



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION  
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR HCAI SPECIAL SEISMIC  
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0160

HCAI Special Seismic Certification Preapproval (OSP)

Type:  New  Renewal

Manufacturer Information

Manufacturer: FUEL OIL SYSTEMS

Manufacturer's Technical Representative: Doug Nakano

Mailing Address: 17500 Murphy Parkway, Lathrop, CA 95330

Telephone: (925) 556-5424

Email: dnakano@fueloilsystems.net

Product Information

Product Name: Industrial Control Panels

Product Type: Fuel Systems Control Panels

Product Model Number: See Attachment 1

General Description: Master and submaster fuel oil control panels used to control flow of fuel oil to generators or other units.

Mounting Description: Rigid, Wall Mounted

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: Manwill Engineering LLC

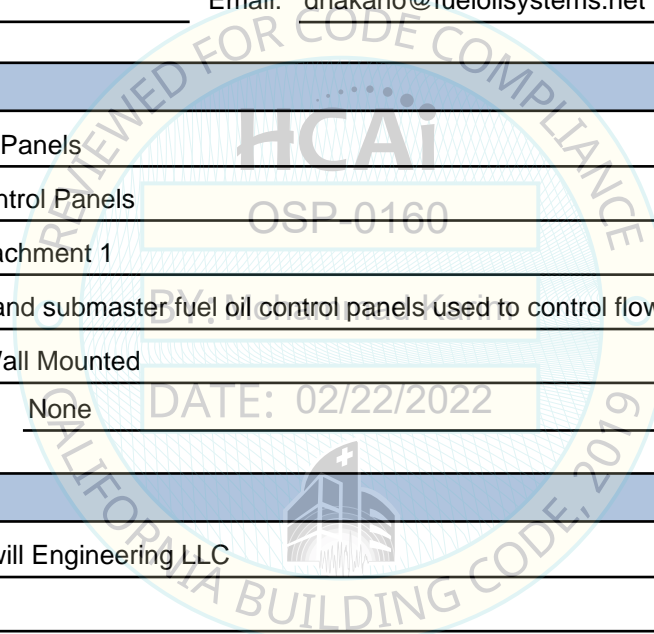
Contact Person: Derek Manwill

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)**

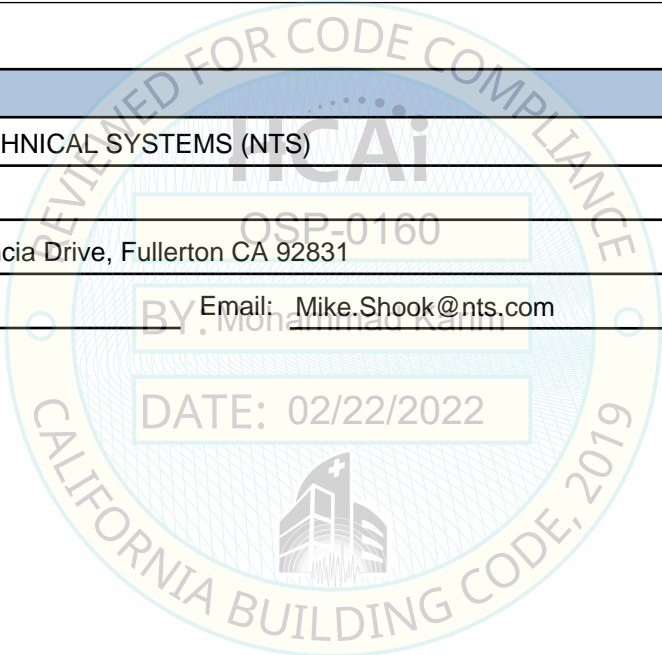
Company Name: MANWILL ENGINEERING LLC  
Name: Derek Manwill California License Number: S6266  
Mailing Address: PO Box 1194, Bend, OR 97709  
Telephone: (541) 241-2102 Email: derek@manwillse.com

**Certification Method**

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

**Testing Laboratory**

Company Name: NATIONAL TECHNICAL SYSTEMS (NTS)  
Contact Person: Mike Shook  
Mailing Address: 1536 East Valencia Drive, Fullerton CA 92831  
Telephone: (714) 879-6110 Email: Mike.Shook@nts.com





