



SOIL TEST BORING RECORD

BORING NUMBER - B6

PAGE 1 OF 1

PROJECT NUMBER 10-3126 PROJECT NAME Anastasia Mosquito ControlDRILLER SEA DRILLED 3/9/10 DRILLING METHOD Mud Rotary HOLE SIZE (in) 4

GROUND ELEVATION _____ GROUND WATER: _____ AT TIME OF DRILLING _____

LOGGED BY S. Evanson CHECKED BY L. Shuler AFTER DRILLING 0.5 ft**NOTES**

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE SAMPLE NO.	BLOW COUNTS (N VALUE)	SPT N VALUE			
					PL	MC	LL	
0					FINES CONTENT (%)			
					20	40	60	80
		Moist, very loose, grey and brown, slightly silty, fine, SAND (SP-SM)	B6-1	2-1-2-1 (3)				
		Wet, very loose, tan, fine, SAND (SP)						
		Wet, loose to firm, dark brown, slightly silty, fine, SAND (SP-SM)	B6-2	4-6-12-15 (18)				
		Wet, firm to very firm, tan, fine, SAND (SP)	B6-3	4-8-12-14 (20)				
5			B6-4	5-9-12-21 (21)				
			B6-5	13-23-28- 28 (51)				
10		Wet, very dense, dark brown, slightly silty, fine, SAND (SP-SM)						
			B6-6	10-27-41 (68)				
15		Wet, very firm to very dense, light brown, fine, SAND (SP)						
			B6-7	7-11-15 (26)				
20								
			B6-8	4-9-12 (21)				
25								

Boring terminated at 25.0 feet.



SOIL TEST BORING RECORD

BORING NUMBER - B7

PAGE 1 OF 1

PROJECT NUMBER 10-3126 PROJECT NAME Anastasia Mosquito ControlDRILLER SEA DRILLED 3/9/10 DRILLING METHOD Mud Rotary HOLE SIZE (in) 4

GROUND ELEVATION _____ GROUND WATER: _____ AT TIME OF DRILLING _____

LOGGED BY S. Evanson CHECKED BY L. Shuler AFTER DRILLING 0.3 ft**NOTES**

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	BLOW COUNTS (N VALUE)	● SPT N VALUE			
						PL	MC	LL	▲ FINES CONTENT (%)
0						20	40	60	80
		Moist, loose, dark brown, slightly silty, fine, SAND (SP-SM)		B7-1	2-2-4-3 (6)				
		Wet, loose to firm, tan, fine, SAND (SP)		B7-2	4-7-7-7 (14)				
5		Wet, loose to very dense, dark brown, slightly silty, fine, SAND (SP-SM)		B7-3	2-2-4-7 (6)				
				B7-4	6-15-27-30 (42)				
10				B7-5	22-41-41- 41 (82)				
15		Wet, very dense to very firm, light brown, fine, SAND (SP)		B7-6	23-50-50 (100)				
20				B7-7	7-8-13 (21)				

Boring terminated at 20.0 feet.



HAND AUGER BORING RECORD

BORING NUMBER HA - 1

PAGE 1 OF 1

PROJECT NUMBER 10-3126 PROJECT NAME Anastasia Mosquito ControlDRILLER SEA DRILLED 3/16/10 DRILLING METHOD Hand Auger HOLE SIZE (in) 4GROUND ELEVATION _____ GROUND WATER: ☒ AT TIME OF DRILLING 0.3 ftLOGGED BY S. Evanson CHECKED BY L. Shuler AFTER DRILLING ---**NOTES**

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	DCP BLOW COUNTS (Value)	● DCP BLOW COUNT			
						5	10	15	20
0.0									
		Moist, dark grey, slightly silty, fine, SAND (SP-SM)	Hand	1-1					
			Hand	1-2					
			Hand	1-3	6-7-8 (8)		●		
		Wet, grey, fine, SAND (SP)	Hand	1-4					
			Hand	1-5					
2.5									
		Wet, dark brown, slightly silty, fine, SAND (SP-SM)	Hand	1-6					
			Hand	1-7	11-18-25 (22)				●
			Hand	1-8					
			Hand	1-9					
			Hand	1-10					
5.0			Hand	1-11	7-17-23 (20)				●

Boring terminated at 5.5 feet.



HAND AUGER BORING RECORD

BORING NUMBER HA - 2

PAGE 1 OF 1

PROJECT NUMBER 10-3126 PROJECT NAME Anastasia Mosquito Control
DRILLER SEA DRILLED 3/16/10 DRILLING METHOD Hand Auger HOLE SIZE (in) 4
GROUND ELEVATION _____ GROUND WATER: ☒ AT TIME OF DRILLING 0.1 ft
LOGGED BY S. Evanson CHECKED BY L. Shuler AFTER DRILLING ---

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	DCP BLOW COUNTS (Value)	● DCP BLOW COUNT			
						5	10	15	20
0.0		Moist, dark brown, slightly silty, fine, SAND (SP-SM)	Hand	2-1					
		Wet, grey, fine, SAND (SP)	Hand	2-2					
			Hand	2-3	6-7-8 (8)		●		
		Wet, brown and grey, fine, SAND (SP)	Hand	2-4					
			Hand	2-5					
2.5			Hand	2-6					
			Hand	2-7	17-15-18 (17)			●	
		Wet, dark brown, slightly silty, fine, SAND (SP-SM)	Hand	2-8					
			Hand	2-9					
			Hand	2-10					
5.0			Hand	2-11	11-17-16 (17)			●	
			Hand	2-12					

Boring terminated at 6.0 feet.



HAND AUGER BORING RECORD

BORING NUMBER HA - 3

PAGE 1 OF 1

PROJECT NUMBER 10-3126 PROJECT NAME Anastasia Mosquito ControlDRILLER SEA DRILLED 3/16/10 DRILLING METHOD Hand Auger HOLE SIZE (in) 4GROUND ELEVATION _____ GROUND WATER: ☒ AT TIME OF DRILLING 0.3 ftLOGGED BY S. Evanson CHECKED BY L. Shuler AFTER DRILLING ---**NOTES**

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	DCP BLOW COUNTS (Value)	● DCP BLOW COUNT			
						5	10	15	20
0.0		▽ Dry, dark brown, slightly silty, fine, SAND (SP-SM)	Hand	3-1					
		Wet, grey, fine, SAND (SP)	Hand	3-2					
			Hand	3-3	5-7-8 (8)		●		
			Hand	3-4					
			Hand	3-5					
2.5			Hand	3-6					
			Hand	3-7	6-7-7 (7)		●		
			Hand	3-8					
			Hand	3-9					
			Hand	3-10					
5.0			Hand	3-11	8-9-10 (10)		●		

Boring terminated at 5.5 feet.



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ENGINEERING SCIENCES

REPORT OF A GEOTECHNICAL EXPLORATION

**Anastasia Mosquito Control South Parcel
St. Augustine, Florida**

January 18, 2017

**PROJECT NO. 0930.1600298.0000
REPORT NO. 1420967**

Prepared For:

Harrell Construction Co., Inc.
4185 Sunbeam Road – Building 200
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• St. Augustine, FL
• Tampa, FL
• West Palm Beach, FL

January 18, 2017

Harrell Construction Co., Inc.
4185 Sunbeam Road – Building 200
Jacksonville, Florida 32257

Attention: Mr. Bill Youker

Reference: **REPORT OF A GEOTECHNICAL EXPLORATION**
Anastasia Mosquito Control South Parcel
St. Augustine, Florida
UES Project No. 0930.1600298.0000 and Report No. 1420967

Dear Mr. Youker:

Universal Engineering Sciences, Inc. has completed a subsurface exploration at the site of the proposed project located in St. Augustine, Florida. This report contains the results of our exploration, an engineering evaluation with respect to the project characteristics described to us, and recommendations for groundwater considerations, foundation design, and site preparation. A summary of our findings is as follows:

- The borings generally encountered very loose to medium dense fine sand (SP) and slightly silty fine sand (SP-SM) in the upper 7.5 to 9 feet underlain with medium dense to very dense slightly silty fine sand (SP-SM) (Hardpan) to depths of 12.5 feet. The borings then encountered medium dense to very dense fine sand (SP) and slightly silty fine sand (SP-SM). As exceptions, boring LA-1 encountered slightly silty fine sand with organics (SP-SM/PT) at a depth range of 8 to 10 feet and boring S-1 encountered loose slightly silty fine sand with roots (SP-SM) at a depth range of 1.5 to 3 feet below the existing ground surface.
- We measured the groundwater level at the boring locations at depths of 2.2 to 3 feet below the existing grade. We estimate the seasonal high groundwater level will be approximately 1 to 1.5 feet below the existing ground surface.
- Based on our observation of the soils encountered by the borings, it is apparent that hardpan material is present on this site at the boring locations. Therefore, the contractor should anticipate the possibility of difficult excavation if hardpan soils are encountered for deeper excavations at the site.

- Boring S-1 encountered slightly silty fine sand with roots (SP-SM) at a depth range of 1.5 to 3 feet below the existing ground surface. We recommend backhoe-excavated test pits be performed in this area to better evaluate the need for over-excavation of these soils and to delineate the vertical and horizontal extent, if warranted.
- Assuming the building areas will be constructed in accordance with our Site Preparation Recommendations, we have recommended the proposed structures be supported on conventional, shallow spread foundations with an allowable soil bearing pressure of 2,500 pounds per square foot.
- We recommend only normal, good practice site preparation techniques to prepare the existing subgrade to support the proposed structure. These techniques include clearing the construction areas, dewatering if warranted, stripping topsoils and vegetation, compacting the subgrade and placing engineered fill to the desired grades.

We trust this report meets your needs and addresses the geotechnical issues associated with the proposed construction. We appreciate the opportunity to have worked with you on this project and look forward to a continued association. Please do not hesitate to contact us if you should have any questions, or if we may further assist you as your plans proceed.

Respectfully submitted,

UNIVERSAL ENGINEERING SCIENCES, INC.

Certificate of Authorization No. 549


 Stephen R. Weaver, P.E.
 Geotechnical Services Manager
 F.L.P.E. Number 37389
 Date: 1/28/99
 Cc: Mr. Scott Knowles
 Matthews Design Group



 Johnathan T. Miller, E.I.
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1.0 INTRODUCTION

In this report, we present the results of the subsurface exploration of the site for the proposed project located in St. Augustine, Florida. We have divided this report into the following sections:

- SCOPE OF SERVICES - Defines what we did
- FINDINGS - Describes what we encountered
- RECOMMENDATIONS - Describes what we encourage you to do
- LIMITATIONS - Describes the restrictions inherent in this report
- APPENDICES - Presents support materials referenced in this report

2.0 SCOPE OF SERVICES

2.1 PROJECT DESCRIPTION

Project information was provided to us in a recent correspondence with Mr. Scott Knowles with Matthews Design Group, Inc. We were provided with a copy of a site plan for the project. This plan show the boundary limits for the property, the existing and proposed site layout, and the requested boring locations.

It is understood that the proposed construction will consist of improvements to the mosquito control site. The improvements will include a Student/Visitor quarters, Chemical Storage building, hangar, and a helipad. A retention area is included for stormwater management. Detailed structural loads have not been provided to us, therefore we have assumed maximum column and wall loads of 75 kips and 2 klf, respectively. Detailed grading information has not been provided, therefore we assume that maximum elevating fill heights for each phase will not exceed 2 feet.

We note that since the applicability of geotechnical recommendations is very dependent upon project characteristics, most specifically: improvement locations, grade alterations, and actual structural loads applied, UES must review the preliminary and final site and grading plans, and structural design loads to validate all recommendations rendered herein. Without such review our recommendations should not be relied upon for final design or construction of any site improvements.

2.2 PURPOSE

The purposes of this exploration were:

- to explore the general subsurface conditions at the site for the proposed construction;
- to interpret and evaluate the subsurface conditions with respect to the proposed construction; and



- to provide geotechnical engineering recommendations for groundwater considerations, foundation design, and site preparation.

This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards. Universal Engineering Sciences would be pleased to perform these services, if you desire.

Our exploration was confined to the zone of soil likely to be stressed by the proposed construction. Our work did not address the potential for surface expression of deep geological conditions. This evaluation requires a more extensive range of field services than performed in this study. We will be pleased to conduct an investigation to evaluate the probable effect of the regional geology upon the proposed construction, if you desire.

2.3 FIELD EXPLORATION

A field exploration was performed on January 6-9, 2016. The approximate boring locations are shown on the attached Boring Location Plan in Appendix A. The approximate boring locations were determined in the field by our personnel using taped measurements from existing features at the site, and should be considered accurate only to the degree implied by the method of measurement used. Samples of the soils encountered will be held in our laboratory for your inspection for 60 days unless we are notified otherwise.

2.3.1 SPT Borings

To explore the subsurface conditions within the area of the proposed buildings and helipad, we located and drilled six (6) Standard Penetration Test (SPT) borings to depths of 20 feet below the existing ground surface in general accordance with the methodology outlined in ASTM D 1586. A summary of this field procedure is included in Appendix A. Split-spoon soil samples recovered during performance of the boring were visually classified in the field and representative portions of the samples were transported to our laboratory for further evaluation.

2.3.2 Auger Borings

To determine the subsurface conditions within the proposed retention pond, we located and drilled one (1) auger boring to the depth of 10 feet below the existing ground surface in general accordance with the methodology outlined in ASTM D 1452. A summary of this field procedure is included in Appendix A. Representative soil samples recovered from the auger borings were returned to our laboratory for further evaluation.

2.4 LABORATORY TESTING

Representative soil samples obtained during our field exploration were returned to our office and classified by a geotechnical engineer. The samples were visually classified in general accordance with ASTM D 2488 (Unified Soil Classification System).



Seven (7) fines content tests, seven (7) moisture content tests, and one (1) organic content test were conducted in the laboratory on representative soil samples obtained from the borings. These tests were performed to aid in classifying the soils and to help quantify and correlate engineering properties. The results of these tests are presented on the Boring Logs in Appendix A. A brief description of the laboratory procedures used is also provided in Appendix A.

3.0 FINDINGS

3.1 SOIL SURVEY

Based on the Soil Survey for St. Johns County, Florida, as prepared by the US Department of Agriculture Soil Conservation Service, the predominant predevelopment soil type at the site is identified as Myakka wet fine sands (3).

A summary of characteristics of this soil series was obtained from the Soil Survey and is included in Table 1.

included in Table 1.

TABLE 1							
Summary of Soil Survey Information							
Soil Type	Constituents		Hydrologic Group	Natural Drainage	Soil Permeability (Inches/Hr)		Seasonal High Water Table
Myakka (3)	0-23"	Fine sand	A/D	Poorly Drained	0-23"	6.0 – 20	0 – 0.5
	23-53"	Sand, fine sand, loamy fine sand			23-53"	0.6 – 6.0	
	53-80"	Sand, fine sand			53-80"	6.0 – 20	

3.2 SURFACE CONDITIONS

The site of the proposed construction is located south of the St. Johns County Emergency Management building in St. Augustine, Florida. The property is cleared with scattered pine trees throughout the site. There are wet retention ponds located to the northeast and to the south of the proposed construction. The site is visually level and there was no standing water observed at the time of our exploration.

3.3 SUBSURFACE CONDITIONS

The boring locations and detailed subsurface conditions are illustrated in Appendix A: Boring Location Plan and Boring Logs. It should be noted that soil conditions will vary away from and between boring locations. The classifications and descriptions shown on the logs are generally based upon visual characterizations of the recovered soil samples and a limited number of laboratory tests. Also, see Appendix A: Key to Boring Logs, for further explanation of the symbols and placement of data on the Boring Logs. Table 2: General Soil Profile, summarizes the soil conditions encountered.



TABLE 2		
General Soil Profile		
Typical depth (ft)		Soil Descriptions
From	To	
0	7.5 to 9	Very loose to medium dense fine sand (SP) and slightly silty fine sand (SP-SM)
7.5 to 9	12.5	Medium dense to very dense slightly silty fine sand (SP-SM) (Hardpan)
12.5	20*	Medium dense to very dense fine sand (SP) and slightly silty fine sand (SP-SM)
* Termination Depth of Deepest Boring		
() Indicates Unified Soil Classification		

As exceptions, boring LA-1 encountered slightly silty fine sand with organics (SP-SM/PT) at a depth range of 8 to 10 feet and boring S-1 encountered loose slightly silty fine sand with roots (SP-SM) at a depth range of 1.5 to 3 feet below the existing ground surface.

The groundwater level was recorded at a depth range of 2.2 to 3 feet below the existing ground surface.

4.0 RECOMMENDATIONS

4.1 GENERAL

In this section of the report, we present our detailed recommendations for groundwater control, building foundation, site preparation, and construction related services. The following recommendations are made based upon a review of the attached soil test data, our understanding of the proposed construction, and experience with similar projects and subsurface conditions. We recommend that we be provided the opportunity to review the project plans and specifications to confirm that our recommendations have been properly interpreted and implemented. If the structural loadings or the building locations change significantly from those discussed previously, we request the opportunity to review and possibly amend our recommendations with respect to those changes. The discovery of any subsurface conditions during construction which deviate from those encountered in the borings should be reported to us immediately for observation, evaluation and recommendations.

4.2 GROUNDWATER CONSIDERATIONS

The groundwater table will fluctuate seasonally depending upon local rainfall. The rainy season in Northeast Florida is normally between June and September. Based upon our review of U.S.G.S. data, St. Johns County Soils Survey, and regional hydrogeology, it is our opinion the seasonal high groundwater at the site will be approximately 1 to 1.5 feet below the existing ground surface.

Note, it is possible the estimated seasonal high groundwater levels will temporarily exceed these estimated levels during any given year in the future. Should impediments to surface water drainage exist on the site, or should rainfall intensity and duration, or total rainfall quantities



exceed the normally anticipated rainfall quantities, groundwater levels may exceed our seasonal high estimates. We recommend positive drainage be established and maintained on the site during construction. We further recommend permanent measures be constructed to maintain positive drainage from the site throughout the life of the project. We recommend all foundation and pavement grade designs be based on the seasonal high groundwater conditions.

4.3 BUILDING FOUNDATIONS

Based on the results of our exploration, we consider the subsurface conditions at the site adaptable for support of the proposed structures when constructed on a properly designed conventional shallow foundation systems. Provided the site preparation and earthwork construction recommendations outlined in Section 4.4 of this report are performed, the following parameters may be used for foundation design.

4.3.1 Bearing Pressure

The maximum allowable net soil bearing pressure for use in shallow foundation design should not exceed 2,500 psf. Net bearing pressure is defined as the soil bearing pressure at the foundation bearing level in excess of the natural overburden pressure at that level. The foundations should be designed based on the maximum load which could be imposed by all loading conditions.

4.3.2 Foundation Size

The minimum widths recommended for any isolated column footings and continuous wall footings are 24 inches and 18 inches, respectively. Even though the maximum allowable soil bearing pressure may not be achieved, these width recommendations should control the minimum size of the foundations.

4.3.3 Bearing Depth

The exterior foundations should bear at a depth of at least 18 inches below the finished exterior grades and the interior foundations should bear at a depth of at least 12 inches below the finish floor elevation to provide confinement to the bearing level soils. It is recommended that stormwater be diverted away from the building exteriors to reduce the possibility of erosion beneath the exterior footings.

4.3.4 Bearing Material

The foundations may bear in either the compacted suitable natural soils or compacted structural fill. The bearing level soils, after compaction, should exhibit densities equivalent to at least 95 percent of the Modified Proctor maximum dry density (ASTM D 1557) to a depth of at least two feet below the foundation bearing level.



4.3.5 Settlement Estimates

Post-construction settlements of the structures will be influenced by several interrelated factors, such as (1) subsurface stratification and strength/compressibility characteristics; (2) footing size, bearing level, applied loads, and resulting bearing pressures beneath the foundations; and (3) site preparation and earthwork construction techniques used by the contractor. Our settlement estimates for the structures are based on the use of site preparation/earthwork construction techniques as recommended in Section 4.4 of this report. Any deviation from these recommendations could result in an increase in the estimated post-construction settlements of the structures.

Using the recommended maximum bearing pressure, the assumed maximum structural loads and the field data which we have correlated to geotechnical strength and compressibility characteristics of the subsurface soils, we estimate that total settlements of the structure could be on the order of one inch or less.

Differential settlements result from differences in applied bearing pressures and variations in the compressibility characteristics of the subsurface soils. Because of the general uniformity of the subsurface conditions and the recommended site preparation and earthwork construction techniques outlined in Section 4.4, we anticipate that differential settlements of the structure should be within tolerable magnitudes ($\frac{1}{2}$ inch or less). The estimated differential settlements are considered structurally tolerable; however, aesthetic cracking may occur. The project budget should account for any cosmetic repairs.

4.3.6 Floor Slabs

The floor slab can be constructed as a slab-on-grade member using a modulus of subgrade reaction (K) of 100 pci provided the subgrade materials are compacted as outlined in Section 4.4. It is recommended the floor slab bearing soils be covered with an impervious membrane to reduce moisture entry and floor dampness in accordance with current Florida Building Code requirements. A 10-mil thick plastic membrane is commonly used for this purpose. Care should be exercised not to tear the membrane during placement of reinforcing steel and concrete.

4.4 SITE PREPARATION

We recommend normal, good practice site preparation procedures. These procedures include: stripping the site of vegetation and topsoil, compacting the subgrade, and placing necessary fill or backfill to grade with engineered fill. A more detailed synopsis of this work is as follows:

1. Prior to construction, the location of any existing underground utility lines within the construction area should be established. Provisions should then be made to relocate interfering utilities to appropriate locations. It should be noted that if underground pipes are not properly removed or plugged, they may serve as conduits for subsurface erosion which may subsequently lead to excessive settlement of overlying structure(s).



2. The groundwater level was encountered at a depth range of 2.2 to 3 feet below the existing ground surface in the borings at the time of our exploration. The seasonal high groundwater level is estimated to occur approximately 1 to 1.5 feet below the existing ground surface. The groundwater level should be maintained at least 1 foot below any excavations and 2 feet below the surface of any vibratory compaction procedures. We anticipate that surface water management could be needed if the construction occurs during a relatively wet climatic period.
3. Surface stripping and root raking should be performed within and 5 feet beyond the perimeter of the proposed building areas. Expect typical stripping at this site to a depth of 12 inches more or less.
4. Based on our observation of the soils encountered by the borings, it is apparent that hardpan material is present on this site at the boring locations. Therefore, the contractor should anticipate the possibility of difficult excavation if hardpan soils are encountered for deeper excavations at the site
5. Compact the subgrade from the surface with a medium weight vibratory roller (a 3- to 4-ton roller, static weight and 2- to 3-foot drum diameter) operating until you obtain a minimum density of at least 95 percent of the Modified Proctor maximum dry density (ASTM D-1557), to a depth of 1 foot below the bottom of the proposed footers. A minimum of eight (8) complete coverages (in perpendicular directions) should be made in the building construction area with the roller to improve the uniformity and increase the density of the underlying sandy soils

Should the bearing level soils experience pumping and soil strength loss during the compaction operations, compaction work should be immediately terminated and (1) the disturbed soils removed and backfilled with dry structural fill soils which are then compacted, or (2) the excess pore pressures within the disturbed soils allowed to dissipate before recompaction.

6. Care should be exercised to avoid damaging any nearby structures while the compaction operation is underway. Prior to commencing compaction, occupants of adjacent structures should be notified and the existing conditions of the structures be documented with photographs and survey (if deemed necessary). Compaction should cease if deemed detrimental to adjacent structures. Universal Engineering Sciences can provide vibration monitoring services to help document and evaluate the effects of the surface compaction operation on existing structures. In the absence of vibration monitoring it is recommended the vibratory roller remain a minimum of 50 feet from existing structures. Within this zone, use of a bulldozer or a vibratory roller operating in the static mode is recommended.
7. Place fill material, as required. The fill should consist of "clean," fine sand with less than 5 percent soil fines. You may use fill materials with soil fines between 5 and 12 percent, but strict moisture control may be required. Typically, the soils should exhibit moisture contents within ± 2 percent of the Modified Proctor optimum moisture content during



compaction. Place fill in uniform 10- to 12-inch loose lifts and compact each lift to a minimum density of 95 percent of the Modified Proctor maximum dry density.

8. Perform compliance tests within the subgrade and fill/backfill at a frequency of not less than one test per 2,500 square feet per lift in the building areas, or at a minimum of two tests in each building area, whichever is greater.
9. Test all footing cuts for compaction to a depth of 2 feet. We recommend you conduct density testing in every column footing, and every 100 linear feet in wall footings. Recomposition of the foundation excavation bearing level soils, if loosened by the excavation process, can probably be achieved by making several coverages with a light weight walk-behind vibratory sled or roller.

4.5 RETENTION POND CONSIDERATIONS

4.5.1 Fill Suitability

The pond auger boring was planned to provide an indication of the suitability of excavated soils from the proposed retention pond area for use as structural fill. Based on the boring results and classification of the soil samples, the soil described as slightly silty fine sand (SP-SM), as encountered in the upper 8 feet at the boring location, is considered suitable for use as structural fill. It should be understood that all soils excavated from below the water table may be excessively wet and may require stockpiling or spreading to dry prior to placement and compaction. Soils described as slightly silty fine sand (SP-SM) will take longer to dry. Although not suitable for structural fill, due to excessive organic content, the topsoil materials may be used in landscape areas as long as positive drainage is maintained. Soils described as slightly silty fine sand with organics (SP-SM/PT), as encountered at a depth range of 8 to 10 feet, are not considered suitable as structural fill due to the excessive organic content.

Based on our observation of the soils encountered by the borings, it is apparent that hardpan material is present on this site at the boring locations. Therefore, the contractor should anticipate the possibility of difficult excavation if hardpan soils are encountered for deeper excavations at the site.

4.5.2 Seasonal High Groundwater Level

We measured the groundwater level at the pond auger boring location (LA-1) at 3 feet below the existing grade. We estimate the seasonal high groundwater level at the pond auger boring will be 1.5 feet below the existing ground surface.

4.6 TEST PITS

Boring S-1 encountered slightly silty fine sand with roots (SP-SM) at a depth range of 1.5 to 3 feet below the existing ground surface. We recommend backhoe-excavated test pits be performed to better evaluate the need for over-excavation of these soils and to delineate the vertical and horizontal extent, if warranted.



4.7 CONSTRUCTION RELATED SERVICES

We recommend the owner retain Universal Engineering Sciences to perform construction materials tests and observations on this project. Field tests and observations include verification of foundation and pavement subgrades by performing quality assurance tests on the placement of compacted structural fill and pavement courses. We can also provide concrete testing, pavement section testing, structural steel testing, and general construction observation services.

The geotechnical engineering design does not end with the advertisement of the construction documents. The design is an on-going process throughout construction. Because of our familiarity with the site conditions and the intent of the engineering design, we are most qualified to address problems that might arise during construction in a timely and cost-effective manner.

5.0 LIMITATIONS

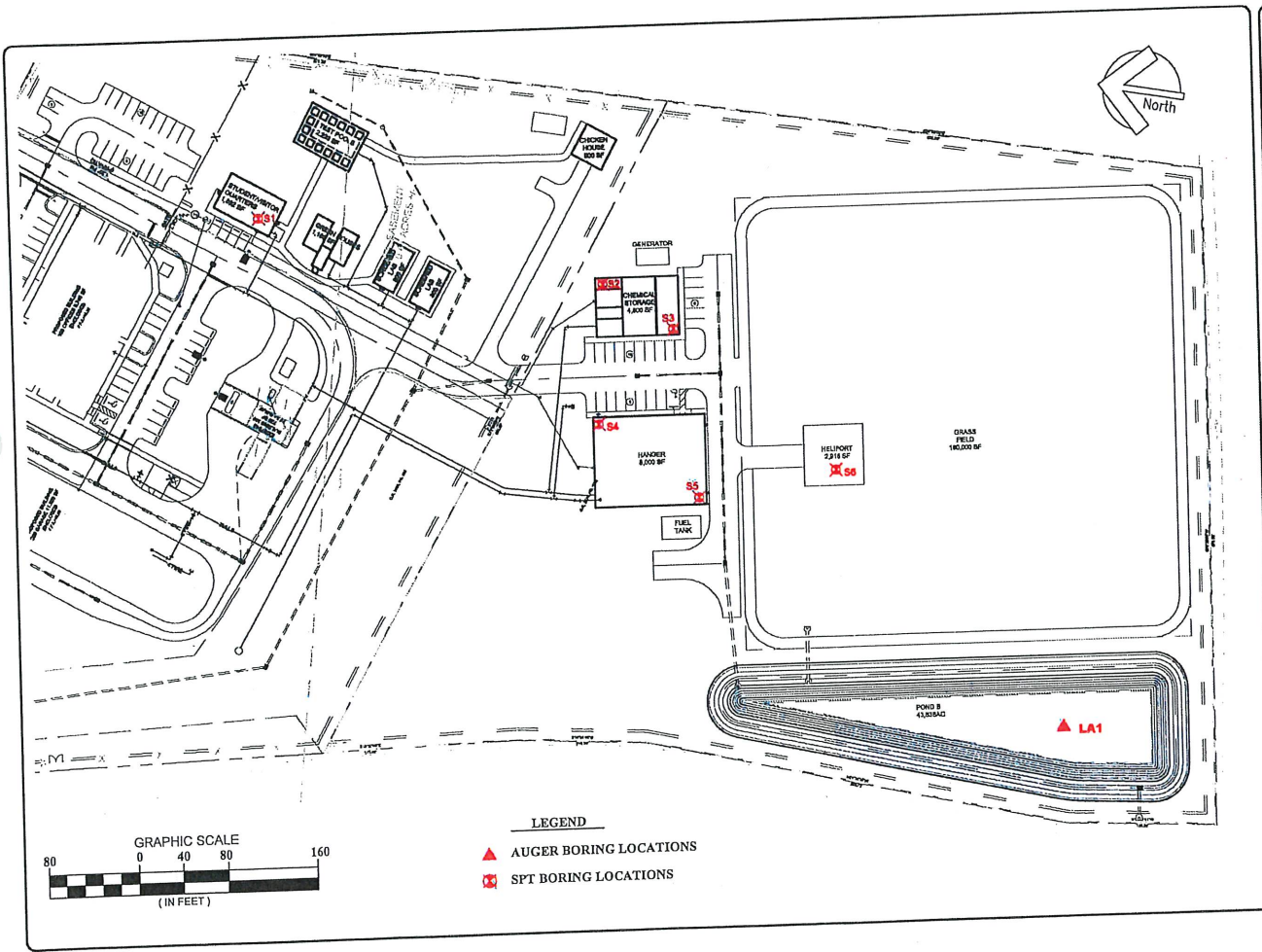
During the early stages of most construction projects, geotechnical issues not addressed in this report may arise. Because of the natural limitations inherent in working with the subsurface, it is not possible for a geotechnical engineer to predict and address all possible problems. A Geotechnical Business Council (GBC) publication, "Important Information About This Geotechnical Engineering Report" appears in Appendix B, and will help explain the nature of geotechnical issues.

