construction quality assurance and handover processes for RHS new houses.

5. Qishloq Qurilish Bank (QQB) and Qishloq Qurilish Invest (QQI). Since the initiation of the RHS in 2009, QQB together with QQI, which is a solely owned engineering subsidiary of QQB, have been responsible for implementing the Government’s Rural Housing Scheme (RHS). With experience gained in 2009, 2010, and 2011, and construction of almost 15,000 houses across about 500 sites (massifs) countrywide, QQB and QQI will continue to lead the implementation of the program for RHS implementation for 2012. QQB is the the sole PCB for Tranche 1, and QQI is mandated to support provincial hokimyats and supervise the construction of RHS new houses countrywide.

6. Site Selection and Social and Environment Safeguard Due Diligence. Sites proposed by district/provincial hokimyats are assessed and endorsed by the State Architecture and Construction Committee (SACC), the State Committee for Land Resources, Geodesy, and Cartography, and State Cadastre (SCLRGC&SC), and the State Committee for the Protection of Nature (SCPN). Proposed RHS sites are assessed to ensure: (i) compliance with general provincial/district development plans; (ii) accessibility to basic utility services, communications, and local roads and public transport; (iii) technical appropriateness for construction of new residential houses and social, cultural and commercial facilities, and (iv) compliance with national and social and environment safeguard requirements.

7. In accordance with ADB’s Safeguard Policy, each PCB will adopt and implement an environmental and social management system (ESMS) with screening criteria and monitoring procedures to ensure that (i) the RHS sites have minimal or no adverse social or environmental risks, (ii) none of the RHS sites have involuntary resettlement or social or environment risks, and (iii) RHS housing sites are (a) categorized as state-reserved lands and approved for residential use, and (b) certified as technically and environmentally appropriate for housing construction. **A due diligence assessment will be undertaken and completed prior to signing of civil works contracts to ensure all new houses and house lots financed by ADB are in compliance with ADB safeguards.**

8. Integrated Rural Community Masterplans. Integrated rural community masterplans are prepared for each RHS site by regional design institutes commissioned by QQI. The template for the integrated masterplans was prepared by Qishloq Qurilish Loyiha (QQL) based upon national architectural standards for RHS new “rural communities” and houses, as well as associated rural social (schools and health care clinics), community, and commercial facilities. These standards, developed by QQL, reflect the Government’s vision for rural communities, and incorporate modern architectural design, and advanced construction technology and materials. The integrated masterplans map out streets, individual house lots, basic utility service connections and networks, and where applicable the location of community (schools, health care facilities, parks. etc.) and commercial/retail facilities. **A master plan for the RHS site (massif) relevant for this civil works package is provided as Attachment 6.1. The masterplan maps out the location of each of the civil works packages for which bids are being requested, and specifies the location of each of the 10 houses to be constructed as part of this specific package.**

9. Road Access to Site and Site Access to Basic Services and Communication Networks. District hokimyats are responsible for ensuring road access to the site and coordinating closely with relevant utilities (Uzbekenergo, Uztransgas and Uzcommunkhizmat), and Uztelecom for communications, and Uzavtoyol for streets/roads within the massif, to ensure effective and timely site access to basic utility services - electricity, gas, water supply and sanitation, and timely completion of streets/roads within the site and community and commercial facilities where applicable. **Attachment 6.2 outlines the implementation timeline for: (i) road access to the site; (ii) site access and access to individual house lots for basic utility services - electricity, gas, water supply and sanitation; and (iii) completion of**

streets/roads within the site and community as well as commercial facilities where applicable.

10. Civil Work Packages. One of the goals of this project is to promote the development of small and medium construction industries. To support the involvement of local contractors, Resolution of the President No. PP-1051, dated 29 January 2009, specifies civil work packages will comprise construction of 10 new houses.¹ However, qualified contractors may submit bid proposals for more than one package. Large firms that are technically and financially capable will be limited to 1 (one) contract per Massif or 3 (three) per Oblast or a total of 30 (thirty) contracts nationwide. Large firms that form joint ventures with small and medium size contractors will be allowed to bid for an addition 10 (ten) contracts or a maximum of 40 (forty) contracts nationwide. Respective parties of the joint venture may choose who will be the leading firms in their undertaking, however all parties will be severely and jointly liable for the contract in accordance with their liabilities.

