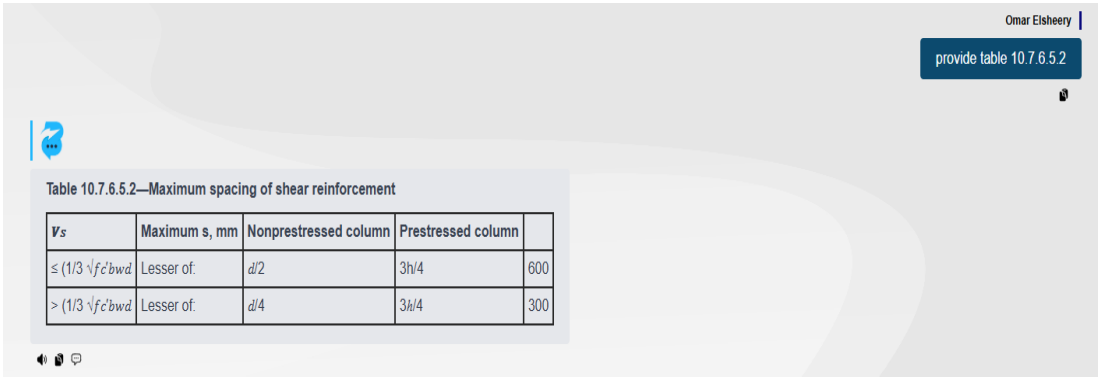
CPV ARABIA

2024

BYLD V2

Testing Errors

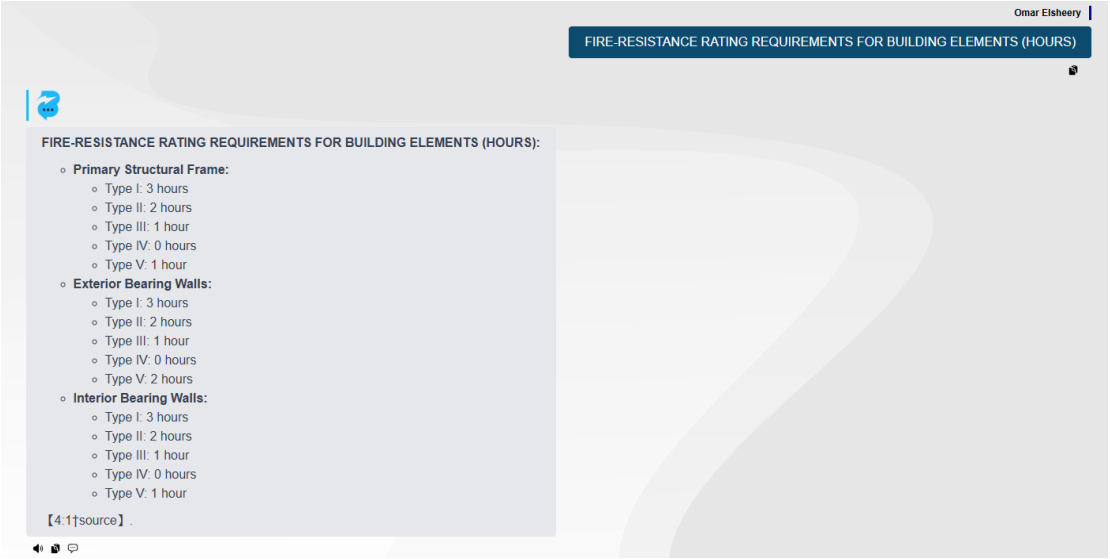
Questions answers errors

<table>
<tr><td colspan="2">BYLD Version</td><td>2</td><td>Error no.</td><td>1</td></tr>
<tr><td colspan="2">Issue Title</td><td colspan="3">merged cells</td></tr>
<tr><td colspan="2">Issue Description</td><td colspan="3">The tables which contain merged cells in SBC are read incorrectly by BYLD</td></tr>
<tr><td rowspan="2">Provided Answer from BYLD V2</td><td>Answer</td><td colspan="3"> 
</td></tr>
<tr><td>Reference</td><td colspan="3">SBC 304-CR-18 - COLUMNS, CHAPTER 10, Section 10.7.6.5.2 //</td></tr>
<tr><td rowspan="2">Right result</td><td colspan="4">Table 10.7.6.5.2—Maximum spacing of shear reinforcement
<table>
<tr><td rowspan="2">V_s</td><td colspan="2" rowspan="2"></td><td colspan="2">Maximum s, mm</td></tr>
<tr><td>Nonprestressed column</td><td>Prestressed column</td></tr>
<tr><td rowspan="2">$\leq (1/3\sqrt{f'_c}b_w d$</td><td rowspan="2">Lesser of:</td><td>$d/2$</td><td>$3h/4$</td></tr>
<tr><td colspan="2">600</td></tr>
<tr><td rowspan="2">$> (1/3\sqrt{f'_c}b_w d$</td><td rowspan="2">Lesser of:</td><td>$d/4$</td><td>$3h/4$</td></tr>
