

# SERVE Social Case Study for Retrofitted Houses

Case Study No. 3

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## 1. Case Study Basic Information

The householder in case study No.3 is Mr. Tom Starr. Tom lives with his wife in this single storey house in a rural setting in North Tipperary; they have two adult children in third level education who stay with them at various periods, holidays etc.

*“The only reason we might change would be to build a new house ... purely to explore ... you’d imagine technology has come a long way in 10 years ... it’s an exciting time to build a house”.*



The core house was built about 1950 and two extensions were added in 1983 and 1986. The current householders have been living here since 1986 and were involved in the planning of the second extension only; the area of the house is 190 m<sup>2</sup>. The householder feels that they will most likely stay here, as they like the area and find it convenient to all facilities. However the only reason they might change would be to build a new house, purely to explore all the different types of technology available when building a new house. The house itself is situated in a sheltered garden, with tall evergreen trees to the rear. The weather in the area sees highs of 18°c -20°c in the summer and lows of 3°c - —3°c in the winter. Prior to the new measures installed in the house, it was difficult to get the house at a comfortable temperature.

*“You’d come home from work ... the place was cold ...you’d put on the heating ... by 7.30pm it was still not comfortable ... ready by the time you’re going to bed .... that’s too late”!*

The house is one of thirteen situated on a quiet road approximately two miles long. Although the house is in a rural setting, it is close to the main rd between Limerick and Dublin.

*“Generally they are all small households ... a few younger families in the last few years”.*



*“It’s a nice quiet area; convenient to the N7 ... my wife is from Kerry ... its half way between Dublin and Kerry”.*



## 2. Situation of household before and after retrofitting

The Starr household had the following types of retrofitting:

- Attic Insulation
- Cavity Fill Wall Insulation
- Internal Wall Insulation
- Heating Controls
- Windows
- High Efficiency Boiler
- High Efficiency Cylinder

### Energy consumption and costs – comparison

When this house was purchased there wasn't a very functional kitchen, so the householder took out the old one and added on a new kitchen and conservatory. A gas boiler was put in at the time which was backed up by an open gas fire.

*“We had an open gas fire that which was seriously inefficient ... it was like burning fivers ... and the heat from it wasn't comfortable ... kind of intense”.*

A few years later the solid fuel cooker was replaced by an electric cooker and a gas fire that still remains in the kitchen. Through use of the grants available, the above measures were added to the house and the open gas fire was replaced with a stovax that has worked remarkably well. The householder now has replaced the gas burner with an oil firer burner, but retained the gas tank purely for convenience. Currently there is still an open fire in the sitting room, simply left this way from an aesthetic point of view, but the householder has not ruled out changing this at a later stage. Coal is still burned in this open fire but to a lesser extent than before, as a result of a chainsaw purchase.

Although the householder is not able to put an estimate on the economical benefits of the measures installed he is certain that energy consumption has changed dramatically, and he feels the heating controls have helped with this reduction.

*“I'm trying to figure out how economical it was ... we did a costing during the spring ... we got our ESB bill, our solid fuel estimate and the gas bill”.*

Interestingly the householder did this costing because his neighbour, who lives in a highly efficient newly built house (extensive insulation, under floor heating and geothermal heating), wanted to compare energy bills to see how efficient his house was I the scheme of things.

*“His energy bill was exactly half our total fuel bill ... I'd say his house is significantly bigger than ours ... that's just the efficiency of it”.*

## Quality of living-comparison

Certainly the retrofit has improved the quality of living for this householder; coming into the house in the evening now is much more pleasurable and because the house is not freezing, very little is needed to warm it up.

*“It’s much more comfortable, you tend to forget how cold the house might have been before ... now when you come in, you put in a few bits of timber ... it’s as easy as that ... I’m talking about minutes to see the impact ”.*

Due to the unusual shape of the house, a heat gradient occurs and there was a difficulty in maintaining the heat. But now aided by the measures installed, a good balance of heat is achieved throughout the house.

*“Once the attic was done ... the day after they were here ... you could notice the heat retention in the house”.*

## Other aspects

In this householder’s opinion, the retrofit has increased the value of the house and certainly consideration has been given to the use of solar panels.



