CITY OF ST. HELENS OREGON

REQUEST FOR QUALIFICATIONS

DESIGN-BID-BUILD OF A NEW PUBLIC SAFETY FACILITY

DEADLINE FOR SUBMISSION OF PROPOSAL 3:00 PM Friday, August 20, 2021

Project Manager
Matt Brown, Deputy City Administrator
mbrown@sthelensoregon.gov
503-366-8227

265 Strand Street
St. Helens, OR 97051

CITY OF ST. HELENS
NOTICE OF REQUEST FOR QUALIFICATIONS
DESIGN-BID-BUILD OF A NEW PUBLIC SAFETY FACILITY

The City of St. Helens invites submission of proposals to provide architectural and engineering services for a new public safety facility for the City of St. Helens Police and Municipal Court Departments.

Deadline for Submission of Proposal: 3:00 PM Friday, August 20, 2021

Submissions received after this time will not be reviewed.

Obtain Request for Proposals:

1. Online. Visit https://www.sthelensoregon.gov/RFPs to download the RFQ. If you have website questions concerning this request, please contact Matt Brown at mbrown@sthelensoregon.gov.
2. In Person. Deputy City Administrator's Office, 265 Strand Street, St. Helens OR 97051

Submission of Proposal: See Request for Proposal, Section 4, Proposal Submittal Requirements

All communication and correspondence pertaining to this Request for Proposal should be directed to Project Manager Matt Brown at 503-366-8227 or by e-mail at mbrown@sthelensoregon.gov. (**Note that a proposal submitted by email will not be accepted)**

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SECTION 1: INTRODUCTION AND BACKGROUND

St. Helens, Oregon, is located on the western bank of the Columbia River approximately 30 miles northwest of Portland and has a growing population of over 14,000. The City is growing rapidly, and the police department and municipal court are straining to provide high quality services.

Built in 1971 and now 50 years old, the St. Helens Police Station has approximately 2,200 square feet of office space with a wood-framed detached garage. The population of St. Helens back in 1971 was 6,200 people, less than half the size of our city today. Not only was the station built for a smaller police force, but it was built for a police force that did not handle digital data, face active shooters, school shootings, online child pornography, or the opioid and mental health crises of today.

In 1988, Chief Reggie Bowles built the garage that is currently attached to the Police Station, with an agreement of the City Council at that time that the police were already rapidly outgrowing their 1971 building. A second story was originally thought of and planned for. It was intended to add an additional 7,300 square feet of office space, but never came to fruition because of budget constraints.

In the early 1990s, Chief Roger Roth undertook the project to add a second floor to the garage. In 1996, the City moved forward to receive an estimate of around $300,000 for the construction. The project faltered and Chief Roth left the position. It is believed that when the proposal was shown to the City Council, it was at a time when the economy was not the best and the City again was looking to trim its budget.

Once again, in 2000, Chief Mike Cocklin took on the project. Faced again with shrinking workspace due to growth of the city and the police force, Chief Cocklin hired an architect to look at the building and come back with a new plan. The results of the updated plan added square footage to total 13,300 square feet based on the current department size and anticipated growth. Plans for a second, adjacent building was drafted. It moved away from the second-story idea because it was believed that the garage would not seismically support a second story. The cost estimate for the new addition was estimated to be around $3 million. Staff and City Council reviewed the proposal but again decided not to pursue the project due to the high cost and worrisome future of economic trends at the time.

In 2007, the City once again revisited the idea of expanding the station and challenges with overcrowding and growth continued. At this time, a similar detached building concept was developed that was even smaller than before which would add only an additional 5,300 square feet. The estimated cost of the project was just over $2 million. The timing, however, was marked by another economic recession and the addition did not come to fruition.

It was not until 2019 that the endeavor to expand or replace the St. Helens Police Station was reopened. Pressed by current conditions of dealing with an inadequate, aged police station which was bursting at the seams with critical administrative staff and police officers needing to keep up with the rapidly growing community, current Chief Brian Greenway and Deputy City Administrator Matt Brown started reviewing the ideas again. City Council and community members know that waiting is not an option, we must act now to keep our community safe and invest in the future. A new Public Safety Facility will significantly enhance the City's ability to meet the rapidly increasing safety needs of our community as the St. Helens community continues to grow.

The City worked with Mackenzie Architecture to complete a Needs Assessment for the next 20+ years with the anticipation of combining facilities with the Municipal Court. Mackenzie Architecture also provided program development, site evaluations, visioning, concept development, and a preliminary cost development. Mackenzie Architecture's final report is included at the end of this RFQ as an exhibit for reference. The preliminary concept of the new facility is a one-story building with secured parking in the back. The property location is owned by the City and is located at the corner of Old Portland Rd and S 18th Street. The preliminary construction cost estimate of the facility is $15 Million.

SECTION 2 – SCOPE OF WORK

This Scope of Work (SOW) is intended to be a general outline of the work and not an all-inclusive description of the professional and technical services that may be required to undertake and complete the Project. The Consultant may expand upon these tasks as needed to prepare a complete proposal based on their experience. In addition, if there are tasks which the Consultant believes should be part of the SOW, these tasks shall be included in their proposed SOW. The city intends for this project to be a Design-Bid-Build project with completion in 2023.

A. GENERAL REQUIREMENTS

The City of St. Helens is seeking consultants, hereafter called "Proposer(s)," with demonstrated experience in projects of this type, size, and complexity to provide Architectural and Engineering services for the construction of a new Public Safety Facility (Project) located on the site of the corner of Old Portland Rd. and S. 18th Street. In St. Helens. The successful Proposer shall provide pre-design, schematic design, design development, construction documentation, and assistance in the process of a Design-Bid-Build project of this nature.

The consultant's work shall be performed based on the following general expectations for the Project:

1. The new facility will be approximately 45,000 square footage in total (13,000 Building) as described in and generally consistent with the Needs Assessment report (See Exhibit A).
2. The design will be to "essential facility" standards as defined in the Oregon Structural Specialty Code, to remain operational following a significant seismic event.
3. City codes, regulations and requirements will be met such that the Project can be permitted and constructed.
4. The design may need to comply with the "critical facility" standards of the National Flood Insurance Policy given proximity of both 100 year and 500 year floodplains associated with nearby Milton Creek. This will depend on the hydrological analysis and potential amendment to the Flood Insurance Rate Maps, an effort currently in process.

B. PROJECT MANAGEMENT AND DESIGN-BID-BUILD SERVICES

1. Review all available documents regarding previous studies and program needs assessments.
2. Create a proposal Program of Spaces for building interior, including basic information such as sizes, space requirements, workflows, activities and special uses.
3. Facilitate meetings with City as needed to develop basic components of building program, including City's standard building systems, equipment and materials.
4. Set up a schedule for coordination meetings to review project progress, discuss project challenges and findings, and review designs.
5. Prepare all project related agendas and meeting minutes. Agendas and supporting information shall be emailed to the City's Project Manager at least three (3) business days prior to a meeting.
6. Participate in presentations to citizen groups at least once, but no more than twice to present Public Safety Facility.
7. Prepare a Design-Bid-Build schedule for the Project. Schedule to include all requirement meetings with departments, City Council, and community with anticipated completion date.

8. Prepare materials for and participate in presentations to City Council and community meetings as mentioned above.

C. SCHEMATIC, PRELIMINARY DESIGN, & COST ESTIMATING

1. Facilitate meetings with City and project team to develop Schematic Design documents.
2. Obtain and review applicable City standards and guidelines for design and provide design that meets City codes.
3. Prepare and submit five (5) sets of site plan program of spaces and adjacencies layout for review and approval.
4. Provide conceptual drawings of the exterior design that meet applicable City and State codes and preliminary design documents.
5. Provide an estimated project cost.
6. Attend and participate in presentations to the City Council and Planning Commission as needed.
7. Attend and participate in presentations to the community at least once, but no more than twice.

D. DESIGN DEVELOPMENT

1. Facilitate meetings with City staff to develop Design Development Documents.
2. Prepare and submit five (5) sets of Design Development Documents including Detailed Specifications to the City for review and approval.
    a. 60%, 95%, and 100% Plan Review – Components include:
        i. Detailed floor plans.
        ii. Building sections and details.
        iii. Interior elevations, casework, and millwork elevations.
        iv. Interior design including materials and color palette.
        v. Report addressing all City's design criteria and other Code requirements.
        vi. Report addressing all Essential Facility requirements.
        vii. Site Improvements
        viii. Public Improvements
3. Respond in writing to all City comments on plans.
4. Provide an updated project cost estimate.
5. Review design development cost estimate and provide value engineering with Project Manager (as/if needed).
6. Participate in presentation to the City Council once every 4 months to update City Council with staff.
7. Attend and participate in presentations to Community groups no more than 3 times until completion of project.
8. Coordinate with Project Manager and coordinating staff in preparing land use application and providing needed program information.
9. Prepare a draft development review permit application for city staff review.
10. Finalize development review permit application.
11. Prepare all presentation materials for the Planning Commission and participate in Commission presentations.

12. Additional services may be needed to prepare materials for an appeal of the development review permit if an appeal is made. This would require a contract amendment for the additional work.

E. CONSTRUCTION DOCUMENTS

1. Prepare complete construction documents and specifications and submit five (5) sets to City staff for code and general review and approval.
2. Attend follow-up meetings with City staff.
3. Provide an estimated project cost.
4. Coordinate with Construction Manager/General Contractor and Project Manager to ensure design meets construction cost target.
5. Review cost estimate and provide value engineering options if needed.
6. Prepare and submit five (5) complete sets of Construction Documents, and Specifications to Building Department for review and approval (100% plan review) along with civil plans for public improvements to city engineering.
7. Correct plans to reflect issues noted by review for permit.
8. Participate in presentations to City staff and City Council as needed.

F. CONSTRUCTION ADMINISTRATION

1. Provide Construction Administration
    a. Review, log and approve submittals, shop drawings, request for information etc.
    b. Review Construction Materials Testing reports.
    c. Review and approve applications for payment.
    d. Coordinator with Project Manager, as needed, on all Requests for Change Proposals, Changes Orders, etc.
    e. Provide direction for questions and concerns from the Project Manager in resolution of problems.
2. Provide Field Services for entire construction period.
    a. Architect's Construction Administrator and attend weekly construction meeting and conduct site inspections.
    b. Provide site inspection reports noting and issues as needed.
3. Conduct Substantial Completion Inspection and coordinate with Project to create punch list.

SECTION 3 – INSTRUCTIONS TO PROPOSERS

A. PROPOSER CONFORMANCE TO SOLICITATION REQUIREMENTS

Proposals must follow the requirements stated within this Request for Proposals. Adherence to these requirements will ensure a fair and objective analysis of your Proposal. All responses must be made in the format outlined in the sections below and Section 4 – Proposal Requirements. Failure to comply with or complete any part of this Request for Proposals may result in rejection of your proposal.

B. ANTICIPATED SOLICITATION AND AWARD SCHEDULE (SUBJECT TO CHANGE)

ITEM	DATE
Advertise RFQ	07/22/2021
Deadline for written request for clarification	07/30/2021
Addenda Issued (if needed)	08/02/2021
Proposals Due	08/20/2021 at 3:00 PM
Interviews (if needed)	08/25/2021
Notice of Intent to Award Contract	08/27/2021
Award Service Contract	09/01/2021
Commencement of Services	09/02/2021

C. PROPOSER QUESTIONS REGARDING RFQ

If discrepancies or omissions are found or there is doubt as to the true meaning of any part of this RFQ, a written request for clarification or interpretation shall be submitted no later than the date stated for "Deadline for written request for clarifications" in the "Anticipated Solicitation and Award Schedule (Subject to Change)" subsection above, to the Project Manager. Responses to requests for clarification along with any addenda to this RFQ will be issued in the manner provided for RFQ addenda, below.

D. MODIFICATION OF REQUEST FOR QUALIFICATIONS / PROPOSER'S OBLIGATIONS REGARDING DISTRIBUTION OF RFQ ADDENDA / RFQ WITHDRAWAL

City may modify, revise, or withdraw this Request for Proposals. Any change to this document shall be made by written addendum by Project Manager.

Addenda shall be issued no later than the date stated for "Addenda Issued (if any)" in the "Anticipated Solicitation and Award Schedule (Subject to Change)" subsection above. Addenda shall be distributed to Proposers as follows:

- Posted on City of St. Helens website at https://www.sthelensoregon.gov/rfqs.
- Emailed to all Proposers that obtained the RFQ in person and signed the Proposer Registration List and provided their email address in legible form.

Any addenda so issued shall be considered part of this RFQ.

E. SUBMISSION OF PROPOSALS

Deadline for Submission: The deadline to submit the Proposal is Friday, August 20th, 2021, at 3:00 PM as stated in the "Anticipated Solicitation and Award Schedule (Subject to Change)" subsection above.

Manner of Submitting Proposal:

Proposals must be submitted in person or through mail. Please provide five (5) copies of the Proposal, plus one (1) proposal in electronic PDF format on a USB flash drive.

Proposals and USB drive can be delivered to:

Matt Brown, Deputy City Administrator
265 Strand Street, St. Helens OR 97051

F. PROPOSAL WITHDRAWAL

Any Proposal may be withdrawn at any time before the "Proposal Deadline" date and time specified in the Notice of Request for Proposals by providing written request for the withdrawal of the proposal to the Project Manager. The request shall be executed by a duly authorized representative of the Proposer. Withdrawal of a proposal will not prejudice the right of the Proposer to file a new proposal.

G. REJECTION OF PROPOSALS / CANCELLATION OF SOLICITATION

City reserves the right to reject any or all Proposals. City may reject any proposal not in compliance with all prescribed public proposing procedures and requirements and may reject any or all Proposals upon a finding of City that it is the public interest to do so. However, City also reserves the right to waive any non-material irregularities or information in any proposal. Receipt and evaluation of proposals do not obligate City to award a contract.

H. DURATION OF PROPOSAL

All Proposals shall be effective for sixty (60) days following the deadline for submission of Proposals.

I. OWNERSHIP OF PROPOSAL MATERIALS

Any material submitted by a Proposer shall become the property of City unless otherwise specified.

J. PUBLIC RECORDS

Proposal materials submitted are "public records" pursuant to ORS 192.410 et seq. and are subject to public disclosure following award of contract, except to the extent the material is exempt from disclosure by law. Proprietary information should be segregated on separate page(s) and each page marked "confidential / proprietary". This shall be deemed to be a request for confidentiality of the information on the designated page(s). If a request is made for disclosure of the material on the pages marked "confidential / proprietary," City shall notify the Proposer and provide an opportunity to defend against the request for disclosure, subject to eh time limitations imposed upon City for review and response to requests for disclosure.

K. NON-DISCRIMINATION STATEMENT

This solicitation is open to all persons without regard to race, relation, color, national origin, sex, sexual orientation, age, marital status, handicap, or political affiliation.

L. EQUAL EMPLOYMENT COMPLIANCE REQUIREMENT

By submitting this proposal, the Proposer certifies conformance to the applicable Oregon statues and regulations concerning Affirmative Action toward Equal Employment Opportunities.

M. NON-COLLUSION REPRESENTATION

By submission of a Proposal, a Proposer certifies that no officer, agent or employee of City of St. Helens has a financial interest in this project or has participation in contract negotiations on behalf of City; that the proposal is made in good faith, without fraud, collusion, or connection of any kind with any other proposer for the same solicitation; the propose is completing solely on its own behalf without connection with, or obligation to an undisclosed person(s) or firm(s).

N. PUBLIC CONTRACT RULES

Except as modified by the terms of this Request for Proposal, the terms and procedures of the State of Oregon and City of St. Helens shall apply. A copy of contracting Municipal Code contracting rules can be found on the City's website at https://www.codepublishing.com/OR/StHelens/#!/StHelens02/StHelens0204.html#2.04

SECTION 4: PROPOSAL REQUIREMENTS

These Proposal Requirements are used to demonstrate that the Proposer meets Section 5, PROPOSAL EVALUATION CRITERIA. Accordingly, the Proposer should additionally review the criteria in preparing the Proposal.

A. PROPOSAL COMPONENTS

The Proposal shall include the following components:

1. Title Page: Proposer should identify the RFQ subject, name, and title of contact person, address, telephone number, and email address.

2. Cover Letter: Include a cover letter signed by a principal of the Proposer with the submitted proposal.

3. Proposer Background: The Proposal should include a brief history of the Proposer, and if a partnership of entities, the history of the entities.

4. Key Personnel and Qualified Staff
    a. Key Personnel
        i. The Proposal shall identify the name(s), experience, and information regarding similar work performed by the expected lead personnel for the performance of the work on this Project.
        ii. Identify the project manager and lead personnel for the Project. Provide resumes relating to their experience on similar projects with an emphasis on police facilities.
        iii. Identify the project manager's availability and commitment to the project for the project duration.
    b. Qualified Staff
        i. Provide a scope listing all staff that illustrates how the Project will be managed with sufficient detail for all phases of design, permitting, integration and coordination with the project manager with the City, construction phase administration, Project closeout, and the preparation of as- built drawings.

5. Similar Work Experience, Specific Expertise and References
    a. Similar Work Experience and Specific Expertise
        i. Proposals should include experience in performing this type of work. This should include examples of similar Police Station projects completed in the last 5-10 years. Include projects that best demonstrate the Proposer's abilities to accomplish this work in a professional, timely, and cost-effective manner.
        ii. Provide examples of the Proposer's experience in integrating and coordinating with the project manager with the City, guaranteed maximum price, scheduling, and facilitating the construction phases.

iii. Describe and provide examples on the Proposer's experience on involving the public in the design and construction phases of the Project and how information can be made available to the public during the Project.

b. References
    i. Proposals should include references for similar services. Specifically, the reference information shall include the name and address of the client, and the name, telephone number, and email address (if available) of the client's project manager for each reference.

6. Project Knowledge and Approach
    a. Describe your understanding of the Project and explain your process and methodology of approach to the design of the Public Safety Facility. Describe innovative design, quality control, or process options that could be applied to this Project.
    b. Describe and provide examples of issues that could be a problem for building the Project within budget and techniques or recommendations to address those issues. Similarly describe potential schedule issues and provide recommendations.
    c. Describe how the City of St. Helens facility could be designed to meet community and essential facility needs in a manner unique to the City of St. Helens.
    d. Illustrate how a community meeting space could be integrated into the design without compromising security.

7. Schedule & Scope
    a. Proposal should include an understanding of the scope required for this project and show an understanding with an anticipated outline of Scope related to the main anticipated areas: Schematic Design, Design Development, Construction Documents, Permitting, and Bidding.
    b. Proposal should show an estimated timeline schedule of 7-A events with an anticipated date of Construction Bid Award

SECTION 5: EVALUATION OF PROPOSALS

A. SELECTION EVALUATION COMMITTEE:

All proposals will be reviewed and evaluated by an Evaluation Committee.

B. PROPOSAL EVALUATION CRITERIA:

Written Proposals will eb evaluated based on the Proposer's response to the following criteria and proposal requirements (Section 4 requirements listed above):

1. Form of Proposal	MAX: 5 PTS
2. Key Personnel and Qualified Staff	MAX: 20 PTS
3. Similar Work Experience, Expertise, Reference	MAX: 25 PTS
4. Project Knowledge and Approach	MAX: 25 PTS
5. Schedule and Scope	MAX: 25 PTS
	TOTAL = 100 PTS

C. METHOD OF SELECTION:

The Selection Evaluation Committee will review and evaluate all confirming Proposals received in response to this RFQ, based upon the above criteria. If awarded, City will award a contract to the Contractor whose proposal the selection teem deems would be most advantageous to City, subject to resolution of Objections to Proposed Contract. During the evaluation process, City has the right to request clarifications needed to better understand the proposal. Any clarifications to the proposal of the successful propose will be reduced to writing and made a part of the Proposal prior to issuance of Notice of Intent to Award. Following the review and evaluation of Proposals, the Selection Evaluation Committee may decide to conduct interview with two or more Proposers with the most points.

D. OBJECTIONS TO PROPOSED CONTRACT

Any objections to the form of the Contract shall be considered after a determination of the apparent highest ranked responsive, responsible Proposal is made, and the terms shall be subject to negotiation. The Project Manager shall determine if any proposed modifications to the form of Contract requested by the apparent successful Proposer are acceptable and do not present material risk to the City or increase the City's costs. If the final negotiated terms are not acceptable to the apparent highest ranked responsive, responsible Proposer, that Proposer shall be declared not to be responsive, and the next apparent highest ranked proposal and objections to form of Contract, if any, shall be considered, and so forth until a responsive, responsible Proposer agreeable to execution of a form of Contract acceptable to the City and to the Proper is ascertained.

MACKENZIE.

DESIGN DRIVEN | CLIENT FOCUSED

City of St. Helens

St. Helens Police Needs Assessment

April 1, 2021

OUR HISTORY. OUR FUTURE. OUR PROMISE.

The values of our founder, Tom Mackenzie, remain the hallmarks of our firm. Upon this foundation we have, steadily and intentionally, built leaders in architecture, interiors, engineering, and planning, focused on delivering the highest level of design excellence in service to our clients. This mark is our signature and our promise.

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INTRODUCTION

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PROJECT TEAM

CITY OF ST. HELENS

- Brian Greenway - Chief of Police
- John Walsh - City Administrator
- Matt Brown - Assistant City Administrator
- Jacob Graichen - City Planner

MACKENZIE

- Jeff Humphreys - Project Principal
- Adam Olsen - Project Manager
- Thomas Peck - Designer
- Adrienne Linton - Project Architect
- Iris Wu - Architecture
- Steve Tuttle - Landscape Architecture
- Alex Bauer - Interior Design
- Ralph Henderson - Civil Engineering
- Brian Varricchione - Land Use Planning

CONSTRUCTION FOCUS

- Steve Gunn - Construction Cost Estimator

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PROJECT INTRODUCTION

The St. Helens Police Department and City of St. Helens Staff selected Mackenzie to work with staff to develop a new replacement facility for the Police Department. The replacement facility has been designed in an effort to better meet the St. Helens Police Department's needs and goals; provide a more efficient operational model and layout; better align with the current space demand for the Department; and allow for future staff, facility growth and operational changes. Mackenzie was selected to work with staff to: validate the building space-needs program for a replacement facility; facilitate tours of other existing police facilities in the region; assess potential sites for a building; develop a conceptual design; and create an estimation of anticipated project costs, inclusive of construction, consultant, and owner costs needed to fund the project for the Department's consideration.

Mackenzie, which was established in 1960 and is based in Portland, Oregon, provides an integrated design approach to projects, including architecture, structural engineering, landscape architecture, civil engineering, land use planning, transportation planning and interior design services. Mackenzie's Public Projects team specializes in municipal and emergency response facility design, space needs evaluations, and bond campaign assistance. In the past almost 2 decades, Mackenzie has worked on publicly funded projects in Oregon and Washington for more than 23 counties and municipalities, providing design and engineering services for more than 45 law enforcement projects, 80 fire facilities and 20 government buildings.

The project has been conceived as a build-out to meet the needs of the Department for the next 20 plus years and provide functionalities common to a modern police facility.

The information contained within this report provides a detailed overview of Mackenzie's work with the St. Helens Police Department and City of St. Helens staff. All steps involved in this process have been documented and organized based on the associated task, and are contained within the pages of this report for the City of St. Helens' consideration. Recommendations for next steps have been outlined at the end of the Executive Summary.

EXECUTIVE SUMMARY

Public facility design, specifically police stations, are unique in that the building and all its functions are tools integral to the effective and efficient enhancement of agency operations and safety. Police station design focuses on functionality, and its critical role in meeting the stringent requirements associated with protection and security of the building, its staff, and the community served. Jurisdictional, state, and federal criteria for safety, security and operational procedures drive these requirements and invariably impact design considerations and cost. These criteria ensure that this facility not only is able to improve operational efficiency on a day-to-day basis, but is capable of evolving over the life of the building, resisting and responding to emergency events, providing critical services for the citizens of St. Helens, enhancing the built environment with a civic presence reflective of the surrounding area, and encouraging investment in the community.

The following report encompasses the primary tasks requested by the St. Helens Police Department and the City of St. Helens to determine the feasibility of a replacement facility in meeting the criteria stated above including:

1. Program Development
2. Facility Tours
3. Site Evaluations
4. Visioning
5. Concept Development
6. Project Cost Development

Process and Methodology

Mackenzie employed programming, communication, consensus-building, and goal-setting techniques to ensure that the final report meets the expectations of the stakeholders involved in the process. Using a multidisciplinary approach, extensive public project experience, and lessons learned on previous police and public building projects, the team provided architectural, structural, space planning, site planning and land use planning services to meet the project objectives and deliverables.

Mackenzie worked with the City of St. Helens and St. Helens Police Department staff to support and strengthen dialogue between the Design Team and the Department. The process encompassed the following tasks, each of which have been documented within this report.

Task #1: Program Development

Mackenzie worked closely with the St. Helens Police Department staff to better understand the current space needs and projected those needs out based on a 20-year forecast. To do so, Mackenzie guided the Police Department through the process of space needs identification and required space allocations. From that, the Design Team developed a program matrix that identified the required spaces, their approximate size and amenities to be provided within them. In addition to the primary functional space of the facility, the team projected circulation space and requirements for utilitarian areas, such as mechanical, electrical, and data room spaces to comprise a complete, comprehensive programming document. Evaluation of the space needs program determined that a facility of approximately 20,330 square feet would be necessary by the end of the 20-year forecast window.

The programing process also included a discussion of site-related requirements identified during the staff interviews (secure parking, public parking, staff patio area, trash/recycling, emergency generator, etc.) to determine an appropriate site area able to accommodate both building and site program elements. Projections indicate a 20-year demand for approximately 40 paved parking stalls for the public, 12 secured covered spaces for squad vehicles, 28 uncovered secured spaces for squad vehicles and 12 secured privately owned vehicles (POV).

Mackenzie validated these identified growth projections and space needs through the evaluation of comparable facilities within similar jurisdictions in the region (see pages x and xi for police facility comparison spreadsheet).

Task #2: Facility Tours

In this task, Mackenzie helped to arrange tours of three comparable police stations with key staff. Facilities were selected that are similar to St. Helens based on size and specific program elements. The intent of these tours was to observe recently completed facilities, learn how those agencies developed the design to meet their needs, and challenge assumptions that were made during the program validation in Task #1. While on these tours, particular attention was given to the flow of spaces, durability of materials and finishes used, and how the building is aging. These tours are used as a tool to test assumptions made during programming, as observation of the layout of a space or size of a room will sometimes adjust expectations of space allocation or confirm the layout of furniture and equipment. Lessons learned and items in need of refinement were discussed at the conclusion of the tours and relevant items were clarified in the program as a final approved document.

Task #3: Site Evaluations

After programming confirmation, Mackenzie worked with the City to develop a list of three possible sites potentially suitable for development. An additional site (Oregon Street) was also added later in this process to evaluate. Each site was evaluated using selection criteria (developed by Mackenzie and specific to police station facility and site design) as well as impacts to response time throughout the Department's service area. Evaluation criteria included zoning impacts, geographic considerations, site access, public presence, and compatibility with neighborhood, location, proximity to other city/government functions, site development costs, property availability, expansion opportunities and ability to meet program requirements. Each site was evaluated on its ability to accommodate each criterion, including resulting response time findings, and given a score between 1 (lowest) - 4 (highest). Once evaluated, each score was then tallied to determine the overall score for the individual sites.

Based on this process, and utilizing programming and costing data, adjacency requirements and operational necessities, the City of St. Helens, St. Helens Police Department and Mackenzie identified the Old Portland Road site as best suited to meet the needs of the Police Department. This site was then used as the basis for further design development.

Task #4: Visioning

In this task, the team developed the vision of the exterior character of the facility through studies aimed at understanding the City of St. Helens key architectural and geographic influences and evaluating characteristics of similar facilities within other communities. The team evaluated a series of images, and through discussion landed upon the imagery that best reflected the City's vision, and could be used to direct the Concept Design.

Task #5: Concept Development

Building upon the programming data and the approved site test fit, Mackenzie developed two adjacency floor plan diagrams and reviewed those with Police and City staff. Once the Police and the City staff have selected an adjacency floor plan diagram, a more formalized and defined floor plan was created that met the operational necessities of the Police Department. The site plan was also simultaneously refined as a part of this process. During development of the floor plan, additional rooms were added as requested by the City staff and the Police Department and refinement for adjacency and circulation were created for optimum flow. The final conceptual floor plan is 22,778 square feet with these revisions. This is inclusive police portion of the facility (19,018 square feet) and the court room and related court facility support rooms/functions (3,760 square feet).

After the St. Helens Police Department and City staff approved the floor plan and site plan, and considering the vision for the exterior character of the building as expressed by the Police Department, Mackenzie created three schemes that described the form and fenestration of the facility. Police Department and City staff selected one scheme (Scheme C) for further refinement. Mackenzie then refined the rendering of the selected scheme to more clearly describe the intended application of building materials and give better definition to the building form to utilize and reference during the following project cost development task.

Task #6: Project Cost Development

Based on the final concept designs, Construction Focus, Inc. developed a Statement of Probable Cost for the updated facilities and the associated site improvements. These cost projections are comprised of the opinion of costs related to the anticipated raw construction costs and general contractor margins based on a publicly funded project requiring prevailing wage rates for construction.

In conjunction with the development of the construction costs, Mackenzie prepared cost forecasts for consultant costs, including architectural/engineering fees, construction management fees, special inspections, and geotechnical inspections. Mackenzie worked with the City to evaluate and compile potential owner costs, including fixtures, furnishings and equipment; lockers and shelving; moving costs; and applicable permit fees. A final cost matrix has been prepared that provides a comprehensive look at all anticipated costs associated with the project, summarized to reflect the construction cost, consultant costs and owner costs.

Summary of Recommendations

- Based on the current size, age and seismic limitations of the existing facility, the existing facility is severely challenged to meet current needs or future growth requirements of the St. Helens Police department.
- Examination of the Old Portland Road site found the lot to be ideally sized for the development requirements of the new St. Helens Public Safety Facility; both for the facility itself as well as the required site infrastructure.

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POLICE FACILITY COMPARISON

The chart on the following page presents a comparison of police department facilities to both illustrate differences and show commonalities of facilities built within the last 20 years. These stations show a generally accepted average of 622 square feet per officer. The team used this information during the programming effort to validate the 20-year space allocation of 656 square feet per officer for the St. Helens Police Department.

Individual police department programs, and thus space needs, can vary greatly due to a number of factors, including:

- Primary function(s) of the department and proximity to other civic functions (e.g. court functions, county jail)
- Shift schedule and staffing
- Unique or specialized elements (e.g. dispatch, holding cells, juvenile facilities)

Differences among these elements impact the layout and size of a facility and can make direct, apple-to-apple comparisons between departments challenging.

