02-3433-7778　gaill@ssyenc.co.kr

1. 서론

.

.

,

.

(Chang, Shim, 2001).

.(Issa, M. A.,
etc., 1995)

.

2.1.

. (, 1998) ,
20m-20m [2] .
150mm
1500mm,

.

.

.

2

. AAHSTO LRFD
3

.

2.

1470mm .
SS 400 .

.
,

83cm K-

.

4 .
[3] .
[4]
.

285   900   285
1470

150
150 16mm   15.8mm 10
13mm Rebar
Rebar
800

12
14
20 500 20
(a)

100
1470
370 265 370
180 120 390 120 390 120 180
1500
(b)

[그림 2]

570   20,000   41,140   20,000   570
5,830

[3]

Concrete Slab
L75×75×10
N.A.
200.4 150

[4]

2.2.

.

(1).

3

(2).
2.5Mpa   .

(3).

0.5MPa   (4).

.

[5]

(1)   (2)

: 2.5MPa

(3)   (4)

: 0.5MPa

2.3.

< 1>		,
	(MPa)	(GPa)
	48.6 (28)	30.0
( )	48.5 (7)	36.0
( )	47.2 (7)	36.0

< 2>		,
	(MPa)	(MPa)
(SS400)	240	410 ̄ 520
Stud(16mm)	-	450
Tendon	Ap= 138.7mm2, = 196kN	
(Internal & External)	= 231kN, Ep= 190GPa	

2.4.

350   Loading
Frame   .

[6]

.

0   2   .

,   60

2

60

.

.

,

,

.

LVDT   .

-

[6]
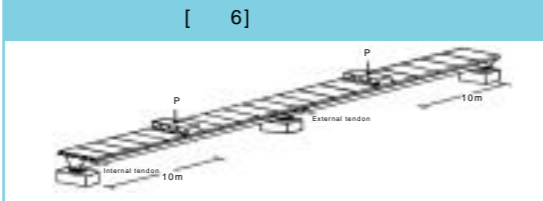
3.

3.1

. [7] 180kN

-

.   8   solid   ,

4   shell

(rigid link)   [8]

.

.

---

[7]   -
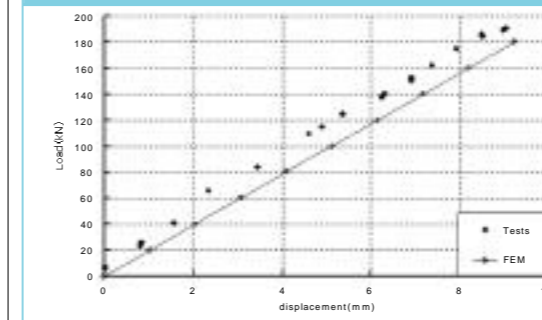
[8]

3.2

, [10]

E14, 18[9]

,   274kN   .

[9]

[10]   -

---

[11]   . [11]

,

.

[11]   (kN)

S13   S14   S15

CR3   CR1   CR2   CR4   3

[11]   (CR1~4)

-            [12]

.   CR3 CR4   220kN

,

.

.

(CR1, 2)

.

[12]   -

< 3>

.

.

.

.

.
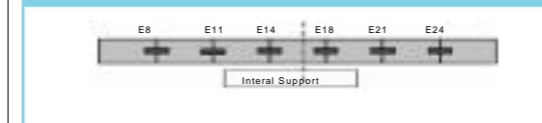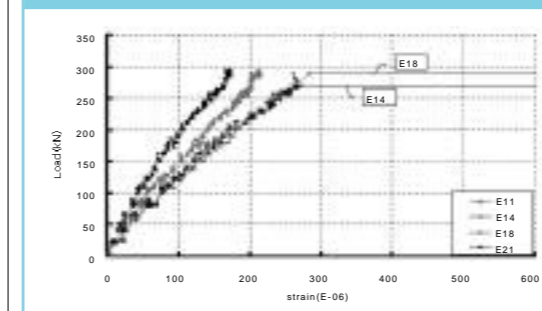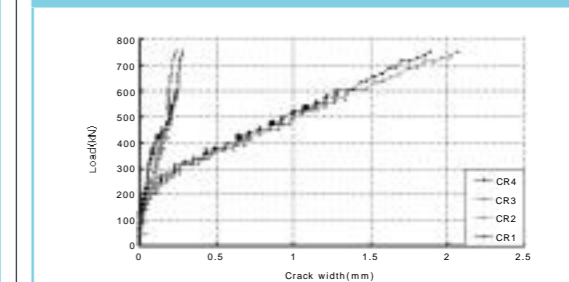
4 .