<tr><td colspan="2">300</td></tr>
</table></td></tr>
<tr><td colspan="4">Success but it requires organization.</td></tr>
</table>

BYLD Version	2	Error no.	2
Issue Title	merged cells – incomplete answer.		
Issue Description	The tables which contain merged cells in SBC are read incorrectly by BYLD and provided incomplete.		

Provided Answer from BYLD V2

Answer



Reference

SBC 201 - TYPES OF CONSTRUCTION, CHAPTER 6, Table 601 //

Right result

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPEIII		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary Structural frame[f] (see Section 202)	3[a]	2[a]	1	0	1	0	HT	1	0
Bearing walls									
Exterior[f, e]	3	2	1	0	2	2	2	1	0
Interior	3[a]	2[a]	1	0	1	0	1/HT	1	0
Non-bearing walls and partitions Exterior	See Table 602								
Non-bearing walls and partitions Interior[d]	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Floor construction and associated secondary members (see Section 202)	$1\frac{1}{2}$[b]	1[b, c]	1[b, c]	0[c]	1[b, c]	0	HT	1[b, c]	0

Failed.

BYLD Version	2	Error no.	3
Issue Title	merged cells – incomplete answer.		
Issue Description	The tables which contain merged cells in SBC are read incorrectly by BYLD and provided incomplete.		

