

가
, 가 29 20 , 30 49
40 , 50 60

[3]

2.

2.1

(2020)

, 15m 2 ,

가

가

가

2.2

[4]

(2019)

가

가

[5]

(2021a)

가 25 m 가

3가

15 m

가

2

[6]

(2021b)

2.3

가

5

가

가

10 가

가

가

[7]

(2020)

(2019)

2.4

(2021a)

(2021b)

2.5

가

가

25 m 가 , [10]
 15 m 2 14 ,
 56%, 310 lx
 <Table 1>

<Table 1> Environment of Experiment.

Location	XX University
Temperature ()	14
Humidity (%)	56
Wind speed (m/s)	Windless
Illuminance(Ix)	310

. [8]

3.

6

3.1

3

1-3

4-6

3,000 m²

가

1

15 m

, 가

30 m

가

2

. [9]

15 m

3

15 m

, 20

2

, 3

, 4

1

15 m

30 m

1

가

5

15 m

1

1

1

30 m

, 가

6

15 m

3.2

5

00

<Table 2>

<Table 2> Scenario of Experimental

Scenario	Unfold of fire hose	Hose using (hose length)	Connection of Angle valve - Hose	Connection of Hose - Nozzle
1	Center withdrawal	2 connection (30 m)	O	X
2		15 and 15 respectively (30 m)	X	X
3		15 and 15 respectively (30 m)	O	O
4	Roll	2 connection (30 m)	X	X
5		2 connection (30 m)	O	X
6		15 and 15 respectively (30 m)	X	X

4.

[Figure 1]

2, 3

가

95,
99.8
96

114.9

가

가

15.1

<Table 3>



(a) Male students (b) Female students
[Figure 1] Readiness

4.1.2

2:

[Figure 2b]

15 m 2

125,
121.5

124

127.6

6.1 가

<Table 4>

4.1

4.1.3

3:

4.1.1

1:

[Figure 2c]

15 m 2

[Figure 2a]

15 m

30m

132,

<Table 3> Experimental results of scenario 1

No. of Exp.	Male		Female	
	No. of Kink	Waterproofing Preparation Time	No. of Kink	Waterproofing Preparation Time
1	92	93.6	95	112.2
2	93	96.2	97	114.3
3	94	106.3	98	115.5
4	96	122.3	96	116.9
5	99	80.6	96	115.8
Avg.	95	99.8	96	114.9

<Table 4> Experimental results of scenario 2

No. of Exp.	Male		Female	
	No. of Kink	Waterproofing Preparation Time	No. of Kink	Waterproofing Preparation Time
1	122	138.3	122	126.1
2	128	101.7	125	127.6
3	125	123.7	125	128.4
4	126	122.5	127	127.6
5	124	121.1	123	128.1
Avg.	125	121.5	124	127.6

<Table 7> Experimental results of scenario 5

No. of Exp.	Male		Female	
	No. of Kink	Waterproofing Preparation Time	No. of Kink	Waterproofing Preparation Time
1	6	64.2	6	59.3
2	4	64.7	4	63.3
3	5	65.1	6	60.4
4	4	64.8	4	60.7
5	5	64.5	5	59.9
Avg.	5	64.7	5	60.7

<Table 8> Experimental results of scenario 6

No. of Exp.	Male		Female	
	No. of Kink	Waterproofing Preparation Time	No. of Kink	Waterproofing Preparation Time
1	12	82.8	15	66.7
2	14	76.3	21	84.7
3	13	77.5	17	69.4
4	15	80.3	16	72.3
5	14	78.4	18	73.8
Avg.	15	79.1	17	73.4

<Table 9> Measurement result of No. of kink & Waterproofing preparation time per scenario

No. of Exp.	Unfold of fire hose	Hose using (30 m)	Connection of Angle Valve - Hose	Connection of Hose - Nozzle	Male		Female	
					No. of Kink	W.P.T	No. of Kink	W.P.T
1	Center withdrawal	2 connection	O	X	95	99.8	96	114.9
2		15 and 15 respectively	X	X	125	121.5	124	127.6
3		15 and 15 respectively	O	O	132	95.9	132	78.9
4	Roll	2 connection	X	X	95	106.1	94	119.3
5		2 connection	O	X	5	64.7	5	60.7
6		15 and 15 respectively	X	X	15	79.1	17	73.4

73.4
 5.7 가 . <Table 8> . 120 ,
 <Table 가 .
 9> . 3
 , 가 , - , -
 가 가
 3 15 m
 , 2 , 2 , ,
 3
 130 가 ,
 가
 2 15 m 2 - , -
 2 , ,

4 15 m 2 (2) 가 ,
- , -
100 가 ,
가 가 (3) 15 m 2
- , - 가 ,
가 가 ,
15 m 2
- 5 5 가 , 가 ,
가
6 15 m 2
- , 4
- , 5 가
5 가 .

5.

가 5 가
(1) 가
2 ,
3

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