

DETENTION GLAZING PROTECTION LEVELS

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H.P. White TP-0500.02 Forced Entry Test Procedure

PHASE II-FORCED ENTRY	LEVEL I	LEVEL II	LEVEL III	LEVEL IV	LEVEL V
Blunt Impacting (Impacts)					
Sledgehammer / Wedge (25)	1,4	8,10	18,24,26	29,32,39	42,45,48,51,54
4" diameter Pipe / Sledge (25)	2	7	17	28	41
Ram (1)	N/A	6	16	27	40
Pinch Bar (a)					
Sharp Tool (Impacts)					
Chisel / Hammer (25)	N/A	12	21,23	33,36,38	47,52
Angle Iron / Sledge (25)	N/A	13	22	N/A	N/A
1 1/2" Diameter Pipe / Sledge (25)	5	N/A	N/A	N/A	N/A
Fire Axe (25)	N/A	N/A	N/A	35	44,50
Wood Maul (25)	N/A	15	20	31	46,53
Keyhole Saw (b)					
Hacksaw (b)					
Thermal Stress (Minutes)					
Extinguisher, CO2 (1)	3	9	N/A	N/A	N/A
Propane Torch	N/A	11	19	30	N/A
Acetylene (5)	N/A	N/A	N/A	N/A	43
Chemical Deterioration (Amount)					
Gasoline (1/2 Pint)	N/A	14	N/A	N/A	N/A
Windshield Washer (1/2 pint)	N/A	N/A	25	34	N/A
Acetone (1/2 Pint)	N/A	N/A	N/A	37	49
Total Forced Entry Sequences					
	5	15	26	39	54

- Pinch or ripping bars may be substituted for any portion of Blunt Impacting Sequences at rate of 1 minute for each of 5 impacts (Test Director option).*
- Additional sequences of one minute intervals in conjunction with all Sharp Tool Sequences except sequences 5 and 15 (see Paragraph 5.6-5.7 Section III).*

WMFL Test Procedure (Ballistic/Physical/Flame Attack)

ATTACK SEQUENCE SUMMARY	LEVEL I BALLISTIC & 60 MINUTES PHYSICAL ATTACK	LEVEL II 60 MINUTES PHYSICAL ATTACK	LEVEL III 30 MINUTES PHYSICAL ATTACK
.44 Magnum, 240 Grain	25 Rounds	N/A	N/A
2lb. Claw Hammer	5 minutes	5 minutes	5 minutes
10 lb. Sledgehammer	5 minutes	5 minutes	5 minutes
Cold Chisel / Screwdriver	5 minutes	5 minutes	5 minutes
1 1/2" x 3" Pipe with 2"x2"x3" Angle Iron	5 minutes	5 minutes	N/A
#8 Reinforcing Bar, 3" Long	5 minutes	5 minutes	N/A
4"x4"x3" Long (oak) Leg	5 minutes	5 minutes	N/A
Fire Extinguisher (chemical dry)	5 minutes	5 minutes	5 minutes
10 lb. Sledgehammer	5 minutes	5 minutes	N/A
Clothes Hanger/Knife, Heated 10" Blade 1/4" Thick	5 minutes	5 minutes	N/A
Propane Burner (2200 degrees F)	5 minutes	5 minutes	5 minutes
4 lb. Hammer	5 minutes	5 minutes	5 minutes
3"x3"Pipe with 1"x1"x3" Angle Iron	5 minutes	5 minutes	N/A

ASTM F 1915-03 Standard Test Methods for Glazing for Detention Facilities

SECURITY GRADE	TIME RATING	SEQUENCE 1 BLUNT IMPACTOR	SEQUENCE 2 SHARP IMPACTOR	SEQUENCE 3 BLUNT IMPACTOR	TOTAL NUMBER OF IMPACTS
1	60 minutes	150	300	150	600
2	40 minutes	100	200	100	400
3	20 minutes	50	100	50	200
4	10 minutes	25	50	25	100

BULLET RESISTANT GLAZING PROTECTION LEVELS

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Underwriters Laboratories Inc. (UL) 752 Ratings of Bullet Resistant Materials

THREAT LEVEL RATING	AMMUNITION	GRAIN	(G)	VELOCITY		NUMBER OF SHOTS
				MIN FPS	MPS	
Level 1	9mm Full Metal Copper Jacket with Lead Core	124	8.0	1175 1293	358	3
Level 2	.357 Magnum Jacket Lead Soft Point	158	0.2	1250 1375	381	3
Level 3	.44 Magnum Lead Semi-Wadcutter Gas Checked	240	5.6	1350 1485	411	3
Level 4	.30 Caliber Rifle Lead Core Soft Point	180	1.7	2540 2794	774	1
Level 5	7.62mm Rifle Lead Core Full Metal Copper Jacket, Military Ball	150	9.7	2750 3025	838	1
Level 6	9mm Full Metal Copper Jacket with Lead Core	124	8.0	1400 1540	427	5
Level 7	5.56mm Rifle Full Metal Copper Jacket with Lead Core	55	3.56	3038 3388	939	5
Level 8	7.62mm Rifle Lead Core Full Metal Copper Jacket, Military Ball	150	9.7	2750 3025	838	5
Supplementary Shotgun	12-Gauge Rifle Lead Slug and 12-Gauge 00 Lead Buckshot (12 pellets)	437	28.7	1585 1744	483	3
		650	42	1200	366	3
				1320		

National Institute of Justice (NIJ) 0108.01 Ratings of Bullet Resistant Materials

THREAT LEVEL RATING	AMMUNITION	GRAINS	(G)	VELOCITY (MIN)	RANGE (MAX)	NUMBER OF SHOTS	SUGGESTED BARREL LENGTH
Level I	.22 Long Rifle High Velocity Lead	40	2.5	320+/- 12m/s	1050+/-40 ft/s	5	15 to 16.5cm 6 to 6.5 in.
Level I	.38 Special Round Nose Lead	158	10.2	259+/- 15m/s	850+/-50 ft/s	5	15 to 16.5cm 6 to 6.5 in.
Level IIA	.357 Magnum Jacketed Soft Point	158	10.2	381+/- 15m/s	1250+/-50 ft/s	5	10 to 12cm 4 to 4.75 in.
Level IIA	9mm Full Metal Jacket	124	8.0	332+/- 12m/s	1090+/-40 ft/s	5	10 to 12cm 4 to 4.75 in.
Level II	.357 Magnum Jacketed Soft Point	158	10.2	425+/- 15m/s	1395+/-50 ft/s	5	15 to 16.5cm 6 to 6.5 in.
Level II	.9mm Full Metal Jacket	124	8.0	358+/- 12m/s	1175+/-40 ft/s	5	10 to 12cm 4 to 4.75 in.
Level IIIA	.44 Magnum Lead Semi-Wadcutter Gas Checked	240	15.55	426+/- 15m/s	1400+/-50 ft/s	5	14 to 16 cm 5.5 to 6.25 in.
Level IIIA	9mm Full Metal Jacket	124	8.0	426+/- 15m/s	1400+/-50 ft/s	5	24 to 26 cm 9.5 to 10.25in.
Level III	7.62mm (.308Winchester) Full Metal Jacket	150	9.7	838+/- 15m/s	2750+/-50 ft/s	5	56 cm 26 in.
Level IV	.30-06 Armor Piercing	166	10.8	868+/- 15m/s	2850+/-50 ft/s	1	56 cm 22 in.