

UNIVERSITI TEKNOLOGI MARA

**GRID-LIKE RESIDENTIAL
LAYOUT: VULNERABILITY TO
BURGLARY**

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of the requirements for the degree of
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I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree of qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Very few studies examined the relationship of the street patterns (or street layouts) and crime. Amongst those who looked at the relationship between street patterns and crime, movement of people in the street appeared to be related. Nevertheless, the explanation to how crime is affected by movement in the street appears contradictory. It has been suggested in a study that crime is higher in the more used streets (integrated spaces), whereas in another, it is higher in the less used streets (segregated spaces). Even within space syntax-based studies, which looked at the relationship between crime and spaces (different street types), concurs it is generally safer in the more used streets (integrated spaces). The syntax-based study, which used a robust technique of computer analysis that allows spaces to be analysed quantitatively, suggested that spaces interact together to influence crime so that burglars select the most vulnerable spaces within an area. It was deduced in that study, a safer layout would be one that have interconnected or integrated through streets, with dwellings facing out on to both sides of the streets. The main aim of this study was to examine the correlation of grid-like layouts on burglary rate and how different variations of grids affect the probability of burglary in that area. Six neighbourhoods in a local council area in the Klang Valley were selected based on common attributes. A combination of two-stage analysis: the macro and micro level was employed. At the macro level, the degree of grid of study areas was first established using 'grid axiality' model. The second stage was to determine their permeability level, in which an average score of three spatial characteristics of each area were calculated and compared to burglary rate to determine how variations of grid-like affect burglary rate. While at the micro level, different categories of spaces were examined to establish the likely effects of local design factors on burglary. This was done by comparing spatial variable and local design factors with burglary at the level of street segment. The study applied descriptive analysis, regression analysis, and visual analysis in the process. Results indicated that at the macro level the more permeable grid-like layouts were more at risk compared to the less permeable grid-like layouts. At the micro level, global integration of streets, proportion of houses concealed, and proportion of houses that were of poor visibility were among vulnerable houses. Although spatial factors contributed to vulnerability of houses in grid-like layout, there are also situational factors that similarly contributed to their vulnerability.

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