The rooms and support functions off the sally port vary depending on the detainee and evidence processing procedures of the department. The size and makeup of the staff will, in turn, drive the size and layout of the administrative areas and division office spaces. The more staff on duty at one time, the greater the demand on support functions, including showers and toilets, kitchen and break areas. The ways in which a department interacts with the public will also influence facility size. Departments with sex offender registration will necessitate separate facilities from the general public; where departments that provide part-time court facilities will look to provide private meeting space for attorneys; and departments with emergency operations capabilities will require additional storage and equipment.

Police Department	Population Size (2019)	City Area (Sq Mi)	Police Dept (Sq Ft)	Total Staff	Sworn Officers	Sq Ft per Staff	Sq Ft per Officer
St. Helens (Existing)	15,503	6 mi²	8,073 sf	23	20	351 sf	404 sf
St. Helens (Proposed/2040)	19,347	6 mi²	19,018 sf	40	29	476 sf	656 sf
Sherwood (2002)	19,595	5 mi²	12,100 sf	30	27	403 sf	448 sf
Keizer* (2007)	28,580	7 mi²	28,675 sf	66	39	435 sf	735 sf
Sandy (2011)	11,075	4 mi²	8,487 sf	28	17	303 sf	499 sf
Canby (2013)	16,950	4 mi²	25,000 sf	28	24	893 sf	1,042 sf
Monmouth (2014)	9,920	2 mi²	11,059 sf	23	13	481 sf	850 sf
West Linn (2014)	25,905	8 mi²	18,871 sf	35	32	539 sf	590 sf
Albany (2018)	54,120	18 mi²	40,367 sf	90	50	448 sf	807 sf
Hood River (Unbuilt)	14,757	4 mi²	13,178 sf	25	22	527 sf	599 sf
Forest Grove (Unbuilt)	25,180	6 mi²	19,850 sf	50	38	397 sf	522 sf
Silverton* (Unbuilt)	10,380	4 mi²	13,418 sf	40	34	336 sf	395 sf
Lynnwood* (Unbuilt)	39,600	8 mi²	34,968 sf	115	90	304 sf	389 sf
Astoria (Unbuilt)	9,690	11 mi²	12,827 sf	19	16	675 sf	801 sf
Stanwood (Unbuilt)	7,204	3 mi²	4,646 sf	12	9	387 sf	516 sf
					Average	464 sf	617 sf

The data in this table is reflective of square footage for dedicated police facilities or reflect only the area of a facility devoted to the police portion of a facility (if another function is co-located with the police).

Note: Population base on https://www.pdx.edu/population-research and City Area based on wikipedia.

* *This is a City Hall project which includes a Police Station. The information in the table above only includes the Police Station portion of the overall City Hall*

NEXT STEPS

1. **Hire a Hydrologist**

   The Hydrologist will assist with modifying the 100-year and 500-year floodplains that currently exists on the site. If the Hydrologist is successful, the amount of required on-site fill will reduce dramatically and save the project hundreds of thousands of dollars.

2. **Establish a Desired Timeline and Budget for the Project**

   Based on the findings of Mackenzie's analysis, it is determined that the overall projected costs of the project as described in this report are estimated to be $18,472,506. It is encouraged that the St. Helens Police Department and City staff agree on an expectation of project costs and schedule development to provide clear direction to those that represent the project.

3. **Ad-Hoc Committee to Continue Outreach Process**

   It is understood that a Public Safety Facility Ad-Hoc Committee has been established. The Ad-Hoc Committee is made up of over 25 community members that include local business owners, renters, homeowners, and school district personnel that is supportive of the needs of the Police Department. The Ad-Hoc Committee will be instrumental to continuing the momentum generated during the initial needs assessment phase.

4. **Below are the five recommended next steps as determined by the Ad-Hoc Committee:**

- Recommendation 1: Create a Public Safety Fund

  The Committee determined that the utility fund was the most affordable and equitable option for the community. It has the most flexibility for the City Council to adjust rates as needed throughout the project. This would involve placing a monthly fee on utility accounts. The Committee recommended that this utility fund be set up by an administrative decision of the City Council, but only after a five-to-six-month period of community engagement.

- Recommendation 2: Public Engagement Period

  The City should create a robust and meaningful public engagement period that involves online and in-person meetings to hear as many voices as possible and encourage community members to learn more about public safety in St. Helens.

- Recommendation 3: Increase Funding Support for Utility Assistance

  The Committee recommended increasing utility support that currently goes through Community Action Team (CAT) for community members that may be on a fixed income and/or may not be able to afford an increase on their utility bills.

- Recommendation 4: Sale of Current Police Station

  Once the new facility is built, the current police station site should be sold, and proceeds put towards paying down the debt service. This may help to reduce the utility fee amount.

- Recommendation 5: Continue Researching Grants & Other Funding Options

  With the flexibility of the Public Safety Fund, the City should continue to research additional funding opportunities to help pay down the debt service.

PROGRAM DEVELOPMENT

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PROGRAM SUMMARY

Mackenzie worked closely with City of St. Helens and Police Department Staff to review and validate the program using space standards to organize the rooms and provide adequate square footages typically required by a police facility of this size. Using a combination of information contained in this document and past experience with police facilities, all while incorporating current Staff feedback, Mackenzie determined current space needs and forecasted future needs that will accommodate the St. Helens Police Department for the next 20 plus years. The programs represent an itemization of the current staff, anticipated growth and space and room requirements for the hypothetical new facility. As the station and grounds for the facility are designed with the optimum flow to meet operational needs and particulars unique to the site, the facility size may increase or decrease from that shown in the program.

The following pages outline three different programmatic options that the City of St. Helens and Police Department Staff and Mackenzie analyzed.

- High square footage option
- Middle square footage option
- Low square footage option

The high square footage option is based on the full programmtic needs of the police department with the inclusion of programmatic functions for a municipal court/EOC/community room and related support rooms. The conceptual designs developed for the site, floor plan and exterior character as shown later in this report are based on the high square footage option.

The middle square footage option reduces the square footage of the facility by reducing some of the programmatic functions of the police department.

The low square footage option further reduces the square footage of the facility by additional reductions of programmatic functions of the police department and sizes of support rooms to the municipal court.

Below is a summary of the options which encompasses all the proposed needs of the Police Department for the next 20 plus years.

AT A GLANCE:

Space / Room Use				High Square Footage Option			Mid Square Footage Option			Low Square Footage Option		
	MOVE IN	10 YR	20 YR	MOVE IN	10 YR	20 YR	MOVE IN	10 YR	20 YR	MOVE IN	10YR	20YR
Police Department Requirements Summary												
Lobby & Public Spaces	5	6	7	7,560	7,643	7,726	5,876	5,876	5,876	5,402	5,402	5,402
Lobby & Public Areas *Court* *Records*												
Police Operations Division	17	27	29	3,211	3,778	4,079	2,961	3,128	3,349	2,110	2,193	2,276
Administration *Detective* *Patrol*												
Interview	1	2	2	3,492	3,622	3,622	3,349	3,349	3,349	2,044	2,044	2,044
Evidence *Interview*												
Facility Support Function	1	2	2	4,772	4,902	4,902	3,849	3,849	3,979	3,498	3,498	3,498
Police Support *Equipment and Inventory* *Shared Common Area* *Building Support*												
Total Building Requirements				19,035	19,945	20,330	16,036	16,202	16,694	13,054	13,137	13,220

PROGRAM SUMMARY - HIGH SQUARE FOOT OPTION

Space / Room Use	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage		
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA	Total		MOVE IN	10 YR	20 YR
Police Department Requirements Summary															
Lobby & Public Spaces		5	6	7									7,560	7,643	7,726
Lobby & Public Areas															
Court															
Records															
Police Operations Division		17	27	29									3,211	3,778	4,079
Administration															
Detective															
Patrol															
Interview		1	2	2									3,492	3,622	3,622
Evidence															
Interview															
Facility Support Function		1	2	2									4,772	4,902	4,902
Police Support															
Equipment and Inventory															
Shared Common Area															
Building Support															
Total Building Requirements													19,035	19,945	20,330
Exterior Requirements		0	0	0									22,743	33,255	37,655
Parking															
Site Requirements															
Total Site Requirements		*24*	*37*	*40*									*41,778*	*53,200*	*57,985*

PROGRAM SUMMARY - HIGH SQUARE FOOT OPTION

Lobby & Public Spaces	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Lobby & Public Areas																
Space / Room Requirements																
Entry/Emergency Vestibule		0	0	0		1	1	1	8' x 10'	80		EEV	80	80	80	
Public Lobby		0	0	0		1	1	1	16' x 24'	384		PL	384	384	384	
Fingerprint / Evidence Release		0	0	0		1	1	1	10' x 10'	100		FP-ER	100	100	100	
Public Display		0	0	0		1	1	1	2' x 10'	20		PD	20	20	20	
Water Station		0	0	0		1	1	1	3' x 6'	18		C-WTR	18	18	18	
Public Information Area		0	0	0		1	1	1	1' x 15'	15		PIA	15	15	15	
Public Restrooms		0	0	0		6	6	6	8' x 8'	64		PR	384	384	384	
Workstation - SM		0	0	0		1	1	1	6' x 6'	36		WS2	36	36	36	
Meeting/ Tacticts Training		0	0	0		1	1	1		1,650		CR-Multi	1,650	1,650	1,650	
Kitchenette / Beverage service		0	0	0		1	1	1	10' x 8'	80		KB	80	80	80	
AV Closet		0	0	0		1	1	1	6' x 8'	48		AV	48	48	48	
Supply Storage		0	0	0		1	1	1		24		ST-S	24	24	24	
Soft Interview Room		0	0	0		1	1	1	10' x 10'	100		IR-S	100	100	100	
Storage, Tables & Chairs		0	0	0		1	1	1	10' x 16'	160		ST-TC	160	160	160	
GroupTotal		*0*	*0*	*0*									*3,099*	*3,099*	*3,099*	
Court																
Staff Requirements																
Court Clerk		2	2	2		2	2	2	8' X 8'	64		C-CLK	128	128	128	
Judge Chambers		1	1	1		1	1	1	14' X 10'	140		C-JDG	140	140	140	
Prosecution Attorney		0	0	0		1	1	1	10' x 10'	100		C-PAT	100	100	100	
GroupTotal		*3*	*3*	*3*									*368*	*368*	*368*	
Space / Room Requirements																
Courtroom		0	0	0		1	1	1	30' x 40'	1,200		C-CRT	1,200	1,200	1,200	
Jury Room		0	0	0		1	1	1	14' x 18'	252		C-JRY	252	252	252	
Jury Kitchen & Storage		0	0	0		1	1	1	10' x 10'	100		C-JSTOR	100	100	100	
Jury Toilet		0	0	0		1	1	1	10' x 10'	100		C-JRR	100	100	100	
Clerk Counter		0	0	0		1	1	1	4' X 8'	32		C-CC	32	32	32	
Video Recording		0	0	0		1	1	1	8' X 8'	64		C-VID	64	64	64	
GroupTotal		*0*	*0*	*0*									*1,748*	*1,748*	*1,748*	
Records																
Space / Room Requirements																
Records Specialist		2	3	4		2	3	4	8' x 8'	64		RRC	128	192	256	
Reception Counter		0	0	0		1	1	1	8' X 16'	128		R-C	128	128	128	
Work Room / Copy		0	0	0		1	1	1		120		WRC	120	120	120	
Records Storage		0	0	0		1	1	1		200		ST-REC	200	200	200	
Supply Storage		0	0	0		1	1	1		24		ST-S	24	24	24	
GroupTotal		*2*	*3*	*4*									*600*	*664*	*728*	
Department Subtotal		*5*	*6*	*7*									*5,815*	*5,879*	*5,943*	
Building Load Factor (30.0% avg.)													*1,745*	*1,764*	*1,783*	
Total													*7,560*	*7,643*	*7,726*	

PROGRAM SUMMARY - HIGH SQUARE FOOT OPTION

Police Operations Division	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Administration																
Staff Requirements																
Chief of Police		1	1	1		1	1	1	14' x 16'	224		PO-LG	224	224	224	
Lieutenant		0	0	0		1	1	2		168		PO-LT	168	168	336	
Sergeant		0	0	0		2	3	3	10' x 18'	180		PO-SM	360	540	540	
GroupTotal		*1*	*1*	*1*									*752*	*932*	*1,100*	
Detective																
Staff Requirements																
Detective		1	5	6		1	5	6		64		PO-DE	64	320	384	
GroupTotal		*1*	*5*	*6*									*64*	*320*	*384*	
Space / Room Requirements																
Conference Room - Small		0	0	0		2	2	2	10' X 12'	120		CR-SM	240	240	240	
Soft Interview Room		0	0	0		1	1	1	10' x 10'	100		IR-S	100	100	100	
GroupTotal		*0*	*0*	*0*									*340*	*340*	*340*	
Patrol																
Staff Requirements																
Code Enforcement		1	1	2		0	0	0		64		PO-CE	0	0	0	
GroupTotal		*1*	*1*	*2*									*0*	*0*	*0*	
Space / Room Requirements																
Briefing Room		0	0	0		1	1	1	30' x 35'	1,050		CR-BRF	1,050	1,050	1,050	
Patrol Officer/ Report Writing		14	20	20		4	4	4		36		PO-WS	144	144	144	
Work Room / Copy		0	0	0		1	1	1		120		WRC	120	120	120	
GroupTotal		*14*	*20*	*20*									*1,314*	*1,314*	*1,314*	
Department Subtotal		*17*	*27*	*29*									*2,470*	*2,906*	*3,138*	
Building Load Factor (30.0% avg.)													*741*	*872*	*941*	
Total													*3,211*	*3,778*	*4,079*	

PROGRAM SUMMARY - HIGH SQUARE FOOT OPTION

Interview	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Evidence																
Staff Requirements																
Evidence Specialist		1	2	2		1	2	2	10' x 10'	100		PO-ES	100	200	200	
GroupTotal		*1*	*2*	*2*									*100*	*200*	*200*	
Space / Room Requirements																
Processing (Evidence Tech)		0	0	0		1	1	1	12' x 15'	180		EV-PR	180	180	180	
Processing (Officers)		0	0	0		1	1	1	12' x 15'	180		EV-PR	180	180	180	
Lockers - Evidence		0	0	0		1	1	1	12' X 2'	24		EV -LOCK	24	24	24	
Storage		0	0	0		1	1	1		600		ST-EV	600	600	600	
Cash Storage		0	0	0		1	1	1	8' x 8'	64		EV-CASH	64	64	64	
Drug Storage		0	0	0		1	1	1	8' x 8'	64		EV-DRUG	64	64	64	
Vehicle Storage		0	0	0		5	5	5		200		VEH-EV	1,000	1,000	1,000	
Bicycles Storage		0	0	0		1	1	1		250		EV-B	250	250	250	
Fingerprint		0	0	0		1	1	1	4' X 6'	24		EV-FP	24	24	24	
GroupTotal		*0*	*0*	*0*									*2,386*	*2,386*	*2,386*	
Interview																
Space / Room Requirements																
Hard Interview Room		0	0	0		2	2	2	10' x 10'	100		IR-H	200	200	200	
GroupTotal		*0*	*0*	*0*									*200*	*200*	*200*	
Department Subtotal		*1*	*2*	*2*									*2,686*	*2,786*	*2,786*	
Building Load Factor (30.0% avg.)													*806*	*836*	*836*	
Total													*3,492*	*3,622*	*3,622*	

PROGRAM SUMMARY - HIGH SQUARE FOOT OPTION

Facility Support Function		Staffing Requirements				Space / Room Requirements			Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Police Support																
Space / Room Requirements																
Locker Room - Combined		0	0	0		1	1	1	25' x 60'	1,500		TR-LKM	1,500	1,500	1,500	
Bunk		0	0	0		1	1	1		160		BUNK	160	160	160	
Laundry		0	0	0		1	1	1		60		LAUN	60	60	60	
GroupTotal		*0*	*0*	*0*									*1,720*	*1,720*	*1,720*	
Equipment and Inventory																
Space / Room Requirements																
Gear Bag Storage		0	0	0		30	30	30	2' x 2'	4		GS	120	120	120	
Mail Slots		0	0	0		1	1	1	2' X 8'	16		MAIL	16	16	16	
Equipment Storage		0	0	0		1	1	1	12' x 15'	180		EQST-1	180	180	180	
Weapons Cleaning & Maint.		0	0	0		1	1	1		25		WCM	25	25	25	
Armory / Ammunition Storage		0	0	0		1	1	1		160		ST-01	160	160	160	
GroupTotal		*0*	*0*	*0*									*501*	*501*	*501*	
Shared Common Area																
Space / Room Requirements																
Break Room		0	0	0		1	1	1		250		BR	250	250	250	
Kitchen		0	0	0		1	1	1		150		KV	150	150	150	
GroupTotal		*0*	*0*	*0*									*400*	*400*	*400*	
Building Support																
Staff Requirements																
IT Office		1	2	2		1	2	2	10' x 10'	100		C-ITOFF	100	200	200	
GroupTotal		*1*	*2*	*2*									*100*	*200*	*200*	
Space / Room Requirements																
Server Room/IT Equip. Storage		0	0	0		1	1	1		250		SERV	250	250	250	
Electrical Room		0	0	0		1	1	1		200		ELEC	200	200	200	
Janitor/ Maintenance Closet		0	0	0		1	1	1		200		JAN	200	200	200	
Sprinkler/Riser Room		0	0	0		1	1	1		100		SPRINK	100	100	100	
Mechanical Room		0	0	0		1	1	1		200		MECH	200	200	200	
GroupTotal		*0*	*0*	*0*									*950*	*950*	*950*	
Department Subtotal		*1*	*2*	*2*									*3,671*	*3,771*	*3,771*	
Building Load Factor (30.0% avg.)													*1,101*	*1,131*	*1,131*	
Total													*4,772*	*4,902*	*4,902*	

PROGRAM SUMMARY - HIGH SQUARE FOOT OPTION

Exterior Requirements	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Parking																
Space / Room Requirements																
K9 Kennel		0	0	0		2	2	2	10' x 10'	100		VEH-K9	200	200	200	
K9 Grooming		0	0	0		1	1	1	8' X 8'	64		VEH-K9G	64	64	64	
K9 Storage		0	0	0		0	0	0	2' X 10'	20		VEH-K9S	0	0	0	
GroupTotal		*0*	*0*	*0*									*264*	*264*	*264*	
Exterior																
Squad Vehicle Stall - Covered		0	0	0		12	12	12	10' x 22	220		VEH-SC	2,640	2,640	2,640	
Squad Vehicle Stall		0	0	0		0	18	28	10' x 22'	220		VEH-SUC	0	3,960	6,160	
POV stall		0	0	0		4	12	12	10' x 22'	162		VEH-P	648	1,944	1,944	
Public Parking		0	0	0		40	40	40	9' x 18'	162		PARK-P	6,480	6,480	6,480	
Bicycle Parking		0	0	0		1	1	1	10' x 12'	120		PARK-B	120	120	120	
GroupTotal		*0*	*0*	*0*									*9,888*	*15,144*	*17,344*	
Site Requirements																
Exterior																
Emergency Generator		0	0	0		1	1	1	16' x 30'	480		EG	480	480	480	
Trash / Recycling		0	0	0		1	1	1	12' x 16'	192		TRASH	192	192	192	
Exterior Patio / Secure Dining		0	0	0		1	1	1	12' x 32'	640		EP	640	640	640	
GroupTotal		*0*	*0*	*0*									*1,312*	*1,312*	*1,312*	
Department Subtotal		*0*	*0*	*0*									*11,464*	*16,720*	*18,920*	
Building Load Factor (98.4% avg.)													*11,279*	*16,535*	*18,735*	
Total													*22,743*	*33,255*	*37,655*	

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PROGRAM SUMMARY - MIDDLE SQUARE FOOT OPTION

Below is a summary of the middle square foot option which includes some space and projected staff reductions as compared to the high square foot option. The team reduced or eliminated the following items on the middle square foot option.

- Reduced square footages of the Meeting/Training Room, Courtroom, Jury Room, Briefing Room, Evidence Processing, Locker Room, K9 Area, Trash Recycling Area, Exterior Patio, some Conference Rooms and some Offices.
- Eliminated one Lieutenant and their associated office.

Space / Room Use	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage		
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA	Total		MOVE IN	10 YR	20 YR
Police Department Requirements Summary															
Lobby & Public Spaces		5	5	5									5,876	5,876	5,876
Lobby & Public Areas															
Court															
Records															
Police Operations Division		17	21	25									2,961	3,128	3,489
Administration															
Detective															
Patrol															
Interview		1	1	1									3,349	3,349	3,349
Evidence															
Interview															
Facility Support Function		1	1	2									3,849	3,849	3,979
Police Support															
Equipment and Inventory															
Shared Common Area															
Building Support															
Total Building Requirements													16,036	16,202	16,694
Exterior Requirements		0	0	0									20,158	29,790	31,550
Parking															
Site Requirements															
Total Site Requirements		*24*	*28*	*33*									*36,194*	*45,992*	*48,244*

PROGRAM SUMMARY - MIDDLE SQUARE FOOT OPTION

Lobby & Public Spaces	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Lobby & Public Areas																
Space / Room Requirements																
Entry/Emergency Vestibule		0	0	0		1	1	1	8' x 10'	80		EEV	80	80	80	
Public Lobby		0	0	0		1	1	1	16' x 24'	384		PL	384	384	384	
Fingerprint / Evidence Release		0	0	0		1	1	1	10' x 10'	100		FP-ER	100	100	100	
Public Display		0	0	0		1	1	1	2' x 10'	20		PD	20	20	20	
Water Station		0	0	0		1	1	1	3' x 6'	18		C-WTR	18	18	18	
Public Information Area		0	0	0		1	1	1	1' x 15'	15		PIA	15	15	15	
Public Restrooms		0	0	0		4	4	4	8' x 8'	64		PR	256	256	256	
Workstation - SM		0	0	0		1	1	1	6' x 6'	36		WS2	36	36	36	
Meeting/ Tacticts Training		0	0	0		1	1	1	25' x 51'	1,275		CR-Multi	1,275	1,275	1,275	
Kitchenette / Beverage service		0	0	0		1	1	1	10' x 8'	80		KB	80	80	80	
AV Closet		0	0	0		1	1	1	6' x 8'	48		AV	48	48	48	
Supply Storage		0	0	0		1	1	1		24		ST-S	24	24	24	
Soft Interview Room		0	0	0		1	1	1	10' x 10'	100		IR-S	100	100	100	
Storage, Tables & Chairs		0	0	0		1	1	1	10' x 16'	160		ST-TC	160	160	160	
GroupTotal		*0*	*0*	*0*									*2,596*	*2,596*	*2,596*	
Court																
Staff Requirements																
Court Clerk		2	2	2		2	2	2	8' X 8'	64		C-CLK	128	128	128	
Judge Chambers		1	1	1		1	1	1	10' X 10'	100		C-JDG	100	100	100	
Prosecution Attorney		0	0	0		1	1	1	10' x 10'	100		C-PAT	100	100	100	
GroupTotal		*3*	*3*	*3*									*328*	*328*	*328*	
Space / Room Requirements																
Courtroom		0	0	0		1	1	1	25' x 20'	500		C-CRT	500	500	500	
Jury Room		0	0	0		1	1	1	10' x 20'	200		C-JRY	200	200	200	
Jury Kitchen & Storage		0	0	0		1	1	1	10' x 10'	100		C-JSTOR	100	100	100	
Jury Toilet		0	0	0		1	1	1	10' x 10'	100		C-JRR	100	100	100	
Clerk Counter		0	0	0		1	1	1	4' X 8'	32		C-CC	32	32	32	
Video Recording		0	0	0		1	1	1	8' X 8'	64		C-VID	64	64	64	
GroupTotal		*0*	*0*	*0*									*996*	*996*	*996*	
Records																
Space / Room Requirements																
Records Specialist		2	2	2		2	2	2	8' x 8'	64		RRC	128	128	128	
Reception Counter		0	0	0		1	1	1	8' X 16'	128		R-C	128	128	128	
Work Room / Copy		0	0	0		1	1	1		120		WRC	120	120	120	
Records Storage		0	0	0		1	1	1		200		ST-REC	200	200	200	
Supply Storage		0	0	0		1	1	1		24		ST-S	24	24	24	
GroupTotal		*2*	*2*	*2*									*600*	*600*	*600*	
Department Subtotal		*5*	*5*	*5*									*4,520*	*4,520*	*4,520*	
Building Load Factor (30.0% avg.)													*1,356*	*1,356*	*1,356*	
Total													*5,876*	*5,876*	*5,876*	

PROGRAM SUMMARY - MIDDLE SQUARE FOOT OPTION

Police Operations Division		Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR		Dimensions	AREA			MOVE IN	10 YR	20 YR	
Administration																	
Staff Requirements																	
Chief of Police		1	1	1		1	1	1		10' x 20'	200		PO-LG	200	200	200	
Lieutenant		0	0	0		1	1	1		10' x 15'	150		PO-LT	150	150	150	
Sergeant		0	0	0		2	2	3		10' x 15'	150		PO-SM	300	300	450	
GroupTotal		*1*	*1*	*1*										*650*	*650*	*800*	
Detective																	
Staff Requirements																	
Detective		1	3	5		1	3	5			64		PO-DE	64	192	320	
GroupTotal		*1*	*3*	*5*										*64*	*192*	*320*	
Space / Room Requirements																	
Conference Room - Small		0	0	0		2	2	2		10' X 15'	150		CR-SM	300	300	300	
Soft Interview Room		0	0	0		1	1	1		10' x 10'	100		IR-S	100	100	100	
GroupTotal		*0*	*0*	*0*										*400*	*400*	*400*	
Patrol																	
Staff Requirements																	
Code Enforcement		1	1	1		0	0	0			64		PO-CE	0	0	0	
GroupTotal		*1*	*1*	*1*										*0*	*0*	*0*	
Space / Room Requirements																	
Briefing Room		0	0	0		1	1	1		30' x 30'	900		CR-BRF	900	900	900	
Patrol Officer/ Report Writing		14	16	18		4	4	4			36		PO-WS	144	144	144	
Work Room / Copy		0	0	0		1	1	1			120		WRC	120	120	120	
GroupTotal		*14*	*16*	*18*										*1,164*	*1,164*	*1,164*	
Department Subtotal		*17*	*21*	*25*										*2,278*	*2,406*	*2,684*	
Building Load Factor (30.0% avg.)														*683*	*722*	*805*	
Total														*2,961*	*3,128*	*3,489*	

PROGRAM SUMMARY - MIDDLE SQUARE FOOT OPTION

Interview		Staffing Requirements				Space / Room Requirements			Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Evidence																
Staff Requirements																
Evidence Specialist		1	1	1		1	1	1	10' x 10'	100		PO-ES	100	100	100	
GroupTotal		*1*	*1*	*1*									*100*	*100*	*100*	
Space / Room Requirements																
Processing (Evidence Tech)		0	0	0		1	1	1	10' x 15'	150		EV-PR	150	150	150	
Processing (Officers)		0	0	0		1	1	1	10' x 15'	150		EV-PR	150	150	150	
Lockers - Evidence		0	0	0		1	1	1	12' X 2'	24		EV -LOCK	24	24	24	
Storage		0	0	0		1	1	1		600		ST-EV	600	600	600	
Cash Storage		0	0	0		1	1	1	8' x 8'	64		EV-CASH	64	64	64	
Drug Storage		0	0	0		1	1	1	8' x 8'	64		EV-DRUG	64	64	64	
Vehicle Storage		0	0	0		5	5	5		200		VEH-EV	1,000	1,000	1,000	
Bicycles Storage		0	0	0		1	1	1		200		EV-B	200	200	200	
Fingerprint		0	0	0		1	1	1	4' X 6'	24		EV-FP	24	24	24	
GroupTotal		*0*	*0*	*0*									*2,276*	*2,276*	*2,276*	
Interview																
Space / Room Requirements																
Hard Interview Room		0	0	0		2	2	2	10' x 10'	100		IR-H	200	200	200	
GroupTotal		*0*	*0*	*0*									*200*	*200*	*200*	
Department Subtotal		*1*	*1*	*1*									*2,576*	*2,576*	*2,576*	
Building Load Factor (30.0% avg.)													*773*	*773*	*773*	
Total													*3,349*	*3,349*	*3,349*	

PROGRAM SUMMARY - MIDDLE SQUARE FOOT OPTION

Facility Support Function	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Police Support																
Space / Room Requirements																
Locker Room - Combined		0	0	0		1	1	1	25' x 40'	1,000		TR-LKM	1,000	1,000	1,000	
Laundry		0	0	0		1	1	1		60		LAUN	60	60	60	
GroupTotal		*0*	*0*	*0*									*1,060*	*1,060*	*1,060*	
Equipment and Inventory																
Space / Room Requirements																
Gear Bag Storage		0	0	0		30	30	30	2' x 2'	4		GS	120	120	120	
Mail Slots		0	0	0		1	1	1	2' X 8'	16		MAIL	16	16	16	
Equipment Storage		0	0	0		1	1	1	12' x 15'	180		EQST-1	180	180	180	
Weapons Cleaning & Maint.		0	0	0		1	1	1		25		WCM	25	25	25	
Armory / Ammunition Storage		0	0	0		1	1	1		160		ST-01	160	160	160	
GroupTotal		*0*	*0*	*0*									*501*	*501*	*501*	
Shared Common Area																
Space / Room Requirements																
Break Room		0	0	0		1	1	1		250		BR	250	250	250	
Kitchen		0	0	0		1	1	1		150		KV	150	150	150	
GroupTotal		*0*	*0*	*0*									*400*	*400*	*400*	
Building Support																
Staff Requirements																
IT Office		1	1	2		1	1	2	10' x 10'	100		C-ITOFF	100	100	200	
GroupTotal		*1*	*1*	*2*									*100*	*100*	*200*	
Space / Room Requirements																
Server Room/IT Equip. Storage		0	0	0		1	1	1		250		SERV	250	250	250	
Electrical Room		0	0	0		1	1	1		200		ELEC	200	200	200	
Janitor/ Maintenance Closet		0	0	0		1	1	1		150		JAN	150	150	150	
Sprinkler/Riser Room		0	0	0		1	1	1		100		SPRINK	100	100	100	
Mechanical Room		0	0	0		1	1	1		200		MECH	200	200	200	
GroupTotal		*0*	*0*	*0*									*900*	*900*	*900*	
Department Subtotal		*1*	*1*	*2*									*2,961*	*2,961*	*3,061*	
Building Load Factor (30.0% avg.)													*888*	*888*	*918*	
Total													*3,849*	*3,849*	*3,979*	

PROGRAM SUMMARY - MIDDLE SQUARE FOOT OPTION

Exterior Requirements	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Parking																
Space / Room Requirements																
K9 Kennel		0	0	0		1	1	1	8' x 8'	64		VEH-K9	64	64	64	
K9 Grooming		0	0	0		1	1	1	8' X 8'	64		VEH-K9G	64	64	64	
K9 Storage		0	0	0		0	0	0	2' X 10'	20		VEH-K9S	0	0	0	
GroupTotal		*0*	*0*	*0*									*128*	*128*	*128*	
Exterior																
Squad Vehicle Stall - Covered		0	0	0		12	12	12	10' x 22	220		VEH-SC	2,640	2,640	2,640	
Squad Vehicle Stall		0	0	0		0	16	20	10' x 22'	220		VEH-SUC	0	3,520	4,400	
POV stall		0	0	0		4	12	12	10' x 22'	162		VEH-P	648	1,944	1,944	
Public Parking		0	0	0		34	34	34	9' x 18'	162		PARK-P	5,508	5,508	5,508	
Bicycle Parking		0	0	0		1	1	1	10' x 12'	120		PARK-B	120	120	120	
GroupTotal		*0*	*0*	*0*									*8,916*	*13,732*	*14,612*	
Site Requirements																
Exterior																
Emergency Generator		0	0	0		1	1	1	16' x 30'	480		EG	480	480	480	
Trash / Recycling		0	0	0		1	1	1	10' x 10'	100		TRASH	100	100	100	
Exterior Patio / Secure Dining		0	0	0		1	1	1	25' x 20'	500		EP	500	500	500	
GroupTotal		*0*	*0*	*0*									*1,080*	*1,080*	*1,080*	
Department Subtotal		*0*	*0*	*0*									*10,124*	*14,940*	*15,820*	
Building Load Factor (99.1% avg.)													*10,034*	*14,850*	*15,730*	
Total													*20,158*	*29,790*	*31,550*	

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PROGRAM SUMMARY - LOW SQUARE FOOT OPTION

Below is a summary of the low square foot option which further reduces some space and staffing as compared to the middle square foot option. The team reduced or eliminated the following items on the low square foot option.

