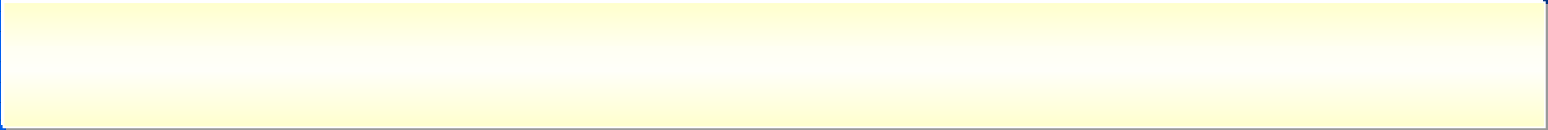
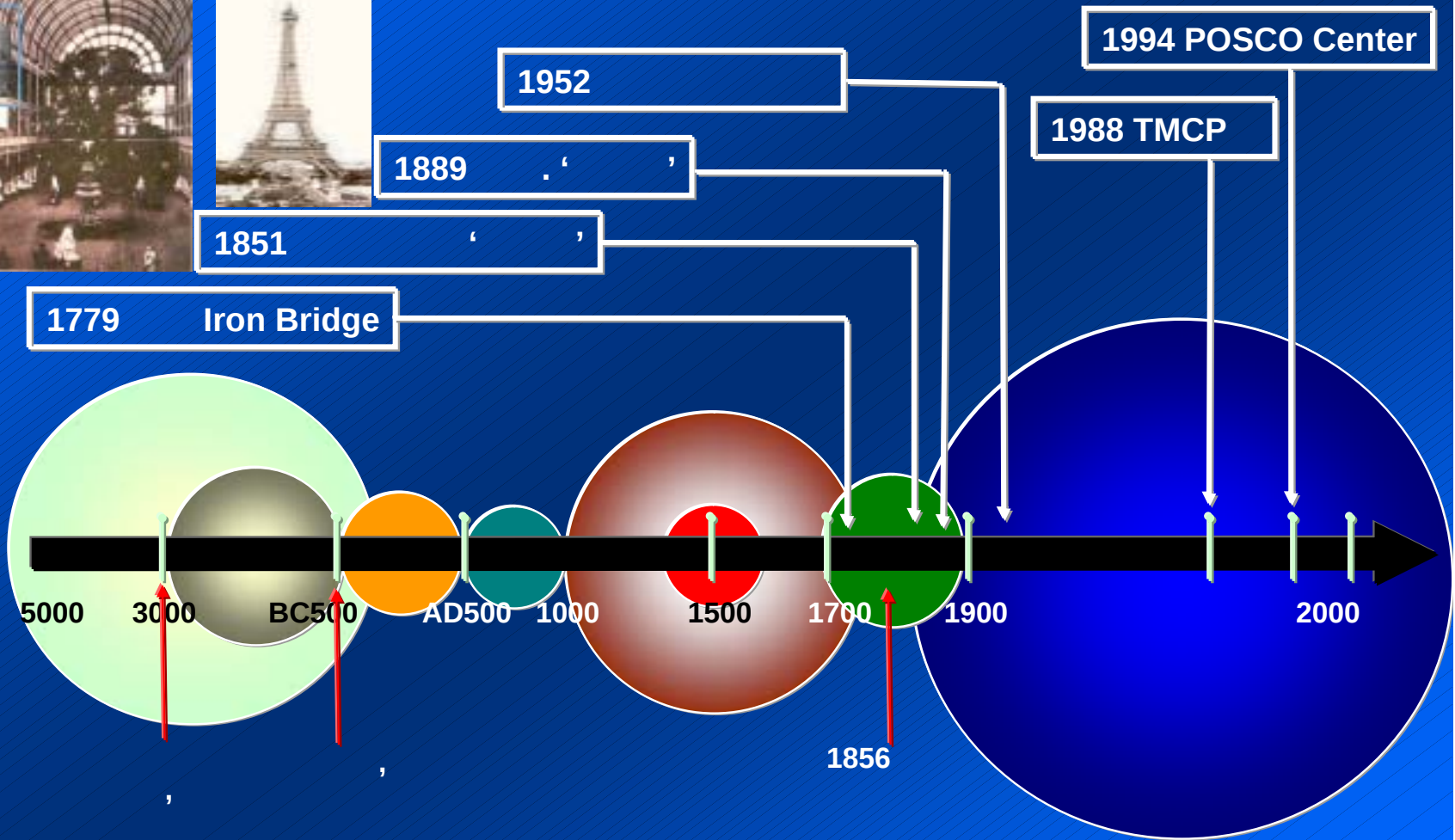




- 
- 1.
 - 2.
 - 3.
 - 4.
 - 5.