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**Seismic Parameters**

Design Basis of Equipment or Components ( $F_p/W_p$ ) = 2.21

SDS (Design spectral response acceleration at short period, g) = 2.95

$a_p$  (Amplification factor) = 2.5

$R_p$  (Response modification factor) = 6.0

$\Omega_0$  (System overstrength factor) = 2.0

$I_p$  (Importance factor) = 1.5

$z/h$  (Height ratio factor) = 1

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

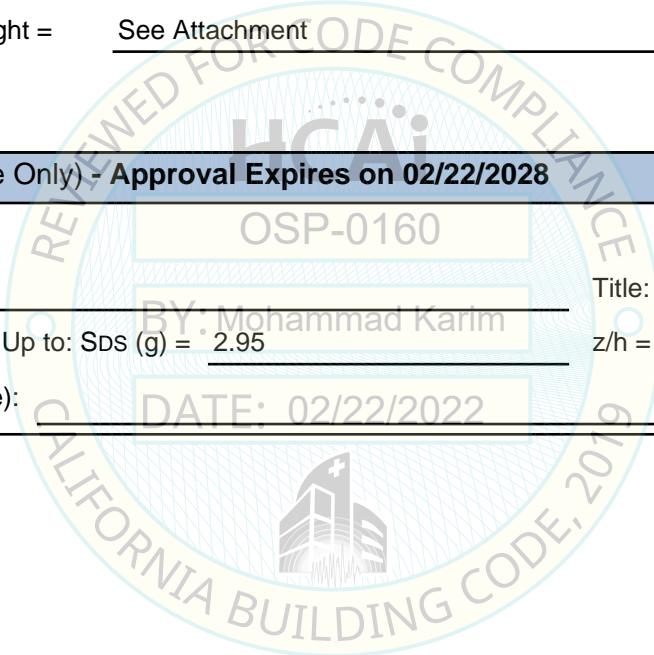
**HCAI Approval (For Office Use Only) - Approval Expires on 02/22/2028**

Date: 2/22/2022

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = 2.95 z/h = 1

Condition of Approval (if applicable): DATE: 02/22/2022



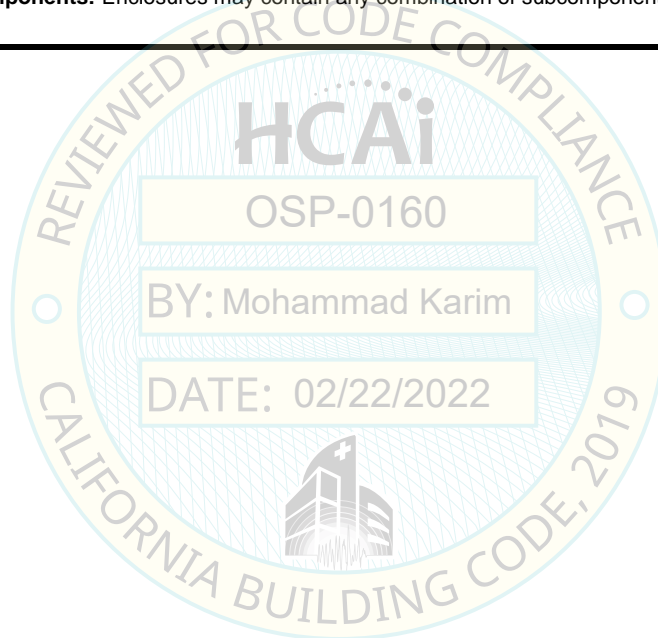
## ATTACHMENT 1: CERTIFIED COMPONENTS

## SPECIAL SEISMIC CERTIFICATION

**TABLE 1**

DOCUMENT NO.: 17024CR1.1

<b>MANUFACTURER:</b> FUEL OIL SYSTEMS						
<b>PRODUCT FAMILY:</b> MASTER/SUBMASTER FUEL OIL CONTROL PANELS						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
<b>Master/Submaster Fuel Oil Control Panels</b>						
Submaster Control Panel	8	24	30	89	Carbon steel	UUT 2
Master Control Panel	12	36	48	216	Carbon steel	UUT 1
<b>MOUNTING:</b>	Rigid wall mounted.			<b>SEISMIC LEVEL:</b>	$S_{DS} = 2.95g$ for $z/h = 1$ $I_p = 1.5$	
<b>NOTES:</b>	<b>Product Construction:</b> NEMA 4 carbon steel enclosure. <b>Options/Subcomponents:</b> Enclosures may contain any combination of subcomponents listed in Table 2 to create a complete control panel.					



