

Summary of Federal Explosives Storage Requirements

Types of Storage Facilities

STORAGE TYPE	CLASSES OF EXPLOSIVE MATERIALS WHICH MAY BE STORED THEREIN
Type 1 (permanent)	High Explosives Low Explosives Blasting Agents
Type 2 (portable)	High Explosives Low Explosives Blasting Agents
Type 3 ("day box" for temporary storage)	High Explosives Low Explosives Blasting Agents
Type 4	Low Explosives Blasting Agents *Electric Blasting Caps
Type 5	Blasting Agents

* As a result of tests with electric blasting caps, it has been determined that these blasting caps are not subject to sympathetic detonation. Therefore, a Type 4 storage facility meets the necessary requirements for storage of blasting caps that do not mass detonate.

Housekeeping and Construction Common to All Types of Storage Facilities

ITEM	REQUIREMENTS
Hinges and Hasps	<ul style="list-style-type: none"> Shall be attached to doors by Welding OR Riveting OR Bolt ing (nuts on inside of door).
Locks	<ul style="list-style-type: none"> Each door shall be equipped with: Two mortise locks, OR two padlocks fastened in separate hasps and staples, OR a combination of a mortise lock and a padlock, OR a mortise lock requiring 2 keys to open OR a three-point lock.

ITEM	REQUIREMENTS
Locks (cont'd.)	Locks shall be five-tumbler or five-blade. Padlocks shall be protected with 1/4 inch (.25") steel caps constructed to prevent sawing or lever action on locks/hasps. NOTE: Outdoor/mobile storage facilities with one steel, case-hardened, five-tumbler padlock, having at least a 3/8 inch (.375") diameter shackle, have been determined by the Director to meet necessary requirements.
Lighting	Electric lighting used in any magazine must meet National Electrical Code standards for conditions present. All electric switches must be located outside the magazine and comply with the National Electrical Code. Battery activated safety lighting may be used in all explosives magazines.
House-keeping	<ul style="list-style-type: none"> Storage facilities shall be kept clean, dry, and free of grit, paper, empty packages and containers, and rubbish. Explosive materials shall not be placed directly against interior walls of a storage facility. Brooms and other cleaning utensils shall have no spark-producing metal parts. Only tools made of nonsparking materials shall be used in Types 1,2,3, and 4 magazines. (Metal slitters may be used for opening fiberboard containers. Metal tools other than nonsparking transfer conveyors shall not be stored in any magazine containing explosives.) Area surrounding storage facilities shall be kept clear of rubbish, brush, dry grass or trees less than 10' tall for not less than 25' in all directions. Any other combustible materials shall be kept a distance of not less than 50' from outdoor storage.

Type 1 Storage

A type 1 storage facility shall be a permanent structure: a building, an igloo or Army-type structure, a tunnel, or a dugout; and shall be bullet-resistant, weather-resistant, theft-resistant, and well ventilated.

ITEM	REQUIREMENTS
Masonry Wall	<p>Shall be constructed of:</p> <ul style="list-style-type: none"> • Brick, not less than 6" thick OR • Concrete, not less than 6" thick, OR • Tile, not less than 6" thick, OR • *Cement block, not less than 6" thick, OR • *Cinder block, not less than 6" thick. <p>[*Hollow masonry units shall have all hollow spaces filled with well-tamped coarse dry sand or weak concrete.]</p>
Metal Wall	<p>Sectional sheets of one of the following shall be securely fastened to a metal framework:</p> <ul style="list-style-type: none"> • Steel not less than 14 gauge, OR • Aluminum, not less than 14 ga. <p>Shall be lined with:</p> <ul style="list-style-type: none"> • Brick OR • Solid cement blocks OR • Hardwood not less than 4" thick, OR • Shall have at least 6" sand fill between outer and inner walls.
Wood Wall	<p>Exterior shall be covered with either:</p> <ul style="list-style-type: none"> • Steel not less than 26 gauge, OR • Aluminum, not less than 26 ga. <p>Inner wall shall be constructed to provide not less than 6" between outer and inner walls; space filled with either:</p> <ul style="list-style-type: none"> • Coarse dry sand, OR • Weak concrete.
Foundations	<p>Shall be constructed of:</p> <ul style="list-style-type: none"> • Brick, OR • Concrete, OR • Cement block, OR • Stone, OR • Wood posts <p>(If piers or posts are used, space under building shall be enclosed with metal).</p>
Floors	<p>Shall be constructed of nonsparking material and shall be strong enough to bear weight of maximum quantity to be stored.</p>
Roof	<p>Outer roof (except fabricated metal roofs) shall be covered with:</p> <ul style="list-style-type: none"> • 26 gauge iron, fastened to seven-eighths inch (.875") sheathing, OR

