

Week 4: Clear Water Management

What Causes Cloudy Water in Commercial Swimming Pools?

Cloudy water isn't just an aesthetic concern—it's a red flag that something in your system is malfunctioning. In commercial pools, where safety and sanitation are top priorities, poor water clarity can become a serious liability. If the main drain at the deepest part of the pool is not visible, the pool is deemed unsafe for swimming and may be subject to closure. Understanding the root causes of cloudy water helps prevent major issues and keeps your pool operational and guest-ready.

Poor Circulation

One of the most common causes of cloudy water is inadequate circulation. When water isn't moving effectively through your system, debris and bacteria can accumulate in dead spots. Circulation issues often arise from improperly aligned valves, failing pumps, blocked return lines, or poor flow patterns. Even when surface circulation appears fine, unbalanced return fittings or improper flow velocity can cause stagnant areas—particularly in large or irregularly shaped pools.

Improper Turnover and Low Flow Rate

Effective turnover is essential for maintaining water clarity. Commercial pools must achieve full turnover within a specified timeframe, depending on pool type (e.g., 6 hours for traditional pools, 30 minutes for spas). If your system isn't achieving this turnover rate, contaminants remain in the water longer than acceptable. Causes of low turnover include undersized pumps, clogged filters, or poorly calibrated variable frequency drives (VFDs). Insufficient turnover leads to particle buildup and organic accumulation, resulting in hazy or dull water.

Chemical Imbalance

Chemical imbalance is another major contributor to cloudy water. Improper pH, chlorine, or total alkalinity levels can reduce the effectiveness of sanitizers and encourage scale, algae, or organic contamination. High calcium hardness or elevated total dissolved solids (TDS) can cause mineral precipitation, especially when paired with warm water. Additionally, when chlorine combines with

nitrogen-containing waste (such as sweat or urine), it forms chloramines, leading to cloudy water and unpleasant odors.

Bather Load and Organic Contaminants

Heavy bather loads and organic contaminants can significantly affect water clarity. Sunscreens, lotions, body oils, and sweat often cloud the water during peak swim times. If not removed quickly through filtration or oxidation, these contaminants accumulate. Enzyme treatments can assist by breaking down organic matter before it reaches your filter, reducing strain on your system and helping maintain clear water.