11. Bid Documents and Contractor Selection Process. Following a national competitive bidding process, bid documents are prepared and issued by District/Provincial Hokimyats. Each bidding package will comprise a Preface and Sections 1 to 9. Section 6 prepared with assistance from commissioned regional design institutes, includes the following attachments:

- a) Attachment 6.1: RHS One-Year New Home Warranty;
- b) Attachment 6.2: Site Masterplan;
- c) Attachment 6.3: Implementation Plan and Timeline for Site Access Roads and Access to Basic Utilities;
- d) Attachment 6.4, 6.5, and 6.6: Site specific detailed designs for each of the three new house models offered (i.e., a three room model, a four room model, and a five room model);
- e) Attachment 6.7, 6.8, and 6.9: Site specific bill of quantities for each of the three house designs;
- f) Attachment 6.10: Bill of quantity for installation of basic utilities for 10 houses;
- g) Attachment 6.11: Bill of quantity for upgrade packages selected by each of 10 RHS new home buyers; and
- h) Attachment 6.12: Format for summary bill of quantity for the entire package (that clearly specifies the total number of each of the three house designs as commissioned by the 10 approved creditworthy target beneficiaries.

12. Evaluation of the bids, a bid evaluation report, and a summary recommendation will be prepared by the District Evaluation Group of the Provincial Tender Commission.³ Final award of the contract will be approved and issued by the Provincial Tender Commission.⁴

13. Construction Supervision and Inspection Process. For RHS 2012 new home construction, QQI, as an agent of the provincial/district *hokimyats* (developer) and RHS homebuyers, supervises the construction of RHS new houses countrywide. QQI is responsible for liaising with all relevant regulatory agencies, and supervising overall construction quality of new houses to ensure adherence to detailed design and building specifications and national

¹ Protocol No. 05/1-705 dated 24 November 2010, specifies in recognition of the capacity level of local contractors (i.e., in terms of experience, equipment, and technical facilities), construction of no more than 10 houses should be assigned to a single contractor.

³ The composition and membership of the District Evaluation Group (DEG) will be defined and approved by the Provincial Tender Commission.

⁴ The composition and membership of the Provincial Tender Commission (PTC) will be established in accordance with Resolution of the President No. PP-1083, dated 11 January 2012.

building and construction standards. In addition to QQI, and in accordance with **KMK 1.03.0796 “Regulation on Design and Technical Inspection of Construction”**, QQL, the Regional Design Institutes, the State Committee of Architecture and Construction, among others, each has mandated roles for regular routine construction inspection throughout the construction process, and for certifying state building and construction standards are met. As required by regulation, each step of the inspection process will be documented in a “Journal for Design and Technical Inspection of Construction”, with any deviations detected during the inspection and followup steps needed to be taken, appropriately recorded. Duplicate copies of the journal will be maintained, with one copy secured on site and a second copy in safekeeping at QQL or the regional design institute.

14. Within 5 days of receiving the Contractor’s Notice of Completion, QQI will invite the RHS new home buyer to join the Evaluation Group for Commissioning to inspect the new house and sign off the Evaluation Group’s Document of Acceptance. The Evaluation Group will be comprised of representatives of QQI, the Contractor, and relevant representatives of regulatory and oversight agencies. Inspection of the Evaluation Group includes inspection of the quality of construction, installations (electrical, plumbing, heating and ventilation), equipment and fixtures, finishings, and ancillary elements (boiler room, outdoor latrine, garage, walkway and fencing). Upon completion of final inspection, the Evaluation Group’s Document of Acceptance is signed by all members of the Evaluation Group. A final commissioning certificate will then be issued by the State Building Inspection Commission to the RHS new homebuyer.

15. RHS New Home Buyer One-Year New Home Warranty. In addition to an RHS grievance and complaint process (for any and all parties impacted or involved in RHS activities), which is in the process of being developed and implemented, RHS new homes will be covered by a One-Year New Home Warranty. The One-Year New Home Warranty is provided as Attachment 6.1.

16. Contract Advances and Payment Milestones. Upon contract signing **an advance of up to 25% of the total amount of the contract price** will be provided against an advance payment guarantee. Upon completion of each milestone, the milestone payment will be made less the relevant proportion of the advance and less **a payment retention equal to 5% (warranty withholding for 1 year)** of the milestone payment made to the contractor.

