

conservation
department.

HOT WATER PROGRAMS IN ACTION

Eddie Wilcut

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San Antonio Water System

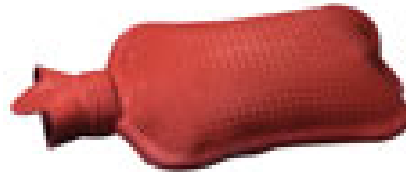


**ACEE Conference
June 2, 2008**



Our water. Our future.

Hot Water?



Could You be a Little More Vague?

Overview

- Understanding the Terminology
- How is Hot Water Used?
- Obstacles to Water Conservation
- Solving the Problems at the Utility Level

Understanding the Terminology



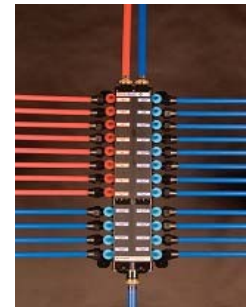
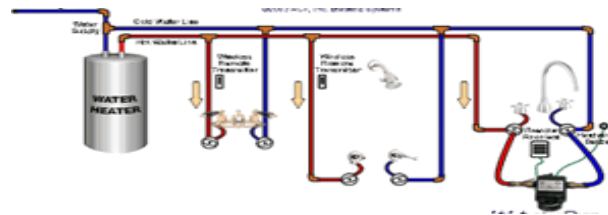
Understanding the Terminology

Lesson # 1

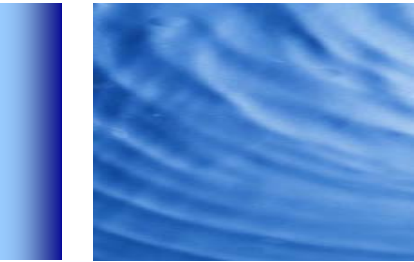
THERE IS NO SUCH
THING AS A “HOT
WATER HEATER”

Understanding the Terminology

- Tank Type Water Heaters (Electric & Gas)
- Tankless Water Heaters (Electric & Gas)
 - Whole House Heaters
 - Point of Use Heaters
- **Hot Water** Recirculating Systems
- Manifold Systems



How is Hot Water Used?