1.



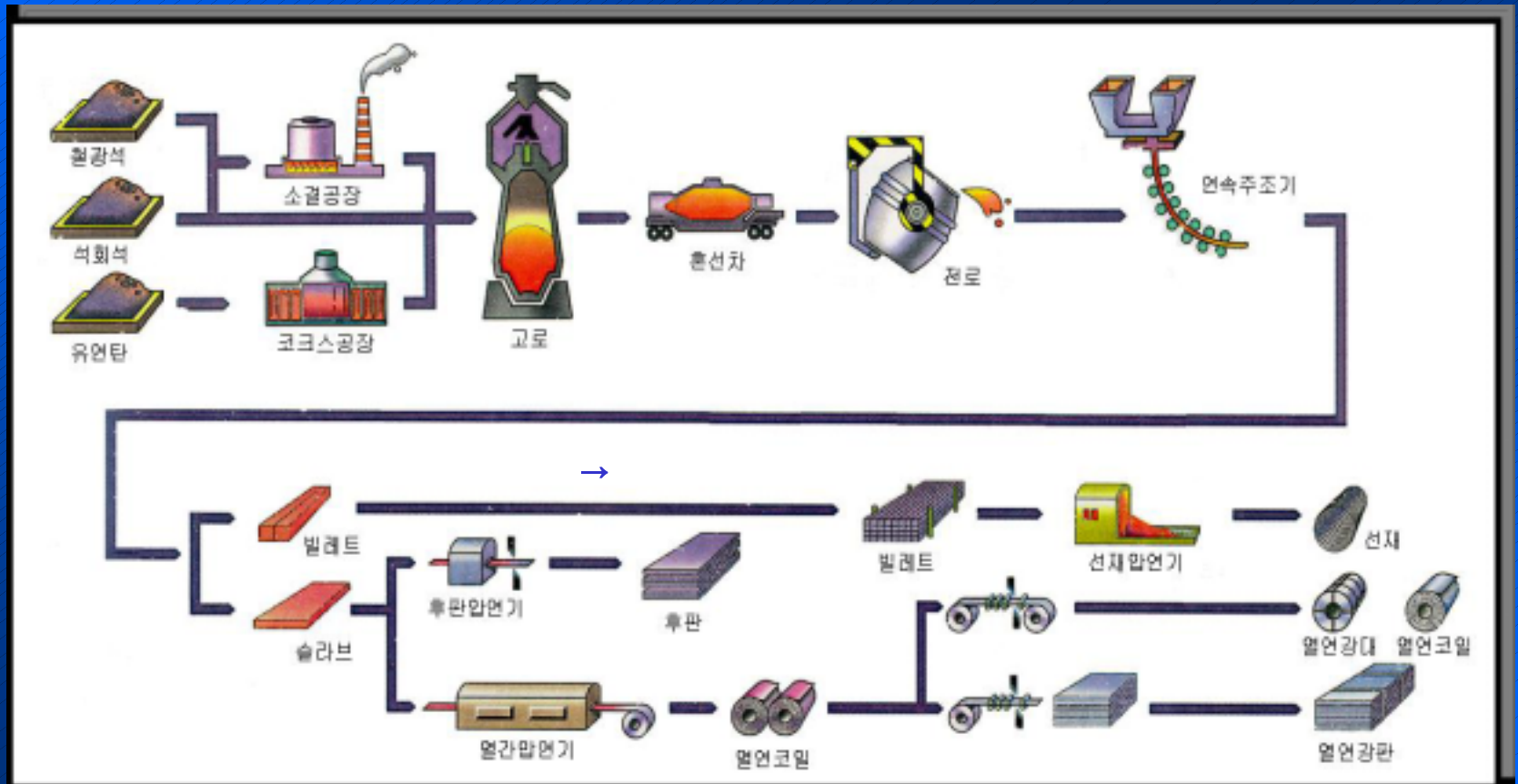
1.

