

Innovative Teaching Manual

PROJECT TITLE

Finishes and Furnishings Selection Criteria for a Multiple Chemical Sensitive (MCS) Client

AUTHOR

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PROJECT LEVEL

Junior

ABSTRACT

This project involves the creation of a Finishes and Furnishings Selection Criteria for a person with Multiple Chemical Sensitivity (MCS). The appropriate finishes and furnishings are crucial for the user's well being and, particularly for a person with MCS. MCS is an environmental disease that involves an increased sensitivity to many chemicals — petro-chemicals and their derivatives — encountered daily. For many individuals, the chemicals emitted into the air are potentially dangerous. There are a variety of reasons for this; three are related to indoor air quality for MCS individuals. One is that we spend more time indoors, another is that we have man-made products that emit chemicals into the air within our built environment, and the other is that our buildings are constructed to be air-tight in order to conserve energy. Our energy tight houses do not allow gasses emitted from products to escape.

Chemical sensitivity is on the rise because of the number of chemicals within our environment. Since we spend the greatest amount of time indoors, chemicals within the built environment have caused the increase in chemical sensitivity. With the increased use of chemicals in manufacturing products for our built environments, many individuals have developed MCS. These individuals need a healthy home environment — free of chemicals.

This project will help students understand MCS and the challenges in selecting materials for the interior. Research on MCS will be conducted, selection criteria for an MCS home will be developed, and from the criteria, materials will be chosen. Materials will include floor coverings, wall coverings, upholstery fabrics, and window treatments. Furnishings within the space must be evaluated and determined their appropriateness to an MCS person's space.

OBJECTIVES

1. To develop an understanding of how the various materials selected by interior designers affect people within the interior environment.
2. To research MCS and the type of interior environment that is best for MCS person.
3. To develop a Finishes and Furnishings Selection Criteria List.
4. To use the list to evaluate material selection, existing furnishing and the purchase of new furniture.

CRITERIA

1. Identify the problem.

2. Research MCS through the Internet search, library, and/or an MCS person.
3. Research must be presented in written form as follows: Definition of MCS, Special needs, and Environmental considerations.
4. Develop Finishes and Furnishings Selection Criteria List. List must be typed in spreadsheet form.
5. Select and evaluate materials. Type a specification list of interior finishes (not furniture). Prepare a sample board or collage of chosen materials.

SCENARIO

Joe and Mary Dowell have hired you, their interior designer, to create a healthy interior environment. Mary suffers from MCS and needs to be in a healthy environment — an environment in which the indoor air is clean and free of chemical emissions. You will develop a Finishes and Furnishings Selection Criteria List, select and evaluate materials, type a specification list, and prepare a presentation of the materials.

PROCESS

1. The project will take three class periods along with outside research time.
2. Students will receive an assignment sheet prior to the class period; the assignment may be e-mailed to students as an attachment.
3. Prior to the 1st class period, students will have received and read the handout and researched MCS.
4. In class, students will analyze the research and develop the selection criteria.
*Selection criteria may be typed in spreadsheet form similar to the following example [fig.1]. (Only a few criteria are shown as examples).
5. During the 2nd class period, students will use the selection criteria to choose the appropriate materials and prepare a visual presentation (sample board or collage) of their selection.
6. Before the final class period the following must be completed.
 - a. Research in written form as follows: Definition of MCS, special needs of the MCS person, and environmental considerations.
* Selection criteria in spreadsheet form (see format above).
 - b. Select and evaluate materials.
** Specification list [fig.2] of interior finishes — not furniture.
 - c. Prepare a sample board or collage of chosen materials.
7. At the beginning of the 3rd class period, projects must be complete, and students will share their research and visual presentation.

PRESENTATION

Students will present their research and visual presentation in one of the following ways: PowerPoint presentation of research and selection criteria along with a sample board or collage; an electronic file of research and selection criteria along with a sample board or collage; or notebook with typed research and spreadsheet of selection criteria along with a sample board or collage.

EVALUATION

Students will research MCS, develop selection criteria from which materials are evaluated and selected, write a specification list, and create a visual presentation. Evaluation [fig.3] will be based on the appropriate selection criteria and materials for the MCS person.

PROJECT LENGTH

The project will be completed within three class periods. Students will receive the assignment during the 1st class period or by e-mail attachment prior to class. They will read the project assignment and questions may be asked. Before the 2nd class period, students will complete their research and develop selection criteria. During the 2nd

class period, students will select materials and begin preparation of the presentation. Project will be due at the beginning of the 3rd class period. Students will share the research and visual presentation.

REFERENCES

Internet web sites

<http://www.MCSurvivors.com>

<http://www.mcsrr.org>

<http://www.ourlittleplace.com>

Library search - periodicals

Matrices on MCS

Nussbaumer, L. L. (1996). Multiple Chemical Sensitivity Related to Chemicals and Products Matrix — Matrix A [fig.4]

Nussbaumer, L. L. (1996). Interior Products with Pollutants from Multiple Chemical Sensitivity Related to Chemicals and Products Matrix — Matrix B [fig.5]

Nussbaumer, L. L. (1996). Creation of a Healthy Environment for MCS Individuals matrix [fig.6]

Nussbaumer, L. L. (1996). Comparison of Housing Types matrix [fig.7]

Text Books

Anderson, N. & Benoist, A. (1994). *Your health and your house*. New Canaan, Connecticut: Keats Publishing, Inc.