Further, we present documents in Appendix B: Constraints and Restrictions, to bring to your attention the potential concerns and the basic limitations of a typical geotechnical report.



APPENDIX A

**BORING LOCATION PLAN
BORING LOGS
KEY TO BORING LOGS
FIELD EXPLORATION PROCEDURES
LABORATORY TESTING PROCEDURES**



CLIENT: HARRELL CONSTRUCTION COMPANY GEOTECHNICAL EXPLORATION ANASTASIA MOSQUITO CONTROL SOUTH PARCEL ST. AUGUSTINE, FLORIDA	DRAWN BY: TW CHECKED BY: JM SCALE: 1"=100' PROJECT NO: 0930.1600296.0000 REPORT NO:
	DATE: 1/13/17 DATE: 1/13/17
	BORING LOCATION PLAN
	PAGE NO: FIGURE 1





UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0930.1600298.0000
REPORT NO.:
PAGE: A-3

PROJECT: GEOTECHNICAL EXPLORATION
ANASTASIA MOSQUITO CONTROL SOUTH PARCEL
ST, AUGUSTINE, FLORIDA

CLIENT: HARRELL CONSTRUCTION COMPANY
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

BORING DESIGNATION: **S-2**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

G.S. ELEVATION (ft):
WATER TABLE (ft): 2.4
DATE OF READING: 1/9/17
EST. W.S.W.T. (ft):
DATE STARTED: 1/6/17
DATE FINISHED: 1/6/17
DRILLED BY: S. TORRES
TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						Very loose to loose gray to grayish-brown slightly Silty fine SAND (SP-SM)						
1-1-2		3										
2-2-3		5				Loose to medium dense brown slightly Silty fine SAND (SP-SM)						
3-5-5		10										
4-6-7		13										
6-9-13		22										
7-12-16		28										
9-11-15		26										
4-9-18		27				Medium dense dark brown to reddish-brown slightly Silty fine SAND (SP-SM)						
5-7-19		26										
20												

BORING LOG 0930.1600298.0000-ANASTASIA MOSQUITO CONTROL SOUTH PARCEL GPJ UNENSCS.GDT 1/18/17



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0930.1600298.0000

REPORT NO.:

PAGE: A-4

PROJECT: GEOTECHNICAL EXPLORATION
ANASTASIA MOSQUITO CONTROL SOUTH PARCEL
ST. AUGUSTINE, FLORIDA

BORING DESIGNATION: **S-3**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT: HARRELL CONSTRUCTION COMPANY

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

G.S. ELEVATION (ft):

DATE STARTED: 1/6/17

WATER TABLE (ft): 2.6

DATE FINISHED: 1/6/17

DATE OF READING: 1/6/17

DRILLED BY: S. TORRES

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						Very loose light gray fine SAND (SP)						
1-1-2		3				Loose to medium dense dark gray slightly Silty fine SAND (SP-SM)						
2-2-4		6					5.9	30.8				
6-10-10		20				Medium dense brown slightly Silty fine SAND (SP-SM)						
9-12-11		23										
8-13-14		27				Dense dark brown slightly Silty fine SAND (SP-SM) (Hardpan)						
10-21-25		46										
10-22-27		49										
						Medium dense reddish-brown slightly Silty fine SAND (SP-SM)						
9-10-20		30										
						Medium dense dark brown fine SAND (SP)						
4-8-11		19					3.0	27.1				

BORING LOG 0930.1600298.0000-ANASTASIA MOSQUITO CONTROL SOUTH PARCEL.GPJ UNIENGSC.GDT 1/18/17



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0930,1600298,0000
REPORT NO.:
PAGE: A-5

PROJECT: GEOTECHNICAL EXPLORATION
ANASTASIA MOSQUITO CONTROL SOUTH PARCEL
ST, AUGUSTINE, FLORIDA

CLIENT: HARRELL CONSTRUCTION COMPANY

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION: **S-4**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

G.S. ELEVATION (ft):
WATER TABLE (ft): 2.3
DATE OF READING: 1/9/17
EST. W.S.W.T. (ft):

DATE STARTED: 1/6/17
DATE FINISHED: 1/6/17
DRILLED BY: S. TORRES
TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						Very loose grayish-brown fine SAND (SP)						
		1-1-1	2									
		2-3-4	7			Loose dark brown slightly Silty fine SAND (SP-SM)						
						Medium dense brown fine SAND (SP)						
		4-7-9	16			Medium dense brown slightly Silty fine SAND (SP-SM)						
5												
		8-11-13	24									
		8-12-13	25									
		9-9-12	21			Medium dense dark brown slightly Silty fine SAND (SP-SM) (Hardpan)						
10		8-13-15	28									
						Dense to medium dense orangish-brown slightly Silty fine SAND (SP-SM)						
15		9-15-22	37									
20		5-8-13	21									

BORING LOG 0930,1600298,0000-ANASTASIA MOSQUITO CONTROL SOUTH PARCEL GPJ UNIENGSC.GDT 1/18/17



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0930.1600298.0000

REPORT NO.:

PAGE: A-7

PROJECT: GEOTECHNICAL EXPLORATION
ANASTASIA MOSQUITO CONTROL SOUTH PARCEL
ST. AUGUSTINE, FLORIDA

CLIENT: HARRELL CONSTRUCTION COMPANY

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

BORING DESIGNATION:
SECTION:

S-6
TOWNSHIP:

SHEET: **1 of 1**
RANGE:

G.S. ELEVATION (ft):

DATE STARTED: 1/9/17

WATER TABLE (ft): 2.6

DATE FINISHED: 1/9/17

DATE OF READING: 1/9/17

DRILLED BY: S. TORRES

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						Very loose grayish-brown fine SAND (SP)						
		1/12"-2	2			Loose to medium dense brown to dark brown fine SAND (SP)						
		2-2-3	5									
		3-4-6	10									
5												
		5-7-8	15				3.8	24.4				
		7-8-12	20									
		6-8-13	21									
10												
		14-14-13	27									
						Very dense brown slightly Silty fine SAND (SP-SM)						
15												
		11-24-32	56									
						Medium dense brown fine SAND (SP)						
20												
		3-6-7	13									

BORING LOG 0930.1600298.0000-ANASTASIA MOSQUITO CONTROL SOUTH PARCEL GPJ UNENSC.GDT 1/18/17



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0930,1600298,0000
REPORT NO.:
PAGE: A-1

PROJECT: GEOTECHNICAL EXPLORATION
ANASTASIA MOSQUITO CONTROL SOUTH PARCEL
ST. AUGUSTINE, FLORIDA

BORING DESIGNATION: **LA-1**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT: HARRELL CONSTRUCTION COMPANY

G.S. ELEVATION (ft):

DATE STARTED: 1/9/17

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 3.0

DATE FINISHED: 1/9/17

REMARKS:

DATE OF READING: 1/9/17

DRILLED BY: S. TORRES

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						TOPSOIL						
						Gray fine SAND (SP)	2.1	20.4				
						Gray slightly Silty fine SAND (SP-SM)						
							6.8	24.3				
5												
						Brown slightly Silty fine SAND with Organics (SP-SM/PT)	9.9	23.8				8.4
10												



SYMBOLS

SYMBOL DESCRIPTION

N	No. of blows of a 140-lb weight falling 30 inches required to drive standard spoon 1 foot.
WOR	Weight of Drill Rods
WOH	Weight of Drill Rods and Hammer
% REC	Percent Core Recovery from Rock Core Drilling
RQD	Rock Quality Designation
EOB	End Of Boring
BT	Boring Terminated
-200	Fines Content or % Passing NO. 200 Sieve
MC	Moisture Content
LL	Liquid Limit
PI	Plasticity Index
K	Coefficient of Permeability
O.C.	Organic Content
▽	Estimated seasonal high groundwater level
▼	Measured groundwater level at time of drilling

RELATIVE DENSITY (sand-silt)

Very Loose - Less Than 4 Blows/Ft.
Loose - 4 to 10 Blows/Ft.
Medium - 11 to 30 Blows/Ft.
Dense - 31 to 50 Blows/Ft.
Very Dense - More Than 50 Blows/Ft.

CONSISTENCY (clay)

Very Soft - Less than 2 Blows/Ft.
Soft - 2 to 4 Blows/Ft.
Medium - 5 to 8 Blows/Ft.
Stiff - 9 to 15 Blows/Ft.
Very Stiff - 16 to 30 Blows/Ft.
Hard - More Than 30 Blows/Ft.

RELATIVE HARDNESS (Limestone)

Soft - 100 Blows for more than 2"
Hard - 100 Blows for less than 2"

UNIFIED CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS More than 50% retained on No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Well-graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS	SW**	Well-graded sands and gravelly sands, little or no fines
			SP**	Well-graded sands and gravelly sands, little or no fines
		SANDS WITH FINES	SM**	Silty sands, sand-silt mixtures
			SC**	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS 50% or more passes No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
			CH	Organic clays or high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
			PT	Peat, muck and other highly organic soils

* Based on the material passing the 3-in. (75 mm) sieve.

** Use dual symbol (such as SP-SM and SP-SC) for soil with more than 5% but less than 12% passing through No. 200 sieve.

* Based on the material passing the 3-in. (75 mm) sieve.

** Use dual symbol (such as, SP-SM and SP-SC) for soil with more than 5% but less than 12% passing through No. 200 sieve.

MODIFIERS

These modifiers provide our estimate of the amount of minor constituents (SILT or CLAY sized particles) in the soil sample.

Trace - 5% or less
With SILT or with CLAY - 6% to 11%
SILTY or CLAYEY - 12% to 30%
Very SILTY or Very CLAYEY - 31% to 50%

These modifiers provide our estimate of the amount of organic components in the soil sample.

Trace - 1% to 2%
Few - 3% to 4%
Some - 5% to 8%
Many - Greater than 8%

These modifiers provide our estimate of the amount of other components (Shell, Gravel, Etc.) in the soil sample

Trace - 5% or less
Few - 6% to 12%
Some - 13% to 30%
Many - 31% to 50%

FIELD EXPLORATION PROCEDURES

Standard Penetration Test Boring

The penetration boring was made in general accordance with the latest revision of ASTM D 1586, "Penetration Test and Split-Barrel Sampling of Soils". The boring was advanced by rotary drilling techniques using a circulating bentonite fluid for borehole flushing and stability. At 2 ½ to 5 foot intervals, the drilling tools were removed from the borehole and a split-barrel sampler inserted to the borehole bottom and driven 18 inches into the soil using a 140 pound hammer falling on the average 30 inches per hammer blow. The number of blows for the final 12 inches of penetration is termed the "penetration resistance, blow count, or N-value". This value is an index to several in-place geotechnical properties of the material tested, such as relative density and Young's Modulus.

After driving the sampler 18 inches (or less if in hard rock-like material), the sampler was retrieved from the borehole and representative samples of the material within the split-barrel were placed in glass jars and sealed. After completing the drilling operations, the samples for each boring were transported to our laboratory where they were examined by our engineer in order to verify the driller's field classification.

Auger Boring

The auger boring was performed mechanically by the use of a continuous-flight auger attached to the drill rig and in general accordance with the latest revision of ASTM D 1452, "Soil Investigation and Sampling by Auger Borings". Representative samples of the soils brought to the ground surface by the augering process were placed in glass jars, sealed and transported to our laboratory where they were examined by our engineer to verify the driller's field classification.

LABORATORY TESTING PROCEDURES

Natural Moisture Content

The water content of the sample tested was determined in general accordance with the latest revision of ASTM D 2216. The water content is defined as the ratio of "pore" or "free" water in a given mass of material to the mass of solid material particles.

Percent Fines Content

The percent fines or material passing the No. 200 mesh sieve of the sample tested was determined in general accordance with the latest revision of ASTM D 1140. The percent fines are the soil particles in the silt and clay size range.

Organic Loss on Ignition (Percent Organics)

The organic loss on ignition or percent organic material in the sample tested was determined in general accordance with ASTM D 2974. The percent organics is the material, expressed as a percentage, which is burned off in a muffle furnace at 550° Celsius.

APPENDIX B

**IMPORTANT INFORMATION ABOUT THIS
GEOTECHNICAL ENGINEERING REPORT**

CONSTRAINTS AND RESTRICTIONS

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply this report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an

assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by:* the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help

others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold-prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical-engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your GBC-Member geotechnical engineer for more information.



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CONSTRAINTS AND RESTRICTIONS

WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

UNANTICIPATED SOIL CONDITIONS

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions modified or approved by Universal Engineering Sciences.

USE OF REPORT BY BIDDERS

Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations.

Bidders are urged to make their own soil borings, test pits, test caissons or other investigations to determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

OBSERVATIONS DURING DRILLING

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

WATER LEVELS

Water level readings have been made in the drill holes during drilling and they indicate normally occurring conditions. Water levels may not have been stabilized at the last reading. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors not evident at the time measurements were made and reported. Since the probability of such variations is

anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

LOCATION OF BURIED OBJECTS

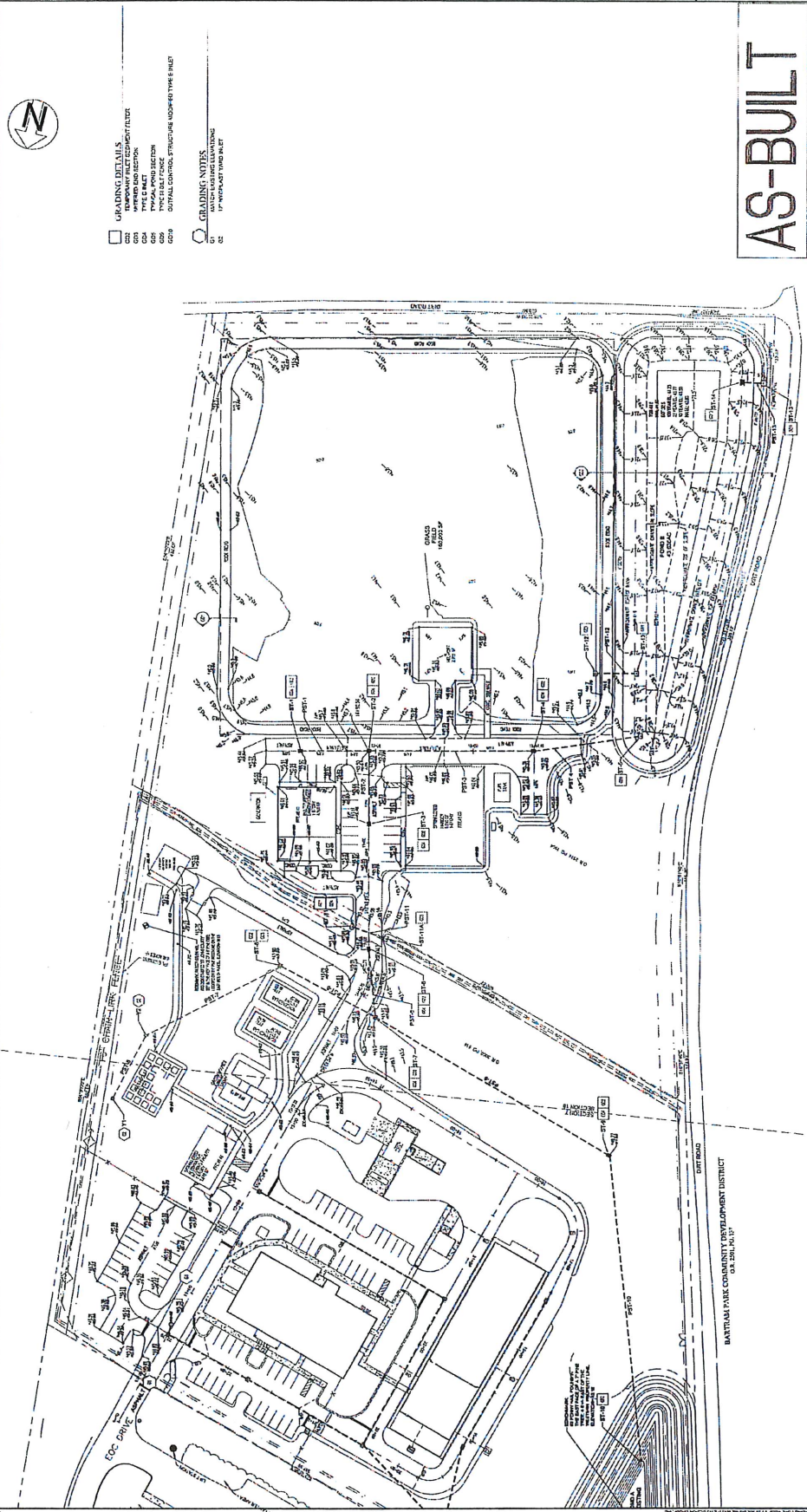
All users of this report are cautioned that there was no requirement for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects. Universal Engineering Sciences cannot be responsible for any buried man-made objects which are subsequently encountered during construction that are not discussed within the text of this report.

TIME

This report reflects the soil conditions at the time of investigation. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews may be required.

[illegible][illegible][illegible]

*SHEET 2 OF 2
*SEE SHEET 1 FOR LEGEND AND NOTES
MAP NOT COMPLETE WITHOUT SHEETS 1 THROUGH 4

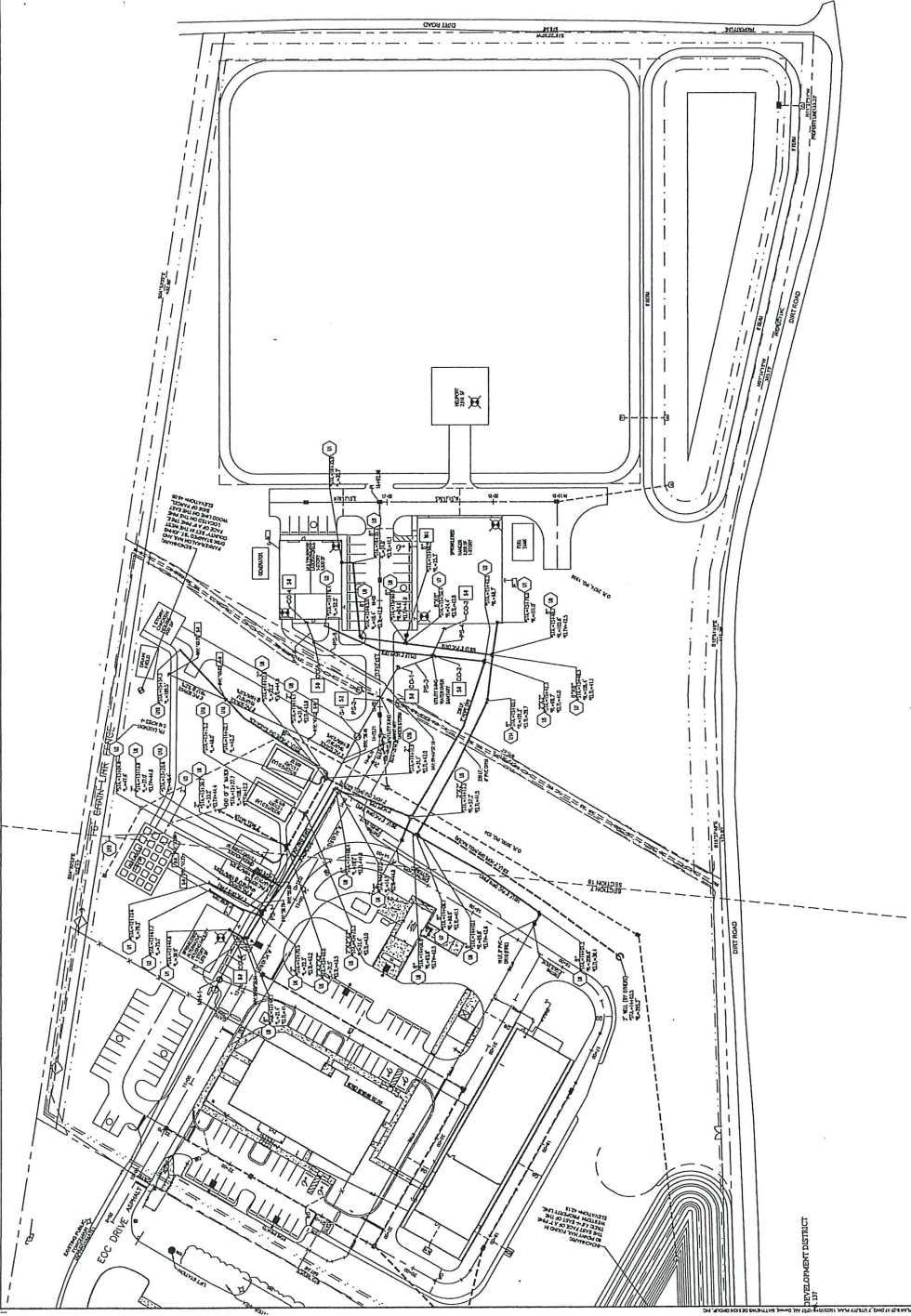


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APPROVAL OF THESE PLANS DO NOT INCLUDE APPROVAL FOR PRIVATE UNDERGROUND WATER MAIN, HYDRANTS, AND FIRE SPRINKLER MAINS.
SEE PAGE 3 FOR FIRE PROTECTION NOTES.

STRUCTURE TABLE				PIPE TABLE			
STRUCTURE	TYPE	FIN	IN/OUT	PIPE	SIZE	MATERIAL	SLOPE
CO-1	CLEANOUT	W/OUT	W/OUT	PP-1	4"	PVC 15001	1/8"
CO-2	CLEANOUT	W/OUT	W/OUT	PP-2	4"	PVC 15001	1/8"
CO-3	CLEANOUT	W/OUT	W/OUT	PP-3	4"	PVC 15001	1/8"
CO-4	CLEANOUT	W/OUT	W/OUT	PP-4	4"	PVC 15001	1/8"
CO-5	CLEANOUT	W/OUT	W/OUT	PP-5	4"	PVC 15001	1/8"
CO-6	CLEANOUT	W/OUT	W/OUT	PP-6	4"	PVC 15001	1/8"
CO-7	CLEANOUT	W/OUT	W/OUT	PP-7	4"	PVC 15001	1/8"
CO-8	CLEANOUT	W/OUT	W/OUT	PP-8	4"	PVC 15001	1/8"
CO-9	CLEANOUT	W/OUT	W/OUT	PP-9	4"	PVC 15001	1/8"
CO-10	CLEANOUT	W/OUT	W/OUT	PP-10	4"	PVC 15001	1/8"
CO-11	CLEANOUT	W/OUT	W/OUT	PP-11	4"	PVC 15001	1/8"
CO-12	CLEANOUT	W/OUT	W/OUT	PP-12	4"	PVC 15001	1/8"
CO-13	CLEANOUT	W/OUT	W/OUT	PP-13	4"	PVC 15001	1/8"
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CO-171	CLEANOUT	W/OUT	W/OUT	PP-171	4"	PVC 15001	1/8"
CO-172	CLEANOUT	W/OUT	W/OUT				

[illegible]

AS-BUILT:

INFORMATION PROVIDED BY

DATE: 07/21/2016
DRAWN BY: JACOB B. BRIDGES
ADDRESS: 4689 AVENUE A, SUITE B,
ST. AUGUSTINE, FL 32059
PHONE: (904) 263-8727

I hereby certify that the marks and quantities listed are true and correct as shown on site.

PANCHO
☒ CORB & OUTER
☒ STORM & DRAINAGE SYSTEM
☒ FIREMAN
☒ FLOOD CONTROL GRANTY SYSTEM
☒ FORCE MAIN
☒ LIFT STATION
☒ WATER MAIN

I am in accordance with the approved plans and SOO.
I understand that I will be held responsible for all
statements, unless otherwise approved by SA 5000.

JOHN ALLEN
CONTRACTOR'S SIGNATURE

CONTRACTOR'S STATE LICENSE NUMBER

DATE:	11-23-2010
TIME:	1600

HO.	DATE	DESCRIPTION
1.	12-14-2018	REVIEWED PER SURVIVOR COMMENTS
2.	01-25-2017	REVIEWED PER SAC COMMENTS
3.	03-16-2017	REVIEWED PER SAC COMMENTS
4.	09-25-2017	REVIEWED PER CLIENTS REQUEST

RS 2400V X-RAY IRRADIATOR



**15 Liters of Product
Per Cycle with a Dose
Rate ~12 Gray Per
Minute: *That's the
Convenience of the
RS 2400V.***

Safe and Reliable SIT



The Rad Source Technologies RS 2400V featuring QuaStar® X-ray tube technology is a safe and reliable radiation source for Sterile Insect Technique (SIT). Unlike the

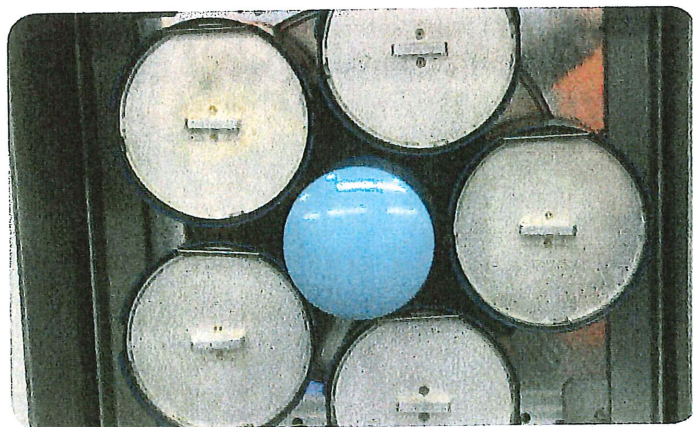
other radiation sources, cobalt-60 and cesium-137, Rad Source utilizes patented X-ray technology to generate a 4 pi ionizing radiation field without a radioactive source. Because there is no radioactive source, the RS 2400V is much safer, less expensive to own and operate, and can be easily shipped to almost anywhere in the world.



Photo Credit: Dwan Chapman from Oxford, England - Flickr: Light Brown Apple Moth - Epiphyas postvittana

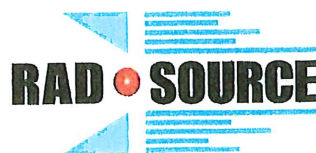
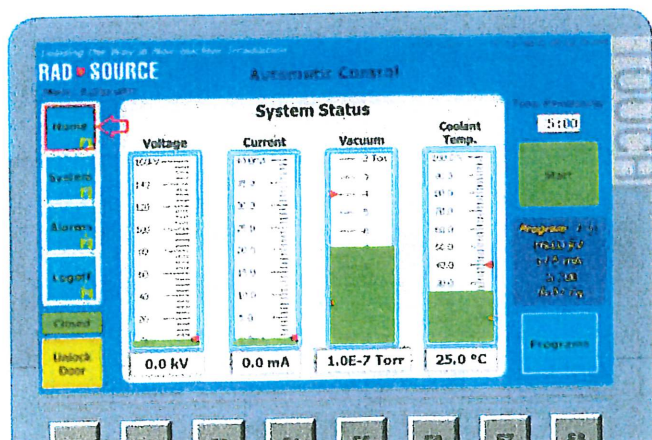
Features and Benefits

- **Single QuaStar® X-ray Tube**
- **Reliable - Proven 99% Uptime**
- **Safe, the unit is self-shielded with no radioactive source**
- **Secure, system is password protected**
- **Turn-key installation**
- **Easy to operate using a simple, easy-to-read touch pad**
- **Does not require a US Nuclear Regulatory Commission (NRC) license**



RS 2400V Carousel

The RS 2400V's new carousel system, combined with the light-weight, water-proof, carbon fiber reinforced resin canisters, maximizes the utilization of the unique Rad Source 4 pi radiation field, resulting in a more uniform dose delivery.



678-765-7900
radsources.com

bsi.
131032001

Patents: See www.radsources.com/patent.

MKT011-12/18 Rev 3

RS 2400V X-RAY IRRADIATOR

Technical Specifications*

- Dose Rate: 10 - 20 Gy per minute (0.46 g/ml)
- Dose Uniformity Ratio (DUR) of 1.5
- Processing volume: 5 or 15 L per cycle
- Maximum capacity design: Six, 830 ml canisters (5 L total capacity) or Five, 3 liter canisters (15 L total capacity)
- Cabinet Dimensions: 47" x 75" x 34" (120 x 191 x 86 cm)
- Cabinet Weight: Approx. 2500 lbs. (1133.98kgs)
- Power Requirements: 60Hz, 208-240VAC, single phase, 40amps

**Technical specifications are subject to change, please contact your Rad Source representative for the most current information.*

Additional Specifications

- Features one QUASTAR® X-ray Tube
- Single chamber design with integrated multi-canister carousel
- 12 month Parts and Labor warranty, 24 month Tube warranty (EXCLUDES TRAVEL and SHIPPING)
- Two safety interlocks

Includes:

- Dual work shelves
- Mounted on casters for easy installation and cleaning

Requires:

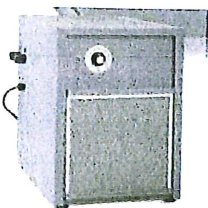
External Water Cooling Module (needs to be provided by end user).

Minimum Specifications:

- Minimum 14,000 BTU's per hour
- Inlet / Outlet Connections 1/2" NPT
- 5 Gallons per minute
- Must maintain temperature of 65-85 degrees

Contact Rad Source representative for full water chiller requirements.

Sample Water Chiller. Available from your local Turnroll Representative



RS 2400V



- System has no radioactive source
- Manufactured as a Cabinet X-Ray Device.

Contact Us to Learn More About How the RS 2400V Can Help Your Facility Today!