193kN

165kN .

1.42 , 1.66

.

< 3>	
	274 kN
	193 (290*) kN
	165 kN
Ratio (./ .)	1.419 (0.95*)
Ratio (./ .)	1.66
*	(2MPa)

[13] .

[13(a)],

.

.

[13(b)],

.

[13]

Before crack(180kN)
Analysis(180kN)
After crack(350kN)

(a)

Before crack(180kN)
Analysis(180kN)
After crack(350kN)

(b)

- [14] .

,

.

.

.
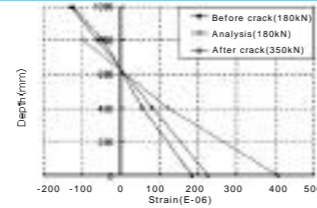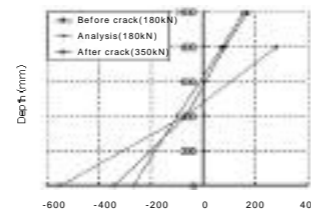
[14] -
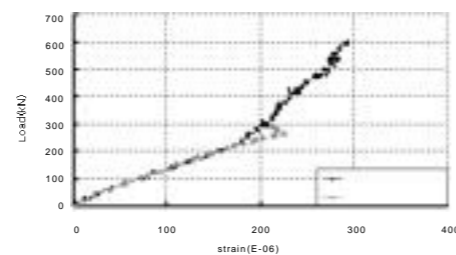
4.

4.1

,

.

3

. ,

AASHTO LRFD

. 25cm,

12.8m 3 .

14 .

DL-24 .

[15] LRFD 3

250

1340   3@3400=10200   1340
12880

(a)

Pm   Pm

58000   72000   58000
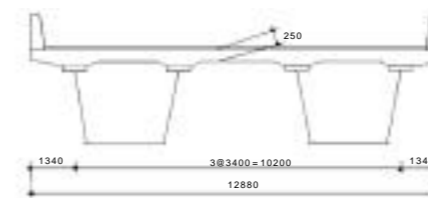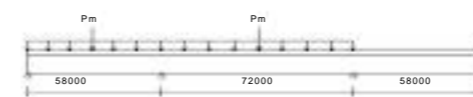
(b)   DL-24

.

DIANA [16]

.

.

(rigid link)
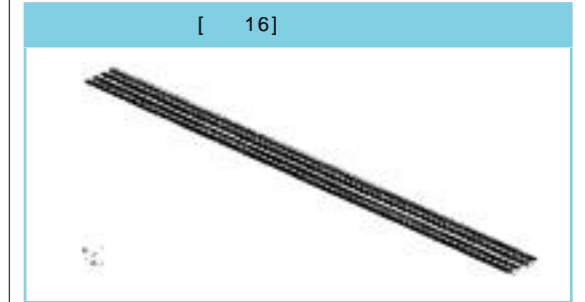
.

.

3 [15(b)]

.

[16]

4.2

.

2

2

, 80mm

0.8N/m .

16 . 2

1.3MPa
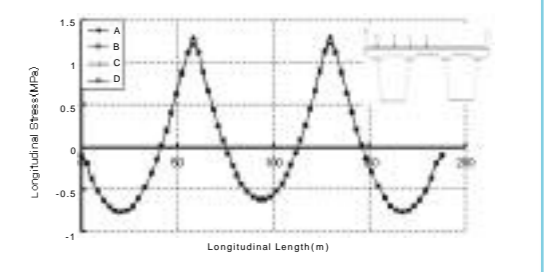
.

[17]

.

, [18] . DL-24

.

6.2MPa .

[18]

Longitudinal Stress(MPa)

A
B
C
D

Longitudinal Length(m)

[17] 18

[19]

7.5MPa

[19]   +

Longitudinal Stress(MPa)

A
B
C
D

Longitudinal Length(m)

[120]

PT1

PT2   .

