



New connection on: : 15-02-2018 : 17:27:48 - Last disconnection on: : 14-02-2018 : 22:14:15

V 4.0.0.44358(LP,U,linux) (Rev:43856 2017-04-27 09:03:29 +0200#(D201802)) (RPM D201802)

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 Database: EPODOC

[EPODOC: SS 1] FLANGE AND STEEL AND JOIN AND COLUMNS

Results in EPODOC 9

[SS 2] FLANGE AND STEEL AND JOINING AND PILLARS

Results in EPODOC 5

[SS 3] JOINING AND DEVICE AND PRECAST AND REINFORCED AND CONCRETE AND COLUMNS

Results in EPODOC 7

[SS 4] /ic E04B1/21

Results in EPODOC 3.916

[SS 5] 1

Results in EPODOC 9

[SS 6] ..li



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PN - [KR101697234B](#) B1 20170117

PR - KR20160021218 20160223

AP - KR20160021218 20160223

DT - I

CT - || STSE (B1)

[JPH04265337](#) A 19920921 [ ] (SEKISUI HOUSE KK);

[KR20100130441](#) A 20101213 [ ] (DOOSUNG HEAVY IND CO LTD [KR]);

[KR20130017261](#) A 20130220 [ ] (CAHE IL SU [KR]);

[KR101149034B](#) B1 20120525 [ ] (CAHE IL SU [KR])

PA - HAISUNG ENG CO LTD [KR]

TI - RIGID JOINT STRUCTURE FOR BEAM TO COLUMN CONNECTION

AB - The present invention relates to a structure to rigidly **join** rectangular beams between **columns** for longspan and, more specifically, relates to a rigid joint structure of beams and **columns** which fixates connection brackets similar to rectangular beams

having upper and lower **flange steel** pipes fixated on an upper and a lower part of a wave form web **steel** plate on one side of the **columns** to have an incline (gradient); thereby being capable of connecting and junctioning rectangular beams as it is, and significantly increase strength.

2/9 © EPODOC / EPO

PN - [WO2017026113](#) A1 20170216

PR - JP20150157554 20150807

AP - WO2016JP03614 20160804

DT - \*; Rep

CT - [JP] ISR (A1)

[JP2000110236](#) A 20000418

[XY] (KOZO GIJUTSU RES KK)

[X] 1-4, 6-12

\* , paragraphs [0011] to [0022];

all drawings (Family: none) \*

[Y] 5;

[JP2010529331](#) A 20100826

[Y] (ConXtech, Inc.)

[Y] 5

\* , fig. 3 & US 2008/0295443 A1

fig. 3 & WO 2008/150433 A1 &

EP 2148963 A & KR 10-2010-

0007872 A & CN 101680227 A \*

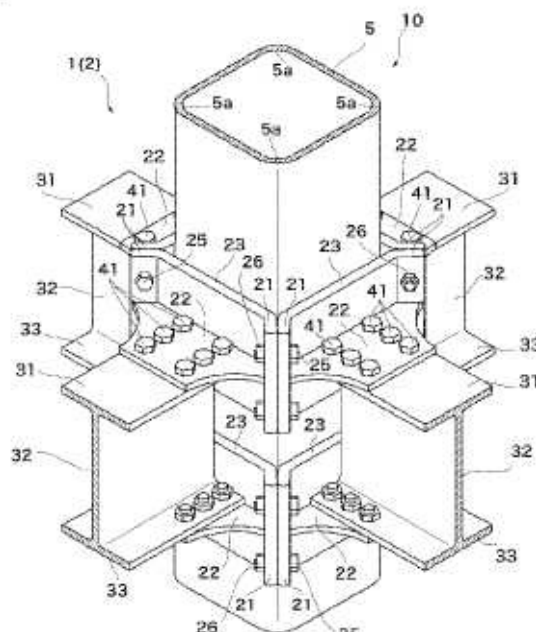
CUI - [E04B1/24](#) ; [E04B1/58](#)

PA - NIPPON STEEL & SUMIKIN METAL PRODUCTS CO LTD [JP]; HINODE LTD [JP]