- Reduced square footages of the Meeting/Training Room, Judge Chambers, Prosecution Attorney, Briefing Room, Evidence Lockers, some Conference Rooms, some Offices and Storage Areas.
- Eliminated one Hard Interview Room and IT Office.

Space / Room Use	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage		
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA	Total		MOVE IN	10 YR	20 YR
Police Department Requirements Summary															
Lobby & Public Spaces		5	5	5									5,402	5,402	5,402
Lobby & Public Areas															
Court															
Records															
Police Operations Division		17	20	23									2,110	2,193	2,276
Administration															
Detective															
Patrol															
Interview		1	1	1									2,044	2,044	2,044
Evidence															
Interview															
Facility Support Function		0	0	0									3,498	3,498	3,498
Police Support															
Equipment and Inventory															
Shared Common Area															
Building Support															
Total Building Requirements													13,054	13,137	13,220
Exterior Requirements		0	0	0									20,158	29,790	31,550
Parking															
Site Requirements															
Total Site Requirements		*23*	*26*	*29*									*33,212*	*42,927*	*44,770*

PROGRAM SUMMARY - LOW SQUARE FOOT OPTION

Lobby & Public Spaces	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Lobby & Public Areas																
Space / Room Requirements																
Entry/Emergency Vestibule		0	0	0		1	1	1	8' x 10'	80		EEV	80	80	80	
Public Lobby		0	0	0		1	1	1	16' x 24'	384		PL	384	384	384	
Fingerprint / Evidence Release		0	0	0		1	1	1	10' x 10'	100		FP-ER	100	100	100	
Public Display		0	0	0		1	1	1	2' x 10'	20		PD	20	20	20	
Water Station		0	0	0		1	1	1	3' x 6'	18		C-WTR	18	18	18	
Public Information Area		0	0	0		1	1	1	1' x 15'	15		PIA	15	15	15	
Public Restrooms		0	0	0		4	4	4	8' x 8'	64		PR	256	256	256	
Workstation - SM		0	0	0		1	1	1	6' x 6'	36		WS2	36	36	36	
Meeting/ Tacticts Training		0	0	0		1	1	1	25' x 38'	950		CR-Multi	950	950	950	
Kitchenette / Beverage service		0	0	0		1	1	1	10' x 8'	80		KB	80	80	80	
AV Closet		0	0	0		1	1	1	6' x 8'	48		AV	48	48	48	
Supply Storage		0	0	0		1	1	1		24		ST-S	24	24	24	
Soft Interview Room		0	0	0		1	1	1	10' x 10'	100		IR-S	100	100	100	
Storage, Tables & Chairs		0	0	0		1	1	1	10' x 16'	160		ST-TC	160	160	160	
GroupTotal		*0*	*0*	*0*									*2,271*	*2,271*	*2,271*	
Court																
Staff Requirements																
Court Clerk		2	2	2		2	2	2	8' X 8'	64		C-CLK	128	128	128	
Judge Chambers		1	1	1		1	1	1	8' X 10'	80		C-JDG	80	80	80	
Prosecution Attorney		0	0	0		1	1	1	8' x 10'	80		C-PAT	80	80	80	
GroupTotal		*3*	*3*	*3*									*288*	*288*	*288*	
Space / Room Requirements																
Courtroom		0	0	0		1	1	1	25' x 20'	500		C-CRT	500	500	500	
Jury Room		0	0	0		1	1	1	10' x 20'	200		C-JRY	200	200	200	
Jury Kitchen & Storage		0	0	0		1	1	1	10' x 10'	100		C-JSTOR	100	100	100	
Jury Toilet		0	0	0		1	1	1	10' x 10'	100		C-JRR	100	100	100	
Clerk Counter		0	0	0		1	1	1	4' X 8'	32		C-CC	32	32	32	
Video Recording		0	0	0		1	1	1	8' X 8'	64		C-VID	64	64	64	
GroupTotal		*0*	*0*	*0*									*996*	*996*	*996*	
Records																
Space / Room Requirements																
Records Specialist		2	2	2		2	2	2	8' x 8'	64		RRC	128	128	128	
Reception Counter		0	0	0		1	1	1	8' X 16'	128		R-C	128	128	128	
Work Room / Copy		0	0	0		1	1	1		120		WRC	120	120	120	
Records Storage		0	0	0		1	1	1		200		ST-REC	200	200	200	
Supply Storage		0	0	0		1	1	1		24		ST-S	24	24	24	
GroupTotal		*2*	*2*	*2*									*600*	*600*	*600*	
Department Subtotal		*5*	*5*	*5*									*4,155*	*4,155*	*4,155*	
Building Load Factor (30.0% avg.)													*1,247*	*1,247*	*1,247*	
Total													*5,402*	*5,402*	*5,402*	

PROGRAM SUMMARY - LOW SQUARE FOOT OPTION

Police Operations Division	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Administration																
Staff Requirements																
Chief of Police		1	1	1		1	1	1	10' x 15'	150		PO-LG	150	150	150	
Lieutenant		0	0	0		1	1	1	10' x 10'	100		PO-LT	100	100	100	
Sergeant		0	0	0		2	2	2	10' x 10'	100		PO-SM	200	200	200	
GroupTotal		*1*	*1*	*1*									*450*	*450*	*450*	
Detective																
Staff Requirements																
Detective		1	2	3		1	2	3		64		PO-DE	64	128	192	
GroupTotal		*1*	*2*	*3*									*64*	*128*	*192*	
Space / Room Requirements																
Conference Room - Small		0	0	0		1	1	1	10' X 12'	120		CR-SM	120	120	120	
Soft Interview Room		0	0	0		1	1	1	10' x 10'	100		IR-S	100	100	100	
GroupTotal		*0*	*0*	*0*									*220*	*220*	*220*	
Patrol																
Staff Requirements																
Code Enforcement		1	1	1		0	0	0		64		PO-CE	0	0	0	
GroupTotal		*1*	*1*	*1*									*0*	*0*	*0*	
Space / Room Requirements																
Briefing Room		0	0	0		1	1	1	25' x 25'	625		CR-BRF	625	625	625	
Patrol Officer/ Report Writing		14	16	18		4	4	4		36		PO-WS	144	144	144	
Work Room / Copy		0	0	0		1	1	1		120		WRC	120	120	120	
GroupTotal		*14*	*16*	*18*									*889*	*889*	*889*	
Department Subtotal		*17*	*20*	*23*									*1,623*	*1,687*	*1,751*	
Building Load Factor (30.0% avg.)													*487*	*506*	*525*	
Total													*2,110*	*2,193*	*2,276*	

PROGRAM SUMMARY - LOW SQUARE FOOT OPTION

Interview	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Evidence																
Staff Requirements																
Evidence Specialist		1	1	1		1	1	1	10' x 10'	100		PO-ES	100	100	100	
GroupTotal		*1*	*1*	*1*									*100*	*100*	*100*	
Space / Room Requirements																
Processing (Evidence Tech)		0	0	0		1	1	1	10' x 15'	150		EV-PR	150	150	150	
Processing (Officers)		0	0	0		1	1	1	10' x 15'	150		EV-PR	150	150	150	
Lockers - Evidence		0	0	0		1	1	1	10' X 2'	20		EV -LOCK	20	20	20	
Storage		0	0	0		1	1	1		400		ST-EV	400	400	400	
Cash Storage		0	0	0		1	1	1	8' x 8'	64		EV-CASH	64	64	64	
Drug Storage		0	0	0		1	1	1	8' x 8'	64		EV-DRUG	64	64	64	
Vehicle Storage		0	0	0		2	2	2		200		VEH-EV	400	400	400	
Bicycles Storage		0	0	0		1	1	1		100		EV-B	100	100	100	
Fingerprint		0	0	0		1	1	1	4' X 6'	24		EV-FP	24	24	24	
GroupTotal		*0*	*0*	*0*									*1,372*	*1,372*	*1,372*	
Interview																
Space / Room Requirements																
Hard Interview Room		0	0	0		1	1	1	10' x 10'	100		IR-H	100	100	100	
GroupTotal		*0*	*0*	*0*									*100*	*100*	*100*	
Department Subtotal		*1*	*1*	*1*									*1,572*	*1,572*	*1,572*	
Building Load Factor (30.0% avg.)													*472*	*472*	*472*	
Total													*2,044*	*2,044*	*2,044*	

PROGRAM SUMMARY - LOW SQUARE FOOT OPTION

Facility Support Function	Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR	Dimensions	AREA			MOVE IN	10 YR	20 YR	
Police Support																
Space / Room Requirements																
Locker Room - Combined		0	0	0		1	1	1	25' x 40'	1,000		TR-LKM	1,000	1,000	1,000	
Laundry		0	0	0		1	1	1		60		LAUN	60	60	60	
GroupTotal		*0*	*0*	*0*									*1,060*	*1,060*	*1,060*	
Equipment and Inventory																
Space / Room Requirements																
Gear Bag Storage		0	0	0		30	30	30	2' x 2'	4		GS	120	120	120	
Mail Slots		0	0	0		1	1	1	2' X 8'	16		MAIL	16	16	16	
Equipment Storage		0	0	0		1	1	1	12' x 15'	180		EQST-1	180	180	180	
Weapons Cleaning & Maint.		0	0	0		1	1	1		25		WCM	25	25	25	
Armory / Ammunition Storage		0	0	0		1	1	1		160		ST-01	160	160	160	
GroupTotal		*0*	*0*	*0*									*501*	*501*	*501*	
Shared Common Area																
Space / Room Requirements																
Break Room		0	0	0		1	1	1		250		BR	250	250	250	
Kitchen		0	0	0		1	1	1		150		KV	150	150	150	
GroupTotal		*0*	*0*	*0*									*400*	*400*	*400*	
Building Support																
Space / Room Requirements																
Server Room/IT Equip. Storage		0	0	0		1	1	1		200		SERV	200	200	200	
Electrical Room		0	0	0		1	1	1		150		ELEC	150	150	150	
Janitor/ Maintenance Closet		0	0	0		1	1	1		150		JAN	150	150	150	
Sprinkler/Riser Room		0	0	0		1	1	1		80		SPRINK	80	80	80	
Mechanical Room		0	0	0		1	1	1		150		MECH	150	150	150	
GroupTotal		*0*	*0*	*0*									*730*	*730*	*730*	
Department Subtotal		*0*	*0*	*0*									*2,691*	*2,691*	*2,691*	
Building Load Factor (30.0% avg.)													*807*	*807*	*807*	
Total													*3,498*	*3,498*	*3,498*	

PROGRAM SUMMARY - LOW SQUARE FOOT OPTION

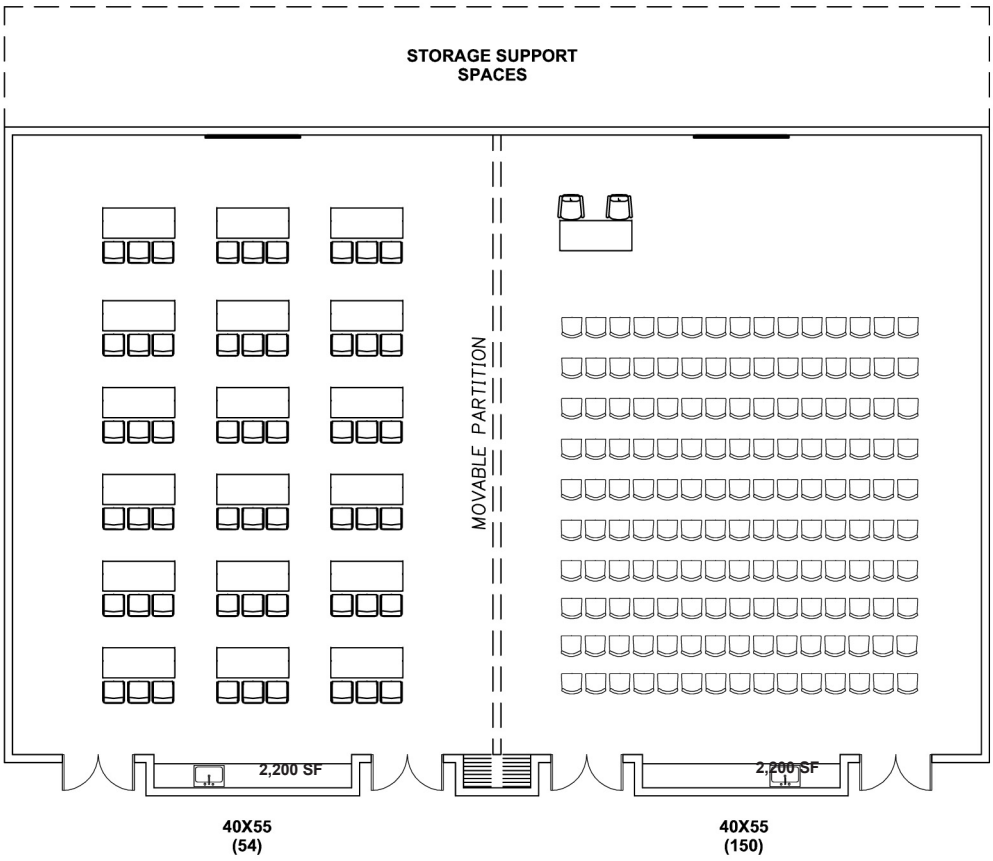
Exterior Requirements		Staffing Requirements				Space / Room Requirements				Recommended Space Standards			Space Type	Total Future Square Footage			Note Key
		MOVE IN	10 YR	20 YR		MOVE IN	10 YR	20 YR		Dimensions	AREA			MOVE IN	10 YR	20 YR	
Parking																	
Space / Room Requirements																	
K9 Kennel		0	0	0		1	1	1		8' x 8'	64		VEH-K9	64	64	64	
K9 Grooming		0	0	0		1	1	1		8' X 8'	64		VEH-K9G	64	64	64	
K9 Storage		0	0	0		0	0	0		2' X 10'	20		VEH-K9S	0	0	0	
GroupTotal		*0*	*0*	*0*										*128*	*128*	*128*	
Exterior																	
Squad Vehicle Stall - Covered		0	0	0		12	12	12		10' x 22	220		VEH-SC	2,640	2,640	2,640	
Squad Vehicle Stall		0	0	0		0	16	20		10' x 22'	220		VEH-SUC	0	3,520	4,400	
POV stall		0	0	0		4	12	12		10' x 22'	162		VEH-P	648	1,944	1,944	
Public Parking		0	0	0		34	34	34		9' x 18'	162		PARK-P	5,508	5,508	5,508	
Bicycle Parking		0	0	0		1	1	1		10' x 12'	120		PARK-B	120	120	120	
GroupTotal		*0*	*0*	*0*										*8,916*	*13,732*	*14,612*	
Site Requirements																	
Exterior																	
Emergency Generator		0	0	0		1	1	1		16' x 30'	480		EG	480	480	480	
Trash / Recycling		0	0	0		1	1	1		10' x 10'	100		TRASH	100	100	100	
Exterior Patio / Secure Dining		0	0	0		1	1	1		25' x 20'	500		EP	500	500	500	
GroupTotal		*0*	*0*	*0*										*1,080*	*1,080*	*1,080*	
Department Subtotal		*0*	*0*	*0*										*10,124*	*14,940*	*15,820*	
Building Load Factor (99.1% avg.)														*10,034*	*14,850*	*15,730*	
Total														*20,158*	*29,790*	*31,550*	

SPACE STANDARDS

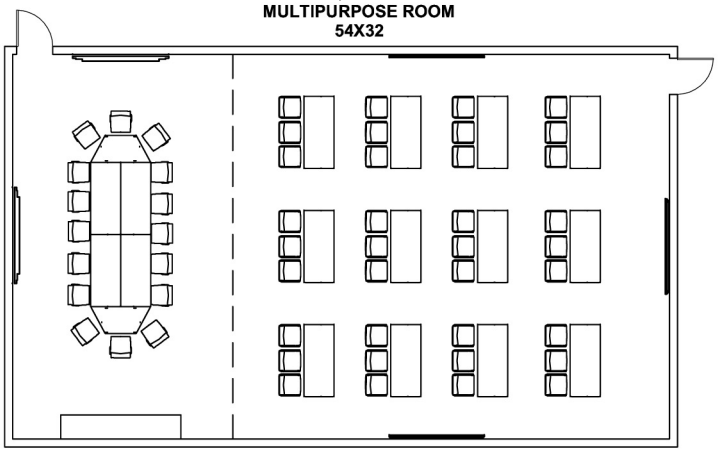
The following information has been developed based on Mackenzie's past experience with over 125 emergency response facilities, data we track on regional and national trends in police facilities as well as architectural standards and interaction with the St. Helens Police department stakeholders. The spaces developed and depicted are shown as a means to aid in efficiently comparing sizes for offices, support spaces and primary function spaces unique to law enforcement facilities.

These have been utilized as a visual aid to help stakeholders understand the general parameters associated with rooms and functions.

The following layouts are provided for reference, and to indicate baseline dimensions and room layouts for discussion during the programming process. Actual room dimensions often adjust during the plan development task to account for special adjacencies and other design parameters.



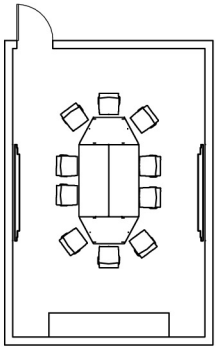
TRAINING CLASSROOM LAYOUTS



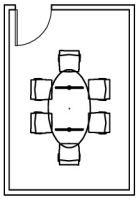
1,728 SF
MULTIPURPOSE ROOM
54X32

CONFERENCE ROOM
18X32
576 SF

CLASSROOM
36X32
1,152 SF

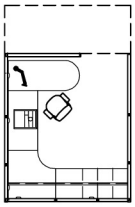


CONFERENCE ROOM
16X24
(10)
160 SF

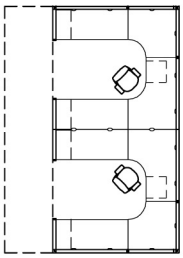


CONFERENCE ROOM
10X15
(6)
150 SF

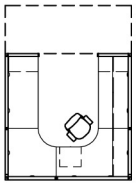
TYPICAL CONFERENCE LAYOUTS



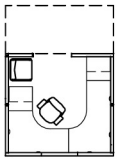
LARGE
10X12
120 SF



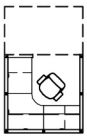
SHARED
10X10'S
100 SF



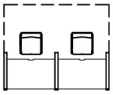
MEDIUM
10X10
100 SF



MED/SMALL
8X8
64 SF

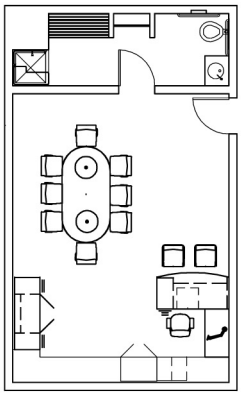


SMALL
6X6
36 SF

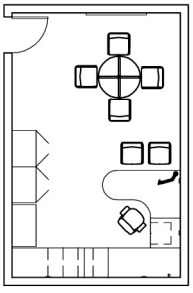


SMALL
2.5X4
10 SF

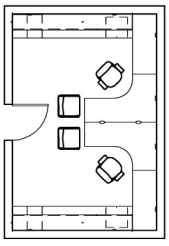
TYPICAL CUBICLE LAYOUTS



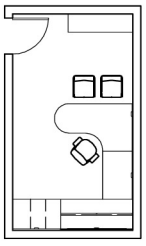
OFFICE
18X24
432 SF



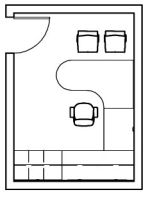
LARGE
14X22
308 SF



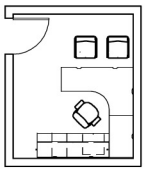
SHARED
12X18
216 SF



MEDIUM
10X18
180 SF

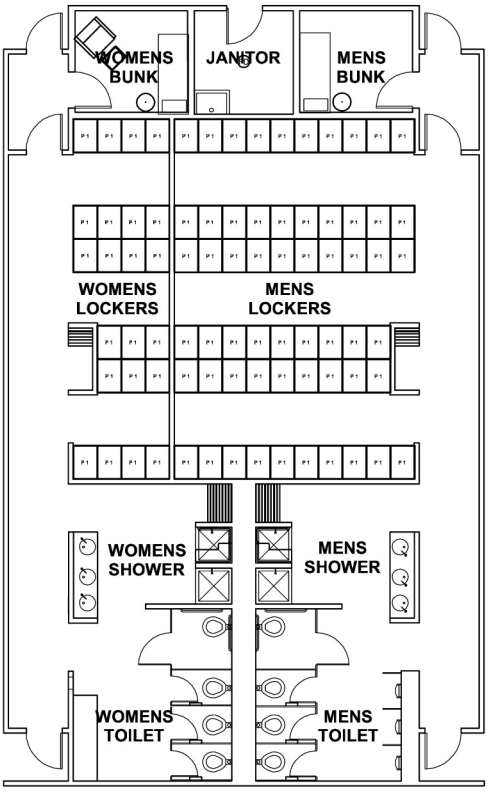


MEDIUM
10X14
140 SF

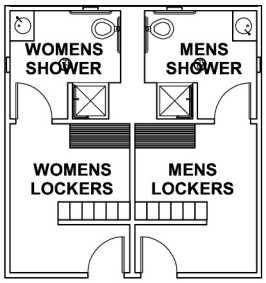


SMALL
10X12
120 SF

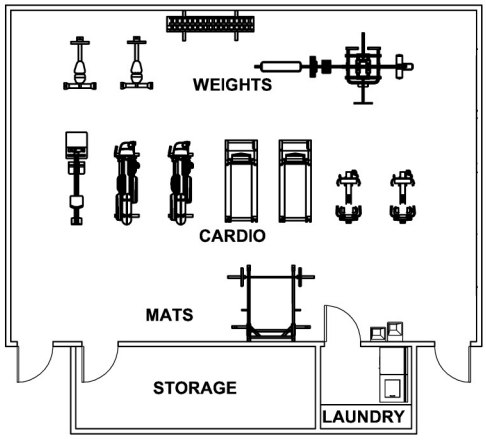
TYPICAL OFFICE LAYOUTS



DUTY LOCKER ROOM / SHOWER ROOM

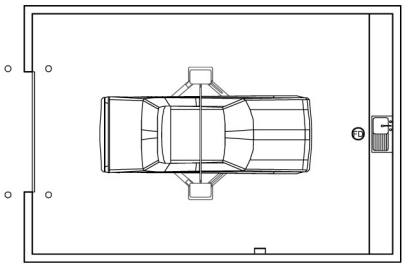


LOCKER ROOM / SHOWER ROOM

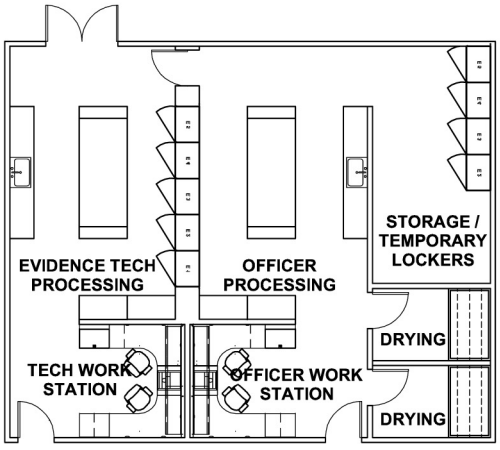


FITNESS

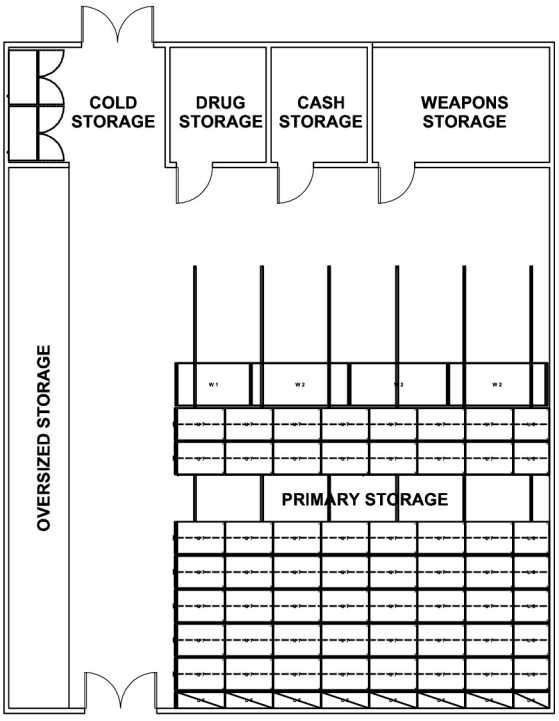
LOCKER / FITNESS LAYOUTS



EVIDENCE VEHICLE GARAGE
20X30

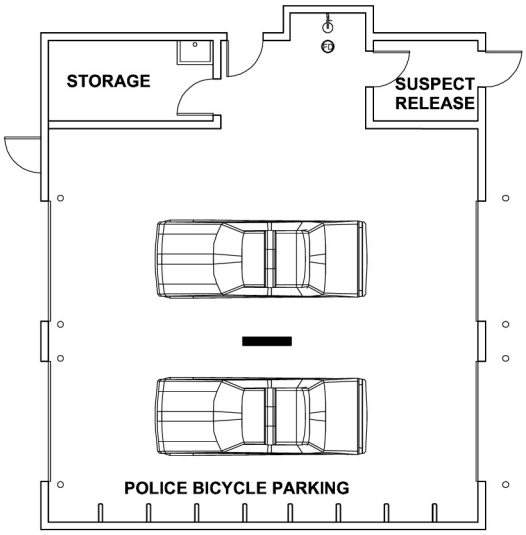


EVIDENCE PROCESSING

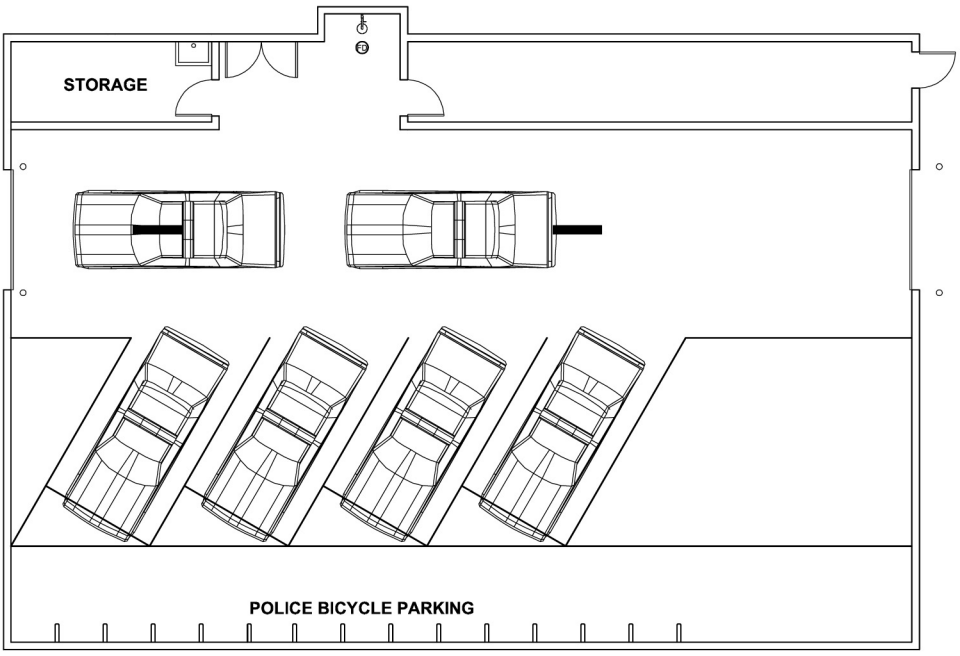


EVIDENCE STORAGE
45X75
3,375 SF

PROPERTY / EVIDENCE SPACE LAYOUTS

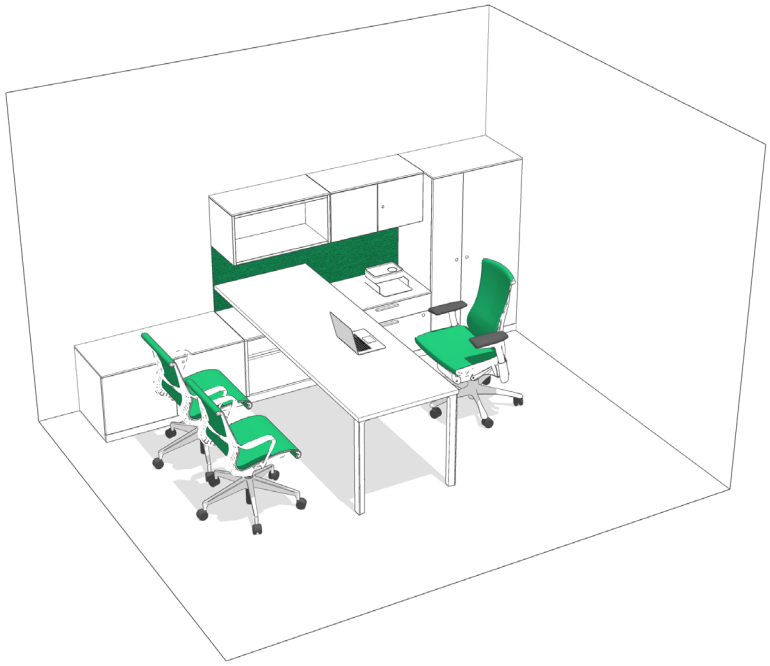


TWO VEHICLE SALLYPORT
35X40
1,400 SF



MULTI VEHICLE SALLYPORT
50X75 (65X75 W/ TWO-WIDE DRIVE)
3,750 SF 4,875 SF

SALLY PORT



Private Office: Private, lockable enclosed spaces which provide privacy for employees who are frequently engaged in work activities of a confidential nature.

