



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

**APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

APPLICATION #: OSP-0677

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: WATER CONTROL CORPORATION

Manufacturer's Technical Representative: Josh Petersen

Mailing Address: 7150 143rd Avenue NW, Ramsey, MN 55303

Telephone: (866) 405-1268

Email: josh.petersen@watercontrolinc.com

Product Information

Product Name: Other

Product Type: Water Filtration

Product Model Number: Phoenix GT High-Capacity Ultrafiltration

General Description: Floor mounted High-Capacity Ultrafiltration (HUF) systems for legionella and pathogen control in building water systems.

Mounting Description: Rigid, Floor Mounted

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

Applicant Company Name: Manwill Engineering LLC

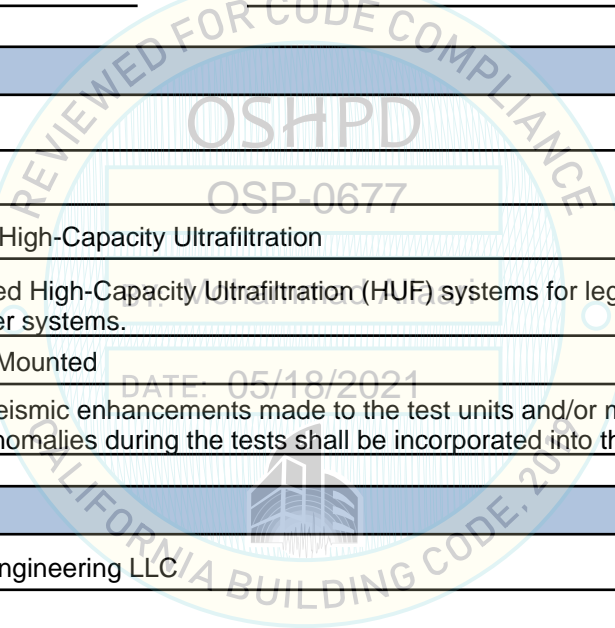
Contact Person: Derek Manwill

Mailing Address: PO Box 1194, Bend, OR 97709

Telephone: (541) 241-2102

Email: derek@manwillse.com

Title: President





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California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: MANWILL ENGINEERING LLC
Name: Derek Manwill California License Number: S6266
Mailing Address: PO Box 1194, Bend, OR 97709
Telephone: (541) 241-2102 Email: derek@manwillse.com

Certification Method

GR-63-Core ICC-ES AC156 IEEE 344 IEEE 693 NEBS 3
 Other (Please Specify): _____

Testing Laboratory

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)
Contact Person: Jeremy Lange
Mailing Address: 11034 Indian Trail, Dallas TX 75229
Telephone: (972) 247-9657 Email: jeremy@etldallas.com





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.50 (SDS=2.00, z/h=1), 1.13 (SDS=2.50, z/h=0)

SDS (Design spectral response acceleration at short period, g) = 2.00 (z/h=1), 2.50 (z/h=0)

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1 and 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

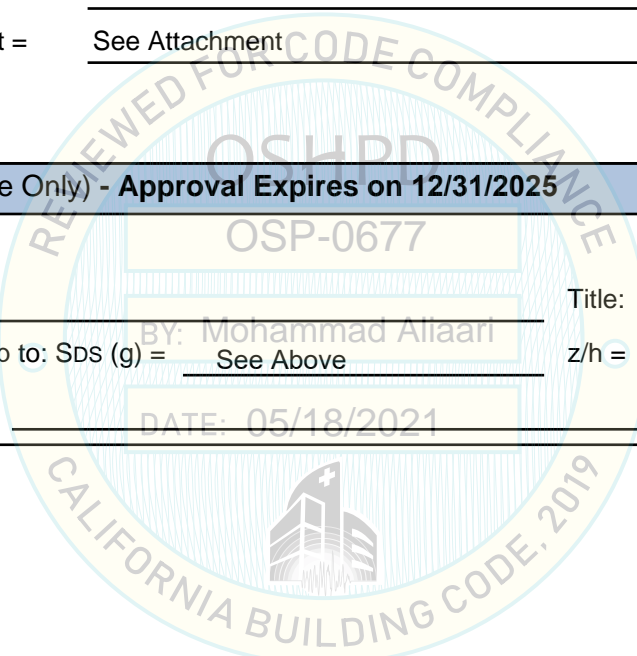
OSHPD Approval (For Office Use Only) - Approval Expires on 12/31/2025

Date: 5/18/2021

Name: Mohammad Aliaari Title: Senior Structural Engineer

Special Seismic Certification Valid Up to: SDS (g) = See Above z/h = See Above

Condition of Approval (if applicable): DATE: 05/18/2021



ATTACHMENT 1: CERTIFIED COMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 1