15		- ,
		- , : , ,
1784	,	- :
1856		- :

(Pig Iron)		1.7% , , , , ()
(Castin Iron)		1.7% ,
(Wrought Iron)		가 ,
(Steel)		0.035~1.7%, 가 가 , .

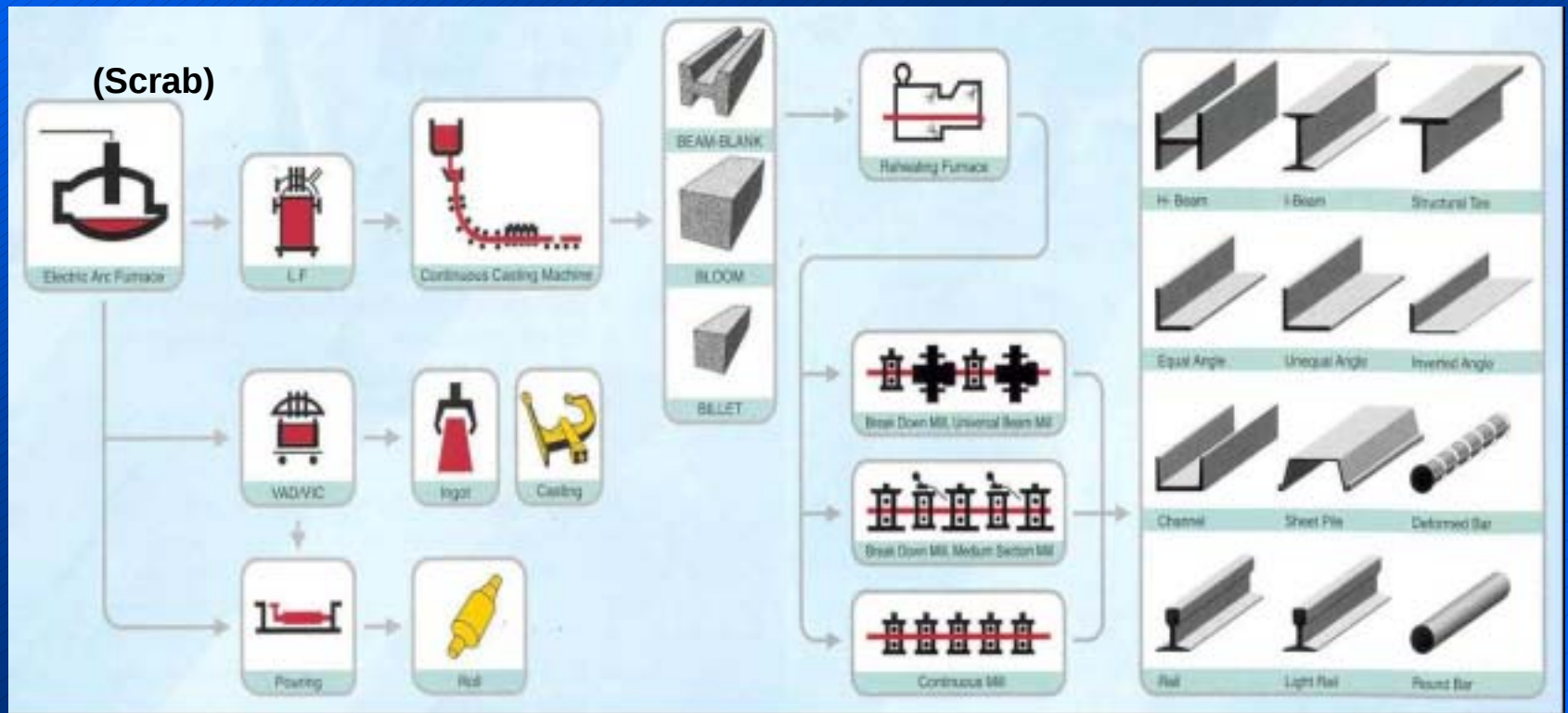
2.

()



2.

()



3.



		1.7~4.5%,
		0.035 % ,
		0.035 ~ 1.7 %, 가
		C Mn,P,S
	()	, , Cr,Ni,Mo,V
		(800) 가
		(H,C,T,I, ,Sheet) ,
		, , ,
		,

3.



	SI(N/mm ²)	(Kg/mm ²)	
	SS330,400 SS490,540	SS33,41 SS50,55	(KS D3503)
	SM400,490X SM490YX SM520X, SM570	SWS400,490 SWS490YX SWSM520X,SWS570	(KS D3515)
	SMA400X,490X SMA570	-	(KS D3529)
	SN400 X SN490 X	-	(KS D3861)
	FR400, FR490X	-	(KS D3865)

3.