Standard Workstations: Open plan workstations can offer an opportunity for a stronger connection between staff. Walls can be medium or high divider walls or panels configured into ‘neighborhoods’ or ‘suites’.

Benching Workstation: Open plan workstations with a single straight work surface and medium to low divider walls or panels between stations. This can be utilized for Patrol Report Writing.

Unassigned / Jump Workstation: The practice of allocating either standard workstations or benching desks to workers only when they are in use or on a rotating system, rather than giving each worker a dedicated work space. This model works well for highly mobile positions, cadets or part-time employees.

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FACILITY TOURS

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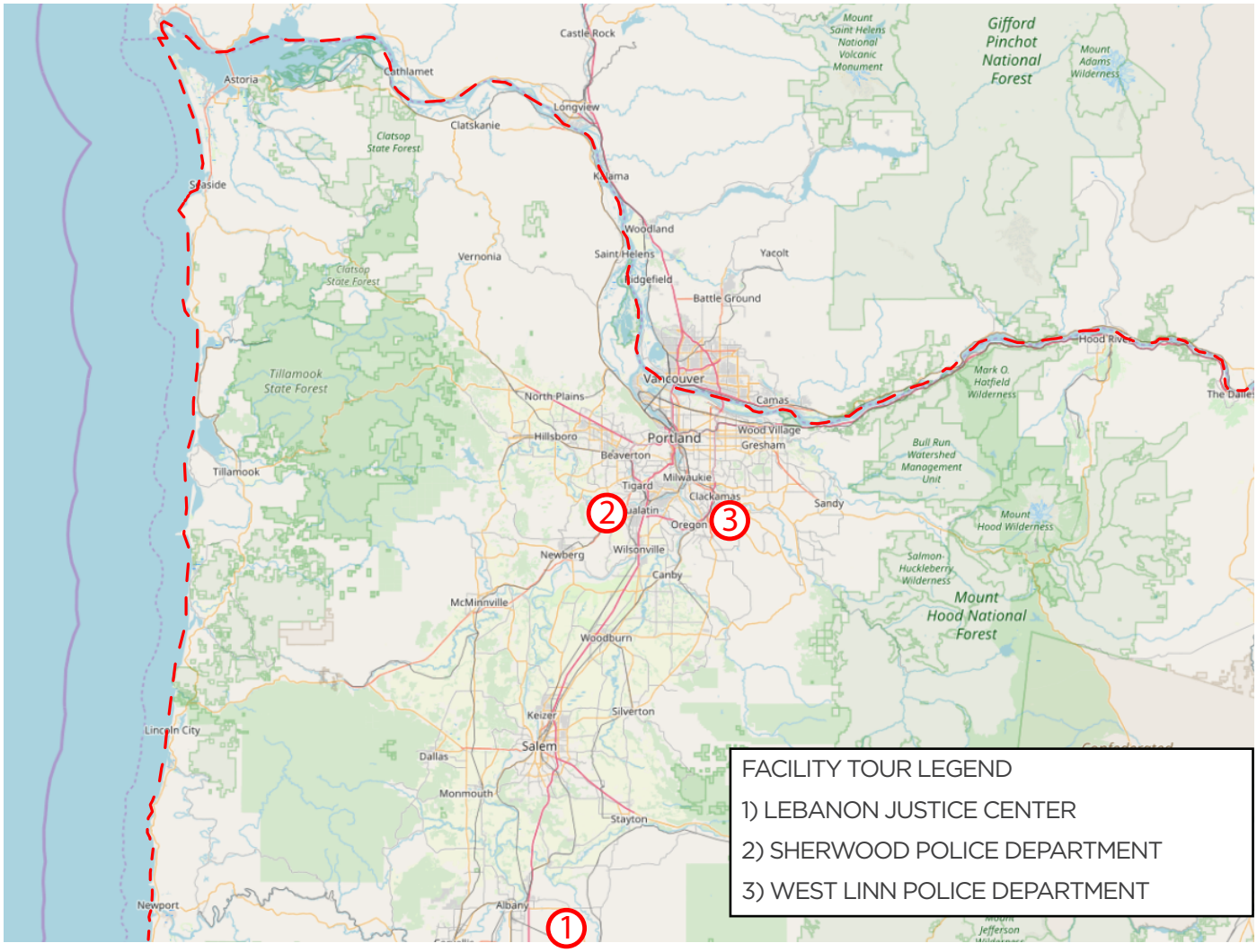
MAP OF FACILITY TOURS



On July 24, 2019, City of St. Helens staff and Police Department faculty and Mackenzie toured three police facilities in the region. Those facilities included Lebanon Justice Center, Sherwood Police Department and West Linn Police Department.

City of St. Helens Staff and Mackenzie first stopped at Lebanon Justice Center in the morning. The next tour was Sherwood Police Facility and the last stop was West Linn Police. After the team was done touring the West Linn Police facility, the team met to discuss the program based on their observations.

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FACILITY TOUR 1: LEBANON JUSTICE CENTER

LOCATION

- 40 N 2nd St, Lebanon, OR 97355

STATION SIZE

- 30,000 sq/ft

CONSTRUCTION COST

- (Unknown)

CONSTRUCTION COST PER SQ/FT

- (Unknown)

COMPLETED

- 2009

DEPARTMENT SIZE (2009)

- 38 Total Staff
- 26 Sworn Officers

DEPARTMENT SIZE (CURRENT)
SIZE OF DEPARTMENT

- 39 Total Staff
- 27 Sworn Officers

FACILITY TOUR 2: SHERWOOD POLICE DEPARTMENT

LOCATION
- 20495 SW Borchers Dr, Sherwood, OR 97140

STATION SIZE
- 17,000 sq/ft

CONSTRUCTION COST
- (UNKNOWN)

CONSTRUCTION COST PER SQ/FT
- (UNKOWN)

COMPLETED
- 2003

SIZE OF DEPARTMENT (2003)
- 19 Total Staff
- 16 Sworn Officers

SIZE OF DEPARTMENT (CURRENT)
- 25 Total Staff
- 22 Sworn Officers

FACILITY TOUR 3: WEST LINN POLICE DEPARTMENT

LOCATION
- 1800 8th Ave, West Linn, OR 97068

STATION SIZE
- 21,400 sq/ft

CONSTRUCTION COST
- $5,517,255

CONSTRUCITON COST PER SQ/FT
- $258 sq/ft

COMPLETED
- 2014

DEPARTMENT SIZE (2014)
- 30 Total Staff
- 26 Sworn Officers

DEPARTMENT SIZE (CURRENT)
- 31 Total Staff
- 28 Sworn Officers

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SITE EVALUATIONS

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MAP OF POTENTIAL SITES

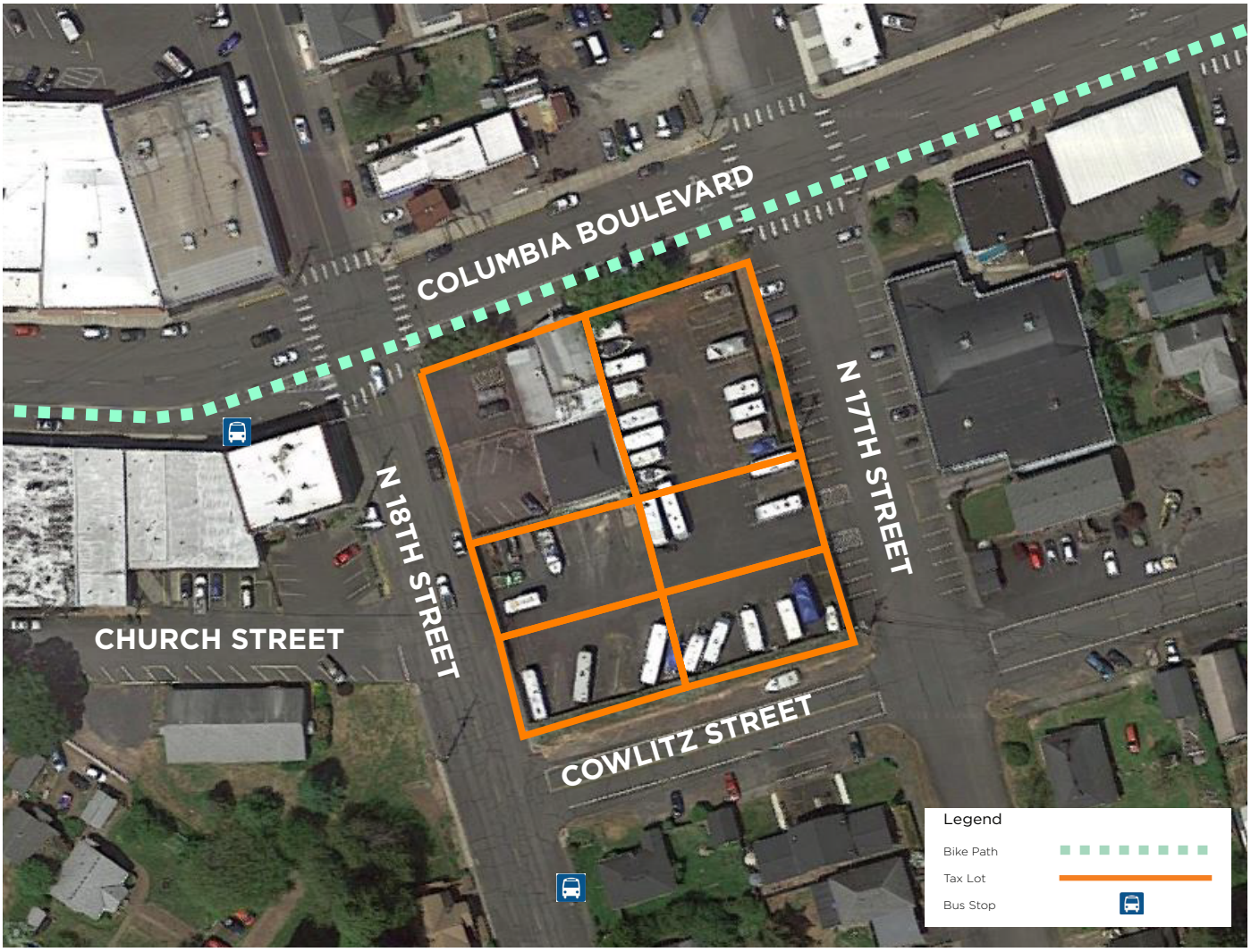
After developing the high, medium and low square foot option space-needs programs for the St. Helens Police Department, and after touring comparable facilities in the region, Mackenzie prepared a series of site test fit diagrams based on the high square foot program. These site test fits allowed the team to analyze each of the sites to determine if the space-needs program was able to fit on the selected sites. This process also helped the team further evaluate the operational flow and larger programmatic adjacencies of the site and building.

- SITE 1: 1771 Columbia Boulevard
- SITE 2: 1271 Columbia Boulevard (Existing Police Station Site)
- SITE 3: Old Portland Road
- SITE 4: Oregon Street

ZONING AND DEVELOPMENT REQUIREMENTS

	SITE 1: 1771 COLUMBIA BLVD.
PROPERTY ADDRESS:	1771 Columbia Blvd
SITE AREA	1.04 Acres
TAX LOT(S)	4N1W-4CA-21400, 20900, 21300, 21200, 21000, 21100
OWNER	Private Owner
ZONE & JURISDICTION	Houlton Business District (HBD) General Commercial (GC)
ALLOWED USE	Conditional Use
MIN. LANDSCAPE REQUIREMENTS	10%, w/ potential for additional screening, buffering and parking lot landscaping
MAX. LOT COVERAGE	90% Total Lot Coverage/Impervious Area
MIN/MAX PARKING RATIO	No Maximum. Minimum 1 space for every employee
MAX BUILDING HEIGHT	45′
MAX. BUILDING SETBACKS	No Minimum. Maximum front yard of zero
SLOPE/TREES	Limited
TRAFFIC IMPACT	Traffic Impact Analysis Completed
PROPERTY AVAILABILITY	City Owned
WETLANDS/SENSITIVE AREAS	None
FRONTAGE IMPROVEMENTS	Where there are no street frontage improvements, they will be required based on the City's TSP standard. Where there are existing frontage improvements, there is the potential of requiring upgrades to the TSP standard or, in the case of Columbia Boulevard, the Corridor Plan standards.
TREE REQUIREMENTS	Street trees can be required along all public streets. Trees can also be required for buffering and parking lots >20 spaces per Chapter 17.72 SHMC. Tree plan requirement per Chapter 17.132 not applicable to this property as there are no existing trees within the site.

SITE 2: 1271 COLUMBIA BLVD.	SITE 3: OLD PORTLAND ROAD
1271 Columbia Blvd.	1810 Old Portland Road
1.5 Acres	2.3 Acres
4N1W-4AC-1000, 902, 900, (& 701*)	4N1W-9AB-1400
City of St. Helens	City of St. Helens
Houlton Business District (HBD)	Light Industrial (LI) General Residential (R5)
Conditional Use	Conditional Use
10%, w/ potential for additional screening, buffering and parking lot landscaping	25% Minimum in R5 Zone, w/ potential for additional screening, buffering and parking lot landscaping
90% Total Lot Coverage/Impervious Area	35% Maximum Coverage of Building in the R5 Zone
No Maximum. Minimum 1 space for every employee	No Maximum. Minimum 1 space for every employee
45′	Within 100 ft of Residential Property in LI Zone- 35′ Within R5 Zone - 35′
No Minimum. Maximum front yard of zero	LI Zone - None R5 Zone - Assumes 20 feet from all abutting rights-of-ways.
Limited	Limited
Traffic Impact Analysis Completed	Traffic Impact Analysis Completed
City Owned	City Owned
None	There are at least two sensitive lands as listed in Chapter 17.44 SHMC: Floodplains and Wetlands.
Where there are no (or sporadic) street frontage improvements, they will be required based on the City's TSP standard. Where there are existing frontage improvements, there is the potential of requiring upgrades to the TSP standard or, in the case of Columbia Boulevard, the Corridor Plan standards.	Street frontage requirements are likely along both Old Portland Road and Kaster Road. This may be challenging as they are associated with a roundabout. If the roundabout is not fully constructed or even designed, the improvements would need to cater to the future potential of it. In addition, other adjacent rights-of-way would need to be considered for street improvements where there are none or little. Local streets would be developed to the City's TSP standards.
Street trees can be required along all public streets. Trees can also be required for buffering and parking lots >20 spaces per Chapter 17.72 SHMC. Tree plan requirement per Chapter 17.132 not applicable to this property as there are no existing trees within the site.	Street trees can be required along all public streets. Trees can also be required for buffering and parking lots >20 spaces per Chapter 17.72 SHMC. Tree plan requirement per Chapter 17.132 is applicable to this property as there are existing trees within the site. Trees within significant wetlands and their upland protection zones have protections from removal in the Development Code.



SITE 1: 1771 COLUMBIA BLVD

LOCATION

- 1771 Columbia Blvd.
  St. Helens, OR
- Tax Lot: 4N1W-4CA-21400, 20900, 21300, 21200, 21000, 21100

SIZE

- 1.04 Acres

ZONING

- Houlton Business District (HBD) for lots abutting Columbia Blvd
- General Commercial (GC) for the southern ¾

TRANSPORTATION ACCESS

- Bus
- Bike

SITE INFORMATION

- Building Setbacks: Maximum front yard of zero
- Maximum Building Coverage: 90%
- Max. Building Height: 45 feet
- Minimum Parking Ratio:
  No maximum. Minimum is 1 space for every employee on largest shift using “Public Safety Services” category

PROGRAM

- Two story Police Facility
- Covered secured parking
- Separate public and secured parking

PROS

- Full city block offers prominence of Police Facility
- Direct access to bus and bicycle routes
- Closest site to City Hall

CONS

- Parking program cannot be entirely accommodated on site
- Not City Owned
- Sanitary sewer will impact building placement or require re-routing to avoid building over sanitary line.

SITE 2: 1271 COLUMBIA BLVD

LOCATION

- 1271 Columbia Blvd
  St. Helens, OR
- Tax Lot: 4N1W-4AC-1000, 902, 900 & 701

SIZE

- 1.5 Acres

ZONING

- Houlton Business District (HBD)

TRANSPORTATION ACCESS

- Bus
- Bike

SITE INFORMATION

- Building Setbacks: Maximum front yard of zero
- Maximum Building Coverage: 90%
- Max. Building Height: 45 ft
- Minimum Parking Ratio:
  No maximum. Minimum is 1 space for every employee on largest shift using “Public Safety Services” category

PROGRAM

- Two story Police Facility
- Covered secured parking
- Separate public and secured parking

PROS

- Property already owned by the City
- Entire parking program can be accommodated on site
- Directly adjacent to Fire Station

CONS

- Project must be phased due to proximity of existing Police Facility
- Legal lot definition coordination with Fire Station

SITE 3: OLD PORTLAND ROAD

LOCATION

- 1810 Old Portland Rd
  St. Helens, OR
- Tax Lot: 4N1W-9AB-1400

SIZE

- 1.95 Acres

ZONING

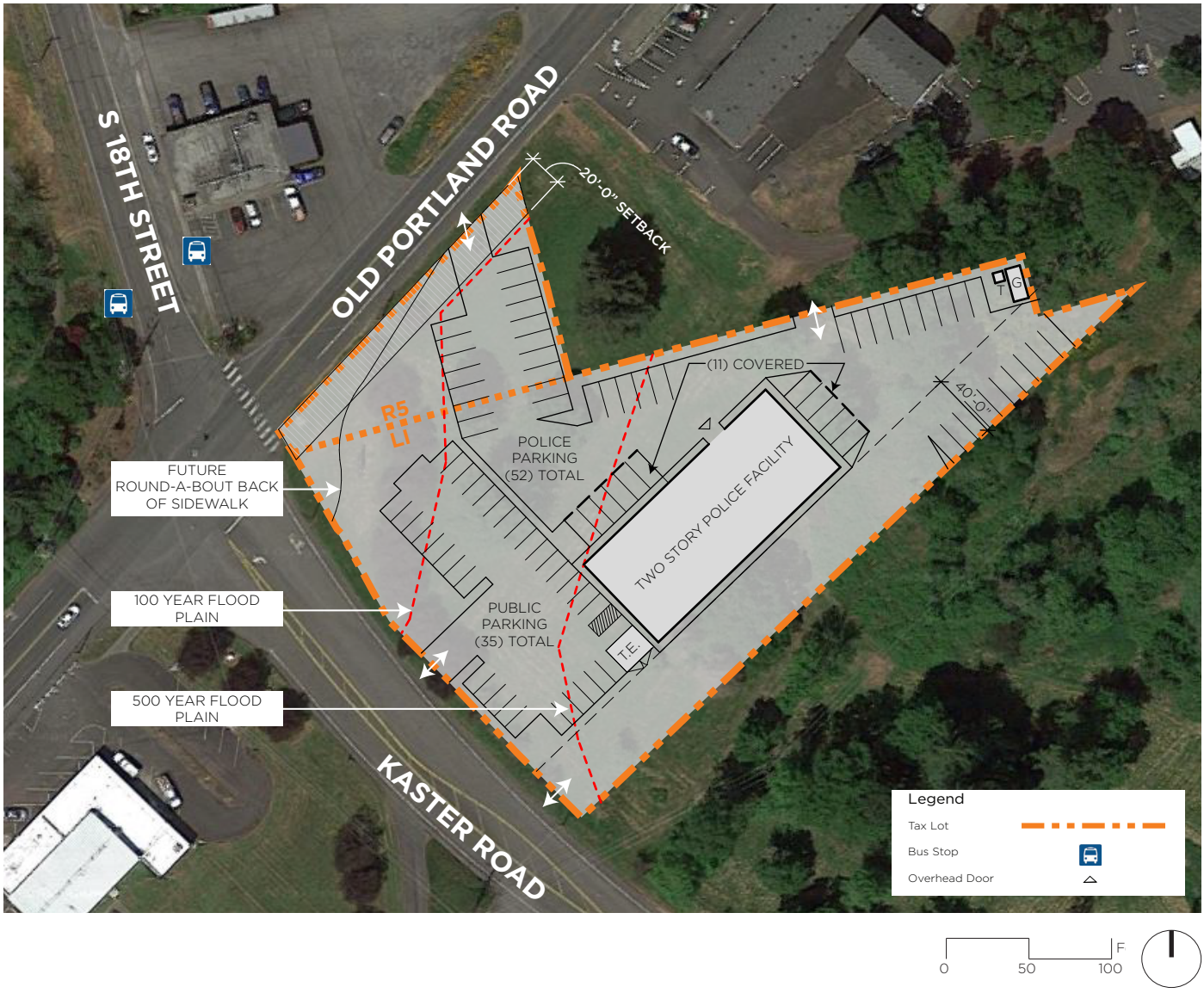
- Majority of lot under Light Industrial (LI)
- Small portion of lot on Old Portland Rd is General Residential (R5)

TRANSPORTATION ACCESS

- Bus

SITE INFORMATION

- Building Setbacks: None in LI Zone. MIN. 20' from all abutting ROW in R5 Zone
- Maximum Building Coverage: None in LI. 35% in R5.
- Max. Building Height: If within 100 feet of residential zoned property, max height is 35' in the LI zoning. It is 35' for the R5 zone.
- Minimum Parking Ratio:
  No maximum. Minimum is 1 space for every employee on largest shift using "Public Safety Services" category



PROGRAM

- Two story Police Facility
- Covered secured parking
- Separate public and secured parking

PROS

- Entire parking program can be accommodated on site
- Largest site of the three proposed sites

CONS

- Need to confirm locations of existing wetland.
- Portion of parking in flood plain
- Limited access to site during flood events

IMPORTANCE FACTOR SCORING CRITERIA

Through the progress of the project, four sites were ultimately identified for evaluation. Initially the City requested Mackenzie evaluate three sites for the possible development of a new police facility. These sites were Site 1 (1771 Columbia Blvd), Site 2 (1271 Columbia Blvd) and Site 3 (Old Portland Road). After site test fits were developed for the three subject sites, key St. Helens staff separately evaluated, scored and ranked each of the sites relative to each other. The City of St. Helens and Police Department added an additional Site 4 to be ranked that is located on the corner of Oregon Street and Deer Island Road in St. Helens. The sites were re-ranked based on the additional Site 4 and the following is the results from the re-rankings.

1. ## COST OF LAND/SITE DEVELOPMENT:

   Ranking evaluates the availability of property for purchase and assessed purchase price of each property. Ranking evaluates anticipated development costs of the property, including but not limited to existing infrastructure, hazardous material remediation, demolition of existing structures and topographical challenges.

2. ## SIZE OF SITE:

   Ranking evaluates the usable site acreage available for development within the property boundaries.

3. ## SHAPE OF SITE:

   Ranking evaluates the shape of the site, with particular emphasis on irregularities that present challenges to parking and building layout, access, visibility and general efficiencies.

4. ## POTENTIAL FOR MULTI-USE:

   Ranking evaluates multiple use opportunities for expansion of the Police facility, co-location of other city functions within the confines of the site, supported access, parking and general placement of a new Police facility.

5. ## PUBLIC ACCESS TO SITE – VEHICLE:

   Ranking evaluates vehicular access to and from the site for both the public and the Police Department. Vehicular access evaluations took into consideration proximity to major arterial streets and highways, visibility and way-finding and ease of circulation once on site.

6. ## PUBLIC ACCESS TO SITE – TRANSIT:

   Ranking evaluates proximity to public transit infrastructure including light rail stations and bus stops, as well as frequency of routes.

7. ## PUBLIC ACCESS TO SITE – PEDESTRIAN/BICYCLE:

   Ranking evaluates the ease of access for pedestrians and bicycles to and from the site.

8. ## VISIBILITY AND PROMINENCE:

   Ranking evaluates the visibility and prominence the site offers for placement and development of a new civic structure for the City of St. Helens. Visibility and prominence can be impacted by alternative parameters such as size and shape of site, natural constraints such as terrain and floodplains and available positioning within the site for the building and parking.

9. PROXIMITY TO GOVERNMENT FUNCTIONS:

Ranking evaluates the proximity of the site to other civic structures, functions and property owned by the City of St. Helens.

10. NEIGHBORHOOD CONTEXT:

Ranking evaluates the context of the site and surrounding property. Evaluations took into account the nature of a Police department and the scale of the facility as it relates to adjacent commercial, industrial or residential properties.

11. POSITIONING FACILITY ON SITE:

Ranking evaluates the flexibility of positioning the facility on the site to maximize visibility and prominence, security and potential for multi-use.

12. SECURITY:

Ranking evaluates the ability to appropriately locate the facility, public parking, secure parking and access to and from the site in a manner that supports the safety and security parameters associated with a Police facility.

13. TRAFFIC CONGESTION:

Ranking evaluates street infrastructure, signals, one-way and two-way streets and potential traffic impacts associated with development of a new Police facility.

14. EXPANSION TO ADJACENT SITES:

Ranking evaluated on the prospective site's direct adjacency to potential future property that could be acquired for either future expansion or development of alternative City functions.

15. PROXIMITY TO GEOGRAPHIC CENTER:

Ranking evaluates the property's proximity to St. Helens' city center. As a central headquarters, centralizing the facility within the service area is essential while coupling placement with close proximity to major vehicular streets, arterials and highways.

16. CURRENT OWNERSHIP:

Ranking evaluates the current ownership of the property, required purchase for multiple parcels and difficulties associated with land acquisition of property.

17. LAND USE:

Ranking evaluates the current use allowance (permitted outright or through a conditional use) and other general zoning regulations.

18. RESPONSE TIME:

Ranking evaluates the property's proximity to response areas.

IMPORTANCE FACTOR MATRIX

RANKED: 1 - 4

(1: LEAST SUITED; 4: MOST SUITED)

		SITE 1: 1771 COLUMBIA BLVD
1.	COST OF LAND / SITE DEVELOPMENTS	2
2.	SIZE OF SITE	1
3.	SHAPE OF SITE	4
4.	POTENTIAL FOR MULTI - USE	2
5.	PUBLIC ACCESS TO SITE - VEHICLE	4
6.	PUBLIC ACCESS TO SITE - TRANSIT	4
7.	PUBLIC ACCESS TO SITE - PEDESTRIAN/BICYCLE	4
8.	VISIBILITY AND PROMINENCE	4
9.	PROXIMITY TO GOVERNMENT FUNCTIONS	3
10.	NEIGHBORHOOD CONTEXT	4
11.	POSITIONING FACILITY ON SITE	3
12.	SECURITY	4
13.	TRAFFIC CONGESTION	3
14.	EXPANSION TO ADJACENT SITES	3
15.	PROXIMITY TO GEOGRAPHIC CENTER	4
16.	CURRENT OWNERSHIP	1
17.	LAND USE	3
18.	RESPONSE TIME	3
	ASSESSMENT SCORE	**56**
	CUMULATIVE RANK (BASED ON ASSESSMENT SCORE)	**1ST**

SITE 2: 1271 COLUMBIA BLVD	SITE 3: OLD PORTLAND ROAD	SITE 4*: OREGON STREET
3	4	1
2	3	4
3	1	2
3	1	4
3	2	1
3	2	1
3	2	1
3	2	1
4	2	1
3	2	1
2	1	4
3	2	1
2	4	1
2	1	4
3	2	1
2	4	3
4	2	1
2	4	1
50	**41**	**33**
2ND	**3RD**	**4TH**

* the City ranked the site and due to its ranking elected not to have further evaluation on the site completed.

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VISIONING

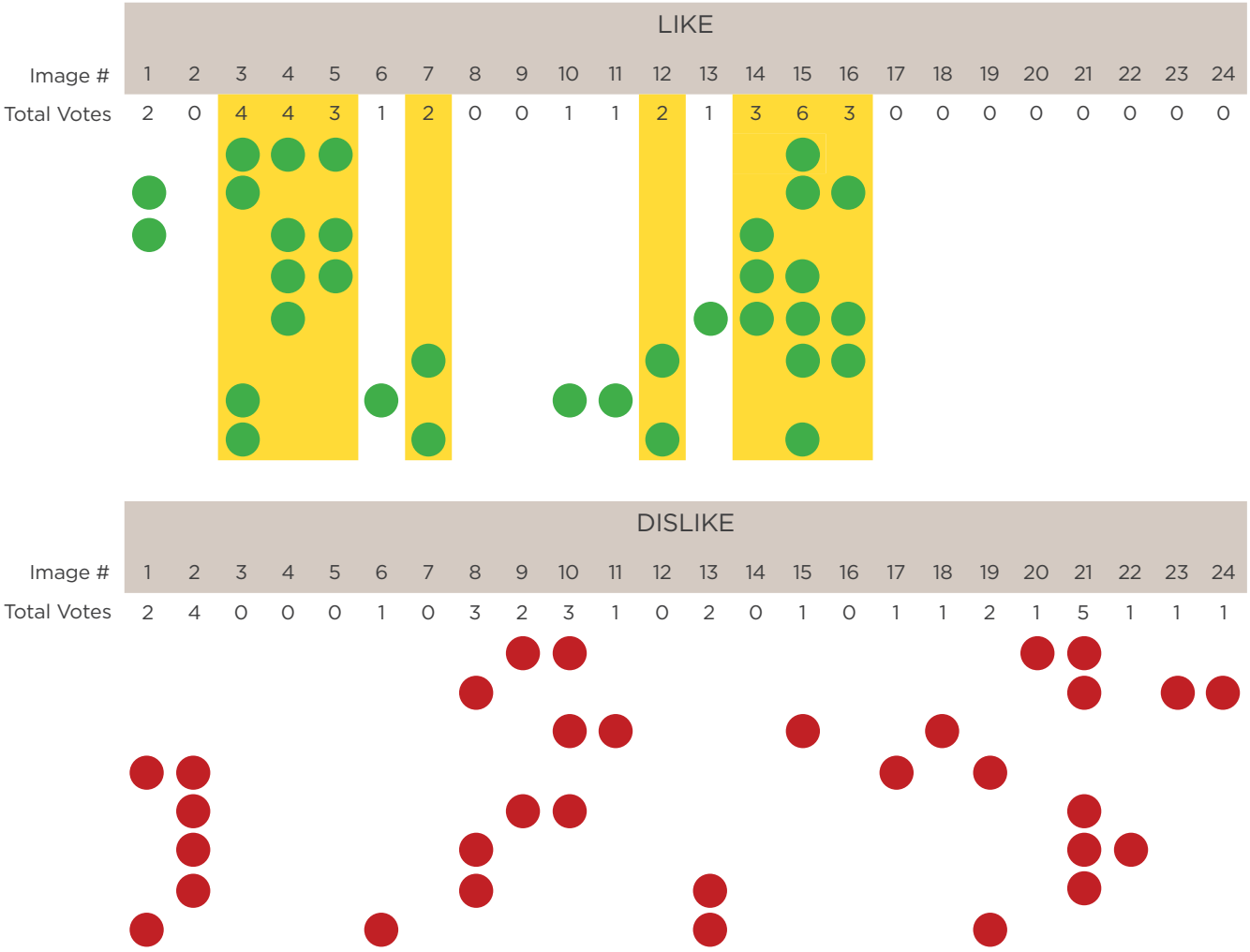
VISIONING SUMMARY

The goal of the visioning process is to draw information from stakeholders about preferences for the new facility. Mackenzie researched images of projects that encompassed civic facilities, police facilities and facilities that captured varying character so that stakeholders could express their preferences for building character and elements.

