Building Management I

8590 36 weeks / 140 hours

Table of Contents

Acknowledgments ......................................................................................................................................... 1
Course Description ........................................................................................................................................ 2
Task Essentials List ....................................................................................................................................... 2
Curriculum Framework ................................................................................................................................. 6
Applying Basic Construction Safety Standards (Core Safety) ................................................................. 6
Measuring and Mixing Chemicals ................................................................................................................ 13
Performing Cleaning Operations .............................................................................................................. 15
Performing General Building Maintenance .............................................................................................. 21
Demonstrating Electrical Maintenance of Buildings .................................................................................. 26
Performing Plumbing Maintenance .......................................................................................................... 28
Maintaining Interior and Exterior Upkeep .................................................................................................. 32
Maintaining Grounds .................................................................................................................................. 34
SOL Correlation by Task ............................................................................................................................ 37
Customer Service Infusion Units .............................................................................................................. 39
Entrepreneurship Infusion Units ............................................................................................................... 39
Appendix: Credentials, Course Sequences, and Career Cluster Information ............................................. 40

Acknowledgments

The following educators served on the curriculum development team:

Barry Calloway, Bedford Science and Technology Center, Bedford County Public Schools
Michael J. Gelbaugh, BMR/HVAC Program Coordinator, Tidewater Tech, Norfolk
Mary L. Gresham, Richmond Technical Center, Richmond City Public Schools
James Simone, The Renaissance Academy, Virginia Beach City Public Schools
James Wright, Greensville County High School, Greensville County Public Schools
Course Description

Suggested Grade Level: 10 or 11

Students obtain the knowledge and skills to perform the upkeep of commercial and public buildings and grounds through hands-on training in cleaning operations, building repairs, electrical work, plumbing, and grounds maintenance.

As noted in Superintendent's Memo #058-17 (2-28-2017), this Career and Technical Education (CTE) course must maintain a maximum pupil-to-teacher ratio of 20 students to one teacher, due to safety regulations. The 2016-2018 biennial budget waiver of the teacher-to-pupil ratio staffing requirement does not apply.

Task Essentials List

- Tasks/competencies designated by plus icons (⊕) in the left-hand column(s) are essential
- Tasks/competencies designated by empty-circle icons (⊙) are optional
- Tasks/competencies designated by minus icons (⊖) are omitted
- Tasks marked with an asterisk (*) are sensitive.

<table>
<thead>
<tr>
<th>Task Number</th>
<th>8590</th>
<th>Tasks/Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applying Basic Construction Safety Standards (Core Safety)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Number</td>
<td>8590</td>
<td>Tasks/Competencies</td>
</tr>
<tr>
<td>-------------</td>
<td>------</td>
<td>--------------------</td>
</tr>
<tr>
<td>39</td>
<td></td>
<td>Comply with federal, state, and local safety legal requirements, including OSHA, VOSHA, and EPA.</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>Inspect and maintain a safe working environment.</td>
</tr>
<tr>
<td>41</td>
<td></td>
<td>Explain safe working practices around electrical hazards.</td>
</tr>
<tr>
<td>42</td>
<td></td>
<td>Identify emergency first-aid procedures.</td>
</tr>
<tr>
<td>43</td>
<td></td>
<td>Identify the types of fires and the methods used to extinguish them.</td>
</tr>
<tr>
<td>44</td>
<td></td>
<td>Identify PPE (personal protective equipment) requirements.</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>Inspect course-specific hand and power tools to visually identify defects.</td>
</tr>
<tr>
<td>46</td>
<td></td>
<td>Demonstrate lifting and carrying techniques.</td>
</tr>
<tr>
<td>47</td>
<td></td>
<td>Demonstrate safe laddering techniques.</td>
</tr>
<tr>
<td>48</td>
<td></td>
<td>Demonstrate safe scaffolding techniques.</td>
</tr>
<tr>
<td>49</td>
<td></td>
<td>Report injuries.</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>Report personal, environmental, and equipment safety violations to the appropriate authority.</td>
</tr>
<tr>
<td>51</td>
<td></td>
<td>Earn the OSHA 10 card.</td>
</tr>
<tr>
<td>52</td>
<td></td>
<td>Pass safety exam.</td>
</tr>
</tbody>
</table>