TI - COLUMN AND BEAM CONNECTION STRUCTURE AND METHOD

AB - [Problem] To provide a column and beam connection structure that has excellent stress transmission performance during earthquakes and that allows mounting to **columns** without welding to external diaphragms, and a column and beam connection method.  
[Solution] A column and beam connection method to **join a steel** H-beam 3 to a **steel** pipe column 5 using an external diaphragm 1, wherein a beam plate 22 on a split diaphragm 2, which is a section of the external diaphragm 1 that is split into a plurality of sections, is mounted to a **flange** 31, 33 on the **steel** H-beam 3 and a column plate 23 provided on an end of the beam plate 22 is caused to abut the **steel** pipe column 5. By disposing the joining face between split diaphragms 2 near a corner 5a of the **steel** pipe column 5, each column face of

[圖1]



the **steel** pipe column 5 abuts only the column plate 23 on one split diaphragm 2. The split diaphragms are anchored by tightening bolts 25 and nuts 26 so that the contact pressure acts from the column plate 23 to the column face of the **steel** pipe column 5.

### 3/9 © EPODOC / EPO

PN - [JPH09195394](#) A 19970729

PNFP - JP2937914B B2 19990823

PR - JP19960348472 19961226

AP - JP19960348472 19961226

DT - I

FI - E04B1/24&H; E04B1/58&508F; F16B5/02&K

FT - 2E125/AA03; 2E125/AA13; 2E125/AC15; 2E125/AG03; 2E125/AG41; 2E125/BA55; 2E125/BB02; 2E125/BB09; 2E125/BB12; 2E125/BB23; 2E125/BB24; 2E125/BB37; 2E125/BC07; 2E125/BC08; 2E125/BC09; 2E125/BE02; 2E125/BF04; 2E125/CA03; 2E125/CA05; 2E125/CA06; 2E125/CA90; 3J001/AA05; 3J001/BA01; 3J001/CA02; 3J001/DB02; 3J001/DB04; 3J001/EA00; 3J001/FA07; 3J001/GB01; 3J001/HA02; 3J001/HA04; 3J001/HA09; 3J001/HA10; 3J001/JA03; 3J001/JA10; 3J001/JD11; 3J001/KA11; 3J001/KA19; 3J001/KA21; 3J001/KB04

PA - (A)  
ARTES KK

TI - (A)  
CONNECTION FITTING

AB - (A)  
PROBLEM TO BE SOLVED: To contrive improvement of joint efficiency by drilling a bolt hole in the flat face of a boss, connecting the flat part of the boss to a first **steel** frame, performing bolt tightening, making a flat plate part in the traverse direction of the other end of the boss, connecting it to the **flange** of a second **steel** frame and tightening them. SOLUTION: The flat part 2 of a boss 1 of one end is contacted to a first **steel** frame of **columns** or the like, the flat part 4 of the other end is contacted to a second **steel** frame of beams or the like, bolt tightening is performed, and the boss part 1 and the flat plate part 4 are integrated. At the time, the screw of the boss 1 penetrates the boss 1, is tightened by a nut, a **steel** plate is welded to the boss 1, and the flat plate part 4 is made. In this case, a **flange** 5 of the second **steel** frame of the beams or the like intended to directly **join** the flat plate part 4 as non-extension can be welded to one end of the boss 1. In addition, a web of the second **steel** frame is welded to a vertical rib disposing the flat plate part 4 as non-extension at the same height as the boss 1, and furthermore the **flange** 5 of the second **steel** frame can be joined thereto. And beveling is set on the boss 1 and welded from the outside of a joint fitting.