Provided Answer from BYLD V2

Answer

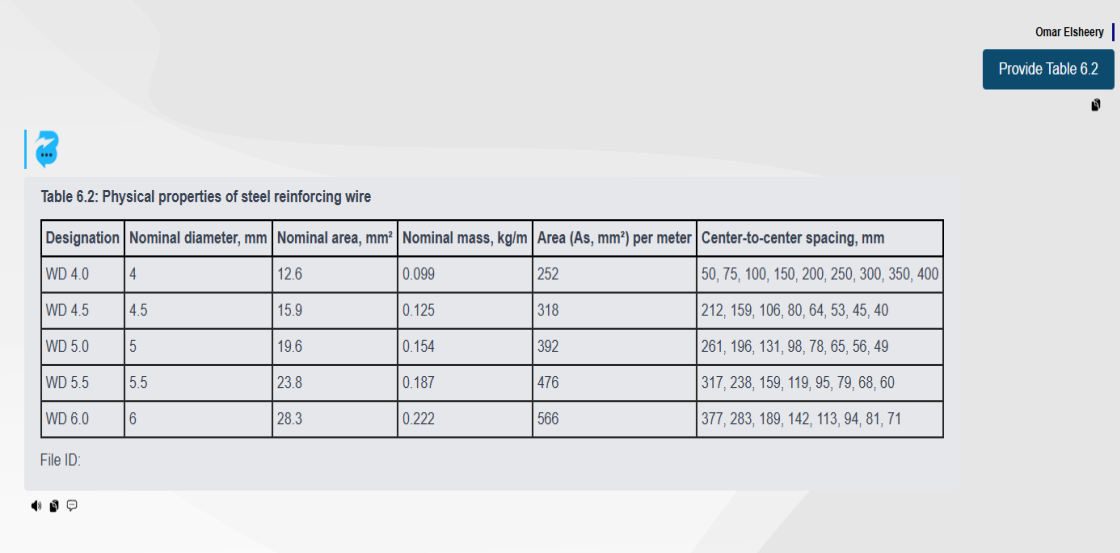


Table 6.2: Physical properties of steel reinforcing wire

Designation	Nominal diameter, mm	Nominal area, mm²	Nominal mass, kg/m	Area (As, mm²) per meter	Center-to-center spacing, mm
WD 4.0	4	12.6	0.099	252	50, 75, 100, 150, 200, 250, 300, 350, 400
WD 4.5	4.5	15.9	0.125	318	212, 159, 106, 80, 64, 53, 45, 40
WD 5.0	5	19.6	0.154	392	261, 196, 131, 98, 78, 65, 56, 49
WD 5.5	5.5	23.8	0.187	476	317, 238, 159, 119, 95, 79, 68, 60
WD 6.0	6	28.3	0.222	566	377, 283, 189, 142, 113, 94, 81, 71

File ID:

Reference

SBC 305 - BUILDING CODE for MASONRY STRUCTURES, CHAPTER 6, Table 6.2 //

Right result

Table 6.2: Physical properties of steel reinforcing wire

Designation	Nominal diameter, mm	Nominal area, mm²	Nominal mass, kg/m	Area (As, mm²) per meter Center-to-center spacing, mm								
				50	75	100	150	200	250	300	350	400
WD 4.0	4	12.6	0.099	252	168	126	84	63	50	42	36	32
WD 4.5	4.5	15.9	0.125	318	212	159	106	80	64	53	45	40
WD 5.0	5	19.6	0.154	392	261	196	131	98	78	65	56	49
WD 5.5	5.5	23.8	0.187	476	317	238	159	119	95	79	68	60
WD 6.0	6	28.3	0.222	566	377	283	189	142	113	94	81	71
WD 6.5	6.5	33.2	0.26	664	443	332	221	166	133	111	95	83
WD 7.0	7	38.5	0.302	770	513	385	257	193	154	128	110	96
WD 7.5	7.5	44.2	0.347	884	589	442	295	221	177	147	126	111
WD 8.0	8	50.3		1006	671	503	335	252	201	168	144	126
WD 8.5	8.5	56.7	0.445	1134	756	567	378	284	227	189	162	142
WD 9.0	9	63.6	0.499	1272	848	636	424	318	254	212	182	159
WD 9.5	9.5	70.9	0.556	1418	945	709	473	355	284	236	203	177
WD 10.0	10	78.5	0.617	1570	1047	785	523	393	314	262	224	196
WD 10.5	10.5	86.6	0.68	1732	1155	866	577	433	346	289	247	217
WD 11.0	11	95	0.746	1900	1267	950	633	475	380	317	271	238
WD 11.5	11.5	103.9	0.815	2078	1385	1039	693	520	416	346	297	260
WD 12.0	12	113.1	0.888	2262	1508	1131	754	566	452	377	323	283

Failed.

BYLD Version	2	Error no.	4
Issue Title	merged cells – incomplete answer.		
Issue Description	The tables which contain merged cells in SBC are read incorrectly by BYLD and provided incomplete.		

Provided Answer from BYLD V2

Answer

Omar Elsheery

Provide TABLE 608.1

Here is TABLE 608.1 from the Saudi Building Code:

REQUIREMENT	NONRECOMBINANT BATTERIES	RECOMBINANT BATTERIES	OTHER BATTERIES
Vented (Flooded) Lead Acid Batteries	Safety caps: Venting caps (608.2.1)	Safety caps: Self-resealing flame-arresting caps (608.2.2)	No caps
Thermal runaway management	Not required	Required (608.3)	Not required
Spill control	Required (608.5)	Not required	Not required
Neutralization	Required (608.5.1)	Required (608.5.2)	Not required
Ventilation	Required (608.6.1; 608.6.2)	Not required	Not required
Signage	Required (608.7)	Required (608.7)	Required (608.7)
Seismic protection	Required (608.8)	Required (608.8)	Required (608.8)
Smoke detection	Required (608.9)	Required (608.9)	Required (608.9)

The information is sourced from the file with ID [file-NeMFkVmmvs6N8PLbW4KDcR].