678-765-7900
radsources.com

bsi.
WATSON

Patents: See www.radsources.com/patent

MKT011-12/18 Rev 3



Rad Source Technologies, Inc.
4907 Golden Parkway Suite 400
Buford, GA 30518
Tel: 678-765-7900
www.radsources.com

Site Readiness Checklist

Customer: _____ Date: _____

Thank you for purchasing an: RS 2400•Q SIT/SIR Irradiator

RadSource Product Code: 2400•Q

ATTENTION:

A \$2,500 FEE **WILL BE CHARGED** IF ACTIONS LISTED ARE NOT COMPLETED BEFORE DELIVERY. YOUR SHIPMENT DATE WILL BE ESTABLISHED **NO SOONER THAN 2 WEEKS AFTER** WE HAVE RECEIVED THIS DOCUMENT AND **REQUIRED PHOTOS** AT SITES@RADSOURCE.COM. YOUR CUSTOMER REQUEST DATE (CRD) WILL BE ADJUSTED **ACCORDING TO TIMELY COMPLETION OF THIS DOCUMENT.**

Unloading Questionnaire

Dock pictures, looking out from your dock & from the ground coming into the dock, are attached.	<input type="checkbox"/>
What is the height from the ground to the dock? (Feet/Inches)	/
If the approach to your dock is not flat, how much does it rise/over what distance? (Feet/Feet)	/
Is the unloading area accessible by 70-80 feet long semi-trailer?	Yes / No
If not, what size semi-trailer can your dock accommodate? (Feet)	
Are the doorways at least 38"W x 75"H in order to maneuver the machine through?	Yes / No
If not, are the dimensions of the narrowest doorway which must be traversed attached?	Yes / No
The machine is top heavy. Are there any inclines the machine must roll over?	Yes / No
If yes, are pictures and descriptions of these obstacles attached?	Yes / No
Do you have an elevator (if required) with a lifting capacity of at least 2450 lbs.?	Yes / No

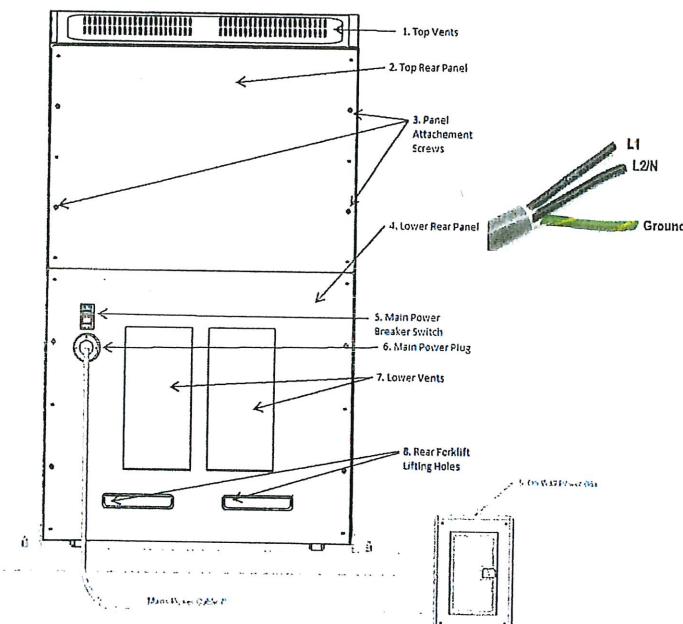
Site Questionnaire

Item	Requirement	Initials
Equipment Dimensions: 46"W x 36"D x 74"H	Clearance Dimensions: (refer to cut sheet) 52"W x 42"D x 80"H	
Verified Floor Loading (unit weight)	2450 lbs.	
Verified Level Flooring	Max 0.125"/ft.	
Verified Power Requirements	See Electrical Requirements Section. Include photos of electrical connection with panels/covers off to show wiring.	
Coolant	You have obtained, or have immediate access to, 10 Gallons of Distilled Water for the irradiator's internal water tank.	
Environmental Conditions	The irradiator will be located in a controlled environment between 62°F - 82°F (17°C - 28°C) free of dust and particulate.	
External Chilled Water: Such as the Turmoil OC-150R VC; Approximately 22" x 30" x 37" and weighs 400lbs. See Chiller Information section.	Include photos of chiller connected to power, AND of ready plumbing line connection where irradiator will be installed. Requires an operational external chiller that can provide 55°F (13°C) water at 4 gpm at 40 to 60 psi under an equipment heat load of 14,000 BTU under all anticipated ambient conditions.	
Internet Requirement (See Page 3)	An Internet connection is required.	

Electrical Requirements Information

- The 2400•Q will be delivered with a standard 8 AWG L1, L2/N power input cable that can be either wired directly into a disconnect box, or connected to a 40 Amp plug.
- **If input voltage is low a power booster is highly recommended, see important notes.**
- When preparing the facility for receipt of the unit, consider the following electrical specifications;
Irradiator: **208/240VAC 1-phase 50/60Hz, 40 Amp, True Earth Ground**
Chiller: **Required. Contact chiller manufacturer for electrical requirements.**
- The facility is responsible for the installation of a breaker protected Power Disconnect Box within 6ft (2m) of the machine's install location. Optionally, a circuit breaker protected Plug and Receptacle may be used.
- **The irradiator MUST be connected by a facility provided electrician to facility main input power at time of device delivery to the facility. NOTE: Rad Source technician WILL NOT connect unit to power.**
- When the irradiator is delivered, the power input cord will be attached to the unit and it will need to be wired directly into the disconnect box (or plug) at your facility. It has a three wire configuration that does NOT use a Neutral. The green wire **must** be connected to **ground**.
- An external safety ground is recommended and is required for units installed outside of the United States.

Example of Irradiator Power Connection





Rad Source Technologies, Inc.
4907 Golden Parkway Suite 400
Buford, GA 30518
Tel: 678-765-7900
www.radsources.com

General Information

● Training:

Operator training will be conducted immediately after the installation.

● Remote Access

TROUBLE SHOOTING:

This unit incorporates an Industrial Virtual Private Network (VPN) router that uses a private, secure, & encrypted cloud based VPN which only allows access to devices inside the irradiator. When the Ethernet Jack on the back of the irradiator is connected to the internet via your LAN or via a WiFi Bridge to your guest network, a Rad Source technician can remotely access the PLC, CPU, HMI, and HVPS to assist your technicians in trouble shooting, repairing and/or updating the irradiator. Rad Source can assist with setting up a WiFi Bridge.

● Chiller Information

This irradiator cannot be operated without an external water chiller, which must be purchased, installed, operational (filled), and plumbed to the irradiator's location before installation. Ensure that the plumbing lines from your water chiller are at least 1" ID with a reduction at unit to 3/4". Chillers are sold by 3rd parties and have long lead times. Suitable chillers include the Turmoil OC-150R or the MTA TeT Mini 10. Contact manufacturer for pricing and specifications. Failure to ensure a correctly sized chiller is installed and operational before irradiator delivery will delay installation and result in additional charges.

● Important Notes

Input voltage will fluctuate as other devices draw upon available power. Failure to maintain a minimum of 208 VAC to the irradiator at all times will result in damage to internal components, down time and may void the Warranty. If static input voltage to the irradiator is below 210 VAC, a boost transformer with an output of 220VAC at 40 amps is highly recommended to be installed by electrician. Further information on buck booster requirements or specifications will be provided upon request.



Rad Source Technologies, Inc.
4907 Golden Parkway Suite 400
Buford, GA 30518
Tel: 678-765-7900
www.radsources.com

Address and Contact Questions

	Physical Delivery Address for the 2400•Q	Main Facility Address
Contact		
Contact Phone		
Street 1		
Street 2		
City/State/Zip		

	Delivery and Installation Contact	Contact Responsible for all other Issues
Name		
Title		
Email		
Phone		

- Note Concerning the Loading Dock: Our commercial truck line typically uses a semi-trailer for delivery. If this will not work at your facility, we can transfer to a smaller truck. There may be an additional charge for this service.
- Additional fees/charges will be assessed for non-standard delivery costs, i.e. rigging, cross-docking, non-standard height, obstructed access, forklift rentals, and/or expedited services.

Delivery and Installation of the 2400•Q

The unit is typically installed, calibrated, dose mapped and a radiation survey performed in one day.

If you have any questions regarding shipping and delivery, please e-mail them to shipping@radsources.com, call Rad Source at 678-765-7900 and select the shipping option.

As authorized personnel, I understand that failure to accurately complete this document in its entirety WILL result in delayed installation and additional installation fees and shipping costs.

Signature

Date

Title

Phone

**IF THIS FORM IS NOT FILLED IN COMPLETELY, THE INSTALLATION OF YOUR UNIT MAY BE DELAYED
IF THE INFORMATION ON THIS FORM IS INCORRECT YOU MAY INCUR ADDITIONAL CHARGES**

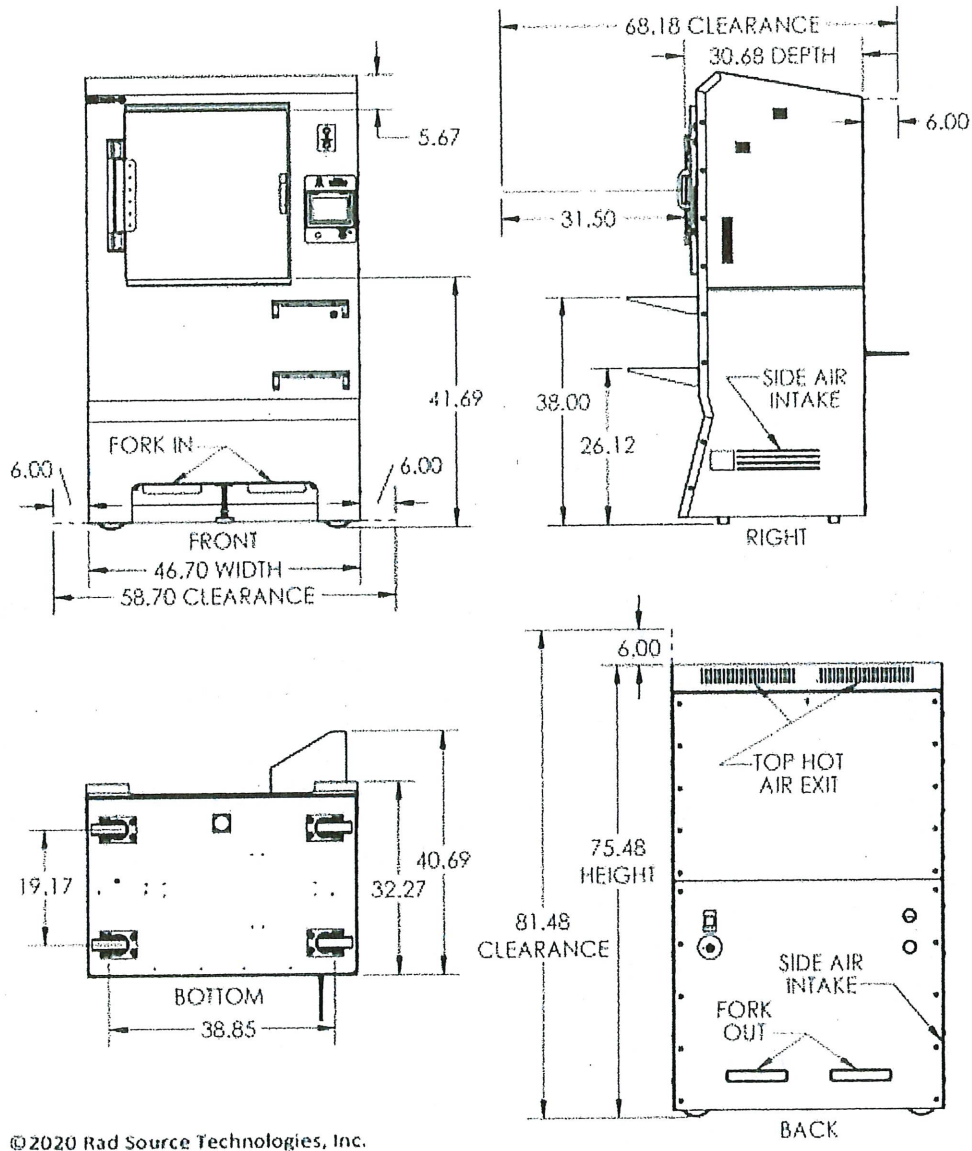


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RS 2400•Q Cut Sheet

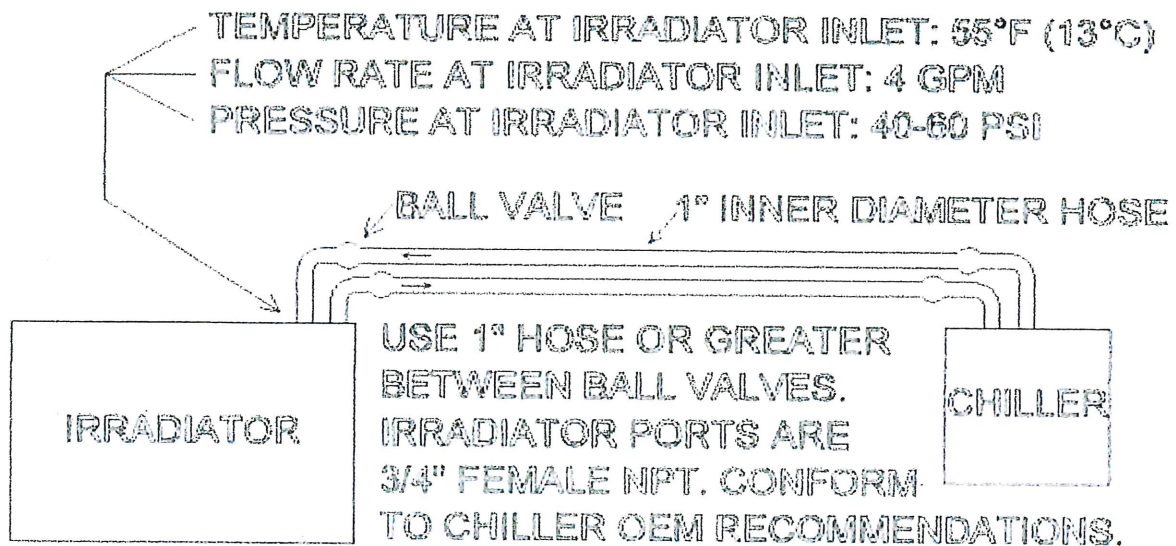


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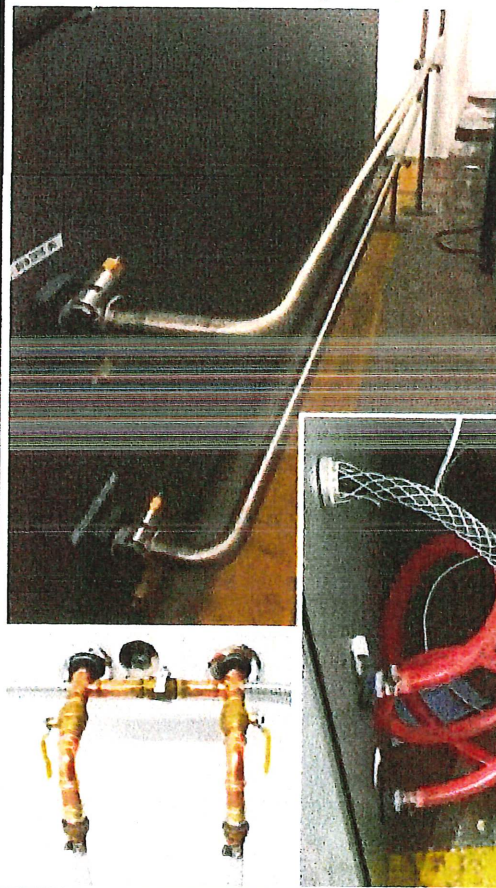


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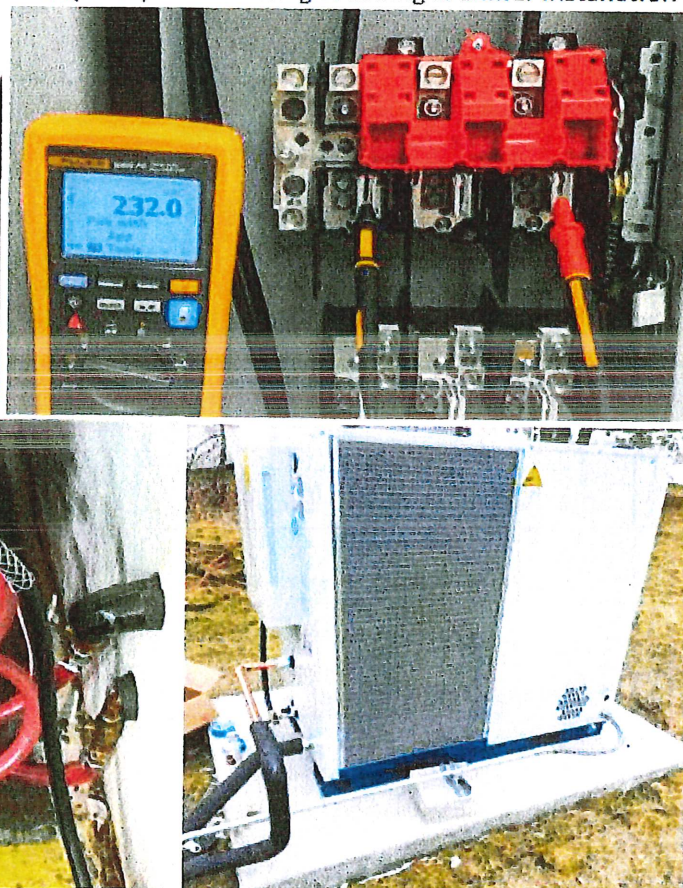
Additional Chiller Setup Information



Examples cooling configurations



Example input line voltage reading & Chiller Installation





PROCESS COOLING SOLUTIONS



SEPR

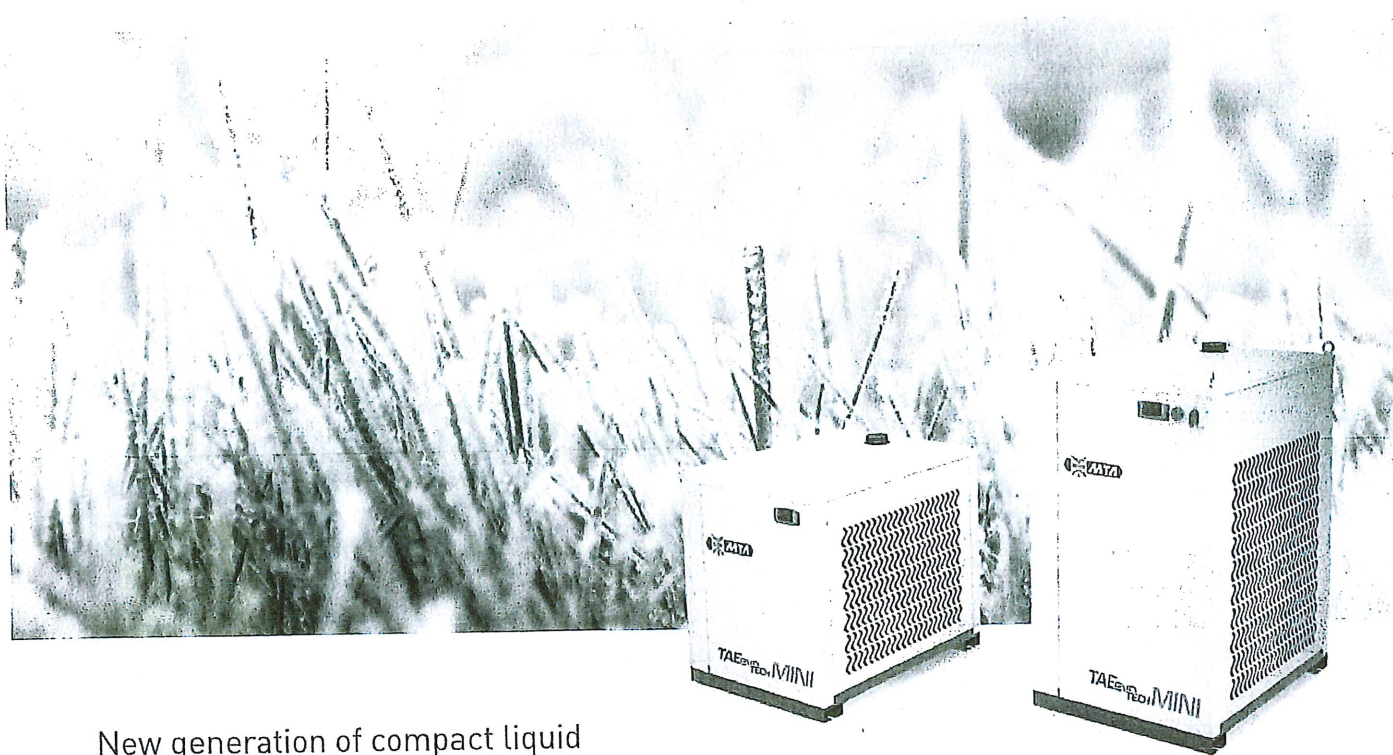
Example

TAE_{Evo} TECH MINI

ErP ✓
Tier 2
COMPLIANT

Air-cooled industrial chillers.

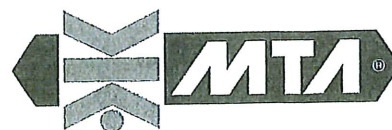
Nominal cooling capacity 1,8 – 4,4 kW



New generation of compact liquid chillers for industrial processes.

Most of the industrial processes today has a growing need for competitive technical solutions suitable to ensure greater productivity, meeting the high quality requirements of the final product and environment friendly. The reliability, the compactness and flexibility of the cooling systems significantly reduce the operating costs and the environmental impact of the entire plant. The new generation of liquid chillers TAEevo Tech MINI has been specifically designed for process cooling water and antifreeze mixtures, ensuring superior reliability, minimum dimensions and high energy efficiency.

The new evaporator with finned coil immersed in the tank is designed to ensure the maximum level of efficiency and is able to reduce ambient heat gain, ensuring an excellent stability of the temperature of the process fluid too. All the units are manufactured according to ISO 9001, 14001 and Eurovent accreditation standards, ensuring the highest levels of performance and quality.



Cooling, conditioning, purifying.

Example

TURMOIL

WEST SWANZEY, NH 03469
603-352-0053

INSTALLATION, MAINTENANCE and OPERATION MANUAL

MODEL OC-150 R

TABLE OF CONTENTS

Description	Page
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Pump Pressure	4
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Interlocks	4, 5
Maintenance	5
Troubleshooting	5
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Flow Diagram with Parts	7
Dimensional Diagram	8

SYSTEM FILLING

Remove the fill port cap located on the top panel and fill the reservoir with clean cooling fluid. Fill the tank to the top of the level gauge. The coolant tank holds 8 gallons of coolant. Do not overfill. After the cooler has operated for a few minutes, add more coolant as necessary to fill the tank.

ELECTRICAL HOOK-UP

See electrical diagram attached. Check nameplate tan for proper voltage, hertz and phase. The supply voltage must be within 10% of the rated voltage on the tag. Make power connections to the terminals tagged L1 and L2 provided on the fuse block in the electrical enclosure at the rear of the cooler. Connect ground to the grounding terminal provided. This cooler is supplied with a HIGH TEMPERATURE interlock (terminals #20 and #21), a LOW FLOW fault interlock (terminals #22 and #23) and a LOW LEVEL interlock (terminals #24 and #25). The interlock contacts open on fault. Check for loose wires.

TEMPERATURE CONTROLLER

This cooler is supplied with a digital temperature controller (CTC-106) mounted on the front panel. The controller is factory adjusted to maintain a coolant reservoir temperature of 24°C (75°F). The set point is not adjustable. The controller will alternate flashing the set point temperature (S) and the actual temperature (C). See the attached instruction sheet for operating this controller.

START-UP

Once the cooler has been filled with coolant and the proper plumbing and electrical connections have been made and the rotary disconnect switch turned to the ON position, it can be started by turning the PUMP ON/OFF switch on the front panel to the ON position. When the switch is turned to the ON position, an internal green PUMP ON light will energize and the pump, compressor and fan will start and run continuously.

Immediately upon start-up, check the pump prime by viewing the discharge pressure gauge. If the pump is primed and pumping coolant the gauge should show pressure. If the gauge does not show pressure, Vent the DISCHARGE line to allow trapped air to escape. Do not run the pump for more than 15 seconds without flow. After operating the pump for several minutes to allow the coolant to fill the complete coolant loop, add more coolant as necessary to fill the coolant tank.

OPERATION

When the PUMP ON/OFF switch on the front panel is turned to the ON position, the pump, compressor and fan will start and run continuously. The temperature controller will also energize and alternately display the set point and coolant temperatures (See controller instructions).

When the controller calls for cooling, the solenoid valve on the liquid line is open and refrigerant flows through the expansion valve to absorb heat and evaporate in the evaporator heat exchanger. When the controller calls for heating, the solenoid valve on the liquid line

Model OC-150 R continued

LOW FLOW INTERLOCK

The cooler is supplied with a flow switch mounted in the RETURN line. If the flow of coolant returning to the cooler drops below 2 GPM, the contacts across terminals #22 and #23 will open

LOW LEVEL INTERLOCK

The cooler is supplied with a level switch (LS) mounted in the side of the coolant tank. If the coolant level in the tank drops below the switch, the contacts across terminals #24 and #25 will open.

MAINTENANCE

Air cooled OC-R coolers pull substantial amounts of air through the front panel and across a fin coil refrigerant to air heat exchanger. A cleanable air filter has been provided but a build up of dust or debris on the heat exchange fins will interfere with the transfer of heat and prevent proper operation of the system. Normally, periodic vacuuming of the front condenser fins will prevent a loss of cooling capacity. It is recommended that a visual inspection be made monthly after initial installation. Vacuum accumulated dust when necessary. Clean the air filter when needed.

Once each week check the coolant level in the system reservoir. Replenish as required any loss to evaporation. The coolant must be kept clean, and should be changed every 2000 hours of operation or at least once a year.

Reverse Osmosis (RO) Systems Specifications and Ordering Information



MODEL NUMBER	RO2001	RO2002	RO2003	RO2004	RO2006
Rated capacity (Liters/hour at 25° C):	10	20	30	40	60
Maximum allowable TDS in feed water (PPM):	1,500	1,500	1,500	1,500	1,500
Number of RO cartridges installed:	1	2	3	1	1
Nominal operating pressure (PSIG):	80-100	80-100	80-100	80-100	80-100
Cabinet width (inches - excluding storage tank):	20	20	20	20	20
Cabinet height (inches - excluding storage tank):	20	20	20	20	20
Cabinet depth (inches - excluding storage tank):	12	12	12	12	12
Calculated storage tank capacity (Liters)**:	42	130	130	130	130
Storage tank diameter (inches):	15	22	22	22	22
Standard storage tank height (inches):	25	36	36	36	26
Bench, shelf or wall mounted cabinet:	Included	Included	Included	Included	Included
1/4" & 3/8" NPT male water inlet fitting:	Included	Included	Included	Included	Included
1/4" or 1/2" storage tank outlet valve:	Included	Included	Included	Included	Included
Activated carbon prefilter:	Included	Included	Included	Required	Required
Reverse osmosis cartridges:	Included	Included	Included	Included	Included
Additional outlet valves:	Optional	Optional	Optional	Optional	Optional
Storage tank location:	Bench/Floor	Floor	Floor	Floor	Floor

REPLACEMENT CARTRIDGES:

CC1050 - 10" activated carbon prefilter cartridge:	1	1	1	n/a	n/a
CC2050 - 20" activated carbon prefilter cartridge:	n/a	n/a	n/a	n/a	n/a
CR1812H1 - reverse osmosis cartridge:	1	2	3	n/a	n/a
CR4014 - reverse osmosis cartridge:	n/a	n/a	n/a	1	1

PRE-FILTERS ASSEMBLIES:

CH1004PF - STANDARD 10" bowl with 5-Micron filter
 CH1016BB-2PF - 10" Two Stage Big Boy Filter Assembly
 CH1016BB-3PF - 10" Three Stage Big Boy Filter Assembly

OPTIONS:

One, Two, or Three Stage pre-Filter Assemblies
 2618S1-RO - Type II DI polishing module - 3,000 grains of ion exchange capacity
 2635S1-RO - Type II DI polishing module - 6,000 grains of ion exchange capacity
 ROT-042 - 42 Liter (11 gal) storage tank*
 ROT-130 - 130 Liter (34 gal) storage tank*
ROT-200 - 200 Liter (53 gal) storage tank*
 V-4-ASSY - 1/4" outlet valve assembly
 V-8-ASSY - 1/2" outlet valve assembly

Notes: Upgrade from the standard storage tank on any system to a larger tank, by paying the difference in price.
 ** Actual usable storage tank capacity could be ~20% less than the calculated capacity.



10 to 60 Liters/Hour Capacity Reverse Osmosis (RO) Systems

Features & Benefits

- ◆ Fully automatic operation.
- ◆ Bench, shelf or wall-mount the system cabinet at no extra cost.
- ◆ System automatically shuts off when RO storage tank is full, or if incoming water pressure is lost.
- ◆ Automatic water saver closes water inlet valve when system shuts off.
- ◆ Flow totalizer monitors water usage for activated carbon prefilter cartridge replacement.
- ◆ Digital conductivity meter continuously monitors RO water quality.
- ◆ Product and reject flowmeters monitor and control system's flow rates.
- ◆ Pressurized storage tank eliminates level controls and transfer pump.
- ◆ TFC (thin film composite) RO cartridges offer high performance and long life.
- ◆ 2 year warranty (US & Canada only).
- ◆ Made in the USA.

Product Availability

AQUA SOLUTIONS Reverse Osmosis Systems are available in 10, 20, 30, 40, and 60 LPH (Liters per hour) configurations. They are uniquely designed for ease of installation, operation and maintenance. The compact design saves space, and can be bench, shelf or wall-mounted.

10 & 20 Liter/hour RO systems are also available as built-in RO pretreatment on

AQUA SOLUTIONS Compact, Combination Type I RO+DI Systems.
Request Brochure No: RODI-C

Applications

Reverse Osmosis can be used to pretreat tap water prior to final purification by a Type I or Type II DI system. RO removes up to 99% of the contaminants in tap water, which can reduce the operating cost of the DI system by more than 90%. RO pretreatment system should be considered under the following circumstances:

- ◆ Incoming tap water contains more than 170 parts per million of total dissolved solids, or
- ◆ Usage exceeds 20 Liters per day on a Type I DI system, or
- ◆ Usage exceeds 40 Liters per day on a Type II DI system.

There are two criteria to consider when determining if an RO pretreatment system is either required, or can be justified, based on cost savings:

1. Can the DI system alone, running on tap water, produce the desired quality and quantity of purified water for the applications at hand? If not, an RO pretreatment system is required.
2. Would it cost more overall (including capital and operating costs over 2-3 years), to process the tap water via DI alone, or with a combination of RO plus DI? If DI alone costs more, an RO system is justified.

Selecting the right RO system is a matter of determining the total RO water usage requirements during the actual work day, and choosing the system that produces that amount of RO purified water over a 24 hour period. The RO system is designed to run 24 hours/day if necessary, and includes a pressurized tank to store water for later usage. Thus, if the total daily usage occurs over less than a 24 hour period, enough storage capacity should be included to cover the difference between water usage over this period, and the system's actual output over this period.

