Another solution can be to replace the original glass of the window with high transmission glass and to replace the fixed carved wooden grilles with ones that can be opened at times, thus daylighting in the rooms can be improved without changes that influence local building style.

Under modern living conditions too large depth of the rooms is not useful anymore for the occupants of these dwellings. It was observed that due to shortage of daylighting the opposite end of the room is usually used as storage only and is not part of the active living space. The most hands on solution would be to reduce the depth of the room, as this is the factor having the biggest positive influence on daylighting condition, but it is a very difficult and complicated job to carry out as part of the refurbishment. Therefore, this modification is generally possible in case of new built dwellings following the traditional design style, but there it should be the primary consideration.

The change in the surface of indoor wall is a more feasible suggestion during refurbishment. In terms of traditional wood building material and stone, plastering on all walls seems too simple and rude, and it would destroy the native beauty of these residential dwellings. Despite painting the walls white would have a stronger positive effect on daylighting, taking in consideration the consistency of the traditional style, the solution suggested here is to clean the wooden walls and repaint them with wood protective paint. Such a change may not only improve the indoor lighting, but also protect the building components.

CONCLUSION

This research consisted of two parts. In the first part lighting data of the traditional dwellings in Jiang Chang Village, SanBao Dong and Xijiang Miao was collected during a field research. Based on the data collected features and influential factors of lighting were studied in detail. The other part was to study the lighting variables of the vernacular dwellings. A simulation experiment was carried out using ECOTECT software, which verified futures assumptions of influencing factors of daylighting. Renovation suggestions, such as cleaning and treatment of wood walls, movable grilles and replacement of the window glass, were given, which measures will improve daylighting situation. In case of new built dwellings using the traditional style, primary focus should be on reducing room depth. All these measures will have a positive effect on occupant comfort and thus contribute to the protection and preservation of these traditional dwellings, and could also be on dwellings in other parts of China. However, further reserach is needed in this area, to understand daylighting conditions in different dwellings and to explore more possible solutions to improve it.

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