

Durable Coated Fabric Programming and Selection Guide for Healthcare

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American Academy of Healthcare
Interior Designers

DCF
TASK GROUP

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Durable Coated Fabric Programming & Selection Guide for Healthcare

INTRODUCTION

The purpose of this guide is to provide interior designers and specifiers with a tool that will assist in the selection of appropriate durable coated fabrics, for upholstered seating in healthcare environments.

The **Durable Coated Fabric Programming & Selection Guide for Healthcare** consists of the following documents:

Part 1 Programming Questions to facilitate communication and confirm expectations between **Designers/Specifiers** and the following stakeholders:

I. End-User or Client - Questions (care providers, infection preventionists, environmental services, industrial hygienist, quality assurance, etc.)

II. Durable Coated Fabric Manufacturer/Distributor - Questions

III. Upholstered Furniture Manufacturer/Dealer - Questions

The Durable Coated Fabric programming questions and a summary Checklist for tracking the answers from **each** of the above stakeholders include the following categories:

- A.** Performance / Durability and Budget
- B.** Cleaning and Disinfecting
- C.** Sustainable Attributes
- D.** Upholstered Furniture Design

Part 2 Chemical Fabrics and Film Association: CFFA-Healthcare-201

The CFFA-Healthcare-201 has been reprinted with permission of the Chemical Fabrics and Film Association (CFFA).

The Durable Coated Fabrics (DCF) Task Group is recommending that interior designers and specifiers request DCF distributors and manufacturers to utilize CFFA-Healthcare-201 to test their products. This provides a basis for informed decision making.

Attachment A: Fabric Review Checklist: Excel document for tracking/quantifying answers.

Part 1

Prior to final selection of the durable coated fabrics for any project, the designer/specifier can use the following programming questions as a guide. The questions should be discussed with each stakeholder for the specifier to fully understand performance criteria required for the project application.

I. End User or Client - Questions

A. Performance /Durability & Budget

1. Durability: Various factors are associated with performance of coated fabrics in real-world scenarios, and current minimum performance testing results do not necessarily reflect actual real-world conditions.
 - a. What is the expected product service life of the coated fabric? (i.e. 5 years, 10 years, etc.)
 - b. Discuss the use of textured/embossed coated fabrics as deeply textured surfaces are harder to clean.
 - c. If a change is made to the coated fabric manufacturer's recommended cleaning and disinfecting protocol, will this information be communicated to the end user/client?
2. Budget: Costs can vary dramatically, from \$30/yd to \$90/yd, making a huge difference in planning Furniture, Fixtures, and Equipment (FFE) budgets. Identifying if Customer's Own Materials (COMs) are to be included in the initial budget versus graded-in materials should be established during the programming phase of the project.
 - a. What is the budget for coated fabric upholstery within the FFE budget?
 - b. Will the coated fabric be COM or graded-in?

B. Cleaning and Disinfecting Working with the Environmental Services (EVS), Infection Prevention, and Healthcare Purchasing team members, the designer needs to understand the products being used for cleaning, disinfecting, and sanitizing (if applicable), including wipes that may be used by staff, patients/residents, families, and visitors.

1. What chemicals are used on upholstered surfaces, including coated fabrics, in your facility?
 - a. Are coated fabrics cleaned differently or the same as hard surfaces, such as floors and countertops? If coated fabrics are being cleaned the same as hard surfaces, what other options are available which would not overburden the environmental services staff to clean surfaces differently? Discuss options for revising the cleaning and disinfecting process in order to preserve the life expectancy and adhere to manufacturer recommended disinfecting protocols of the upholstery coated fabrics.
 - i. Are the cleaning and disinfecting products being rinsed with water after application to a surface? If the coated fabric upholstery is not rinsed with water after cleaning and disinfecting per manufacturer recommendations can the warranty be voided? If this is the case, the healthcare provider will need to budget for reupholstering or replacement as a consideration of the Owner's Project Requirements (OPR).
 - ii. Does EVS standard disinfecting process/procedure include conforming to the disinfecting product's recommended "kill" time?

