		EXPOSURE		
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control

		EXPOSURE			
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control	
Asbestos	Inhalation	 Insulation Fire-protective coatings on combustion equipment Worn flooring Exterior cladding 	 Air drawn in from outside Tracked-in dust Dust from remodeling Dust from asbestos removal projects 	 Cover and seal suspected asbestos-containing material and do not disturb Use qualified contractor to remove asbestos-containing materials; remove occupants during and immediately after 	
Resources: Chapter 7 - Indoor Air		Roadside dust		asbestos-removal project Remove shoes at door or wipe feet on door mats	
Handout: Asbestos					

			EXPOSURE	
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control
Resources: Chapter 2 - Asthma Chapter 7 - Indoor Air Chapter 8 - Chemicals Handouts: Hazardous Household Products, Asthma Poison	Inhaled, ingested, or skin contact Allergen Irritant Carcinogen	 Sources Improper selection of cleaning products Improper use of cleaning products Proper use of products, but by people who are allergic or sensitive to those products Spills Interaction between cleaning compounds 	 Inhalation of fumes released during normal use drying Abnormally high exposure from spills Skin contact with caustic compounds or other irritants Accidental ingestion misidentification by children and others 	Reduce the need for cleaning products by using door mats or a shoes-off policy and by selecting easy-to-clean finishes and furnishings Increase ventilation during drying period Substitute less-toxic or nontoxic products Follow proper storage, use, and disposal procedures Clean when sensitive individuals are not present Consider maintenance and cleaning requirements when remodeling or selecting new furnishings

			EXPOSURE	
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control
Hazard Combustion products Resources: Chapter 7 - Indoor Air Handouts: Carbon Monoxide & Combustion Appliances, ETS-Secondhand Smoke, Fire Extinguishers, Poison, Smoke Detectors	Potential Effects Inhaled or ingested Irritant Toxin Carcinogen	Sources Combustion in the house Traffic Neighbors (residential, commercial, or industrial)		Existing or Suggested Control Clean and inspect chimney and flue annually Maintain equipment Professional inspection for backdrafting Avoid unvented space heaters Provide positive exhaust for any combustion equipment Provide outdoor air source for combustion equipment

			EXPOSURE	
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control
Dust/Particles Resources: There are references to particles in Chapters 2-9, depending on the nature of the particles. Handouts: Cleaning, Carpet, Asthma, Ozone	Inhaled Irritant Allergen Carcinogen	Combustion, including tobacco smoke, wood stoves, and outdoor trash fires Nearby road traffic Nearby exposed dirt/sand Tracked-in dirt Pets Skin flakes Fabric, paper, or mineral fibers Indoor dust Dust mites	Dust disturbed during cleaning (e.g., sweeping, vacuuming) Dust disturbed by wind Proximity to combustion source (e.g., smoker, wood stove, trash fire)	Remove shoes when entering house or wipe shoes on floor mat Avoid indoor (furry or feathered) pets Use vacuum with HEPA filter Control indoor humidity to discourage dust mites Wash bedclothes in hot water Minimize upholstery, carpeting, other dust-catching furnishings

		EXPOSURE			
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control	
Fire Handouts: General Safety, Fire Extinguishers, Smoke Detectors, Carbon Monoxide & Combustion Appliances	Lung damage, burns, or death	② Combustion in house or yard	 Indoor smoking Electrical malfunction Misuse of electrical heating appliances Cooking accident Chimney fire (e.g., fireplaces, woodburning stoves) Spontaneous combustion of flammable materials Hobby/workshop use of propane torch Children playing with matches 	 Install and maintain smoke detectors Keep and maintain fire extinguishers in kitchen, basement, garage Prohibit indoor smoking Store flammable materials and trash away from house Clean, inspect and maintain fireplace and wood burning stove chimneys/flues Upgrade electrical system to handle load; avoid overuse of extension cords Repair or replace frayed or defective electrical cords Do not leave fires unattended Control hobby and workshop areas to maintain clean, safe conditions Store matches & lighters out of reach of children Use electrical outlet covers on unused outlets (homes with young children) 	

		EXPOSURE		
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control
Food borne and water-borne pathogens	Ingestion Toxin Pathogen	 Contaminated food Improperly-stored food Contaminated water 	Ingestion of contaminated food or water or spoiled food	 Boil or filter water or use bottled water for drinking if contamination is suspected Cook food thoroughly to destroy bacteria Store food properly; maintain
Handouts: Food Safety, Hygiene				refrigerator and freezer cold enough to retard spoilage Use food within recommended time period after purchase Discard suspect food items without eating them Do not allow pests to live in house