Residential End-Use

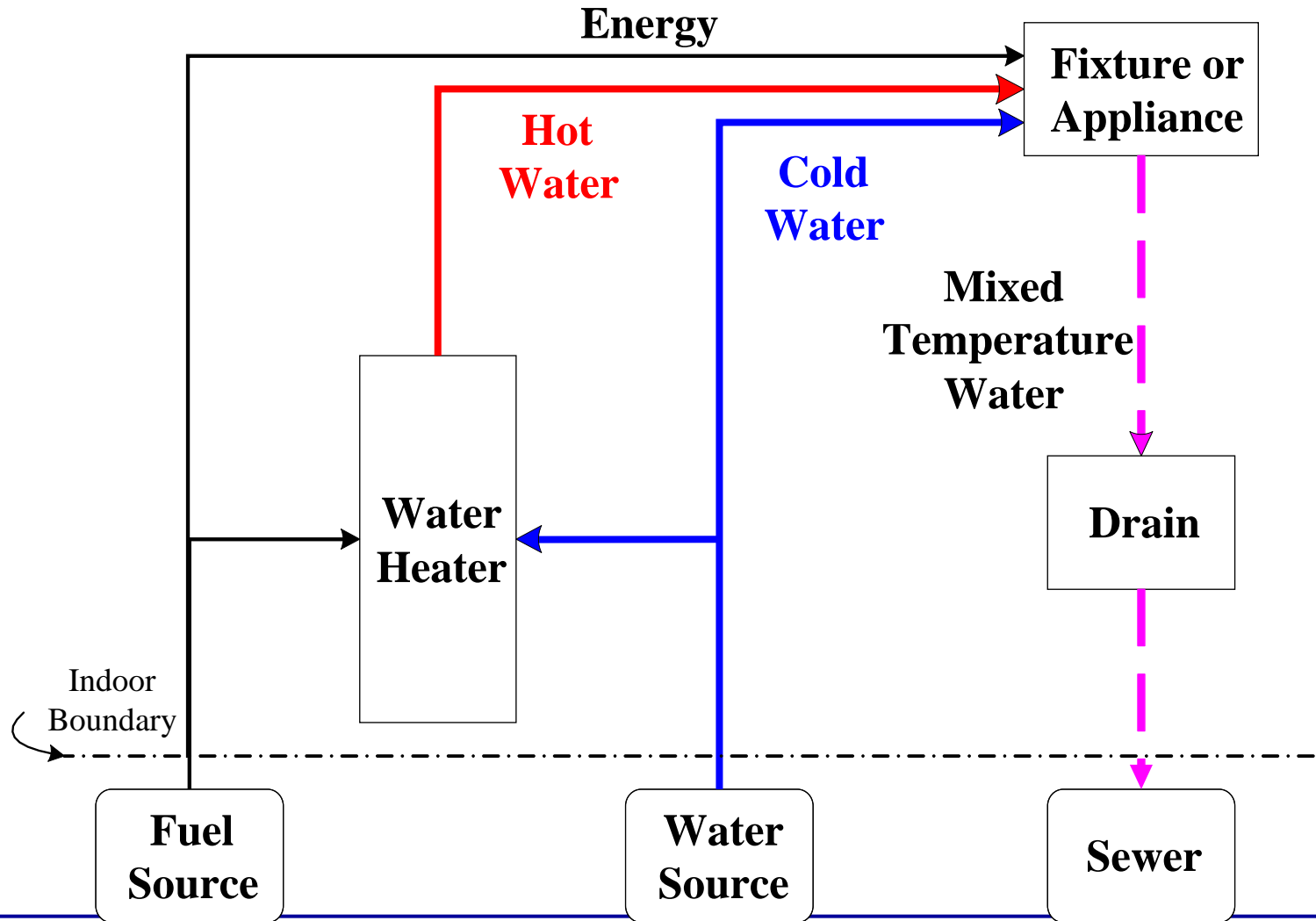
- Nationwide, Water heating is the 1st or 2nd largest residential energy end-use: 15 – 30% of a house's total energy use.

