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| (a) Fabrication phase: Rebar connector installation |
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| (b) Assembly phase: Prefabricated wall assembly |
| Fig. 1. The assembly process of components utilizing a triple-pipe rebar connector |

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| (a) Welded connector | (b) Integral connector |
| Fig. 2. Structural styles of connectors | |

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| Fig. 3. Loading device | |

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| (a) Welded connector | (b) Integral connector |
| Fig. 4. Arrangements of strain gauges | |

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| (a) ZB5-1 | (b) JB5-1 |
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| (c) ZB7.5-1 | (d) JB7.5-1 |
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| (e) ZB10-1 | (f) JB10-1 |
| Fig. 5. Final failure modes of specimens | |

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| (a) ZB5-1 | (b) JB5-1 |
|  |  |
| (c) ZB7.5-1 | (d) JB7.5-1 |
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| (e) ZB10-1 | (f) JB10-1 |
| Fig. 6. Connector load-strain curves | |

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| (a) Welded connector | (b) Integral connector |
| Fig. 7. Rebar load-displacement curves | |

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| Fig. 8. Connector meshing | Fig.9. Model boundary conditions and loading |

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| Fig. 10. Steel bilinear model |

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| Fig. 11. Mises stress contour plot of rebar connectors |

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| Fig. 12. Load-strain curves of connector steel | Fig. 13. Comparison of rebar load-strain curves |

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| Fig. 14. Optimized connector | Fig. 15. Finite element model of the optimized connector |

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| (a) Group 1 | (b) Group 2 | (c) Group 3 |
| Fig. 16. Connector load-displacement curves | | |

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| (a) YH-1 | (b) YH-2 | (c) YH-3 | (d) YH-4 |
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| (e) YH-5 | (f) YH-6 | (g) YH-7 | (h) YH-8 |
| Fig. 17. Mises stress contour plot of the connector | | | |