Milestone	Performance Criteria	Expected Completion	Milestone Payment % Total Contract
1.	Completion of Foundation Level of all 10 Houses	2 months from Start Date	25%
2.	Completion of Lintel Level of all 10 Houses	4 months from Start Date	20%
3.	Completion of Roofs of all 10 Houses	6 months from Start Date	25%

Milestone	Performance Criteria	Expected Completion	Milestone Payment % Total Contract
4.	Completion of Interior Finishings of all 10 Houses	8 months from Start Date	15%
5.	Completion of Exterior Finishings of all 10 Houses	9 months from Start Date	15%

17. Contract Performance Benchmarks and Payment Approval. Performance benchmarks are defined for each milestone and presented in the following table. Performance benchmarks will be subject to verification/confirmation with the “Journal for Design and Technical Inspection of Construction” or visually if practically possible by both the individual new home buyer and QQI prior to approval of payment.

Milestone	Performance Criteria	Performance Benchmark
1.	Completion of Foundation Level of all 10 Houses	<ul style="list-style-type: none"> a) Confirmation of length, width and depth of trench b) Confirmation of application of bitumen for waterproofing of foundation exterior walls and along bottom of trench c) Confirmation steel reinforcing of trench d) Visual confirmation of completed concrete foundations e) Laboratory certification of quality of all concrete installations
2.	Completion of Lintel Level of all 10 Houses	<ul style="list-style-type: none"> a) Laboratory certification of quality of mortar used for brick constructions in accordance with construction guidelines b) Confirmation of vertical levelness (using plumbline) of structural walls and horizontal levelness (using level) of floors c) Confirmation of wall height, length and width d) Confirmation of position and dimensions of window and door framing according to plan
3.	Completion of Roofs of all 10 Houses	<ul style="list-style-type: none"> a) Confirmation of use of chemically treated wood for roof construction b) Confirmation of slope of roof in accordance with plan c) Visual confirmation of regularity of placement of roof tiles d) Confirmation of installation of influx and

		extraction air vents installed as per plan
4.	Completion of Interior Finishings of all 10 Houses	<p>a) Confirmation of position and vertical levelness of interior walls according to plan</p> <p>b) Confirmation of position and dimensions of prefabricated window and door installations according to plan</p> <p>c) Confirmation of position of utility networks (telephone, electricity, gas, heating, water supply and wastewater), including number of pipes/wires and outlets</p> <p>d) Visual confirmation of wall finishing in terms of uniformity and quality of application</p>
5.	Completion of Exterior Finishings of all 10 Houses	<p>a) Visual confirmation of construction of walkway and fencing</p> <p>b) Visual confirmation of completion of ancillary structural elements, specifically the garage, outdoor latrine, boiler room</p>

18. Selected Audit of Accounts and Technical Financial Performance Audit. In addition to annual financial audits of project accounts and related financial statements by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, selected audits of accounts and related financial statements of implementing agencies and participating contractors will be undertaken. Moreover, an annual technical financial performance audit and value for money assessment of the new houses constructed under RHS will be undertaken. The objective of the annual technical financial performance audit will be to assess (i) RHS new houses in terms of value for money and construction quality, and (ii) RHS processes to identify potential cost improvements and improvements in RHS implementation processes (including procurement and selection of contractors) and RHS quality oversight processes (including construction inspection and quality assurance procedures).

Attachment 6.1 RHS One-Year New Home Warranty

Master Plan

Massif, Village/Town,
 District, Region

19. Site Masterplan and Implementation Plan for Site Access. The masterplan for Massif, is provided as Attachment 6.2, and the Implementation Plan for Site Access Roads and Access to Basic Utilities is provided as Attachment 6.3

20. Site Location. The new residential construction site is named Massif, and is located within Village/Town, in District of Region. To the north of the site is [vacant and unutilized state land, residential estates, commercial sites, other please specify], to the south is , and to the east and west are and .