### 4/9 © EPODOC / EPO

PN - [JPH06123131](#) A 19940506

PNFP - JP3319619B B2 20020903

PR - JP19920300441 19921012

AP - JP19920300441 19921012

DT - I

FI - E04B1/24&G; E04B1/58&507S

FT - 2E125/AA03; 2E125/AA13; 2E125/AB01; 2E125/AB16; 2E125/AC15; 2E125/AC16; 2E125/AG03; 2E125/AG04; 2E125/AG41; 2E125/AG48; 2E125/AG57; 2E125/BA55; 2E125/BB12; 2E125/BB16; 2E125/BB37; 2E125/BE02; 2E125/BE08; 2E125/BE10; 2E125/CA03; 2E125/CA90

PA - (A)  
SEKISUI HOUSE KK

TI - (A)  
DEVICE FOR JOINING COLUMN

AB - (A)  
PURPOSE: To allow a joint to fit within the cross section of a column so as to prevent **columns** from obstructing construction by providing a short member of H-**steel** which projects from the end face of each column, and joining the web of the short member to a junction plate by means of a bolt. CONSTITUTION: A T-junction plate 15 comprising a horizontal plate 13 and a vertical plate 14 is secured by bolts 16 to the upper surface of the upper **flange** 12 of a beam 11 made of H-**steel**, with the horizontal plate 13 laid on the upper surface of the **flange** 12. Next, a short member 20 of H-**steel** is joined to the lower end of a rectangular **steel**-pipe column 18 at its upper end portion with upper and lower flanges 19, 19 pointing in the vertical direction, and the web 21 of the short member 20 is projected to cross the center of the end face of the column 18. Then the web 21 is laid on the vertical plate 14 of the junction plate 15 being secured to the beam 11 and is joined thereto by means of a horizontal bolt 22. To **join** the **columns** 18 together, a junction plate 29 is welded to the upper surface of the diaphragm plate 28 of one column 27 and the web 21 is joined to the side face of the plate 29.

5/9 © EPODOC / EPO

PN - [JPH01102140](#) A 19890419

PR - JP19870257829 19871013

AP - JP19870257829 19871013

DT - I

FI - E04B1/24&L; E04B1/58&341D

PA - N K HOME KK

TI - CONNECTION STRUCTURE OF **STEEL** PIPE PILLAR AND TRAVERSE MATERIAL

AB - PURPOSE: To **join** a **steel** pipe column to a horizontal member with each other by fastening coupling fixtures provided to a horizontal **flange** of the horizontal beam, between synthetic holes formed by vertically aligning recesses formed in joint ends of upper and lower **columns** with each other. CONSTITUTION: Semicircular recesses 11, 11, 12, 12 are formed in joint ends of upper and lower **columns** 1, 2, which are vertically aligned with each other so as to form synthetic holes 13, 13. Rod-like coupling fixtures 15, 15 are inserted in through-holes 16, 16 formed in **flange** parts 3a, 4a of horizontal members 3, 4, and are tacked by nuts 14, 14, and are then fastened between the synthetic holes 13, 13. After hook parts 15b, 15b at the front ends thereof are hooked to the inner surfaces of the **steel** pipe **columns** 1, 2, the nuts 14, 14 are loosened are fastened for fixing.

6/9 © EPODOC / EPO

PN - [JPH0860741](#) A 19960305

PNFP - JP3437652B B2 20030818

PR - JP19940217877 19940818

AP - JP19940217877 19940818

DT - I

FI - E04B1/24&P; E04B1/58&503G

FT - 2E125/AA03; 2E125/AB01; 2E125/AC15; 2E125/AG03; 2E125/AG12; 2E125/AG31; 2E125/AG56; 2E125/BA55; 2E125/BB02; 2E125/BB22; 2E125/BD01; 2E125/BE02; 2E125/BE06; 2E125/BF03; 2E125/BF08; 2E125/CA05; 2E125/CA14; 2E125/EA11

PA - (A)  
DAIWA HOUSE IND

TI - (A)  
WELDLESS JOINING STRUCTURE FOR H-SHAPED **STEEL** COLUMN

AB - (A)

PURPOSE: To simply and firmly **join** upper and lower **columns** which are different in their sizes and made of H-shaped **steel** to each other by a bolt even if a difference in width is large. CONSTITUTION: A part of the upper end of a lower column 1 which is expanded more than an upper column 2 is obliquely cut off until it substantially agrees with the width of the upper column 2 to be taken as a tapered notch part 1c. A reinforcing metallic material 3 is joined to the upper end of a web 1b of the lower column 1 by a bolt 4. The metallic material 3 is made by an angle material, and the **flange** 3a thereof is projected along the edge part of the tapered notch part 1c to both surfaces. A bent plate-like inside splice plate 6 and an outside splice plate 5 are superposed on the inner and outer surfaces extending over the **flange** 2a1 of the upper column 2, the **flange** 3a of the reinforcing metallic material 3 and the **flange** 1a1 of the lower column 1. The inside and outside splice plates 6, 5 are joined to each other by a bolt 7 together with the respective **flange** parts clamped between both splice plates.