The Hot Water System

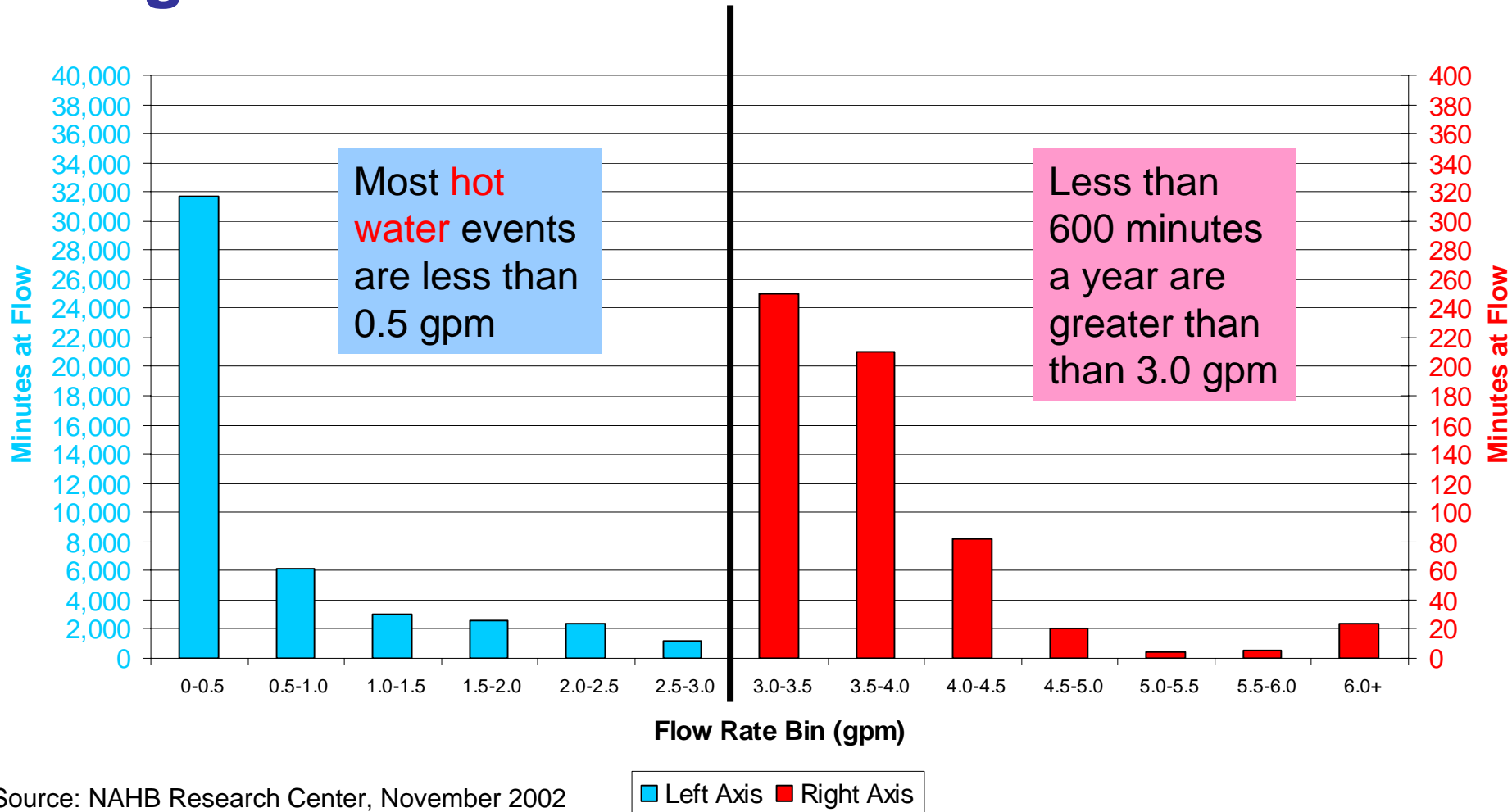
Key Factors

- Water Heater
- Piping
- Fixtures
- Behavior

Typical “Simple” Hot Water