[20]

PT2   PT1   PT2
PT1   PT1

PT1 =
PT2 = PT1+

[3]

< 4>

[21]   .

[22]   .

7.8MPa

[21]

Longitudinal Stress(MPa)

0.5
0
-0.5
-1
-1.5
-2

B

Longitudinal Length(m)

[22]

Longitudinal Stress(MPa)

-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
-9.0

B

Longitudinal Length(m)
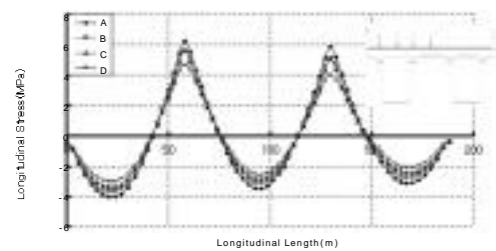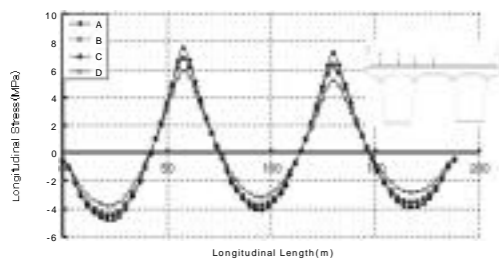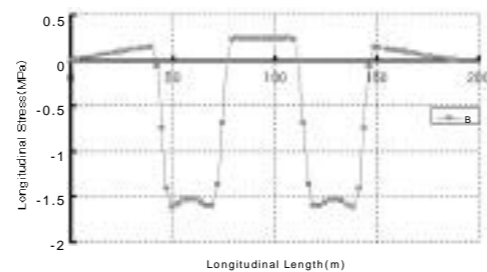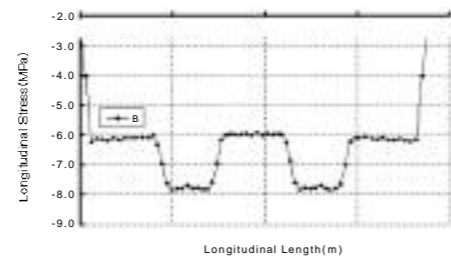
< 4>

PS		PS
1323.9	133.38	12
1875.5	202.92	4

5.

(1)

(2)

(3)

,

(4)

(2000)   (   ).
(1998)."
"; 96   2   .
AASHTO LRFD Bridge Design Specifications (1998)
C-S. Shim, J-H. Kim, C-H. Chung, and Sung-Pil Chang (2000), The Behavior of Shear Connection in Composite Beam with Full-Depth Precast Slab, Proc. Instn Civ. Engrs, Structures and Buildings, Feb., Vol.140, pp.101-110.
C.S.Shim, P.G.Lee, S.P.Chang(2001),   Design of shear connection in composite steel and concrete bridges with precast decks,   Journal of Constructional Steel Research, 57, pp.203-219.

C.S.Shim, P.G.Lee, H.K.Ryu, S.P.Chang(2001) " Experiments on Continuous Composite Beams with Precast Decks", Proceedings of the 8th East Asia-Pacific Conference on Structural engineering & construction
Chang, S. -P., Shim, C. -S. (2001) Continuous Composite Bridges with Precast Decks, Steel Structures, pp.123-132.
Chang, S. -P., Shim, C. -S., Ryu, H.-K (2002) Application of Precast Decks to Continuous Composite Bridges, 6th International Conference on Short & Medium Bridges, pp.457-464.
DIANA User's Manual Release 7 (1997), TNO Building and Construction Research
EUROCODE 4(1992) Design of composite steel and concrete structures- Part 1-1: General rules and rules for buildings
] Issa, M. A., etc. (1995)," Field Performance of Full Depth Precast Concrete Panels in Bridge Deck Reconstruction," PCI Journal, V. 40, No. 3, May-June, pp. 82-108.
] S.P.Chang, C.S.Shim, S.G.Youn, C.H.Chung(2001), " Serviceability Design of Transverse Joints in Precast Deck Bridges", CONSEC01(Third International Conference on Concrete under Severe Conditions Environment and Loading), June, pp. 281-286