## 7/9 © EPODOC / EPO

PN - [JPH0339535](#) A 19910220

PNFP - JP2504195B B2 19960605

PR - JP19890172690 19890704

AP - JP19890172690 19890704

DT - I

CT - (A)  
[JPS5612441](#) A []; [JPS63102803U](#) U [];  
[JPS62178634](#) A []

FI - E04B1/30&G; E04B1/30&K; E04B1/58&508P

FT - 2E125/AA04; 2E125/AA14; 2E125/AB01; 2E125/AC02; 2E125/AC07; 2E125/AC15; 2E125/AG03; 2E125/AG04; 2E125/AG12; 2E125/AG60; 2E125/BB08; 2E125/BB23; 2E125/BD01; 2E125/BF04; 2E125/CA05; 2E125/CA14; 2E125/CA82; 2E125/EA02

PA - (A)  
KAJIMA CORP

TI - (A)  
CONSTRUCTION OF STRUCTURE

AB - (A)  
PURPOSE:To simplify the structure of joints as well as shorten the period of construction by a method in which a precast concrete column wherein sleeves to connect a beam joint metal connecting **steel** beams previously with the main beams are buried is built and **steel** beams are joined with the beam joint metals. CONSTITUTION:A precast concrete column C in which sleeves 3 to connect a beam joint metal 1 consisting of connectors 1b connecting flat plates 1a with the main beams 2 of the **columns** C on the upper and lower stairs by drilling many bolt holes 1c are buried is produced. The column C is built on the column C of lower stair, and the main beam 2 of the column C of lower stair is thrust through the sleeve 3. The **steel** beam B is hung down into the position of the joint metal 1, the **flange** is connected with bolt 9 to the flat plate 1a of the joint metal 1, and a grout 4 is injected into the sleeve 3 between the **columns** C. The main beams 2 are connected to **join** both the **columns** C. These operations are repeated to construct the frame structure.

## 8/9 © EPODOC / EPO

PN - [JPH02256734](#) A 19901017

PR - JP19890074852 19890329

AP - JP19890074852 19890329

DT - I

CT - [JPS63103140](#) A []; [JPS59179946](#) A []

FI - E04B1/16&Q; E04B1/21&B; E04B1/30&K; E04B1/58&508P

FT - 2E125/AA04; 2E125/AA14; 2E125/AA57; 2E125/AB01; 2E125/AB12; 2E125/AC02; 2E125/AC04; 2E125/AC07; 2E125/AC15; 2E125/AC28; 2E125/AG03; 2E125/AG60; 2E125/BB08; 2E125/BD01; 2E125/BE10; 2E125/CA82; 2E125/CA90

PA - TAISEI CORP  
 TI - JOINT WORK OF BEAM-COLUMN  
 AB - PURPOSE:To raise the efficiency of operation by a method in which a concrete beam is placed over the direction of beam on the top of column, **steel** frames are set in the direction of span, the ends of beam main bars projected from the counter side of concrete beams are welded, and concrete is placed to **join** the beam **columns**.  
 CONSTITUTION:A reinforced concrete column A is erected down to the below beam, a precast concrete beam B is placed in the direction of beam, and H- shaped **steel** frame C is placed in the direction of span. The ends of the beam main bars projected from the counter sides of the paired beams B facing each other are welded W for enclosing. The upper end of the main beam 2 of the column is welded W2 to the lower **flange** of the beam C for enclosing, and a vertical reinforcing bar 3 is welded W3 between the upper and lower flanges of the beam C for enclosing on the same vertical axis as the beam 2. Concrete is then placed for joining the beam **columns**, column beams for the upper stage are assembled or precast concrete **columns** are erectly set, and the beam 2 is welded W4 to the upper **flange** of the beam C on the same vertical axis as the beam 1 for enclosing.