System for Single Family or Single Unit Applications

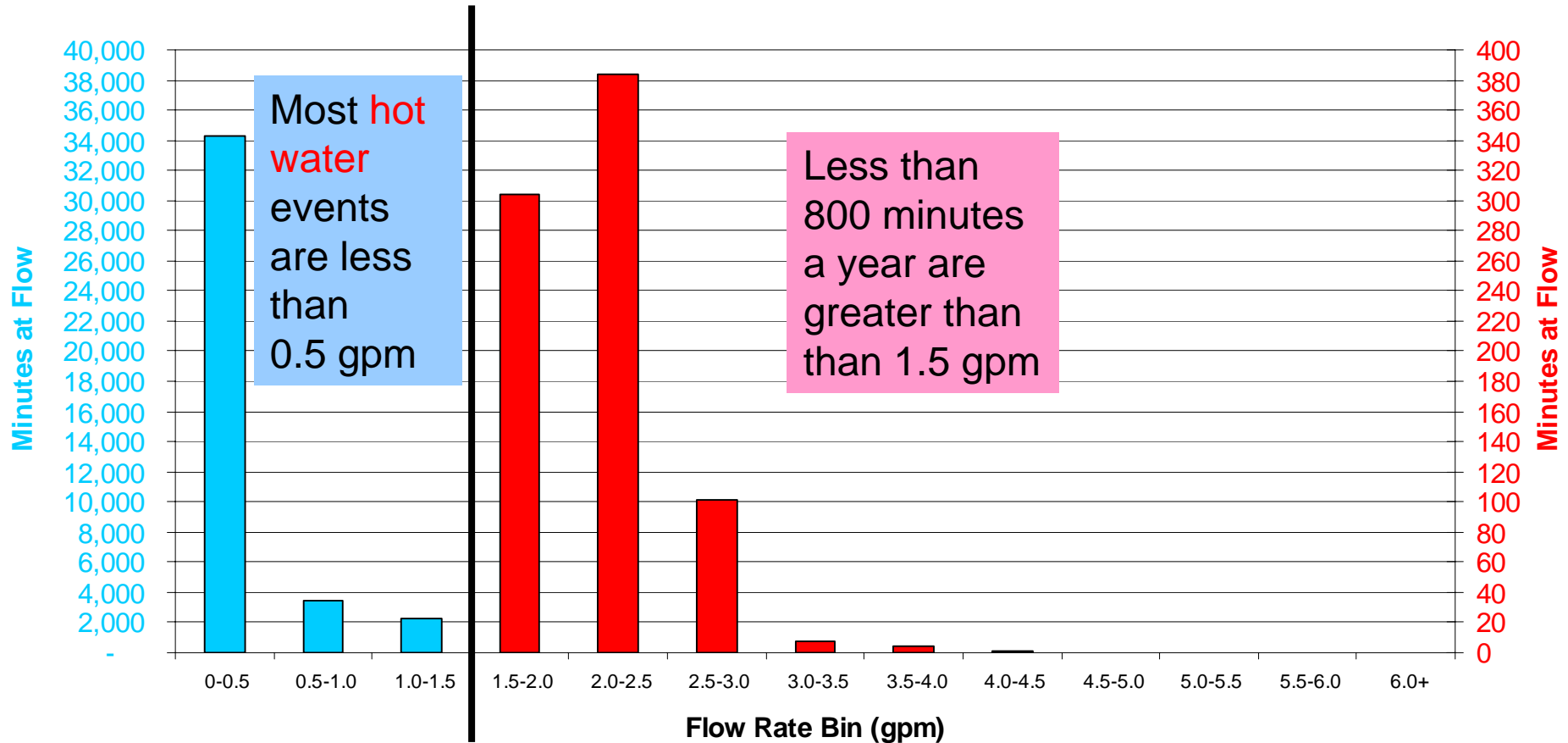


Flow Rate Distribution of Hot Water in High Volume Home