2. Are any of the following alternative or additional technologies being used for cleaning and disinfecting coated fabrics and have any of these factors affected performance:
 - a. Ultraviolet (UV) lights or other germicidal equipment/methods being used for additional disinfection in your facility? If yes, how often and under what circumstances are they used?
 - b. Hydrogen peroxide vapor (HPV) procedures being used as primary or additional disinfection in your facility?
 - c. Electrostatic sprayers being used for cleaning and disinfecting chemical application, in your facility?
3. How have existing coated fabrics performed under the current cleaning and disinfecting protocols used by the facility?
 - a. Is the facility cleaning and disinfection protocol different than the manufacturer cleaning and disinfecting recommendations?
 - b. Have any existing coated fabric upholsteries in your facility performed well using the facility protocol for cleaning and disinfecting?
 - c. If a coated fabric has performed well, does the proposed new location have similar conditions and performance requirements?
 - d. Have any existing coated fabric upholsteries in your facility not performed well using the facility protocol for cleaning and disinfecting?
 - e. If a coated fabric has not performed well, have manufacturer recommendations for cleaning and disinfecting been reviewed and have facility cleaning and disinfecting protocols been modified?
 - f. Has your experience resulted in preferences for specific coated fabrics?

C. Sustainable Attributes

1. What are the facility/owner's sustainability priorities? Will the facility be adhering to environmental or health and wellness building certifications using any of the following?
 - a. BREEAM®
 - b. Fitwel®
 - c. Green Globes®
 - d. LEED®
 - e. Living Building Challenge®
 - f. WELL® Building Standard
2. Is the facility operational staff using any of the following for guidance and/or reporting?
 - a. Healthy Hospital Initiative® (HHI)
 - b. Practice Greenhealth®
3. Are material or product criteria included in the sustainable or health and wellness certifications or guidance documents that are being used or referenced?
 - a. If yes, confirm that the durability and performance criteria identified in the Owner's Project Requirements (OPR) are met, including anticipated product service life and the use and impact of cleaners and disinfectant protocols used at the facility as part of and in addition to meeting sustainable goals.
4. Does the sustainable building certification being used include any of the following product certifications or declarations?
 - a. Environmental Product Declarations (EPDs)
 - b. Health Product Declarations (HPDs)
 - c. Multi-attribute, Third Party Product Certification

- e. Greenguard® or equal indoor air quality certification

D. Upholstered Furniture Design

1. What is the expected product service life of the furniture?
2. Is furniture componentized (e.g. pieces/portions are replaceable in the field)?
3. Can furniture be repaired easily in the field by Facilities or Environmental Services?
4. Has any furniture item in your facility, upholstered in the proposed fabric, required replacement because of premature fabric failure before its anticipated product service life?
5. What is the budget for the furniture portion of the Fixtures, Furniture & Equipment (FF&E) project budget? Have long term effect and return on investment factors been considered in establishing the project budget drivers.
6. Have furniture manufacturer upholstery concerns been communicated, including any recommendations for upholstery to the end-user?
7. Have end-user concerns been communicated to the furniture or upholstery manufacturers?

II. Durable Coated Fabric Distributor/Manufacturer - Questions

A. Performance/Durability and Budget

1. The goal is for manufacturers/distributors to start and continue testing coated fabrics to meet the CFFA-Healthcare-201 standard.
2. The Durable Coated Fabric (DCF) Task Group recommends that interior designers request compliance with the CFFA-Healthcare-201.
3. Request technical data on all topcoats:
 - a. What is the topcoat?
 - b. Has the topcoat proven to protect the coated fabric in regular use at other similar healthcare facilities?
4. Request technical data on the backings:
 - a. Are the backings woven, non-woven or knit?
 - b. Has backing been used successfully in similar healthcare installations?
5. If a proposed coated fabric has been used successfully in similar healthcare settings, Distributor/Manufacturer to provide reference project information and designer/end-user contact information. This will assist in making informed decisions, while the coated fabric industry is in transition to complying with CFFA Healthcare-201.