**Measuring and Mixing Chemicals**

<table>
<thead>
<tr>
<th>Task Number</th>
<th>8590</th>
<th>Tasks/Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>53</td>
<td></td>
<td>Demonstrate safety practices in the measuring and mixing of chemicals.</td>
</tr>
<tr>
<td>54</td>
<td></td>
<td>Demonstrate procedures to measure and mix chemicals.</td>
</tr>
<tr>
<td>55</td>
<td></td>
<td>Define chemical terminology related to building management.</td>
</tr>
<tr>
<td>56</td>
<td></td>
<td>Ventilate harmful vapors from a confined area.</td>
</tr>
<tr>
<td>Task Number</td>
<td>8590</td>
<td>Tasks/Competencies</td>
</tr>
<tr>
<td>-------------</td>
<td>------</td>
<td>-------------------</td>
</tr>
<tr>
<td><strong>Performing Cleaning Operations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>+</td>
<td>Identify types of surfaces.</td>
</tr>
<tr>
<td>58</td>
<td>+</td>
<td>Demonstrate procedures used to clean office spaces.</td>
</tr>
<tr>
<td>59</td>
<td>+</td>
<td>Demonstrate procedures used to clean classrooms.</td>
</tr>
<tr>
<td>60</td>
<td>+</td>
<td>Demonstrate procedures used to clean restrooms.</td>
</tr>
<tr>
<td>61</td>
<td>+</td>
<td>Demonstrate procedures used to maintain common flooring types.</td>
</tr>
<tr>
<td>62</td>
<td>+</td>
<td>Demonstrate procedures used to care for carpets.</td>
</tr>
<tr>
<td>63</td>
<td>+</td>
<td>Dust and clean furniture and fixtures.</td>
</tr>
<tr>
<td>64</td>
<td>+</td>
<td>Collect and dispose of trash.</td>
</tr>
<tr>
<td>65</td>
<td>+</td>
<td>Clean windows.</td>
</tr>
<tr>
<td>66</td>
<td>+</td>
<td>Clean blinds, shades, and shutters.</td>
</tr>
<tr>
<td>67</td>
<td>+</td>
<td>Surface-clean upholstery.</td>
</tr>
<tr>
<td><strong>Performing General Building Maintenance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>+</td>
<td>Locate wall studs.</td>
</tr>
<tr>
<td>69</td>
<td>+</td>
<td>Make a caulking joint.</td>
</tr>
<tr>
<td>70</td>
<td>+</td>
<td>Caulk doors and windows.</td>
</tr>
<tr>
<td>71</td>
<td>+</td>
<td>Install a door lock set.</td>
</tr>
<tr>
<td>72</td>
<td>+</td>
<td>Replace acoustical tile.</td>
</tr>
<tr>
<td>73</td>
<td>+</td>
<td>Fill nail holes.</td>
</tr>
<tr>
<td>74</td>
<td>+</td>
<td>Prepare new wood for painting.</td>
</tr>
<tr>
<td>Task Number</td>
<td>8590</td>
<td>Tasks/Competencies</td>
</tr>
<tr>
<td>-------------</td>
<td>------</td>
<td>--------------------</td>
</tr>
<tr>
<td>75</td>
<td>☐</td>
<td>Light pilot on gas-fed equipment.</td>
</tr>
<tr>
<td>76</td>
<td>☐</td>
<td>Paint exposed pipes.</td>
</tr>
<tr>
<td>77</td>
<td>☐</td>
<td>Describe weatherization procedures.</td>
</tr>
</tbody>
</table>

**Demonstrating Electrical Maintenance of Buildings**

<table>
<thead>
<tr>
<th>Task Number</th>
<th>8590</th>
<th>Tasks/Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>78</td>
<td>☐</td>
<td>Attach a separable plug to an appliance.</td>
</tr>
<tr>
<td>79</td>
<td>☐</td>
<td>Reset circuit overload.</td>
</tr>
<tr>
<td>80</td>
<td>☐</td>
<td>Replace a blown fuse.</td>
</tr>
<tr>
<td>81</td>
<td>☐</td>
<td>Reset timing devices.</td>
</tr>
</tbody>
</table>

**Performing Plumbing Maintenance**

<table>
<thead>
<tr>
<th>Task Number</th>
<th>8590</th>
<th>Tasks/Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>82</td>
<td>☐</td>
<td>Tighten fittings on chrome pipe.</td>
</tr>
<tr>
<td>83</td>
<td>☐</td>
<td>Drain water from plumbing.</td>
</tr>
<tr>
<td>84</td>
<td>☐</td>
<td>Repair compression faucet.</td>
</tr>
<tr>
<td>85</td>
<td>☐</td>
<td>Replace flush valve.</td>
</tr>
<tr>
<td>86</td>
<td>☐</td>
<td>Replace toilet seat.</td>
</tr>
<tr>
<td>87</td>
<td>☐</td>
<td>Replace wax ring gasket on commode.</td>
</tr>
<tr>
<td>88</td>
<td>☐</td>
<td>Demonstrate the opening of clogged sewer drains, using a biodegradable drain cleaner.</td>
</tr>
<tr>
<td>89</td>
<td>☐</td>
<td>Demonstrate the opening of clogged drains, using a vacuum plunger.</td>
</tr>
</tbody>
</table>

**Maintaining Interior and Exterior Upkeep**

<table>
<thead>
<tr>
<th>Task Number</th>
<th>8590</th>
<th>Tasks/Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td>☐</td>
<td>Remove paint, using a scraper.</td>
</tr>
<tr>
<td>Task Number</td>
<td>8590</td>
<td>Tasks/Competencies</td>
</tr>
<tr>
<td>-------------</td>
<td>------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>91</td>
<td></td>
<td>Clean condenser on refrigeration unit.</td>
</tr>
<tr>
<td>92</td>
<td></td>
<td>Clean electric motor.</td>
</tr>
<tr>
<td>93</td>
<td></td>
<td>Clean intake filter on window unit.</td>
</tr>
<tr>
<td>94</td>
<td></td>
<td>Replace filters for heating and cooling units.</td>
</tr>
</tbody>
</table>

Maintaining Grounds

<table>
<thead>
<tr>
<th>Task Number</th>
<th>8590</th>
<th>Tasks/Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>95</td>
<td></td>
<td>Demonstrate small-engine operation.</td>
</tr>
<tr>
<td>96</td>
<td></td>
<td>Maintain residential grounds.</td>
</tr>
<tr>
<td>97</td>
<td></td>
<td>Loosen packed soil.</td>
</tr>
<tr>
<td>98</td>
<td></td>
<td>Identify mowing, trimming, and grounds-care equipment and operating procedures.</td>
</tr>
</tbody>
</table>

Legend: ✦Essential ☼Non-essential ☞Omitted

**Curriculum Framework**

**Applying Basic Construction Safety Standards (Core Safety)**

**Task Number 39**

Comply with federal, state, and local safety legal requirements, including OSHA, VOSHA, and EPA.

**Definition**
Compliance should include the identification of the Hazard Communication Standard, the information included on Safety Data Sheets (SDS), and the responsibilities of employers and employees under Hazard Communication regulation.

**Process/Skill Questions**

- Where should hazardous materials be stored?
- What information can be found on a Safety Data Sheet (SDS)?

---

**Task Number 40**

**Inspect and maintain a safe working environment.**

**Definition**

Inspection and maintenance should be ongoing and should result in identifying potential hazards on a job site or in the lab, such as unstable or improperly erected scaffolding, electrical hazards, job site debris, improperly stored materials, and air quality hazards and when present, must be remedied by appropriate measures and comply with school and instructor's guidelines.