Source: NAHB Research Center, November 2002

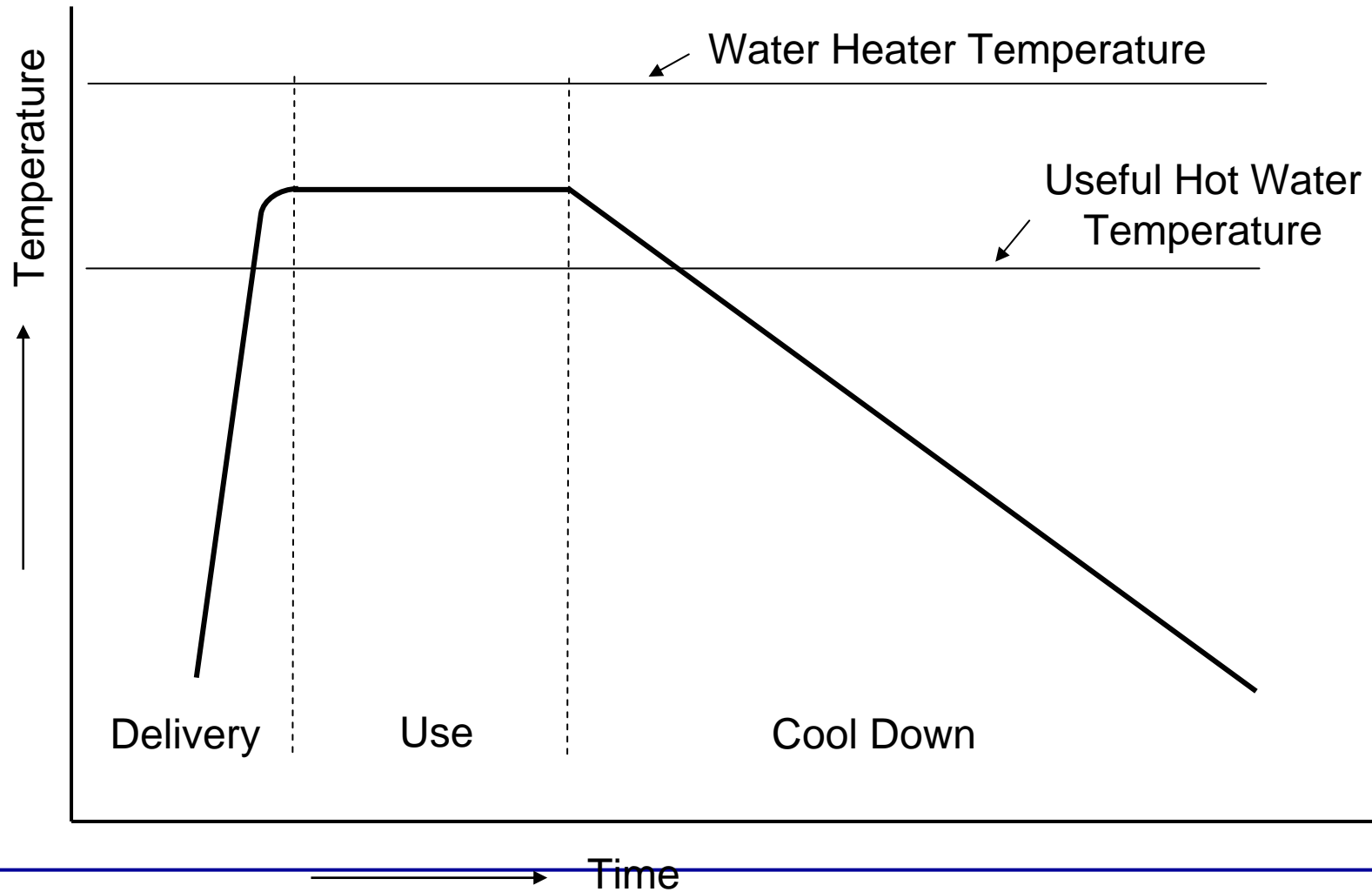
Flow Rate Distribution of Hot Water in Low Volume Home