DOCUMENT NO.: 20095CR1.0

MANUFACTURER: WATER CONTROL CORPORATION						
PRODUCT FAMILY: PHOENIX GT						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Phoenix GT High-Capacity Ultrafiltration						
Phoenix GT Control Module	23.1	24.6	73.4	225		UUT 1
Phoenix GT Filter Module	23.1	15.9	73.4	315		UUT 2
GT-1	23.1	56.3	73.4	540	Control (UUT 1) + 1 Filter (UUT 2)	UUT 1+2
GT-2	23.1	87.9	73.4	855	Control (UUT 1) + 2 Filters (UUT 2)	EXTRAP
GT-3	23.1	119.6	73.4	1170	Control (UUT 1) + 3 Filters (UUT 2)	EXTRAP
GT-4	23.1	151.2	73.4	1485	Control (UUT 1) + 4 Filters (UUT 2)	EXTRAP
MOUNTING:	Rigid floor mounted.			SEISMIC LEVELS:	$S_{DS} = 2.0g$ for $z/h = 1$ $S_{DS} = 2.5g$ for $z/h = 0$ $I_p = 1.5$	
NOTES:	<p>Product Construction: Stainless steel framing; modified polyethersulfone (PES) membrane; UPVC membrane housing.</p> <p>Options/Subcomponents: Subcomponents are uniquely identified by the model number of the module.</p> <p>Module vs. System: A complete system (GT-1 through GT-4) consists of one Control Module and one to four Filter Modules. Connections between the Control Module and a Filter Module as well as a Filter Module to another Filter Module shall be flexible connections similar to the test assembly.</p>					

BY: Mohammad Aliaari

DATE: 05/18/2021



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 1

DOCUMENT NO.: 20095CR1.0

MANUFACTURER:		WATER CONTROL CORPORATION				
MODEL NUMBER:		PHOENIX GT CONTROL MODULE				
UNIT FUNCTION:		HIGH-CAPACITY ULTRAFILTRATION				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
23.1	24.6	73.4	225	15.5	9.6	14.4
CODE & CRITERIA:		2019 CBC		ICC-ES AC156		
TEST LABORATORY:		ENVIRONMENTAL TESTING LABORATORY				
REPORT & DATE:		20095TR1.0		November 23, 2020		
S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Rigid floor mounted using (4) 3/8in Grade 8 bolts through 2in long 1-3/4x3x1/4in formed carbon steel angle brackets. Each angle bracket is connected to the unit base with (1) 1/2in Grade 2 bolt (4 bolts total).				
CONSTRUCTION:		Stainless steel framing.				
SUBCOMPONENTS:		Subcomponents are uniquely identified by the model number.				
TESTING NOTES:		UUT 1 and UUT 2 were connected using flexible pipe connections during the test to check functionality. The test units were spaced 15.75in apart to accommodate the flexible connectors.				



UUT 2

MANUFACTURER:		WATER CONTROL CORPORATION				
MODEL NUMBER:		PHOENIX GT FILTER MODULE				
UNIT FUNCTION:		HIGH-CAPACITY ULTRAFILTRATION				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
23.1	15.9	73.4	315	11.5	9.4	>33
CODE & CRITERIA:		2019 CBC		ICC-ES AC156		
TEST LABORATORY:		ENVIRONMENTAL TESTING LABORATORY				
REPORT & DATE:		20095TR1.0		November 23, 2020		
S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Rigid floor mounted using (4) 3/8in Grade 8 bolts through 2in long 1-3/4x3x1/4in formed carbon steel angle brackets. Each angle bracket is connected to the unit base with (1) 1/2in Grade 2 bolt (4 bolts total).				
CONSTRUCTION:		Stainless steel framing; modified polyethersulfone (PES) membrane; UPVC membrane housing.				
SUBCOMPONENTS:		Subcomponents are uniquely identified by the model number.				
TESTING NOTES:		UUT 1 and UUT 2 were connected using flexible pipe connections during the test to check functionality. The test units were spaced 15.75in apart to accommodate the flexible connectors.				



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 1 + UUT 2

DOCUMENT NO.: 20095CR1.0

MANUFACTURER:		WATER CONTROL CORPORATION				
MODEL NUMBER:		GT-1				
UNIT FUNCTION:		HIGH-CAPACITY ULTRAFILTRATION				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
23.1	56.25	73.4	540	11.5	9.4	14.4
CODE & CRITERIA:		2019 CBC		ICC-ES AC156		
TEST LABORATORY:		ENVIRONMENTAL TESTING LABORATORY				
REPORT & DATE:		20095TR1.0		November 23, 2020		
S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Rigid floor mounted using (8) 3/8in Grade 8 bolts through 2in long 1-3/4x3x1/4in formed carbon steel angle brackets. Each angle bracket is connected to the unit base with (1) 1/2in Grade 2 bolt (8 bolts total).				
CONSTRUCTION:		Stainless steel framing; modified polyethersulfone (PES) membrane; UPVC membrane housing.				
SUBCOMPONENTS:		Subcomponents are uniquely identified by the model number.				
TESTING NOTES:		UUT 1 and UUT 2 were connected using flexible pipe connections during the test to check functionality. The test units were spaced 15.75in apart to accommodate the flexible connectors.				



DATE: 05/18/2021



ATTACHMENT 3: MODEL NOMENCLATURE

SPECIAL SEISMIC CERTIFICATION

PHOENIX GT

DOCUMENT NO.: 20095CR1.0

DIGIT	DIGIT DESCRIPTION	CODES	DEFINITIONS
1-2	Model Line	GT	Phoenix GT
4	Filter Module Designation	1	System with 1 Filter Module
		2	System with 2 Filter Modules
		3	System with 3 Filter Modules
		4	System with 4 Filter Modules

