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***“Improving Energy Efficiency in Buildings” UNDP-GEF/00059937***

**Demonstration of Energy Efficiency Measures in Multi-apartment Residential Building, Akhuryan Community of Shirak Region**

“Improving Energy Efficiency in Buildings” UNDP-GEF/00059937 involves a component on integrated buildings design approach advantages demonstration that aims to show its energy and cost efficiency potential via its application to selected pilot multi-apartment buildings.

The selected demonstration building is a new, four-storey multi-apartment residential building (36 apartments, about 2300m<sup>2</sup>) to be constructed in the frames of State housing program for the families deprived of homes by the earthquake in Akhuryan community of Shirak region, the coldest of Armenia’s climatic zones.

To implement activities for improving energy efficiency, three-lateral Letter of Intent was signed between the RA Ministry of Urban Development, “Glendale Hills” CJSC (the developer company) and UNDP Armenia in June 2011.



*Master plan of buildings in Akhuryan*



*Model view of the pilot building*

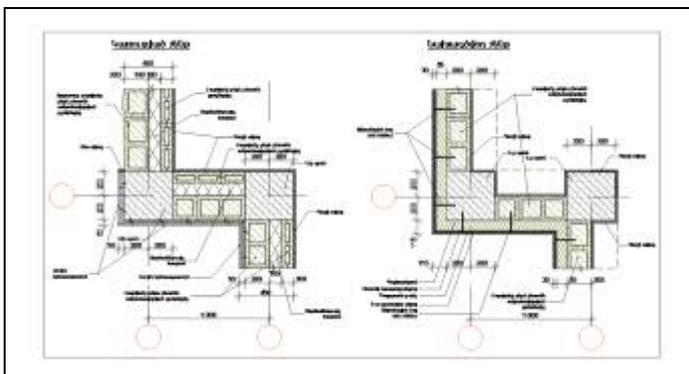
According to the Letter of Intent, construction of the building is performed as set forth by the revised (project) version of the baseline design based on 4a type residential building design of “Mush-2” district of Gyumri city.

The project design involves changes in the building envelope, basement and last floor covers, doors and windows aiming at improvements in their energy performance via application of modern technologies and materials.

For insulation, two-component on-site blown polyurethane technology was selected. The material has internationally recognized certificates of conformity (sanitary, fire and energy performance). Besides, it was tested in respective local laboratory using all available means.

The estimated incremental cost of energy efficiency measures was estimated at 6% of the baseline cost of the building construction. The improvement of energy performance of the building was assessed at more than 60%.

As a positive side effects can be mentioned increase of living space in about 90m<sup>2</sup> and decrease in building weight which significantly contributes to the seismic of the building.



*Element from building design: left-baseline, right-project*



*The construction of the pilot building started in August 2011*



*Pilot building, May 2012*

Performing the obligations assumed according to the Letter of Intent, the UNDP-GEF project experts paid a number of field visits to Akhuryan community of Shirak region on regularly basis.

As of May 2012, round cellular/cavitated reinforced panels/blocks of one B-shape section were installed and concrete-fixed. Layering of walls of the same section's second floor is on-going as is coating with slab the covers of section H.