**Process/Skill Questions**

- What are some examples of job-site hazards?
- Why is it important to use good housekeeping standards on a job site?
- Why is it important to store materials and tools in their proper place?

---

**Task Number 41**

**Explain safe working practices around electrical hazards.**

**Definition**

Explanation should include

- identifying equipment used to test electrical circuits
- describing safe working conditions
- demonstrating safe work habits

according to industry standards and instructor's guidelines.
Process/Skill Questions

- What is the definition of proximity work?
- What are safe working clearances according to the National Electric Code (NEC)?
- What are some examples of safe working conditions and safe working habits?
- What is the unseen hazard with electrical work?

Task Number 42

Identify emergency first-aid procedures.

Definition

Identification should include first-aid procedures for accidents involving

- bodily fluids
- electrical injuries
- eye injuries
- falls
- burns

according to standard first-aid and school policies.

Process/Skill Questions

- What are the steps that should be followed in the event of an accident?
- Why is knowing CPR an important skill within the electrical trades?
- Why is it important to be certified to administer first aid?
- What are the different classifications (degrees) of electrical burns?

Task Number 43

Identify the types of fires and the methods used to extinguish them.

Definition
Identification should include the classifications of fires (A, B, C, D, and K), causes and prevention of fires, types of extinguishers, and, when possible, the demonstrated use of a fire extinguisher, in accordance with government regulations and instructor's guidelines.

**Process/Skill Questions**

- Why do fires have different classifications, and what are they?
- What is the fire triangle?
- What are the three things necessary to start a fire?
- Why is it important to know the classification of fire when trying to extinguish it?
- Why and how often should fire extinguishers be inspected?
- What are the classifications of extinguishers?

---

**Task Number 44**

**Identify PPE (personal protective equipment) requirements.**

**Definition**

Identification should include procedures for properly putting on, wearing, removing, and maintaining PPE and inspecting PPE to determine if it is safe to use. Appropriate PPE may include eye protection, respirator, hard hat, gloves, safety harness, hearing protection, and safety shoes.

**Process/Skill Questions**

- What are some dangerous effects of sun exposure, and how can one prevent these effects?
- Why is wearing jewelry prohibited while in the lab or on the job site?

---

**Task Number 45**

**Inspect course-specific hand and power tools to visually identify defects.**

**Definition**

Inspection of power tools should include
• identifying components of machinery (e.g., guards, blades, moving parts, start/stop switches, cords)
• identifying standard safety procedures (i.e., shop practices, manufacturer's recommendations)
• observing a demonstration of the safe operation and use of each piece of machinery in the shop.

Inspection of hand tools should include identification of tool defects.

Process/Skill Questions

• What are some of the basic power tools used in construction?
• What are the proper actions to take before using a power circular saw?
• Why should a power tool always be grounded?

Task Number 46

Demonstrate lifting and carrying techniques.

Definition

Demonstration should involve lifting and carrying materials and equipment based on the principles of

• lifting with legs
• keeping back straight
• holding load close to the body
• getting help, if necessary

in accordance with government regulations and instructor's guidelines.

Process/Skill Questions

• What are common injuries associated with improper lifting techniques?
• What can one do to prevent injury?
• How does proper positioning affect proper technique?

Task Number 47

Demonstrate safe laddering techniques.
Definition

Demonstration should involve using appropriate conduct and safety procedures while using ladders (e.g., three-point contact), while carrying ladders (e.g., two people at all times), and while erecting and setting ladders. Identification of ladder types may include:

- wall (straight) ladder
- extension ladder
- roof ladder
- attic ladder
- special purpose ladders (e.g., "A" ladder, folding ladder, pompier ladder)
- solid beam ladder
- truss beam wood ladder
- aluminum ladder
- wood and aluminum truss ladder
- fiberglass ladder

and the parts and safety features of each.

Process/Skill Questions

- Why are ladders rated for certain weights?
- Why is the apex of a stepladder not considered a step?

Task Number 48

Demonstrate safe scaffolding techniques.

Definition

Demonstration should include inspecting settings, duty ratings, and safety tags.

Process/Skill Questions

- How can one determine the safe weight limit of any particular scaffolding?
- What are some examples of situations in which scaffolding is preferred or required?

Task Number 49

Report injuries.
Definition

Report should consist of an immediate oral statement of the job-related or non-job-related injury to the instructor or supervisor, and may be followed by a written confirmation reporting date, extent of injury, and circumstances of the accident.

Process/Skill Questions

- Why is it important to report injuries?
- What are common reporting procedures?
- Why is it important to report an injury promptly? Before leaving the job site?
- What is worker's compensation?
- What are the key components of an injury report?

Task Number 50

Report personal, environmental, and equipment safety violations to the appropriate authority.

Definition

Report should include an oral or written statement identifying the violation and the date it was observed and should be given to the instructor, supervisor, or the local OSHA inspectors.

Process/Skill Questions

- What ethical considerations might be involved when reporting coworkers?
- Why is it important to follow reporting procedures?
- What is liability?

Task Number 51

Earn the OSHA 10 card.

Definition

Earning an OSHA 10 card will

- recognize that one has acquired 10 hours of safety instruction
• help teach national standards for personal safety within a lab environment
• validate safety skills to the industry
• help workers become more safety conscious and responsible.

Process/Skill Questions

• What are the benefits of earning the OSHA 10 card?
• What is OSHA and how are its standards validated?
• Why was OSHA established and how has it evolved?

---

Task Number 52

Pass safety exam.

Definition

Assessment must measure participation in safety training programs, including attending safety meetings and completing periodic demonstration of knowledge and skills gained from program topics (e.g., interpretation of Safety Data Sheets).

Process/Skill Questions

• How often should one participate in safety training programs? Why?
• How does insurance impact the requirement of continuous retraining for safety?

Measuring and Mixing Chemicals

Task Number 53

Demonstrate safety practices in the measuring and mixing of chemicals.

