Repair of corroded steel members with Bolted Doubler Plates

[Steel Structures, High-strength Bolted Connections, Repair]

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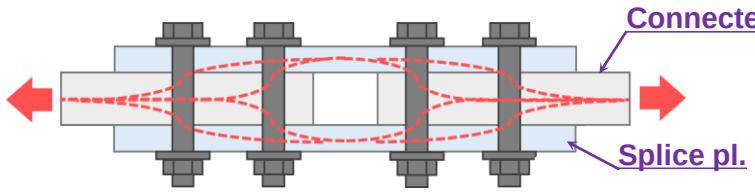
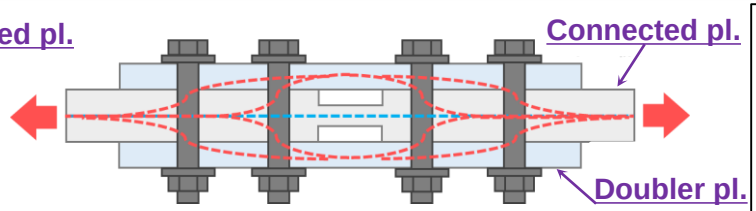


Load transfer mechanism of joints



Load transfer mechanism of repaired members

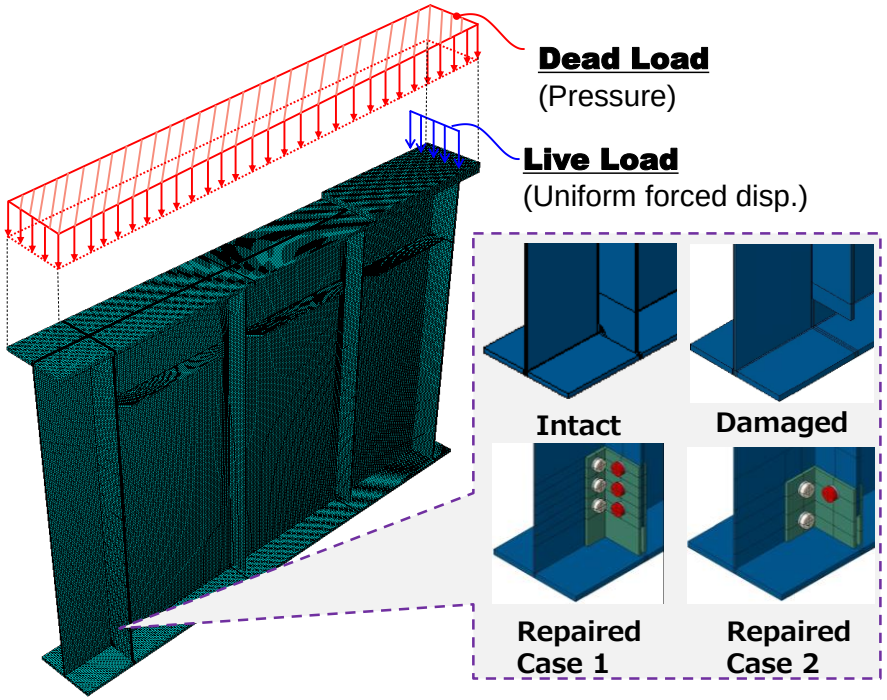
【Backgrounds】

Resistance of corroded members becomes less than expected in the design as its plate thickness reduces when the deterioration is progressed. To recover the resistance up to or more than that of sound state is required by their repair. Considering workability, cost effectiveness and weldability on site, repair with high-strength bolts and doubler plates is usually conducted. However, mechanical beheviour of repaired members including the corroded part has not been elucidated.

【What our group are currently investigating】

1. To elucidate load transfer mechanism of repaired members with high-strength bolted doubler plates.
2. To establish the repair design criteria as well.
3. To develop new blind bolt enabling the one-sided repair when a workspace is restricted and targeted members have closed-section.
4. To compare the mechanical performance of proposed and existing blind bolts.

One of existing blind bolt



Investigation of mechanical behaviour of repaired girder end

Application examples of focused repair method

Our research group collect case studies on repair design and retrofitting work in-situ as well. If you need support, please feel free to contact me.

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