AA-V-2737
April 25, 1990

FEDERAL SPECIFICATION

MODULAR VAULT SYSTEMS

This Federal specification is approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification sets forth the general requirements of a modular vault system and is intended to comply with the minimum standards for security equipment as required in the Information Security Oversight Office, Directive No. 1, National Security Information. A vault as covered by this specification is a six sided structure providing a minimum of 15 minutes of protection against a multilevel tool attack. The system includes modular panels, attachment and connecting devices necessary for assembly of a vault. The specification defines the procedures to be used to determine the resistance of the vault to a limited force entry.

2. APPLICABLE DOCUMENTS

2.1 Government publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issue in effect on the date of invitation for bids or request for proposal, shall apply.

Federal Specifications:

AA-D-2757 - Door, Vault, Security
QQ-C-320 - Chromium Plating (Electrodeposited).
QQ-P-416 - Plating, Cadmium
TT-C-490 - Cleaning Methods and Pretreatment of Ferrous Surfaces for Organic Coatings.

Federal Standards:

Fed. Std. No. 123 - Making for Domestic Shipment (Civilian Agencies).

(Activities outside the Federal Government may obtain copies of Federal specifications, standards and handbooks as outlined under general information in the Index of Federal Specifications, Standards and Commercial Item Descriptions and at the prices indicated in the index. The Index, which includes cumulative monthly supplements as issues, is for sale on a subscription

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(Federal Government activities may obtain Federal specifications, standards and handbooks and the Index of Federal Specifications, Standards and Commercial Item Descriptions established distribution points in their agencies.)

Military Standards:

MIL-STD-129 - Marking for Shipment and Storage.

(Copies of Military Specification and Standards required by contractors in specification procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on the date of invitation for bids or request for proposal, shall apply.

American Society for Testing and Materials (ASTM)

B-633 - Standard Specification for Electrodeposited coatings of Zinc on Iron and Steel.

(Application for copies should be addressed to the American Society for Testing and Materials, 1616 Race Street, Philadelphia, PA 19103.)

Underwriters' Laboratories, Inc. (UL) Publications:

UL 608 - Burglary Resistant Vault Doors and Modular Panels
UL 680 - Emergency Vault Ventilators and Vault-Ventilating Ports

(Application for copies should be addressed to Underwriters' Laboratories, 333 Pfingsten Rd., Northbrook, IL 60062.)

3. REQUIREMENTS

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3.1 Qualification. The modular vault systems furnished under this specification shall be products which have been tested and have passed the qualification tests and inspections specified in section 4, and have been listed on or approved for listing on the applicable qualified products list (QPL).

3.1.1 Qualification suspension.

3.1.1.1 Development of entry techniques. The vault systems qualified under this specification will be continually tested by the Government during the term of qualification to determine whether the forced entry protection afforded by the vaults should or can be improved. If, at any time, entry techniques are developed within the framework of the specification which affect a vault system's security integrity, it shall be removed from the QPL.

3.1.1.2 Change in specification requirements. This specification will be reviewed by the Government to determine whether specification requirements should or can be changed to improve product quality. If, at any time, requirements are changed, and such changes affect the qualification status of a qualified vault system, it shall be removed from the QPL and the manufacturer will be required to modify the product to the extent necessary to comply with specification changes and have the product tested for qualification.

3.1.2 Government testing. The Government reserves the right to test the modular vault system using techniques that are privileged to the Government. UL testing shall not constitute final approval.

3.2 Materials. Materials used in the vault system's construction shall be as specified herein. Material not specified shall be of good commercial quality, suitable in all respects for the purpose intended. Commercial materials used in fabricating forced entry barriers will conform to the configuration and performance standards established for that material by the appropriate industrial specification for the material e.g., American Society of Testing Material, American Iron and Steel Institute, Society of Automotive Engineers, etc. of manufacturer's assembly specifications. Dissimilar metals shall not be used in the construction of modular vaults.

3.2.1 Steel. Steel used in the vault system shall be of the type, thickness and strength to meet all applicable requirements of this specification. Steel shall be free from rust, scale, pits, buckles and other imperfections which might adversely affect the appearance or the serviceability of the finished product.

3.2.2 Finishing materials.

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3.2.2.1 Chromium plating. Chromium plating shall be in accordance with class I, type II of QQ-C-320.

3.2.2.2 Cadmium Plating. Cadmium plating shall be in accordance with class I of QQ-P-416.

3.2.2.3 Zinc coating. Zinc coating shall be in accordance with ASTM B-633.

3.3 Design and construction.

3.3.1 Underwriters Laboratory Approval. The modular vault system shall meet the Class M requirements of Underwriter's Laboratories Standard 608 for burglary resistant vault doors and modular panels. The UL test report or label, or test reports from a nationally recognized testing laboratory shall be submitted to GSA and will be accepted as evidence of compliance with the UL Standard.

