**Lesson Information**

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| Lesson: (2 of 5) Venting Length: 90 minutes  Unit: (2 of 3) System Components  Course: HVAC |

**Content Assumptions**

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| Prior to this class, students have taken construction drawing and math classes as well as the previous lesson, “Ductwork,” of this unit, “System Components.” |

**Essential Questions**

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| 1. How is proper combustion achieved? 2. Why is proper venting important, and how is it accomplished? |

**Objectives Assessments**

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| After completing this lesson, students will be able to:   1. Select and size furnaces and venting systems based on combustion and venting requirements. 2. Demonstrate their knowledge of the processes of adjusting furnace equipment and accessories. | 1. Combustion/venting requirements list — Instructor observation Furnace/venting system drawing — rubric 2. Adjustment process write-up — notes (Instructor observation) |

**Activities/Instruction**

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| **Show and Tell** (30 minutes)  Instructor explains the principles of combustion and the importance of venting in furnace systems. Based on this information, and with Instructor guidance, students collectively develop a list of requirements for combustion and venting.  **Plan…** (30 minutes)  Instructor divides students into three groups and assigns one type of furnace (i.e., natural-draft gas, induced-draft gas, or condensing gas) to each group. Using sample construction drawings and Internet resources (such as, but not limited to, those listed in the Materials section) as well as the list of requirements they developed, students select and size venting systems for their sample residences, based on the type of furnace to which they were assigned. Students draw these venting systems and include justifications for their decisions as well as any related calculations.  **…and Process** (30 minutes)  Instructor chooses one student from each group to list the control devices (e.g., draft regulators, thermostat heat anticipators, etc.) present in his/her system. As Instructor explains and/or demonstrates how adjustments are made for each control device, students take notes on the processes. |

**Materials**

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| For students:   * <http://www.naturalgasefficiency.org/residential/heat-Gas_Furnace.htm> (Overview of furnace functions and venting system selection/sizing processes) * Sample construction drawings for a simple residence (see previous lesson, “Ductwork,” of this unit, “System Components”)   For Instructor:   * [VENT SYSTEM DRAWING RUBRIC] |