ITEM	REQUIREMENTS
Roof (cont'd.)	<ul style="list-style-type: none"> • 26 gauge aluminum, fastened to seven-eighths (.875") sheathing. Where possible for a bullet to be fired directly through the roof into the storage facility, the magazine shall be protected by either: • A sand tray, filled with not less than 4" of coarse dry sand, covering the entire ceiling area (except that necessary for ventilation), OR • Fabricated metal roof construction of 3/16" (.1875") plate steel lined with 4" hardwood. [For each additional 1/16" (.0625") of plate steel, hardwood may be decreased 1"]
Doors	<p>Shall be constructed of 1/4" steel, AND shall be lined with 2" of hardwood.</p>
Hinges, Hasps, and Locks	<p>See construction requirements common to all types of facilities.</p>
Interior	<ul style="list-style-type: none"> • Shall be constructed of, or covered with, a nonsparking material. • No sparking metal construction shall be exposed below top of walls in interior. • All nails shall be blind-nailed or countersunk.
Ventilation	<ul style="list-style-type: none"> • Air space of 2" shall be left around ceiling and perimeter of floors, except at doorways. • Foundation ventilators shall be not less than 4" x 6". • Vents in foundation, roof or gables shall be screened and offset, OR shielded.
Ground	<p>Ground around storage facility shall slope away for drainage.</p>
Igloos, Army-Type Structures, Tunnels and Dugouts	<ul style="list-style-type: none"> • Shall be constructed of reinforced concrete, masonry, metal, or a combination of these materials. • Shall have an earthmound covering of not less than 24" on the top, sides and rear. • Interior walls and floors shall be covered with a nonsparking material. • Floor, door, lock, ventilation, exposed metal, and lighting requirements are as stated above.
Lighting	<p>See construction requirements common to all types of facilities.</p>
House-keeping	<p>See construction requirements common to all types of facilities.</p>

Type 2 Storage

A type 2 storage facility shall be a box, a trailer, a semitrailer, or other mobile facility. It shall be bullet-resistant, fire-resistant, weather-resistant, theft-resistant, and well ventilated.

ITEM	REQUIREMENTS
Hinges, Hasps, and Locks	See construction requirements common to all types of facilities.
Lighting	See construction requirements common to all types of facilities.
House-keeping	See construction requirements common to all types of facilities.

Restrictions on Type 2 Outdoor Storage Facilities

Size	Shall be at least 1 cubic yard in size, or securely fastened to a fixed object.
Ground	<ul style="list-style-type: none"> Outdoor storage facilities shall be supported in such a manner so as to prevent direct contact with the ground. Ground around storage facility shall slope away for drainage.
Construction	Sides, bottoms, tops, and covers or doors shall be constructed of .25" steel and lined with 2" of hardwood.
Unattended Storage	Unattended vehicular storage facilities shall have wheels removed or shall be immobilized by kingpin locking devices.