See Page 2 for system specifications & ordering information.

AQUA SOLUTIONS, INC.

8 Old Burnt Mountain Road

Jasper, GA 30143 USA

Phones: 706-692-9200

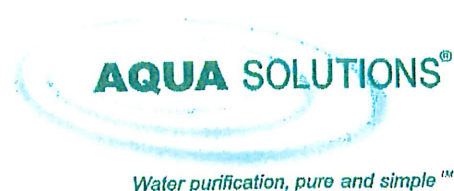
800-458-2021

Fax: 706-692-9203

E-mail: mail@AquaA.com

Internet: www.AquaA.com

System & Installation Specifications Reverse Osmosis (RO) Systems



Models: RO2001, RO2002, RO2003,
RO2004, RO2006.

- ☐ The system shall remove 94-99% of the dissolved inorganic ions, and up to 99% of the dissolved organics, suspended solids and microorganisms found in ordinary tap water.
- ☐ The system shall produce purified water at an average rate of:
 - 10 Liters per hour for model RO2001
 - 20 Liters per hour for model RO2002
 - 30 Liters per hour for model RO2003
 - 40 Liters per hour for model RO2004
 - 60 Liters per hour for model RO2006
- ☐ The system shall start up & shut down automatically, as required to fill the storage tank.
- ☐ The system shall include a low pressure switch to shut the system down in the event of low incoming water pressure.
- ☐ The system shall include an automatic electric solenoid valve that prevents water from flowing through the system to drain when the system is shut down.
- ☐ The system shall include high performance TFC (thin film composite) reverse osmosis membranes.
- ☐ The system shall not require periodic backflushing, fast forward flushing or other cleaning cycles.
- ☐ The system shall include a pressurized storage tank with a pressure switch that automatically shuts the system down when the tank is full, and automatically turns the system back on as water is removed from the tank.
- ☐ The pressurized storage tank shall have a rated capacity of 42 liters (model RO2001), or 130 liters (models RO2002, RO2003, RO2004, and RO2006).
- ☐ The system shall include a 1-micron, high-performance activated carbon/sediment prefilter cartridge (Model RO2001, RO2002, and RO2003).
- ☐ Model RO2004 and RO2006 require the purchase of a two or three stage prefilter assembly that includes an activated carbon filter.
- ☐ The system shall include a flow totalizer to monitor total incoming water usage for prefilter cartridge changeout.
- ☐ The system shall include a digital, temperature compensated TDS meter to monitor water quality.
- ☐ The system shall include product and reject flow meters to monitor and control flow rates.
- ☐ The system's overall dimensions for the cabinet shall be approximately 20" wide by 20" high by 12" deep.
- ☐ The system cabinet shall be bench, shelf, or wall-mountable at no extra charge.
- ☐ The system price shall include a 2 year warranty in the USA and Canada, and a 1 year warranty elsewhere.
- ☐ The system shall be made in U.S.A.

See other side for installation and start-up information.

AQUA SOLUTIONS, INC.

8 Old Burnt Mountain Road

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Internet: www.AquaA.com



Installation and Start-up of AQUA SOLUTIONS' RO Systems

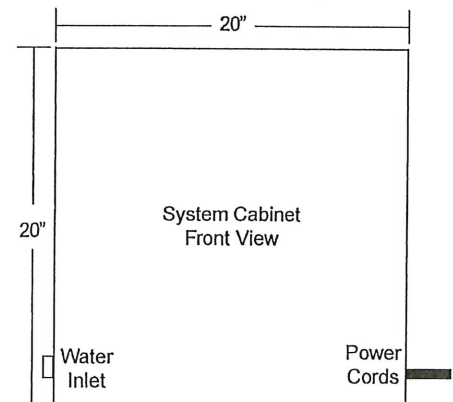
As shipped, **AQUA SOLUTIONS'** Reverse Osmosis Water Purification Systems can be bench, shelf or wall-mounted at no extra charge. While bench mounting affords more flexibility, shelf or wall mounting can get the system up and out of the way, conserving bench space for other uses. Regardless of the initial mounting method, it can be changed at any time. Complete, detailed mounting instructions are included in the Operating Manual.

The system requires a source of incoming feed water at 25-50 psi from a user-supplied shutoff valve located within 15' of the LEFT SIDE of the system, plus 2 grounded 110 VAC electrical outlets within 5' of the right side of the system. Electrical consumption is less than 3 amps total. The system also requires a drain or sink within 15' of the system.

Note that the operating weight of the system can approach 100 pounds. If shelf-mounting, make sure the shelf can support this weight. If wall-mounting, make sure the wall can support this weight. In the case of wallboard attached to metal studs, attach a piece of 3/4" plywood directly to the studs first, and attach the system to the plywood. When wall-mounting, use 4 appropriate "industrial strength" 1/4" lag bolts, 1/4" toggle bolts, or 1/4" masonry anchor bolts, depending on wall type, to attach the cabinet to the wall.

Except for the user-supplied inlet valve, all items required for installation are included with the system. More detailed instructions are included in the Operating Manual supplied with the system. The system cabinet measures approximately 20" wide by 20" tall by 12" deep. The RO storage tank is external to the cabinet and usually sits on the floor. The 42-Liter RO tank is 15" in diameter by 25" high. The 130-Liter RO tank is 22" in diameter by 40" tall. After mounting the system cabinet, proceed as follows:

- a. Install a 1/4", 3/8", or 1/2" NPT female shut off valve on an appropriate water supply line. If the shut off valve is 1/2" NPT, reduce it down to 1/4" or 3/8" NPT female. Make sure valve is closed.
- b. Install a 1/4" or 3/8" NPT male by 1/4" tube fitting (both are supplied with system) on shut off valve, using Teflon tape on threads.
- c. Install 1/4" OD black polyethylene tubing (20' supplied with system - cut to required length) from 1/4" push-in type water inlet fitting marked "Water Inlet", located on bottom left side of system cabinet, to Jaco type fitting on valved water source.
- d. Screw the RO tank valve/gauge assembly, onto the tank outlet using Teflon tape on the threaded fittings. Tighten firmly. Note that on the smaller (42 liter) tank supplied with Model RO2001, the tank outlet is located on top of the tank. On the larger (130 liter) tank supplied with all other models, or as an option on Model RO2001, the outlet is located on the bottom of the tank and passes through a hole in the tank base. Locate the tank on the floor within 15' of the RO system cabinet.
- e. Install 1/4" OD red polyethylene tubing (20' supplied with system - cut to required length) from 1/4" push-in type outlet fitting marked "RO Reject", located on right side of system cabinet, to a suitable drain or sink. Note that RO reject water will flow out of this tubing at 8-16 gallons per hour whenever the RO System is running.
- f. Install remaining 1/4" OD red tubing from the Jaco fitting on the storage tank drain valve (V-1) to a suitable drain or sink.
- g. Install 1/4" OD blue polyethylene tubing (20' supplied with system - cut to required length) from 1/4" push-in type outlet fitting marked "RO Product", located on right side of system cabinet, to Jaco type fitting on the storage tank, located between the pressure gauge and the drain valve (V-1).
- h. Install remaining 1/4" OD blue tubing from the 1/4" Jaco tube fitting on the outlet valve (V3) on storage tank to inlet fitting on a Type I Water Purification System, or to other applications. Note that some systems might include 3/8" OD blue tubing, or 1/2" clear tubing, with an appropriate Jaco tube fitting attached to V-3.
- i. Open cabinet door and make sure water inlet valve (located on black water inlet tubing on left bottom inside the cabinet) is closed and ALL pressure gauges on the system read zero. Note that the valve is closed when the handle is perpendicular to the direction of flow, and open when parallel to it.
- j. Install the ten inch activated carbon prefilter cartridge (part number) in the clear filter bowl, making sure the black gaskets are in place. Attach the filter bowl to the housing located inside the system cabinet, making sure the O-ring on the bowl is in place, and hand-tighten firmly.
- k. Note that the RO Cartridge(s) are already installed in the system.
- l. Connect the wires that emerge from the back right corner of the system cabinet to the transformer. DO NOT PLUG THE TRANSFORMER POWER CORD INTO THE 110 VAC RECEPTACLE AT THIS TIME.
- m. Inspect work done, making sure that system water inlet valve is CLOSED and the system's ELECTRICAL CORDS ARE NOT PLUGGED IN.
- n. Follow detailed start-up instructions in the Operating Manual. Call AQUA SOLUTIONS at 800-458-2021 with any technical questions or comments.



Plumbing Fixture Basis of Design

SIT Building

P-1A

*American
Standard*

 BARRIER FREE

**MADERA™ FloWise® 16-1/2" HEIGHT
ELONGATED FLUSHOMETER TOILET**
VITREOUS CHINA LESS EVERCLEAN®

**MADERA™ FloWise® 16-1/2" HEIGHT ELONGATED
LESS EVERCLEAN®**

- Floor mount flushometer valve toilet
- Vitreous china
- High Efficiency, Low Consumption. Operates in the range of 1.1 gpf to 1.6 gpf (4.2 Lpf to 6.0 Lpf)
- Meets definition of HET (High Efficiency Toilet) when used with a high efficiency flush valve (1.28 gpf or 1.6 / 1.1 gpf dual flush)
- Fully glazed 2-1/8" trapway
- Elongated bowl
- 10" or 12" roughing-in
- 16-1/2" rim height for accessible application
- Condensation channel
- Powerful direct-fed siphon jet action
- 10" x 12" water surface area
- 1-1/2" inlet spud
- 2 bolt caps
- 100% factory flush tested

- ☒ **3043.001** Elongated bowl only, top spud
- ☐ **3248.001** Elongated bowl only, top spud with slotted rim for bedpan holding (White only)
- ☐ **3249.001** Elongated bowl only, back spud

System MaP* Score:

- 1,000 grams of miso @ 1.1 gpf, 1.28 gpf or 1.6 gpf when used with an American Standard flush valve

* Maximum Performance (MaP) testing performed by IAPMO R&T Lab. MaP Report conducted by Veritec Consulting, Inc. and Koeller and Company.

Component Parts:

- ☐ **047007-0070A** Inlet Spud (furnished with bowl)
- ☐ **481310-100** Bolt caps with retainers (furnished with bowl)

Nominal Dimensions:

718 x 356 x 419mm
(28-1/4" x 14" x 16-1/2")

Fixture only, less seat and flush valve

Recommended working pressure—between
25 psi at valve when flushing and 80 psi static

Compliance Certifications -

Meets or Exceeds the Following Specifications:

- ASME A112.19.2-2008 / CSA B45.1-08 for Vitreous China Fixtures



SEE REVERSE FOR ROUGHING-IN DIMENSIONS

To Be Specified:

- ☐ Color: ☒ White ☐ Bone
- ☐ Seat:
 - ☐ American Standard #5901.100 Heavy duty open front less cover
 - ☐ American Standard #5905.100 Extra heavy duty open front less cover
- ☐ Flushometer Valve:
 - ☐ 1.6 gpf:
 - ☐ Sensor-Operated: American Standard Selectronic® DC Power #6065.161.002 (Top Spud)
 - ☐ Sensor-Operated: American Standard Selectronic® AC Power #6067.261.002 (Back Spud)
 - ☐ Manual: American Standard #6047.161.002 (Top Spud)
 - ☐ 1.28 gpf:
 - ☐ Sensor-Operated: American Standard Selectronic® DC Power #6065.121.002 (Top Spud)
 - ☐ Sensor-Operated: American Standard Selectronic® AC Power #6067.221.002 (Back Spud)
 - ☐ Manual: American Standard #6047.121.002 (Top Spud)
 - ☐ 1.6 / 1.1 gpf Dual Flush:
 - ☐ Sensor-Operated: American Standard Selectronic® DC Power #6065.761.002 (Top Spud)



MEETS THE AMERICANS WITH DISABILITIES ACT GUIDELINES
AND ANSI A117.1 REQUIREMENTS FOR ACCESSIBLE AND USABLE
BUILDING FACILITIES - CHECK LOCAL CODES.



P-1A

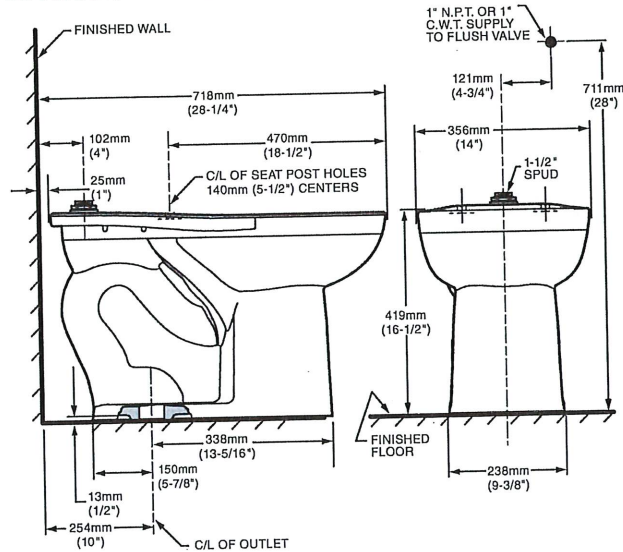
*American
Standard*

 BARRIER FREE

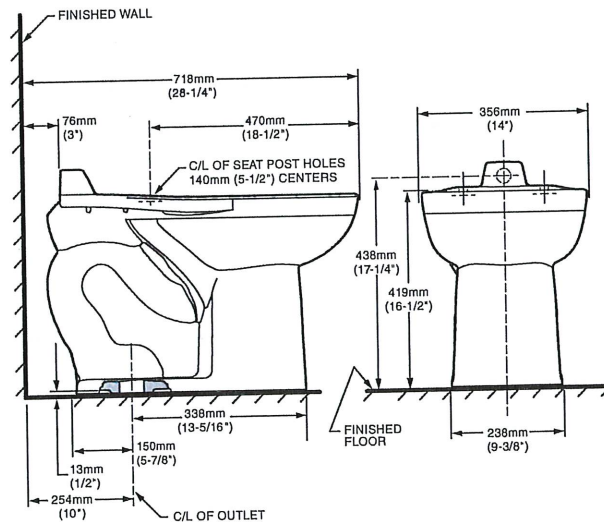
MADERA™ FloWise® 16-1/2" HEIGHT ELONGATED FLUSHOMETER TOILET

VITREOUS CHINA LESS EVERCLEAN®

→ 3043.001/3248.001



3249.001



NOTES:
 PRODUCT 3043 SHOWN, 3248 SAME EXCEPT WITH SLOTTED RIM FOR BED PAN HOLDING.
 TO COMPLY WITH AREA CODE GOVERNING THE HEIGHT OF VACUUM BREAKER ON THE FLUSHOMETER VALVE, THE PLUMBER MUST VERIFY DIMENSIONS SHOWN FOR SUPPLY ROUGHING.
 THIS TOILET DESIGNED TO ROUGH-IN AT A MINIMUM DIMENSION OF 254MM (10") AND A MAXIMUM DIMENSION OF 305MM (12") FROM FINISHED WALL TO C/L OF OUTLET.
 FLUSHOMETER VALVE NOT INCLUDED WITH FIXTURE AND MUST BE ORDERED SEPARATELY. FLUSHOMETER VALVE REQUIREMENTS FOR 12" (305MM) ROUGH-IN: SWEAT EXTENSION NIPPLE IS REQUIRED. REFER TO VALVE MANUFACTURER AND LOCAL CODES.

IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerances established by ANSI Standard A12.19.2. These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages.

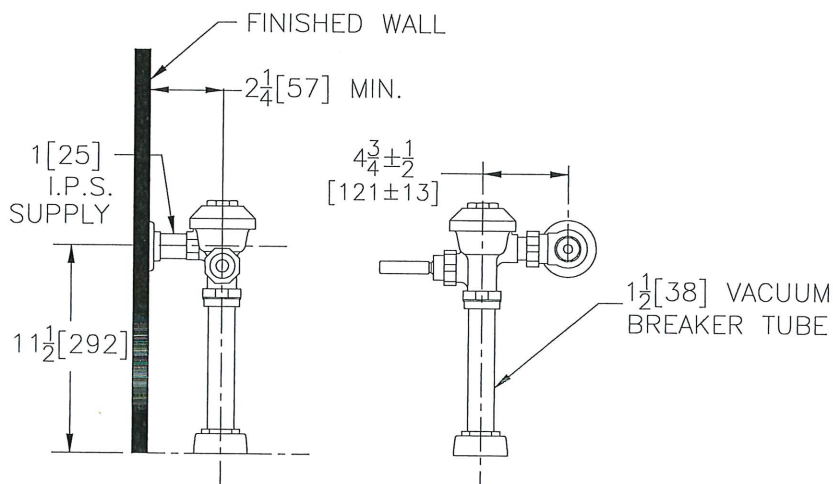


P-1A

Aquaflush®

TAG _____

Z6000 Model for Water Closets



Flow Options

- ☒ **-WS1** 1.6 Gal. Low Consumption Flush
- ☐ **-WS** 3.5 Gallons Per Flush
- ☐ **-FF** 4.5 Gal. Full Flush

Suffix Options (Check/Specify Appropriate Options)

- ☐ **-BG** BioCare™ ADA Handle
- ☐ **-DF** Dual Flush 1.6/1.1 gpf
- ☐ **-H** Handle on Front of Flush Valve
- ☐ **-HL** 1" [25] Metal Push Button
- ☐ **-HL3** 3" [76] Metal Push Button
- ☐ **-VC** Vandal Resistant Stop Cover
- ☒ **-YB** Sweat Solder Kit
- ☒ **-YC** Cast Wall Flange
- ☐ **-YJ** Split Ring Pipe Support
- ☐ **-YK** Solid Ring Pipe Support
- ☐ **-** Other

ENGINEERING SPECIFICATION: ZURN Z6000 Aquaflush Exposed Closet Flush Valve - Exposed, quiet diaphragm-type, chrome plated flushometer valve with a polished exterior. Complete with a chloramine resistant, dual seal diaphragm with a clog resistant by-pass. The valve is ADA compliant with a non-hold-open and no leak handle feature, high back pressure vacuum breaker, one piece hex coupling nut, adjustable tailpiece, spud coupling and flange for top spud connection. Control stop has internal siphon-guard protection. Internal seals are made of chloramine resistant materials.

- ☐ **-Z6000PL - Aquaflush Plus** is furnished as specified above and includes sweat solder kit, vandal resistant stop cap, and cast wall flange with set screw. **Complete with a chloramine resistant, dual seal diaphragm with a clog resistant by-pass.**

Architectural/Engineering Approval

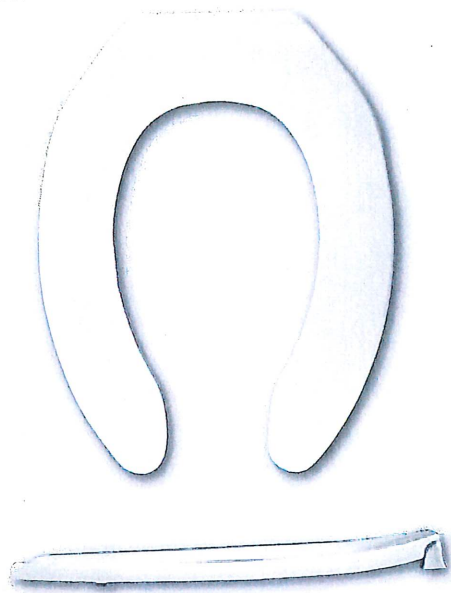
ZURN INDUSTRIES, LLC. ♦ COMMERCIAL BRASS OPERATION ♦ 5900 ELWIN BUCHANAN DRIVE ♦ SANFORD NC 27330
PHONE: 1-800-997-3876 ♦ FAX: 919-775-3541 ♦ WORLD WIDE WEB: WWW.ZURN.COM
IN CANADA: ZURN INDUSTRIES LIMITED ♦ 3544 NASHUA DRIVE ♦ MISSISSAUGA, ONTARIO L4V1L2 ♦ PHONE: 905-405-8272 FAX: 905-405-1292

Aquaflush® is a registered trademark of Zurn Industries, LLC.

Rev. J
Dwg. No. 55936

Date: 9/21/11
Product No. Z6000

P-1A



COMMERCIAL HEAVY-DUTY PLASTIC TOILET SEAT

MODEL #

COLOR #

255/255SSC

DESCRIPTION:

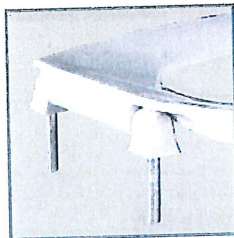
Open front less cover, elongated, heavy-duty, injection molded solid plastic toilet seat. Features two molded-in bumpers, non self-sustaining (255) or self-sustaining (255SSC) check hinges with non-corrosive 300 Series stainless steel posts, pintles and hardware. This seat complies with IAPMO/ANSI Z124.5-2013 Plastic Toilet Seats as a class Commercial Heavy Duty.

SPECIFICATIONS:

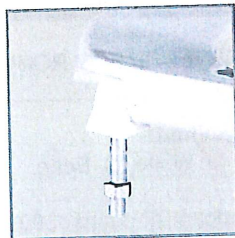
Size:	Elongated
Material:	Plastic
Style:	Open Front less Cover
Bumpers:	Two
Hinges:	Plastic Non Self-Sustaining (255) or Self-Sustaining (255SSC) with 300 Series Stainless Steel Posts and Pintles
Fastening System:	Non-Corrosive 300 Series Stainless Steel Nuts

FEATURES:

Non-Corrosive 300 Series Stainless Steel Posts, Pintles and Nuts

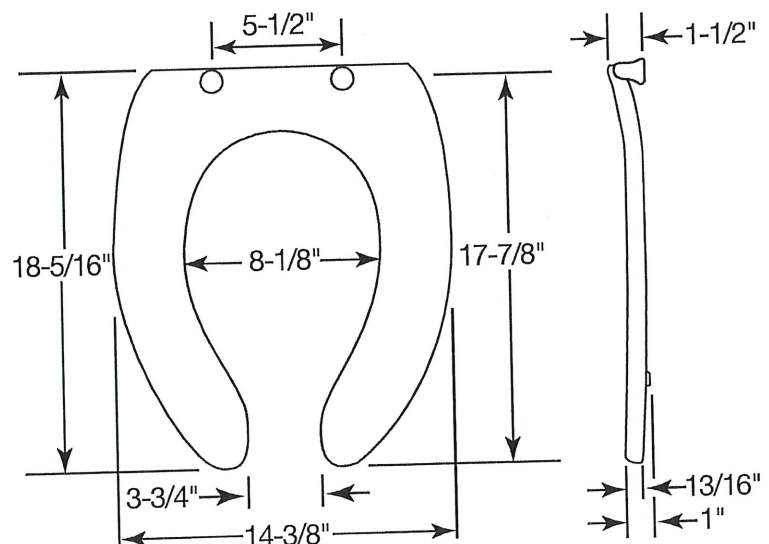


PLASTIC HINGES WITH
STAINLESS STEEL POSTS
AND PINTLES



NON-CORROSIVE
STAINLESS STEEL NUTS

DIMENSIONS:



Proudly Made in the USA

Church Seats, Sheboygan Falls, WI 53085
www.ToiletSeats.com

Phone: 800-233-7328 Fax: 800-292-3647
©2014 0B7082256 REVA

P-1B



MADERA™ FloWise® 15" HEIGHT ELONGATED FLUSHOMETER TOILET

VITREOUS CHINA LESS EVERCLEAN®

MADERA™ FloWise® 15" HEIGHT ELONGATED LESS EVERCLEAN®

- Floor mount flushometer valve toilet
- Vitreous china
- High Efficiency, Low Consumption. Operates in the range of 1.1 gpf to 1.6 gpf (4.2 Lpf to 6.0 Lpf)
- Meets definition of HET (High Efficiency Toilet) when used with a high efficiency flush valve (1.28 gpf or 1.6 / 1.1 gpf dual flush)
- Fully glazed 2-1/8" trapway
- Elongated bowl
- 10" or 12" roughing-in
- 15" rim height
- Condensation channel
- Powerful direct-fed siphon jet action
- 10" x 12" water surface area
- 1-1/2" inlet spud
- 2 bolt caps
- 100% factory flush tested

- ☒ **2234.001** Elongated bowl only, top spud
- ☐ **2623.001** Elongated bowl only, top spud with slotted rim for bedpan holding (White only)
- ☐ **2624.001** Elongated bowl only, back spud

System MaP* Score:

- 1,000 grams of miso @ 1.1 gpf, 1.28 gpf or 1.6 gpf when used with an American Standard flush valve

* Maximum Performance (MaP) testing performed by IAPMO R&T Lab. MaP Report conducted by Veritec Consulting, Inc. and Koeller and Company.

Component Parts:

- ☐ **047007-0070A** Inlet Spud (furnished with bowl)
- ☐ **481310-100** Bolt caps with retainers (furnished with bowl)

Nominal Dimensions:

718 x 356 x 381mm
(28-1/4" x 14" x 15")

Fixture only, less seat and flush valve

Recommended working pressure—between
25 psi at valve when flushing and 80 psi static

Compliance Certifications -

Meets or Exceeds the Following Specifications:

- ASME A112.19.2-2008 / CSA B45.1-08 for Vitreous China Fixtures



SEE REVERSE FOR ROUGHING-IN DIMENSIONS

To Be Specified:

- ☐ Color: ☒ White ☐ Bone
- ☐ Seat:
 - ☐ American Standard #5901.100 Heavy duty open front less cover
 - ☐ American Standard #5905.100 Extra heavy duty open front less cover
- ☐ Flushometer Valve:
 - ☐ 1.6 gpf:
 - ☐ Sensor-Operated: American Standard Selectronic® DC Power #6065.161.002 (Top Spud)
 - ☐ Sensor-Operated: American Standard Selectronic® AC Power #6067.261.002 (Back Spud)
 - ☐ Manual: American Standard #6047.161.002 (Top Spud)
 - ☐ 1.28 gpf:
 - ☐ Sensor-Operated: American Standard Selectronic® DC Power #6065.121.002 (Top Spud)
 - ☐ Sensor-Operated: American Standard Selectronic® AC Power #6067.221.002 (Back Spud)
 - ☐ Manual: American Standard #6047.121.002 (Top Spud)
 - ☐ 1.6 / 1.1 gpf Dual Flush:
 - ☐ Sensor-Operated: American Standard Selectronic® DC Power #6065.761.002 (Top Spud)



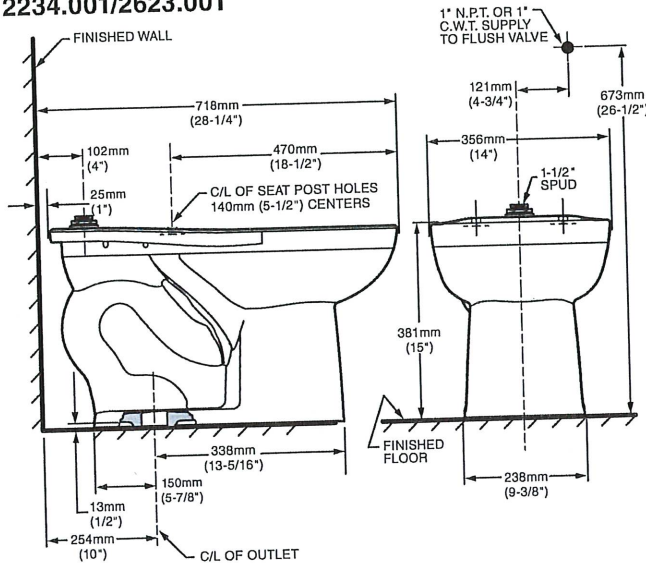


P-1B

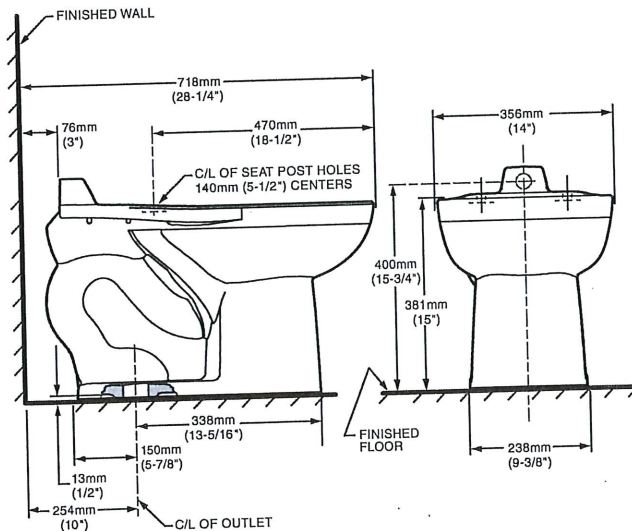
MADERA™ FloWise® 15" HEIGHT ELONGATED FLUSHOMETER TOILET

VITREOUS CHINA LESS EVERCLEAN®

→ 2234.001/2623.001



2624.001



NOTES:
PRODUCT 2234 SHOWN, 2623 SAME EXCEPT WITH SLOTTED RIM FOR BED PAN HOLDING.
TO COMPLY WITH AREA CODE GOVERNING THE HEIGHT OF VACUUM BREAKER ON THE FLUSHOMETER VALVE, THE PLUMBER MUST VERIFY DIMENSIONS SHOWN FOR SUPPLY ROUGHING.
THIS TOILET DESIGNED TO ROUGH-IN AT A MINIMUM DIMENSION OF 254MM (10") AND A MAXIMUM DIMENSION OF 305MM (12") FROM FINISHED WALL TO C/L OF OUTLET.
FLUSHOMETER VALVE NOT INCLUDED WITH FIXTURE AND MUST BE ORDERED SEPARATELY. FLUSHOMETER VALVE REQUIREMENTS FOR 12" (305MM) ROUGH-IN: SWEAT EXTENSION NIPPLE IS REQUIRED. REFER TO VALVE MANUFACTURER AND LOCAL CODES.

IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerances established by ANSI Standard A112.19.2. These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages.