In addition to taking note of building elements such as materiality, amount of transparency, and scale, it is also important to incorporate design ideas early on in the process about the surrounding site in which the building resides. When considering the nature of the Police Station site, its history, and the anticipated use by the Police Department, it is important to closely examine and understand the outside environment and the community in which the building will reside within.

In this process, members of the St. Helens Police Department and the City of St. Helens voted on 24 total images that they liked (using a green dot) and images that they did not like (using a red dot). After stakeholders placed their dots, a discussion was held to draw upon the specific reasons why someone considered the image something they liked or dislike or other subtleties. The results of the dot exercise are then tabulated in the chart below.

The visioning imagery on the following pages is a compilation of the images that received the greatest positive response for the new St. Helens Police Station. These precedent images were utilized to aid in the development of the building character shown in the following concept development section of this report.



1

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2

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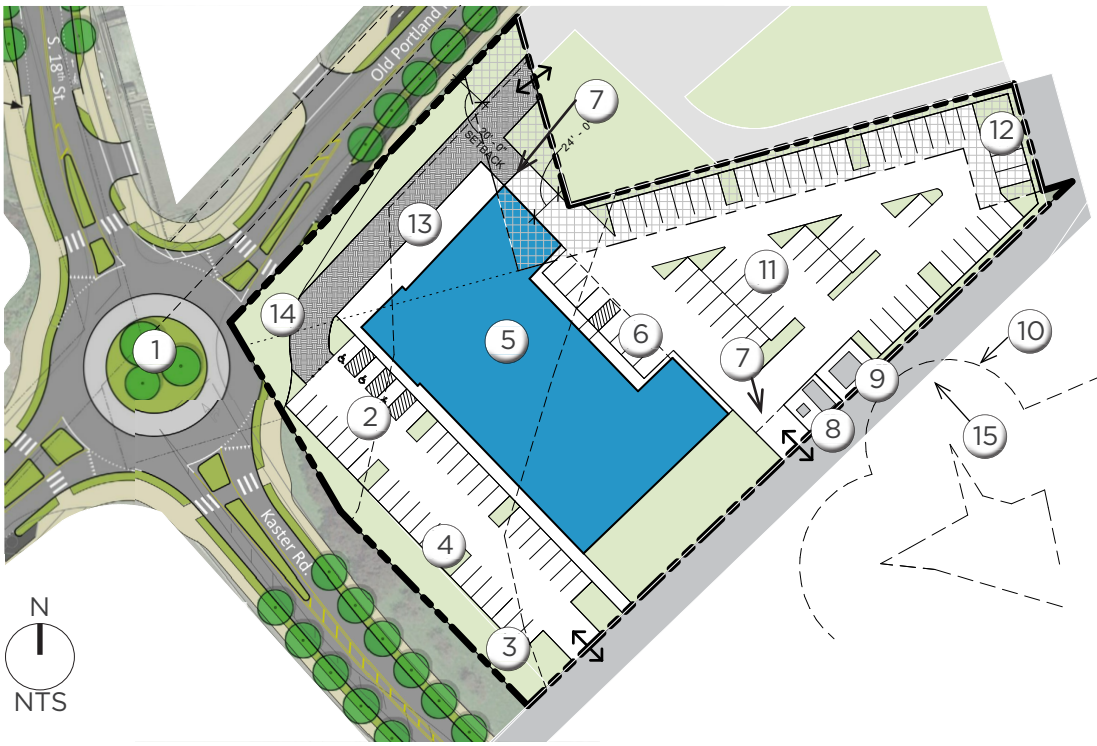
CONCEPT DEVELOPMENT

CONCEPTUAL SITE PLAN

At the end of the Site Evaluations process, the City of St. Helens and St. Helens Police Department decided to move forward with having Mackenzie further develop the concept for the Old Portland Road site. According to Police Staff, the Old Portland Road site gives Police better access to the highway via Millard Road in the event of a train blocking Gable Road or Columbia Road, allows for future growth of the Police Department and does not have the hindrance of one-way streets like the downtown core does.

The team collectively looked at how to best orient the Police Station on the approximately 2.3-acre site and the City of St. Helens chose the layout that is expressed in the site plan below. This site plan offers distinct public and secure areas for the Police facility. The public parking is accessed off the existing right of way which is located adjacent to the south west corner of the site via Kaster Road. The public parking is adjacent to the public programmatic elements of the building, allowing direct connection for the public. The public parking lot also has a secondary access point, if needed, along the north side of the site. Also, along the north side of the site, directly adjacent to the north side of the building is a public plaza. This public plaza is also adjacent to the Courtroom which is in the NW corner of the building. There are two gated access points for the secured parking, one is adjacent to the existing right of way and the other is off Old Portland Road. The secure parking layout allows the Police to have easy and direct access to the east side of the building where the Police programmatic functions are located.



1. FUTURE ROUNDABOUT
2. 100 YR FLOOD PLAIN LINE
3. 500 YR FLOOD PLAIN LINE
4. PUBLIC PARKING
5. ST. HELENS POLICE STATION
6. COVERED PARKING
7. SECURITY GATES
8. TRANSFORMER & GENERATOR AREA
9. TRASH ENCLOSURE
10. WETLAND BUFFER ZONE
11. SECURE PARKING
12. VACATED RIGHT OF WAY
13. PUBLIC PLAZA
14. SEPARATION OF LI AND R5 ZONES
15. MODIFY WETLAND BUFFER ZONE THROUGH MEANS OF BUFFER ZONE AVERAGING

SITE INFORMATION

LOCATION

- Old Portland Rd.
  St. Helens, OR
- Tax Lot: 4M1W-9AB-1400

TOTAL SITE SIZE

- 2.3 Acres

ON-SITE PUBLIC PARKING (9X18)

- 39 Spaces

SECURE PARKING (10X20)

- 66 Spaces

TOTAL PARKING

- 105 Spaces

ZONING

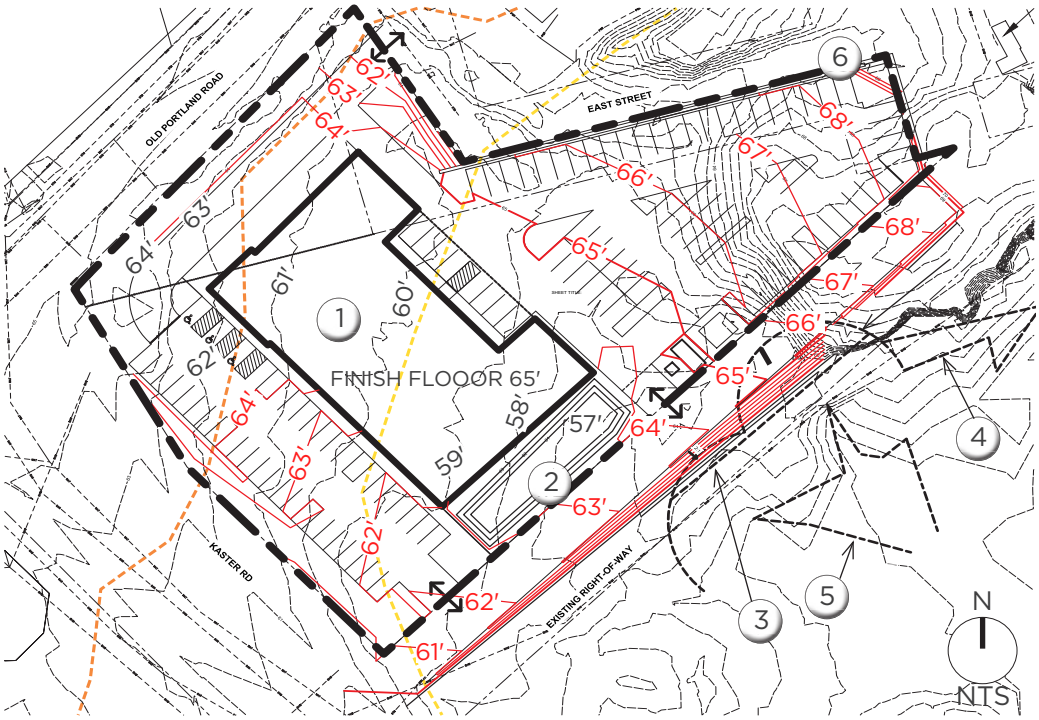
- Majority of the lot is under LI Zone.

CONCEPTUAL GRADING PLAN

While working through the process of refining the site plan, the team also looked at how the site could be conceptually graded. The Old Portland Road site has 100-year and 500-year floodplains that are within its boundaries. The St. Helens Municipal Code (SHMC), 17.46.050, 6, states that new critical facilities (which includes Police Stations), are required to be at least three feet above the base flood elevation or to the height of the 500-year flood plain, whichever is higher. The team designed the finish floor of the Police Station to be three feet above the 100-year flood plain.

The SHMC goes onto say that access to and from the critical facility shall also be protected to the height mentioned above. An access point up the east end of the existing right of way along the southern edge of the site would need to be created to allow ingress/egress from the site during a flood event.

Along the south edge of the site is a wetland and wetland buffer zone that would need to be slightly modified as part of the development to create ingress/egress from the site. Also, along the south edge of the site is a stormwater facility to filter runoff from the site.

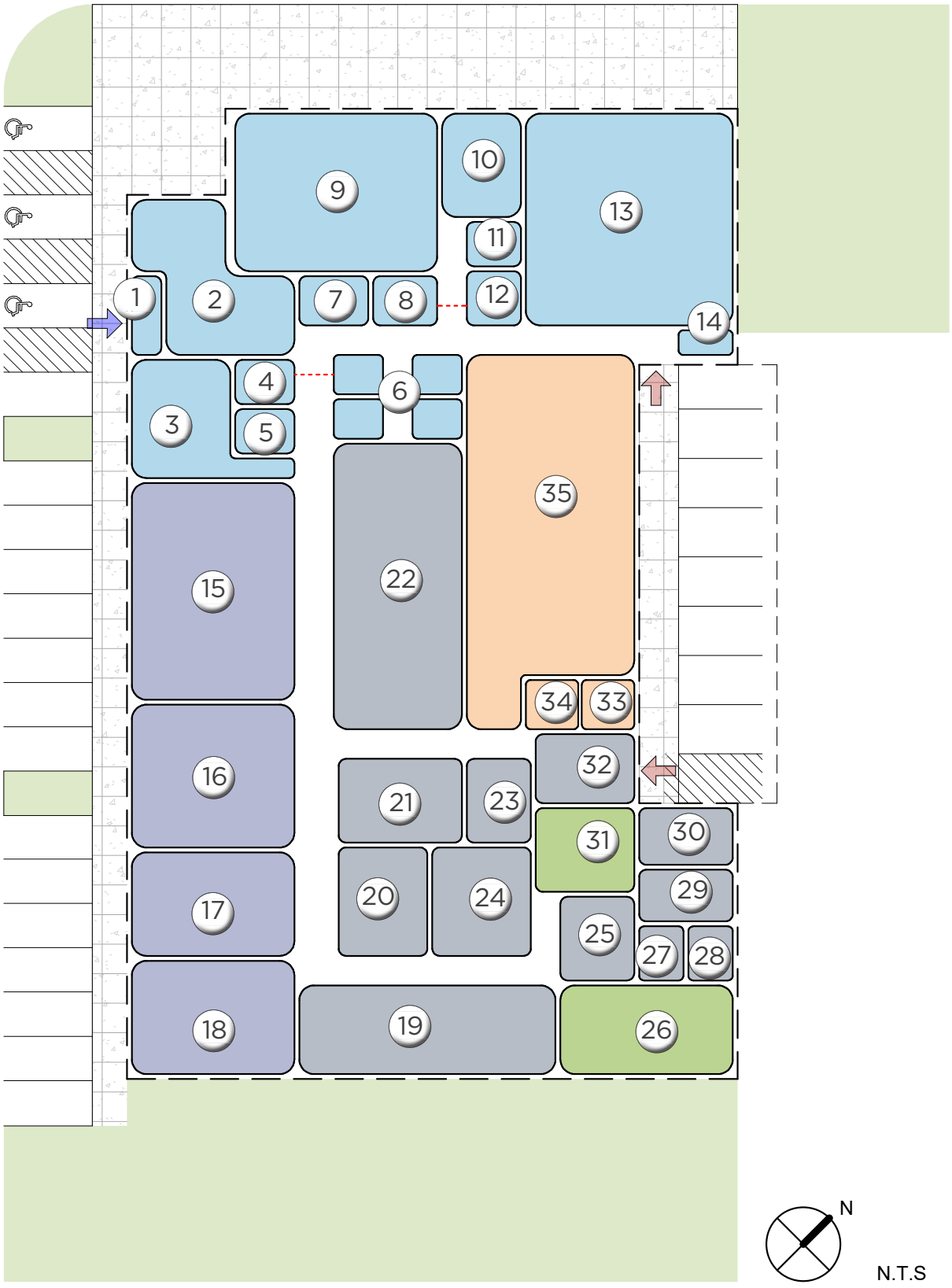


1. ST. HELENS POLICE STATION
2. STORMWATER FACILITY
3. MODIFY WETLAND BUFFER ZONE THROUGH MEANS OF BUFFER ZONE AVERAGING
4. WETLAND 50' BUFFER ZONE
5. WETLAND EXTENT
6. 6' TALL RETAINING WALL

Legend

- Existing Site Grade Line
- New Site Grade Line
- 100 Year Flood Plain Line
- 500 Year Flood Plain Line
- St. Helens Police Station
- Property Line

ADJACENCY DIAGRAMS - OPTION 1



While working through the conceptual site and grading plans, the team evaluated the interior adjacencies of the building. Understanding the relative sizes, proximity, and relationships between interior and exterior spaces is key. Police station facilities are unique in that the relationships of all elements are closely linked to the ability of the police department to efficiently and effectively serve the community.

In adjacency diagram option 1, the team placed the public and City Hall type functions along the northwest end of the building. This would place those functions directly adjacent to the Public Plaza and have a stronger connection to Old Portland Road. The southeastern portion of the building would then be reserved for Police and other secure and back-of-house functions.

1. VESTIBULE
2. LOBBY
3. RECORDS
4. SOFT INTERVIEW
5. COPY/STORAGE
6. UNISEX RESTROOMS
7. COURT CLERK
8. ATTORNEY
9. COURT
10. JURY ROOM
11. UNISEX RESTROOM
12. JUDGE
13. TRAINING
14. SECURE VESTIBULE
15. ADMIN
16. BRIEF
17. DETECTIVE
18. PATROL
19. BREAK
20. POLICE SUPPORT
21. ARMORY
22. LOCKER
23. EQUIP. STORAGE
24. IT/SERVER
25. JANITOR
26. PATIO
27. PATIO STORAGE
28. FIRE RISER
29. MECHANICAL
30. ELECTRICAL
31. K9
32. MUD
33. HARD INTERVIEW
34. HARD INTERVIEW
35. EVIDENCE

PUBLIC ENTRY

SECURE ENTRY

SECURE GATE

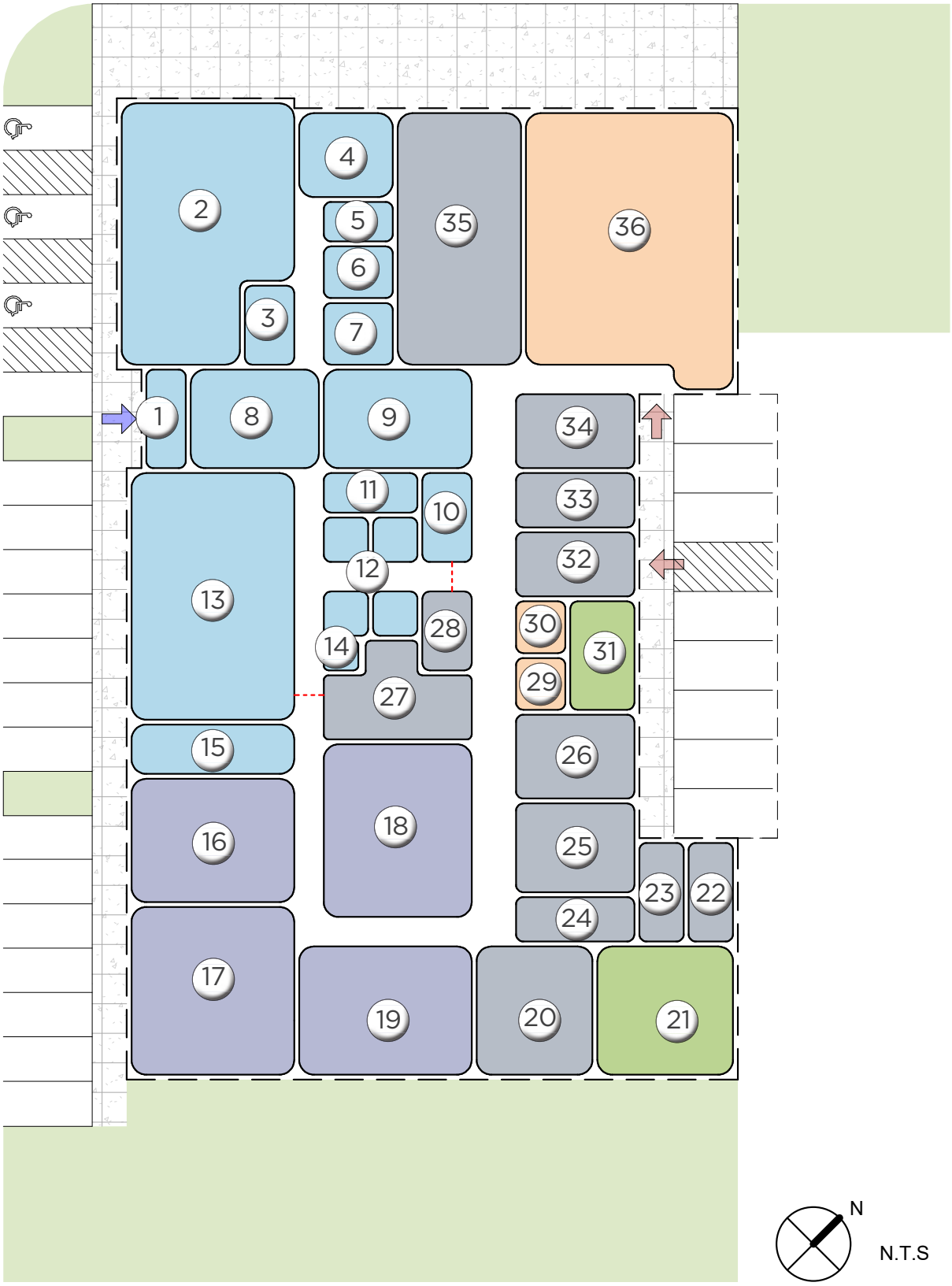
CITY HALL

POLICE

EVIDENCE AND INTERVIEW

EXTERIOR SPACE AND DOG WASH

ADJACENCY DIAGRAMS - OPTION 2



In adjacency diagram option 2, the team placed the public and City Hall type functions along the southwest side of the building. This orientation aligned more programmatic elements to the public parking lot, but still kept the Court and Lobby at the west corner of the building which still had strong connections to the Public Plaza and Old Portland Road. The northeastern portion of the building would then be reserved for Police and other secure and back-of-house functions. The team, with input from the Police Department, decided that option 2 would be best to further develop.

1. VESTIBULE
2. COURT
3. COURT CLERK
4. JURY ROOM
5. UNISEX RESTROOM
6. JUDGE
7. ATTORNEY
8. LOBBY
9. RECORDS
10. SOFT INTERVIEW
11. COPY/STORAGE
12. UNISEX RESTROOMS
13. TRAINING
14. D.F.
15. TRAINING STORAGE
16. DETECTIVE
17. ADMIN
18. BRIEF
19. PATROL
20. BREAK
21. PATIO
22. FIRE RISER
23. ELECTRICAL
24. MECHANICAL
25. IT/SERVER
26. POLICE SUPPORT
27. POLICE SUPPORT
28. JANITOR
29. HARD INTERVIEW
30. HARD INTERVIEW
31. K9
32. MUD
33. EQUIP. STORAGE
34. ARMORY
35. LOCKER
36. EVIDENCE

PUBLIC ENTRY

SECURE ENTRY

SECURE GATE

CITY HALL

POLICE

EVIDENCE AND INTERVIEW

EXTERIOR SPACE AND DOG WASH

CONCEPTUAL FLOOR PLAN - HIGH OPTION

City of St. Helens

March 31, 2021

Building upon the approval of adjacency diagram option 2, the conceptual floor plan was developed to further refine exactly where secure and public functions would exist within the building and how those areas would be served through circulation routes. The southwest side of the building would serve public functions including, but not limited to, the lobby, court, training room and records. The public entry is placed adjacent to the public parking and a plaza that wraps around the west corner of the building. Programmatic elements, such as the lobby, court, jury room and fitness room, will have a direct visual connection to public plaza.

The other portions of the building are Police functions that are connected via a secured corridor. The Police lockers, K9, evidence and interview rooms are located along the northwest edge of the building with access to the covered secure parking area. The southeast portion of the building has a detective suite and office areas. The southeast portion of the building also contains conference rooms, a break room and patrol areas which are mostly open to provide spatial connections to other programmatic functions within that area of Police facility. The northeast edge of the building has support rooms such as electrical, fire riser and armory rooms that have direct access to the secured parking area.

1. VESTIBULE
2. LOBBY
3. CLERK
4. COURT
5. JURY ROOM
6. UNISEX RESTROOM
7. JUDGE
8. ATTORNEY
9. CONF./ EVIDENCE ROOM
10. RECORDS
11. COPY/STORAGE
12. CONFERENCE ROOM
13. SOFT INTERVIEW
14. UNISEX RESTROOM
15. UNISEX RESTROOM
16. UNISEX RESTROOM
17. JANITOR
18. UNISEX RESTROOM
19. AV
20. STORAGE
21. TRAINING/ EOC
22. LARGE CONFERENCE
23. SERGEANT
24. STORAGE
25. WELLNESS
26. DETECTIVE
27. LIEUTENANT
28. SERGEANT
29. SERGEANT
30. CHIEF
31. SERGEANT
32. SERGEANT
33. PATROL
34. COPY AREA
35. BREIFING ROOM
36. BREAK ROOM
37. PATIO
38. IT/SERVER
39. IT OFFICE
40. ELECTRICAL
41. FIRE RISER
42. MECHANICAL
43. ARMORY
44. EQUIPTMENT
45. MUD
46. HARD INTERVIEW
47. HARD INTERVIEW
48. K9 GROOMING
49. K9
50. BIKE STORAGE
51. EVIDENCE OFFICE
52. EVIDENCE TECH
53. EVIDENCE STORAGE
54. VEHICLE STORAGE
55. FITNESS
56. SHOWER
57. LOCKERS

CITY HALL

POLICE

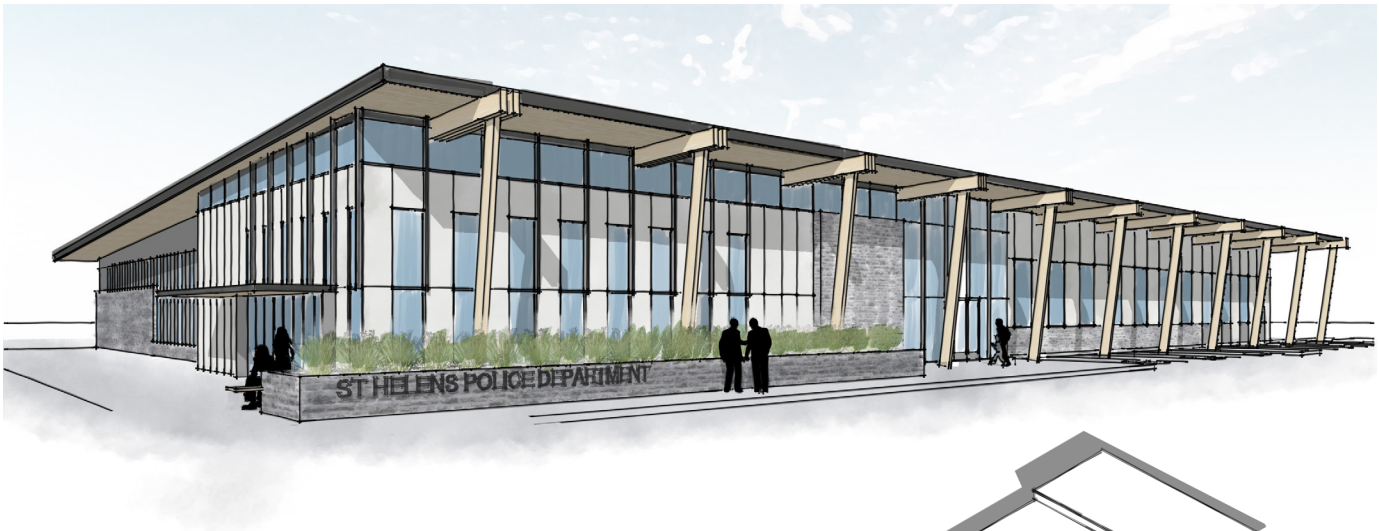
EVIDENCE AND INTERVIEW

EXTERIOR SPACE AND DOG WASH

CHARACTER RENDERINGS

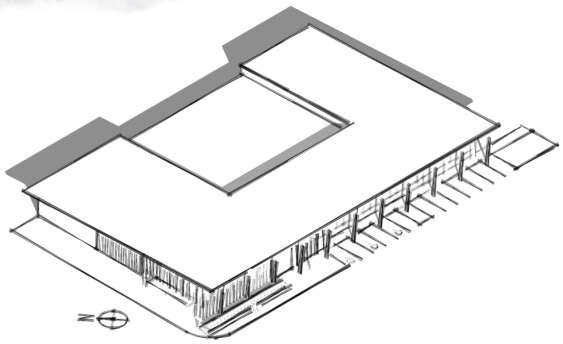
After the visioning exercise, and after the City selected a floor plan for finalizing, Mackenzie developed three exterior rendering schemes that began to describe the structure, form and fenestration of the facility. Each scheme provided the team the opportunity to also see how different massing and roof elevation changes could be expressed. The Police Department and City staff selected Scheme C for further refinement.

As shown on pages 05-12 and 05-13, Mackenzie refined Scheme C to more clearly define building materials, fenestration and express the large public plaza in more detail that wraps around the public functions of the building. The building materials are representative of features and textures in other St. Helens civic buildings. For a police facility, the materials must also be secure and resistant to firearms, projectiles, vehicle attacks and blasts. These constraints drove fenestration and material placement shown on the final rendering. The majority of the exterior of the building is masonry and stone which reinforces the overall longevity of the building, both physically due to the durability of the materials and in terms of the external perception of the facility. The masonry and stone emphasize a solid foundation for the building which responds to the design for a low maintenance and cost-effective facility.



Scheme A Highlights

- Arcade of windows along the front and sides of the building.
- Administrative areas of the building would have large punch window openings.
- Large overhang along the entire length of the front of the building.
- Low slope roof with a well along the back side of the building where mechanical units would be located.

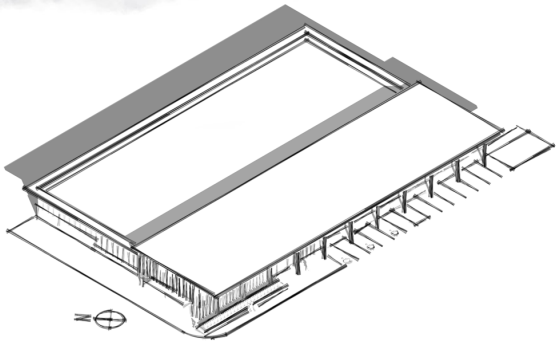


Aerial Axonometric

Scheme A

Scheme B Highlights

- Arcade of windows along the front and sides of the building.
- Administrative areas of the building would have large punch window openings.
- Large overhang along the entire length of the front of the building.
- Shed roof on the front half of the building would screen mechanical units placed on the back half of the building

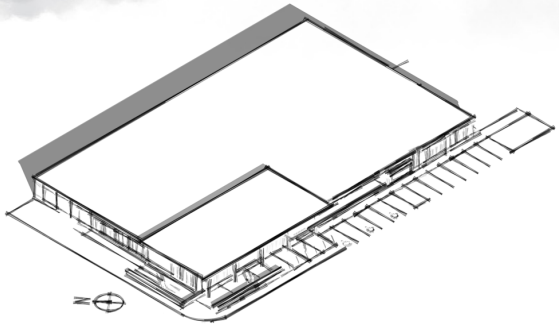


Aerial Axonometric

Scheme B

Scheme C Highlights

- Elevated low slope roof over the public functions of the building.
- Large window bays in the public areas and smaller windows in Police and administrative areas for more privacy.
- Slender steel columns in lieu of wood (as indicated in Schemes A and B).



Aerial Axonometric

Scheme C

CONCEPTUAL CHARACTER RENDERING

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PROJECT COST DEVELOPMENT

COST SUMMARY

Following the completion of plan development, Mackenzie evaluated cost impacts of the St. Helen's Police Department to meet Department needs for the next 20 plus years. The following cost summary shows projections of a total development cost, including estimated construction costs, consultant costs, and owner costs. The black text represents cost items that the design team identified and red text represents cost items the City identified for cost forecasts for the project. The mid option provides an estimated cost savings of $1,469,258 compared to the high option, however, the smaller facility would not meet the longer term needs of the St. Helens Police Department.

Development costs of a project are not limited to construction costs alone and require consideration of other variables. These variables differ between new construction and renovation or expansion, and invariably change from one project to the next depending on site conditions, existing building conditions, building codes, seismic zones, and the environment of the construction industry. Differences between estimates arise depending on the design approach, construction costs, and design and engineering costs. Owner costs for furniture, fixtures, and equipment are often constant, based on a predetermined budget set by the St. Helens Police Department.

Construction costs reflect the raw costs incurred by a general contractor for overhead and profit, bonding and insurance, securing of materials, and general construction of the site and building. In addition to the identified construction costs, a contingency is recommended to ensure dollars are carried through construction for owner changes, design omissions, and unforeseen conditions for jurisdictional requirements, among others.