Restrictions on Type 2 Indoor Storage Facilities

Location	<ul style="list-style-type: none"> No indoor storage facility for storage of high explosives shall be located in a residence or dwelling. More than one magazine may be located in same building. No more than a total of 50 lbs. may be stored. Detonators must be stored in a separate magazine.
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ITEM	REQUIREMENTS
Quantity Restrictions	No indoor storage facility shall contain a quantity of high explosives in excess of 50 pounds or more than 5,000 blasting caps.
Construction	<p>Shall be of either:</p> <ul style="list-style-type: none"> WOOD (Shall have sides, bottoms, and covers or doors constructed of 2" hardwood and shall be well braced at corners. They shall be covered with sheet metal [not less than 26 gauge] and exposed nails shall be countersunk). METAL (Shall have sides, bottoms, and covers or doors constructed of 12-gauge metal and shall be lined inside with a nonsparking material. Edges of metal shall overlap sides at least 1").
Detonator Boxes	
Storage facilities for detonators in quantities of 100 or less shall have sides, bottoms, and covers constructed of 12-gauge metal, with hinges and hasps attached by welding. One five-tumbler lock shall be sufficient for locking purposes.	

Type 3 Storage

A type 3 magazine is a "day-box" or other portable magazine. It must be fire-resistant, weather-resistant, and theft-resistant, but may be less than one cubic yard in size.

ITEM	REQUIREMENTS
Construction	Not less than 12-gauge (.1046 inch) steel, lined with 1/2" plywood or 1/2" hardboard. Door or lid must overlap door opening by at least one inch.
Hinges, Hasps, and Locks	One lock, no hood. Hinges and hasps to be attached in same manner required for other storage facilities.
Unattended Storage	Not allowed. Explosive materials must be removed to type 1 or 2 magazine.
Lighting	See common requirements.
House-keeping	See common requirements.

Type 4 Storage

A type 4 storage facility may be a building, an igloo or Army-type structure, a tunnel, a dugout, a box, a trailer, or a semi-trailer, or other mobile facility. It shall be fire-resistant, weather-resistant, and theft-resistant.

ITEM	REQUIREMENTS
Construction	Shall be of: <ul style="list-style-type: none"> • Masonry, OR • Metal-covered wood, OR • Fabricated metal, OR • Combinations of these materials.
Doors or Covers	Shall be constructed of: <ul style="list-style-type: none"> • Metal, OR • Solid wood covered with metal.
Foundations	Shall be constructed of: <ul style="list-style-type: none"> • Brick, OR • Cement block, OR • Concrete, OR • Stone, OR • Wood posts. (If piers or posts are used, space under buildings shall be enclosed with metal.)
Interior	<ul style="list-style-type: none"> • Shall be lined with nonsparking material. • No sparking metal construction shall be exposed below top of walls in interior. • All nails shall be blind-nailed or counter-sunk.
Hinges, Hasps, and Locks	See common requirements.
Lighting	See common requirements.
House-keeping	See common requirements.

Restrictions on Type 4 Outdoor Storage Facilities

Ground	Ground around storage facility shall slope away for drainage.
Unattended Storage	Unattended vehicular storage facilities shall have wheels removed or shall be immobilized by kingpin locking devices.

Restrictions on Type 4 Indoor Storage Facilities

Location	No indoor storage facility for storage of low explosives shall be located in a residence or dwelling.
Quantity Restrictions	No indoor storage facility shall contain a quantity of low explosives in excess of 50 pounds.

Type 5 Storage

A type 5 storage facility may be a building, an igloo or Army-type structure, a dugout, a bin, a box, a trailer, or a semi-trailer, or other mobile facility; and shall be weather-resistant and theft-resistant.

ITEM	REQUIREMENTS
Doors or Covers	Shall be constructed of either solid wood OR metal.
Hinges, Hasps, and Locks	One lock per door or cover. No hoods required on mobile units.
House-keeping	See common requirements.

Restrictions on Type 5 Outdoor Storage Facilities

Ground	Ground around storage facility shall slope away for drainage.
Unattended Storage	Unattended vehicular storage facilities shall have wheels removed or shall be immobilized by kingpin locking devices.

Restrictions on Type 5 Indoor Storage Facilities

Location	No indoor storage facility for storage of blasting agents shall be located in a residence or dwelling.
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