3.3.2 Design. The vault system shall allow mounting a General Services Administration approved vault door, in accordance with Federal specification AA-D-2757. The single leaf door opening shall be 48 inches wide by 82 inches high by 6 inches thick and shall provide for a minimum engagement of the door frame of 6 inches. The double leaf door opening shall be the same as the single leaf door opening except that the width shall be 88 inches.

3.3.3 Assembly. Modular vault panels shall be assembled using a bolt system. Panels shall employ an interlocking design where joined together. The panel joints shall be considered a part of the vault system for purposes of entry resistance testing and shall afford the same security protection as that of the panel. Exterior panel joints shall be covered with battens. When specified, interior battens shall also be provided. The method of assembly shall allow disassembly and relocating without degradation of the vault panels and the security integrity of the vault and without major destruction to the existing building and shall allow for future expansion of the size of the vault. The design shall permit assembly without need for crane type equipment.

3.3.4 Construction. All welding and brazing in the construction of the vault panels shall be sound, without porosity, and shall accomplish secure and rigid joints in proper alignment. The vault system shall withstand the tests in 4.4.8.

3.3.5 Size. Individual panels shall not exceed 3 feet in width, except the door panel may be larger if constructed as a

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single unit. The wall panels shall provide a interior height of not less than 7 nor more than 9 feet.

3.3.6 Weight. Vault panels shall not exceed 30 pounds per square foot of panel face surface area.

3.4 Openings.

3.4.1 Conduit openings. Conduit entries through the walls, floor and ceiling panels shall have a minimum of one offset bend within the panel structure. Individual conduit openings shall not exceed 1 inch in diameter. The offset shall be 1 diameter. Three conduit openings shall be provided in the header of the door panel. Additional openings shall be provided as specified.

3.4.2 Utility panel. The vault system shall include a utility panel to provide heating, ventilation and air conditioning and to allow routing of large amounts of cable into the vault. The vent design shall comply with UL 680. Penetrations to panels for vents shall be 64 square inches. Utility panels shall provide the same resistance to entry as other panels.

3.5 Pretreatment and finish.

3.5.1 Pretreatment. All exterior and interior ferrous metal surfaces shall be treated for painting in accordance with any of the types in Federal specification TT-C-490.

3.5.2 Finish. Unless otherwise specified, the vault panel shall be finished with a primer coat. The finish shall withstand the test in 4.4.8.2 without evidence of cracking, flaking or loss of adhesion of the finish. Two test panels of 20 gage (0.0359 inch) steel shall be furnished with the vault system for the purpose of the test in 4.4.8.2.

3.5.3 Plating. Bolts, screws, nuts and similar accessories shall be made to resist rust by electrogalvanizing, or by zinc, cadmium or chromium plating. Plating shall be in accordance with 3.2.2.

3.6 Resistance to entry techniques.

3.6.1 Forced entry. The vault system shall withstand the tests in 4.4.8.1 for not less than the 15 minutes.

3.7 Labels. Each vault system furnished under this specification shall bear the metal labels specified hereunder.

3.7.1 General Services Administration label. The label shall be affixed to the outside face of the vault door panel and shall

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show, in lettering not less than 1/8 inch high, the following:

GENERAL SERVICES ADMINISTRATION
APPROVED MODULAR VAULT SYSTEM PANEL
MANUFACTURER'S NAME

3.7.2 Identification label. A label shall be affixed to the inside face of the vault door panel showing the Government contract number.

3.7.3 Certification label. A certification label shall be affixed to the interior face of the vault door panel, and shall bear the following certification:

This is a U. S. Government modular vault system which has been tested and approved by the Government under Federal Specification AA-V-2737.

The protection certified above applies only to the vault panels and joints and not to the vault door.

3.8 Workmanship. The workmanship shall be of good quality throughout the vault system. The bending of the channels and flanges shall be straight and smooth. Welding and brazing shall be secure. Joints shall be accurately formed for proper seating. Paint finish shall be free from runs, drips and thin spots The vault system shall be free of any defects or features which may affect its appearance and its serviceability or which might cause personal injury.

3.9 Instructions and guidelines.

3.9.1 Instructions. Complete assembly and disassembly instructions shall be provided with each order for vault system panels.

3.9.2 Application guidelines. The manufacturer shall provide application and ordering guidelines, on request from a Government activity. The guidelines shall include site preparation, floor loading, handling requirements and other considerations which must be taken into account in the determination to procure and assemble a modular vault.