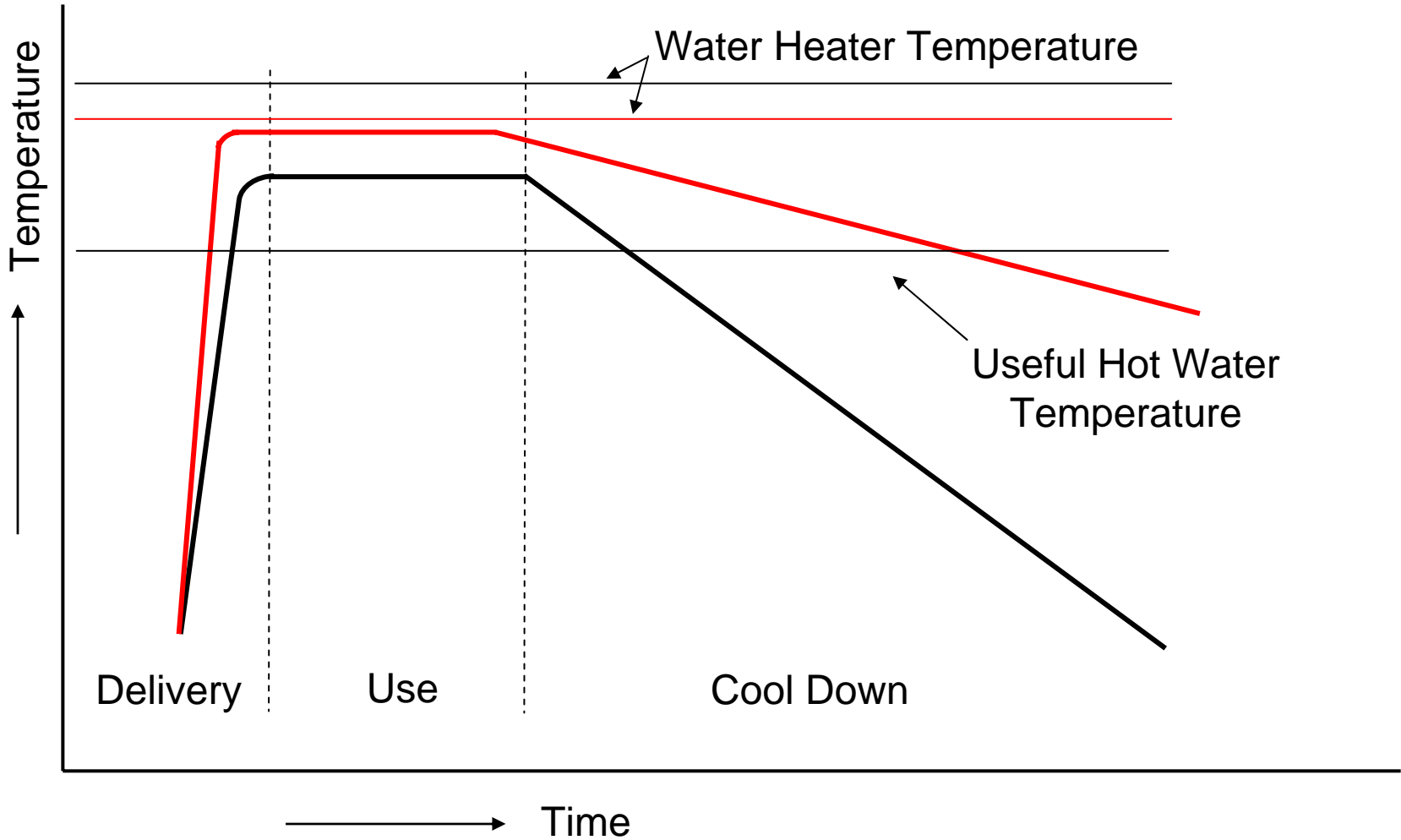
Source: NAHB Research Center, November 2002