Consultant costs reflect the costs incurred for project management and design of the project from conceptual design through construction administration. Though design fees can vary, these costs are generally factored using a fee based on the construction costs for the project. In addition to architectural and engineering services, costs include marketing materials and required services such as topographical surveys and special inspections. A contingency is provided for this category for any unforeseen or additionally requested design services throughout the project.

Owner costs reflect the costs generally incurred directly by the owner throughout the project. This includes all items the owner may wish to contract separately from the general construction of the project. Additional owner-related costs include relocation into the new facility, legal documentation and counsel for project documents and issuances, and jurisdictional fees associated with design review, building permits, SDCs, TIF fees and BOLI fees. A contingency is provided in this category for any unforeseen or undefined costs not currently represented.

St. Helens Police Project Cost Summary

Last updated: 3/31/2021

	MID OPTION	HIGH OPTION	
square feet	19,888	22,778	***Comments***
Construction Cost of Facility			
Building Hardcost	-	**$7,444,621**	
On-Site Hardcost	-	**$1,892,650**	2.3 acres
Off-Site Hardcost	-	**$380,052**	Improvements to: Old Portland Rd / Kaster Rd / Existing ROW to SE
Hardcost Subtotal	-	**$9,717,323**	
Contractor Markups/Margins			
Estimating Contingency	-	$1,943,465	20% of hardcost subtotal
General Conditions	-	$816,255	7% of hardcost subtotal and markups above
Insurance	-	$49,908	0.4% of hardcost subtotal and markups above
Profit & Overhead	-	$751,617	6% of hardcost subtotal and markups above
Performance Bond	-	$159,343	1.2% of hardcost subtotal and markups above
Escalation to Spring 2022	-	$1,075,033	8% of hardcost subtotal and markups above
Solar & Green Energy per State of Oregon Requirement	-	$217,694	1.5% of hardcost subtotal and markups above
OR Gross Receipts Tax (0.5%)	-	$73,653	0.5% of hardcost subtotal and markups above
Alternate: Utilize Norman Brick in lieu of CMU	-	$46,870	
Alternate: Utilize GLB/CLT for high roof in lieu of steel	-	$98,690	
Total Construction Costs *	**$13,622,098**	**$14,949,851**	High Option: $656.33 per square foot (hardcosts and margins only)
Consultants Costs			
A/E Design and Construction	$1,362,210	$1,494,985	Assumes 10% of total construction costs
Reimbursables	$20,433	$22,425	1.5% of A/E Base Services (allowance)
Owners Representative	$250,000	$250,000	Allowance
Public Outreach / Marketing Materials	$30,000	$30,000	Allowance
Topo and Boundary Survey	$15,000	$15,000	Allowance
Geotechnical Services - Design	$15,000	$15,000	Allowance
Geotechnical Services - Inspection	$35,000	$35,000	Allowance
Environmental Services (Wetlands Consultant)	$10,000	$10,000	Allowance
Hazardous Material Survey/Testing	$0	$0	N/A
Arborist	$0	$0	N/A
Special Inspections	$25,000	$25,000	Allowance
Subtotal - Consultant Costs	**$1,762,643**	**$1,897,410**	
Consultants Contingency	$88,132	$94,870	5% of Consultant Cost subtotal
Total Consultants Costs	**$1,850,775**	**$1,992,280**	
Owner Costs			
Land Acquisition	$0	$0	Property owned by the City
Fixtures, Furniture & Equipment (FF&E)	$500,000	$500,000	Allowance
Mobile Shelving / Personnel Lockers / Evidence Lockers	$275,000	$275,000	Allowance (by Spacesaver)
Audio / Visual Equipment (OFCI)	$150,000	$150,000	Allowance
Telephone / Data Equipment	$100,000	$100,000	Allowance (includes installation)
Moving / Relocation	$30,000	$30,000	Allowance
Temporary Facilities	$0	$0	N/A
Permit Fees	$380,000	$380,000	Permits, SDCs and TIFs
BOLI Fees	$7,500	$7,500	1/10% of Total Construction Costs ($7,500 Max)
Subtotal - Owner Costs	**$1,442,500**	**$1,442,500**	
Owner Contingency	72,125	72,125	5% of Owner Costs subtotal
Total Owner Costs	**$1,514,625**	**$1,514,625**	
Grand Total Project Cost	**$16,987,499**	**$18,456,756**	High Option: $810.98 per square foot
Difference	**$1,469,258**		

* The total construction costs of the "mid option" was calculated based on 70% of the cost per square foot of the "high option".

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APPENDIX A: NARRATIVE FOR BASIS OF COST

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MACKENZIE.

DESIGN DRIVEN | CLIENT FOCUSED

ST. HELENS POLICE DEPARTMENT

CONCEPTUAL DESIGN NARRATIVE

To
City of St. Helens

For
St. Helens Police
St. Helens, Oregon

Submitted
December 8, 2020

Project Number
2190014.00

TABLE OF CONTENTS

PART 1

PROJECT DESCRIPTION

The following further describes the new St. Helens Police station:

1. The project will be located on an approximately 2.3 acre parcel at the SE corner of Old Portland Rd. and Kaster Rd. in St. Helens, Oregon.
2. The project also consists of public right-of-way improvements for half of Old Portland Rd., half of Kaster Rd. and half of the existing right-of-way (7th) which is directly southeast of the property.
3. The building is approximately 20,330sf, one story and will be designed to meet essential facility requirements.
4. The entire roof consists of a low slope roof. The northwest corner of the roof is raised above the rest of the roof. The main building functions that occur under the raised roof are the Court, Jury Room and Court Clerk.
5. The construction classification of the building will be Type V-B construction with the following occupancies:
    a. B: Business (Majority of the building)
    b. A-3: Assembly (Court and Training/EOC)
    c. S-1: Storage (Vehicle Storage)
6. The project includes mechanical, electrical, plumbing and fire protection systems.

A. SUBSTRUCTURE

A10 FOUNDATIONS

A1010 Standard Foundations

- Exterior non bearing walls with or without heavy cladding will have thickened slab edge foundations.
- Any interior or exterior non-bearing CMU walls will be supported on continuous foundations.
- Building columns to be on conventional spread footings.
- Braced frame foundations to be large spread footings between the grids that the brace lands on.

A1020 Special Foundations – NOT USED.

A1030 Slab on Grade

- Vehicle or movable storage: 6” concrete slab on grade over gravel base.
- All Other Areas: 4” concrete on grade over gravel base.

- Vapor barrier under all portions of the slab.

A20 BASEMENT CONSTRUCTION

A2010 Basement Excavation

- None.

A2020 Basement Walls

- None.

B. SHELL

B10 SUPERSTRUCTURE

B1010 Floor Construction

- Not applicable since building is only a single story.

B1020 Roof Construction

- Raised roof in NW corner of building: Wide flange beams and girders spanning to HSS columns with 20 ga B deck.
    - Add-alternate at raised roof: Glulam framing members with 5 PLY CLT panel with 19/32" PLY Sheathing on top. CLT to cantilever from edge of building.
- Remainder of roof: Wide flange beams and girders spanning to HSS columns with 20 ga B deck.
    - Add-alternate: Glulam framing members with 5 PLY CLT panel with 19/32" PLY Sheathing on top. CLT to cantilever from edge of building.
- Diagonal tension rod bracing is required between the upper and lower roof at the clerestory windows.
- Covered parking: Parking on the East side of the building is covered with wide flange beams and girders. An intermediate column at the edge of the sidewalk will be required for the steel beams to cantilever over the parking.
- Entry Canopy: HSS tubes cantilevered off building columns with HSS and angle subframing where required. Edge of canopy to be clad with continuous channel or hot rolled plate. 20 ga B deck spanning between members. Soffit exposed to structure.

B20 EXTERIOR ENCLOSURE

B2010 Exterior Walls

- Exterior walls are balloon framed at 16" o.c. with R-13 batt insulation and R-7.5 continuous rigid insulation with continuous air barrier (tested) with CMU (4" D x 4" T x 16" L, Color: Dark Grey, Stack Bond, https://www.mutualmaterials.com) veneer w/ cavity. Reference character renderings.
    - Add-Alternates: Exterior walls balloon metal framed at 16" o.c. with R-13 batt insulation and R-7.5 continuous rigid insulation with continuous air barrier (tested). Masonry cavity wall cladding, as follows:
        i. Alternate #1: Brick Rainscreen w/ Cavity: Mutual Materials Norman Face 4" (3½" D x 2½" H x 11½" L), Ebony, Stack Bond, https://www.mutualmaterials.com
        ii. Alternate #2: Terracotta Rainscreen (including attachment): Argeton Terracotta, Tampa 150mm, Color: Volcano Grey, https://www.tellingarchitectural.com
        iii. Alternate #3: Thin Brick Rainscreen (including attachment): Corium Brick, Color: 92100 www.tellingarchitectural.com
- Metal Panel Accent: Metal Panel Rainscreen: Alucobond Plus, Color: Black Anodized https://www.alucobondusa.com. Assume 5% of the exterior wall.
- Natural Stone Base: Columbia River Basalt. 3'-0" tall around base of entire building. Reference character renderings.
    - Add-Alternates: Black Horse Alpine Ledgestone https://www.mutualmaterials.com

B2020 Exterior Windows

- Storefront Frames: Kawneer 451UT storefront system. Color: Dark bronze. Architectural Class 1, anodized aluminum finish. Assume 40% of exterior wall.
- Curtainwall Frames: Kawneer 1600 curtain wall system; Dark Bronze, anodized aluminum finish. (Only at Lobby and Clerestory glazing at Court/Community Room).
- Glazing: Glazing: 1" insulated glass; ¼ Guardian SN 68 (#2) Clear Annealed, ½" Mill Spacer, ¼" Clear Annealed. Values: Solar heat gain coefficient (.36), U-Factor (.38). Low E coating.

- Glazing: Level III Bullet Resistant glazing. Assume half of the storefront glazing is bullet resistant glazing.

B2030 Exterior Doors

- Storefront Doors: Aluminum framed storefront entry system by Kawneer.
- Door Hardware: Panic hardware at all exterior doors. Finish: Brushed nickel.
- Secured entry 3'-0" (minimum), insulated steel personnel door with fully welded 14 gauge un-grouted steel frames with view panel.
- Exterior overhead door at Vehicle Storage: High-lifting sectional, steel, insulated (min. U-0.310), with view panels, automatic operator with manual override, interior and exterior push button controls, and lockout on exterior. Install HSS tubes to frame overhead door opening.

B30 ROOFING

B3010 Roof Coverings

- Low slope built up roofing system (Johns Manville or Firestone) over ½" protection board over continuous code minimum rigid insulation (R-30) over metal "B" deck. 30 year warranty.
- Assume 500sf of roof walkway pads.
- Solar panels consisting of 1.5% of the overall project budget to be installed on the roof.

B3020 Roof Openings

- Roof hatch (steel and insulated) to be 48" x 48" at the top of the design build steel stairs in the Mechanical Room.

C. INTERIORS

C10 INTERIOR CONSTRUCTION

C1010 Partitions

- Light gage 3-⅝" metal framing with ⅝" gypsum wallboard (both sides).
- Sound attenuation insulation (R-13) in all interior walls with acoustical sealant at sill and head conditions, typical.
- Interior walls run to the bottom of structural decking, typical.

C1020 Interior Windows

- Interior Relites: Frameless butt glazing, to match height of adjacent door. 6' width at office and full face of meeting rooms.
- Locations: At all offices, meeting and break rooms.

C1030 Interior Doors

- Solid wood doors: Solid core, stain grade wood veneer doors with painted, fully welded hollow metal frames.
- Solid wood doors with full glazed panel: Solid core, stain grade veneer doors with full glazed vision panel with wood trim, with painted fully welded hollow metal frames.
- Door hardware: Schlage ND series typical at interior wood doors. Panic hardware at Lobby, Court and Training/EOC.

C1040 Fittings

- Lockers and Shelving:
    - Freestyle Personal Storage Lockers by Spacesaver, Inc. Size; 18" wide by 24" deep by 72" high. Includes locker and 15" foot locker. Two-tone locker color, custom stained bench. See floor plans for extent.
        i. Quantity – 38 Duty Lockers
    - Pass-Thru Evidence Lockers by Spacesaver, Inc. 3x units, 36" wide each, one unit to include refrigeration.
    - Weapons Storage by Spacesaver, Inc. (2x) wall mounted four capacity handgun lockers. (4x) universal weapons racks.
- Visual display boards to be provided at:
    - All meeting spaces, (1) 4x8 glass whiteboard. (1) 4x8 acoustic tackboard
    - All shared amenity spaces, break room and lobby, (2) 4x8 glass whiteboard. (2) 4x8 acoustic tackboard
    - All private offices, (1) 4x4 glass whiteboard.
- Interior signage: Provide allowance for code required and individual room signage: Frosted glass signs with stainless stand-offs and individual cut lettering
- Corner Guards: Provide 4'-0" tall stainless steel corner guards at all exterior corners and cased openings.
- Toilet Accessories: Provide Bobrick Contour Series. Provide combination recessed and partition mounted toilet paper, seat cover and waste receptacles, touchless deck mounted soap dispenser, Touchless paper towel dispenser and

waste paper receptacle, shower rods and curtain rings, including two robe hooks.
- Toilet Partitions: Hadrian embossed stainless steel, headrail braces #4 brushed.
- Acoustic panels: Snaptex 1" Square profile high impact panels at all meeting rooms, amenity spaces and break room, assume 40 % of wall surface

C20 STAIRS

C2010 Stair Construction

- Design build steel stairs (7" rise / 11" run) with guardrail (on one side) and handrails (on both sides) with concrete pan filled treads located in the Mechanical Room) that go up to a roof hatch.

C2020 Stair Finishes

- See stair construction above.

C30 INTERIOR FINISHES

C3010 Wall Finishes

- All walls to receive two coats of paint over a primer coat (3 coats total), typical unless noted otherwise. Assume 30% accent paint locations with a total of 6 colors.
- Ceramic tile with 20% accent tile on wet walls full-height in all toilet rooms.
- FRP on two walls in Janitor closet up to 5'-0".
- Wall protection: Chair rail, Koroseal wood chair rail BW80 or similar both side at all halls
- Full height wood paneling on 50% of wall in Lobby and Court, 20% of walls at training room, briefing room and break room.

C3020 Floor Finishes

- Carpet tile: Provide Cushioned back carpet tile throughout meeting areas and private offices.Assume up to two patterns.
- Polished concrete at all circulation, break spaces and common areas, assume 30% of floor area.
- Porcelain tile w/ accent tile and base: provide large format porcelain tile at floor and wet walls at toilet and locker rooms. Assume $6 per square foot

material only cost. Provide schluter aluminum transition at exposed edges or wall tile and base and interior/exterior corners.
- Transitions: Provide schluter aluminum transition at all flooring transitions.
- Entry Grille (Walk-off Mat): at all building entry/exits.
    - Grille: Mats Inc, Grate Grill, color TBD
- Base: typical at all location where tile is not defined
    - Rubber base: Roppe, 4" coved base, color TBD
    - Wood Base: 4" H solid cherry base, stained to match architects sample at lobby and public facing meeting rooms.

C3030 Ceiling Finishes

- Assume 10' ceiling height at all locations.
- Suspended Acoustical tile ceiling: Provide acoustic ceiling grid and tile throughout. Assume Armstrong Ultima, 2x4 tegular second look tile with 9/16 Thin Line Armstrong grid.
- Open to Structure: Painted structure, piping, ductwork, SAT cabling, typical where exposed. Assume 30% of space.
- Soffits: Painted gypsum board, Assume 5% of space.
- Soffits: Wood soffit, Rulon wood-backed panel grilles at court, training and break room, Assume 10% of space.

D. SERVICES

D10 CONVEYING

D1010 Elevators and Lifts – *NOT USED*

D1020 Escalators and Moving Walks – *NOT USED*

D1090 Other Conveying Systems – *NOT USED*

D20 PLUMBING

D2010 Plumbing Fixtures (ADA compliant as appropriate) - See attached product sheets.

- Water Closets: Porcelain, wall-mounted, provided with sensor operated, hard wired 1.28 GPF flushometer valves.
- Lavatories: Porcelain, under-mount sinks at restrooms.
- Sinks: Stainless steel, self-rimming.
- Faucets:
    - Sensor operated, hard wired with satin chrome finish.

    - Gooseneck faucet at all kitchen/coffee locations
- Showers: Pre-molded fiberglass, accessible (roll-in)
- Mop sinks: Stainless steel construction
- Hot and cold water hose stations will be provided at Covered Parking and Mud Room.
- Emergency Shower: Emergency eyewashes will be provided. Emergency eyewashes will be supplied tepid water from an emergency mixing valve assemblies.

D2020 Domestic Water Distribution

- Domestic cold water distributed to plumbing fixtures at an initial pressure between 50 and 80 psi using Type L copper piping above grade with lead-free solder joints, Type K copper piping below grade with brazed joints.
- The domestic hot water will be provided by gas-fired high efficiency storage water heater with circulation system. The recirculation pump will be monitored by the BAS system. Master thermostatic mixing valve will be provided at water heater.
- Hose bibbs will be provided at 100-foot intervals around the perimeter of the building.

D2030 Sanitary Waste & Vent

- Cast iron sanitary and storm sewer piping with heavy-duty couplings used to collect waste from plumbing fixtures and connect to building's sewer service. Solid-core PVC pipe will be accepted for sanitary vents and trap arms.
- Piping systems are to be provided with cleanouts at every 135-degree change in direction and at the upper terminal of each branch line.
- Electronic trap primers will be provided.
- Floor drains will be provided in all unisex restrooms, mechanical room and fire riser room.

D2040 Storm Drainage

- Interior roof drains, cast iron piping with no-hub bands. Roof overflow drains to daylight to the exterior of the building, primary roof drains will connect to the site storm water system.
- A primary storm water drainage system will be provided to serve all roof drains. The primary storm water drainage system piping will be routed down through the building, to drain by gravity and connect to the storm facility at the building exterior.

- Storm Facility – The storm facility consists of 18" of a Clean Water Services approved water quality topsoil underlain by 12" of drain rock with a perforated storm pipe in the drain rock section. The perforated pipe flows through an overflow drain to a control manhole. The control manhole has a control structure with orifices that release the storm water at or below existing release rates from the site.

D2090 Other Plumbing Systems

- Natural gas distributed to mechanical units, stove/oven, Bar-B-Q outlet at Patio, and water heaters at 2 psi. Steel piping distributed below roof deck and within ceiling spaces, welded construction within return air plenums.
- Shop air compressor will be provided. There will be a vertical receiver with an air compressor mounted on top. Air Dryer will be provided.

D2100 Plumbing Devices

- Trap Primer Systems: Trap primers will be provided for all floor drains, floor sinks and hub drains.
- ASSE 1070, point of use mixing valves (temperature limiting device) will be provided on the hot water supply to all public use plumbing fixtures.
- Access panels will be provided for maintenance access to shut-off valves and shock arresters.
- Domestic Water Backflow Preventers, will be provided as follows:
    - Incoming building domestic water service
    - Make-up for HVAC equipment
    - Water supply to the irrigation system

D30 HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

D3050 Heat/Cooling Generating Systems

- Two packaged units with supply and exhaust fans with variable frequency drives (VFD's) to control air volumes based on space heating and cooling needs. Units will be the primary source of outside air ventilation during occupied hours. The first floor will be served by a 35-ton unit while the second floor will be served by a 40-ton unit. Air will be conditioned using a direct expansion (DX) refrigeration system and gas furnace. Simultaneous heating and cooling will not be allowed. Discharge air temperatures from the rooftop units will be maintained between 55F and 65F during occupied hours. The temperature setpoint will vary based on the average temperature of zones served by the unit. Additional heating will be provided by electric reheat in the zone's terminal unit.

- Morning warm-up and night purge control sequences will be used during unoccupied hours to decrease energy use and provide a space temperature within design tolerance prior to occupancy. Morning warm-up will start a maximum of three hours prior to occupancy to bring space temperatures to the occupied heating setpoint. This will be accomplished by starting the supply fan, closing the outside air damper, opening terminal unit dampers and heating the recirculated air. A night purge sequence will open the outside air dampers fully during unoccupied hours and start the supply and exhaust fans to pre-cool the occupied space during periods of hot daytime temperatures and cool nighttime temperatures.
- The Court will be served by a 5 ton, constant volume, packaged rooftop unit with DX cooling and a gas furnace. The unit will be provided with two separate power connections so that the supply fan can be provided on emergency power and the cooling system on normal power.
- The Locker Room will be served by a 6 ton, constant volume, rooftop, heat recovery ventilator (HRV) with gas furnace and DX cooling. The unit will provide 100 percent outside air and exhaust and use a heat recovery wheel to pre- cool and pre-heat outside air before it is further conditioned by the unit's heating or cooling coil.
- Ductless split systems will be used for Server Rooms and Electrical Room. These consist of an indoor fan coil and outdoor condensing unit.
- Indoor design temperatures maintained between 70 and 75 degrees F year-round. Server Room maintained between 70 and 72 degrees F.
- Air distribution will be through supply air branch ductwork from stubout of the main duct to the VAV terminal units and diffusers. Return air will be from the ceiling return boots, to the ceiling return plenum.
- Variable air volume boxes: Single duct VAV and parallel fan-powered terminal units with Direct Digital Controls (DDC). Fan-powered terminal units will serve perimeter zones. Single duct VAV units to serve interior zones. Electric reheat coils manufactured by the manufacturer of the VAV box will be provided integral to the VAV box.
- Controls to be DDC and tied to main building Building Management System (BMS).
- Medium pressure ductwork (ductwork upstream of VAV terminal units) will be sized at no more than 2500 fpm. Low-pressure ductwork (ductwork downstream of VAV/FPBs, HRV, and packaged constant volume units) will be sized at 0.08" of water column and no more than 750 feet per minute (FPM). All sheet metal design and installation will be per SMACNA standards. Flexible duct is not allowed in exposed areas. Inlet duct to VAV box to have minimum of 4 duct diameter straight duct.
- VAV Boxes will be installed at each zone for temperature and ventilation control.

- A volume-balancing damper will be provided at each branch duct. All volume dampers in insulated systems will be provided with a 2-inch standoff. All volume dampers shall be accessible. If they are not accessible, a remote damper operator shall be provided.
- All air distribution equipment will be provided with equipment tags.
- All duct systems will be thoroughly cleaned prior to turnover.

D3060 HVAC Instrumentation and Controls

- The system will consist of series of direct digital controllers interconnected by a local area network. BAS system must offer trending, scheduling, downloading memory to field devices, real-time "live" graphic programs, parameter changes of properties, set point adjustments, alarm/event information, confirmation of operators, and execution of global commands. Fire alarm systems, security systems and elevator systems shall not be controlled by a BAS.
- Heating and cooling energy in each zone shall be controlled by a temperature sensor located in that zone. Independent perimeter systems will have at least one temperature sensor for each perimeter zone. A 5°F dead band will be used between independent heating and cooling operations within the same zone.
- Night set-back and set-up controls will be provided for all comfort conditioned spaces, even if initial building occupancy plans are for 24-hour operation. Morning warm-up or cool-down must be part of the control system. Controls for the various operating conditions must include maintaining pressurization requirements.
- Air Systems. Systems supplying heated or cooled air to multiple zones will include controls that automatically reset supply air temperature required by building loads or by outdoor air temperature. No simultaneous heating and cooling will be permitted.
- HVAC control algorithms shall include optimized start/stop for air-handling units and all associated equipment and feed forward controls based on predicted weather patterns. Lighting control shall be accomplished by use of separate control equipment that is not connected to the BAS. Optimal start/stop calculates the earliest time systems can be shut down prior to the end of occupancy hours and the latest time systems can start up in the morning with the aim of minimizing equipment run time without letting space conditions drift outside of the comfort setpoints. Programs also run economizer cycles and heat recovery equipment.
- The BAS shall have the capability to allow building staff to measure energy consumption and monitor performance, which is critical to the overall success of the system.

D3070 Air Distribution Systems

- All ductwork sheet metal will be galvanized.
- Supply ducts upstream of air boxes: SMACNA standards for medium pressure (0" to 4").
- Return air duct, supply duct downstream from terminal boxes, and general exhaust ducts: SMACNA low pressure duct standards (0" to 2").
- All supply, return, and exhaust ducts will be sealed for a maximum of class per SMACNA.
- All supply ducts upstream of terminal boxes will be leak and pressure tested for a maximum of class per SMACNA.
- Flexible Ducts: Pre-insulated with vapor barrier, used for diffuser connection and in concealed ceiling space only.
- Insulation for Ductwork:
    - Concealed supply and return ducts: R-8, 1-1/2" thick fiberglass blanket duct wrap with foil facing.
    - Exposed supply and return ducts: Insulation is not required for ductwork exposed in conditioned space.
    - Internal duct liner: 1-inch thick, Armaflex.
    - Exhaust ducts: Not insulated except for acoustic liner where required.
- Balancing Dampers: Adjustable balancing dampers in each branch take-off for proper control of balancing of the air distribution system will be provided. All operating levers will be readily accessible and be of extended type so as to not be in contact with insulation. Where dampers are inaccessible for adjustment, ceiling flush mounted concealed damper regulators with rod extension to damper, and die cast gears, as manufactured by Ventlock and Young Regulator, or equal will be provided. Dampers will be Ruskin, Johnson, or equal.
- Seismic Restraints: Refrigerant piping, ductwork, and equipment will be provided with adequate restraints conforming to the Oregon Structural Specialty Code.

D3080 Testing, Adjusting, and Balancing

- An independent testing and balancing contractor will be required (as a sub-contractor to the general contractor), NEBB or AABC certified to balance all air systems and heating and cooling equipment to the required quantities; and to verify the capacity and operating conditions of each piece of equipment.
- They will submit detailed test procedures, forms, etc. for approval prior to beginning the work.

- After balancing is complete and all airflows have been balanced to within +/- 5% of design airflow, the contractor shall submit three complete balance reports.
- Balancing Contractor shall balance the VAV system for both maximum zone airflow and minimum ventilation airflow. Contractor to document minimum required inlet pressure required for maximum airflows.

D40 FIRE PROTECTION

D4010 Sprinklers

- The fire sprinkler system design will be performed by the contractor.
- The building will be provided with a wet pipe system per NFPA 13, local building codes and Fire Marshal requirements. Areas subject to freezing, such as overhangs, canopies and unconditioned spaces, will be protected with a dry pipe system or dry sprinklers.
- Sprinklers, valves, switches, pipe, fittings, backflow preventers, hangers, sway braces and the like will be UL Listed or FM Global Approved for fire protection.
- Quick response sprinklers will be provided in Light Hazard areas.
- Piping will be concealed where possible.
- Polyester finish with polyester escutcheon. Sprinklers in unfinished areas will be bronze finish.
- Concealed heads in gypsum board ceilings. Semi-recessed heads in suspended ceilings.
- There will be a new water service to the building. A double check valve backflow prevention assembly, listed for fire protection, will be provided between the fire sprinkler system and the public water supply connection.
- It is anticipated that the backflow device will be located in a vault on site near the city water connection or at the main sprinkler riser. If located in an outside vault, the vault will be provided with a sump pump or other method of gravity drainage.
- Seismic sway bracing, interval-and end-of-branch line restraints will be provided for the sprinkler system.
- Provide sprinklers on underside of exterior canopies (at entry and covered parking).

D4090 Other Fire Protection System

- Server room to have a single-interlock preaction system.
- The server room will utilize air sampling smoke detection to activate the preaction sprinkler control valve.

D50 ELECTRICAL

- The design goals of the project will be to provide electrical systems that provide flexibility, adaptability and accessibility for both the present and future needs.

D5010 Electrical Service and Distribution

- The building will be served by a 1200 amp, 120/208V, 3 phase service with a single utility meter.
- A main electrical room will provide distribution to the building with branch panelboards spaced throughout the facility.
- Lighting will be served at 120V. Provide electrical connections for HVAC units as required by mechanical design. Provide duplex receptacles on 25 foot centers in shell spaces; provide GFCI duplex receptacles in all bathrooms.
- Emergency power will be provided from a 100 Kilowatt diesel fuel generator with base tank adequately sized to serve the life safety loads as well as loads designated by Owner as requiring emergency backup. Provide two automatic transfer switches, one to serve “normal” power loads and one to serve “life safety” loads.
- Provide receptacles and branch wiring to accommodate furniture layout. Provide receptacles on 10 foot centers in all office areas and 25 foot centers in corridors and public areas. Provide connections for all systems furniture, 3 circuits for every 6 stations.
- Provide standby power to all lighting and receptacle loads in the following areas; Briefing, Patrol, Sergeants, Detectives, Multipurpose, EOC, Lockers, Sallyport and Interview rooms.
- Provide grounding conductor in all branch circuits.

D5020 Lighting

- Lighting levels will be designed in accordance with the recommendations of the Illuminating Engineers Society (IES).
- Lighting fixtures will be selected based on visual comfort, energy efficiency and color rendering.
- The primary goal of the lighting design will be to provide a high performance and overall energy efficient system.
- Electrical, Mechanical and Fire Sprinkler rooms: Provide industrial 8-foot, four- lamp luminaires with wireguards in the following areas to provide 20 footcandles.
- Lobby Areas and Public Corridors: Provide pendant mounted architectural luminaire.

- Restrooms: Provide LED recessed downlights in center of room and over vanities.
- Conference Rooms: Provide dimmable decorative linear LED direct/indirect pendant mounted fixture with LED wallwash downlighting along perimeter of the room.
- Reception: Upgraded specialty lighting and low voltage track lighting.
- Corridors: LED downlighting.
- Open Office Areas (Patrol and Detective) and Enclosed Office open to structure: Provide pendant mounted linear LED direct/indirect pendant mounted fixtures.
- Enclosed Office with drop ceiling: Provide LED direct/indirect pendant mounted fixtures.
- Break and Copy areas: Provide in each space LED recessed 2x2 volumetric troffer luminaires with direct illumination spaced on 10'x10' array.
- Emergency Lighting: Provide emergency lighting of one footcandle average maintained throughout exit pathway.
- Switches: Provide switching in each of the following rooms:
    - Occupancy sensor in Janitor rooms.
    - Wall switch in Electrical room.
    - Wall switch in Fire Sprinkler room.
    - Occupancy sensors in open office areas.
    - Switched occupancy sensors in private offices.
    - Occupancy sensors in all storage rooms.
    - Dimmable controls in all conference rooms.

