

# Risk of contact burns relative to ambient and surface temperatures

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## ABSTRACT

The objective of this study is to assess the relationship between ambient temperature and surface temperatures of commonly used building materials, in order to estimate the risk of contact thermal injury. It is an observational study where the ambient temperature and surface temperatures of slate, metal, cement, sand, brick and bitumen, were measured in shaded and unshaded conditions on cloudy and cloudless days in Adelaide, Australia. All of the unshaded surfaces reached temperatures capable of causing partial thickness burns given requisite exposure time in both clear and overcast conditions, even with a relatively low ambient temperature. Shade imparted total protection from irreversible thermal injury for all of the ambient temperatures assessed. Surface temperatures were reduced in overcast conditions, however temperatures recorded were still capable of thermal injury. Education regarding the risk of surface burns among populations such as diabetic patients with peripheral neuropathy; where exposure times are prolonged and outcomes are poorer, is crucial to preventing thermal injury.

(images available on request)

## Key Words

Ambient temperature  
Surface temperature  
Contact burns  
Diabetic  
Peripheral neuropathy

## Nominated Stream for Oral Presentations

Medical  
 Nursing  
 Allied Health  
 Scientific

### **Nominated Stream for Poster Presentations**

- Care
- Prevention
- Research

#### **Biography of Presenter:**

Dr Thomas Clifton is a surgical resident at the Royal Adelaide Hospital, with a key interest in burns surgery, having completed a 3 month rotation in the Adult Burns Unit under Professor Greenwood. His other interests include hand surgery and trauma surgery and he is hoping to be accepted to a surgical training program in 2016.