4. QUALITY ASSURANCE PROVISIONS

4.1 Inspection responsibility. Except that testing for qualification shall be performed by an agency designated by the General Services Administration, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own or

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any other inspection facility or service acceptable to the Government. Inspection records of the examination and tests shall be kept complete and available to the Government as specified in the contract or order. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to the prescribed requirements.

4.2 Component and material inspection. In accordance with 4.1, the supplier is responsible for insuring that components and materials used are manufactured, tested and inspected in accordance with the requirements of referenced specifications and standards to the extent specified or, if none, in accordance with this specification.

4.2.1 Inspection and testing for acceptance.

4.2.2 Inspection. Vault system components offered for acceptance under contract or order shall be inspected as specified in 4.4.9. Any defect shall provide reason to reject the product. Rejected vault systems may be reworked to correct defects and they may be resubmitted for acceptance. Reworked systems shall be so indicated to the Government inspector.

4.2.3 Quality assurance testing. Periodically, during the term of the contract, the Government inspector, at a time convenient to the Government, may select samples of the manufacturer's regular production for testing in accordance with 4.4.3. This acceptance testing shall be performed by a Government agency specifically designated by the General Services Administration. Failure of the vault system to meet any one or more of these tests shall provide reason to suspend acceptance of the manufacturer's product until the Government is satisfied that all defects have been corrected.

4.3 Inspection of preparation for delivery. An inspection shall be made to determine that the packaging, packing and marking comply with that specified in Section 5 of this specification. For examination of packaging, the sample unit shall be one shipping container fully prepared for delivery, selected at random just prior to the closing operations. Sampling shall be in accordance with MIL-STD-105. Defects of closure listed in Table III shall be examined on shipping containers fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 with an AQL of 4.0 defects per hundred units.

4.4 Qualification testing procedures and tests.

4.4.1 Testing agency. Qualification tests accomplished on products submitted under this specification for approval for

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inclusion on the applicable Qualified Products List (QPL) and any retesting that may be required shall be performed by a testing agency specifically designated or approved by the General Services Administration.

TABLE III. Classification of preparation for delivery defects.

Markings	Omitted; incorrect; illegible; improper size; wrong location or method of application.
Materials	Packaging materials not as specified, missing or damaged or not serviceable.
Workmanship	Straps not properly tensioned. Containers inadequately closed, poor application of internal packing parts, moveable or loose parts not secured properly.

4.4.2 Testing costs. All testing costs entailed in determining the qualification of the manufacturer's product, including costs of retesting a qualified product if subsequently disqualified under 3.1.1.1 or 3.1.1.2, shall be borne by the manufacturer, and shall be payable to the General Services Administration as directed by the Furniture Commodity Center, Federal Supply Service.

4.4.3 Test Procedures. The following procedures shall govern the testing of all products submitted for qualification under this specification.

(a) Samples shall be submitted for qualification only after the supplier has obtained written authorization from the General Services Administration.

(b) A qualification test may be discontinued at the Government's testing facility at any time the product fails to meet any one of the requirements set forth in this specification.

(c) In case of failure of the sample, consideration will be given to the request of the manufacturer for submission for retest only after it has been clearly shown that changes have been made in the product which the Government considers sufficient to warrant retest.

(d) The manufacturer or his representative will not be permitted to observe the actual entry resistance tests conducted on his product at the testing facility. However, when samples tested fail to comply with the requirements of this specification, the sample may be

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examined by the manufacturer or his representatives and full details of the failure may be made known to them in a manner which, for reasons of security will be in the best interest of the Government.

4.4.4 Test samples. Test samples of the size specified shall be submitted to a laboratory approved by the General Services Administration. In the event the samples are destroyed or damaged to such an extent during testing that testing cannot be completed, the Government reserves the right to require the manufacturer to furnish additional samples necessary to complete the testing. Samples submitted for testing, shall be provided with an identification tag which references the specification.

4.4.4.1 Configuration requirements. Unless otherwise specified, the test sample shall consist of an 8 foot by 8 foot by 8 foot vault, including the top and floor panels and one utility panel, and excluding the vault door. A GSA approved vault door shall be provided by the Government for installation in the vault. The vault panel system manufacturer shall assemble the panels and install the vault door at the Government test facility.

4.4.4.2 Sample cross-section. When the vault system has been tested and approved for listing on the qualified products list, the manufacturer shall furnish sample cross-section of the approved panel. The sample shall consist of two panel sections, including the panel joint and bolt mechanism. Each panel section shall be 1 foot square.

4.4.5 Documentation.

4.4.5.1 Drawings and list of materials. The manufacturer shall furnish a two complete sets of construction and assembly drawings and lists of materials with the samples submitted for qualification. When the samples are tested and are approved for inclusion on the applicable QPL, the manufacturer shall furnish three additional sets of the drawings and lists of materials for the Government's approval and use in inspections of products offered under contract. Material designated as proprietary by the manufacturer will be held in confidence.

