UNIVERSITI TEKNOLOGI MARA

PROMINENT TYPES OF DAMPNESS- BASED DEFECTS IN STUDENT'S ACCOMMODATION OF UITM PERAK WITH THE NEXUS OF INFLUENTIAL CLIMATIC FACTORS

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AUTHOR'S DECLARATION

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 or 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

Universities' accommodations in Malaysia are one of the complex buildings that are normally associated with dampness issues due to factors of usage, density and age of the buildings. Since many public universities were built more than 30 years, signs of dampness, especially lateral/penetrating, condensation and rising damp issues in students' accommodations are evident over-time. This issue arises due to buildings' age which leads to deterioration of Damp-Proof Course (DPC) membrane or waterproofing agent in the building structure. This problem needs proper care on maintenance in order to avoid severe problems for the buildings in the near future. The aim for this thesis is to carry out a defect diagnosis in universities' accommodation in order to identify the prominent types of defects related to dampness that is occurred with the nexus of influential climatic factors, namely temperature, relative humidity, transmittance, emissivity, and dew point over a period of time. This research has used three phases of survey, namely visual inspection, Building Condition Assessment (BCA) survey and Non-Destructive Testing (NDT) survey. A case study in a public university in UiTM Perak, with 5 blocks of accommodation has been chosen for this study. Through visual inspection, common defects related to dampness issues have been found at all related rooms located near to the bathroom areas. For BCA survey, the Building Assessment Rating System (BARIS) has been applied with the aid of NDT approach. For this phase, a Thermal Imager has been used to diagnose the level of defect based on all related climatic factors. From the findings, it is found that the walls of all students' accommodation in the case study, which located near to the bathroom were affected by dampness, with high Relative Humidity (RH); ranged between 9.71% to 81.0% and temperatures from 28.7% to 34.0%. The prominent types of defects related to dampness occurred in the university' accommodation at UiTM Perak is Lateral Damp or Penetrating Damp with the influence of climatic factors. It can be seen that the prominent cause of defects for this case study is from the leaking of pipelines from the upper wall of the buildings with the occurrence of 31 numbers.

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