

Space Design

The ALS logo consists of the letters 'ALS' in a bold, blue, sans-serif font, centered within a white rectangular box.

MISSION : To design a General Warehouse for Distribution , Capacity
20000PPs

VISION

1. CONCEPTUAL
 - Space Utilize
 - DOORS
2. METHODOLOGY
3. LOGISTICS DESIGN

BUSINESS REQUIREMENT

Space Utilize : Method



System	Truck	Length	Aisle	Goods	Utilize %
			a	b	
Selective Racking	Counter Balance	c	A	B	$B/(B+A/2)$
	Reach Truck	c	A	B	$b/(b+a/2)$
	VNA	c	A	B	

Space Utilize : Selective



System	Truck	Length	Aisle meter	Goods 1	Utilize %	Application
Selective Racking	Counter Balance	c	3.5	1.2	40.7%	Selective h<6.5
	Reach Truck	c	3.2	1.2	42.9%	Selective <10M
	VNA	c	1.6	1.2	60.0%	Selective >10M

Space utilize : Mobile



System	Truck	Length	Aisle meter	Goods 10	Utilize %	Application
Selective Mobile Racking	Counter Balance	c	3.5	12	87.3%	h<6.5M
	Reach Truck	c	3.2	12	88.2%	h>6M
	VNA	c	1.6			

Space Utilize : Flow Rack



System	Truck	Length	Aisle1	Goods	Aisle2	Utilize %
			a	b	a	
Flow Rack	Counter Balance	c	A	B	A	$B/(B+2A)$
	Reach Truck	c	A	B	A	$b/(b+2a)$
	VNA	c	A	B	A	

Space Utilize : Flow Rack CAL



	Truck	Length	Aisle1	Goods	Aisle2	Utilize %	Applications
			1	10	1		
Flow Rack	Counter Balance	c	3.5	12	3.5	63.16%	4Tiers FL lift-up
	Reach Truck	c	3.2	12	3.2	65.22%	6Tiers FL lift-up
	VNA	c	1.6	12	1.6	78.95%	6Tiers FL lift-up

Space Design : WH-Area

ALS

No.	Descriptions	Symbol	DATA	unit	Formula	Enquiry	unit
1	Pallet Space	A			=C/(Pa x T)/(Utilize)	13,803	sq-m
	Capacity	C	20,540	PPs			
	Tiers(level)	T	5	Tiers			
	High	H					m
2	ROAD			m			sq-m
	In-front	R1	6			812	sq-m
	Back-WH	R2	3.5			474	sq-m
	WH length	W(l)		m		135	m
	Racking deep	Rd	102	m		102	m
	WH Deep	Wd			R2+D+Rd+Sa	116.3	m
	STAGING	Sa	4.8	m		650	sq-m
3	WH-area				A+R1+R2+Sa	15,738	sq-m
4	Product						
	Wide	w		m			
	Length	l		m			
	High	h		m			
5	Pallet						
	Wide	Pw	1	m			
	Length	Pl	1.2	m			
	High	Ph	0.22	m			
	Area	Pa	1.44	sq-m			

Space Design : Sizing

ALS

No.	Bay.	Rd	Wd	W(I)	A	Span	Door(s)
1	12	72	86.30	192	16,544	16	32
2	13	78	92.30	177	16,333	15	30
3	14	84	98.30	164	16,153	14	27
4	15	90	104.30	153	15,996	13	26
5	16	96	110.30	144	15,859	12	24
6	17	102	116.30	135	15,738	11	23
7	18	108	122.30	128	15,630	11	21
8	19	114	128.30	121	15,534	10	20
9	20	120	134.30	115	15,448	10	19
10	25	150	164.30	92	15,119	8	15

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Number of Doors Method-1



No.	Description	Symbol	qty.	unit	Formula	Calculation	Unit	Result
1	Working Time							
1.1	Shift 1	S1	8	hrs				
1.2	Shift 2	S2	8	hrs				Not require
2	Capacity per Car (Shop/Car)	V1	2	Shop/Car				
3	Time of Loading (a car)	TL	0.75	hrs				
4	Window	W	8	hrs				
4.1	Service Shop	SS	2500	Shop				
4.2	n shop servicing per day	nS(d)	833	Shop				
5	Transportations require	T			nS(d)/V1	417	Car	
6	Total Loading Time	L(t)			T x TL	313	hrs	
7	Number of Doors							
7.1	1-Door Loading	n			W/TL	11	Times	
7.2	No of Doors	N			L(t)/n	29	Doors	

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Number of Doors Method-2



No.	Description	Symbol	qty.	unit	Formula	Calculation	Unit	Result
1	Working Time							
1.1	Shift 1	S1	8	hrs				
1.2	Shift 2	S2	8	hrs				Not require
2	Capacity per Car (Shop/Car)	V1	2	Shop/Car				
3	Time of Loading (a car)	TL	0.5	hrs				
4	Window	W	8	hrs				
4.1	Service Shop	SS	2500	Shop				
4.2	n shop servicing per day	nS(d)	833	Shop				
5	Transportations require	T			$nS(d)/V1$	417	Car	
6	Total Loading Time	L(t)			$T \times TL$	208	hrs	
7	Number of Doors							
7.1	1-Door Loading	n			W/TL	16	Times	
7.2	No of Doors	N			$L(t)/n$	13	Doors	