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## The repair method of damaged h-shaped steel members and experimental study on recovery after repair

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Recently, there have been many discussions about reparability for damaged building structures after severe disasters. In Japan, a technical manual for repairing damaged buildings has been established, however, its reparabilities have not been reported sufficiently. In this study, the box-shaped repair method which has been suggested on Japanese technical guideline is adopted for the damaged steel members, and its applicability and feasibility are investigated experimentally. Herein, the damaged portion on steel member such as plastic hinge or local buckling occurrence is covered with steel plate by welding. So the loading test is performed as parameters with section size of steel members, thickness of cover plate and welding size during repair process, and loading path. The procedure of this study is as follows; the first, the damaged test specimens of H-shaped steel member with local buckling are reproduced by initial loading test. Next, the damaged specimens with plastic residual deformation are returned to the original position. Finally, the loading test is done after repair. From test results, it is confirmed that the fundamental structural performance such as the rigidity, maximum strength, and absorbed energy after repair are improved by comparison of original state. And also, these performance can be controlled by adjusting the thickness of cover plate and welding condition. Furthermore, from the observation of test results, the analytical model of repaired steel member is suggested. From the comparison of test results, it can be said that the proposed model shows good agreements both test results and theoretical figure.

### Biography

Tomoe Onoda has completed her bachelor's degree at the age of 22 years from Tokyo University of Science (TUS), Tokyo Japan, in 2016. She is now a master course student of Tokyo University of Science. And co-authors belong the same affiliation on TUS, and T. Ito is a supervisor of presenting author, associate professor of TUS.

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