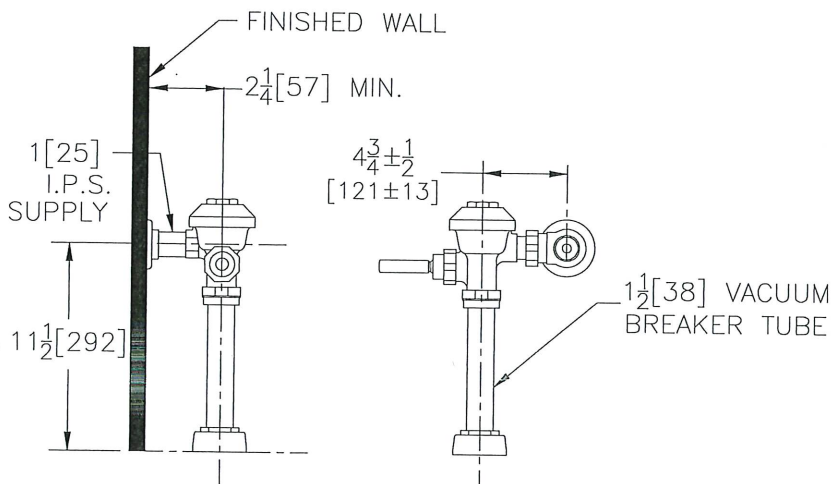
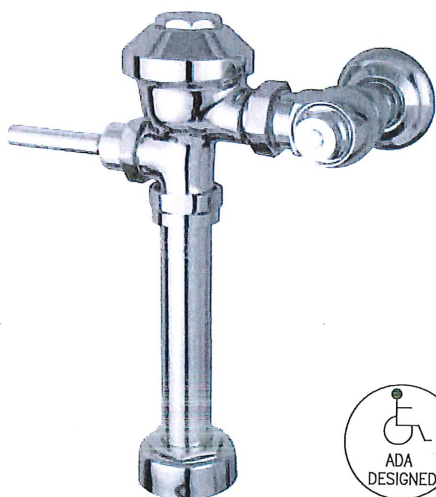


P-1B

Aquaflush®

TAG _____

→ **Z6000 Model
for Water Closets**



Flow Options

- | | |
|--|--------------------------------|
| <input checked="" type="checkbox"/> -WS1 | 1.6 Gal. Low Consumption Flush |
| <input type="checkbox"/> -WS | 3.5 Gallons Per Flush |
| <input type="checkbox"/> -FF | 4.5 Gal. Full Flush |

Suffix Options (Check/Specify Appropriate Options)

- | | |
|---|--------------------------------|
| <input type="checkbox"/> -BG | BioCare™ ADA Handle |
| <input type="checkbox"/> -DF | Dual Flush 1.6/1.1 gpf |
| <input type="checkbox"/> -H | Handle on Front of Flush Valve |
| <input type="checkbox"/> -HL | 1" [25] Metal Push Button |
| <input type="checkbox"/> -HL3 | 3" [76] Metal Push Button |
| <input type="checkbox"/> -VC | Vandal Resistant Stop Cover |
| <input checked="" type="checkbox"/> -YB | Sweat Solder Kit |
| <input checked="" type="checkbox"/> -YC | Cast Wall Flange |
| <input type="checkbox"/> -YJ | Split Ring Pipe Support |
| <input type="checkbox"/> -YK | Solid Ring Pipe Support |
| <input type="checkbox"/> - | Other |

ENGINEERING SPECIFICATION: ZURN Z6000 Aquaflush Exposed Closet Flush Valve - Exposed, quiet diaphragm-type, chrome plated flushometer valve with a polished exterior. Complete with a chloramine resistant, dual seal diaphragm with a clog resistant by-pass. The valve is ADA compliant with a non-hold-open and no leak handle feature, high back pressure vacuum breaker, one piece hex coupling nut, adjustable tailpiece, spud coupling and flange for top spud connection. Control stop has internal siphon-guard protection. Internal seals are made of chloramine resistant materials.

- ☐ **-Z6000PL - Aquaflush Plus** is furnished as specified above and includes sweat solder kit, vandal resistant stop cap, and cast wall flange with set screw. **Complete with a chloramine resistant, dual seal diaphragm with a clog resistant by-pass.**

Architectural/Engineering Approval

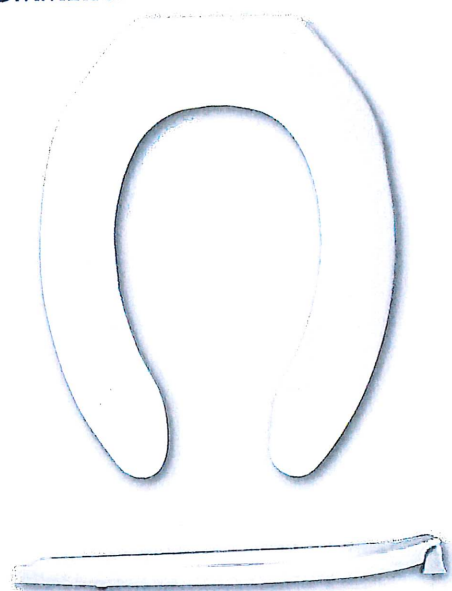
ZURN INDUSTRIES, LLC. ♦ COMMERCIAL BRASS OPERATION ♦ 5900 ELWIN BUCHANAN DRIVE ♦ SANFORD NC 27330
PHONE: 1-800-997-3876 ♦ FAX: 919-775-3541 ♦ WORLD WIDE WEB: WWW.ZURN.COM
IN CANADA: ZURN INDUSTRIES LIMITED ♦ 3544 NASHUA DRIVE ♦ MISSISSAUGA, ONTARIO L4V1L2 ♦ PHONE: 905-405-8272 FAX: 905-405-1292

Aquaflush® is a registered trademark of Zurn Industries, LLC.

Rev. J
Dwg. No. 55936

Date: 9/21/11
Product No. Z6000

P-1B



COMMERCIAL HEAVY-DUTY PLASTIC TOILET SEAT

MODEL #

COLOR #

255/255SSC

DESCRIPTION:

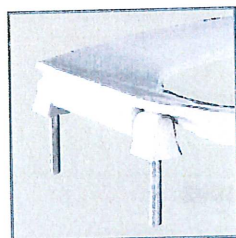
Open front less cover, elongated, heavy-duty, injection molded solid plastic toilet seat. Features two molded-in bumpers, non self-sustaining (255) or self-sustaining (255SSC) check hinges with non-corrosive 300 Series stainless steel posts, pintles and hardware. This seat complies with IAPMO/ANSI Z124.5-2013 Plastic Toilet Seats as a class Commercial Heavy Duty.

SPECIFICATIONS:

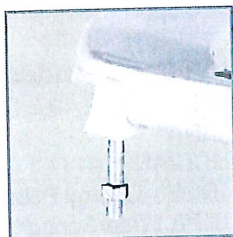
Size:	Elongated
Material:	Plastic
Style:	Open Front less Cover
Bumpers:	Two
Hinges:	Plastic Non Self-Sustaining (255) or Self-Sustaining (255SSC) with 300 Series Stainless Steel Posts and Pintles
Fastening System:	Non-Corrosive 300 Series Stainless Steel Nuts

FEATURES:

Non-Corrosive 300 Series Stainless Steel Posts, Pintles and Nuts

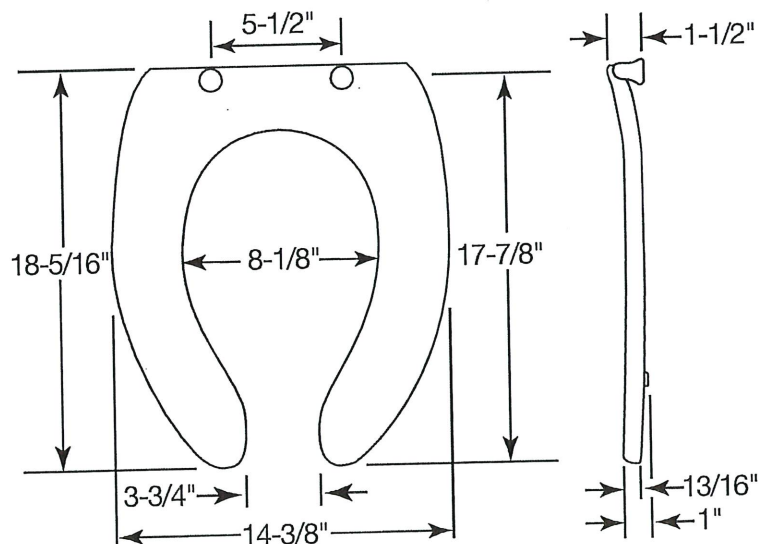


PLASTIC HINGES WITH
STAINLESS STEEL POSTS
AND PINTLES



NON-CORROSIVE
STAINLESS STEEL NUTS

DIMENSIONS:



Church Seats, Sheboygan Falls, WI 53085
www.ToiletSeats.com

Phone: 800-233-7328 Fax: 800-292-3647
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KOHLER®

Bardon™ High-Efficiency Urinal **K-4991-ET**

Features

- Washout urinal.
- 3/4" top spud.
- 0.125 gpf (0.47 lpf) to 1.0 gpf (3.8 lpf).
- 14" (356 mm) extended rim.
- Will replace K-4904-ET.

Material

- Vitreous china.

Water Conservation & Rebates

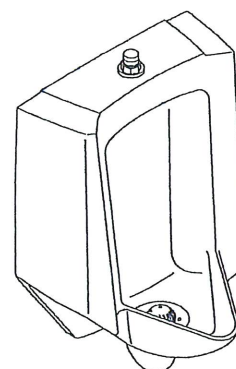
- WaterSense-compliant when used with a 0.125 gpf or 0.5 gpf WaterSense flushometer.

Recommended Accessories

- K-10668 WaterSense® 0.125 gpf Exposed Flushometer
- K-10949 WaterSense® 0.125 gpf Exposed Flushometer
- K-13520 WaterSense® 0.125 gpf Exposed Flushometer
- K-7528 WaterSense® 0.125 gpf Exposed Flushometer
- K-7546 WaterSense® 0.125 gpf Exposed Flushometer
- K-10675 WaterSense® 0.5 gpf Exposed Flushometer
- K-10958 WaterSense® 0.5 gpf Exposed Flushometer
- K-7537 0.5 gpf Exposed Flushometer
- K-7526 0.5 gpf Exposed flushometer
- K-13519 0.5 gpf Exposed Flushometer
- K-10676 1.0 gpf Exposed Flushometer
- K-10960 1.0 gpf Exposed Flushometer
- K-13518 1.0 gpf Exposed Flushometer
- K-7539 1.0 gpf Exposed Flushometer
- K-7542 1.0 gpf Exposed Flushometer
- K-7527 1.0 gpf Exposed flushometer

Components

Additional included component/s: 3/4" inlet spud, 2" outlet spud, Strainer, and Hangers (2).



3483450

For complete listing of available colors, go to kohler.com.



ADA

Codes/Standards

ASME A112.19.2/CSA B45.1
ADA
ICC/ANSI A117.1
DOE - Energy Policy Act 1992
EPA WaterSense®

KOHLER® One-Year Limited Warranty

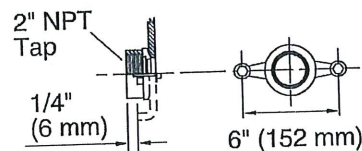
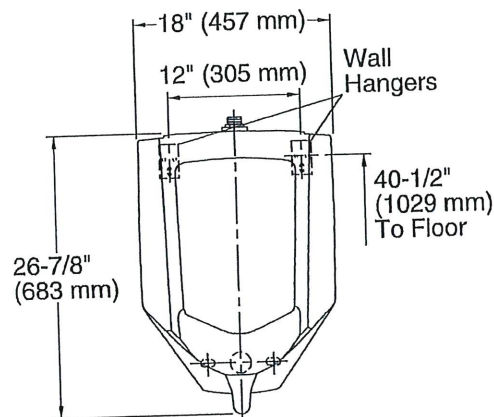
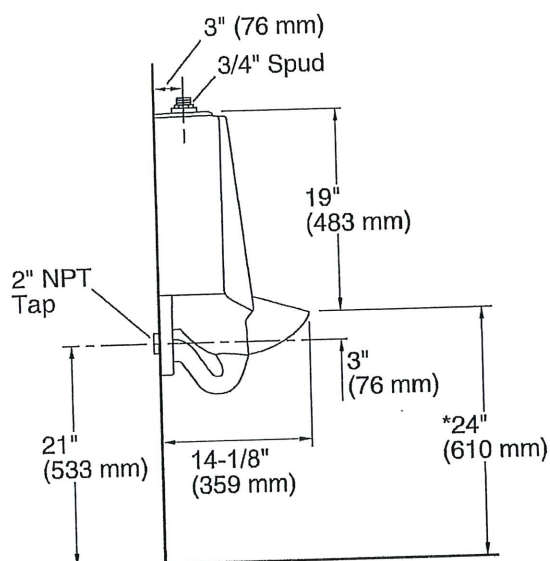
See website for detailed warranty information.

Product Specification

Urinal shall be 26-7/8" (683 mm) in height, 18" (457 mm) in width, and 14-1/8" (359 mm) in depth. Urinal shall be made of vitreous china. Urinal shall have washout flushing action. Urinal shall have 3/4" top spud and 14" (356 mm) extended rim. Urinal shall use 0.125 gpf (0.47 lpf) to 1.0 gpf (3.8 lpf) depending on flushometer specified. Urinal shall be KOHLER Model K-4991-ET.

KOHLER®

Bardon™
 High-Efficiency Urinal
K-4991-ET

**Spud Detail**

3483450

Technical Information

All measurements are nominal.

Flush outlet technology: Washout

Spud: 3/4", Inlet, Top

Min. Water per Flush: 0.125 gal (0.5 L)

Max. Water per Flush: 1 gal (3.8 L)

Designed for the above water use when installed with a water-saving flushometer.

Installation Notes

Install this product according to the installation guide.

Refer to manufacturer's instructions and local codes for flushometer requirements.

ADA compliant when installed to the specific requirements of these regulations.

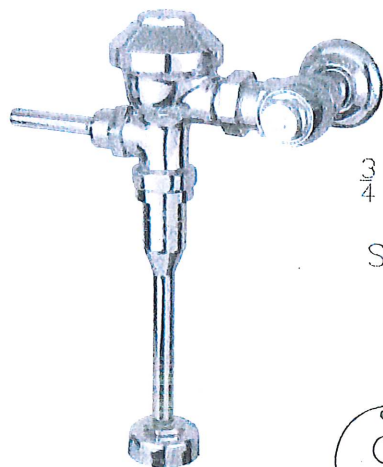
Urinal complies with ADA requirements when rim is mounted no higher than 17" (432 mm) from finished floor.



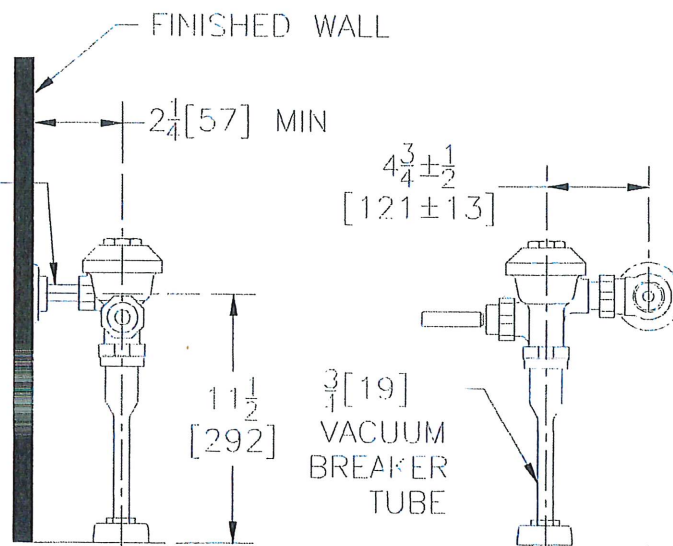
Aquaflush®

TAG _____

Z6003 Model for 3/4" Urinals



$\frac{3}{4}$ [19]
I.P.S.
SUPPLY



768954

Flow Options

- ☐ -EWS 0.5 Gallons Per Flush
- ☒ -WS1 1.0 Gal. Low Consumption
- ☐ -WS 1.5 Gallons Per Flush

Suffix Options (Check/Specify Appropriate Options)

- ☐ -BG BioCare™ ADA Handle
- ☐ -H Handle on Front of Flush Valve
- ☐ -HL 1" [25] Metal Push Button
- ☐ -HL3 3" [76] Metal Push Button
- ☐ -VC Vandal Resistant Stop Cover
- ☒ -YB Sweat Solder Kit
- ☒ -YC Cast Wall Flange
- ☐ -YJ Split Ring Pipe Support
- ☐ -YK Solid Ring Pipe Support
- ☐ - Other

ENGINEERING SPECIFICATION: ZURN Z6003 Aquaflush Exposed Urinal Flush Valve

- Exposed, quiet diaphragm-type, chrome plated flushometer valve with a polished exterior. Complete with a chloramine resistant, dual seal diaphragm with a clog resistant by-pass. The valve is ADA compliant with a non-hold open and no leak handle feature, high back pressure vacuum breaker, one piece hex coupling nut, adjustable tailpiece, spud coupling and flange for top spud connection. Control stop has internal siphon-guard protection. Internal seals are made of chloramine resistant materials.

- ☐ -Z6003PL - Aquaflush Plus is furnished as specified above and includes sweat solder kit, vandal resistant stop cap, and cast wall flange. **Complete with a chloramine resistant, dual seal diaphragm with a clog resistant by-pass.**

Architectural/Engineering Approval


ZURN INDUSTRIES, LLC. ♦ COMMERCIAL BRASS OPERATION ♦ 5900 ELWIN BUCHANAN DRIVE ♦ SANFORD NC 27330

PHONE: 1-800-997-3876 ♦ FAX: 919-775-3541 ♦ WORLD WIDE WEB: WWW.ZURN.COM

IN CANADA: ZURN INDUSTRIES LIMITED ♦ 3544 NASHUA DRIVE ♦ MISSISSAUGA, ONTARIO L4V1L2 ♦ PHONE: 905-405-8272 FAX: 905-405-1292

*American
Standard*

LUCERNE™
WALL-HUNG LAVATORY
VITREOUS CHINA

 BARRIER FREE

LUCERNE™ WALL-HUNG LAVATORY

- Wall-hung sink
- Vitreous china
- Front overflow
- D-shaped bowl
- Self-draining deck area with contoured back and side splash shields
- Faucet ledge
- Compliant with Texas accessibility standard (TAS) for children age group 13 and up

Faucet holes on 203mm (8") centers (illus.):

- ☐ **0356.028** For exposed bracket support
Shown with 4801.862 Amarilis Heritage faucet with Triune Cross handles (not included)
- ☐ **0356.015** For wall hanger (included) or concealed arms support
- ☐ **0356.915** For wall hanger (included) or concealed arms support
 - Less overflow

Faucet holes on 102mm (4") centers:

- ☐ **0355.027** For exposed bracket support
- ☒ **0355.012** For wall hanger (included) or concealed arms support
- ☐ **0355.912** For wall hanger (included) or concealed arms support
 - Less overflow

Single center faucet hole (illus.):

- ☐ **0356.041** For exposed bracket support
Shown with 1340.000 metering faucet (not included)
- ☐ **0356.421** For wall hanger (included) or concealed arms support
- ☐ **0356.921** For wall hanger (included) or concealed arms support
 - Less overflow
- ☐ **0356.439** For wall hanger (included) or concealed arms support
 - Single faucet hole on right
- ☐ **0356.066** For exposed bracket support
 - Single faucet hole on right

Nominal Dimensions:

521 x 464mm
(20-1/2" x 18-1/4")

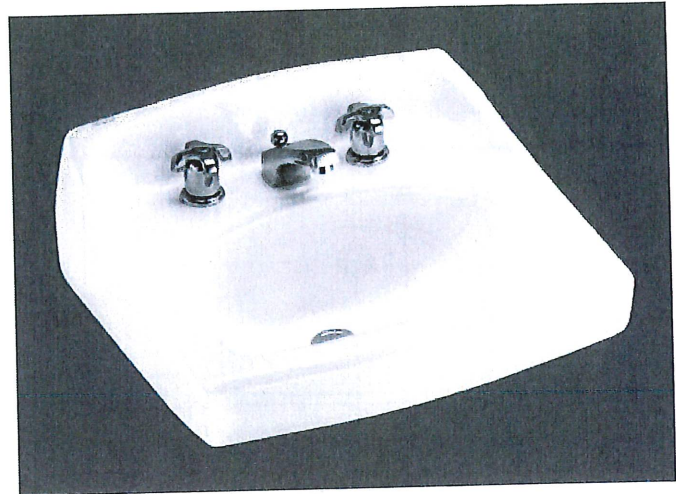
Bowl sizes:

381mm (15") wide
254mm (10") front to back
165mm (6-1/2") deep

Compliance Certifications -

Meets or Exceeds the Following Specifications:

- ASME A112.19.2 / CSA B45.1 for Vitreous China Fixtures



0356.028



0356.041

SEE FOLLOWING PAGES FOR ROUGHING-IN DIMENSIONS

To Be Specified:

- ☐ Color: ☒ White
- ☐ Faucet*:
- ☐ Faucet Finish:
- ☐ Supplies:
- ☐ 1-1/4" Trap:
- ☐ Nipple:
- ☐ Bracket Support (by others):
- ☐ Concealed Arms Support (by others):

* See faucet section for additional models available



MEETS THE AMERICANS WITH DISABILITIES ACT GUIDE-
LINES AND ANSI A117.1 ACCESSIBLE AND USABLE
BUILDINGS AND FACILITIES - CHECK LOCAL CODES.
Top of front rim mounted 864mm (34") from finished floor.

0356.028 8" CTRS FOR EXPOSED BRACKET SUPPORT

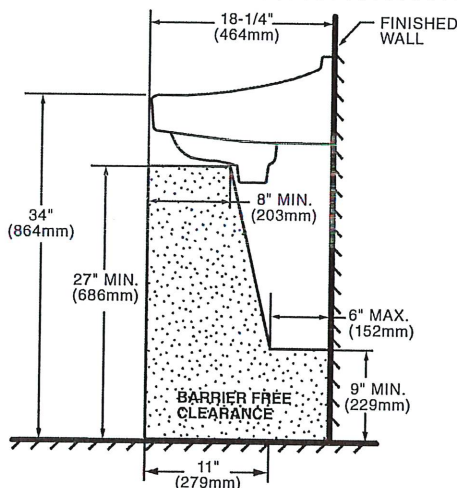
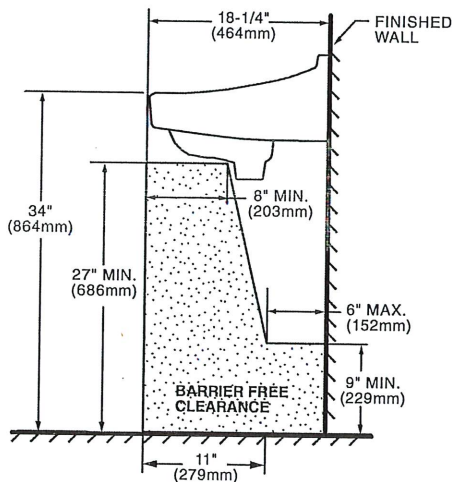
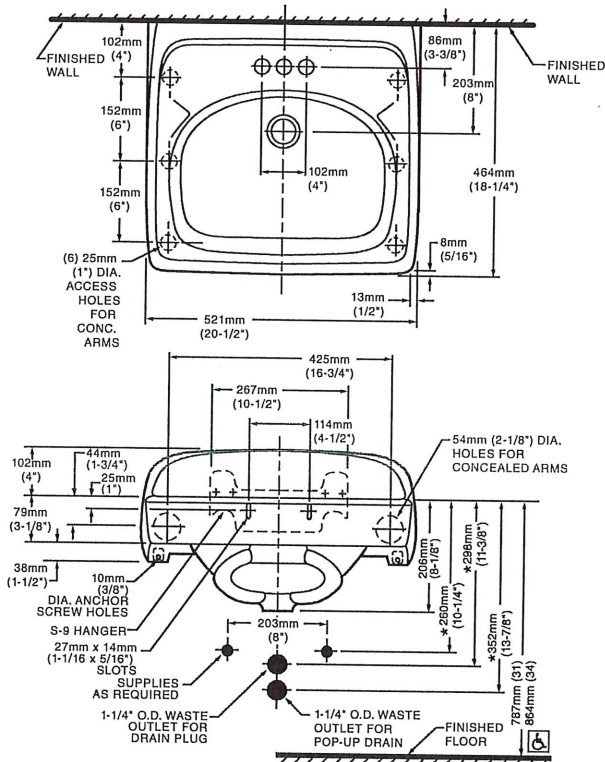
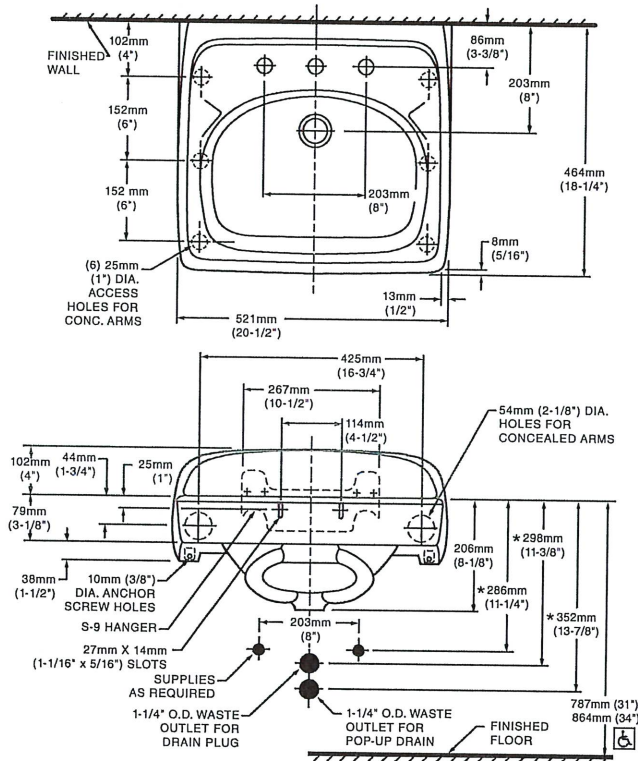
0356.015 8" CTRS FOR WALL HANGER
OR CONCEALED ARMS

0356.915 LESS OVERFLOW

0355.027 4" CTRS FOR EXPOSED BRACKET SUPPORT

→ 0355.012 4" CTRS FOR WALL HANGER OR
CONCEALED ARMS

0355.912 LESS OVERFLOW



NOTES:

* DIMENSIONS SHOWN FOR LOCATION OF SUPPLIES AND "P" TRAP ARE SUGGESTED.
PROVIDE SUITABLE REINFORCEMENT FOR ALL WALL SUPPORTS.
FITTINGS NOT INCLUDED AND MUST BE ORDERED SEPARATELY.
CONCEALED ARM SUPPORT AS REQUIRED TO BE FURNISHED BY OTHERS.

IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerances established by ANSI Standard A112.19.2. These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages.

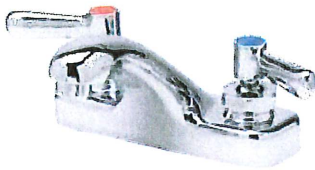
♿ LAVATORY DESIGNED TO MEET ADA HANDICAPPED GUIDELINES WITH MOUNTING HEIGHT SET AT 864MM (34") ABOVE FINISHED FLOOR.

Zurn Z81101-XL Faucet



4" CENTERSET
Z81101-XL

TAG _____



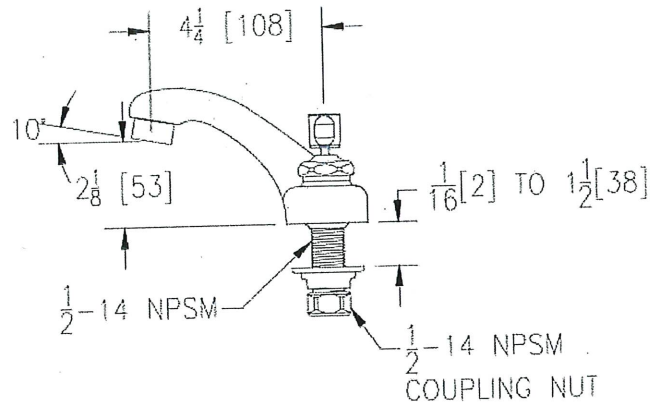
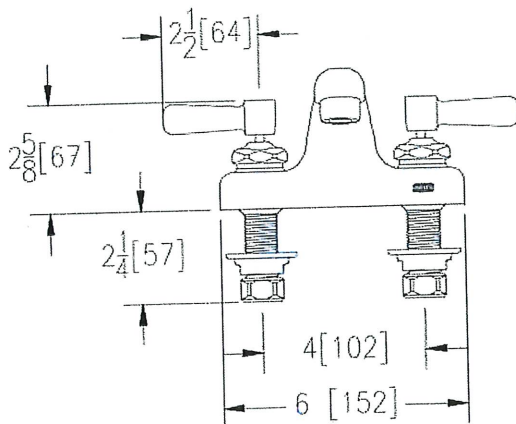
Engineering Specification: Zurn AquaSpec® Z81101-XL

Polished chrome-plated cast brass faucet body with integral shanks, quarter turn ceramic disc cartridges and a 4" [102mm] long integral cast spout. Unit is furnished with a 2.2 GPM [8.3 L] pressure compensating aerator (complying with ANSI A112.18.1 Standard for flow), 2-1/2" [64mm] vandal-resistant color-coded metal lever handles, mounting hardware and 1/2" NPSM coupling nuts for standard lavatory risers.

Zurn Lead Free products (-XL) is the line of durable, high quality brass faucets and fixtures that are designed and manufactured to comply with Section 1417 of the Safe Drinking Water Act (SDWA) which mandates the weighted average lead content of no more than 0.25% of the wetted surface.



* This product should be used with a WaterSense labeled counterpart with a compatible flush volume to ensure that the entire system meets the requirements for water efficiency and performance.