Definition

Demonstration should include using safety practices and PPE when measuring and mixing chemicals.

Process/Skill Questions

• What documentation should you read before mixing any chemicals?
• Why is PPE important when mixing chemicals?
• What are some examples of PPE used when mixing chemicals?
• Where would you find first-aid information for chemical exposure?
• Which chemicals should you avoid mixing together? Why?

Task Number 54

Demonstrate procedures to measure and mix chemicals.

Definition

Demonstration should include

• selecting PPE
• identifying the various volumes of measuring cups
• mixing chemicals according to the manufacturer’s instructions or other specified ratios.

Process/Skill Questions

• Why must chemicals be measured?
• Where would instructions be found for mixing a given chemical to the manufacturer's specifications?
• What consequences may result from not mixing chemicals to the manufacturer's specifications?
• What does the ratio 1:64 mean?
• Why is it important to be able to convert measurements from one unit of volume to another (e.g., cups to quarts)?

Task Number 55

Define chemical terminology related to building management.

Definition

Defining chemical terminology used in building management should include

• *all-purpose cleaner*
• *biodegradable ("green") cleaners*
• disinfectant
• floor finish
• organic digesters
• sealer
• spray buff
• stripper.

Process/Skill Questions

• What is floor finish?
• When should sealer be used? Why?
• What is an organic digester?
• What is a disinfectant?
• What safety precautions should be used when working with chemicals?
• What are the benefits of biodegradable ("green") cleaners?

Task Number 56

Ventilate harmful vapors from a confined area.

Definition

Ventilation should include

• selecting PPE and equipment
• opening exterior doors and windows as needed to introduce outside air
• using fans to remove harmful vapors.

Process/Skill Questions

• Why is the correct PPE important when working around harmful vapors in a confined area?
• What are the differences between particle masks and respirators?
• What are some examples of confined areas or spaces that might be encountered in building management?
• What are the relevant safety precautions and procedures to follow when ventilating vapor from a confined area?
• What tools may be helpful in ventilating an area?
• Why is it important to have the ventilated area inspected by the fire department?

Performing Cleaning Operations
Task Number 57

Identify types of surfaces.

Definition

Identification should include various types of surfaces (e.g., resilient tile, terrazzo, concrete, drywall, plaster, wallpaper, ceramic tile, slate, wood).

Process/Skill Questions

- What is terrazzo?
- What is resilient tile?
- What are the steps to refinish a resilient-tile floor?

Task Number 58

Demonstrate procedures used to clean office spaces.

Definition

Demonstration should include

- selecting PPE
- identifying the equipment used to clean offices on a daily basis (e.g., brooms, dust mops, vacuums, trash carts, wet mops, buckets)
- applying the procedures used to clean these areas.

Process/Skill Questions

- What equipment should be used to clean carpeted offices?
- When cleaning a carpeted office, what is the start point for furniture?
- What is the most cost-effective way to maintain an office with resilient tile floors?

Task Number 59

Demonstrate procedures used to clean classrooms.

Definition
Demonstration should include

- selecting PPE
- identifying the equipment used to clean classrooms on a daily basis (e.g., brooms, dust mops, vacuums, trash carts, wet mops, buckets)
- applying the procedures used to clean these areas.

Process/Skill Questions

- What equipment should be used to clean carpeted classrooms?
- When cleaning a carpeted classroom, what is the start point for furniture?
- What is the most cost-effective way to maintain a classroom with resilient tile floors?

---

Task Number 60

Demonstrate procedures used to clean restrooms.

Definition

Demonstration should include

- selecting PPE
- identifying the equipment used to clean restrooms (e.g., brooms, dust mops, vacuums, trash carts, wet mops, buckets)
- applying the procedures used to clean and sanitize restrooms, such as removing mildew, lime, and rust, and disinfecting.

Process/Skill Questions

- What is the first step in the procedure of cleaning a restroom?
- How is water removed from the toilet bowl before cleaning?
- What type of chemical would be used to sanitize a restroom or shower?

---

Task Number 61

Demonstrate procedures used to maintain common flooring types.

Definition
Demonstration should include

- selecting PPE
- identifying the floor material
- applying procedures and using equipment for daily floor care, including dust-mopping and scrubbing.

**Process/Skill Questions**

- Why is floor maintenance important in a commercial setting?
- What equipment should be used to scrub a floor?
- What are the benefits of resilient tile?
- What are the various types of quarry tile?

---

**Task Number 62**

**Demonstrate procedures used to care for carpets.**

**Definition**

Demonstration should include

- selecting PPE
- applying methods of vacuuming and spot cleaning.

**Process/Skill Questions**

- Why is vacuuming done on a daily basis in a commercial setting?
- When cleaning a carpeted office, what is the start point for furniture?

---

**Task Number 63**

**Dust and clean furniture and fixtures.**

**Definition**

Process should include

- selecting PPE
• identifying the supplies used when dusting and cleaning furniture and fixtures (e.g., rags, furniture polish, feather dusters, all-purpose cleaners, putty knives, mini-blind dusters)
• demonstrating the procedures used to clean various pieces of furniture and fixtures.

Process/Skill Questions

• What are the steps for cleaning a desk?
• How should you clean a mini blind?
• What precautions should be taken when using furniture polish in an area with a resilient floor?

Task Number 64

Collect and dispose of trash.

Definition

Collection and disposal should include the procedures for the safe handling, separation, and disposal of various types of trash (e.g., biohazardous waste, glass, oily or greasy rags) that may be encountered in a commercial or public setting.

Process/Skill Questions

• How and why are red bags used?
• What are the dangers of using your hands to compact trash in a waste container?
• How should oily or greasy rags be handled?
• How should broken glass be collected?

Task Number 65

Clean windows.