9/9 © EPODOC / EPO

PN - [JPH07241666](#) A 19950919  
 PR - JP19940056794 19940303  
 AP - JP19940056794 19940303  
 DT - I  
 FI - B23K37/00&301C; B23K37/04&K; B23K37/06&K; B23K9/00&501B  
 FT - 4E081/BA47; 4E081/DA01; 4E081/DA11; 4E081/FA14; 4E081/YB02; 4E081/YB03; 4E081/YB04; 4E081/YB06; 4E081/YX08  
 PA - MAEDA CONSTRUCTION; NIPPON YAKIN KOGYO CO LTD; NASU ENG KK  
 TI - COLUMN/BEAM JOINING MEMBER COMMONLY USED AS DIAPHRAGM  
 AB - PURPOSE:To greatly reduce the cost of the joining work by providing a column/ beam joining member which is commonly used as a diaphragm of special shape above and below a panel zone. CONSTITUTION:Backings 2a, 2b for welding are temporarily welded on groove parts on the reverse side of column/beam joining member which are commonly used as a diaphragm by leaving the space equal to the thickness of the side plate of a panel zone. The column/beam joining members 1a, 1b are provided with plate-shaped parts orthogonal to the axes of vertical **columns** 7a, 7b, and form on one surface the groove part where the vertical **columns** 7a, 7b are welded, and form on the opposite surface the groove part where the panel zone 8 is welded. The groove parts where the vertical **columns** 7a, 7b are welded are the inclined surfaces of the pyramid shape. When the length of the inclined surfaces is much longer than the thickness of the **columns** 7a, 7b, and less than the outer diameter of a **steel** tube which is the panel zone 8, a column of arbitrary diameter can be vertically placed and mounted thereon. This constitution easily and rapidly **join** the center column, the corner column and the side column, and the beam to each other even in the case where the **flange** thickness may be different.

[SS 6] ..v

[EPODOC: SS 6] 2

Results in EPODOC 5

[SS 7] ..li



1/5 © EPODOC / EPO

PN - [KR20160150572](#) A 20161230

PR - KR20150088372 20150622  
 AP - KR20160019113 20160218  
 DT - I  
 CNOI - [E04B1/30](#) ; [E04C3/293](#)  
 PA - AHN HOE CHAN [KR]; FIRSTECENG CO LTD [KR]; EREA ARCH CO LTD [KR]  
 TI - COMPOSITE INTERGRATED OPTIMIZED CROSS-SECTION  
 AB - The present invention provides a composite beam with an optimized cross section which secures structural stability by reinforcing and connecting **steel** beam members to form a composite structure, selects a cross section divided for each section of a **steel** beam to effectively optimize a cross section of each member by a bending moment, and efficiently reduces construction costs. The composite beam with an optimized cross section is extended and installed in a vertical direction, corresponds to **steel pillars** installed at horizontal intervals to be extended in a transverse direction, and comprises: a **steel** beam joined and installed on the **steel** pillar; a first **steel** beam having a vertical web and an upper and a lower horizontal flanges, wherein one end thereof is coupled to one **joining** end of the **steel** beam to be fixed and installed; a second **steel** beam positioned on one side of the first **steel** beam, separated from the first **steel** beam, and extended horizontally, wherein an upper surface thereof is opened to have a lower plate and a side wall web on a left and a right; and a reinforcing connection unit connecting and reinforcing the first and the second **steel** beams and including a first reinforcing **flange** extended from the side wall web of the second **steel** beam towards the vertical web of the first **steel** beam in an inclination direction to connect the first and the second **steel** beams to each other, a second reinforcing **flange** extended from an upper end of the sidewall web of the second **steel** beam towards the upper horizontal **flange** of the first **steel** beam to connect the first and the second **steel** beams to each other, and a third reinforcing **flange** extended from the lower plate of the second **steel** beam towards the lower horizontal **flange** of the first **steel** beam to connect the first and the second **steel** beams to each other.