OPTIONAL ACCESSORIES

Note: All dimensions are for reference only. Do not use for pre-plumbing

Suffix	Description
-G	1-1/4" [32mm] Grid Strainer Drain
-HCT	Hot/Cold Text Indexes
-PT	1-1/4" [32mm] Cast Brass P-Trap with a 7-1/2" [191mm] Long 17-Gauge Wall Bend
-2M	2.2 GPM [8.3 L] Vandal-Resistant Pressure Compensating Male Aerator
-3M	0.5 GPM [1.9 L] Vandal-Resistant Pressure Compensating Male Aerator
-4M	2.2 GPM [8.3 L] Vandal-Resistant Pressure Compensating Male Laminar Flow
-7M*	1.0 GPM [3.8 L] Pressure Compensating Male Spray Outlet
-16M	1.0 GPM [3.8 L] Vandal-Resistant Pressure Compensating Male Spray Outlet
-17M*	1.5 GPM [5.7 L] Vandal-Resistant Pressure Compensating Male Aerator
-18M*	1.5 GPM [5.7 L] Vandal-Resistant Pressure Compensating Male Laminar Flow
-19M*	1.5 GPM [5.7 L] Anti-Microbial Pressure Compensating Female Laminar Flow Outlet
-21M	1.0 GPM [3.8 L] Pressure Compensating Female Laminar Flow Outlet
-22M	1.0 GPM [3.8 L] Vandal-Resistant Pressure Compensating Female Laminar Flow Outlet
-23M	1.5 GPM [5.7 L] Pressure Compensating Female Aerator
-24M	0.35 GPM [1.3 L] Pressure Compensating Male Spray Outlet
-25M	0.35 GPM [1.3 L] Vandal-Resistant Pressure Compensating Male Spray Outlet

ZURN INDUSTRIES, LLC. ♦ COMMERCIAL BRASS OPERATION ♦ 5900 ELWIN BUCHANAN DRIVE ♦ SANFORD NC 27330
Phone: 1-800-997-3876 ♦ Fax: 919-775-3541 ♦ World Wide Web: www.zurn.com

In Canada: ZURN INDUSTRIES LIMITED ♦ 7900 Goreway Drive Unit 10 ♦ Brampton, Ontario L6T5W6 ♦ Phone: 905-405-8272 Fax: 905-405-1292

ELKAY LZSTL8WSSP SS BI-LEVEL EZH20

ELKAY® SPECIFICATIONS

**EZH20® Bottle Filler Station
with Filtered Bi-Level LZ Cooler**
Models Enhanced **LZSTL8WSSP & LZSTL8WSLP**
LZSTLDDWSSP & LZSTLDDWSLP

PRODUCT SPECIFICATION

RATED FOR INDOOR USE ONLY

Unit shall include an electric water cooler with bottle filling station. Refrigerated Models shall deliver 8 GPH of 50°F of drinking water at 90°F ambient and 80°F inlet water. Non-Refrigerated Models shall deliver non-chilled drinking water. Lower units shall have pushbar activation. Bottle filling units shall include an electronic sensor for touchless activation with an automatic 20-second shut-off timer. LED light illuminating the water dispensing area, brightening as water is being dispensed. Shall include a Green Ticker™ displaying count of plastic bottles saved from waste. Bottle filler shall provide a 1.1 gpm flow rate with laminar flow to minimize splashing. Shall include the WaterSentry® Plus 3000-gallon capacity filter, certified to NSF/ANSI 42 & 53, with visual filter monitor to indicate when replacement is necessary. Unit shall automatically detect a new filter and reset visual filter monitor accordingly. Unit shall have the ability to turn off refrigeration system as needed, in addition to self diagnosing system issues and display related messages. Shall include integrated silver ion anti-microbial protection in key areas. Unit shall meet ADA guidelines. Unit shall be a lead-free design which is certified to NSF/ANSI 61 and 372 and meets Federal and State low-lead requirements. Unit shall be certified to UL399 and CAN/CSA 22.2 No. 120 & is FCC compliant.

STANDARD FEATURES

- Sanitary, touchless activation with auto 20-second shut-off (Bottle Filler)
- Easy-touch front and side pushbar controls (Cooler)
- Visual User Interface display includes:
 - Innovative Green Ticker™ counts bottles saved from waste
 - LED Visual Filter Monitor shows when replacement is necessary
- WaterSentry® Plus 3000-gallon capacity Filtration System, certified to NSF/ANSI 42 & 53 (Lead, Class 1 Particulate, Chlorine, Taste & Odor)
- Integrated Silver Ion Anti-microbial Protection in key areas
- Quick Fill Rate: 1.1 gpm (Refrigerated models); 1.5 gpm (Non-refrigerated models)
- Laminar Flow provides minimal splash
- Available with Flexi-Guard® Safety or Vandal-Resistant bubbler (Option at additional cost, includes "VR" code in model no.)
- Real Drain System eliminates standing water
- Cooler panel finishes: Light Gray Granite Vinyl Clad Steel or Stainless Steel
- Automatic filter status reset with each filter change
- Cooler is versatile, able to be mounted in a standard (hi-low) configuration or in a reverse (low-hi) configuration.

COOLING SYSTEM (Refrigerated Models only)

- Compressor: hermetically-sealed, reciprocating type, single phase. Sealed-in lifetime lubrication.
- Condenser: Fan cooled, copper tube with aluminum fins. Fan motor is permanently lubricated.
- Cooling Unit: Combination tube-tank type. Self-cleansing. Continuous copper tubing with stainless steel tank. Fully insulated with EPS foam which meets UL requirements for self-extinguishing material.
- Refrigerant Control: Refrigerant R134a is controlled by accurately calibrated capillary tube.
- Temperature Control: Electronic temperature control requires no adjustment
- Temperature Sensing Device: Fully solid-state temperature sensing has no moving parts.



Refrigerated Models

- ☐ LZSTL8WSLP
- ☒ **LZSTL8WSSP**
- ☐ LZSTL8WSVRLP
- ☐ LZSTL8WSVRSP

These units are replacing LZSTL8WSLK, LZSTL8WSSK, LZSTL8WSVRLK, and LZSTL8WSVRSK, respectively.

Non-Refrigerated Models

- ☐ LZSTLDDWSLP
- ☐ LZSTLDDWSSP

These units are replacing LZSTLDDWSLK, LZSTLDDWSSK, respectively.

CONSTRUCTION

- Stainless Steel basin with integral drain
- Galvanized structural steel cooler chassis provides structural integrity
- Stainless Steel bottle filler wrapper with ABS plastic alcove
- Cooler cabinet available as Light Gray Granite Vinyl Clad Steel or Stainless Steel (additional cost) construction
- Flexi-Guard® Safety Bubbler utilizes an infused anti-microbial pliable polyester elastomer to prevent accidental mouth injuries. Flexes on impact.
- Vandal-Resistant bubbler (option at additional cost) is one-piece, heavy-duty construction

Replacement Filters: Available as Singles and Multi-packs.

Order part numbers:

- 51300C (single)
- 51300C_3PK (three)
- 51300C_12PK (twelve)
- 51300C_24PK (twenty-four)
- 51300C_48PK (forty-eight)

Warranty: 5 year limited warranty on the unit's refrigeration system. Electrical components and water system are warranted for 12 months from date of installation or 18 months from factory shipment, whichever date falls first.

CAPACITIES CHART

Model	Voltage / Hertz	Chilling** Capacity	F.L. Amps	Rated Watts	Approx. Ship Wt.	ADA Compliant	UL399 and CAN/CSA 22.2 No. 120 Certified	NSF/ANSI 61 and 372 Certified	NSF/ANSI 42 and 53 Certified (Filter only)	FCC Compliant
LZSTL8WS(VR)LP	115V / 60 Hz	8 GPH	4.2	370	98 lbs	.	.	.	.	.
LZSTL8WS(VR)SP	115V / 60 Hz	8 GPH	4.2	370	98 lbs	.	.	.	.	.
LZSTLDDWSLP	115V / 60 Hz	—	1.0	15	66 lbs.	.	.	.	.	.
LZSTLDDWSSP	115V / 60 Hz	—	1.0	15	66 lbs.	.	.	.	.	.

Color code of (L) Light Gray Granite or (S) Stainless Steel cooler panels. **Based on 80°F inlet water & 90°F ambient air temp for 50°F chilled drinking water.

This specification describes an Elkay product with design, quality and functional benefits to the user. When making a comparison of other producer's offerings, be certain these features are not overlooked.

In keeping with our policy of continuing product improvement, Elkay reserves the right to change specification without notice. Please visit elkay.com for the most current version.

2222 Camden Court
Oak Brook, IL 60523
630-572-3192
elkay.com

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SPEC00260 (03/2016)

EZH2O® Bottle Filler Station
with Filtered Bi-Level LZ Cooler
Models Enhanced LZSTL8WSSP & LZSTL8WSLP
LZSTLDDWSSP & LZSTLDDWSLP

ELKAY®
ROUGH-IN DIMENSIONS

RATED FOR INDOOR USE ONLY

IMPORTANT! INSTALLER PLEASE NOTE:

These units are designed and built to provide water to the user which has not been altered by materials in the cooler waterway. The grounding of electrical equipment such as telephone, computers, etc. to water lines is a common procedure. This grounding may be in the building but may also occur away from the building. This grounding can cause electrical feedback into a water cooler creating an electrolysis which results in a metallic taste or an increase in the metal content of the water. This condition is avoidable by installing the cooler using the proper materials as shown.

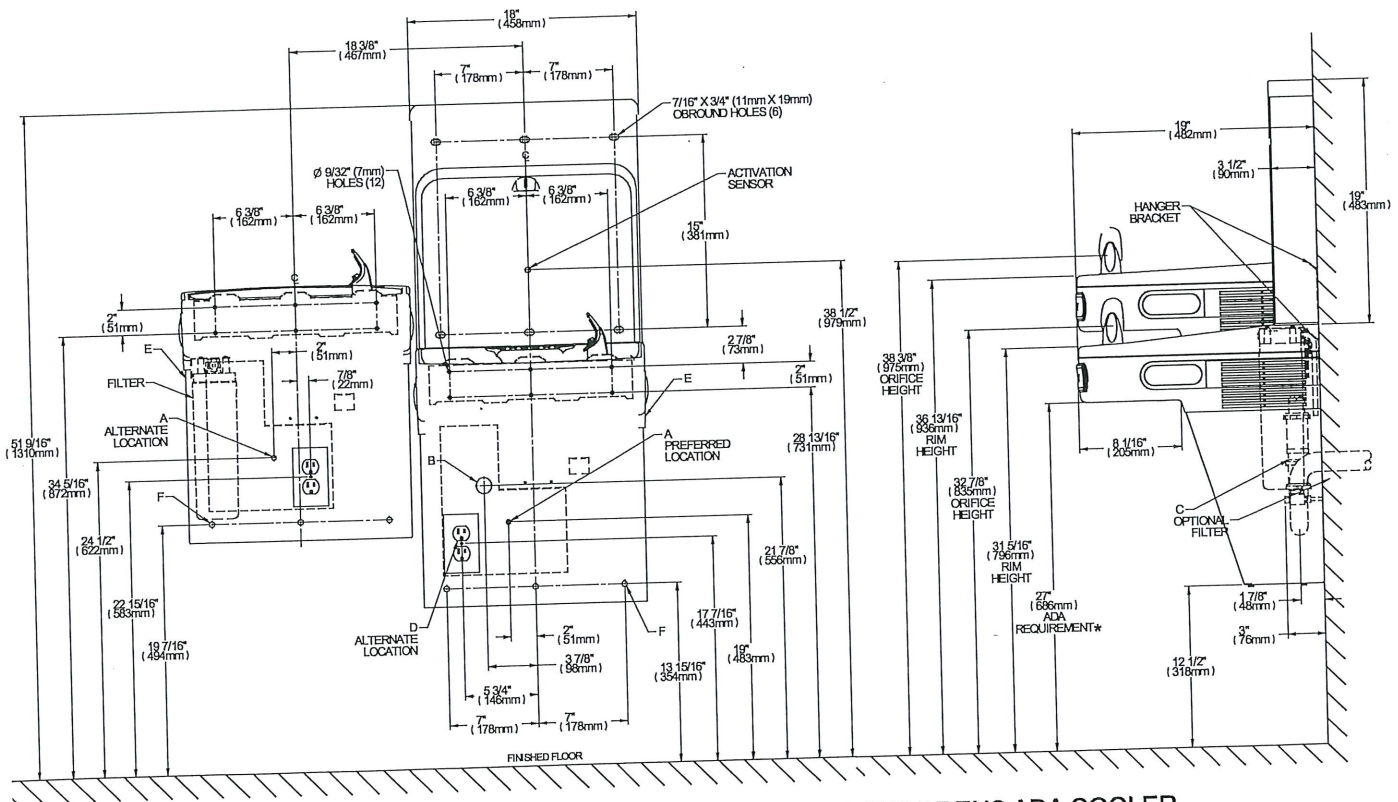
NOTICE

This water cooler must be connected to the water supply using a dielectric coupling. The cooler is furnished with a non-metallic strainer which meets this requirement. The drain trap which is provided by the installer should also be plastic to completely isolate the cooler from the building plumbing system.

Model Shown with Flexi-Guard Safety Bubbler

Bottle Filler unit will mount on bracket attached to wall by 6 holes (as shown).
 Water and electrical will connect through pre-punched hole in basin.

Standard Hi-Low Installation Instructions



REDUCE HEIGHT BY 3 INCHES FOR INSTALLATION OF CHILDRENS ADA COOLER

LEGEND:

- A = Recommended Water Supply location. Shut-off Valve (not furnished) to accept 3/8" O.D. unplated copper tube. Up to 3" (76mm) maximum out from wall.
 - B = Recommended Waste Outlet location. To accommodate 1-1/2" nominal drain. Drain stub 2" (51mm) out from wall.
 - C = 1-1/2" Trap (not furnished).
 - D = Electrical Supply (3) Wire Recessed Box Duplex Outlet.
 - E = Insure proper ventilation by maintaining 6" (152mm) minimum clearance from cabinet louvers to wall.
 - F = 7/16" (11mm) Bolt Holes for fastening to wall.
- NOTE: Installations Must Use Ground Fault Circuit Interrupter (GFCI).

Job Name:	_____
Model:	_____ Qty. _____
Contact:	_____
Approval Signature:	_____
Notes:	_____

EZH2O® Bottle Filler Station
with Filtered Bi-Level LZ Cooler
Models Enhanced LZSTL8WSSP & LZSTL8WSP
LZSTLDDWSSP & LZSTLDDWSP

ELKAY®
ROUGH-IN DIMENSIONS

RATED FOR INDOOR USE ONLY

IMPORTANT! INSTALLER PLEASE NOTE:

These units are designed and built to provide water to the user which has not been altered by materials in the cooler waterway. The grounding of electrical equipment such as telephone, computers, etc. to water lines is a common procedure. This grounding may be in the building but may also occur away from the building. This grounding can cause electrical feedback into a water cooler creating an electrolysis which results in a metallic taste or an increase in the metal content of the water. This condition is avoidable by installing the cooler using the proper materials as shown.

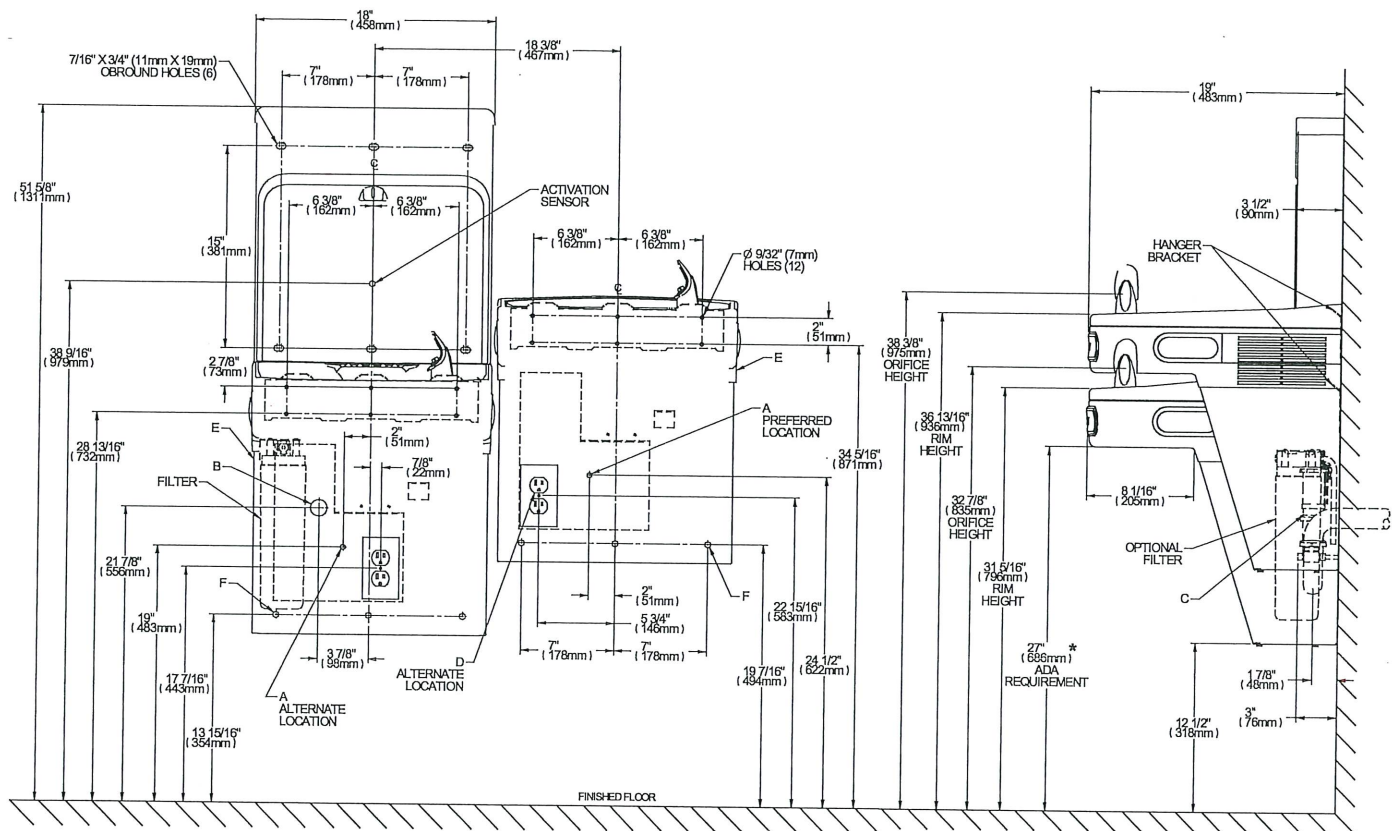
NOTICE

This water cooler must be connected to the water supply using a dielectric coupling. The cooler is furnished with a non-metallic strainer which meets this requirement. The drain trap which is provided by the installer should also be plastic to completely isolate the cooler from the building plumbing system.

Model Shown with Flexi-Guard Safety Bubbler

Bottle Filler unit will mount on bracket attached to wall by 6 holes (as shown). Water and electrical will connect through pre-punched hole in basin.

Optional Reverse (Hi-Low) Installation Method



REDUCE HEIGHT BY 3 INCHES FOR INSTALLATION OF CHILDRENS ADA COOLER

LEGEND:

- A = Recommended Water Supply location. Shut-off Valve (not furnished) to accept 3/8" O.D. unplated copper tube. Up to 3" (76mm) maximum out from wall.
- B = Recommended Waste Outlet location. To accommodate 1-1/2" nominal drain. Drain stub 2" (51mm) out from wall.
- C = 1-1/2" Trap (not furnished).
- D = Electrical Supply (3) Wire Recessed Box Duplex Outlet.
- E = Insure proper ventilation by maintaining 6" (152mm) minimum clearance from cabinet louvers to wall.
- F = 7/16" (11mm) Bolt Holes for fastening to wall.

NOTE: Installations Must Use Ground Fault Circuit Interrupter (GFCI).

Job Name:	_____
Model:	_____ Qty. _____
Contact:	_____
Approval Signature:	_____
Notes:	_____

**Accessory Apron
LKAPREZL**

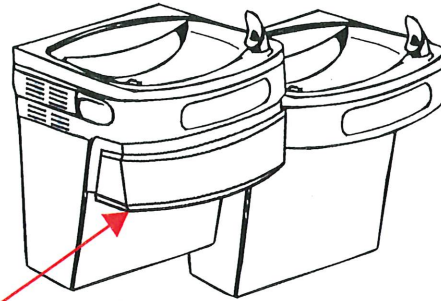
SPECIFICATIONS

GENERAL

Accessory apron designed to bring Elkay water coolers into compliance with the Americans with Disabilities Act (A.D.A.) when units are mounted on an exposed wall. This apron provides the mandatory 27" (686 mm) floor to underside requirement when mounted in this manner. Suitable for use with models LZSTL8C, LZTL8C, EZSTL8C, EZTL8C, EZSTLR8C, EZTLR8C, EZSTLDDC, EZSTLRDDC and EZOSTL8C.

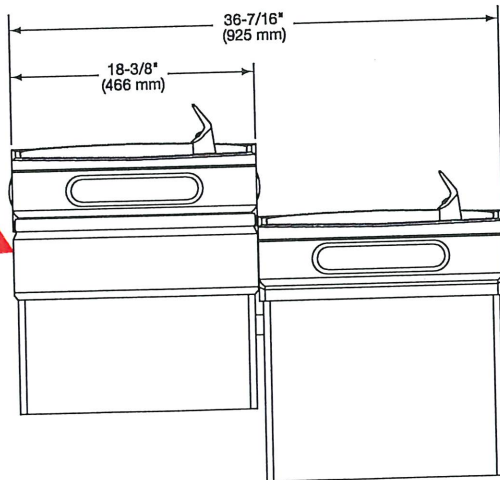
Construction

Thermo-formed textured ABS plastic. Available in gray only. Equipped with bottom cover plate.

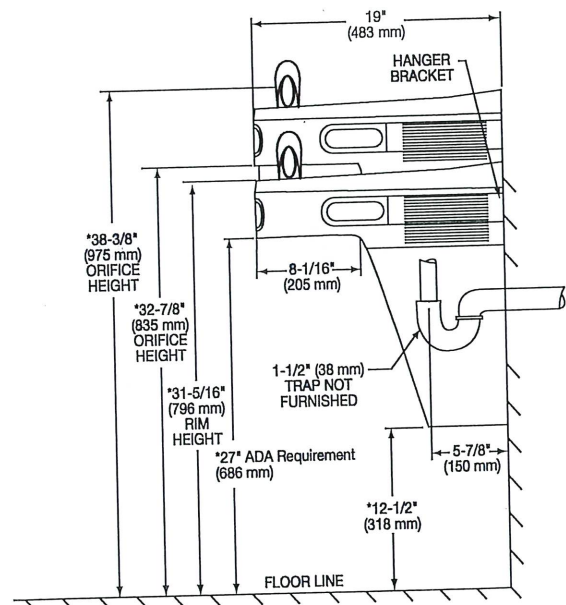


EZSTL8C – Shown with accessory apron LKAPREZL mounted.

FRONT VIEW

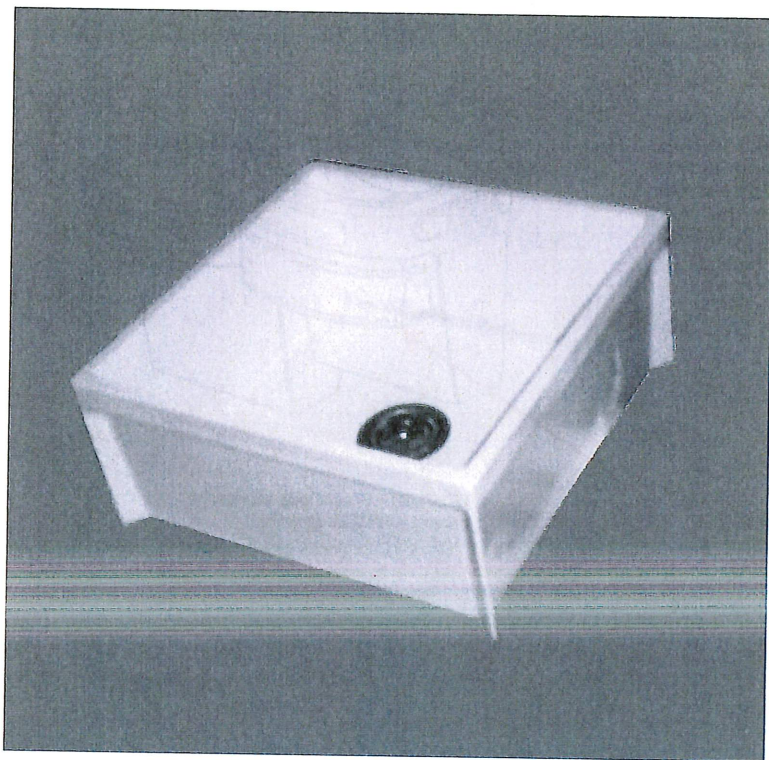


SIDE VIEW



EZSTL8C shown with accessory apron LKAPREZL mounted.

MOLDED-STONE® MOP SERVICE BASIN



NOTES

OPTIONS

- Service Faucet (830-AA): Chrome plated with vacuum breaker, integral stops, adjustable wall brace, pail hook and 3/4" hose thread on spout.
- Hose and Hose Bracket (832-AA)
- Mop Hanger (889-CC)
- Alternate Strainer (1453-BB) - For residential use (EFS-3624 and EFS-2424)
- 3" Quick Drain Connector (QDC-3XH): Neoprene connecting gasket suitable for attaching extra heavy cast iron soil pipe and Schedule 40 steel pipe to the drain body. Neoprene connecting gasket (QDC-3SN) suitable for attaching hubless cast iron pipe (no hub, nominal O.D. of 3.31") and service weight cast iron soil pipe (nominal O.D. of 3.38") to the drain body.
- Silicone Sealant (833-AA)
- Vinyl Bumperguard (E-77-AA)
- Stainless Steel Bumperguard (E-88-AA)
- Stainless Steel Wall Guard (MSG2424, MSG2828, MG3232, MSG3636, and MSG3624)

MSB 2424 MSB 3624

Molded-Stone® Mop Service Basin

FEATURES

• MSB 2424

The MSB 2424 shall have overall outside dimensions of 24" x 24" x 10". The molding shall be done in matched metal dies under heat and pressure resulting in a one-piece homogeneous product. The unit shall have 10" high walls with not less than 1" wide.

The stainless steel drain body is designed to provide for a caulk connection or QDC-3 joint to a 3" drain pipe. A combination dome strainer and lint basket made from stainless steel shall be included with factory installed stainless steel drain body for caulked joint to accept a 3" pipe.

• MSB 3624

The MSB 3624 shall have overall outside dimensions of 36" x 24" x 10". The molding shall be done in matched metal dies under heat and pressure resulting in a one-piece homogeneous product. The unit shall have 10" high walls with not less than 1" wide shoulders and an integrally molded shelf 10 3/8" wide where indicated.

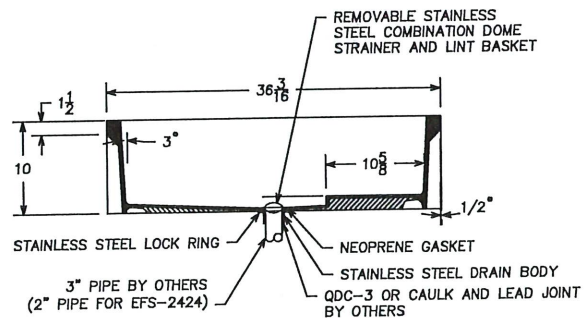
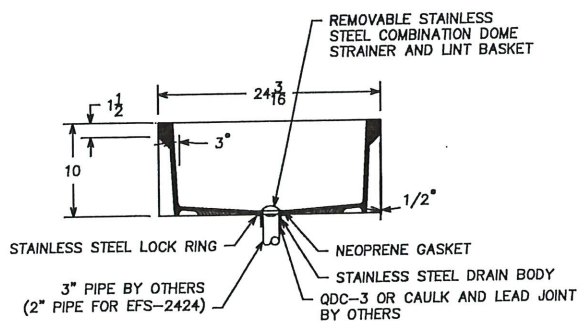
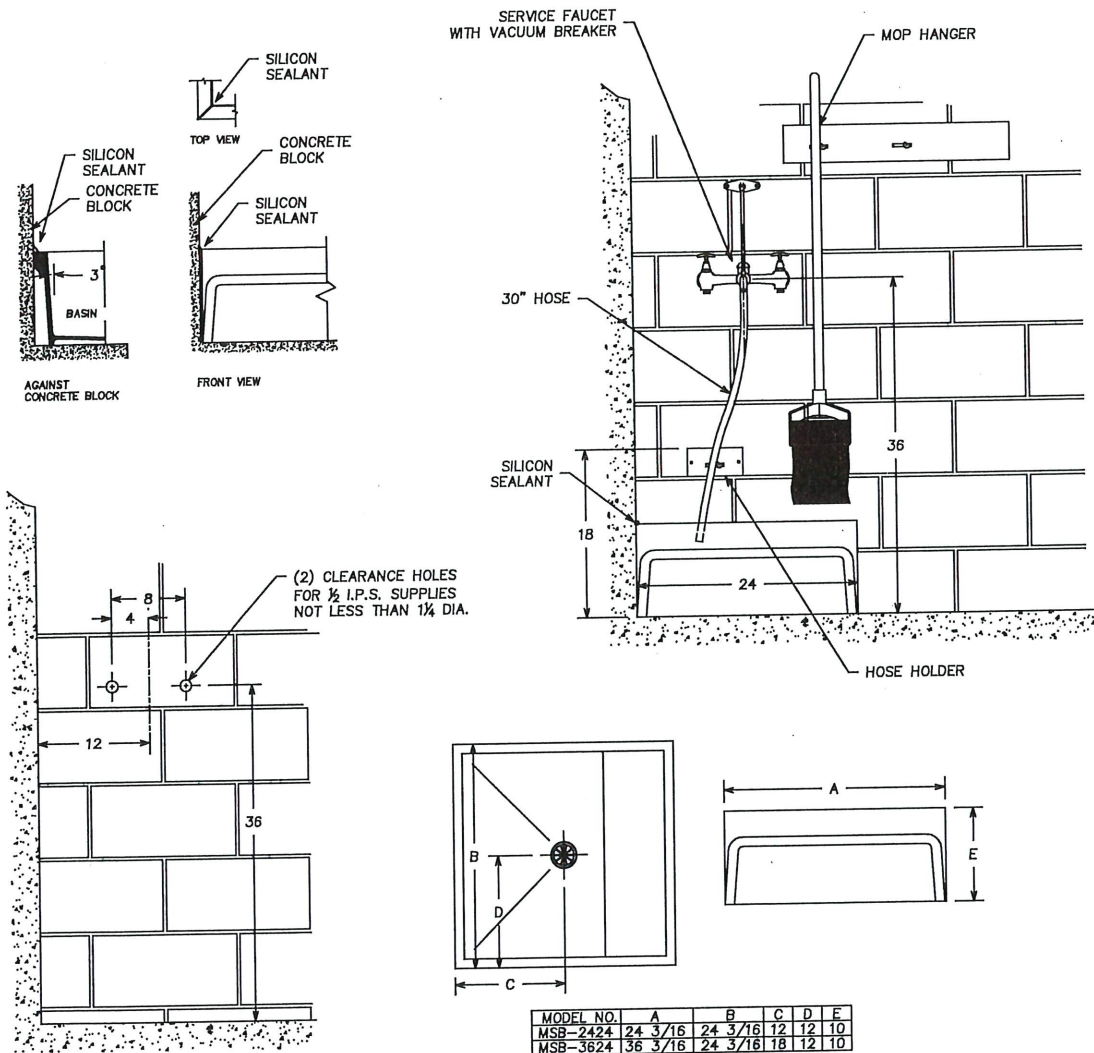
The stainless steel drain body is designed to provide for a caulk connection or QDC-3 joint to a 3" drain pipe. A combination dome strainer and lint basket made from stainless steel shall be included with factory installed stainless steel drain body for caulked joint to accept a 3" pipe.