Definition

Cleaning windows should include

• selecting PPE
• identifying the tools, supplies, and equipment used to clean windows
• demonstrating the procedures used to clean windows with scrubbers, squeegees, glass cleaner, paper towels, and water-fed poles.
Process/Skill Questions

- Why should rags not be used to clean windows?
- How can you prevent streaks when cleaning windows with squeegees?
- What are the safety procedures for using ladders when cleaning windows?

Task Number 66

Clean blinds, shades, and shutters.

Definition

Cleaning should include

- selecting PPE
- identifying the tools and equipment used to clean blinds, shades, and shutters of various types
- demonstrating the procedures used to clean mini blinds, shades, and shutters with dust rags, feather dusters, mini-blind cleaners, soap and water, and water hoses.

Process/Skill Questions

- What position should mini blinds be in when cleaning with dust rags?
- What precautions should be taken when cleaning shutters with water hoses and pressure washers?
- What are the procedures used to clean shades with soap and water?
- Why should you avoid using soap and water on wooden mini blinds?

Task Number 67

Surface-clean upholstery.

Definition

Surface-cleaning should include

- selecting PPE
- identifying the tools and equipment used to clean upholstery
- demonstrating the procedures used to clean upholstery with a cleaning kit or vacuum crevice tools.
Process/Skill Questions

- What PPE should be used when cleaning upholstery?
- What tools are used in the cleaning of upholstery?
- What chemicals are used in the cleaning of upholstery?

Performing General Building Maintenance

Task Number 68

Locate wall studs.

Definition

Locating wall studs should include

- selecting PPE, materials, and tools
- visually inspecting for nails
- sound testing by tapping
- using a stud finder
- measuring a standard distance from corners.

Process/Skill Questions

- What are the relevant safety precautions/procedures to follow when locating wall studs?
- What tools would be useful for locating wall studs?
- What is the purpose of a sound test?

Task Number 69

Make a caulking joint.

Definition

Making a caulking joint should include

- selecting PPE, materials, and tools
- removing the old caulking
- cleaning the joint
- applying new caulking.
Process/Skill Questions

- What tools are required for caulking work?
- Why is it important to select the proper tools when making a caulking joint?
- Why is it important to select the proper caulk for a job?
- What does it mean if the caulking joint is loose after it has set?

Task Number 70

Caulk doors and windows.

Definition

Caulking should include

- selecting PPE, materials, and tools
- removing the old caulking
- filling the joint so that air will not enter.

Process/Skill Questions

- What steps should be followed when caulking doors and windows?
- At what angle should the tube of caulk be held?
- How should larger cracks be filled?

Task Number 71

Install a door lock set.

Definition

Installation should include

- selecting PPE, materials, and tools
- removing the inside door knob rosette and strike plate
- removing the cylinder and outside knob
- replacing each.

Process/Skill Questions
• What PPE, tools, and materials are required for replacing a door lock set?
• What are the parts of a lock set? What is the purpose of each part?
• Why might a door lock set need to be replaced?

---

**Task Number 72**

**Replace acoustical tile.**

**Definition**

Replacement should include

• selecting PPE, materials, and tools
• removing old tile
• cutting, fitting, and installing new tile.

**Process/Skill Questions**

• What are some reasons for the replacement of acoustical tile?
• What is the cutting technique for 2 x 2 tile?

---

**Task Number 73**

**Fill nail holes.**

**Definition**

Filling nail holes should include

• selecting PPE, materials, and tools
• choosing the correct size nail set
• setting the nail below the surface of the material
• filling the hole by forcing filler into the hole until slightly overfull
• sanding the filler smooth and level with the surface of the wood.

**Process/Skill Questions**

• What PPE, tools, and safety procedures are used when filling nail holes?
• When is it necessary to fill nail holes?
• Should nail holes be smooth before finishing wood? Why, or why not?
Task Number 74

Prepare new wood for painting.

Definition

Preparation should include

- selecting PPE, materials, and tools
- cleaning the wood of dust, soiled areas, and dirt, using sandpaper or new wood cleaner
- sanding rough edges and surfaces until smooth
- filling nail holes
- applying a coat of primer.

Process/Skill Questions

- What PPE, tools, and materials are required when preparing new wood for painting?
- Why is it important to prepare new wood for painting?
- Why is it important to use a primer on new wood?
- What might occur if primer is not used prior to painting new wood?

Task Number 75

Light pilot on gas-fed equipment.

Definition

Lighting a pilot should include

- selecting PPE and tools
- accessing the pilot light assembly
- following the manufacturer's instructions.

Process/Skill Questions

- Why do you need a long-handle lighter when lighting a pilot?
- What is the purpose of a pilot light?
- What is the correct procedure to follow if you smell gas?
- Should the area where gas-fed equipment is being lit be ventilated? Why, or why not?
Task Number 76

Paint exposed pipes.

Definition

Painting should include

- selecting PPE, materials, and tools
- removing old paint, scales, or rust
- applying primer and a new coat of paint.

Process/Skill Questions

- What kind of PPE must be worn when removing paint?
- What are the tools and materials required for painting pipes?
- Should the work area be ventilated when painting exposed pipes? Why, or why not?

Task Number 77

Describe weatherization procedures.

Definition

Description should include procedures for

- selecting PPE, materials, and tools
- checking for air and water leaks
- identifying temperature fluctuations
- performing an energy audit
- correcting identified deficiencies.

Process/Skill Questions

- What type of PPE should be worn when weatherizing doors or windows?
- What are the procedures for checking for air and water leaks?
- How is an energy audit performed?
Demonstrating Electrical Maintenance of Buildings

Task Number 78

Attach a separable plug to an appliance.

Definition

Attachment should include

- cutting the cord 1 inch from the plug
- splitting the cord covering 2 inches from and exposing insulation-covered wires
- stripping the insulation from the wires according to the gauge on the new plug
- pushing the wire through the opening on the new plug
- attaching the wires to the proper terminals
- plugging in the appliance and checking performance.