		EXPOSURE		
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control
Formaldehyde	Inhaled	 Composition wood products (e.g., particleboard, plywood) Resins Adhesives New furnishings 	2 Inhalation of fumes released during curing process	 Seal formaldehyde-containing materials completely Select materials that do not contain formaldehyde Allow time for new furnishings (e.g., furniture, carpet) to cure after installation and before occupancy
Resources: Chapter 2- Asthma Chapter 7 - Indoor Air				
Handouts: Formaldehyde, Asthma				

		EXPOSURE				
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control		
Resources: Chapter 4 -Lead Chapter 7 - Indoor Air Handouts: Lead, Cleaning	Chronic poisoning by ingestion or inhalation	Lead compounds from: Lead-based paint and paint dust Soil contaminated with lead from gasoline and other leaded petroleum distillates Plumbing piping (e.g., lead pipe, lead solder)	 Eating paint chips Hand-to-mouth transfer of dust from painted surfaces Inhalation or ingestion of lead-containing soil and dust tracked into the home Drinking lead-contaminated water Contact with old, lead-containing toys 	If lead is suspected, test to confirm its presence in water, paint or other materials Flush water pipes before drinking by running water for 1-2 minutes full force Temporary controls- repair damaged painted surfaces; cover lead-contaminated soil with (nonfood) plantings Permanent controls- use a qualified professional to remove lead-contaminated materials Control moisture to avoid blistering of lead paint Clean up paint chips immediately (Renters - notify the landlord promptly when you are aware of chipping or peeling paint) Wash children's hands often, especially before meals and before nap or bed time Keep play areas clean, including floors, window frames, window sills, and other surfaces. Rinse cleaning sponges and mops thoroughly after cleaning dirty and dusty surfaces. Prevent children from chewing on painted surfaces such as window sills. Remove or clean shoes before entering house to avoid tracking in dust Feed children nutritious, low-fat meals high in iron and calcium. (A good diet helps to reduce lead absorption.)		

			EXPOSURE	
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control
Mold will grow wherever it can find sources of moisture and nourishment. Resources: Chapter 2 - Asthma, Chapter 6 - Mold, Chapter 7 - Indoor Air, Appendix - Regional Concerns Handouts: Moisture & Mold, Asthma, Cleaning, Crawlspaces, Food Safety, Poison	Inhaled, ingested Irritants Allergens Opportunistic pathogens Toxins	 Moist carbon-containing materials - wood, paper, food, fabrics Wet or damp dusty surfaces Bird or bat droppings 	Ingestion of moldy food. Inhalation of air containing mold spores, mold parts or byproducts (note: many fungal spores are small enough to remain airborne for substantial lengths of time)	 Proper food storage and disposal Keep the building dry repair water leaks (e.g., roofs, gutters, drainage, plumbing) promptly, prevent water entry from outside, and control indoor humidity and condensation Use highest quality filters compatible with air moving equipment; replace regularly Sanitary housekeeping practices - clean and disinfect (follow cleaning guidance); dispose of contaminated materials Use personal protection (respirators, eye protection) during cleaning and decontamination Provide adequate ventilation for moist areas (e.g., kitchen, bathroom) including mechanical exhaust ventilation

			EXPOSURE	
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control
Paints & Varnishes Resources: Chapter 2 - Asthma Chapter 7 - Indoor Air Chapter 8 - Chemicals	Inhaled, ingested, or skin contact Allergen Irritant Carcinogen	 Wet paints/varnishes Drying/curing paints & varnishes Dust and chips of dried paint 	 Inhalation of fumes from wet or newly-applied paints/varnishes Skin contact with wet paint/varnish Ingestion of paint chips or dust Accidental ingestion of paints, varnishes, or 	 Select the least toxic products that will accomplish the job (bear in mind cleaning requirements and life expectancy) Use products that are durable and easy to clean Remove residents during painting and keep them away
Handouts: Hazardous Household Products, Asthma, Art/Crafts/Hobbies, Poison			solvents by children	during drying Increase ventilation during drying/curing Proper storage Proper disposal

		EXPOSURE		
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control
Pesticides See also Pests Resources: Chapter 8 - Chemicals Chapter 9 - Pests Handouts: Pest Control, Hazardous Household Products, Poison	Acute and chronic poisoning by ingestion, inhalation, and skin absorption	Pesticides (fumes, liquids, solids) - direct contact Pesticide-contaminated food Pesticide-contaminated soils	 Consumption of pesticide-contaminated food or water (also consumption of dirt, mothballs, and rat poison by babies and young children) Hand-to-mouth transfer or skin absorption after contact with pesticide-contaminated materials Inhalation, skin absorption, or hand-to-mouth transfer during use of pesticides 	 Avoid use of pesticides by adopting IPM strategies Wear painter's respirator and disposable gloves when using pesticides, wash thoroughly after use Regular handwashing, especially before meals, naps and bedtime Good housekeeping practices -vacuum and wash surfaces regularly Remove shoes at door and use good doormats Be aware of pesticide usage in your neighborhood keep children and pets away from treated areas and indoors during pesticide application Secure storage Proper disposal Air mothballed clothes before wearing