Bower, J. (1993). *The healthy house*. New York: Carol Publishing Group.

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Hunter, L. M. (1989). *The healthy home*. New York: Pocket Books.

Jackman, D. R. & Dixon, M. K. (1990). *The Guide to Textiles for Interior Designers*, 2nd ed. Winnebago: Peguis.

The Minnesota Department of Health Community Health Services Division Public Health Nursing Section. (1992). Assessment of health risks in the home environment.

Pilatowics, G. (1995). *Eco-interiors: A Guide to Environmentally Conscious Design*. New York: John Wiley & Sons, Inc.

United States Environmental Protection Agency (EPA). (1991), Understanding indoor air quality. *Introduction To Indoor Air Quality — A Self-Paced Learning Module, Lesson 4*.

United States Environmental Protection Agency (EPA). (1993). The inside story — A guide to indoor air quality. *Introduction to Indoor Air Quality — A Self-Paced Learning Module*.

Yaeger, J (2000). *Textiles for Residential and Commercial Interiors*. New York: Fairchild Publications.

[fig.1]

*Selection Criteria			
Floor covering - carpeting			
Criteria	Description	Pros	Cons
Fiber			

[fig.2]

**Specification List					
Living Room					
Materials	Manufacturer	Pattern Name	Pattern No.	Color Name/No	Description
Wood flooring					
Area rugs					
Wall Covering					
Upholstery fabric					
Window treatment					
Dining Room					
Materials	Manufacturer	Pattern Name	Pattern No.	Color Name/No	Description

[fig.3]

Submittals	Criteria for evaluation	Points
Research	Accuracy	10
Selection Criteria	Appropriateness	10
Specification List	Complete	10
Sample board or collage	Composition	5
	Appropriate sample to selection criteria	15
Total Points		50

[fig.4] Multiple Chemical Sensitivity Related to Pollutants and Products Matrix – Matrix A

SYMPTOMS	POLLUTANTS CAUSING MCS				
	Formaldehyde	VOC's	Lead	Asbestos	Molds/Mildew
Abortion, spontaneous			X		
Anemia			X		
Aspergillosis, allergic					X
Asthma	X	X			X
Arthritis		X			
Bronchitis		X			
Cancer	X	X		X	
Clammy Skin	X				
Colds or Cold Symptoms	X				X
Sneezing					X
Sinus Problems	X	X			X
Cough, Wheezing	X	X			X
Colic			X		
Coma			X		
Concentration Difficulties		X	X		
Disorientation	X				
Croup	X	X			X
Depression	X	X	X		X
Dizziness	X	X			X
Eye Irritation, Nose bleeds	X	X			X
Blurred Vision	X				
Fatigue, Tiredness, or Grogginess	X	X			X
Fever	X	X			
Gastrointestinal Problems					X
Diarrhea		X			
Indigestion, Nausea, Vomiting	X	X			X
Headache or Migraine	X	X	X		X
Heart Problems	X	X	X		
Hostility, Short Temper	X	X	X		
Hyperactivity or Restlessness			X		
Insomnia	X		X		
Kidney Problems		X			
Liver Problems: Hepatitis		X			
Lymph Node Enlargement		X			
Mental or Physical Development-- Impairment		X			
Nervous System Damage, Strokes, Numbness in fingers		X		X	
Coordination Problems		X	X		
Convulsions			X		
Nervousness	X				
Skin Problems: Rash, Itching, Eczema	X	X			X
Throat Problems	X	X			X

This matrix lists the symptoms of MCS that relate to pollutants. Products related to these pollutants are listed in Matrix B. The information for the matrix originated from Anderson and Benoist (1994) and EPA (1991). Matrix

developed by: Linda L. Nussbaumer, Ph.D., ASID, CID; South Dakota State University.

[fig.5] Multiple Chemical Sensitivity Related to Pollutants and Products Matrix–Matrix B

INTERIOR PRODUCTS		POLLUTANTS CAUSING MCS				
Products for Application or Maintenance		Formaldehyde	VOC's	Lead	Asbestos	Molds/Mildew
Adhesives		X	X			
Aerosol Sprays			X			
Air Fresheners			X			
Carpet		X	X			
	Stain Resistant Treatment		X			
	Synthetic Carpet		X			
	Wet Cleaning Carpet					X
Ceiling Tiles					X	
Cleansers and Disinfectants			X			
Decorations				X		
Fiberboard (Cabinets and Fronts)		X				
Finishes			X			
Glue		X				
Housewares				X		
Lead Crystal Ware				X		
Moist/Damp areas						X
Paint		X	X			
	Lead Paint			X		
	Lead Paint Dust from Sanding			X		
	Paint Strippers		X			
Paneling		X				
Particleboard Furniture		X				
Plastics (soft)			X			
	Soft Plastic Shower Curtains		X			
Pottery Glazes				X		
Preservatives (Wood)		X	X			
Pressed Wood Products		X				
Resilient Floor Tiles					X	
Solvents			X			
Textiles	Permanent Press Treatments	X	X			
Textiles	Polyester/Cotton Blend		X			
Upholstery	Foam Upholstery		X			
Upholstery	Soft Plastic Upholstery		X			
Vinyl Floor Covering	Backing				X	
Wallpaper	Anti-mold Wallpaper adhesives		X			
Wallpaper	Washable Wallpaper		X			