## ATTACHMENT 1: CERTIFIED SUBCOMPONENTS

## SPECIAL SEISMIC CERTIFICATION

### TABLE 2 - SUBCOMPONENTS

DOCUMENT NO.: 17024CR1.1

<b>MANUFACTURER:</b> FUEL OIL SYSTEMS						
<b>PRODUCT FAMILY:</b> MASTER/SUBMASTER FUEL OIL CONTROL PANELS						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
<b>Hoffman - Enclosures</b>						
CSD30248	8	24	30	89	Carbon steel, wt. includes internals	UUT 2
CSD483612	12	36	48	216	Carbon steel, wt. includes internals	UUT 1
<b>Eaton Wheelock - Alarm Bell</b>						
43T-G6-115-S					6" Wheelock Alarm Bell	UUT 1,2
<b>Automation Direct - Programmable Logic Controllers</b>						
D2-09B-1					DL-205 9-Slot PLC Rack	UUT 1,2
D2-260					260 CPU Processor card	UUT 1,2
D2-16NA					16-Point 110VAC Input Card	UUT 1,2
D2-08TR					8-Point 110VAC Relay Output Card	UUT 1,2
F2-04AD-1					4-Point Analog Input Card	UUT 1,2
ZL-RTB20					Zip Link Connector Module	UUT 1,2
ZL-D2-CBL19-1					Zip Link Cable 19-terminal 1-meter	UUT 1,2
ZL-D2-CBL10-1					Zip Link Cable 10-terminal 1-meter	UUT 1,2
<b>Phoenix Contact - Terminal Blocks</b>						
1051016					UT-4 term blocks Markers	UUT 1,2
1051032					UT-4 term blocks Markers	UUT 1,2
1053030					UT-10 term blocks Markers	UUT 1,2
3030365					FBS 20-6 Plug-in bridge	UUT 1
<b>Phoenix Contact - Power Supply</b>						
2866446					24 VDC Power Supply	UUT 1,2
<b>Red Lion - HMI Interface Panels</b>						
G306A000					Red Lion 6" HMI	UUT 2
G310C000					Red Lion 10" HMI	UUT 1
<b>Automation Direct - Ethernet Switches</b>						
SE-SW5U					Unmanaged 5-Port Ethernet Switch	UUT 1
SE-SW8U					Unmanaged 8-Port Ethernet Switch	UUT 1,2
<b>IDEC - Switches</b>						
ASD210N					2-Position 1-N.O. Switch 30mm	UUT 1,2
APD199DN-W-120					120 VAC Pilot Light 30mm	UUT 1,2
ASD320N-B					3-Position 2-N.O. Switch 30mm	UUT 1,2
BST-010					N.O. Auxiliary Contacts	UUT 1,2
<b>Red Lion - Communication Cable</b>						
CBLKOY00					Red Lion to Koyo Com Cable	UUT 1,2
<b>Fuji Electric - Contactors &amp; Relays</b>						
SC-E03-110VAC					12A Motor Contactor 110VAC Coil	UUT 1
SC-E02-110VAC					9A Motor Contactor 110VAC Coil	UUT 1,2
SZ-A11T					Aux Motor Contact Top 1-N.O. 1-N.C	UUT 1,2
TK-E02-800					5-8A Motor Overload Relay	UUT 2
TK-E02-1100					7-11A Motor Overload Relay	UUT 1
<b>MOUNTING:</b>	Mounted within unit.			<b>SEISMIC LEVEL:</b>	$S_{DS} = 2.95g$ for $z/h = 1$	$I_p = 1.5$
<b>NOTES:</b>	<b>Construction/Options:</b> Model number uniquely identifies manufacturer, materials, and configuration of subcomponents.					

## ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

## SPECIAL SEISMIC CERTIFICATION

### UUT 1

DOCUMENT NO.: 17024CR1.1

<b>MANUFACTURER:</b>		FUEL OIL SYSTEMS				
<b>MODEL NUMBER:</b>		Master Control Panel				
<b>UNIT FUNCTION:</b>		Fuel Oil Control Panel				
<b>SERIAL NUMBER:</b>		CC-4836-10				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
12	36	48	216	N/A	N/A	N/A
<b>CODE &amp; CRITERIA:</b>		2019 CBC		ICC-ES AC156		
<b>TEST LABORATORY:</b>		NTS - Fullerton				
<b>REPORT &amp; DATE:</b>		113-1825		February 3, 2011		
S <sub>DS</sub> (g)	z/h	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)	
2.95	1	4.72	3.54	1.98	0.80	
<b>IMPORTANCE FACTOR, I<sub>p</sub> = 1.5</b>						
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.						
<b>MOUNTING:</b>		Rigid wall mounted using (4) 3/8" lag screws.				
<b>CONSTRUCTION:</b>		NEMA 4 carbon steel enclosure				
<b>SUBCOMPONENTS:</b>		Hoffman - Enclosure (CSD483612), Eaton Wheelock - Alarm Bell (43T-G6-115-S), Automation Direct - Programmable Logic Controllers (D2-09B-1, D2-260, D2-16NA, D2-08TR, F2-04AD-1, ZL-RTB20, ZL-D2-CBL19-1, ZL-D2-CBL10-1), Phoenix Contact - Terminal Blocks (1051016, 1051032, 1053030, 3030365), Phoenix Contact - Power Supply (2866446), Red Lion - HMI Interface Panel (G310C000), Automation Direct - Ethernet Switches (SE-SW5U, SE-SW8U), IDEC - Switches (ASD210N, APD199DN-W-120, ASD320N-B, BST-010), Red Lion - Communication Cable (CBLKOY00), Fuji Electric - Contactors & Relays (SC-E03-110VAC, SC-E02-110VAC, SZ-A11T, TK-E02-1100)				



DATE: 02/22/2022





## ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

## SPECIAL SEISMIC CERTIFICATION

### UUT 2

DOCUMENT NO.: 17024CR1.1

<b>MANUFACTURER:</b>	FUEL OIL SYSTEMS
<b>MODEL NUMBER:</b>	Submaster Control Panel
<b>UNIT FUNCTION:</b>	Fuel Oil Control Panel
<b>SERIAL NUMBER:</b>	CC-3624-6

DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
8	24	30	89	N/A	N/A	N/A

<b>CODE &amp; CRITERIA:</b>	2019 CBC	ICC-ES AC156
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<b>TEST LABORATORY:</b>	NTS - Fullerton
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<b>REPORT &amp; DATE:</b>	113-1825	February 3, 2011
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S <sub>DS</sub> (g)	z/h	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
2.95	1	4.72	3.54	1.98	0.80

<b>IMPORTANCE FACTOR, I<sub>p</sub> = 1.5</b>
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.

<b>MOUNTING:</b>	Rigid wall mounted using (4) 3/8" lag screws.
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<b>CONSTRUCTION:</b>	NEMA 4 carbon steel enclosure
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<b>SUBCOMPONENTS:</b>	Hoffman - Enclosure (CSD30248), Eaton Wheelock - Alarm Bell (43T-G6-115-S), Automation Direct - Programmable Logic Controllers (D2-09B-1, D2-260, D2-16NA, D2-08TR, F2-04AD-1, ZL-RTB20, ZL-D2-CBL19-1, ZL-D2-CBL10-1), Phoenix Contact - Terminal Blocks (1051016, 1051032, 1053030), Phoenix Contact - Power Supply (2866446), Red Lion - HMI Interface Panel (G306A000), Automation Direct - Ethernet Switch (SE-SW8U), IDEC - Switches (ASD210N, APD199DN-W-120, ASD320N-B, BST-010), Red Lion - Communication Cable (CBLKOY00), Fuji Electric - Contactors & Relays (SC-E02-110VAC, SZ-A11T, TK-E02-800)
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