MOLDED-STONE® MOP SERVICE BASIN

P-8

MSB 2424
MSB 3624

Molded-Stone® Mop Service Basin



FIAT PRODUCTS®
A CRANE PLUMBING COMPANY

IMPORTANT: Roughing-in dimensions may vary 1/2" and are subject to change or cancellation without prior notice.

CR/PL© 04/03 Printed in U.S.A

P-8



T&S BRASS AND BRONZE WORKS, INC.

2 Saddleback Cove / P.O. Box 1088
Travelers Rest, SC 29690

Model No.

B-0665-BSTR

Item No.

Travelers Rest, SC: 800-476-4103 • Simi Valley, CA: 800-423-0150 • Fax: 864-834-3518 • www.tsbrass.com



ADA Compliant

This Space for Architect/Engineer Approval

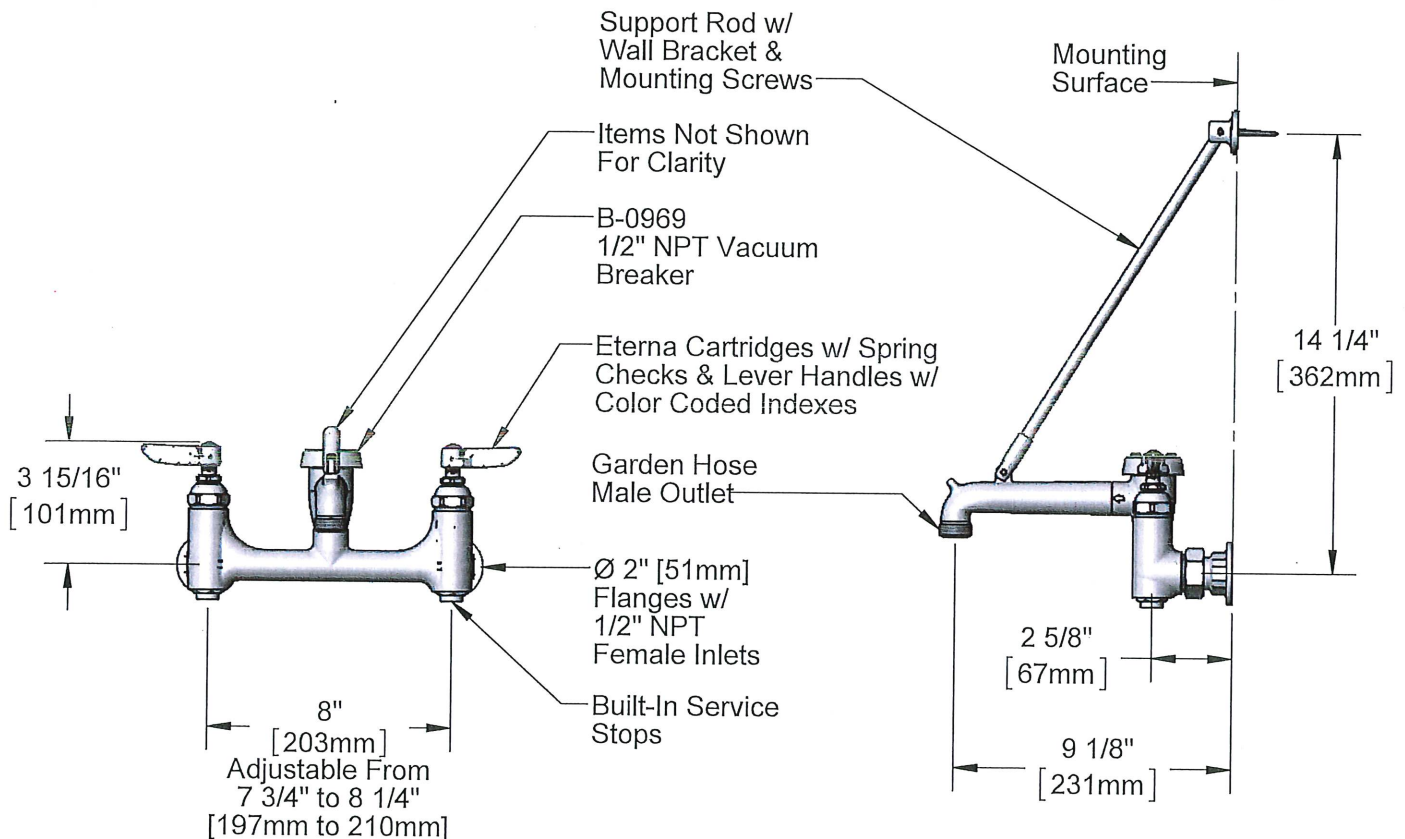
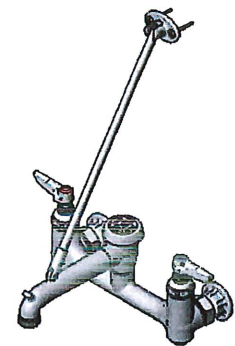
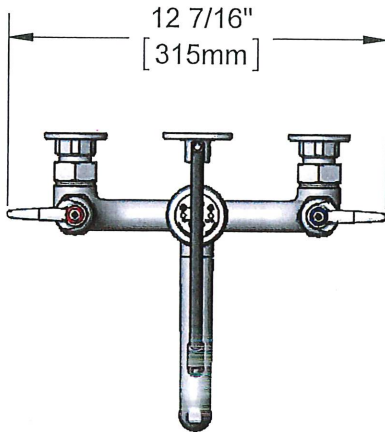
Job Name _____ Date _____

Model Specified _____ Quantity _____

Customer/Wholesaler _____

Contractor _____

Architect/Engineer _____



Product Specifications:

8" Wall Mount Service Sink, Eterna Cartridges w/ Spring Checks, Lever Handles, Upper Support Rod, Garden Hose Male Outlet, Built-In Service Stops, Rough Chrome Finish, 1/2" NPT Vacuum Breaker & 1/2" NPT Female Inlets

Product Compliance:

ASME A112.18.1 / CSA B125.1
NSF 61 - Section 9
NSF 372 (Low Lead Content)
ANSI A117.1 (ADA)
ASSE 1001 (VB)

P-8



T&S BRASS AND BRONZE WORKS, INC.

2 Saddleback Cove / P.O. Box 1088
Travelers Rest, SC 29690

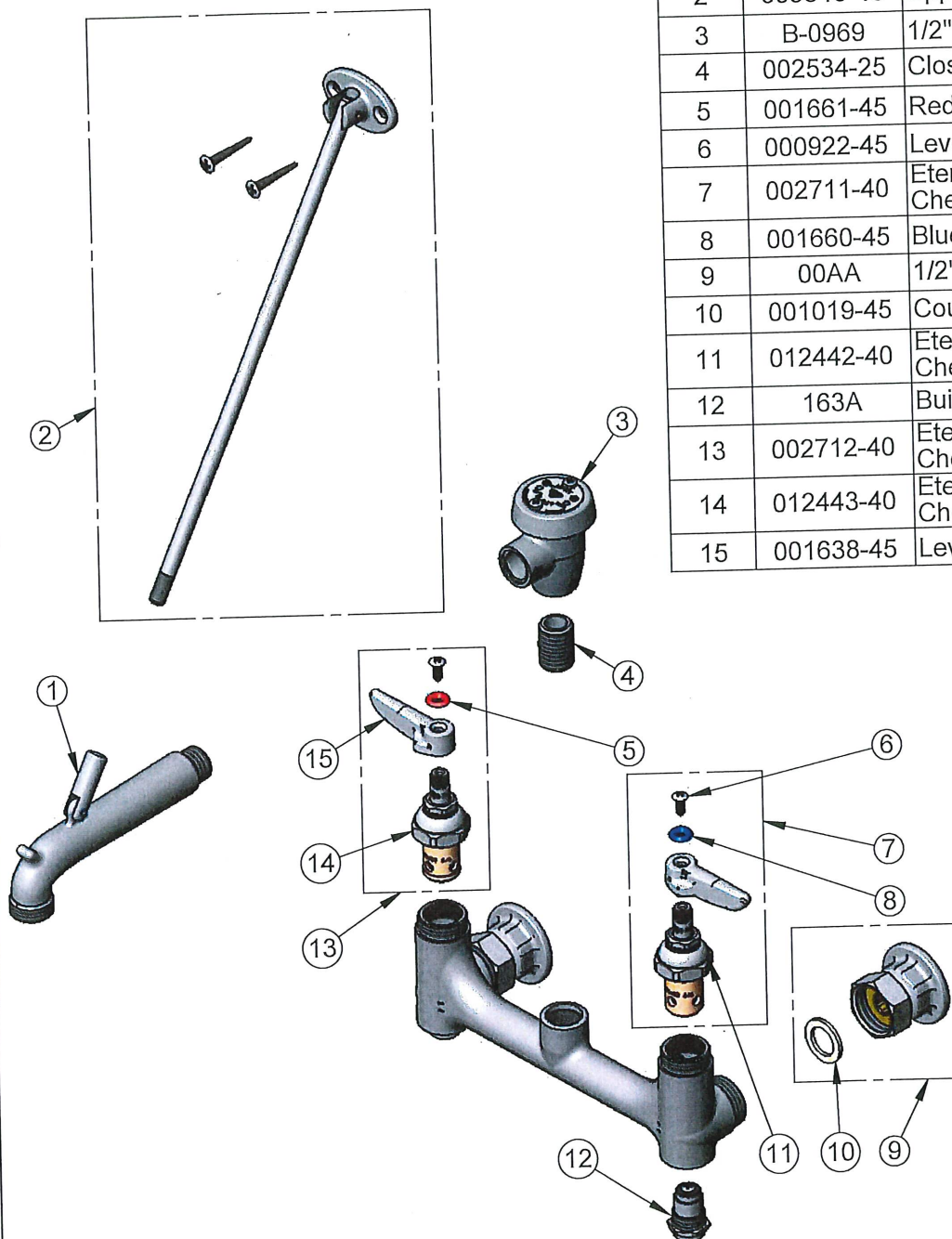
Model No.

→ **B-0665-BSTR**

Item No.

Travelers Rest, SC: 800-476-4103 • Simi Valley, CA: 800-423-0150 • Fax: 864-834-3518 • www.tsbrass.com

ITEM NO.	SALES NO.	DESCRIPTION
1	009545-25	Spout w/ Male GH Outlet & Upper Clevis - Rough Chrome
2	009546-40	Upper Support Rod
3	B-0969	1/2" NPT Vacuum Breaker
4	002534-25	Close Nipple, 1/2" NPT
5	001661-45	Red Index-HW
6	000922-45	Lever Handle Screw
7	002711-40	Eterna Cartridge, LTC w/ Spring Check, Handle, Index & Screw
8	001660-45	Blue Index-CW
9	00AA	1/2" NPT Female Eccentric Flange
10	001019-45	Coupling Nut Washer
11	012442-40	Eterna Cartridge, LTC w/ Spring Check
12	163A	Built-in Service Stop
13	002712-40	Eterna Cartridge, RTC w/ Spring Check, Handle, Index & Screw
14	012443-40	Eterna Cartridge, RTC w/ Spring Check
15	001638-45	Lever Handle



Product Specifications:

8" Wall Mount Service Sink, Eterna Cartridges w/ Spring Checks, Lever Handles, Upper Support Rod, Garden Hose Male Outlet, Built-In Service Stops, Rough Chrome Finish, 1/2" NPT Vacuum Breaker & 1/2" NPT Female Inlets

Product Compliance:

ASME A112.18.1 / CSA B125.1
NSF 61 - Section 9
NSF 372 (Low Lead Content)
ANSI A117.1 (ADA)
ASSE 1001 (VB)



10 to 60 Liters/Hour Capacity Reverse Osmosis (RO) Systems

Features & Benefits

- ◆ Fully automatic operation.
- ◆ Bench, shelf or wall-mount the system cabinet at no extra cost.
- ◆ System automatically shuts off when RO storage tank is full, or if incoming water pressure is lost.
- ◆ Automatic water saver closes water inlet valve when system shuts off.
- ◆ Flow totalizer monitors water usage for activated carbon prefilter cartridge replacement.
- ◆ Digital conductivity meter continuously monitors RO water quality.
- ◆ Product and reject flowmeters monitor and control system's flow rates.
- ◆ Pressurized storage tank eliminates level controls and transfer pump.
- ◆ TFC (thin film composite) RO cartridges offer high performance and long life.
- ◆ 2 year warranty (US & Canada only).
- ◆ Made in the USA.

Product Availability

AQUA SOLUTIONS Reverse Osmosis Systems are available in 10, 20, 30, 40, and 60 LPH (Liters per hour) configurations. They are uniquely designed for ease of installation, operation and maintenance. The compact design saves space, and can be bench, shelf or wall-mounted.

10 & 20 Liter/hour RO systems are also available as built-in RO pretreatment on

AQUA SOLUTIONS Compact, Combination Type I RO+DI Systems.

Request Brochure No: RODI-C



Applications

Reverse Osmosis can be used to pretreat tap water prior to final purification by a Type I or Type II DI system. RO removes up to 99% of the contaminants in tap water, which can reduce the operating cost of the DI system by more than 90%. RO pretreatment system should be considered under the following circumstances:

- ◆ Incoming tap water contains more than 170 parts per million of total dissolved solids, or
- ◆ Usage exceeds 20 Liters per day on a Type I DI system, or
- ◆ Usage exceeds 40 Liters per day on a Type II DI system.

There are two criteria to consider when determining if an RO pretreatment system is either required, or can be justified, based on cost savings:

1. Can the DI system alone, running on tap water, produce the desired quality and quantity of purified water for the applications at hand? If not, an RO pretreatment system is required.
2. Would it cost more overall (including capital and operating costs over 2-3 years), to process the tap water via DI alone, or with a combination of RO plus DI? If DI alone costs more, an RO system is justified.

Selecting the right RO system is a matter of determining the total RO water usage requirements during the actual work day, and choosing the system that produces that amount of RO purified water over a 24 hour period. The RO system is designed to run 24 hours/day if necessary, and includes a pressurized tank to store water for later usage. Thus, if the total daily usage occurs over less than a 24 hour period, enough storage capacity should be included to cover the difference between water usage over this period, and the system's actual output over this period.

See Page 2 for system specifications & ordering information.

AQUA SOLUTIONS, INC.

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Jasper, GA 30143 USA

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800-458-2021

Fax: 706-692-9203

E-mail: mail@AquaA.com

Internet: www.AquaA.com

Reverse Osmosis (RO) Systems Specifications and Ordering Information



MODEL NUMBER	RO2001	RO2002	RO2003	RO2004	RO2006
Rated capacity (Liters/hour at 25° C):	10	20	30	40	60
Maximum allowable TDS in feed water (PPM):	1,500	1,500	1,500	1,500	1,500
Number of RO cartridges installed:	1	2	3	1	1
Nominal operating pressure (PSIG):	80-100	80-100	80-100	80-100	80-100
Cabinet width (inches - excluding storage tank):	20	20	20	20	20
Cabinet height (inches - excluding storage tank):	20	20	20	20	20
Cabinet depth (inches - excluding storage tank):	12	12	12	12	12
Calculated storage tank capacity (Liters)**:	42	130	130	130	130
Storage tank diameter (inches):	15	22	22	22	22
Standard storage tank height (inches):	25	36	36	36	26
Bench, shelf or wall mounted cabinet:	Included	Included	Included	Included	Included
1/4" & 3/8" NPT male water inlet fitting:	Included	Included	Included	Included	Included
1/4" or 1/2" storage tank outlet valve:	Included	Included	Included	Included	Included
Activated carbon prefilter:	Included	Included	Included	Required	Required
Reverse osmosis cartridges:	Included	Included	Included	Included	Included
Additional outlet valves:	Optional	Optional	Optional	Optional	Optional
Storage tank location:	Bench/Floor	Floor	Floor	Floor	Floor

REPLACEMENT CARTRIDGES:

CC1050 - 10" activated carbon prefilter cartridge:	1	1	1	n/a	n/a
CC2050 - 20" activated carbon prefilter cartridge:	n/a	n/a	n/a	n/a	n/a
CR1812H1 - reverse osmosis cartridge:	1	2	3	n/a	n/a
CR4014 - reverse osmosis cartridge:	n/a	n/a	n/a	1	1

PRE-FILTERS ASSEMBLIES:

CH1004PF - STANDARD 10" bowl with 5-Micron filter
 CH1016BB-2PF - 10" Two Stage Big Boy Filter Assembly
 CH1016BB-3PF - 10" Three Stage Big Boy Filter Assembly

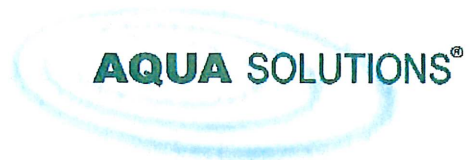
OPTIONS:

One, Two, or Three Stage pre-Filter Assemblies
 2618S1-RO - Type II DI polishing module - 3,000 grains of ion exchange capacity
 2635S1-RO - Type II DI polishing module - 6,000 grains of ion exchange capacity
 ROT-042 - 42 Liter (11 gal) storage tank*
 ROT-130 - 130 Liter (34 gal) storage tank*
 ROT-200 - 200 Liter (53 gal) storage tank*
 V-4-ASSY - 1/4" outlet valve assembly
 V-8-ASSY - 1/2" outlet valve assembly

Notes: Upgrade from the standard storage tank on any system to a larger tank, by paying the difference in price.

**** Actual usable storage tank capacity could be ~20% less than the calculated capacity.**

System & Installation Specifications Reverse Osmosis (RO) Systems



Models: RO2001, RO2002, RO2003,
RO2004, RO2006.

Water purification, pure and simple™

- ☐ The system shall remove 94-99% of the dissolved inorganic ions, and up to 99% of the dissolved organics, suspended solids and microorganisms found in ordinary tap water.
- ☐ The system shall produce purified water at an average rate of:
 - 10 Liters per hour for model RO2001
 - 20 Liters per hour for model RO2002
 - 30 Liters per hour for model RO2003
 - 40 Liters per hour for model RO2004
 - 60 Liters per hour for model RO2006
- ☐ The system shall start up & shut down automatically, as required to fill the storage tank.
- ☐ The system shall include a low pressure switch to shut the system down in the event of low incoming water pressure.
- ☐ The system shall include an automatic electric solenoid valve that prevents water from flowing through the system to drain when the system is shut down.
- ☐ The system shall include high performance TFC (thin film composite) reverse osmosis membranes.
- ☐ The system shall not require periodic backflushing, fast forward flushing or other cleaning cycles.
- ☐ The system shall include a pressurized storage tank with a pressure switch that automatically shuts the system down when the tank is full, and automatically turns the system back on as water is removed from the tank.
- ☐ The pressurized storage tank shall have a rated capacity of 42 liters (model RO2001), or 130 liters (models RO2002, RO2003, RO2004, and RO2006).
- ☐ The system shall include a 1-micron, high-performance activated carbon/sediment prefilter cartridge (Model RO2001, RO2002, and RO2003).
- ☐ Model RO2004 and RO2006 require the purchase of a two or three stage prefilter assembly that includes an activated carbon filter.
- ☐ The system shall include a flow totalizer to monitor total incoming water usage for prefilter cartridge changeout.
- ☐ The system shall include a digital, temperature compensated TDS meter to monitor water quality.
- ☐ The system shall include product and reject flow meters to monitor and control flow rates.
- ☐ The system's overall dimensions for the cabinet shall be approximately 20" wide by 20" high by 12" deep.
- ☐ The system cabinet shall be bench, shelf, or wall-mountable at no extra charge.
- ☐ The system price shall include a 2 year warranty in the USA and Canada, and a 1 year warranty elsewhere.
- ☐ The system shall be made in U.S.A.

See other side for installation and start-up information.

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Installation and Start-up of AQUA SOLUTIONS' RO Systems

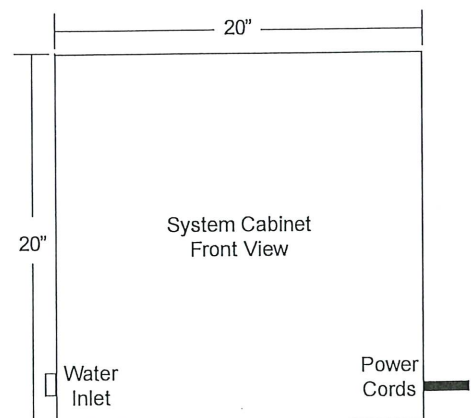
As shipped, AQUA SOLUTIONS' Reverse Osmosis Water Purification Systems can be bench, shelf or wall-mounted at no extra charge. While bench mounting affords more flexibility, shelf or wall mounting can get the system up and out of the way, conserving bench space for other uses. Regardless of the initial mounting method, it can be changed at any time. Complete, detailed mounting instructions are included in the Operating Manual.

The system requires a source of incoming feed water at 25-50 psi from a user-supplied shutoff valve located within 15' of the LEFT SIDE of the system, plus 2 grounded 110 VAC electrical outlets within 5' of the right side of the system. Electrical consumption is less than 3 amps total. The system also requires a drain or sink within 15' of the system.

Note that the operating weight of the system can approach 100 pounds. If shelf-mounting, make sure the shelf can support this weight. If wall-mounting, make sure the wall can support this weight. In the case of wallboard attached to metal studs, attach a piece of 3/4" plywood directly to the studs first, and attach the system to the plywood. When wall-mounting, use 4 appropriate "industrial strength" 1/4" lag bolts, 1/4" toggle bolts, or 1/4" masonry anchor bolts, depending on wall type, to attach the cabinet to the wall.

Except for the user-supplied inlet valve, all items required for installation are included with the system. More detailed instructions are included in the Operating Manual supplied with the system. The system cabinet measures approximately 20" wide by 20" tall by 12" deep. The RO storage tank is external to the cabinet and usually sits on the floor. The 42-Liter RO tank is 15" in diameter by 25" high. The 130-Liter RO tank is 22" in diameter by 40" tall. After mounting the system cabinet, proceed as follows:

- a. Install a 1/4", 3/8", or 1/2" NPT female shut off valve on an appropriate water supply line. If the shut off valve is 1/2" NPT, reduce it down to 1/4" or 3/8" NPT female. Make sure valve is closed.
- b. Install a 1/4" or 3/8" NPT male by 1/4" tube fitting (both are supplied with system) on shut off valve, using Teflon tape on threads.
- c. Install 1/4" OD black polyethylene tubing (20' supplied with system - cut to required length) from 1/4" push-in type water inlet fitting marked "Water Inlet", located on bottom left side of system cabinet, to Jaco type fitting on valved water source.
- d. Screw the RO tank valve/gauge assembly, onto the tank outlet using Teflon tape on the threaded fittings. Tighten firmly. Note that on the smaller (42 liter) tank supplied with Model RO2001, the tank outlet is located on top of the tank. On the larger (130 liter) tank supplied with all other models, or as an option on Model RO2001, the outlet is located on the bottom of the tank and passes through a hole in the tank base. Locate the tank on the floor within 15' of the RO system cabinet.
- e. Install 1/4" OD red polyethylene tubing (20' supplied with system - cut to required length) from 1/4" push-in type outlet fitting marked "RO Reject", located on right side of system cabinet, to a suitable drain or sink. Note that RO reject water will flow out of this tubing at 8-16 gallons per hour whenever the RO System is running.
- f. Install remaining 1/4" OD red tubing from the Jaco fitting on the storage tank drain valve (V-1) to a suitable drain or sink.
- g. Install 1/4" OD blue polyethylene tubing (20' supplied with system - cut to required length) from 1/4" push-in type outlet fitting marked "RO Product", located on right side of system cabinet, to Jaco type fitting on the storage tank, located between the pressure gauge and the drain valve (V-1).
- h. Install remaining 1/4" OD blue tubing from the 1/4" Jaco tube fitting on the outlet valve (V3) on storage tank to inlet fitting on a Type I Water Purification System, or to other applications. Note that some systems might include 3/8" OD blue tubing, or 1/2" clear tubing, with an appropriate Jaco tube fitting attached to V-3.
- i. Open cabinet door and make sure water inlet valve (located on black water inlet tubing on left bottom inside the cabinet) is closed and ALL pressure gauges on the system read zero. Note that the valve is closed when the handle is perpendicular to the direction of flow, and open when parallel to it.
- j. Install the ten inch activated carbon prefilter cartridge (part number) in the clear filter bowl, making sure the black gaskets are in place. Attach the filter bowl to the housing located inside the system cabinet, making sure the O-ring on the bowl is in place, and hand-tighten firmly.
- k. Note that the RO Cartridge(s) are already installed in the system.
- l. Connect the wires that emerge from the back right corner of the system cabinet to the transformer. DO NOT PLUG THE TRANSFORMER POWER CORD INTO THE 110 VAC RECEPTACLE AT THIS TIME.
- m. Inspect work done, making sure that system water inlet valve is CLOSED and the system's ELECTRICAL CORDS ARE NOT PLUGGED IN.
- n. Follow detailed start-up instructions in the Operating Manual. Call AQUA SOLUTIONS at 800-458-2021 with any technical questions or comments.





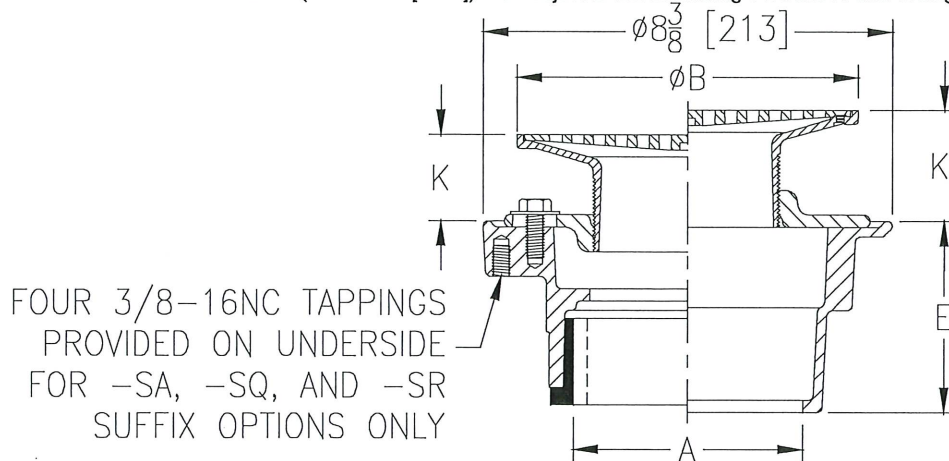
FD

Z415B ←
BODY ASSEMBY W/ "TYPE B" STRAINER

SPECIFICATION SHEET

TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice



Dimensions In Inches						Approx. Wt. Lbs. [kg]	Strainer Open Area Sq. In. [cm²]
A Pipe Size	B Strainer Dia.	K		K'			
		Min.	Max.	Min.	Max.		
2-3 [51-76]	5 [127]	1 [25]	1-1/2 [38]	1-3/32 [28]	2-1/4 [57]	11 [5]	6-1/4 [40]
2-3-4 [51-76-102]	6 [152]	1 [25]	1-25/32 [45]	1-13/32 [36]	2-17/32 [64]	13 [6]	9 [58]
2-3-4 [51-76-102]	7 [178]	1 [25]	2-1/8 [54]	1-23/32 [44]	2-7/8 [73]	14 [6]	12 [77]
3-4 [76-102]	8 [203]	1-5/32 [30]	2-1/8 [54]	1-3/4 [44]	2-7/8 [73]	16 [7]	19 [123]
6 [152]	8 [203]	1-5/32 [30]	2-1/8 [54]	1-3/4 [44]	2-7/8 [73]	18 [8]	19 [123]
6 [152]	10 [254]	1-7/16 [37]	2-1/2 [64]	2 [51]	3-1/4 [83]	22 [10]	23 [148]

ENGINEERING SPECIFICATION: ZURN ZN415B

Floor and shower drain, Dura-Coated cast iron body with bottom outlet, combination invertible membrane clamp and adjustable collar with seepage slots and "TYPE B" polished nickel bronze, light-duty strainer.

OPTIONS (Check/specify appropriate options)

PIPE SIZE

2-3-4 [51-76-102]
2-3-4 [51-76-102]
2 [51]
3 [76]
4 [102]
6 [152]
2-3-4 [51-76-102]
2-3-4 [51-76-102]

(Specify size/type) **OUTLET**

_____ IC Inside Caulk
_____ IG Inside Gasket
_____ IP Threaded
_____ IP Threaded
_____ IP Threaded
_____ IP Threaded
_____ NH No-Hub
✓ _____ NL Neo-Loc

'E' BODY HT. DIM.

3-7/8 [98]
3-7/8 [98]
2-3/8 [60]
2-5/8 [67]
2-7/8 [73]
2-3/4 [70]
3-7/8 [98]
3-3/4 [95]

PREFIXES

_____ ZB D.C.C.I. Body Assembly w/ Polished Bronze Top
✓ _____ ZN D.C.C.I. Body Assembly w/ Polished Nickel Bronze Top*

SUFFIXES

_____ -AA All Acid Resisting Epoxy	_____ -SR Stabilizer Ring
_____ -AR Acid Resisting Epoxy Coated Cast Iron	_____ -TC Neo-Loc Test Cap Gasket (2-4 [51-102] NL Outlet Only)
_____ -C Clamp Collar for -90 Side Outlet Body	_____ -U 1-3 [25-76] High Extension Adapter
_____ -CP Chrome-Plated Bronze Top	_____ -V Backwater Valve
_____ -DP Decorative Polished Top	_____ -VP Vandal-Proof Secured Top
_____ -EF 3/8 [16] Extension Frame	_____ -W Winter Closure Plug
_____ -G Galvanized Cast Iron	_____ -Y Sediment Bucket
_____ -HD Heavy-Duty Slotted Grate (ZN 5 [127] & 6 [152] Sizes Only)	_____ -4 4 [102] Diameter Funnel (Z328)
_____ -OF Oval Funnel (Z329-7) (6-10 [152-254] Strainers Only)	_____ -18 Leveling Ring (See Z400-18)
✓ _____ -P Trap Primer Connection (Specify 1/2 [13] or 3/4 [19])	_____ -90 90° Threaded Side Outlet Body Assembly (2 [51], 3 [76] Only)
_____ -PC Protective Cover	
_____ -SA Stabilizer Assembly (See Z1035)	
_____ -SQ Stabilizer Q-Deck (See Z1035-Q)	

* Regularly furnished unless otherwise specified.

