

## Fire Research & Investigation Unit

# Heads Up



### BACKGROUND

Concentrated radiated heat from reflected sunlight ignited timber cladding and caused damage to the upper level and roof of a house.

*Photo 1: Shows damage to the upper level of the house.*



### INCIDENT DETAILS

Fire and Emergency NZ was called to a house on fire at 11:55am on April 14th. A developing fire was discovered in the top level of the house with the timber framing well alight when firefighters arrived. Examination of the scene showed no electrical sources or other viable ignition sources in the area of origin.

The fire investigator concluded sunlight reflected from the nearby stainless steel capping had been concentrated on the black coloured barge board of the roof structure.

At the time of the fire the sun would have been in a position to reflect heat energy directly onto the barge board. A combination of concentrated sunlight, lack of cooling due to still wind conditions and a black painted timber board absorbing the heat coincided leading to ignition conditions.

The capping had been added to the home approximately 1.5 years previously.



*Photo 2: shows stainless steel capping which reflected sunlight onto timber cladding.*

## FURTHER INFORMATION

The damaged structure was wrapped with a tarpaulin sheet for weather protection, however two days later the building occupant observed that the tarpaulin sheet had also sustained heat damage.

This finding supported the earlier conclusion that the reflected sunlight was the source of the initial fire.



*Photo 3 – shows damage to tarpaulin that had been used to protect the house after the initial fire.*

## LESSONS LEARNED/RECOMMENDATIONS

- Designers should take into account the effects of reflected sunlight when recommending reflective surfaces for use on external building surfaces
- Consider use of non-combustible materials immediately adjacent to highly polished or reflective surfaces.