SS : Steel Structure ()
 SM : Steel Marine ()
 SMA : Steel Marine Atmosphere ()
 SN : Steel New ()
 FR : Fire Resistance ()

SMA 490 B W N ZC

.ZA :
 .ZB : Z 15%
 .ZC : Z 25%

.400 : 400MPa($F_y = 2.4 \text{tf/cm}^2$)
 .490 : 490MPa ($F_y = 3.3 \text{tf/cm}^2$)
 .520 : 520MPa ($F_y = 3.6 \text{tf/cm}^2$)
 .570 : 570MPa ($F_y = 4.1 \text{tf/cm}^2$)

.N : Normalizing ()
 .QT : Quenching Tempering
 .TMC : Thermo Mechanical
 - Control (가)

.A :
 .B : 27J (0)
 .C : 47J (0)

.W :
 .P :

KS D 3503 – 1993

(D:)
Korean Standards

JIS : Japanese Industrial standard() - - -KS

ASTM : American Society for Testing Material()

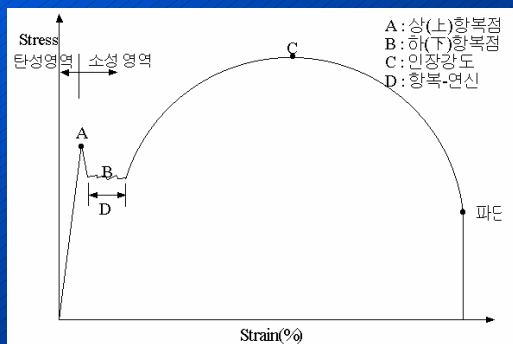
A572 – 50

(50Ksi)

(Nb-V)

○

[Tensile Test]



(, ,)

➤ (TS), (YP),

[(Yr) : $YP \div TS$]

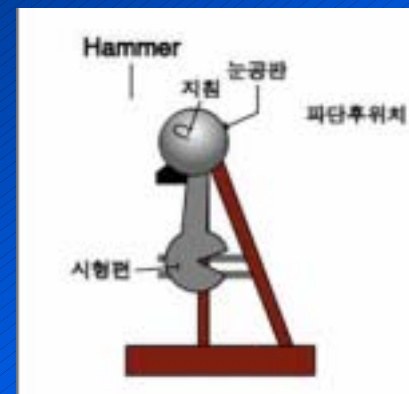
➤ (),

Z , Test

[Impact Test]

Notch

(Charpy),



4.