B. Cleaning and Disinfecting

1. Does each proposed coated fabric comply with the CFFA Healthcare-201 minimum performance requirements for use of cleaning and disinfecting chemicals?
2. Request a list of acceptable and tested cleaning and disinfecting chemicals from the distributor/manufacturer for the proposed coated fabric.
3. Have manufacturer recommended cleaning and disinfecting parameters and expectations been communicated to the end user (e.g. rinsing after chemical application)?
4. If additional disinfection protocols such as ultraviolet light, hydrogen peroxide vapor, or electrostatic sprayers are used within the healthcare setting, contact your coated fabric manufacturer for additional information regarding impact on products.
5. If the cleaning and disinfection chemicals are not rinsed with water, does the warranty on the proposed coated fabric upholstery become invalid?
 - a. Real-world field studies and observations have concluded that coated fabrics are often not rinsed after cleaning and disinfecting, therefore client/provider

budgets need to take replacement costs, facility downtime, and staff effort into consideration when evaluating replacement cycle of products.

C. Sustainable Attributes

1. Does the proposed coated fabric have any of the following sustainable certifications or declarations?
 - a. Environmental Product Declarations (EPDs)
 - b. Health Product Declarations (HPDs)
 - c. Multi-attribute, Third-Party Product Certification
 - d. Greenguard® or equal indoor air quality certification

2. Are the performance criteria and sustainable attributes information provided in a readily available technical document and/or on your website?
 - a. Product testing compliance with CFFA-Healthcare-201.
 - b. Manufacturer recommendations on cleaning and disinfection of coated fabrics specified.
 - b. Sustainable certifications and related product information.

D. Upholstered Furniture Design

1. As a coated fabrics distributor/manufacturer, are there any furniture characteristics or fabrication techniques that have contributed to poor fabric performance?
 - a. Have furniture attributes such as sharp corners or welts, created upholstery issues? If so, is it possible to coordinate with the furniture manufacturer to remedy these issues?
 - b. Have sewing techniques, such as thread or needle size, contributed to upholstery failures? If so, is it possible to coordinate with the furniture manufacturer to remedy these issues?

III. Upholstered Furniture Manufacturer and/or Furniture Dealership - Questions

A. Performance / Durability and Budget

1. Has the proposed coated fabric had any upholstery issues or failures (e.g. seams, welts, corners, needle hole, color of backing coming through, etc.) in healthcare settings?
2. Are your furniture products performance tested with specific coated fabrics and how are recommendations communicated to specifiers (end user may be the specifier).
3. Has the proposed coated fabric been approved for use on the specific furniture piece?
4. Do you require additional time for review and approval of COM upholstery?
5. Has the extent of the furniture warranty (generally excluding the fabric) been communicated to the upholstery manufacturer, the end user/provider, and the designer/specifier?
6. Will you mock-up your furniture products for field testing with specific coated fabrics to allow input from the end user and designer/specifier?

B. Cleaning and Disinfecting

1. Have cleaning & disinfecting chemicals used in the clients healthcare facility been successfully tested on this proposed fabric?
2. Have any premature upholstery failures occurred on similar furniture items due to cleaning and disinfecting chemicals used in a healthcare setting?
 - a. If yes, what types of failures have occurred?

C. Sustainable Attributes

1. Have your furniture products been submitted for BIFMA Level certification?
2. Is the BIFMA Level certification information readily available for reference in your product technical documentation and/or on your website?

D. Upholstered Furniture Design & Production

1. In coordination with the coated fabric manufacturer/distributor, can any undesirable corners, welts, sharp corners, etc. be eliminated to improve the product service life of the proposed coated fabric on the proposed furniture specification?
2. Are your products componentized, allowing for field replacement of parts and/or components?

Part 2 Minimum Standards for Healthcare Applications: CFFA-Healthcare-201

The DCF Task Group recommends that CFFA-Healthcare-201 be used in conjunction with this functional programming guide to confirm that each proposed coated fabric complies with the minimum performance testing as recommended.

The end-user and their designer/specifier should consult with the coated fabric manufacturer and/or distributor representatives to assess and confirm that the proposed coated fabric complies with the current CFFA-Healthcare-201.

**Recommended Minimum Performance Standards for
VINYL-COATED AND OTHER CHEMICAL COATED UPHOLSTERY FABRICS - HEALTHCARE**

1. Scope

1.1 This document sets forth recommended performance standards for vinyl and other chemical coated fabrics produced with woven, non-woven, or knit substrates which are used as upholstery materials for indoor furniture in healthcare settings.