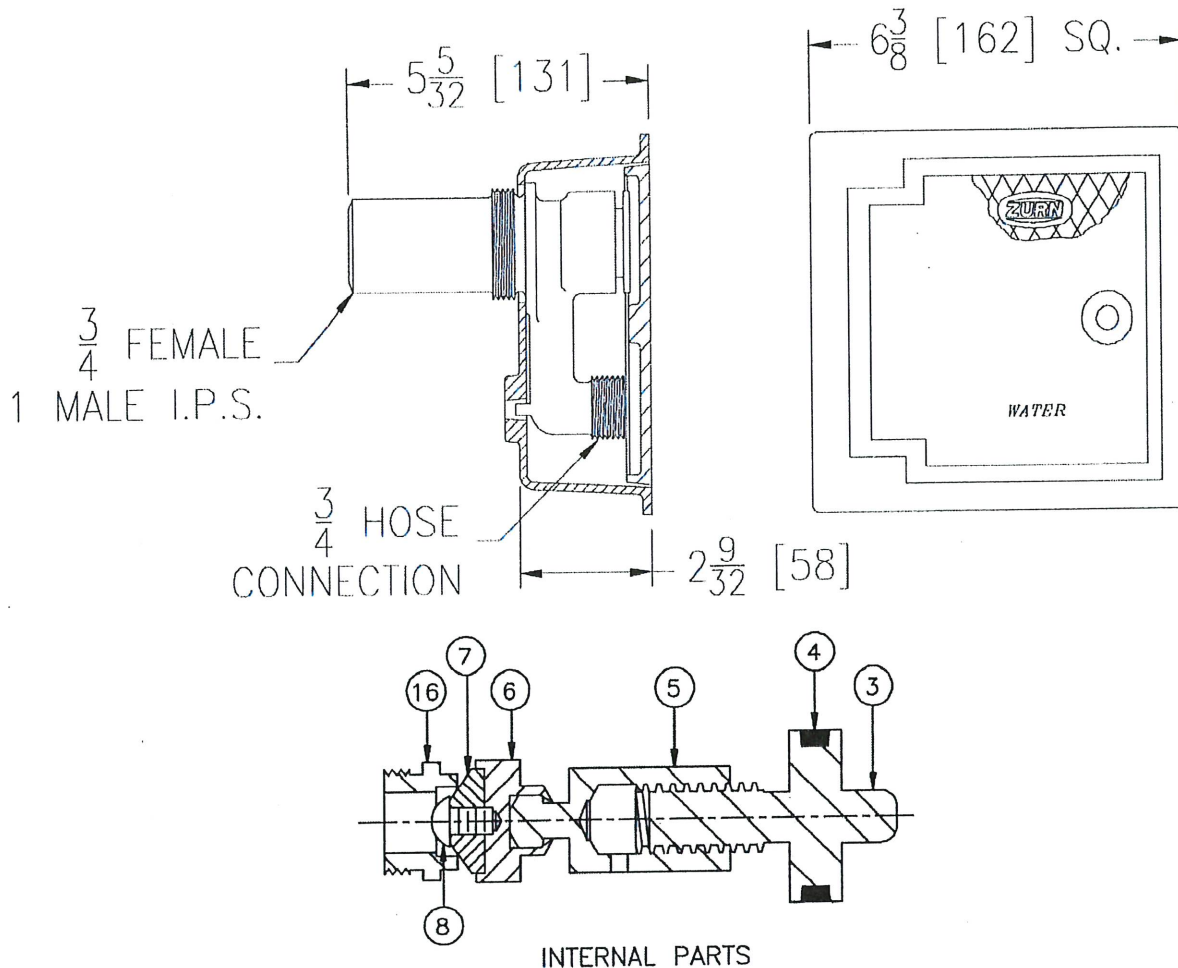


Z1335
WALL HYDRANT
Encased, Moderate Climate

SPECIFICATION SHEET

TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice



Wall Thickness In Inches [mm]	Approx. Wt. Lbs. [kg]
6 [152]	8 [4]

ENGINEERING SPECIFICATION: ZURN Z1335

Encased flush wall hydrant, for moderate climate and interior wall installation. Complete with all bronze interior parts, non-turning operating coupling with free-floating compression closure valve and replaceable bronze seat and seat washer, and 3/4" female IP inlet. Nickel bronze box and hinged cover with operating key lock and "WATER" cast on cover.

OPTIONS (Check/specify appropriate options)

SUFFIXES

___ -CI	D.C.C.I. Box and Cover
___ -CL	Cylinder Lock
___ -PB	Polished Bronze Face
___ -RK	Hydrant Parts Repair Kit
___ -34FS	3/4 [19] Solder Female Inlet Adapter
___ -34UN	3/4 [19] IP 90° Inlet Elbow w/Union Nut

PARTS LIST

Item	Name	Quan.
3	Operating Screw	1
4	O-Ring	1
5	Operating Coupling	1
6	Washer Guide	1
7	Washer	1
8	Screw	1
16	Removable Seat	1

* Regularly furnished unless otherwise specified.

Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA U.S.A. 16502 · Ph. 855-663-9876, Fax 814-454-7929
In Canada | Zurn Industries Limited
3544 Nashua Drive, Mississauga, Ontario L4V 1L2 · Ph. 905-405-8272, Fax 905-405-1292
www.zurn.com

Rev. G
Date: 09/28/2017
C.N. No. 138013
Prod. | Dwg. No. Z1335

WH-1



The new degree of comfort.™



Commercial Electric
Light-Duty Water Heaters

Light-duty commercial electric line designed specifically for any application needing moderate amounts of hot water

Features & Benefits

Our family of light-duty electric water heaters come in 30 through 50-gallon models. They are available in 3kW through 12kW and in 208, 240, 277 and 480 voltages. Maximum temperature setting of 170° F. These units are suited for a wide variety of applications such as retail stores and small offices.

Long Life Tank Design

Proprietary steel formulation with a unique coat of high temperature porcelain enamel maximizes corrosion resistance of the tank. This prolongs the effective life of the anode rod and in turn, the life of the tank.

Long Life Heating Elements

Our patented resistor elements are designed with a specially treated, double layer of magnesium oxide and copper to resist corrosion. Replacement elements screw in easily.

Wiring Options

Simultaneous and non-simultaneous wiring, single phase and three phase are available.

Efficient Design

2-1/2" of rigid polyurethane foam insulation provides superior insulating qualities resulting in reduced operating costs.

Automatic Temperature Control

A surface mounted thermostat automatically cycles on and off to maintain the water temperature at a desired preset level.

Durable Brass Drain Valve

Factory installed brass drain valve allows for faster draining and servicing.

Warranty

3-Year limited tank warranty for commercial applications

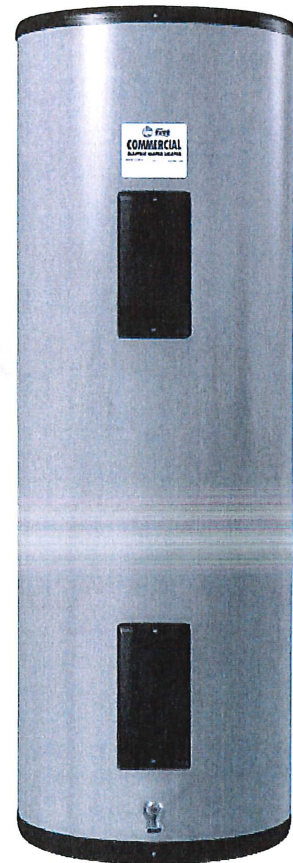
See Warranty Certificate for complete information.

NEW UL Approved Electric Conversion Kits

- Provides an easy way to convert standard models to different wattages, volt or phase depending on installation requirements
- Kits are designed for ELD models in all gallon capacities
- All parts needed for the electric conversion are included with Rheem electric conversion kits
- Rheem electric conversion kits provide convenience for contractors, plumbers and installers which saves time and money

Consult factory for certification listing.

Safety and Construction | These products are design certified by Underwriters Laboratories (UL) to meet UL safety standards as electric storage tank water heaters. All models are North Carolina and Massachusetts Code compliant. **Certified for 150 PSI maximum working pressure.**



Rheem Light-Duty
30 to 50-Gallon Capacities
3kW – 12kW
208, 240, 277, 480 Voltages



See specifications chart on back.

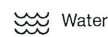


INTEGRATED AIR & WATER

WH-1



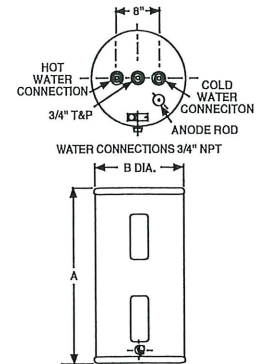
The new degree of comfort™



Commercial Electric
Light-Duty Water Heaters

DIMENSIONAL INFORMATION

MODEL NUMBER	MIN. WATTS	MAX. WATTS	NOMINAL GALLON CAPACITY	RATED GALLON CAPACITY	UEF FIRST HR. RATING G.P.H.	A (Inches)	B (Inches)	APPROX. SHIPPING WT. (Lbs.)	ENERGY FACTOR	UNIFORM ENERGY FACTOR (UEF)
ELD30	3,000	9,000	30	27	48	45-1/2	17-3/4	90	0.92	0.92
ELD40	3,000	12,000	40	36	54	46-1/4	22-1/4	108	0.92	0.93
ELD52	3,000	12,000	50	45	63	57	22-1/4	127	0.92	0.93



PRODUCT AVAILABILITY

ELEMENT WATTAGE (UPPER/LOWER)	NON-SIMULTANEOUS WIRING					SIMULTANEOUS WIRING							
	2 OR 3 WIRE CONFIGURATION SINGLE OR THREE PHASE OPERATION†					2 WIRE CONFIGURATION SINGLE PHASE OPERATION ONLY				4 WIRE CONFIGURATION SINGLE OR THREE PHASE OPERATION†			
	208V	240V	277V	480V		208V	240V	277V	480V	208V	240V	277V	480V
3,000/3,000	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y
4,000/4,000	Y	Y	Y	Y		N/A	N/A	Y	Y	Y	Y	Y	Y
4,500/4,500	Y	Y	Y	Y		N/A	N/A	N/A	Y	Y	Y	Y	Y
5,000/5,000	Y	Y	Y	Y		N/A	N/A	N/A	Y	Y	Y	Y	Y
6,000/6,000	Y	Y	Y	Y		N/A	N/A	N/A	Y	Y	Y	Y	Y

ELECTRICAL CHARACTERISTICS

ELEMENT WATTAGE (Upper/Lower)	NON-SIMULTANEOUS WIRING				SIMULTANEOUS WIRING											
	SINGLE/THREE PHASE OPERATION† FULL LOAD CURRENT IN AMPERES (All Terminals)				2-WIRE SINGLE PHASE OPERATION FULL LOAD CURRENT IN AMPERES (All Terminals)				4-WIRE THREE PHASE OPERATION† FULL LOAD CURRENT IN AMPERES (Terminals L3 / Terminals L1 & L2)				4-WIRE SINGLE PHASE OPERATION FULL LOAD CURRENT IN AMPERES (All Terminals)			
	208V	240V	277V*	480V	208V	240V	277V	480V	208V	240V	480V		208V	240V	277V**	480V
3,000/3,000	14.4	12.5	10.8	6.3	28.8	25.0	21.7	12.5	25.0/14.4	21.7/12.5	10.8/6.3		28.8	25.0	10.8	12.5
4,000/4,000	19.2	16.7	14.4	8.3	N/A	N/A	28.9	16.7	33.3/19.2	28.9/16.7	14.4/8.3		38.5	33.3	14.4	16.6
4,500/4,500	21.6	18.8	16.2	9.4	N/A	N/A	N/A	18.8	37.5/21.6	32.5/18.8	16.2/9.4		43.3	37.5	16.2	18.8
5,000/5,000	24.0	20.8	18.1	10.4	N/A	N/A	N/A	20.8	41.7/24.0	36.1/20.8	18.0/10.4		48.1	41.7	18.1	20.8
6,000/6,000	28.8	25.0	21.7	12.5	N/A	N/A	N/A	25.0	50.0/28.8	43.3/25.0	21.7/12.5		57.6	50	21.7	25.0

* 277 Volt units are not available for three phase operation. ** 277 Volt units can be ordered in 4 wire simultaneous for single phase operation. † Unbalanced three phase.

RECOVERY CAPACITIES – Recovery in U.S. Gallons/Hr. (GPH) and Liters/Hr. (LPH) at various temperature rises.

ELEMENT WATTAGE (Upper/Lower)	NON-SIMULTANEOUS WIRING										SIMULTANEOUS WIRING									
	40°F (22°C)		60°F (33°C)		80°F (45°C)		100°F (56°C)		120°F (67°C)		40°F (22°C)		60°F (33°C)		80°F (45°C)		100°F (56°C)		120°F (67°C)	
	GPH	LPH	GPH	LPH	GPH	LPH	GPH	LPH	GPH	LPH	GPH	LPH	GPH	LPH	GPH	LPH	GPH	LPH	GPH	LPH
3,000/3,000	30	115	20	77	15	58	12	46	10	38	61	230	41	153	30	115	24	92	20	77
4,000/4,000	41	153	27	102	20	77	16	61	14	51	81	307	54	205	41	153	32	123	27	102
4,500/4,500	46	173	30	115	23	86	18	69	15	58	91	345	61	230	46	173	36	138	30	115
5,000/5,000	51	192	34	128	25	96	20	77	17	64	101	384	68	256	51	192	41	153	34	128
6,000/6,000	61	230	41	153	30	115	24	92	20	77	122	460	81	307	61	230	49	184	41	153

Recommended Specifications (for trade reference only)

Water heater(s) shall be model _____, manufactured by Rheem, having electrical input of _____ kW and a recovery rate of _____ GPH at a 100°F temperature rise. Water heater(s) shall have a storage capacity of _____ gallons. Water heater(s) shall have the UL seal of certification and be factory equipped with an CSA/ASME rated temperature and pressure relief valve. Tank(s) interior shall be coated with a high

temperature porcelain enamel and furnished with a magnesium anode rod rigidly supported. Water heater(s) shall meet or exceed the energy factor requirements of ASHRAE. Tanks shall have a working pressure rating of 150 psi, and shall be completely assembled. Water heater(s) shall be equipped with copper, resistored, "screw-in" type elements. Tank shall be insulated with 2-1/2" of rigid polyurethane foam insulation. Water heater(s) shall be equipped with surface mounted thermostats each with an integral, manual reset, high limit control. Water heater(s) shall be covered by a three year limited warranty against tank leaks.

In keeping with its policy of continuous progress and product improvement, Rheem reserves the right to make changes without notice.

Rheem Water Heating • 1115 Northmeadow Parkway, Suite 100
Roswell, Georgia 30076 • www.rheem.com



INTEGRATED AIR & WATER

Unfinished Business #1

UF #1

Anastasia Mosquito Control District of St. Johns County

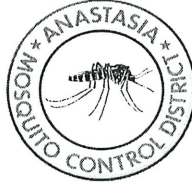
120 EOC Drive, St. Augustine, Florida 32092

PH: (904) 471-3107 • Fax (904) 471-3189 • Web Address: www.amcdsjc.org

2021 MEMO

DISTRICT DIRECTOR

Dr. Rui-De Xue



BOARD OF COMMISSIONERS:

Jeanne Moeller, Chairperson
Trish Becker, Vice-Chairperson
Gina LeBlanc, Secretary/Treasurer
Catherine Brandhorst, Commissioner
Gayle Gardner, Commissioner

TO: Board of Commissioners

FROM: Dr. Rui-De Xue, Director

DATE: June 8, 2021

RE: Discussion and approval of FY21/22 budget

The FY21/22 draft budget books were distributed on May 13, 2021. Please bring your budget draft book for the meeting to discuss. There are three major parts in the proposed budget: 1. personal service and benefits at \$3.1 millions; 2. Operation cost at \$ 1.8 millions; and 3. capital outlay at \$2.9 millions (due to education and SIT projects). A total of budget for expenditure is about \$7.8 millions. Based on last year revenue, \$6.2 millions (millage at \$0.205) plus grant \$0.4 millions = \$6.6 millions. The shortage for expenditure is \$1.2 millions. However, the cash carried over by the end of September 2021 is at about \$2.5 millions. The SBA has about \$5 millions of the reserve fund. District finance is in a good shape and condition, and the District has enough funds for the education center and the SIT mass rearing facility projects. The Board may consider to reduce the millage rate for the FY21/22 in July Board meeting.

Reports

Director report (May 2021)

Program Management:

Customer & professional service and service request process: AMCD answered 116 for service requests in May. Dr. Xue reviewed for JME, Acta Tropica, Dr. Qualls reviewed for JAMCA, and Dr. Peper reviewed for Pathogens at the editors' requests. Dr. Xue as the DACS grant review committee member made the recommendation for several grant proposals to the DACS. Dr. Xue collected back issues of the JFMCA and TBFMCA for the FMCA website master. Dr. Xue attended the AMCA legislation subcommittee meeting. Commissioner Mrs. Becker and Dr. Xue attended the AMCA DC legislation virtual meeting, May 10-12. Dr. Xue gave a presentation about AMCD program for the COST Zoom meeting about society, economic, and mosquito control impacts on May 19, and gave a presentation about decision making threshold for the Jiangsu Vector control meeting by virtually on May 25.

Surveillance: So far, five sentinel chickens were tested for EEE positive. AMCD continued BG sentinel traps with BG lures and dry ice and ovitraps for *Aedes* mosquito surveillance once a week. BG traps collected 3,185 adult mosquitoes (major species were *Culex* and *Aedes*). CDC light traps collected 1,198 adult mosquitoes. Pilots and technicians conducted aerial surveillance for larval habitats and breeding sites for several times.

Ground and aerial operation: Positive larval dips were 239 and treated larvae for 98 times for 207 acres by ground application. Ground ULV sprayed 4 times and treated 2,572 acres, conducted barrier spraying 44 times for 103 acres, and hand fogging for 18 times. Chief Pilot and A&P Mechanic, and Scientists work on helicopters and equipment calibration for granular larvicides and work on adulticide spraying system.

Applied research: SIT project, CDC smart cages, and DoD's grant projects have been continued. ATSB with mixtures of BTI & boric acid has been studied in green houses. Board approved the collaboration agreement with UF/FMEL to collect mosquitoes for resistance in the NE area. AMCD staff collaborated with NECE and BigShot submitted a grant preproposal about tick prevention and control to the DoD. AMCD published 1 research article. Staff tested a new gravid trap and three backpack sprayers.

Education: Face book, twitter, and website have been updated frequently. Most employees received the mandatory training about CPR in May. Dr. Xue & Commissioner Mrs. Becker attended the AMCA DC legislation meeting by virtually from May 10-12. Dr. Xue attended the COST's society, economic, and mosquito impact symposium and gave a presentation by virtually on May 17-19. AMCD held P.V. High School student tours and interview for 4 intern students on May 26. Dr. Xue and Commissioner Mrs. Moeller gave a presentation about overview of AMCD program at the Flagler County Board of Commissioner meeting on May 17. Commissioner Mrs. Becker and Dr. Qualls gave a presentation about GMO at Round Table meeting on May 10. UF/FMEL technician gave a training about collection of mosquitoes on May 27.

Business Management & Administration:

Serve to the Board of Commissioners: Staff prepared for May 13's Board meeting and applied research committee meeting on May 11. Work with Chairperson about the Flagler County's request for service.

Budget and Auditor: Board accepted the auditor report. Staff submitted the annual auditor report to State Auditor General. Staff presented the FY21/22 drafted budget books for June and July meeting.

Contract: AMCD and UF/FMEL contract about mosquito collection from other counties in the NE region has been approved by the Board. Also, the Board approved the partnership with St. Johns School Board 's Career Academy for training intern students.

Insurance: Helicopter insurance renewal with 4% increase has been approved by the Board.

HR: AMCD continues following the CDC's new recommendation at work place. Five interns and 4 seasonal employees started from May 3 and May 17.

Meeting:

May 3. Pm. Worked on the proposed agenda for May 13 Board meeting.

May 4. 9am. Met Harrell construction company about their previous SIT draft design. Pm. Teleconference with Dr. Buckner from UF/FMEL about collection of *Aedes* eggs and *Culex* egg rafts from NE region.

May 5. 10am. Met St. Johns School P.V. high school intern program coordinators. 1:30pm. Rode helicopter with Chief Pilot Mr. Smith to visit West Flagler area.

May 6. 7:30am. Hosted Dr. W. Qualls speech about AMCD applied research and benefits at Kiwanis Club Zoom meeting. 9:30am. Met Commissioner Mrs. Becker about her school research project. Mrs. Gaines attended DACS hurricane preparation virtual meeting.

May 7. Worked on proposed budget draft books with the C.F.O. and accountant.

May 10. Noon. Commissioner Mrs. Becker and Dr. Qualls gave a speech about GMO at the Round Table meeting. 1pm. Attended AMCA virtual DC legislation meeting. Commissioner Mrs. Becker joined the meeting.

May 11. AM. Attended AMCA DC virtual meeting. 2pm. Met Commissioner Mrs. Moeller about proposed agenda and Applied Research Committee meeting.

May 12. 10am. Attended AMCA virtual meeting. 2pm. Attended the UF /FMEL virtual seminar about dye.

May 13. 10am. Met Commissioner Ms. Gardner about proposed agenda. 5pm. Attended Board meeting.

May 14. Work on/implement on Board meeting approved items with related staff.

May 17. 9am. Attended COST vector control Zoom meeting. 5pm. Gave a presentation about overview of AMCD program with Commissioner Mrs. Moeller for Flagler County Board of Commissioners.

May 18. Gave a presentation about AMCD public relation at COST virtual meeting. Dr. Qualls attended the FMCC Zoom meeting.

May 19. Mrs. Gaines attended the EOC virtual meeting. 9am. Gave a presentation about AMCD education center at the COST virtual meeting.

May 20. Virtual meeting with Dr. Buckner about the collaboration agreement. Review for PLoS one about species of mosquitoes.

May 24. Pm. Attended the Nanjing vector control virtual meeting.

May 25. Employees attended the CPR training. Gave a presentation about decision making evidence for Vector control virtual meeting.

May 26. 10am. Met Commissioner Mrs. Moeller about signing checks and commissioner handbook revision. She rode helicopter with Mr. Smith to visit West Flagler County. 2pm. Interviewed P.V. High School students (4) for interns. 3pm. Attended St. Johns School Career Academy virtual meeting.

May 27. 11am. Hosted UF/FMEL training for collection of mosquitoes from NE region. 3pm. Met Mr. Jeff Bond & Dr. Hanh about further collaboration for testing of BigShot. Dr. Qualls and Mr. Blore attended the meeting.

Treatment Summary May 2021

From Date : 05-01-2021

To Date : 05-31-2021

Zone : All

Material : All

Task : All

Printed on 2021-06-02 07:53:07 EST

Material	Amount	Area Treated	Application Rate	Times
Altosid WSP	2074 ea	6.43 acre	322.68 ea / acre	36 times
Altosid XR	26 ea	0.06 acre	435.54 ea / acre	2 times
Altosid XRG	435 lb	72.5 acre	6 lb / acre	10 times
B.t.i. Briquets	111 ea	0.25 acre	435.54 ea / acre	5 times
Cocobear	238 fl oz	0.62 acre	384.02 fl oz / acre	11 times
Duet 50%	384 fl oz	244.59 acre	1.57 fl oz / acre	2 times
Mosquitomist Two	1536 fl oz	2327.27 acre	0.66 fl oz / acre	2 times
Sustain MBG	182 lb	24.27 acre	7.5 lb / acre	5 times
Talstar P	7.76 gal	22.99 acre	0.34 gal / acre	44 times
VectoBac 12AS	1640 fl oz	102.5 acre	16 fl oz / acre	29 times

Task Time Summary May 2021

From Date : 05-01-2021

To Date : 05-31-2021

Zone : All

Employee Name : All

Printed on 2021-06-02 07:54:06 EST

Task Time Summary			
Task	Total Time	Total Timesheets	Total Time
Administrative	989:33 hrs	205	5828:40 hrs
Aerial Ground Crew	37:30 hrs	12	
Aerial Maint	192:15 hrs	61	
Aerial Survey	66:25 hrs	28	
AM Briefing	63:24 hrs	170	
Annual Leave	91:15 hrs	21	
Assist	124:59 hrs	45	
Building & Grounds Work	247:47 hrs	132	
Chicken Program	196:34 hrs	114	
Computer Repair	137:55 hrs	29	
Daily Paperwork	108:22 hrs	198	
Field Experiment	360:49 hrs	105	
Fish Placement	00:05 hrs	1	
Fish Program	23:25 hrs	13	
Fog Mission Serv Req	00:16 hrs	6	
GLP Management	25:00 hrs	10	
Ground Adulticide	82:03 hrs	46	
Ground Larvicide	164:10 hrs	98	
Ground Site Inspection	576:09 hrs	351	
Hand Adulticide	12:11 hrs	18	
Holiday	10:00 hrs	1	
Insectary	147:00 hrs	47	
Inventory	17:26 hrs	9	
Lab Experiment	156:04 hrs	61	
Landing Rate	03:15 hrs	19	
Mechanics Time	272:53 hrs	40	
Meeting	93:25 hrs	103	
Molecular Lab Work	238:45 hrs	39	
Mosquito Trap BG	28:03 hrs	85	
Mosquito Trap CDC Oc	171:04 hrs	207	
Mosquito Trap ID	58:04 hrs	19	
Mosquito Trap OV	02:13 hrs	34	
Mosquito Traps Misc	01:00 hrs	1	
Produce Papers & Programs	267:30 hrs	64	
Project Research	174:15 hrs	39	
Public Relations	04:00 hrs	2	
Resupplying Trucks	57:02 hrs	86	
Source Reduction (tires)	05:26 hrs	4	
Supervisory	68:55 hrs	25	
Training Classroom	99:10 hrs	39	
Training Field	183:25 hrs	32	
Travel	42:40 hrs	6	
Vehicle Maintenance	37:13 hrs	38	
Leave Without Pay	38:45 hrs	7	
Sick Leave	151:00 hrs	22	

CDC Octenol Light Traps May 2021					
5/1/2021					
To :					
5/31/2021					
Trap Type :					
CDC Octenol					
	2021 05				
Species Name	4	11	18	25	Species Total
Ae aegypti	0	0	0	0	0
Ae albopictus	0	2	0	0	2
Ae atlanticus	277	18	1	2	298
Ae canadensis	0	0	0	0	0
Ae eggs	0	0	0	0	0
Ae fulvus pallens	0	0	0	0	0
Ae infirmatus	34	317	16	45	412
Ae mitchellae	0	0	0	0	0
Ae signifera	0	0	0	0	0
Ae sollicitans	23	0	0	0	23
Ae taeniorhynchus	4	2	0	0	6
Ae triseriatus	0	0	0	0	0
Ae vexans	1	0	1	0	2
An atropos	0	0	0	0	0
An bradleyi	0	0	0	0	0
An crucians	242	208	32	6	488
An perplexens	0	0	0	0	0
An punctipennis	0	0	0	0	0
An quadrimaculatus	7	9	2	0	18
An walkeri	0	0	0	0	0
Cq perturbans	1	1	1	0	3
Cs inornata	0	0	0	0	0
Cs melanura	10	14	2	2	28
Cx coronator	0	0	0	0	0
Cx eraticus	7	5	6	1	19
Cx nigripalpus	11	13	3	0	27
Cx quinquefasciatus	6	12	7	0	25
Cx restuans	0	0	0	0	0
Cx salinarius	2	0	1	0	3
Cx territans	0	0	0	0	0
Ma dyari	0	0	0	0	0
Ma titillans	0	0	0	0	0
Or signifera	0	0	0	0	0
Ps ciliata	0	0	0	0	0
Ps columbiae	0	0	0	0	0
Ps cyanescens	0	0	0	0	0
Ps ferox	0	0	0	0	0
Ps howardii	1	0	0	0	1
Tx rutilus	3	0	0	0	3
Ur lowii	0	0	0	0	0
Ur sapphirina	2	0	0	0	2
Wy Mitchelli	0	0	0	0	0
Daily Total	631	601	72	56	1360

Malaria vector
WNV/SLE vector
EEE vector
Dengue, yellow fever, chick-v, Zika

BG Traps May 2021					
5/1/2021					
To :					
5/31/2021					
Trap Type :					
BG					
	2021 05				
Species Name	4	11	18	25	Species Total
Ae aegypti	73	26	12	15	126
Ae albopictus	26	37	20	6	89
Ae atlanticus	9	0	1	0	10
Ae canadensis	0	0	0	0	0
Ae eggs	0	0	0	0	0
Ae fulvus pallens	0	0	0	0	0
Ae infirmatus	74	30	1	10	115
Ae mitchellae	0	0	0	0	0
Ae signifera	0	0	0	0	0
Ae sollicitans	0	1	0	0	1
Ae taeniorhynchus	1	0	1	0	2
Ae triseriatus	0	12	0	4	16
Ae vexans	0	0	0	0	0
An atropos	0	0	0	0	0
An bradleyi	0	0	0	0	0
An crucians	11	15	15	8	49
An perplexens	0	0	0	0	0
An punctipennis	0	0	1	0	1
An quadrimaculatus	5	44	11	2	62
An walkeri	0	0	0	0	0
Cq perturbans	0	0	0	0	0
Cs inornata	0	0	0	0	0
Cs melanura	0	0	0	0	0
Cx coronator	0	2	0	0	2
Cx eraticus	0	1	7	2	10
Cx nigripalpus	82	4	9	2	97
Cx quinquefasciatus	322	1070	723	829	2944
Cx restuans	0	0	0	0	0
Cx salinarius	1	2	0	1	4
Cx territans	0	0	0	1	1
Ma dyari	0	0	0	0	0
Ma titillans	0	0	0	0	0
Or signifera	1	0	0	0	1
Ps ciliata	0	0	0	0	0
Ps columbiae	0	0	0	0	0
Ps cyanescens	0	0	0	0	0
Ps ferox	0	0	0	0	0
Ps howardii	0	0	0	0	0
Tx rutilus	0	0	0	0	0
Ur lowii	0	0	0	0	0
Ur sapphirina	0	0	0	0	0
Wy Mitchelli	0	0	0	0	0
Daily Total	605	1244	801	880	3530

Malaria vector
WNV/SLE vector
EEE vector
Dengue, yellow fever, chick-v, Zika

Attachments