This matrix lists the products for interior finishes or furnishings, their application, or maintenance as it relates to pollutants in the products. Symptoms of MCS from these chemicals are listed in Matrix A. The information for the matrix originated from Anderson and Benoist (1994) and EPA (1991).
 Matrix developed by: Linda L. Nussbaumer, Ph.D., ASID, CID; South Dakota State University.

[fig.6] Creation of a Healthy Environment for MCS Individuals

I. HEALTHY HOME ENVIRONMENT

- A. Elimination of tobacco smoking
- B. New or Remodeled: Build with only nontoxic material and techniques
- C. Older house or existing house
 - 1. finish "gassing out" of carpet with soda
 - a. sprinkle carpet with soda
 - b. allow to set for two to six hours
 - c. vacuum carpet thoroughly
 - 2. if old:
 - a. gassing out process may be complete
 - b. do not remove
- remove newer toxic materials
- D. Remove or seal wood burning stove or fireplace
- E. Remove or limit accessories
- F. Continuously clean environment
 - 1. dust daily or more if possible
 - 2. dehumidifier damp areas

II. OASIS WITHIN THE BUILT ENVIRONMENT

- A. Totally chemical-free space
- B. Remove carpet
- C. Expose or install hard flooring
 - 1. Hardwood, tile, stone (a natural product)
 - 2. nontoxic installation techniques
 - 3. maintenance or finish: use paste wax—do not use polyurethane products
- D. Area rugs
 - 1. natural fibers without stain resistant finishes
- E. Heat
 - 1. install air filter to furnace
 - 2. or seal ductwork into room
 - 3. filter air with room air exchanger
- F. Window treatments, bedding, mattress (all textile products)
 - 1. remove all man-made textiles
 - 2. remove any natural textiles with applied chemical finishes
 - 3. use organic natural fibers free of chemicals
- G. Wood or wood products
 - 1. remove furniture made of plywood or particle board
 - 2. encapsulate with plastic laminate
 - 3. use solid wood furniture
 - 4. use pre-finished wood moldings
- H. Remove all accessories
- I. Dust daily or more

III. AVOIDANCE OF SPACES

- A. New or newly remodel spaces, stores, homes for one year
- B. Stores during seasonal changes of merchandise
- C. Leather product stores
- D. Products that with dry cleaning recommended
- E. Persons with perfumes
- F. Moist or damp spaces

IV. USE OF NATURAL PRODUCTS

- A. Cleaning products
- B. Cosmetics

The creation of a healthy environment is possible. Steps are listed for the creation of this type of environment. The matrix uses information from Bower (1993). Matrix developed by: Linda L. Nussbaumer, Ph.D., ASID, CID; South

[fig.7] Comparison of Housing Types

TYPES OF HOUSING	ADVANTAGES	DISADVANTAGES
Older House	Gassed out	Possible use of Insecticides or termiticides
	Hardwood floors	Lingering odor of artificial fragrances in closets
	Solid wood cabinetry	Possible use of asbestos or lead paint
	"In the Rough" (without remodeling)	Possible remodeling with toxic materials
	remodel with nontoxic materials)	Mold from: leaky roof or damp basement
	Replace old furnace with new furnace system	leaky furnace (may transport mold spores)
	new-more efficient and healthful	Old furnace system
Lustron House	Suitable for MCS	Not energy efficient
	Built of steel	Located in cities with outdoor air pollution
	Located in cities with outdoor air pollution	Difficult to hand pictures on walls of steel
		Magnets can be used
Mobile Home	Older is healthier	Avoid newer
	25 - 30 years old	Problems with older
	paneling & plywood has gassed out	closets--fragrances from clothing
	asphalt floors have gassed out	remodel with new materials
		poorly insulated
Apartments	Older preferred	Newer mass-produced units
	hardwood floors & plaster walls possible	least expensive material that contain chemical toxins
	steam heat	Old or new: odors, smells, fumes from other units
	upper floors: greater distance from basement & traffic fumes	
Temporary Housing	Hotels and motels:	Tents and campers
	similar to information under apartments	tents treated with waterproofing chemicals
		new campers constructed w/man-made products that may contain chemical toxins
Remodeling or Building New	Hiring contractor familiar with nontoxic construct	More expensive
	Allow for gas out time	
	Require nontoxic materials and techniques	

A comparison of housing types matrix that explains the advantages and disadvantages of each type. The matrix uses information from Bower (1993). Matrix developed by: Linda L. Nussbaumer, Ph.D., ASID, CID; South Dakota State University.