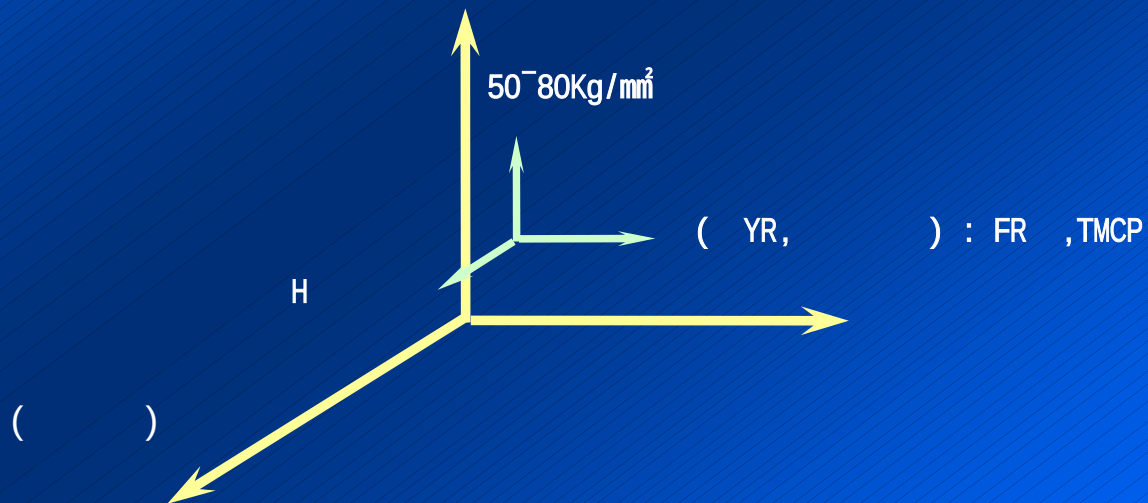
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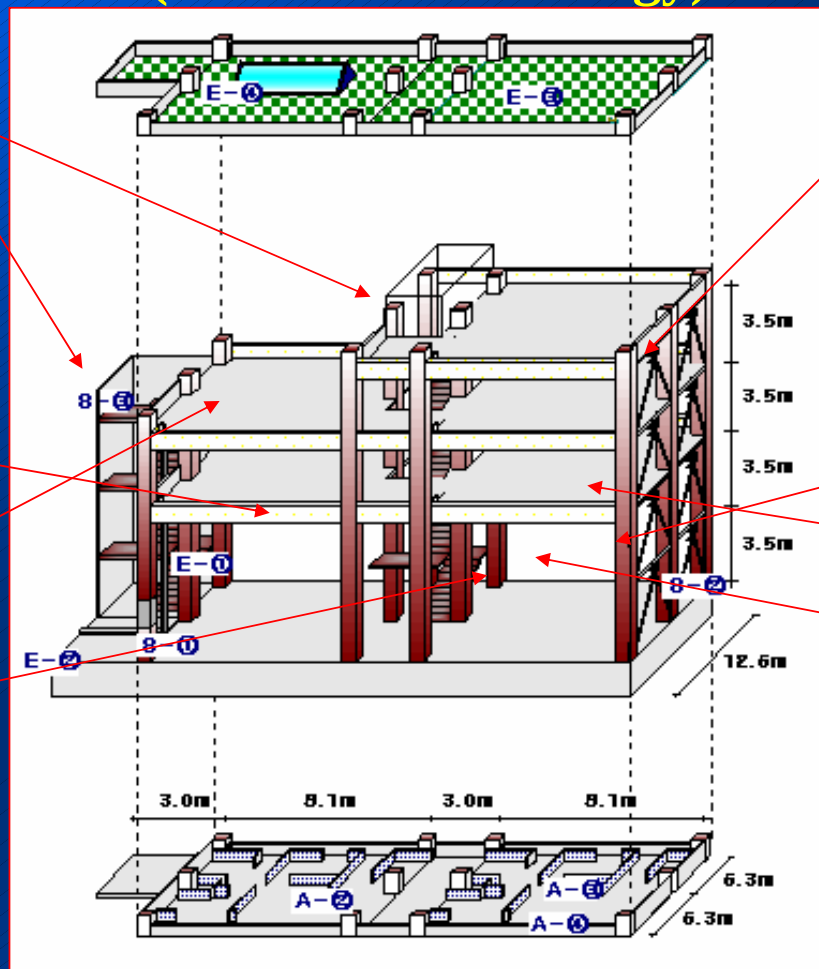
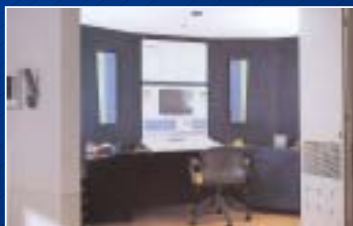
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4.

○

NT Apt 100 (NT: New Technology)



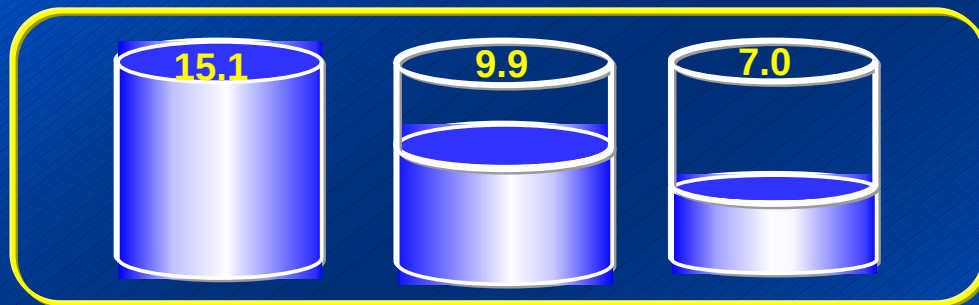
CFT



가



- 1
1 45%, 70%



		2000	2001	2002
(:)		23,234	22,454	23,774
		15,369	15,726	16,551
		6,865	6,728	7,223

- | | |
|-----|-----|
| | → , |
| 100 | → |
| | |