1.2 This performance standard is not applicable to vinyl or chemical coated fabrics used in outdoor applications.

1.3 The test results for coated fabrics, when tested in accordance with the CFFA Standard Test Methods, must attain the minimum values of all properties listed in [TABLE 1](#) for a given construction in order to conform to this standard.

2. Applicable Documents*

For applicable documents used in this performance standard, refer to CFFA Standard Test Methods Pamphlet, most recent Edition.

3. Definitions

Abrasion - Measurement of the ability of the chemical coating to resist surface wear when rubbed against another (abradent) surface.

Accelerated Exposure to Disinfectants - To determine surface changes, including color, gloss, or deterioration due to cracking, peeling, to hardening as a result of exposure to disinfectants.

Accelerated Light Aging - A determination of the resistance of chemical coated fabrics to exposure to laboratory simulated sunlight.

Adhesion - A measure of the force required to separate a chemical coating from the base substrate.

Blocking - A determination of the development of surface tack at elevated temperatures.

Cold Crack - A measure of the ability of a chemical coated fabric to withstand cracking when folded at low temperature.

Crocking - A measure of resistance to transfer of color from a chemical coating to another surface (usually a fabric) by rubbing action.

Denim Stain Resistance- To determine the resistance to transfer of color from denim fabric to a chemical coated fabric by rubbing action.

Flame and Smoke Resistance - To determine flammability and smoke generation.

Flex - A determination of the change in surface characteristics of a chemical coated fabric when subjected to multiple flex cycles.

Hydrolytic Stability - To determine the resistance of urethane coated fabric to hydrolysis when subjected to a combination of an elevated temperature and high humidity for 5 weeks.

Seam Strength - Simulates the resistance to seam tear propagation.

Stain Resistance - To determine 48-hour stain resistance using reagents commonly found in healthcare.

Tear Strength - A measurement of the force required to continue or propagate a tear in a coated fabric.

Tensile Strength - A measurement of the force required to break a coated fabric.

Volatility - A measurement of weight loss of a chemical coated fabric when subjected to an elevated temperature.

TABLE 1

PROPERTY	TEST METHOD	FABRIC BACKING OR SUBSTRATE		
		KNITS	NON-WOVENS	WOVENS
Abrasion: (Wyzenbeek) Healthcare / High Traffic ----- Healthcare/ Normal Traffic	CFFA 1a #10 Duck	100,000 cycles	100,000 cycles	100,000 cycles
		50,000 cycles	50,000 cycles	50,000 cycles
Accelerated Exposure to Disinfectants	CFFA 100	Slight Change	Slight Change	Slight Change
Accelerated Light Aging (indoor)	CFFA 2 ¹	No change	No change	No change
Adhesion*	CFFA 3	3.0 lbs.	3.0 lbs.	3.0 lbs.
Blocking	CFFA 4	None- Slight Adh. (2)	None- Slight Adh. (2)	None- Slight Adh. (2)
Cold Crack	CFFA 6a ²	No Cracking	No Cracking	No Cracking
Crocking: Dry & Wet	CFFA 7	Excellent (4)	Excellent (4)	Excellent (4)
Denim Stain Resistance	CFFA 70	Slight (8)	Slight (8)	Slight (8)
Flame and Smoke Resistance	CFFA 9	Pass	Pass	Pass
Flex*	CFFA 10	25,000 Cycles No Cracking/ Cracking	25,000 Cycles No Cracking/ Cracking	25,000 Cycles No Cracking/ Cracking
Hydrolytic Stability, PU	CFFA 110 ³	5 weeks	5 weeks	5 weeks
Seam Strength	CFFA 14	30 x 25 lbs.	35 x 35 lbs.	25 x 25 lbs.
Stain Resistance	CFFA 142 ⁴	No stain (4)	No stain (4)	No stain (4)
Tear Strength: Tongue Trap	CFFA 16b CFFA 16c	4 x 4 lbs. N/A	N/A 15 x 15 lbs.	4 x 4 lbs. N/A
Tensile	CFFA 17	50 X 50 lbs.	50 X 50 lbs.	40 x 40 lbs.
Volatility	CFFA 18 ⁵	8%	8%	8%

Table 1 footnotes continue on page 2
¹200 hours using a Weatherometer or Fadeometer,
or 150 hours using a QUV - dry cycle CFFA

Standard Test Method 2.d

²Using a 5 lb. roller, 20° F (-6.6°C).

