

# THE CONSERVATION OF MATTER

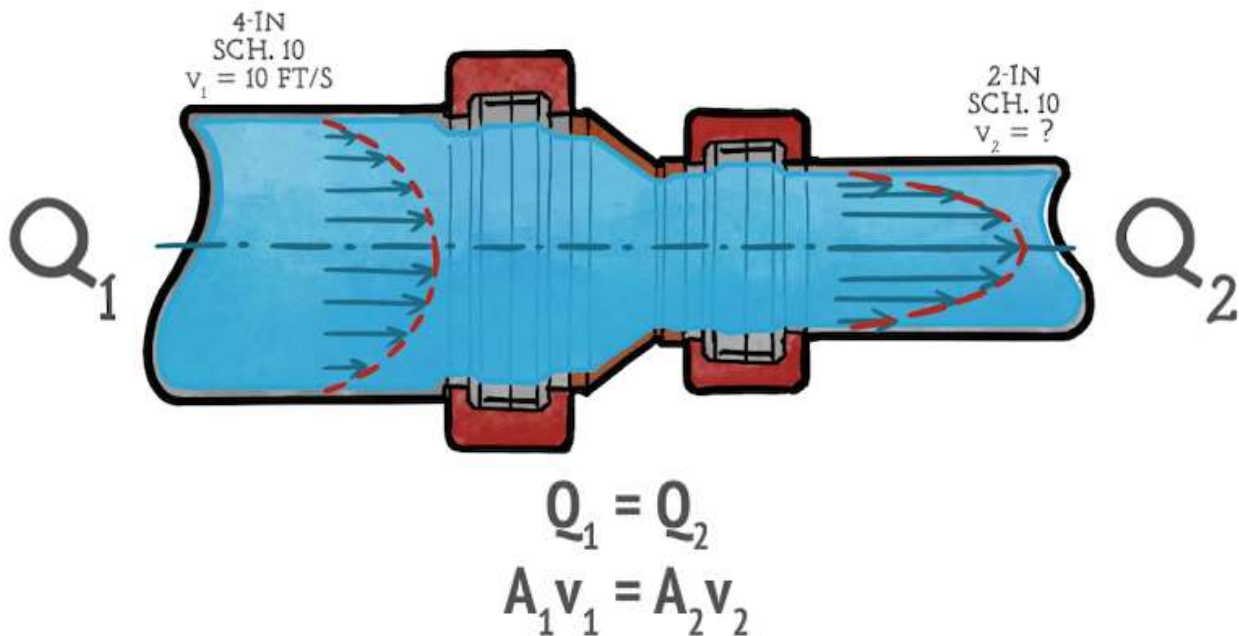
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## SUMMARY

The **Conservation of Matter** principle states that **matter cannot be created or destroyed**, and within systems, what goes in must come out.

- This concept applies to water flow in building systems, such as fire protection and sprinkler systems.
- The Continuity Equation,  $Q_1 = Q_2$  or  $A_1v_1 = A_2v_2$ , relates **flow (Q)**, **cross-sectional area (A)**, and **velocity (v)** at different points in a system.
- Using the Continuity Equation, we can determine fluid velocities throughout the system.

Overall, the Conservation of Matter helps us understand and design efficient fire suppression systems.



The Conservation of Matter as Illustrated by the Continuity Equation  
(ie: what goes in must come back out)

## VIDEO LINK

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