■ Left Axis ■ Right Axis

Typical Hot Water Event



Improved Hot Water Event

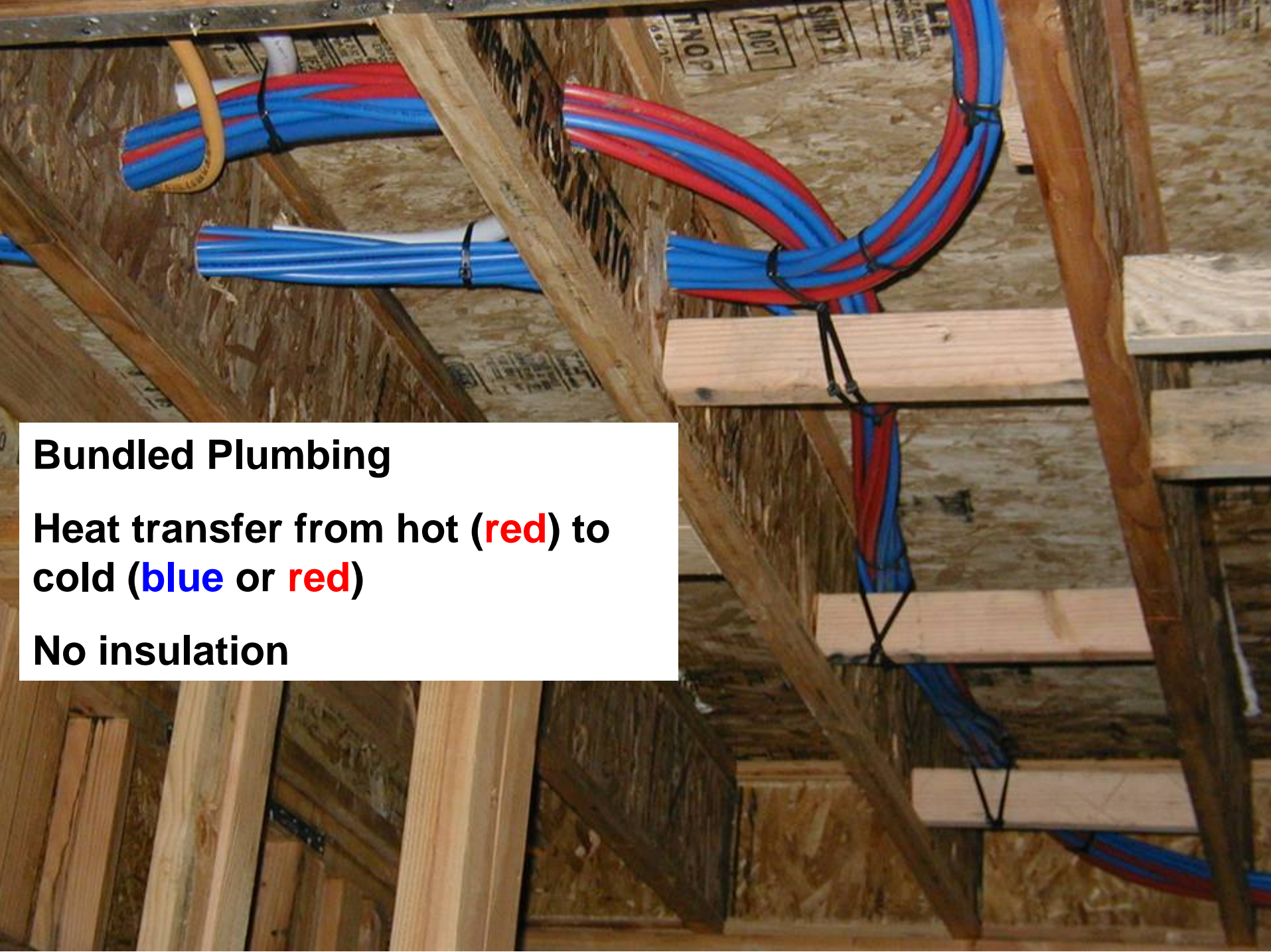


Obstacles to Conservation



Obstacles to Conservation

- **Misinformation from Manufacturers**
- **Misinformation from Governmental Agencies**
- **Poor Plumbing System Design**
- **User Habits**
- **Auto-recirculating Systems**
- **Water Softeners**
- **Non-Insulated Pipes**
- **In-Slab Piping**
- **Bundling**
- **Oversizing of Heaters**
- **High Flow Fixtures**
- **Low Flow Fixtures?**
- **Conflicting Energy & Water Conservation Programs**



Bundled Plumbing

Heat transfer from hot (**red**) to cold (**blue** or **red**)

No insulation

Solving the Problems at the Utility Level



Solving the Problems at the Utility Level

- **Rebates for On-Demand Recirculating Systems**
- **Dedicated Return Lines for New Construction**
- **Customer Education**
- **Builder Training & Certification Programs**
- **Structured Plumbing Incentives**
- **Laws & Ordinances**

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