³Hydrolytic Stability, PU - Adhesion: Must maintain 75% of original strength; Abrasion: Must pass 25K double rubs; Flex Resistance: No breaks in coating at 15K cycle

⁴Surgical marker will result in slight ghosting

⁵Activated carbon technique, but at 220°F (104°C).

4. Performance Requirements

4.1 Vinyl and other chemical coated healthcare upholstery fabrics consist of one or more layers of polymer coatings laminated to a knit, woven or non-woven fabric backing made up of natural and/or synthetic fibers. Along with physical and performance properties each product must meet aesthetic requirements, including color, texture and haptics.

4.2 The minimum physical and performance standards for knits, woven and non-woven coated fabrics are listed in separate columns in Table 1.

4.3 Properties described in [TABLE 1](#) for coated fabrics collectively make up the minimum performance standards. Depending upon specific tailoring and performance requirements, these properties should be used to select the construction of coated fabric most suited for each end use. Properties are measured using CFFA Standard Test Methods. All test methods are outlined in the CFFA Standard Test Methods pamphlet which describes their purpose and relates the properties tested to various aspects of performance.

5. Test Procedures

5.1 Abrasion Resistance - See CFFA Standard Test Method 1a. Wyzenbeek Method using #10 Duck as abradent.

5.2 Accelerated Exposure to Disinfectants - See CFFA Standard Test Method 100 (see note 6.3).

5.3 Accelerated Light Aging - See CFFA Standard Test Method 2. 200 hours using a Xenon Arc Weatherometer or Fadeometer, or 150 hours using a QUV, dry cycle Method 2.d.

5.4 Adhesion of Coating to Fabric - See CFFA Standard Test Method 3. Use a Scott or Instron type Universal Tester.

5.5 Blocking - See CFFA Standard Test Method 4.

5.6 Cold Crack Resistance - See CFFA Standard Test Method 6a. Use a 5 lb. Roller.

5.7 Crocking Resistance - Dry & Wet. See CFFA Standard Test Method 7.

5.8 Denim Stain Resistance - See CFFA Standard Test Method 70. (Sometimes referred to as 'Reverse Crocking').

5.9 Flame and Smoke Resistance - See CFFA Standard Test Method 9.

5.10 Flex Resistance - See CFFA Standard Test Method 10. Use a Flexometer (Newark Flex) Test Unit.

5.11 Hydrolytic Stability, Polyurethane - See CFFA Test Method 110.

5.12 Seam Strength - See CFFA Standard Test Method 14. Use a Scott or Instron type Universal Tester.

5.13 Stain Resistance in Healthcare Environments - See CFFA Test Method 142.

5.14 Tearing Strength - See CFFA Standard Test Method 16b and 16c. Use a Scott or Instron type Universal Tester.

5.15 Tensile Strength - See CFFA Standard Test Method 17. Use a Scott or Instron type Universal Tester.

5.16 Volatility - based on Activated Carbon Technique, except at 220°F. (104°C.). See CFFA Standard Test Method 18.

6. Notes

6.1 Stretch and Set - Stretch and set properties can affect 'puddling' in upholstered seating, a condition where a seat bottom will distort, with the coated fabric contributing to a depression or folds and wrinkles forming due to an inability to fully recover its original dimensions after being stretched. However, the prime causes of puddling are improper selection of the type of underlying urethane cushioning, and issues with seat design or construction. CFFA does not set a minimum performance standard for this property. See CFFA Standard Test Method 15.

6.2 Mildew and/or Bacterial Resistance - For healthcare applications, biological resistance requirements may be incorporated into the performance standard to address the needs of the customer. However, their use may have to be weighed against environmental restrictions specific to an institution. In healthcare applications (hospital, healthcare, etc.), biological resistance requirements may be incorporated into the specifications to meet the needs of the final customer.

6.3 Accelerated Exposure to Disinfectants - In some upholstery applications (hospital, healthcare, etc.) disinfectants are applied on a regular basis and may harm the surface by color or gloss change, cracking, peeling, or hardening. CFFA Standard Test Method 100 - Accelerated Exposure to Disinfectants can be added to the specific product specifications to determine resistance. However, it should be noted that failing to rinse properly or use disinfectants at proper dilution ratios can shorten the useful life of the product, and is the most common basis of complaints.