Process/Skill Questions

- What are the relevant safety precautions/procedures for attaching a separable plug to an appliance?
- What are some factors indicating the need to replace a plug on an appliance cord?
- What are the tools and materials required for replacing a plug on an appliance cord?

Task Number 79

Reset circuit overload.

Definition

Resetting should include

- opening the panel board cover
- visually inspecting for a tripped circuit breaker
- resetting the breaker.

Process/Skill Questions

- What are the relevant safety precautions/procedures for locating circuit overload?
What are some factors that may contribute to circuit overload?
What are the tools used for correcting circuit-overloading problems?

Task Number 80

Replace a blown fuse.

Definition

Replacement should include

- inspecting the fuse box for a blown fuse
- turning off main power sources after locating the blown fuse
- unscrewing the blown fuse and removing from the box
- screwing in or plugging the new fuse into the box
- turning on power.

Process/Skill Questions

- What are the relevant safety precautions/procedures for replacing a blown fuse?
- What are some conditions that may account for fuses blowing?
- What tools are used for replacing a fuse?

Task Number 81

Reset timing devices.

Definition

Resetting timing devices should include

- ensuring the equipment is turned off (if applicable)
- setting the appropriate time
- turning on the equipment (if applicable).

Process/Skill Questions

- What are the relevant safety precautions/procedures for operating timing equipment?
- What are the tools used to operate timing equipment safely?
- What is the immediate danger of adjusting timing equipment?
Performing Plumbing Maintenance

Task Number 82

Tighten fittings on chrome pipe.

Definition

Tightening should include the following steps:

- Assemble tools and equipment.
- Back the slip nut off and check for washer.
- Replace the washer and tighten.
- Tighten slip nuts, using a smooth-jawed wrench or strap wrench.

Process/Skill Questions

- How can chrome finishes be protected?
- What tools are used for working with chrome pipe?
- In what area could chrome pipe be used?

Task Number 83

Drain water from plumbing.

Definition

Draining should include the following steps:

- Assemble tools and equipment.
- Turn off the main water supply valve.
- Turn off the water heater.
- Open the lowest and highest faucet in the building.
- Let water drain from plumbing.

Process/Skill Questions

- Where is the main water supply valve located?
- What type of tool is used to turn off the main water supply?
- When should water be drained from plumbing?
Task Number 84

Repair compression faucet.

Definition

Repair should include the following steps:

- Assemble tools and equipment.
- Disassemble faucet.
- Remove and replace worn parts.
- Reassemble faucet.

Process/Skill Questions

- What are some factors that may account for a faucet not working properly?
- What parts of a faucet typically wear out?
- Can all faucets be repaired? Why, or why not?
- What tools are required for repairing a faucet?

Task Number 85

Replace flush valve.

Definition

Replacement should include the following steps:

- Assemble tools and equipment.
- Shut off water.
- Remove the lid from the tank.
- Drain all water.
- Remove the nut from the underside of tank and remove the flush valve.
- Replace the flush valve and the tank lid.
- Turn the water on.
- Test the new valve.

Process/Skill Questions

- What are the relevant safety precautions/procedures for replacing a flush valve?
Will the same flush valve work in all toilets? Why, or why not?
What are the characteristics of a defective flush valve?
What tools are required for replacing a flush valve?

Task Number 86
Replace toilet seat.

Definition
Replacement should include the following steps:

- Assemble tools and equipment.
- Check the nuts holding the hinge in place.
- Spray penetrating oil on the hinge bolts and nuts.
- Remove the nuts on the old toilet seat and lift the seat off.
- Replace with a new seat.

Process/Skill Questions

- What safety precautions should be followed when replacing a toilet seat?
- What are some characteristics of a defective toilet seat?
- What tools are required for replacing a toilet seat?

Task Number 87
Replace wax ring gasket on commode.

Definition
Replacement should include the following steps:

- Assemble tools and equipment.
- Shut off water to the commode and drain the lines.
- Remove the bolts holding the commode to the floor.
- Grasp the commode bowl and shake slightly.
- Lift the commode free of the closet bend. Turn the commode upside down, placing on pads.
- Clean the old wax ring from the closet bend.
- Clean the commode flange.
Replace the wax ring over the rim of commode.
Set the commode back on the soil pipe collar.
Tighten the bolts.
Test for leaks.

**Process/Skill Questions**

- What are the relevant safety precautions/procedures for replacing a wax ring gasket on a commode?
- When might you use an extra-thick wax ring? Why?
- What are the working properties of a wax ring gasket?
- What tools are required for replacing a wax ring gasket on a commode?

---

**Task Number 88**

**Demonstrate the opening of clogged sewer drains, using a biodegradable drain cleaner.**

**Definition**

Demonstration should include following the manufacturer’s instructions for use of a biodegradable drain cleaner.

**Process/Skill Questions**

- What safety precautions/procedures should be followed when using a biodegradable drain cleaner?
- What are some materials that may clog up the drain lines?
- How do biodegradable drain cleaners serve to clear drain lines?

---

**Task Number 89**

**Demonstrate the opening of clogged drains, using a vacuum plunger.**

**Definition**

Demonstration should include the following steps:
• Fill the areas above the drain until the vacuum plunger cup is partially covered.
• Place the cup over the drain opening, forming a vacuum.
• Place a rag over the overflow or vent holes so the vacuum can be made complete.
• Press the plunger downward sharply until the obstruction is free.
• Test the drain.

Process/Skill Questions

• What are the features of a vacuum plunger?
• What are the uses of a vacuum plunger?
• What hygiene requirements should be followed when using a vacuum plunger?

Maintaining Interior and Exterior Upkeep

Task Number 90

Remove paint, using a scraper.

Definition

Removal should include

• selecting equipment and PPE
• applying proper pressure to the scraper
• maintaining the proper angle of the scraper
• removing paint without damaging the existing surface
• cleaning the site and equipment.

Process/Skill Questions

• What safety concerns are associated with paint scrapers?
• What are some different types of paint scrapers?
• What steps should be taken before removing paint with a scraper?
• Why do you need to check for lead paint before scraping in older buildings?