*“We possibly will go with panels ... because of the shape of the house they will have to go on one of the roofs near the road ... it wouldn’t be the best place we’d like to put the panels ... but I think the economics out weight the aesthetics in this case”*

### 3. Main reasons/Motivations for household retrofitting

The householder first found out about the SERVE project through a friend and neighbour. He was very interested and pursued the project through North Tipperary county council. The process of getting the relevant information was an easy one, and much praise is given to a member of staff in the county council for her help with the paperwork and the efficiency through which the grant applications were dealt with.

One of the main reasons quoted by this householder for completing the work was comfort. The house itself is an unusual shape, almost a Z- shape and had proven difficult to heat in the past. Although some measures were taken prior to the retrofit, it had been the case that the heat would be confined to a particular area, leaving the rest of the house cold.

The economic saving available from the grants was equally a major incentive for this householder, without the grant he doesn't believe he would have either made the time to improve the energy rating of his house, or even given it a second thought.

*“The grants were too significant to ignore ... they made it attractive ...it wouldn't have been viable without them ... that's being frank, it gave us a bit of a spur to go and do it”.*

Interestingly this householder has a keen sense of the environment, although he works a full time job, he makes the most of the space available to him and has a vegetable garden, along with laying hens, free range pigs and broilers.

*“There so much you can do ... a days' work actually gets in the way of your aspirations ... doing the garden, pigs, hens and bees”.*



As well as this, the householder is an avid beekeeper, with many busy bee hives in the garden. He is also interested in managing the households' water, and at one stage considered buying a site that could cater for an exploration into the benefits of reed beds.



All the work for the retrofit was completed by relatively local companies, with the windows being supplied by a company in the nearby town. Although this company did supply a very competitive quote, the householder feels that he would have supported the local economy either way. The company in question was not on the SERVE list of contractors, but as a result of this job, it was placed on the list.

## **4. Main Barriers/Problems encountered**

### **Financial problems**

The finance for the installed measures had been well catered for in this householders budget and therefore posed no difficulty. All the grants went smoothly, with payments being made on time. He felt the staff member at the county council was very helpful and encouraging with regards completion of the paperwork.

## **Technical problems**

The householder stated that there were no technical problems encountered during the retrofit.

## **Other**

Two small issues arose. Firstly there was a delay with the windows being installed and secondly the householder feels perhaps there is an issue with the insulation in a small area in the house. However these issues are both minor and do not cast a shadow on the success of the retrofit in the opinion of the householder.

## **5. Overall satisfaction with installed measures**

The satisfaction level with this householder is very high; the comfort in the house has increased a great deal, making coming home in the evening a pleasurable experience. The insulation has made a marked improvement with regards to the heat retention in the house.



## **Subsidies**

All grant information, application and payments went perfectly for this householder. The grants were very much a deciding factor for this householder, without these the work would not have been viable.

## **Technical issues**

All the new measures installed are working well, the householder already had a set of controls for the original gas heating, and therefore he finds the new heating controls easy to use.

## **Quality**

The householder was satisfied with the overall quality of the workmanship involved in the retrofit. He found the plumber very helpful in explaining the new systems and felt he gave very practical advice, which has been helpful in the day to day running of the household. However he did have a small doubt over whether or not a small toilet/shower area was insulated properly.

*“Everything was done well .... No problems ...the windows, insulation ... there’s possibly a question how well a small toilet/ shower area was covered ... other than that I can’t complain”.*

Even considering this though, he would still recommend all the contractors involved with the retrofit.

## **Value for money**

The householder in question feels the retrofit has been excellent value for money.

*“It was value for money ... big time ... once you get your new rating ...it’s a serious improvement”.*

## **Other**

There was a slight delay in the windows being fitted, the householder feels that was due to the fact that he was so local and may have been “put on the long finger”. In the end, the householder had to explain the time limits involved and that he may not receive his grant; as a result of which, the work was done immediately.

## **6. Conclusion**

The householder in this household had a significant amount of measures installed in his home with the assistance of SERVE and other grants. The level of satisfaction with the work completed is very high. Comfort and financial gain were major drivers for the decision to retrofit, added to this though is a keen sense of the environment and the knowledge of the significant impact these measures have on the long term sustainability of the house. If a change is to be made in the next ten years or so, it would only be to build a new house and incorporate all the new technologies in a house. This householder is open to exploring measures not only within the house but outside too.

*“Other people might go on a world cruise ... but I’d be keen to explore water management outside ... I think that would be really interesting”.*