*Test Methods may be accessed on line at: <http://cffaperformanceproducts.org/cffa-pages/publications.asp>

MEMBERS

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Evonik Corporation	Valtris Specialty Chemicals
ExxonMobil Chemical Company	Vestolit



Durable Coated Fabric Programming & Selection Guide for Healthcare - Fabric Review Checklist

Proposed	Manufacturer/Distributor:	Composition:	Project:
Coated	Pattern Name & Number:	Backing:	Reviewer:
Fabric	Color Name/Number:	Cost:	Date:
Furn Item	Furniture Mfr. & Model:	Mfr. Fabric Grade:	

Data Collection: Information sources are; Memo Tag/Sample Ticket, product literature, website, manufacturer and/or distributor representatives.

Scoring: a positive/preferred value gets a "1", a negative/not preferred/unknown value gets a "0". Using this checklist to evaluate the proposed coated fabric(s) for a project will result in scores which reflect the likelihood of a positive outcome.

Part 1: Programming Questions

(Questions shown edited for simplicity, Refer to Guide Part 1 for complete question and context)

Ref. #	Description	Value	Score	Notes
Part 1 Programing: I. End User or Client - Questions				
I.A.1.a	What is the expected product service life ?	5+ years = 1 0-4 years = 0		
I.A.1.b	Does the fabric have deeply embossed texture?	Not Deeply Embossed = 1 Deeply Embossed = 0		
I.B.1	Have cleaning & disinfecting chemicals used in your facility been successfully tested on this fabric?	Tested = 1, Not tested = 0		
I.B.1.a.i	Are cleaning & disinfecting chemicals being rinsed w/water?	Rinsed = 1, Not Rinsed = 0		
I.B.3.b	In past projects with similar conditions, has the coated fabric met durability expectations?	Met expectations = 1, Not met = 0		

Part 1 Programing: II. Durable Coated Fabric Distributor/Manufacturer - Questions

II.A.1	Does proposed coated fabric comply with CFFA-Healthcare-201 Standard?	Comply = 1, Does Not Comply = 0		
II.A.2	Has topcoat material proven durable in similar applications?	Durable = 1, Not durable = 0		
II.A.3	Has backing material proven durable in similar applications?	Durable = 1, Not durable = 0		
II.A.4	Has proposed fabric been used successfully in similar locations?	Successful = 1, Not successful = 0		
II.B.2	Does the DCF manufacturer/distributor provide a list of approved cleaning/disinfecting chemicals?	List provided = 1, List not provided = 0		
II.B.4	Has fabric been tested for ultraviolet light, hydrogen peroxide, or other additional disinfection procedures?	Tested = 1, Not tested = 0		
II.B.5	Does manufacturer recommend rinsing with water after cleaning and disinfecting the DCF?	Rinsing not required = 1, Rinsing required = 0		

Part 1 Programing: III. Upholstered Furniture Manufacturer and Furniture Dealers - Questions

III.A.1	Has the fabric had any failures related to furniture upholstering techniques; i.e. seams, welts, corners, backing color, or needle holes?	No Failures= 1 Failures = 0,		
III.A.3	Has the fabric been approved by the manufacturer for use on the specified furniture?	Approved = 1, Not approved = 0		
III.B.1	Have the coated fabric manufacturers' recommended cleaning/disinfecting protocols damaged other parts of the furniture?	Not damaged = 1, Damaged = 0		
III.D.1.	Can undesirable attributes; corners, welts, sharp corners, etc. be eliminated to improve the product	Undesirable removed = 1, Not removed = 0		
III.D.2.	Is furniture item componentized for field replaceable repairs?	Componentized = 1, Not componentized = 0		

Part 1 Subtotal: 0

Part 2: CFFA-Healthcare-201 (Recommended Minimum Performance Standards)

CFFA	CFFA-Healthcare-201 compliance confirmation	Comply = 10, Does Not Comply = 0		
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CFFA Subtotal: 0

TOTAL Parts 1 & 2:			0	(Maximum Score = 27 Points)
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