Reference

SBC 801 - BUILDING SERVICES AND SYSTEMS, CHAPTER 6, TABLE 608.1 //

Right result

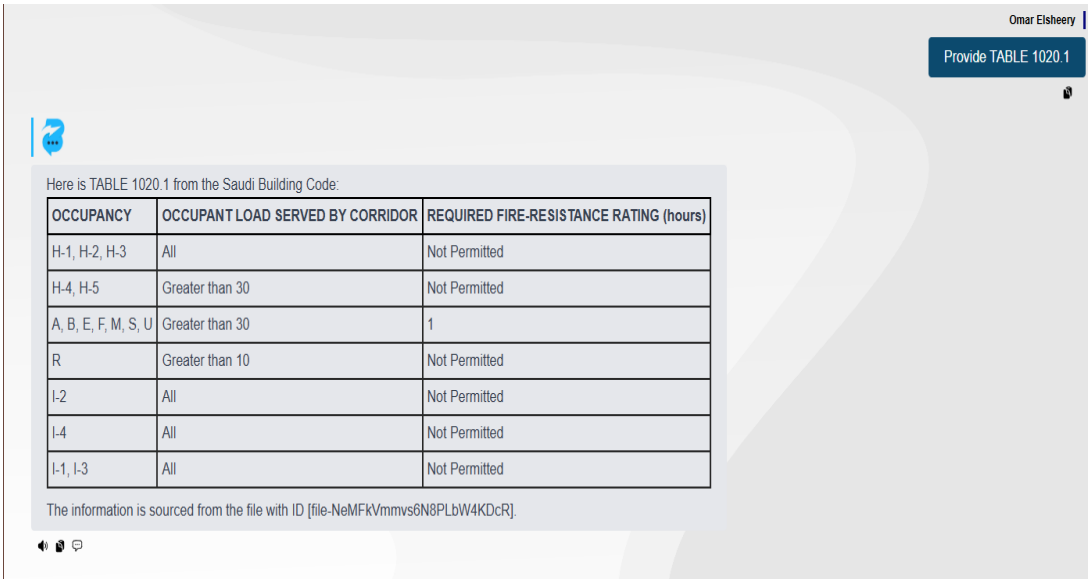
TABLE 608.1
BATTERY REQUIREMENTS

REQUIREMENT	NONRECOMBINANT BATTERIES		RECOMBINANT BATTERIES		OTHER BATTERIES
	Vented (Flooded) Lead Acid Batteries	Vented (Flooded) Nickel-Cadmium (Ni-Cd) Batteries	Valve Regulated LeadAcid (VRLA) Cells	Lithium-Ion Cells	Lithium Metal Cells
Safety caps	Venting caps (608.2.1)	Venting caps (608.2.1)	Self-reseal ing flamearresting caps (608.2.2)	No caps	No caps
Thermal runaway management	Not required	Not required	Required (608.3)	Not required	Required (608.3)
Spill control	Required (608.5)	Required (608.5)	Not required	Not required	Not required
Neutralization	Required (608.5.1)	Required (608.5.1)	Required (608.5.2)	Not required	Not required
Ventilation	Required (608.6.1; 608.6.2)	Required (608.6.1; 608.6.2)	Required (608.6.1; 608.6.2)	Not required	Not required
Signage	Required (608.7)	Required (608.7)	Required (608.7)	Required (608.7)	Required (608.7)
Seismic protection	Required (608.8)	Required (608.8)	Required (608.8)	Required (608.8)	Required (608.8)
Smoke detection	Required (608.9)	Required (608.9)	Required (608.9)	Required (608.9)	Required (608.9)

BYLD Version	2	Error no.	5
Issue Title	merged cells – incomplete answer.		
Issue Description	The tables which contain merged cells in SBC are read incorrectly by BYLD and provided incomplete.		

Provided Answer from BYLD V2

Answer



OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)
H-1, H-2, H-3	All	Not Permitted
H-4, H-5	Greater than 30	Not Permitted
A, B, E, F, M, S, U	Greater than 30	1
R	Greater than 10	Not Permitted
I-2	All	Not Permitted
I-4	All	Not Permitted
I-1, I-3	All	Not Permitted