21. Site Assessments: The following site assessments (or Site Investigation Reports) have been prepared:

Site Assessment	Responsible Agency	Date of Assessment
1. Site Geomorphology - Topographic and Geodetic Survey		
2. Site Geology and Soil Condition Survey		
3. Site Groundwater Conditions		

22. Site Geomorphology. The site is classified as [e.g., piedmont alluvial plain] (in accordance with Topographic and Geodetic Survey Contract No. , [DD Month YYYY], and varies from m to m above sea level. The surface terrain is **relatively flat, with a slight slope** from [north/south/east/west] to [north/south/east/west].

23. Site Soil Condition. The site soil type is **loam** with a depth that varies from m to m. Soil subsidence is Class **I**, and in accordance with GOST 10178-85* is assessed as **non-aggressive** to concrete.

24. Site Groundwater Conditions. For the site, groundwater is found at an average depth of m, and in accordance with GOST 10178-85* is assessed as **non-aggressive** to concrete.

Attachment 6.2 Site Masterplan

Attachment 6.3 Implementation Plan for Site Access Roads and Access to Basic Utilities

Detailed Designs

25. National Design Standards. National design standards have been developed for RHS new houses by Qishloq Qurilish Loyola (QQL) and approved by *Gosarhitektstroy* (State Committee for Architecture and Construction) of the Republic of Uzbekistan (SCAC). Of the over 30 RHS new house models that have been developed since the initiation of the RHS, the three most popular models will be offered for 2012. Each of the three models have been designed for a 600m² lot and offer a separate kitchen and bathroom, and an ayvan (verandah). Regional design institutes have been commissioned to prepare site-specific detailed designs of the three house models for each of the approved RHS sites. Regional design institutes were selected through a competitive bidding process, by QQL with the assistance of SCAC.

26. Detailed Designs. Detailed designs (3) and bill of quantities (3) have been developed in accordance with site-specific topography, geology, and soil conditions. The detailed designs and cost estimates for each house model and ancillary elements (boiler room, outdoor latrine, garage, walkway and fencing) were prepared by [REDACTED], [REDACTED], **Regional Design Institute** (License No. [REDACTED], dated [REDACTED] [DD Month YYYY], issued by Gosarhitektstroy of the Republic of Uzbekistan), and reviewed by the provincial offices of the SCAD and the Nature Protection Agency. The three detailed designs are provided as Attachments 6.1, 6.2, and 6.3.

i. Attachment 6.4: Standard Design for Construction of a one-story 3-Room House, Design No. TP 184-32c-10

Total building	178.2 m ²
Building without Ayvan (verandah)	126.5 m ²
Ayvan	15.4 m ²
Finished floor space	72.6 m ²
Total building volume	883.2 m ³

ii. Attachment 6.5: Standard Design for Construction of a one-story 4-Room House, Design No. TP 184-33c-10

Total building	187.6 m ²
Building without Ayvan (verandah)	135.9 m ²
Ayvan	15.4 m ²
Finished floor space	78.8 m ²
Total building volume	940.0 m ³

iii. Attachment 6.6: Standard Design for Construction of a one-story 5-Room House, Design No. TP 184-34c-10

Total building	235.3 m ²
Building without Ayvan (verandah)	169.8 m ²

Ayvan	24.7 m ²
Finished floor space	108.4 m ²
Total building volume	1185.4 m ³

Attachment 6.4 Detailed Design for One Story 3-Room House

Attachment 6.5 Detailed Design for One Story 4-Room House

Attachment 6.6 Detailed Design for One Story 5-Room House

RHS New House Design Standards

27. RHS New House Design Standards. An overview of RHS new house design standards is provided only as a guide for bid preparation. The Contractor will be responsible for ensuring new house construction in full accordance with detailed designs, and national building and construction standards.

28. Building Standards. National building standards require all residential construction in Uzbekistan to be built to withstand (i) seismic activity **up to 9 on the Richter Scale**, and (ii) climatic conditions generally correspond to **Climate Zones II and III** but vary by region. For [redacted] massif, the climatic assumptions are:

- a) Exterior Winter Temperature = - [redacted] C
- b) Wind Pressure $\omega_0 = 0. [redacted] \text{ kgf/m}^2$
- c) Snow Load $S_0 = 0. [redacted] \text{ Kpa} ([redacted] \text{ kgf/m}^2)$

29. Foundation Standards. The foundation design standards for RHS new houses are specified in accordance with **KMK 2.02.01-98 “Building and Facility Foundations”**. The [redacted] site (*massif*) has been surveyed and assessed by [redacted], as at [redacted] [DD Month YYYY], and the site-specific geological classification and soil conditions are as follows:

Geological Classification and Soil Conditions	Classification/ Condition	Foundation Design Standard
Anti-Seismic Condition	Seismic Property III	
Soil Condition	<ul style="list-style-type: none"> • Loam - depth 0. [redacted] m to [redacted] m • Soil Subsidence [redacted] - non-aggressive to concrete 	GOST 10178 – 85*
Maximum depth of seasonal soil freezing	– 0. [redacted] m	
Groundwater Condition	<ul style="list-style-type: none"> • Maximum expected depth [redacted].0 m • Groundwater - non-aggressive to concrete 	GOST 10178 – 85*

30. Structural Elements. The design standards for structural elements of RHS new houses are in accordance with **KMK 2.08.02-09 “Public Buildings and Structures”**.

- a) **Foundation:** The trench will be excavated to a depth of 900mm, and lined with 100mm of crushed-stone saturated with hot bitumen. The foundation will be poured concrete, with all exterior surfaces coated twice with hot bitumen.
- b) **Floors:** Floors will be a precast hollow core reinforced concrete slab.
- c) **Walls:** Exterior brick (bearing) walls will be 380mm thick. Interior brick (partition) walls will be 120mm thick. Bearing and partition walls will be constructed of M75 brick with M50 cement mortar mixed with special additives to improve adhesion of bricks and mortar.
 - a. All brick walls will have masonry joints filled with mortar, constructed in accordance with a block bond and filling method.

- b. Exterior walls will be constructed with horizontal reinforcement of corners (quoins), and rebar mesh door/window openings reinforced with concrete framing.
- c. For interior walls, wall reinforcing mesh will be placed at 0.52m intervals from floor level to ceiling level with a 1.5m long strip of SG1 metal mesh (Serial Number R/z 1,130-9c v.1).
- d. Bearing walls will be waterproofed to a horizontal mark of (-) 0.030, with a 3cm layer of a cement and sand mortar mix (M100 composition with 1:2 proportion).
- d) **Roof:** The roof will be constructed with a wooden frame and covered by galvanized steel sheets, and will include a ventilated attic space. [In accordance with anti-seismic building standards roof slabs will include monolithic concrete beams and masonry walls reinforced with vertical starter bars.]
- e) **Windows:** Windows will be wood or plastic pre-assembled units with double-panes.
- f) **Doors:** Pre-fabricated wooden doors will be installed.

31. Connection to Communication Networks. While sites will be connected to communication networks, individual residential connections and the installation of telephone and television services shall be done upon request and at the expense of new home owners.

32. Electrical and Wiring Installations. The design standards for electrical and *wiring installations of RHS new houses are in accordance with KMK 2.04.17-98 “Electrical Equipment of Residential and Public Buildings”*. Electricity will be supplied with a front end low-voltage input of 380/220V. APV cable 0.38 taped in 10mm² sections will be installed from the entrance insulator to the electrical panel. A grounded electrical panel with an emergency circuit breaker, and a meter (meter type and specifications as per **Uzbekenergo SJSC**) will be installed for each new house.

33. Gas Supply Installation. The design standards for gas supply installation of RHS new houses are in accordance with *KMK 2.04.08-96 “Gas Supply, Codes of Design”*. Indoor gas pipes will be installed at 2.6m above ground level, and a meter will be installed for each new house.

34. Installation of Heating and Ventilation. The design standards for installation of heating and ventilation for RHS new houses are in accordance with *KMK 2.04.05-97 “Space Heating, Ventilation and Air Conditioning”, and ShNK 2.08.01-05 “Residential Houses”*. For this site, [redacted] Massif, the ambient temperature is expected to reach °C in winter. Heating will be generated by a gas hot water boiler (KOGn-30) housed in a separate boiler room in accordance with *KMK 3.05.01.-97 “Internal Sanitary Engineering Systems”*. The two-pipe heating system will circulate hot water (70 to 95 degrees C) through insulated aluminum-reinforced polypropylene pipes installed in the attic and under floors, to cast iron radiators. A system of influx and extraction air vents will be installed in accordance with *KMK 2.04.05-97 “Space Heating, Ventilation and Air Conditioning” and ShNK 2.08.01-05 “Residential Houses”*.

