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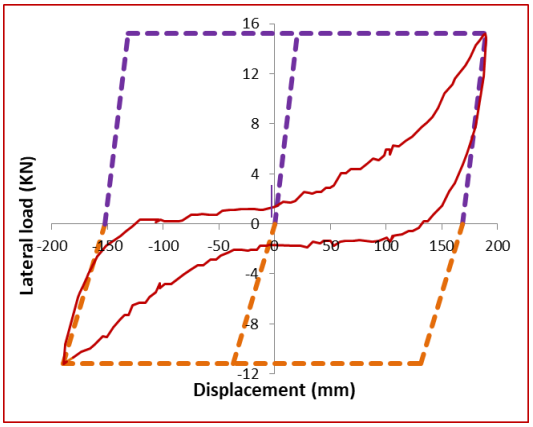

Fig. 14. Relative energy dissipation STR-1

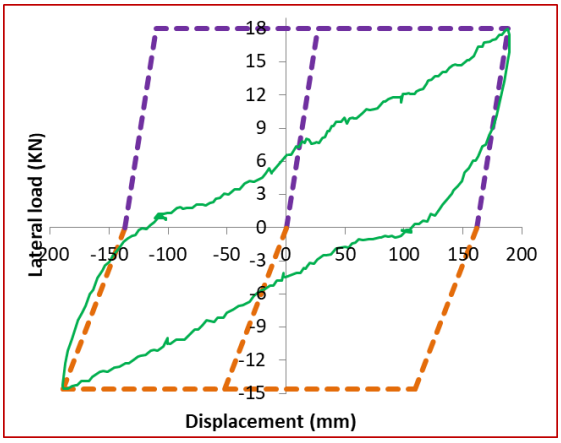

Fig. 15. Relative energy dissipation STR-2

Table 5. Acceptance criteria of relative energy dissipation

Speciment	Ideal energy dissipation (kN-mm)		Actual energy dissipation (kN-mm)		relatif energy dissipation (β)		requirement β ≥ 1/8	
	drift 3.5%	drift 7.34%	drift 3.5%	drift 7.34%	Drift min. 3.5 %	drift 7.34% (end of test)	drift 3.5%	drift 7.34%
STR-0	3523	9444	608	3293	0,172	0,348	OK	OK
STR-1	3308	84612	1029	2018	0,311	0,230	OK	OK
STR-2	3194	9711	938	3900	0,293	0,401	OK	OK

G. CONCLUSIONS

Based on the observation and results during construction, testing and data analysis, the following conclusions were developed.

1. Crack pattern of all specimens is a flexible crack. Compared to monolith, the use of high-grade mortar and notch restraint systems increases the rigidity and strength of the joints. this forces the position of the plastic hinge to move towards the weaker section and accept a large moment. Finally, the position of the plastic hinge at the joint is shifting by 45 mm on STR-1 and 50 mm on STR-2 towards the face of the column.
2. Although the monolith and STR-1 specimens have the highest level of strength in the thrust (+) and tensile (-) direction loads, on the other hand, the STR-2 specimens have the lowest strength and stiffness degradation and the highest energy dissipation until the end of the test. This indicates that the STR-2 joint specimen has the highest level of toughness and ability to maintain its strength against deformation during the test.
3. Both types of precast connections generally comply the requirements as an moment-resisting ductile precast concrete beam-column connection and can be safely applied to precast reinforced concrete building with the highest earthquake risk.

H. FUTURE SCOPE

The results of this research are two connection models that are economical and easy to implement at the beam-column connection of precast concrete, which can be used in buildings with the highest earthquake risk level in Indonesia.

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