		EXPOSURE			
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control	
Pests See also Pesticides	Inhaled, ingested, injected 2 Irritants	Insects, spiders, mites, rodents, birdsDroppings, urine, saliva	Inhalation or ingestion of dander, fur/hair, feather particles, skin scales,	Exclusion - seal possible entries, screen windows and doorsFilter incoming air	
Resources: Chapter 9 - Pests	AllergensPathogensToxins	Body parts, fur & feathers, dander, eggsVenom	 insect/mite/spider eggs and body parts Poisoning from pesticide exposure (see Pesticides) Pathogens - hantavirus, 	 Eliminate food and water sources Minimize available shelter - reduce clutter, vacuum, dust, and wash surfaces regularly Handwashing 	
Handouts: Pest Control, Hantavirus			rabies, histoplasmosis Venom from bites and stings	Handwashing	

		EXPOSURE		
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control
Pets Resources: Chapter 3 - Dust	AllergiesAsthma	DanderFur/hairFeathersBedding	 Inhalation or ingestion of dander, fur/hair, feather particles, skin scales Poisoning from pesticide exposure (flea treatments) 	 Avoid keeping indoor pets Regular vacuuming and washing of indoor surfaces Store pet food in secure containers; wash food dishes regularly and do not
Chapter 3 - Dust Chapter 8 - Chemicals Handouts: Cleaning, Asthma Pest Control			 Tracked-in dust, which may contain lead, other toxins or allergens Food and water supplies for pets attract pest species (Rarely) pathogens such as parrot fever, cat scratch fever, rabies, tularemia 	wash food dishes regularly and do not leave uneaten food sitting in dishes Wash pets regularly (once/week) Wash hands after touching pets Keep pets healthy with regular shots Consider non-pesticide based flea control

		EXPOSURE			
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control	
Plants Resources: Chapter 2 - Asthma	Inhaled, ingested, or skin contact	Indoor house plantsOutdoor plants (e.g., in yard)	 Ingestion of toxic or irritating fruits, leaves, or other plant parts Skin contact with irritating sap/resin from leaves or stem Inhalation of smoke containing toxins or 	 Exercise caution in selecting and locating outdoor and indoor plants Identify unfamiliar plants before touching them Protect hands, eyes, and skin from exposure and injury Control watering and provide overflow protection for indoor 	
Handouts: Poisonous Plants, Poison, Asthma			allergens from burning plants (e.g. poison ivy) Puncture wounds, cuts, scratches, splinters & thorns	plants to avoid mold problems	

		EXPOSURE		
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control
Hazard Radon Resources: Chapter 7 - Indoor Air Handout: Radon	Potential Effects Inhalation ② Carcinogen	Sources Soil Radium-containing building stone (unusual) Well water		Existing or Suggested Control Measure indoor radon levels, following EPA and state guidelines for time, location, and duration of test. Control indoor-outdoor pressure relationship to maintain neutral to positive pressure in ground contact rooms Prohibit indoor smoking and minimize other sources of dust/particles Seal visible entry points Treat entering water to remove radon Remove radium-bearing materials from building

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Tobacco smoke Resources: Chapter 5 - ETS Chapter 7 - Indoor Air	Inhaled or ingested Irritant Toxin Carcinogen	 Direct use (smoking) Indirect exposure (second-hand smoke) Exposure to smoke-saturated clothing, upholstery or other soft furnishings 	Inhalation of tobacco smoke and constituent chemicals, either due to direct exposure or exposure to re-emitted volatile compounds	 Prohibit indoor smoking Provide exhaust ventilation and limit smoking to areas with exhaust ventilation Regular cleaning of fabric (upholstery, clothing)
Handouts: ETS-Secondhand Smoke, Asthma Poison				

		EXPOSURE		
Hazard	Potential Effects	Sources	Exposure Mechanism	Existing or Suggested Control
Unsanitary conditions	Unsanitary locations can provide habitats for the growth of bacteria and molds, as well as pest species. Contact with	 Dirty dishes Unclean surfaces Insects Grease Unwashed hands 	 Cross-contamination Accidental ingestion Inhalation of contaminated air 	 Thorough clean-up Increased ventilation Use disinfectant Education Food thermometer
Resources: Chapter 2 - Asthma Chapter 6 - Mold	unsanitary conditions in one location leads to cross-contamination as the individual carries dirt to other locations. Inhaled or ingested Allergen			
Handouts: Asthma Moisture & Mold Hygiene	2 Toxin			