Reference

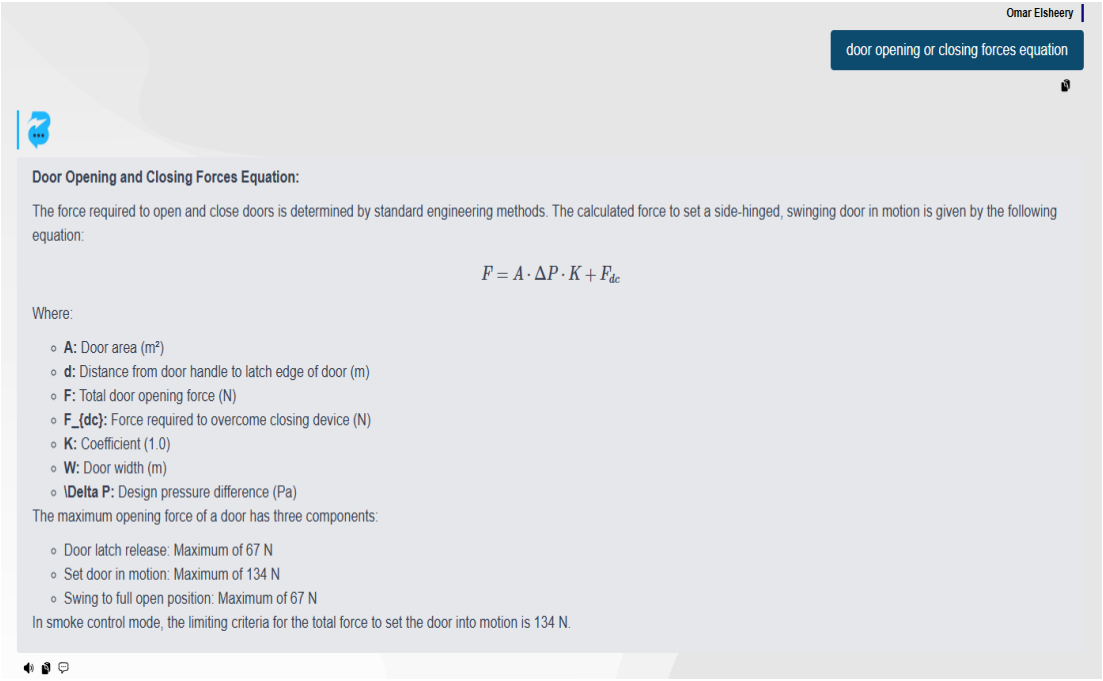
SBC 801 - MEANS OF EGRESS, CHAPTER 10, TABLE 1020.1 //