D5030 Communications and Security

DETECTION and FIRE ALARM

- An automatic, addressable, fire alarm system will be provided to meet the requirements of the adopted editions of the Oregon Structural Specialty Code (IBC with Oregon Amendments), Oregon Fire Code (IFC with Oregon Amendments) and NFPA 72.
- The fire alarm system will provide system alarm, supervisory and trouble signal monitoring, and alarm notification for the building. A digital alarm communicating transmitter will facilitate monitoring of the individual signals to the off-site receiving station.
- The system will have batteries to provide a secondary power source in case of primary power loss to the control panel or any remote power supply.
- Activation of system fire detectors, manual pull stations, sprinkler water flow switches and suppression systems will initiate alarm signals on the fire alarm control panel (FACP) and fire alarm annunciator (FAA), and activate the

audible and visual notification appliances throughout the building. Activation of sprinkler tamper switches and HVAC duct smoke detectors will initiate supervisory signals, which will annunciate on the FACP and FAA.
- Manual pull stations will be provided at building exits.
- Automatic smoke detection will be provided at the ceiling in all spaces.
- Audible and visible notification appliances will be provided throughout the building.
- Control outputs will be provided for fire safety functions such as elevator control, air handler shut down, fire smoke damper closure and fire door release.

VOICE, DATA, and CATV HORIZONTAL CABLING INFRASTRUCTURE

- This facility will be cabled with 4-pair unshielded twisted pair (UTP) Category 6 voice and data network cabling for all station outlets. Wireless access points will be cabled with unshielded Category 6A. The design will be based on this manufacturer and will require that the successful bidder submit at least a 20-year, end-to-end solution warranty for the completed installation of these products.
- Each telecommunications outlet will consist of three 8-pin connector modules. Each outlet will be capable of delivering voice or data as selected by the Owner. Outlet locations will be coordinated with the Owner to ensure exact placement as needed.
- Each outlet will also be capable of accepting a CATV insert/cable as required by the Owner. The CATV insert will be modular and designed to be used in the modular faceplate. The CATV outlet locations will utilize RG-6 Quadshield coaxial cable. The specific location requirements will be coordinated with the Owner. Amplifiers and splitters will be specified as required to maintain video signal integrity
- Provide telecommunications outlets in all spaces, minimum 2 per office and 2 per cubicle. Each outlet will consist of three 8-pin connector modules. Each outlet will be capable of delivering voice or data as selected by the Owner. These TO locations will be coordinated with the Owner to ensure exact placement as needed.
- Wireless coverage will be provided throughout the building. Each wireless outlet will be cabled with Category 6A cabling and consist of two cables per outlet. Wireless access points are Owner furnished, Owner installed.

RACKS

- The Server Room will consist of (3) 7’x19” two post and (4) 19” x 7’ adjustable four post standalone equipment racks to support backbone and horizontal cable installation as well as Owner-provided network equipment.

Quantities to be determined during the design phase based on total number of cables and the amount of Owner provided and installed equipment.

- All racks will be seismically braced with overhead ladder racking and properly anchored floor hardware. The equipment racks will be mounted to a concrete pad.

WIRE MANAGEMENT

- All equipment racks will have one 6-inch vertical wire manager on each end and in between each equipment rack.
- All equipment racks will have one single unit horizontal wire manager at the top and bottom of each column of patch panels and equipment, and one double unit horizontal wire manager in between each patch panel. Additional horizontal wire managers will also be provided for Owner-installed equipment.

PAGING

- A complete paging system will be provided throughout the building. This system will be designed to provide program distribution and "all-call" to speakers throughout, provide local amplification and microphone inputs for local programming.

CLOCK SYSTEM

- A wireless clock system will be installed and wireless, digital clocks will be provided in the court, briefing, patrol, detective area and records. The basis of design will be Sapling.

AUDIO-VIDEO

- The Training Room/EOC, Court and Briefing will have a ceiling mounted projector, a large flat screen, audio reinforcement complete with wired and wireless microphones and a wall mounted LCD control panel. The projector and the flat screen will have the capability to be independent or share the same image/media. HDMI cabling will be utilized. The projector and the flat screen will be Owner furnished Contractor installed.
- Several offices will have flat screens with CATV and an HDMI input from a wall location to the flat screen.
- Digital signage will be placed in the lobby.

ELECTRONIC ACCESS CONTROL and INTRUSION DETECTION

- Card readers will be place at main entrances and other secure areas as directed by the Owner. Card readers will be proximity type.
- Door contacts will be placed on exterior doors for door monitoring. A motion detector will be placed in the Evidence Room with a keypad for arm/disarm. The motion detectors will be ceiling mounted and detect in a 360 degree pattern. Dual technology detectors with passive infrared and microwave signals will be used.

IP VIDEO SURVEILLANCE SYSTEM

- IP Video Surveillance system will be provided for monitoring of interior and exterior areas, parking lot, entrances and vehicle storage. A Network Video Recorder (NVR) will be used. The video storage server will be sized to accommodate 30-day storage for all cameras.
- Monitoring of IP Video Surveillance will be via use of PC workstations, local or remote from the facility. ExacqVision software and cameras will be specified. Confidence monitors for viewing all cameras will be placed in the Detective area and Records.

INTERVIEW ROOM RECORDING SYSTEM

- Provide a new system that will cover 3 rooms and provide server capacity to add additional equipment.

D60 FIRE ALARM

D6010 Fire Alarm System Codes and Standards

- Systems will be designed in accordance with the following codes:
  - Oregon Structural Specialty Code (adopted edition).
  - Oregon Fire Code (adopted edition).
  - Oregon Electrical Specialty Code (adopted edition).
  - Oregon Mechanical Specialty Code (adopted edition).
  - Municipal ordinances and amendments.
- The following reference standards will be used in design:
  - ASTM – American Society of Testing and Materials.
  - NEMA – National Electrical Manufacturers Association.
  - NFPA – National Fire Protection Association.
  - NFPA 72, National Fire Alarm and Signaling Code (adopted edition).
  - UL – Underwriters Laboratories.
  - FM – FM Global Approval Guide.
  - ADA – Americans with Disabilities Act.

D6020 Automatic Fire Sprinkler System

- The fire alarm system will be contractor designed.
- System annunciation will be located in the main entrance for fire department responders.
- An automatic, addressable, fire alarm system will be provided to meet the requirements of the adopted editions of the Oregon Structural Specialty Code, Oregon Fire Code, and NFPA 72.
- The fire alarm system will provide system alarm, supervisory and trouble signal monitoring, and alarm notification for the building. Any power supplies will have batteries to provide a secondary power source in case of primary power loss to the control panel or any remote power supply.
- Activation of system smoke detectors, manual pull stations and fire sprinkler water flow switches will initiate alarm signals on the fire alarm control panel (FACP) and fire alarm annunciator (FAA), and activate the audible and visible notification appliances throughout the building. Activation of HVAC duct mounted smoke detectors and fire sprinkler valve tamper switches will initiate supervisory signals, which will annunciate on the FACP and the FAA. Fire alarm, supervisory and trouble signals will be transmitted off site to a remote monitoring station.
- Manual pull stations will be provided at building exits as required by code.
- Automatic smoke detection will be provided for protection of fire alarm control equipment and for activation of fire safety functions.
- System type combination smoke and carbon monoxide detectors with audible sounder bases will be provided within sleeping areas and within enclosed common areas.
- Audible and visible alarm notification appliances will be provided throughout the building.
- Control outputs will be provided for actuation of fire safety functions, such as air handler shut down, fire smoke damper closure, and fire door release.

E. EQUIPMENT AND FURNISHINGS

E10 EQUIPMENT

E1010 Commercial Equipment

- Administration equipment (supplied by Owner)
- Video conference equipment provided by Owner, installed by Contractor.
- Install one recessed motorized projection screen in Courtroom, Training/EOC and Briefing Room.
- Install one ceiling mounted projector in Courtroom, Training/EOC and Briefing Room.

- Lockers will be supplied by Contractor, installed by Contractor. See C1040 (Fittings).
- Provide allowance for blocking for all OFCI equipment.
- Provide power/data back boxes for all OFCI TV locations

E1020 Institutional Equipment – NOT USED

E1030 Vehicular Equipment - NOT USED

E1090 Other Equipment

- Break Room Equipment provided by Contractor, installed by Contractor, including the following:
  - (1) commercial refrigerator with ice maker – Samsung 22.5 cu. ft. RF23HCEDBSR
  - (1) under counter refrigerator – Summit AL54CSSHV
  - (2) microwaves – Samsung MS19M8000A
  - (1) dishwashers – Bosch 800 Series – Stainless Steel SGE68X55UC
  - (1) garbage disposals
  - (1) clothes washing machine
  - (1) clothes dryer
- Fitness Equipment - Owner furnished, owner installed. Contractor to provide 5 outlets in fitness room for fitness equipment.

E20 FURNISHINGS

E2010 Fixed Furnishings

- Exterior window treatments:
  - Unless noted otherwise, all exterior windows to receive: MechoSystems, Manual Shade System. Assume 3% openness EcoVeil
  - Provide dual black-out shades at Courtroom, Training/EOC, Briefing room, and conference rooms, at interior and exterior window locations: MechoSystems, Manual Shade System, Assume backout, with side trim.
  - Assume valance at all single and dual shade locations
- Casework:
  - All casework custom grade, constructed to AWI standards.
  - Provide casework at the following locations
    i. Courtroom

- Assume built-in dias, per drawings. Wood veneer with solid surface counters and transaction counter. assume especially detailing at face and sides.
- Provide wood railing separating courtroom from seating with integral gates

ii. Record Counter: Wood veneer faced with solid surface counters and transaction counter, stainless steel drop tray and bullet resistant glazing.

iii. Mail slots: Plastic laminate faces, counters and 2 sided mail cubbies

iv. Standard cabinetry, per plan: Assume plastic laminate faces with solid surface counters and splash, upper cabinets to be plastic laminate

v. Break room, Assume plastic laminate faces with solid surface counters and splash, upper cabinets to be plastic laminate. Plastic laminate island with storage on both sides and integrated trash/recycling, solid surface counters

E2020 Movable Furnishings – NOT USED

F. SPECIAL CONSTRUCTION AND DEMOLITION

F10 SPECIAL CONSTRUCTION – NOT USED.

F20 SELECTIVE DEMOLITION

F2010 Building Elements Demolition

F2020 Hazardous Components Abatement - NOT USED.

G. BUILDING SITEWORK

G10 SITE PREPARATION

- Mass grade areas of site as needed, remove excess material from site. See attached grading plan.
- City of St. Helens will be providing site fill material (crushed rock) from a nearby site. Contractor will be responsible for loading and transporting/hauling fill material to site. Please break this out as a separate line item on the cost estimate.
- Finish site grading.
- Erosion control measures for the site.

G20 SITE IMPROVEMENTS

- Site:
  - ADA ramps and signage.
  - Drive aisles, parking, and sidewalks as shown on site plan.
  - Paving striping.
  - Low basalt stone planters. Columbia River Basalt. See character rendering for locations. Metal signage integrated with stone planter.
  - 12 illuminated bollards. See character rendering for locations.
  - 8'-0" tall CMU wall around perimeter of Secure Parking. CMU to be 8" D x 4" T x 16" L, Color: Dark Grey, Stack Bond. On north side of secure parking, wall will be 6' taller (and become a retaining wall), since existing ground outside of wall will be 6' below parking.
  - 2 cantilevered automatic vehicular gates w/ corrugated metal panels. 26 feet wide.
- Stormwater:
  - Stormwater pond for water quality and detention.
  - Clean outs as required per uniform plumbing code.
  - ADS N-12 stormwater conveyance pipes for catch basins and roof drains.
- Water:
  - 8" D.I.P zinc coated public water main extensions as needed.
  - Fire backflow.
  - Domestic water extended as needed.
- Sanitary:
  - Laterals as needed from adjacent right of way.
  - Clean out as required per uniform plumbing code.

G2040 Site Development

- Provide three flag poles: 30ft. in height. With LED ground mounted up lighting.
- Provide one US flag, one State of Oregon flag and one POW/MIA flag.

PART 2

PLUMBING FIXTURE SCHEDULE

			BASIS OF DESIGN			CONNECTION				
SYMBOL	FIXTURE TYPE	DESCRIPTION	MFR	MODEL	ACCESSORIES	W	V	CW	HW	NOTES
EWC-1	DRINKING FOUNTAIN	TWO STATION, WALL HUNG ELECTRIC REFRIGERATED WATER COOLER, BARRIER FREE	ELKAY	LZWS-LRPBM28K		2"	1-1/2"	1/2"	--	
EWC-2	DRINKING FOUNTAIN	SINGLE STATION, WALL HUNG ELECTRIC REFRIGERATED WATER COOLER, BARRIER FREE	ELKAY	LZWS-SFGRN8K		2"	1-1/2"	1/2"	--	
DSN-1	DOWNSPOUT NOZZLE	SIDEWALL TERMINATION, CAST BRONZE, NICKEL BRONZE FINISH, BIRD SCREEN	JR SMITH	1770-NB-BS		4"	--	--	--	
DWC-1	DETOX TOILET	FLOOR MOUNTED, STAINLESS STEEL, REMOTE FLUSHING, BLOWOUT JET TYPE	PENAL-WARE	1699-W-ULF 1.6 GPF-EVSFV		2"	1-1/2"	1"		
FD-1	FLOOR DRAIN	CAST IRON BODY WITH FLASHING COLLAR AND ADJUSTABLE STRAINER HEAD	JR SMITH	2005Y-06-AHP	PRIMER CONNECTION ON P-TRAP	3"	2"	--	--	
FD-2	FLOOR DRAIN	CAST IRON BODY AND FLASHING COLLAR WITH CAST IRON TRACTOR GATE AND SOLID FREE STANDING SEDIMENT BUCKET.	JR SMITH	2142Y-M	PRIMER CONNECTION ON P-TRAP	4"	2"	--	--	
FS-1	FLOOR SINK	CAST IRON FLANGED RECEPTOR, SEEPAGE HOLES, ACID RESISTANT COATED INTERIOR, NICKEL BRONZE RIM, 1/2-GRATE, ALUMINUM DOME BOTTOM STRAINER, 6-INCH DEEP	JR SMITH	3140Y-12		3"	2"	--	--	
HB-1	HOSE BIBB	EXPOSED, ANTI-SIPHON, AUTOMATIC DRAINING, CHROME PLATED ASSEMBLY, DOUBLE CHECK BACKFLOW PREVENTER	WOODFORD	26 P3/4		--	--	3/4"	--	
L-1	LAVATORY	WHITE VITREOUS CHINA, DROP-IN, SELF RIMMING, 20" X 17", ADA	SLOAN	SS-3002-SINGLE HOLE	FAUCET: SLOAN EBF-85 (HARD WIRED)	2"	1-1/2"	1/2"	1/2"	
L-2	LAVATORY	16 GAUGE, 304 STAINLESS STEEL, SATIN FINISH, 14"X12"X5", BARRIER FREE	DURA-WARE	1953-1-DMS-PPZ2-H1-GE-OF-TPT-TE	FAUCET: SLOAN EBF-85 (HARD WIRED)	2"	1-1/2"	1/2"	1/2"	
MS-1	MOP SINK	#16 GAUGE STAINLESS STEEL, FLOOR MODEL SERVICE SINK, LK43 DRAIN WITH STRAINER	, ELKAY	EFS3321C	FAUCET: CHICAGO FAUCETS 897-CP	3"	2"	1/2"	1/2"	
OD-1	ROOF DRAIN (OVERFLOW DRAIN)	LARGE AREA, EPOXY COATED CAST IRON BODY WITH FLANGE, FLASHING RING WITH GRAVEL STOP, UNDER DECK CLAMP, EXTENSION, SUMP RECEIVER, 2-INCH WATER DAM, ALUMINUM DOME	JR SMITH	1080-AD-C-E-R-Y		4"*	--	--	--	
RD-1	ROOF DRAIN	LARGE AREA, EPOXY COATED CAST IRON BODY WITH FLANGE, FLASHING RING WITH GRAVEL STOP, UNDER DECK CLAMP, EXTENSION, SUMP RECEIVER, ALUMINUM DOME	JR SMITH	1010-AD-C-E-R-Y		4"*	--	--	--	
S-1	KITCHEN SINK	DOUBLE BOWL SINK, STAINLESS STEEL, 33" X 21-1/4", CABINET SIZE 36", FOUR-HOLE, ADA.	ELKAY	GECR3321	FAUCET: MOEN 8244	2"	1-1/2"	1/2"	1/2"	
S-2	KITCHEN SINK	SINGLE BOWL SINK, STAINLESS STEEL, 25" X 21-1/4", CABINET SIZE 30", FOUR HOLE, ADA.	ELKAY	GECR2521	FAUCET: MOEN 8244	2"	1-1/2"	1/2"	1/2"	
SH-1	SHOWER	ONE PIECE, 38" W X 42" D X 80-3/4" H, SANITARY WARE GEL COAT, ANTI-SLIP FLOOR	FIBER-FAB	38BF	SHOWER VALVE: MOEN 8346	2"	1-1/2"	1/2"	1/2"	
SH-2	SHOWER	BARRIER FREE, ONE PIECE, 38" W X 42" D X 80-3/4" H, SANITARY WARE GEL COAT, ANTI-SLIP FLOOR	FIBER-FAB	38BF	SHOWER VALVE: MOEN 8346	2"	1-1/2"	1/2"	1/2"	
U-1	URINAL	WALL MOUNTED, VITREOUS CHINA, TOP SPUD, HARD WIREDFLUSHOMETER, STANDARD HEIGHT	SLOAN	WEUS-1000.1411-0.125 ECOS HARDWIRE		2"	1-1/2"	3/4"	--	
U-2	URINAL	WALL MOUNTED, VITREOUS CHINA, TOP SPUD, HARD WIRED FLUSHOMETER, BARRIER FREE	SLOAN	WEUS-1000.1411-0.125 ECOS HARDWIRE		2"	1-1/2"	3/4"	--	
WC-1	WATER CLOSET	WALL MOUNTED, VITREOUS CHINA, ELONGATED BOWL, HARD WIRED FLUSHOMETER	SLOAN	WETS-2051.1101-1.1 ECOS	FLUSHOMETER: SLOAN 111-1.28 HW	4"	2"	1"	--	
WC-2	WATER CLOSET	WALL MOUNTED, VITREOUS CHINA, ELONGATED BOWL, HARD WIRED, BARRIER FREE	SLOAN	WETS-2051.1101-1.1 ECOS	FLUSHOMETER: SLOAN 111-1.28 HW	4"	2"	1"	--	
WC-3	WATER CLOSET	WALL MOUNTED, BARIATRIC, 14 GAUGE, 304 STAINLESS STEEL, HARD WIRED, ELONGATED BOWL, FLUSHOMETER	DURA-WARE	2105BAR-1-1.28-FVL-HPS-HET-CN-MC		4"	2"	1"	--	
WCL-1	WATER CLOSET	15" LAV-TOILET COMBY, 14 GAUGE TYPE 304 STAINLESS STEEL, SATIN FINISH	ACORN	1440-AL-2-04-M-MVC2-ULF-1.6GPF-EVSPFV-CO1-FT-LW1-PC-PH-SW-		4"	2"	1"	--	
WCL-2	WATER CLOSET	15" LAV-TOILET COMBY, 14 GAUGE TYPE 304 STAINLESS STEEL, SATIN FINISH	ACORN	1440-AR-2-04-M-MVC2-ULF-1.6GPF-EVSPFV-CO1-FT-LW1-PC-PH-SW		4"	2"	1"	--	
WH-1	HOSE BIBB	ENCASED, NON-FREEZE, ANTI-SIPHON, AUTOMATIC DRAINING, CHROME PLATED BOX/DOOR ASSEMBLY, DOUBLE CHECK BACKFLOW PREVENTER	WOODFORD	B67-P		--	--	3/4"	--	

NOTES:
* UNLESS NOTED OTHERWISE ON DRAWINGS

EWC-1

ELKAY®

SPECIFICATIONS

No Lead Two-Level SwirlFlo® Filtered Wall Mount, Barrier-Free Refrigerated Fountain with EZH2O® Bottle Filling Station Model LZWS-LRPBM28K

Rated for Indoor Use Only

PRODUCT SPECIFICATION

Architectural fountains with integral bottle filling station. LZWS-LRPBM28K shall deliver 8 GPH of 50°F drinking water at 90°F ambient and 80°F inlet water. Units shall be stainless steel construction with plastic ABS alcove. Sensor-activation with an auto 20-second shut-off timer. Shall include Green Ticker™ displaying count of plastic bottles saved from waste. Bottle filler shall provide 1.1 gpm flow rate with laminar flow to minimize splashing. Shall include the Water Sentry® Plus 3000-gallon capacity filter, certified to NSF/ANSI 42 and 53, with visual monitor to indicate when replacement is necessary. Shall include integrated silver ion anti-microbial protection in key areas. Unit shall meet ADA guidelines. Unit shall be 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.

FOUNTAINS GENERAL

Fully exposed two-level fountain basins are #18 gauge, 300 series stainless steel polished to a lustrous satin finish with high shine outer edge. #16 gauge, 300 series tubular stainless steel support arms incorporate unique recess to be integrated with basin. One fountain positioned lower on the right for wheel-chair use. The other positioned on the left at standing height.

Fountains have contoured basin that minimizes splashing. Flexi-Guard® Safety bubblers are keyed in location to prevent rotation. Fully functional, vandal-resistant front push button. Flow regulator provides constant stream from 20 to 105 psi water pressure.

BOTTLE FILLER STANDARD FEATURES

- Sanitary, touchless activation with auto 20-second shut-off (Bottle Filler)
- 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
- Laminar Flow provides minimal splash
- Real Drain System eliminates standing water
- Visual User Interface display includes:
  - Innovative Green Ticker™ counts bottles saved from waste
  - LED Visual Filter Monitor shows when replacement is necessary
- Includes lower panel for easy access and servicing

OPTIONAL FEATURES (Additional Cost)

- For front access to bottle filler electricals, use access panel Item #ACCESS12X38-5)

Shown with one optional access panel installed

COOLING SYSTEM

- Compressor: Hermetically-sealed, reciprocating type, single phase. Sealed-in lifetime lubrication.
- Condenser: Fan cooled. Fan motor is permanently lubricated.
- Cooling Unit: Combination tube-tank type. 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: Enclosed adjustable thermostat is factory preset. Requires no adjustment other than for altitude requirements, easily accessible by removing lower grille panel.

CAPACITIES CHART

Model	Voltage / Hertz	Chilling Capacity	F.L. Amps	Rated Watts	Approx. Ship Wt.
LZWS-LRPBM28K	115V / 60Hz	8 GPH	5.0	370	173

Model
LZWS-LRPBM28K

CONSTRUCTION

LZWS-LRPBM28K two-level fountain furnished complete withFlexi-Guard® fully assembled with front push button, flow regulator (120 to 105 psi), stainless steel back panel and surface mounting plate. No traps are furnished.

- Stainless Steel bottle filler construction with ABS plastic alcove
- Includes stainless steel lower panel
- Furnished with wall mounting frame constructed of galvanized steel
- Mounting can be ordered separately for pre-install

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.

CERTIFICATIONS / STANDARDS

- ADA Compliant
- UL399 and CAN/CSA 22.2 No. 120 Certified
- NSF/ANSI 42 and 53 Certified (Filter Only)
- NSF/ANSI 61 and 372 Certified
- GreenSpec Listed

GreenSpec® LISTED
www.GreenSpec.com

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
OakBrook, IL 60523
630-572-3192
elkay.com

SPEC00048 (02/2015)

No Lead Two-Level SwirlFlo®
Filtered Wall Mount, Barrier-Free
Refrigerated Fountain with EZH2O® Bottle Filling Station
Model LZWS-LRPBM28K

ELKAY®

ROUGH-IN DIMENSIONS

INSTALLER NOTE:
THIS DRINKING FOUNTAIN IS FURNISHED WITH A BUBBLER AND VALVE INCLUDING ALL CONNECTING FITTINGS WHICH ARE MANUFACTURED OF COMPLETELY LEAD FREE MATERIAL. SHUTOFF VALVE (NOT FURNISHED) TO ACCEPT 3/8" O.D. UNPLATED COPPER TUBE.

WALL OPENING
IMPORTANT: It is necessary to create a wall opening 37 ½" W x 52 ⅛" H and 4 ½" above the floor line.

ELECTRICAL DATA
Junction box for a (3) wire 10 AMP branch circuit. Standard 120 Volt, 60 Hz, single phase.

Electrical outlet, three (3) conductor grounded. Locate within safe reach of power cord.

MOUNTING INSTRUCTIONS
Refer to rough-in for location of plumbing and electrical sources. The support frame is to be installed first. Hang upper panel to hanger on frame. Fountains are to be attached to panel and wall frame. Water service lines, waste lines and electrical are assembled as required. Perform a final check for leaks and correct functions of fountains and chiller. (For details see the installation instructions.)

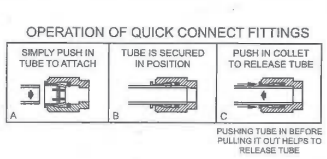
Installation requires trap to be installed in wall. Trap and service stop not included.

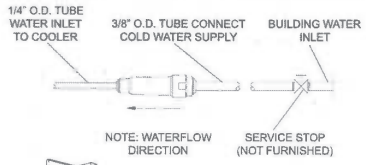
Job Name: _____

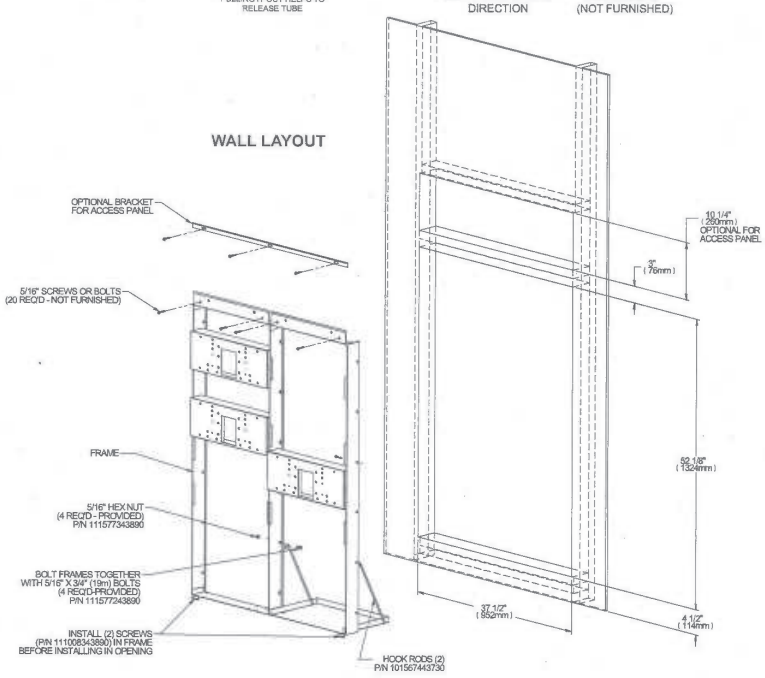
Date: _____ Qty. _____

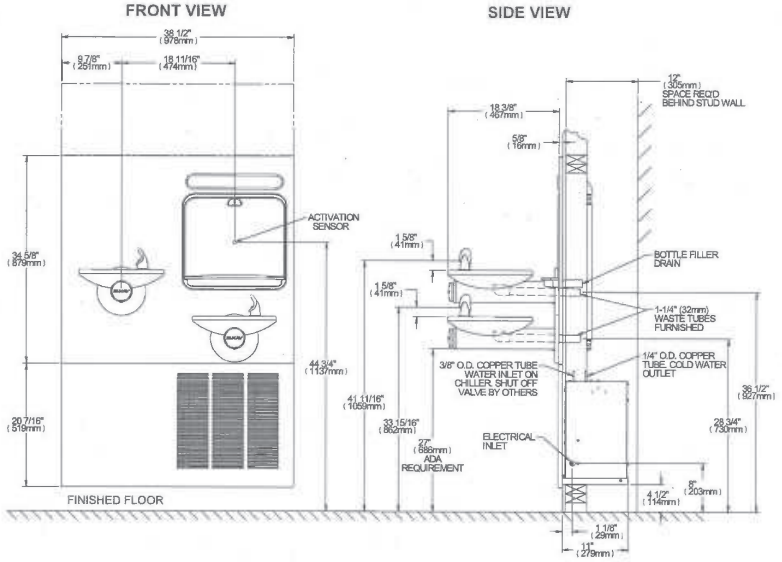
Contact Info (Name, Phone, Email): _____

Approval: _____









2222 Camden Court
Oak Brook, IL 60523

SPEC00048 (02/2015)

Exc-2

ELKAY®
SPECIFICATIONS

EZH2O® In-Wall Bottle Filling Station with Single Filtered SwirlFlo® GRN Refrigerated Fountain Model LZWS-SFGRN8K

RATED FOR INDOOR USE ONLY

PRODUCT SPECIFICATION

In-wall bottle filling station with single refrigerated oval fountain with high-efficiency ECH8GRN chilling unit. LZWS-SFGRN8K shall deliver 8 GPH of 50°F drinking water at 90°F ambient and 80°F inlet water. Single stainless steel fountains with rounded edges and vandal-resistant pushbutton activation. Bottle filling unit shall be stainless steel construction with plastic ABS alcove Sensor-activation with an auto 20-second shut-off timer. Shall include Green Ticker™ displaying count of plastic bottles saved from waste. Bottle filler shall provide 1.1gpm flow rate with laminar flow to minimize splashing. Shall include the WaterSentry® Plus 3000-gallon capacity filter, certified to NSF/ANSI 42 and 53, with visual monitor to indicate when replacement is necessary. Shall include integrated silver ion anti-microbial protection in key areas. Unit shall meet ADA guidelines. Unit shall be 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.

STANDARD FEATURES

- Fountains feature the Flexi-Guard® StreamSaver™ Safety Bubbler
- Stylish oval basin with pushbutton activation
- Features high-efficiency ECH8GRN chilling unit

Bottle Filler

- Sanitary, touchless activation with auto 20-second shut-off (Bottle Filler)
- 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
- Laminar Flow provides minimal splash
- Real Drain System eliminates standing water
- Visual User Interface display includes:
  - Innovative Green Ticker™ counts bottles saved from waste
  - LED Visual Filter Monitor shows when replacement is necessary
- Includes lower hinged panel for easy access and servicing

COOLING SYSTEM

- High-efficiency compressor: hermetically-sealed, reciprocating type, single phase. Sealed-in lifetime lubrication.
- Condenser: Fan cooled. Fan motor is permanently lubricated.
- Cooling Unit: Combination tube-tank type. 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: Enclosed adjustable thermostat is factory preset. Requires no adjustment other than for altitude requirements, Easily accessible by removing lower grille panel.

CONSTRUCTION

- Stainless steel bottle filler construction with ABS plastic alcove
- Includes stainless steel ventilating louvered grille
- Furnished with MF100 and MFWS100 wall mounting boxes constructed of galvanized steel. Mounting can be ordered separately for pre-install.
- Flexi-Guard® StreamSaver™ Safety Bubbler utilizes an infused anti-microbial pliable polyester elastomer to prevent accidental mouth injuries. Flexes on impact. Lower-flow water efficient water stream.

REPLACEMENT FILTERS: Available as Singles and Multi-packs.