35. Water Supply, Sanitation, and Plumbing Installations. The design standards for installation of water supply and wastewater removal, and plumbing installations for RHS new houses are in accordance with *KMK 2.04.01-98 “Building Internal Water Supply and Wastewater Systems”*. Water supply will be piped to each house, and a meter will be installed. Polypropylene pipes (PPRS d20 – 25mm) will be installed for transmission of cold and hot water. An electric water heater, 2.2 kW, will be installed to supply hot water. Plumbing for an indoor toilet will be installed, and connected by polyethylene pipes (d50 to 100mm) to a septic tank in the yard. A plastic sleeve, 20mm larger than the external diameter of the waterpipe will be installed for all water pipes (cold, hot, and wastewater) that

penetrate interior or exterior walls. Space between the plastic sleeve and the pipes will be filled with nonflammable insulation material, and the plastic sleeve will extend 30 mm beyond both the entry and exit point of the interior or exterior walls in accordance with anti-seismic building standards. Design standards for RHS houses include a yard connection, however the installation of the yard connection is not included in this contract.

36. Interior Finishings. The choice of standards for interior finishings will be based upon local readily available materials, with a *predefined menu of options* that the RHS homebuyers may choose from. For interior finishing design specifications include:

a) **Walls:**

- i. A decorative plaster sole plate will be installed with a minimum height of 0.6m.
- ii. Walls and ceilings of the living rooms and halls will be painted with glue water paint and/or aqueous dispersion paint. Ceilings and jambs (door and window frames) will be painted white. Paint colors offered for the walls of the living rooms and halls will depend on the orientation of the room. For rooms facing north, warm color hues within the 3150 to 450 range will be offered. For rooms facing east, south or west, cool color hues within the 450 to 3150 range will be offered.
- iii. One kitchen wall will be tiled from floor level to a height of 1.8m, with the wall above the tiles painted with glue water paint. The remaining kitchen walls will be painted with an oil-based paint.
- iv. Bathroom walls will be tiled with glazed ceramic tiles from floor level to a height of 1.8m, with the wall above the tiles painted with glue water paint.

b) **Floors:** Options for finished flooring includes wood or wood laminate sheeting, and ceramic tiles in the bathroom or kitchen.

37. Ancillary Elements. Ancillary elements include: a boiler room, an outdoor latrine, a garage, and a walkway and fencing.

a) **Boiler Room:** A 1.75m x 2.45m boiler room will be constructed with brick (M75) and mortar (M25) walls, using Category II bricks (1.8 kg/cm², R 1.2kg/cm²). The roof will be metal sheeting over wooden roof boards; the floor will be a 100mm monolithic reinforced concrete slab; the 250mm walls will be reinforced with mesh at 520mm increments; and the doorway will be framed with monolithic lintels and solid cores.

b) **Outdoor Latrine:** A 1.25m x 1.75m outdoor latrine and cesspool will be constructed. The roof will be metal sheeting over wooden roof boards; the 250mm brick walls will be reinforced with mesh at 675mm increments; and apertures will be framed with monolithic reinforced concrete lintels and monolithic cores.

c) **Garage:** A 3.0m x 6.0m vehicle shed will be constructed on a post footing and monolithic foundation with four 63x5mm angle beams. The roof will be metal tile over wooden roof boards, and the floor will be reinforced concrete with mesh (Armature AIII) - 200x200 sections installed at a depth of 10mm.

d) **Walkway and Fencing:** A 700mm wide walkway will be constructed. The walkway will be 50mm in depth and constructed from B7.5 class concrete, upon a 100mm gravel base. A fence with metallic gate and portal will also be installed. The fence will run the circumference of the lot and be constructed of 200mm cinder blocks with an expansion groove and poles for reinforcement installed at 3m intervals.