2/5 © EPODOC / EPO

PN - [JPH06126445](#) A 19940510  
 PNFP - JPH0686006B B2 19941102  
 PR - JP19920296500 19921009  
 AP - JP19920296500 19921009  
 DT - I  
 FI - B23K31/00&P; B23K9/00&501B; B23K9/02&D; B23K9/035&Z; B23K9/235&B  
 FT - 4E001/AA03; 4E001/BB01; 4E001/CC04; 4E001/DA05; 4E001/DF01; 4E001/DF02; 4E001/DF05; 4E001/DF09; 4E001/DG01; 4E001/DG02; 4E001/DG05; 4E081/AA02; 4E081/AA14; 4E081/BA02; 4E081/BA34; 4E081/BB17; 4E081/DA01; 4E081/DA11; 4E081/DA12; 4E081/DA27; 4E081/DA28; 4E081/DA32; 4E081/FA14; 4E081/YB05; 4E081/YX03; 4E081/YX07; 4E081/YY12  
 PA - (A)  
 KAWADA KOGYO KK  
 TI - (A)  
 WELDING AND **JOINING** METHOD FOR WELDED AND ASSEMBLED WIDE **FLANGE** SHAFT **STEEL**  
 AB - (A)  
 PURPOSE:To facilitate positioning work of backing strips by tack-welding the backing strips to an unwelded part at the **flange** inside on both sides of a web of the wide **flange** shape **steel** at the time of welding of the welded and assembled wide **flange** shape **steel**.  
 CONSTITUTION:At the time of welding the wide **flange** shape **steel** formed by welding and assembling a **flange** 12 and the web 10 in advance to a connecting member, tack welding or fillet welding of the wide **flange** shape **steel** is performed by the position slightly separated from the **joining** end, the groove tip taken on the **flange** 12 is worked so that it is made to the position slightly separated from the **joining** end, then, the wide **flange** shape **steel** and a member to be welded are assembled, the backing strips

20 are tack-welded to the unwelded part at the **flange** inside on both sides of the web of the wide **flange** shape **steel**, then, the **flange** 12 subjected to edge penetration is welded to the member to be welded and further, the member to be welded and the web 10, and the web 10 and each backing strip 20 are subjected to fillet welding, respectively. Thus, beam materials and **pillars** of the assembled wide **flange** shape **steel** can be easily and surely welded together.

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|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PN   | - <a href="#">JPH06126444</a> A 19940510                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| PNFP | - JPH0686005B B2 19941102                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| PR   | - JP19920296499 19921009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| AP   | - JP19920296499 19921009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| DT   | - I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| FI   | - B23K9/00&501B; B23K9/02&D; B23K9/035&Z; B23K9/235&B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| FT   | - 4E001/AA03; 4E001/BB01; 4E001/CC04; 4E001/DA05; 4E001/DF01; 4E001/DF02; 4E001/DF05; 4E001/DF09; 4E001/DG01; 4E001/DG02; 4E001/DG05; 4E081/AA02; 4E081/AA14; 4E081/BA02; 4E081/BA34; 4E081/BB17; 4E081/DA01; 4E081/DA11; 4E081/DA12; 4E081/DA27; 4E081/DA28; 4E081/DA32; 4E081/FA14; 4E081/YB05; 4E081/YX07                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| PA   | - (A)<br>KAWADA KOGYO KK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| TI   | - (A)<br>WELDING AND <b>JOINING</b> METHOD FOR WELDED AND ASSEMBLED H-SHAPE <b>STEEL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| AB   | - (A)<br>PURPOSE:To perform simple tack welding work by tack-welding backing strips divided into two to an unwelded part at the <b>flange</b> inside on both sides of a web of the wide <b>flange</b> shape <b>steel</b> at the time of welding of the welded and assembled wide <b>flange</b> shape <b>steel</b> . CONSTITUTION:At the time of welding the wide <b>flange</b> shape <b>steel</b> formed by welding and assembling a <b>flange</b> 12 and the web 10 in advance to a connecting member, tack welding or fillet welding of the wide <b>flange</b> shape <b>steel</b> is performed by the position slightly separated from the <b>joining</b> end, the groove end taken on the <b>flange</b> 12 is worked so as to be formed into the leg length of fillet welding of the web 10, then, the wide <b>flange</b> shape <b>steel</b> and a member to be welded are assembled, the backing strips 20 are tack welded to the unwelded part at the <b>flange</b> inside on both sides of the web of the wide <b>flange</b> shape <b>steel</b> , then, the <b>flange</b> 12 subjected to edge preparation is welded to the member to be welded and further, the member to be welded and the web 10, and the web 10 and each backing strip 20 are fillet welded, respectively. Thus, beam materials and <b>pillars</b> of the assembled and welded wide <b>flange</b> shape <b>steel</b> can be welded easily and surely. |