Task Number 91

Clean condenser on refrigeration unit.

Definition
Cleaning should include

- selecting PPE and equipment
- removing dirt, dust, and grime from the condenser, allowing proper airflow in the refrigeration unit.

**Process/Skill Questions**

- What safety precautions should be followed when cleaning a condenser?
- What PPE should be worn when using chemical solvents or cleaners?
- Why is it necessary to clean a refrigeration condenser unit?

---

**Task Number 92**

**Clean electric motor.**

**Definition**

Cleaning should include

- selecting PPE, materials, and tools
- wiping the motor's exterior
- cleaning the ventilation openings
- cleaning the brush holders and commutators
- removing dust from motor windings.

**Process/Skill Questions**

- What safety precautions should be followed when cleaning an electric motor?
- What tools and materials are required for cleaning an electric motor?
- Why should an electric motor be cleaned and maintained?

---

**Task Number 93**

**Clean intake filter on window unit.**

**Definition**

Cleaning should include
• selecting PPE, materials, and tools
• removing, cleaning, and replacing the filter and evaporator tube.

Process/Skill Questions

• What tools and materials are required for cleaning the evaporator drain tube and intake filter on a window unit?
• What are some techniques used for cleaning an intake filter?
• What is the drain tube?

Task Number 94

Replace filters for heating and cooling units.

Definition

Replacement should include

• selecting PPE, materials, and equipment
• demonstrating the steps and procedures used to clean and replace filters for heating and cooling units.

Process/Skill Questions

• Why is it important to replace heating and cooling unit filters?
• How do dirty filters affect the operation of heating and cooling units?
• Why should a regular maintenance schedule for replacing filters be established?

Maintaining Grounds

Task Number 95

Demonstrate small-engine operation.

Definition

Demonstration should include

• locating and reviewing the manual or other documentation prior to operation
• identifying the components of the engine
• identifying tasks for which the engine was designed
• performing a pre-operations check
• performing fueling and startup procedures
• operating the engine
• performing shutdown procedures.

Process/Skill Questions

• What is the purpose of a pre-operations check?
• Where can you find documentation for small-engine operation? Why is it important?
• What are the parts of a small engine?
• What is the difference between two-cycle and four-cycle engines?
• What are the differences in fuel requirements for a two-cycle and a four-cycle engine?

Task Number 96

Maintain residential grounds.

Definition

Maintenance should include procedures for care of

• residential lawns
• bushes and shrubs
• trees
• flower beds and gardens.

Process/Skill Questions

• What are the advantages of using a zero-turn mower for lawn care?
• Why is lawn fertilization important?
• What are some ways that weeds may be controlled?
• What does edging a lawn entail?
• How does edging affect the appearance of a lawn?
• How do the types of shrubs affect the overall appearance of lawns and buildings?

Task Number 97

Loosen packed soil.

Definition
Loosening packed soil should include

- identification of safety concerns and procedures
- selection of tools and equipment
- demonstration of the procedures for loosening soil, removing stones, removing soil, and preventing runoff.

**Process/Skill Questions**

- What are some safety concerns that should be considered before digging?
- Who should be called before digging takes place? Why?
- What are some of the reasons for loosening packed soil?
- What are some of the tools that can be used to loosen soil?
- How can runoff be prevented when loosening soil?
- What are some ways to prevent packed soil in the future?

**Task Number 98**

**Identify mowing, trimming, and grounds-care equipment and operating procedures.**

**Definition**

Identification should include

- necessary PPE
- mowing, trimming, edging, and grounds-care equipment, including the purpose and safety features of each
- safety precautions when working on grades and slopes.