4.4.5.2 UL approval. A copy of the UL approval shall be submitted with the sample.

4.4.5.3 Changes in construction or drawings. Once a product has been tested and approved for QPL, no subsequent change of any kind shall be made in its construction or in the construction drawings unless prior written authorization to make a change is obtained by the manufacturer from the Federal Supply Service, General Services Administration.

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4.4.6 Qualification testing and inspection. Qualification testing and inspection shall consist of the following tests and inspections. Failure to meet any one or more of these requirements shall provide reason to consider the product as having failed to meet requirement for qualification.

a. Forced entry resistance test - 4.4.8.1
b. Inspections - 4.4.9

4.4.7 Inspection and tests after award of contract. The Government reserves the right to inspect and test each vault system, including all component parts thereof, delivered for acceptance under this specification after award of contract.

4.4.8 Test methods.

4.4.8.1 Forced entry resistance test. There shall be sufficient time and opportunity to study the design and construction of the vault system components and to develop testing methods prior to the start of testing. There shall be no limit to the number of methods of entry attempted. The time of the test shall cover the period during which an attack is in progress and shall be exclusive of the time required for safety precautions and rest periods.

4.4.8.1.1 Tools and devices. The tools used in a single test shall be limited as specified in UL 608, except the weight of the tools allowed shall be 150 pounds.

4.4.8.1.2 Timing. The time clock shall be started when the test equipment is picked up to approach the sample and shall not be stopped except as specified above. Any change or repair of tools shall only be done while the clock is running.

4.4.8.2 Paint adhesion test. A steel panel, nine inches by nine inches, 0.0359 inch thick, prepared as specified in 3.5.2 shall, at 70°F ± 5°F temperature, be bent around a 1/4 inch rod to an angle of 130 degrees and then examined for compliance with 3.5.1.

4.4.9 Inspection. A visual inspection shall be made of the product to determine compliance with the requirements specified in he following paragraphs:

3.2.1 Materials.
3.2.3 Finish materials.
3.3.3 Assembly.
3.3.5 Size.
3.3.6 Weight.
3.4.1 Conduit openings.
3.4.2 Vent openings.

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3.5 Pretreatment and finish.
3.7 Vault panel marking.
3.8 Vault system labels.
3.9 Workmanship.

5. PREPARATION FOR DELIVERY

5.1 Packing. Vaults system components shall be packed as specified in the contract or order.

5.2 Marking. Marking shall be in accordance with 5.3.1 or 5.3.2, as specified (see 6.2) and shall include all precautionary marking required by the National Motor Freight Classification and Uniform Freight Classification for items as described in this specification.

5.2.1 Civil agencies. In addition to the marking required by the contract or order, each shipping container shall be marked in accordance with Fed. Std. No. 123.

5.2.2 Military activities. In addition to the marking required by the contract or order, each shipping container shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. Vault system components furnished under this specification are intended fob the assembly of complete vaults for storage of classified material, or as prescribed by the using activity.

6.2 Ordering data. Purchasers should exercise any desired options offered herein, and procurement documents should specify the following:

(a) Title, symbol and date of this specification.
(b) Overall dimension of finished vault required.
(c) Number and location of conduit openings (see 3.4.1).
(d) Number, location of vent openings (see 3.4.2).
(e) If interior battens are required (see 3.5.2).
(f) Color of finish (see 3.2.5).
(h) Levels of packaging, packing and marking required (see 5.1).
(i) Additional marking requirements (see 5.2).

6.3 Qualification. With respect to the products requiring qualification, awards will be made only for such products as have, prior to the time set for opening of bids, been tested and approved for inclusion on the applicable Federal Qualified Products List, whether or not such products have actually been so listed by that

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date. The attention of suppliers is called to this requirement, and the manufacturers are urged to arrange to have products that they propose to offer the Federal Government tested for qualification so that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is Furniture Commodity Center, Engineering Division, General Services Administration, Washington, DC 20406, and information pertaining to qualification may be obtained from that activity.

6.4 Definitions of terms used in this specification.

6.4.1 Forced entry. For the purpose of this specification, forced entry means creation of a 96 inch square opening.

6.5 Samples. All samples required for test purposes shall be furnished at no expense to the Government and the manufacturer shall pay all transportation to and from the point where the tests are performed. All tested samples shall become property of the Government, but may be released to the manufacturer at the option of the Government. Upon request, the manufacturer shall furnish to a designated Government testing facility, a vault system equal in all respects to that of the qualified sample for use in inspection and test during the term of qualification. The vault system shall be furnished at no expense to the Government and will be returned to the manufacturer upon removal of his product from the qualified products list.

Preparing activity:

GSA

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