### 4/5 © EPODOC / EPO

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|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PN | - <a href="#">JPH0649900</a> A 19940222                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| PR | - JP19920222195 19920730                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| AP | - JP19920222195 19920730                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| DT | - I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| FI | - E04B1/24&M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| PA | - TAISEI CORP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| TI | - JOINT BUILDING CONSTRUCTION FOR <b>STEEL</b> FRAME PILLAR AND BEAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| AB | - PURPOSE:To improve <b>joining</b> performance and reliability to make cost reduction possible by improving assembling-in performance to a joint part and adaptability to various joint structure through the partition of members. CONSTITUTION:A lower horizontal diaphragm 1a having sizes L1, L2 being a little larger than the sectional size L of a lower floor pillar 11a is fixedly provided on the upper end of the lower floor pillar, and a cross-shaped through gusset plate 2 which has width sizes L1, L2 being the same as the lower horizontal diaphragm and thw same width on upper and lower sides is fixedly provided on the lower horizontal diaphragm. An upper horizontal diaphragm 1b |

having sizes L1, L2 being the same as the lower horizontal diaphragm is fixedly provided on the through gusset plate, and each of the ends of the lower **flange** and a web of the **steel** frame beam 12 and of an upper **flange** is firmly attached to each of the sides of the lower horizontal diaphragm, the through gusset plate and the upper horizontal diaphragm. Plurality of partitioned cylindrical hardware 3a, 3b, 3c, 3d are assembled in the periphery of the through gusset plate and between the upper and lower horizontal diaphragms to form a cylindrical hardware 3 having upper and lower sectional forms corresponding to the sectional forms of the upper and lower floor **pillars**, and the lower end part of the upper floor pillar 11b is firmly attached to the upper horizontal diaphragm.

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PN - [JPH05280099](#) A 19931026

PR - JP19920079971 19920401

AP - JP19920079971 19920401

DT - I

FI - E04B1/30&K; E04B1/58&508P

FT - 2E125/AA04; 2E125/AA14; 2E125/AB01; 2E125/AB12; 2E125/AC02; 2E125/AC07; 2E125/AC15; 2E125/AC28; 2E125/AG03; 2E125/AG31; 2E125/BA44; 2E125/BB08; 2E125/BB16; 2E125/BC09; 2E125/BD01; 2E125/BE01; 2E125/BE07; 2E125/BF01; 2E125/CA82

AB - PURPOSE:To prevent local bearing breakage by respectively arranging reinforcing iron plates on the lower face of an upper story pillar and the upper face of a lower story pillar which are in contact with the upper and lower **flange** faces of a **steel** framed beam in the **joining** part of pillar and beam. CONSTITUTION:The **joining** part of pillar and beam B' of a **steel** framed beam B is provided on the reinforcing iron plate 2 of the precast RC pillar A of a lower story, a formwork is assembled by surrounding the **joining** part B' with hoop reinforcement 5, and concrete of the **joining** part B' is placed together with slab concrete. Next, the precast RC pillar A1 of an upper story is built on, a reinforcing iron plate 1 is integrally fitted to the lower face, the pillar main reinforcement 3 of the pillar A2 is inserted into a splice sleeve 4 and mortar is filled, and hence the main reinforcement 3 of the **pillars** A1, A2 of the upper and lower stories are connected together. Against the force applied on the **joining** part B', the average force is transmitted from the beam B to the **pillars** A1, A2 through the iron plates 1, 2. Hereby, local bearing breakage at the **pillars** A1, A2 can be prevented.

[SS 7] ..v

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Results in EPODOC 7

[SS 8] ..v

[EPODOC: SS 8]