**Process/Skill Questions**

- What is the difference between commercial and residential mowing equipment?
- What is an operator presence control system? Why is it important?
- What is the advantage of a self-propelled mower over a conventional push mower?
- What is the advantage of a zero-turn mower over a conventional riding mower or tractor?
- What precautions should be taken when using grounds-care equipment on grades and slopes?
- What is the difference between edging and trimming?
<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>SOL Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>Comply with federal, state, and local safety legal requirements, including OSHA, VOSHA, and EPA.</td>
<td>History and Social Science: GOVT.15 Science: BIO.1, CH.1</td>
</tr>
<tr>
<td>40</td>
<td>Inspect and maintain a safe working environment.</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Explain safe working practices around electrical hazards.</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Identify emergency first-aid procedures.</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Identify the types of fires and the methods used to extinguish them.</td>
<td>Science: CH.1</td>
</tr>
<tr>
<td>44</td>
<td>Identify PPE (personal protective equipment) requirements.</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>Inspect course-specific hand and power tools to visually identify defects.</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>Demonstrate lifting and carrying techniques.</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>Demonstrate safe laddering techniques.</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Demonstrate safe scaffolding techniques.</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Report injuries.</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Report personal, environmental, and equipment safety violations to the appropriate authority.</td>
<td>History and Social Science: GOVT.15</td>
</tr>
<tr>
<td>51</td>
<td>Earn the OSHA 10 card.</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>Pass safety exam.</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>Demonstrate safety practices in the measuring and mixing of chemicals.</td>
<td>Science: CH.1</td>
</tr>
<tr>
<td>54</td>
<td>Demonstrate procedures to measure and mix chemicals.</td>
<td>Science: CH.1</td>
</tr>
<tr>
<td>55</td>
<td>Define chemical terminology related to building management.</td>
<td>English: 10.3, 11.3</td>
</tr>
<tr>
<td>56</td>
<td>Ventilate harmful vapors from a confined area.</td>
<td>Science: CH.5</td>
</tr>
<tr>
<td>57</td>
<td>Identify types of surfaces.</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>Demonstrate procedures used to clean office spaces.</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>Demonstrate procedures used to clean classrooms.</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>Demonstrate procedures used to clean restrooms.</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>Demonstrate procedures used to maintain common flooring types.</td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>Demonstrate procedures used to care for carpets.</td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>Dust and clean furniture and fixtures.</td>
<td></td>
</tr>
<tr>
<td>64</td>
<td>Collect and dispose of trash.</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>Clean windows.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>Clean blinds, shades, and shutters.</td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>Surface-clean upholstery.</td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>Locate wall studs.</td>
<td></td>
</tr>
<tr>
<td>69</td>
<td>Make a caulking joint.</td>
<td></td>
</tr>
<tr>
<td>70</td>
<td>Caulk doors and windows.</td>
<td></td>
</tr>
<tr>
<td>71</td>
<td>Install a door lock set.</td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>Replace acoustical tile.</td>
<td></td>
</tr>
<tr>
<td>73</td>
<td>Fill nail holes.</td>
<td></td>
</tr>
<tr>
<td>74</td>
<td>Prepare new wood for painting.</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Light pilot on gas-fed equipment.</td>
<td></td>
</tr>
<tr>
<td>76</td>
<td>Paint exposed pipes.</td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>Describe weatherization procedures.</td>
<td></td>
</tr>
<tr>
<td>78</td>
<td>Attach a separable plug to an appliance.</td>
<td></td>
</tr>
<tr>
<td>79</td>
<td>Reset circuit overload.</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>Replace a blown fuse.</td>
<td></td>
</tr>
<tr>
<td>81</td>
<td>Reset timing devices.</td>
<td></td>
</tr>
<tr>
<td>82</td>
<td>Tighten fittings on chrome pipe.</td>
<td></td>
</tr>
<tr>
<td>83</td>
<td>Drain water from plumbing.</td>
<td></td>
</tr>
<tr>
<td>84</td>
<td>Repair compression faucet.</td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>Replace flush valve.</td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>Replace toilet seat.</td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>Replace wax ring gasket on commode.</td>
<td></td>
</tr>
<tr>
<td>88</td>
<td>Demonstrate the opening of clogged sewer drains, using a biodegradable drain cleaner.</td>
<td></td>
</tr>
<tr>
<td>89</td>
<td>Demonstrate the opening of clogged drains, using a vacuum plunger.</td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>Remove paint, using a scraper.</td>
<td></td>
</tr>
<tr>
<td>91</td>
<td>Clean condenser on refrigeration unit.</td>
<td></td>
</tr>
<tr>
<td>92</td>
<td>Clean electric motor.</td>
<td></td>
</tr>
<tr>
<td>93</td>
<td>Clean intake filter on window unit.</td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>Replace filters for heating and cooling units.</td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>Demonstrate small-engine operation.</td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>Maintain residential grounds.</td>
<td></td>
</tr>
<tr>
<td>97</td>
<td>Loosen packed soil.</td>
<td></td>
</tr>
<tr>
<td>98</td>
<td>Identify mowing, trimming, and grounds-care equipment and operating procedures.</td>
<td></td>
</tr>
</tbody>
</table>
Customer Service Infusion Units

Customer Service Infusion Units (CSIU) were designed to be infused with designated CTE courses to help students in those programs achieve additional, focused, validated tasks/competencies in customer service. These units are not mandatory, and, as such, the tasks/competencies are marked as "optional," to be taught at the instructor's discretion. Teachers can find the infusion/unit in the course listing.

Entrepreneurship Infusion Units

Entrepreneurship Infusion Units may be used to help students achieve additional, focused competencies and enhance the validated tasks/competencies related to identifying and starting a new business venture. Because the unit is a complement to certain designated courses and is not mandatory, all tasks/competencies are marked “optional.” Teachers can find the infusion/unit in the course listing.
Appendix: Credentials, Course Sequences, and Career Cluster Information

Industry Credentials: Only apply to 36-week courses

- Building Trades Maintenance Assessment
- College and Work Readiness Assessment (CWRA+)
- Customer Service Examination
- Customer Service Specialist (CSS) Examination
- ICC Certificates of Completion Examinations
- National Career Readiness Certificate Assessment
- Pre-Apprenticeship Certificate Training (PACT) Core Examinations
- Professional Communications Certification Examination
- Workplace Readiness Skills for the Commonwealth Examination

Concentration sequences: A combination of this course and those below, equivalent to two 36-week courses, is a concentration sequence. Students wishing to complete a specialization may take additional courses based on their career pathways. A program completer is a student who has met the requirements for a CTE concentration sequence and all other requirements for high school graduation or an approved alternative education program.

- Building Management II (8591/36 weeks, 280 hours)

Career Cluster: Architecture and Construction

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Occupations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Carpenter</td>
</tr>
<tr>
<td></td>
<td>Construction and Building Inspector</td>
</tr>
<tr>
<td></td>
<td>Construction Manager</td>
</tr>
<tr>
<td></td>
<td>Electrician</td>
</tr>
<tr>
<td></td>
<td>General Contractor</td>
</tr>
<tr>
<td></td>
<td>Plumber, Pipefitter</td>
</tr>
<tr>
<td></td>
<td>Project Manager</td>
</tr>
<tr>
<td>Maintenance and Operations</td>
<td>Carpenter</td>
</tr>
<tr>
<td></td>
<td>Construction and Building Inspector</td>
</tr>
<tr>
<td></td>
<td>Construction Manager</td>
</tr>
<tr>
<td></td>
<td>Electrician</td>
</tr>
<tr>
<td></td>
<td>General Contractor</td>
</tr>
<tr>
<td></td>
<td>Project Manager</td>
</tr>
<tr>
<td></td>
<td>Restoration Technician</td>
</tr>
<tr>
<td>Pathway</td>
<td>Occupations</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Lodging</td>
<td>Building Custodian</td>
</tr>
<tr>
<td></td>
<td>Environmental Specialist</td>
</tr>
<tr>
<td></td>
<td>Executive Housekeeper</td>
</tr>
<tr>
<td></td>
<td>Maintenance Supervisor</td>
</tr>
</tbody>
</table>