

Formula 1

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Formula 2

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Formula 3

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Related Content

Title	Type	Slug
Safety Standards and Regulations	sub_page	fluid-systems-design-safety-standards
Fluid Systems Design Design Template	resource	fluid-systems-design-design-template
Fluid Systems Design Safety Checklist PDF	resource	fluid-systems-design-safety-checklist
Fluid Systems Design Quick Reference Guide	resource	fluid-systems-design-quick-reference
Fluid Systems Design Calculation Excel Template	resource	fluid-systems-design-excel-template

Detailed Explanation

Drainage and stormwater management standards vary significantly by geography, climate, land use, and regulatory authority—ranging from federal frameworks like the U.S. EPA’s National Pollutant Discharge Elimination System (NPDES) Phase II requirements to state-specific manuals (e.g., Florida’s FDEP Stormwater Design Manual) and municipal ordinances (e.g., City of Portland’s Stormwater Management Manual). A comparison chart synthesizes these disparate standards by aligning them along common performance dimensions: hydrologic design storms (e.g., 10-year/24-hour vs. 100-year events), water quality volume (WQv) thresholds, minimum removal efficiency targets (e.g., 80% TSS removal), allowable discharge rates, soil infiltration criteria, and long-term maintenance obligations. Key principles underpinning such charts include standardization of terminology (e.g., distinguishing between 'detention' and 'retention'), normalization of units (mm/hr vs. in/hr, m³ vs. ft³), and contextualization of intent (e.g., flood control vs. groundwater recharge vs. pollutant load reduction). Practically, the chart supports interdisciplinary coordination—helping civil engineers select appropriate Best Management Practices (BMPs), environmental consultants assess regulatory alignment, and developers anticipate permitting timelines. Its utility increases when annotated with footnotes indicating jurisdictional exceptions, grandfathering clauses, or emerging standards (e.g., low-impact development [LID] mandates or climate-resilient design factors).

Key Components

#	Component
1	Jurisdictional Authority
2	Design Storm Criteria
3	Water Quality Volume (WQv) Requirements
4	Performance Metrics (e.g., TSS Removal, Peak Flow Reduction)
5	Maintenance & Monitoring Obligations

Applications

#	Application
1	Pre-submission regulatory compliance screening for site development projects

#	Application
2	Cross-jurisdictional benchmarking for multi-state infrastructure programs
3	Training and capacity-building for municipal stormwater program staff

Related Concepts

#	Concept
1	Low-Impact Development (LID)
2	Green Infrastructure
3	Total Maximum Daily Load (TMDL)
4	Hydrologic Modeling
5	Stormwater Utility Fee Structures

Tags

stormwater, regulatory compliance, hydrology, infrastructure planning, environmental engineering