



# FRASH Method

Fujita Rc column And Steel Hybrid beam system

FUJITA

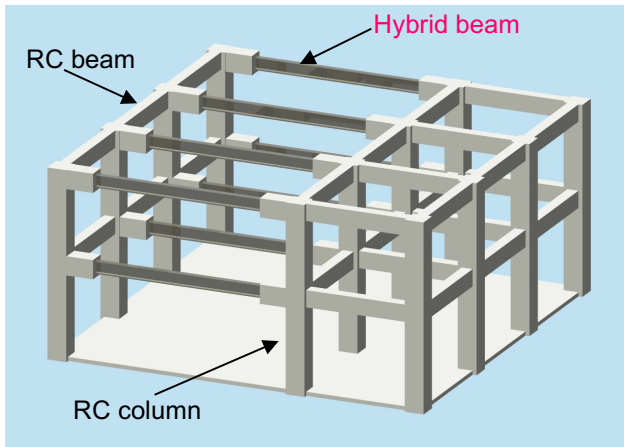
Daiwa House Group®

**Suitable for constructing mid-low level Office buildings, Hospitals**

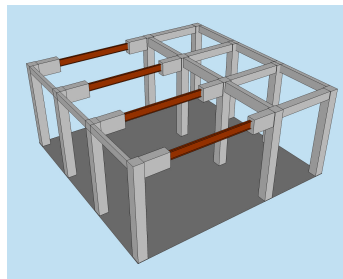
## - Outline of Method -

Achieved Assessment of Technology in March 2013

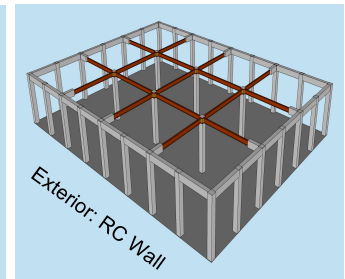
- Fujita's new hybrid structure with RC column and S beam with beam ends being RC
- Combination with RC and seismic walls, allows flexibility in design and enables a reasonable floor planning
- Capable of creating flexible large space without columns which is difficult with RC beams



Outline of FRASH method



Eg. Office Plan



Eg. Hospital Plan

## Combination with other structures

## - Characteristics of Method -

### - Reduction of skeleton cost -

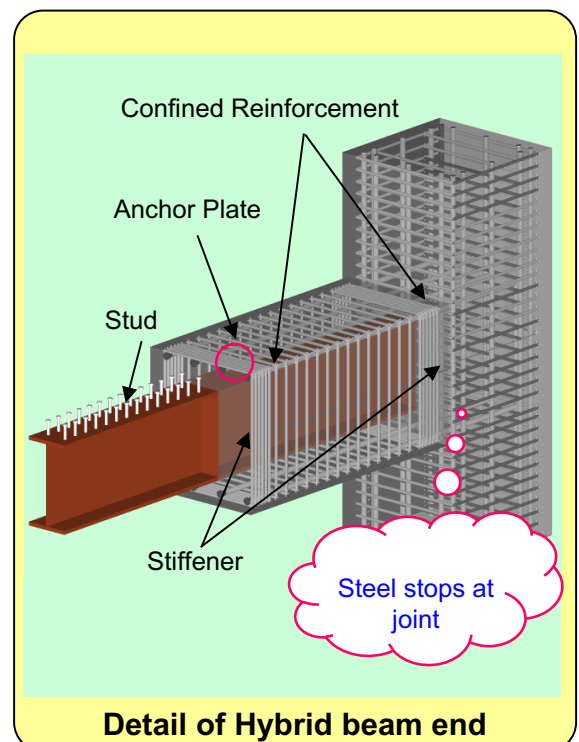
- Compared to S, reduction of steel use and fabrication
- In case of eccentric core type, compared to S, reduction by app. 10%

### - Creation of large space -

- Using hybrid beam, enables 10-15m wide flexible large space
- According to the span, capable of combining hybrid beam with RC beam