38. Anti-Seismic Measures. National building standards require all residential construction to be built to withstand (i) seismic activity equal to 8 on the Richter Scale, and all RHS new houses will be constructed in accordance with *KMK 2.01.03-96 "Construction in Seismic Regions"*. Seismic construction standards include:

- a) Seismic standards for brickwork (Category II) and other structural components in compliance with Table 3.1 of **KMK 2.01.03-96 “Construction in Seismic Regions”**.
- b) Exterior walls will be constructed with horizontal reinforcement of corners (quoins), and rebar mesh door/window openings reinforced with concrete framing.
- c) For interior walls, wall reinforcing mesh will be placed at 0.52m intervals from floor level to ceiling level with a 1.5m long strip of SG1 metal mesh (Serial Number R/z 1,130-9c v.1).
- d) Roof slabs will include monolithic concrete beams and masonry walls reinforced with vertical starter bars.

39. Protection from Fire and Corrosion. All RHS sites, as an integral part of the site water supply and wastewater system, will include access to water supply for purposes of fire fighting. All RHS new houses will be constructed in accordance with a **KMK Fire Resistance Rate Classification II**, and **KMK Construction Standards and Norms for Fire and Corrosion (2.03.11-96)**. Protection measures include:

- a) **Installation of Electrical Circuit Breakers.** Electrical circuit breakers will be installed to prevent electrical fires.
- b) **Use of Chemically Treated Wood for the Construction of Roofs.** Wood used for the construction of roofs and attics must be chemically treated with fire retardants and wood preservatives. A minimum penetration of 75kg/m², of a 12-20% concentration of ammonia sulfate mixed with ammonium phosphate is required.
- c) **Waterproofing of Foundation.** All exterior foundation surfaces will be sealed with two coats of hot bitumen. The foundation will be built upon a 100mm layer of crushed stone saturated with hot bitumen.
- d) **Waterproofing of Walls and Partitions.** All walls and partitions will be waterproofed to a horizontal mark of (-) 0.030, with a 3cm layer of a cement and sand mortar mix (M100 composition with 1:2 proportion).
- e) **Enamel Coating of Metal Junction Boxes.** All metallic junction boxes require one base coat (PF-020 GOST 18.186-79) and two additional coats of enamel paint (PF -115).

Bill of Quantities

40. The Bill of Quantities (5) have been prepared by [REDACTED], **Regional Design Institute** (License No. [REDACTED], dated [REDACTED] [DD Month YYYY], issued by Gosarhitektstroy of the Republic of Uzbekistan). **All Bills of Quantities shall detail the provisional amount for the VAT refund as a separate line item.**

- a) Attachment 6.7: Bill of Quantities for Construction of a 3-Room House, Design No. TP 184-32c-10
- b) Attachment 6.8: Bill of Quantities for Construction of a 4-Room House, Design No. TP 184-33c-10
- c) Attachment 6.9: Bill of Quantities for Construction of a 5-Room House, Design No. TP 184-34c-10
- d) Attachment 6.10: Bill of Quantities for Construction of Access to Basic Utilities for 10 Houses
- e) Attachment 6.11: Bill of Quantities for Upgrade Packages for each of the 10 Houses (selected by each of 10 New Home Buyers)
- f) Attachment 6.12: Format for the Summary Bill of Quantities. The Summary Bill of Quantities will be composed of four parts:
 - Part 1, 2, and 3 will be a Summary Bill of Quantities for each of the 3, 4 or 5 room models that presents the estimated unit costs for each item listed in the Bill of Quantities for each model.
 - Part 4 will provide a summary of the entire package, and will be presented in three sections.
 - i. Section 1 will present a summary table for the total proposed cost of the 10 new houses to be constructed. The table will detail costs by main cost classification for each of the 3, 4 or 5 room models with additional columns that specify:
 - the unit number of each model that has been selected by the 10 RHS new home buyers, and
 - the total cost of each cost category multiplied by the number of units.
 - ii. Section 2 will present a summary table detailing costs by main cost classification for the access to basic service for all 10 houses.
 - iii. Section 3 will present a summary table detailing costs by main cost classification for the upgrade packages selected by each of the 10 home buyers.

Attachment 6.7 Bill of Quantities for Construction of One Story 3-Room House

Attachment 6.8 Bill of Quantities for Construction of One Story 4-Room House

Attachment 6.9 Bill of Quantities for Construction of One Story 5-Room House

**Attachment 6.10 Bill of Quantities for Construction of Access to Basic Utilities for
10 Houses**

Attachment 6.11 Bill of Quantities for Construction of Upgrade Packages for 10 Houses

Attachment 6.12 Format for Summary Bill of Quantities for 10 Houses