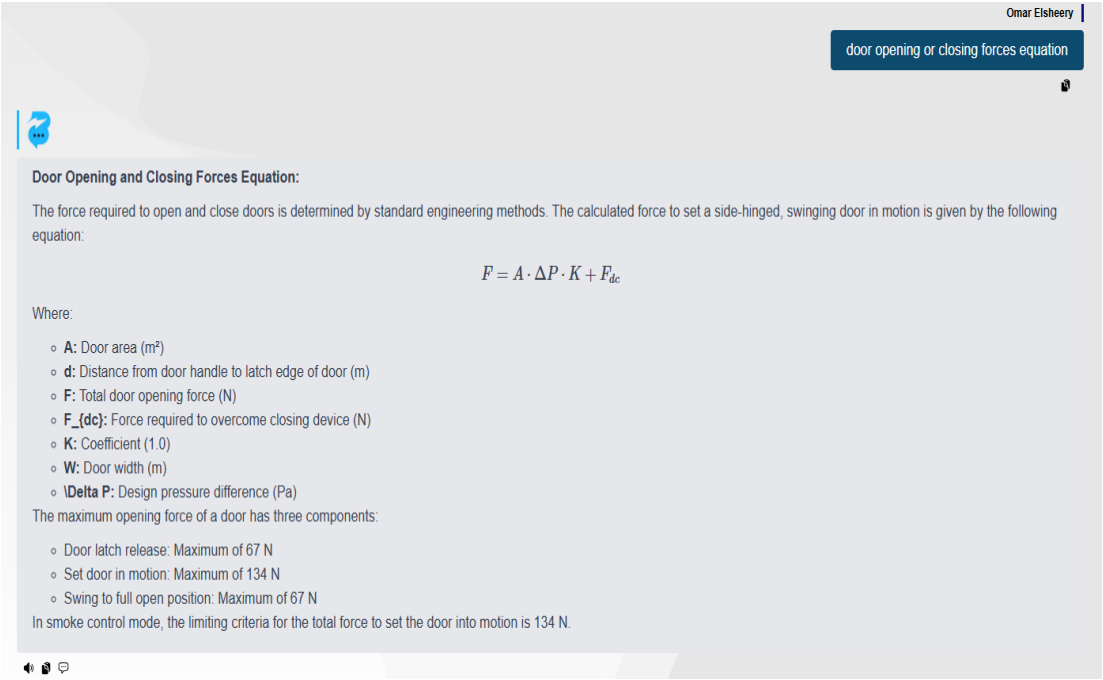
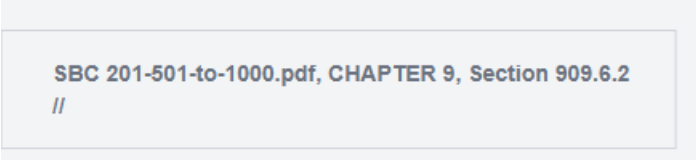
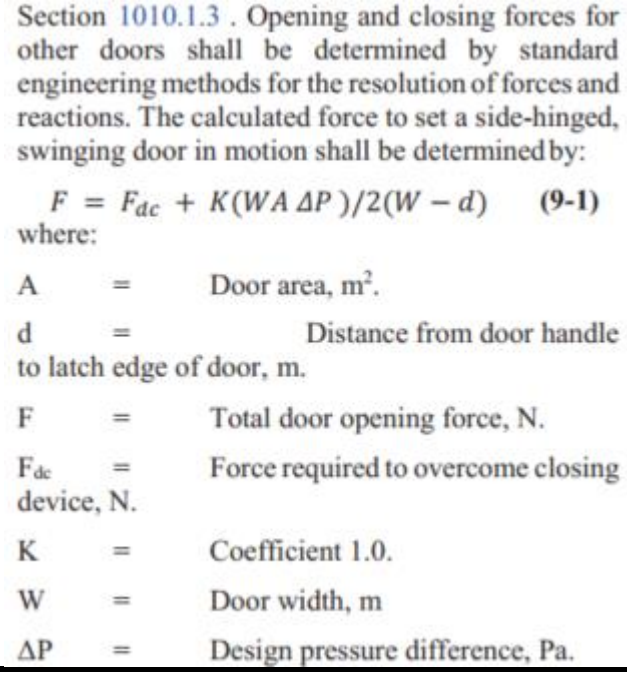
Right result

TABLE 1020.1
CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system[c]
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5	Greater than 30	Not Permitted	1
A, B, E, F, M, S, U	Greater than 30	1	0
R	Greater than 10	Not Permitted	0.5
I-2[a], I-4	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1[b]

Failed.

BYLD Version	2	Error no.	6
Issue Title	Equations and symbols.		
Issue Description	The Equation and symbols are missing in V2 answer.		
Provided Answer from BYLD V2 — Answer			
Reference	SBC 201-501-to-1000.pdf, CHAPTER 9, Section 909.6.2 //		
Right result	Section 1010.1.3 . Opening and closing forces for other doors shall be determined by standard engineering methods for the resolution of forces and reactions. The calculated force to set a side-hinged, swinging door in motion shall be determined by: $F = F_{dc} + K(WA\,\Delta P)/2(W-d)$ **(9-1)** where: A = Door area, m^2. d = Distance from door handle to latch edge of door, m. F = Total door opening force, N. F_{dc} = Force required to overcome closing device, N. K = Coefficient 1.0. W = Door width, m ΔP = Design pressure difference, Pa.		

BYLD Version	2	Error no.	7
Issue Title	Equations and symbols.		
Issue Description	The Equation and symbols are missing in V2 answer.		
Provided Answer from BYLD V2 — Answer			
Reference			
Right result			

Section 1010.1.3 . Opening and closing forces for other doors shall be determined by standard engineering methods for the resolution of forces and reactions. The calculated force to set a side-hinged, swinging door in motion shall be determined by:

$$F = F_{dc} + K(WA\,\Delta P)/2(W - d) \qquad \textbf{(9-1)}$$

where:

A = Door area, m^2.

d = Distance from door handle to latch edge of door, m.

F = Total door opening force, N.

F_{dc} = Force required to overcome closing device, N.

K = Coefficient 1.0.

W = Door width, m

ΔP = Design pressure difference, Pa.