### - Improvement of habitability -

- Compared to S, vibration due to strong wind and earthquake is reduced
- Compared to S, usual floor vibration is reduced



Detail of Hybrid beam end



# FSRPC-B Method

Fujita Steel plus Reinforced Precast Concrete-Band plate Method

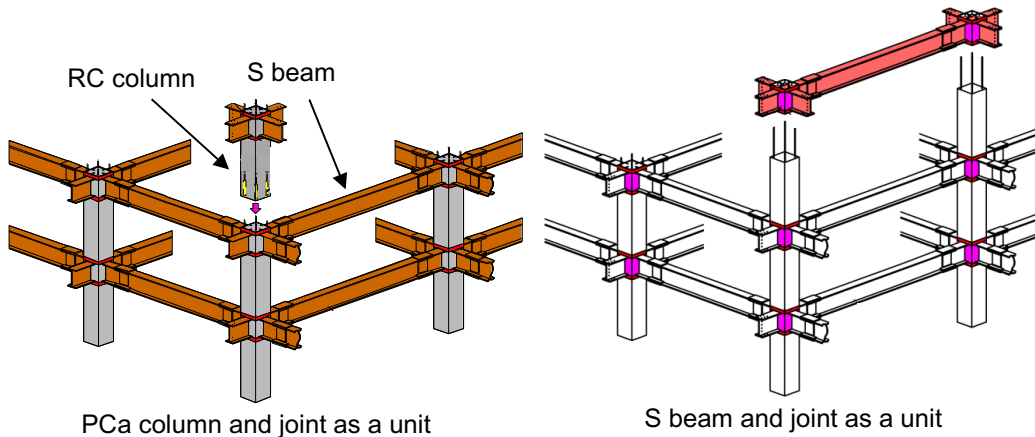


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## - Outline of Method -

- Fujita's original hybrid structure with RC column and S beam
- Characteristics of RC and S enables a reasonable structure with large span and more usable interior space
- Simple band plate reinforcement of beam column joint improves seismic performance



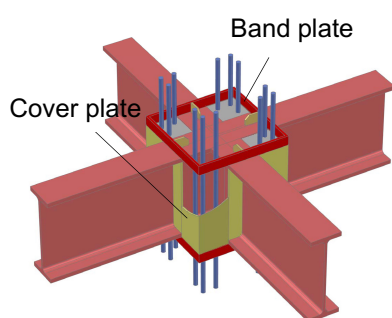
Erection of PCa column



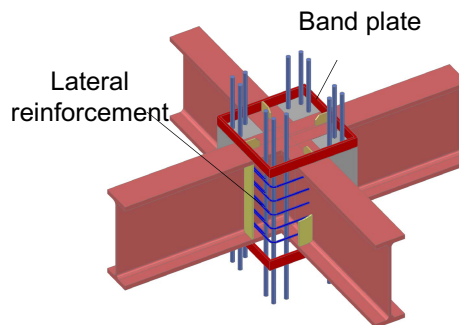
Erection of beam and joint as a unit

## - Characteristics of Method -

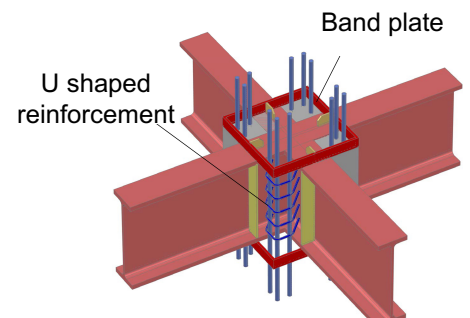
- Choice of 3 kinds of joint
- Capable of omitting fire proof coating of joint (Achieved Assessment of Technology)
- Compared to RC, used in 10-18m large span building
- Compared to SRC and S, cost is reduced by 10-20%
- Compared to SRC, construction time is shortened by 25%



Cover plate type



Lateral reinforcement type



U shaped reinforcement type