- 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	ANSI/NSF 61 and 372 Certified 42 and 53 Certified (filter only)	GreenSpec® Listed
LZWS-SFGRN8K	115V / 60 Hz	8 GPH	3.8	260	126	•	•	•	•

**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

SPEC14-66 (12/2014)

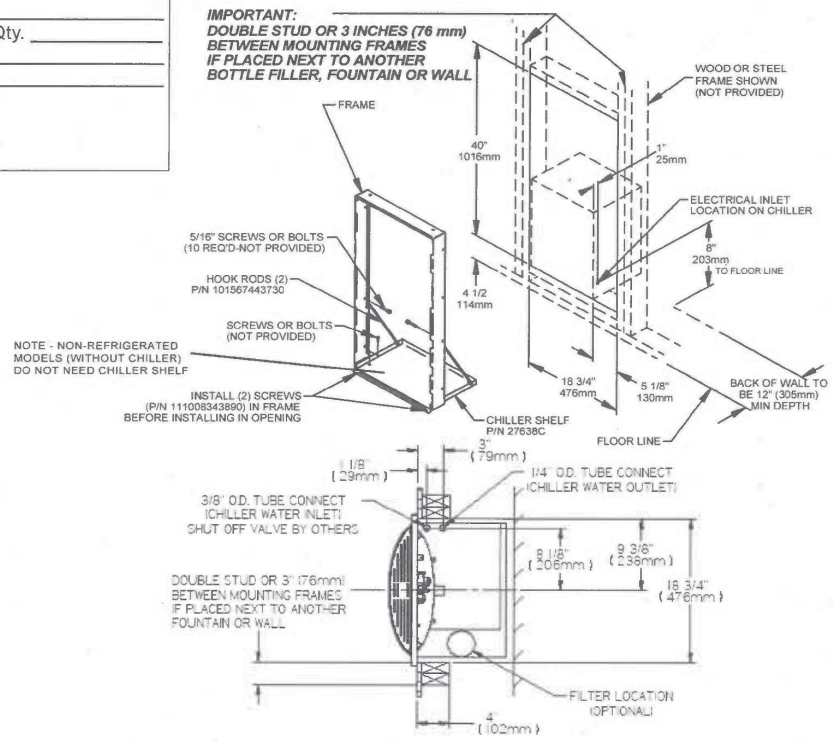
EZH2O® In-Wall Bottle Filling Station with Single Filtered SwirlFlo® GRN Refrigerated Fountain
Model LZWS-SFGRN8K

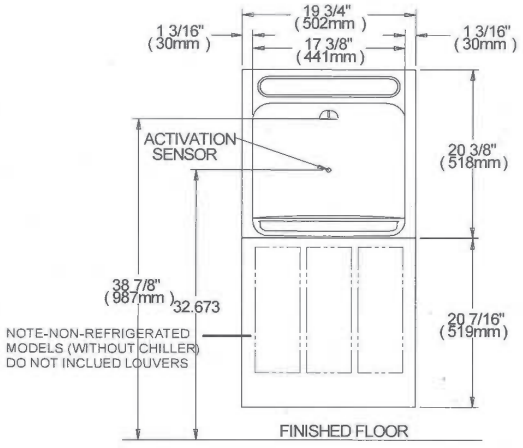
ELKAY®

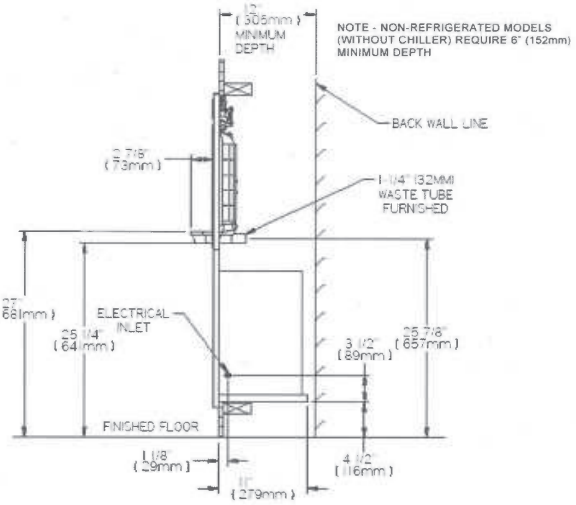
ROUGH-IN DIMENSIONS

RATED FOR INDOOR USE ONLY

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







2222 Camden Court
Oak Brook, IL 60523
elkay.com

EZH2O® In-Wall Bottle Filling Station with Single Filtered SwirlFlo® GRN Refrigerated Fountain
Model LZWS-SFGRN8K

ELKAY®

ROUGH-IN DIMENSIONS

RATED FOR INDOOR USE ONLY

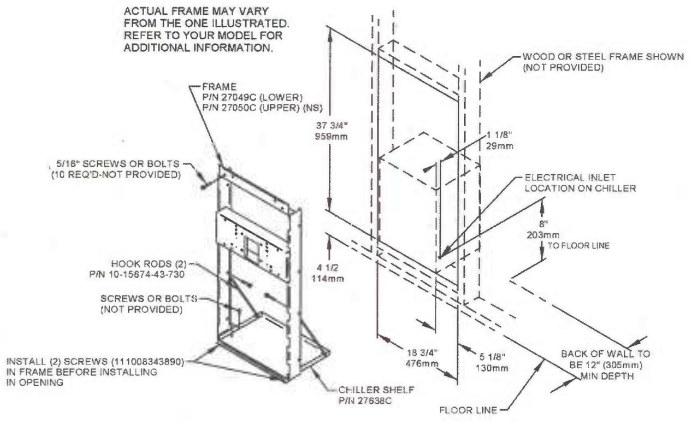
IMPORTANT!
INSTALLER PLEASE NOTE:

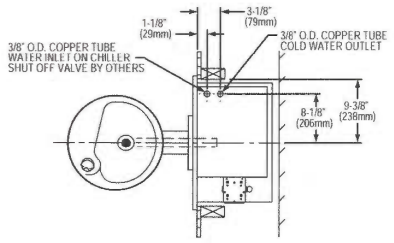
The grounding of electrical equipment such as telephone, computers, etc., to water lines is a common procedure. This grounding may be in the building or may occur away from the building. This grounding can cause electrical feedback into a water cooler, creating an electrolysis which causes a metallic taste or causes an increase in the metal content of the water. This condition is avoidable by using the proper materials as indicated below. The drain fittings which are provided by the installer should also be plastic to electrically isolate the cooler from the building plumbing system

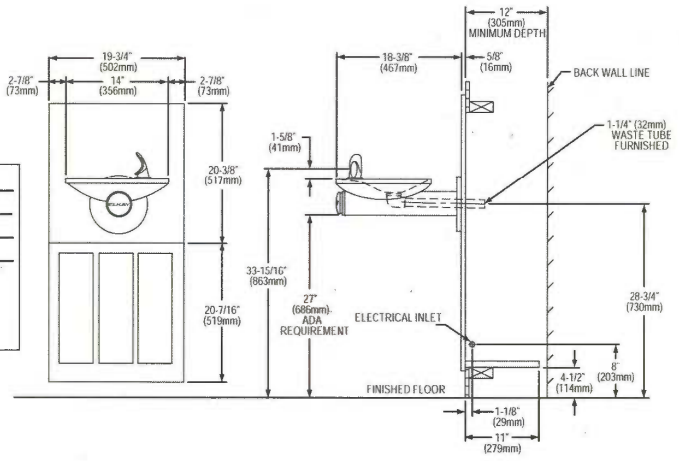
FOUNTAIN MOUNTING FRAME INSTRUCTIONS

1. Cut a square rectangular wall opening 18-3/4"(476mm) W x 37-3/4" (959mm) H and 4-1/2"(114mm) above the floor line. These dimensions are required to obtain proper rim and bubbler heights for compliance with ANSI standard.
2. Reinforce the wall opening on all sides so that it will adequately support the water fountain. This reinforcement must support up to 150 lbs static load and provide a means for securing the frame assembly in place. NOTE: Building construction must allow for adequate air flow on both sides and top of remote chiller unit. Minimum of 4" (102mm) is required.
3. Install plumbing and electrical rough-ins. See Figure for location of the supply water inlet to chiller and for the location of the waste water outlet. A junction box for a (3) wire, 10 amp branch circuit is provided on the inside of the chiller. (Standard 115 Volts, 60 Hz and single phase)
4. Remove frame and related hardware from packaging. Release the two shelf rods by cutting cable ties. Install the frame squarely in wall opening with frame upright edges flush with the finished wall face. Place shelf inside frame and line up the (2) holes on each. Insert loose ends of rods into holes on sides of shelf panel. Using appropriately sized wood screws (not provided), fasten the shelf and frame to bottom of wall opening. Secure the frame sides and top to the wall using (10) 5/6" x 2" lag bolts or screws (not provided).

NOTE: Be sure that frame is squared in location. Do not use less than required screw quantity and size.







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

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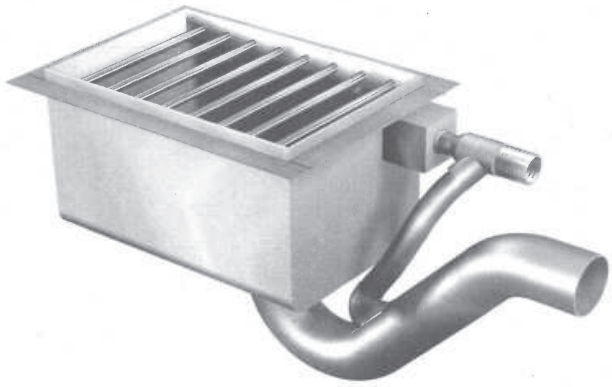
elkay.com

Penal-Ware® 1699 Series

Detox Toilet - Blowout Jet Type - Remote Flushing



1699-W

Fixture May Show Some Available Options

Please visit ***www.acorneng.com*** for most current specifications.

Detox Toilet - Blowout Jet Type - Remote Flushing

Recommended for installation in detoxification cells (drunk tanks), padded safety cells, isolation cells and similar locations where conventional toilet may present a hazard to the inmate. Location for toilet should be out of the traffic pattern and as close to the remote located flush valve as practical. Flush valve and a Hot and Cold Hose Box should be mounted in the wall outside the cell. It is recommended that the flush valve be mounted in a flush valve access panel, Acorn model 2898 or flush valve recessed wall box, Acorn model 2803-1 (refer to Dura-Ware Accessories Section for details). Floor should be sloped to drain into the toilet with waste line cleanout provided in the pipe chase.

The exclusive Detox grate design is vandal-resistant and has no sharp edges. Toilet features:
(1) Welded bars. Removable bar directly over waste outlet is secured with tamper-resistant screws.
(2) An integral sloping rim which permits solids to be washed into the receptor.
(3) A receptor with coved corners. Water covers the entire receptor bottom area.
(4) A continuous flushing rim that washes all four walls with a jet action flush which completely evacuates all solids.

Fixture is fabricated from 14 gage, type 304 stainless steel. Receptor bars are 3/8" diameter. Interior has a matte finish. Toilet has 1" NPT male flushing connection and requires a minimum of 35 PSI flow pressure. Trap will pass a 2-1/8" ball and has a 3-1/2" seal. Toilet waste outlet is 2-3/8" O.D. plain end.

GUIDE SPECIFICATION

Provide and install Acorn Penal-Ware Detox Toilet (specify model number). Fixture shall be fabricated from 14 gage, type 304 stainless steel and shall have a continuous 360 degree washdown flushing rim. Bar grate shall be 3/8" diameter bars welded in place, except bar over waste outlet, which shall be removable and secured in place with two tamper-resistant screws. Receptor shall have coved corners and the bottom area shall maintain a minimum water surface of 8" x 12" x 2" deep. Toilet waste outlet shall be 2-3/8" OD plain end and trap shall pass a 2-1/8" ball.

Page # P.1699 *Revised: 06/19/14*

Acorn Engineering Company • 15125 Proctor Avenue • P.O. Box 3527 • City of Industry, CA 91744-0527 U.S.A.
Tel: (800) 488-8999 • (626) 336-4561 • Fax: (626) 961-2200 • www.acorneng.com • E-mail: info@acorneng.com

Penal-Ware® 1699: Blowout Jet Type - Remote Flushing

WALL THICKNESS AND TYPE (Must Specify)
Thickness _____ Type: ☐ Concrete ☐ Block ☐ Steel

MODEL NUMBER AND OPTIONS SELECTION
BASE MODEL NUMBER
☑ 1699 Detox Toilet with Flange

SUPPLY (Must Specify)
☑ -W Wall (Concealed)

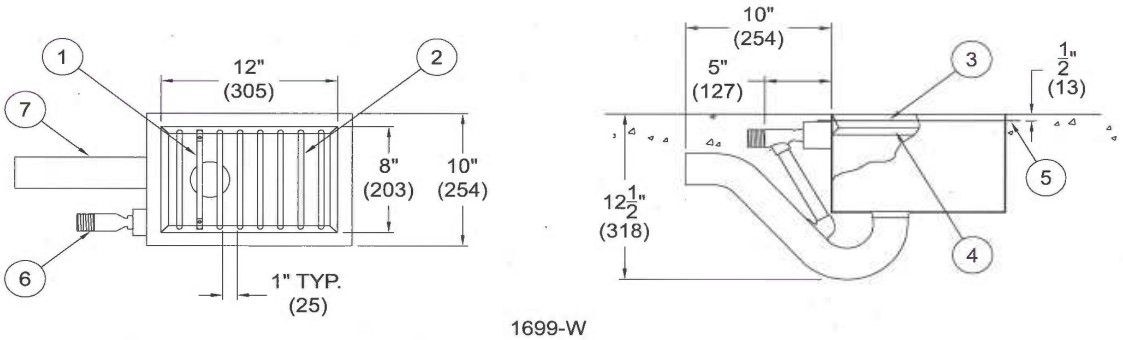
FLUSH VALVE GPFs (Must Specify)
☐ -ULF 1.6 GPF
☐ -3.5 GPF

FLUSH VALVE OPTIONS (Must Specify)
Refer to Acorn Dura-Ware Supplementary for Access Panel(s)
☐ -EVSFV Electronic Flush Valve
☐ -EVSPFV Electronic Flush Valve w/ Piezo Pushbutton
☐ -FV Flush Valve, Mechanical (N/A for ADA)
☐ -FVBO Flush Valve by Others
☐ -FVH Flush Valve, Hydraulic
☐ -MVCFV Time-Trol Flush Valve

PRODUCT OPTIONS (Must Specify)
☐ -DLF Detox Less Flange
☐ -TF Transformer (Up to 12 Solenoids)
☐ -VAC Acorn Vac Systems

Please visit ***www.acorneng.com*** for most current specifications.

NOTE: FLUSH VALVE MUST BE NO MORE THAN 144" FROM THE FIXTURE INLET



1699-W

NOTES:
1. REMOVABLE BAR.
2. INTEGRALLY WELDED BARS.
3. SANITARY SLOPING RIM.
4. CONTINUOUS FLUSHING RIM.
5. FINISHING FLANGE.
6. FLUSHING INLET CONNECTION.
7. TOILET WASTE CONNECTION.

Important: Installation instructions and current rough-in are furnished with each fixture. Do not rough in without certified dimensions.

Selection Summary	Approved for Manufacturing
Model No. & Option_____	Company_____ Title_____
Quantity_____	Signature_____ Date_____

Page # P.1699 *Revised: 06/19/14*

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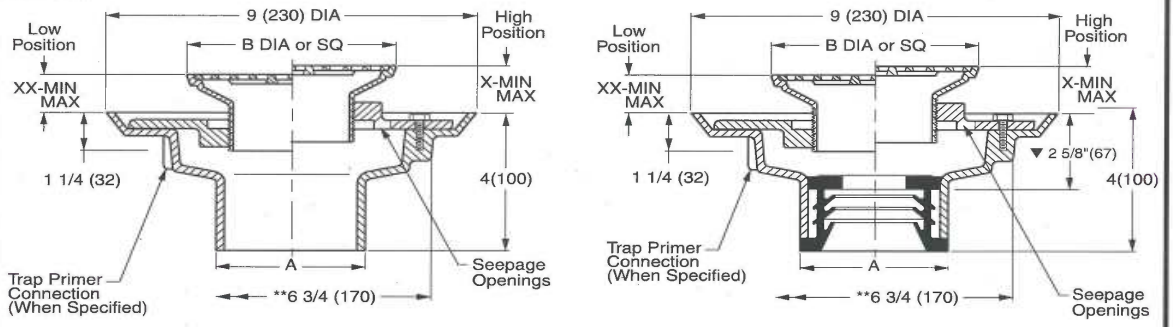
FD-1

SMITH® JAY R. SMITH MFG. CO.®
MEMBER OF ACORN'S FAMILY OF COMPANIES
POST OFFICE BOX 3237
MONTGOMERY, ALABAMA 36109-0237 (USA)
TEL: 334-277-8520 FAX: 334-272-7396 www.jrsmith.com
CUSTOMER DRIVEN
MEMBER OF

LOCATION

FLOOR OR SHOWER DRAINS
WITH ADJUSTABLE STRAINER HEADS

FUNCTION: General service floor drain for use in showers, toilets, kitchens and other finished areas where foot traffic is expected. The round top strainer head is used for all types of poured finished floors. The square top is particularly adaptable to floors that are finished in material of square or straight line pattern. Reversible flashing collar permits adjustment of the strainer to meet finished floor level.



A (Pipe Size) = 02(50), 03(75), 04(100), 05(125) or 06(150)

NO-HUB OUTLET

Fig. 2005Y.....(A) ROUND TOP
Fig. 2005Y.....(B) SQUARE TOP

	Outlet Size	Nickel Bronze Strainer Head
▲	02(50)	05(125) DIA or SQ
▲	03(75)	06(150) DIA or SQ
▲	04(100)	08(205) DIA or SQ

SPEEDI-SET OUTLET

Fig. 2005L.....(A) ROUND TOP
Fig. 2005L.....(B) SQUARE TOP

	Strainer Size	*Collar In High Position		*Collar In Low Position		Free Area SQ IN (SQ CM)	
	B DIA or SQ	X MIN	X MAX	XX MIN	XX MAX	ROUND	SQUARE
	05 (125)	1 1/4(32)	2 1/4(57)	3/4(19)	1 5/8(41)	7(45)	6.5(42)
	06 (150)	1 1/4(32)	2 1/4(57)	3/4(19)	1 5/8(41)	9(58)	12.5(81)
	07 (180)	1 1/4(32)	2 1/4(57)	7/8(22)	1 7/8(48)	14(90)	11(71)
	08 (205)	1 1/2(38)	2 1/2(64)	1(25)	1 7/8(48)	17(110)	14(90)
	•09 (230)	1 1/2(38)	2 3/8(60)	1(25)	1 7/8(48)	18(116)	16(103)
	•10 (255)	1 1/2(38)	2 3/8(60)	1(25)	1 7/8(48)	23(48)	16(103)

▼ This dimension to internal stop of speedi-set gasket.
• Add 3/8"(10) to all min/max dimensions for round strainers.
* Collar is reversible to obtain extreme high and low strainer positions.
•• Not available for 5"(125) size strainer.
** MIN 6 3/4"(170) hole required for core drilled application.

REGULARLY FURNISHED:
Duco Cast Iron Body with Flashing Collar and Adjustable Strainer Head as Indicated by Suffix Letter Selected.

VARIATIONS:
- Flapper Type Backwater Valve -V
- Hinged Grate -H
- L Speedi-Set Service Weight 2(50), 3(75) & 4"(100) only
- LXH Speedi-Set Extra Heavy 2(50), 3(75) & 4"(100) only
- Sediment Bucket -B
- Trap Primer Connection -P050 1/2" (13) & -P075 3/4" (19)
- Vandal Proof Screws -U
- Wide Flanged Strainer (Specify Fig. DX2005)
- T Threaded Outlet Heelproof Grate -HP -AHP (Round) or -BHP (Square)

OPTIONAL MATERIALS:
- Bronze Body -BB
- Chrome Plated Strainer -CP
- Galvanized Cast Iron Body -G
- Nickel Bronze Strainer -NB
- Polished Bronze Strainer -PB
- Stainless Steel (Specify Fig. 9700-A)

NOTE: Dimensions shown in parentheses are in millimeters.

▲ **Meets ASME Standard A112.6.3-2001 02(50), 03(75) or 04"(100) sizes only.**

SEE PM0457 FOR OPTIONAL STRAINER HEADS.

REV.	DATE	DESCRIPTION	BY	CKD. BY
Q	11-18-11	Rev. Dwg., Var.	TBW	CR
P	11-20-09	Revised Variations	RN	BW
N	12/18/08	Addition to Variations	JJ	BW
M	10/24/06	NO-HUB to SPEEDI-SET	RN	CL

WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER **2005**

FIGURE NUMBER 2005 | DRAWN BY: PJ | CHECKED BY: TD | APPROVED BY: TD | DATE: 5-17-85 | SCALE: NONE | SIZE A | DRAWING NUMBER S2005 | Q

DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE
WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA

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MONTGOMERY, ALABAMA 36109-0237 (USA)
TEL: 334-277-8520 FAX: 334-272-7396 www.jrsmith.com
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LOCATION

OPTIONAL STRAINER HEADS

ROUND STRAINER

MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
*Hinged Grate (Specify Suffix -AH)
Sediment Bucket -B
Vandal Proof Screws -U

B DIA		05 (125)	06 (150)	07 (180)	08 (205)	09 (230)	10 (255)
H		2 (51)	2 (51)	2 1/4 (57)	2 1/2 (64)	2 1/2 (64)	2 3/4 (70)
X	MIN	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)	1 1/2 (38)	1 1/2 (38)
	MAX	2 1/4 (57)	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)	2 1/2 (64)	2 3/4 (70)

Specify Type, Size & Finish eg: A05NB
*Not available for 05" (125) size

SUFFIX -A

FLAPPER TYPE BACKWATER VALVE

FUNCTION: Provides backwater protection at point where protection is needed.

MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS
*Hinged Grate (Specify Suffix -AH)
Vandal Proof Screws -U

B DIA		05 (125)	06 (150)	07 (180)	08 (205)
H		2 (51)	2 (51)	2 1/4 (57)	2 1/2 (64)
X	MIN	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)
	MAX	2 1/4 (57)	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)

Specify Type, Size & Finish eg: AV05NB
*Not available for 05" (125) size

SUFFIX -AV

SQUARE STRAINER

MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -BV) 05 (125), 06 (150), 07 (180) or 08" (205) sizes only
*Hinged Grate (Specify Suffix -BH)
Sediment Bucket -B
Vandal Proof Screws -U

B DIA		05 (125)	06 (150)	07 (180)	08 (205)	09 (230)	10 (255)
H		2 (51)	2 (51)	2 1/4 (57)	2 1/2 (64)	2 1/4 (57)	2 1/4 (57)
X	MIN	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)	1 1/2 (38)	1 1/2 (38)
	MAX	2 1/4 (57)	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)	2 1/4 (57)	2 3/8 (60)

Specify Type, Size & Finish eg: B05NB
*Not available for 05" (125) size

SUFFIX -B

STRAINER HEAD w/SQUARE HINGED COVER

MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Gasketed Water Tight Cover -GC
Secured Cover -SC
Secondary Strainer Grate-SG

Specify Type, Size & Finish eg: BSNB

SUFFIX -BS

REINFORCED ROUND STRAINER

FUNCTION: Used in finished floors where light wheeled loads are anticipated.

MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -CV)
Sediment Bucket -B
Vandal Proof Screws -U

B DIA	05 (125)	06 (150)	08 (205)	10 (255)
H	2 (51)	2 (51)	2 1/2 (64)	2 3/4 (70)
MIN	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)	1 7/8 (48)
MAX	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)	2 3/4 (70)

Specify Type, Size & Finish eg: C06NB

SUFFIX -C

REINFORCED TRACTOR STRAINER

FUNCTION: Used in finished floors where medium weight wheeled loads are anticipated and loose set non-tilt tractor grate is desired.

MATERIALS:
Cast Iron -CI
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -DV or -EV)
Sediment Bucket -B
Vandal Proof Screws -U

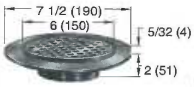
SUFFIX	B DIA	H	X MIN	X MAX
-D	07 (180)	3 1/4 (83)	2 5/8 (67)	3 1/2 (89)
-E	09 (230)	3 1/2 (89)	2 3/4 (70)	3 1/2 (89)

Specify Type, Size & Finish eg: D09PB E09PB

SUFFIX -D-E

TILE FLANGE

FUNCTION: Provides integral flange set 5/32" (4) below rim to receive floor covering. Flange may have option of tapped holes for securing pan and gasket.



MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -FV)
Holes in Flange -SH
Sediment Bucket -B
Vandal Proof Screws -U

X MIN	X MAX
1 1/4 (32)	2 1/8 (54)

Specify Type, Size & Finish eg: F06NB

SUFFIX -F

ADJUSTABLE STRAINER HEAD

FUNCTION: Used in a non-traffic area when a funnel type strainer head is required and space does not allow use of the 3500 series funnel. The extended rim allows use as an anti-flood and anti-splash drip pan.

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -F37V or F38V)

SUFFIX	-F37	-F38
B DIA	07 (180)	09 (230)
H	3 1/4 (83)	3 1/2 (89)
X MIN	2 5/8 (67)	2 3/4 (70)
X MAX	3 1/2 (89)	3 1/2 (89)

MATERIALS:
Cast Iron -CI
Chrome Plated -CP
Galvanized Cast Iron -G
Polished Bronze -PB
Nickel Bronze -NB

Specify Type, Size & Finish eg: F37NB F38CP

SUFFIX -F37-F38

REV.	DATE	DESCRIPTION	BY	CKD. BY
G	10-4-01	Revised Suffix-BS	RN	CL
F	8-24-99	Revised	TBW	
E	6-11-99	Revised Tables	CMD	BS
E	11-4-97	Added Nickel Bronze	EMB	BS

FIGURE NUMBER
2010 SERIES OPTIONAL STRAINER HEADS
1 0f 2

FIGURE NUMBER: 2010 SERIES OPTIONAL STRAINER HEADS
DRAWN BY: PJ
CHECKED BY: TD
APPROVED BY: TD
DATE: 5-17-85
SCALE: NONE
SIZE: A
DRAWING NUMBER: PM0457 SH 1 of 2
G

ASSUME NO RESPONSIBILITY OR USE OF SUPERSEDED OR VOID DATA
DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

NOTE: Dimensions shown in parenthesis are in millimeters.

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TEL: 334-277-8520 FAX: 334-272-7396 www.jrsmith.com
CUSTOMER DRIVEN

MEMBER OF:

LOCATION

OPTIONAL STRAINER HEADS

LOW DOME STRAINER

FUNCTION: Used in gutters and recessed areas where excessive debris build-up is expected. Dome insures drainage even when partly covered.

MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -GV)
Sediment Bucket -B
Vandal Proof Screws -U

B DIA	05 (125)	06 (150)	08 (205)
H	2 (51)	2 (51)	2 1/2 (64)
MIN	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)
MAX	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)

SUFFIX -G Specify Type, Size & Finish eg: G08PB

SOLID HINGED COVER

FUNCTION: Used in areas where intermittent drain use is required. Solid cover prevents intrusion of chips, saw-dust, etc., which are swept up before cover is opened for washdown. The secondary strainer prevents debris from entering the waste line.

MATERIALS:
Cast Iron -CI
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -GV)
Vandal Proof Screws -U

B DIA	05 (125)	06 (150)	07 (180)	08 (205)
H	2 (51)	2 (51)	2 1/4 (57)	2 1/2 (64)
X MIN	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)
X MAX	2 1/4 (57)	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)

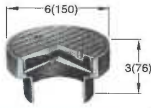
SUFFIX -H Specify Type, Size & Finish eg: H05CP

SPANNER WRENCH COVER

FUNCTION: Solid gas tight, vandal proof, threaded cover for areas where intermittent drain use is required.

MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve (Specify Suffix -JV)
Holes in Flange -SH
Sediment Bucket -B
Vandal Proof Screws -U



X MIN	X MAX
2 (51)	3 (76)

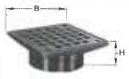
SUFFIX -J Specify Type, Size & Finish eg: J06NB

REINFORCED SQUARE STRAINER

FUNCTION: Used in finished floors where some light wheeled traffic is anticipated.

MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve(Specify Suffix -KV)
Sediment Bucket -B
Vandal Proof Screws -U



B SQ	05 (125)	06 (150)	07 (180)	08 (205)
H	2 (51)	2 (51)	2 1/4 (57)	2 1/2 (64)
X MIN	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/2 (38)
X MAX	2 1/4 (57)	2 1/4 (57)	2 1/4 (57)	2 1/2 (64)

SUFFIX -K Specify Type, Size & Finish eg: K07CP

RECTANGULAR STRAINER

FUNCTION: Used in finished floors where light wheeled loads and or heavy foot traffic are anticipated.

MATERIALS:
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

VARIATIONS:
Sediment Bucket -B
Vandal Proof Screws -U

SUFFIX	L	M	N	P	R	T
B x B'	4 1/2(115)x8(205)	4(100)x12(305)	5(125)x9(230)	5(125)x13(330)	6(150)x10(255)	5(125)x17(430)
H	2 1/4 (57)	2 1/2 (64)	2 1/4 (57)	3 (76)	2 1/4 (57)	3 (76)
X MIN	1 3/8 (35)	1 7/8 (48)	1 3/8 (35)	2 1/8 (54)	1 3/8 (35)	2 1/4 (57)
X MAX	2 3/8 (60)	2 3/4 (70)	2 3/8 (60)	3 (76)	2 3/8 (60)	3 1/8 (79)

SUFFIX -L-M-N-P-R-T Specify Type,Size & Finish eg: LNB

ANGLE STRAINER

FUNCTION: Shower room drain set at wall and floor junction. Vertical grate openings prevent drain stoppage should flat surface become covered.

MATERIALS:
Cast Iron -CI
Chrome Plated -CP
Polished Bronze -PB
Nickel Bronze -NB

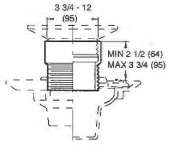
VARIATIONS:
Vandal Proof Screws -U

SUFFIX	B	C	D	X MIN	X MAX
-V	3 1/2 (89)	3 1/2 (89)	4 1/2 (115)	1 5/8 (41)	2 5/8(67)
-W	6 3/4 (170)	6 3/4 (170)	6 1/2 (165)	1 5/8 (41)	2 5/8(67)

SUFFIX -V -W Specify Type, Size & Finish eg: VPB, WNB

EXTENSION ADAPTOR

FUNCTION: Used when a strainer head must be raised to accommodate deeper floor fill.



REGULARLY FURNISHED:
Duco Cast Iron -CI

MATERIALS:
Cast Bronze -CB
Galvanized Cast Iron -G

NOTE: Extension can be stacked for increased maximum adjustment.

SUFFIX -X

OVERFLOW WITH STANDPIPE

FUNCTION: Used as overflow drain in decorative pools, fish ponds or similar areas. Dome prevents floating objects from entering drain line.

MATERIALS:
Chrome Plated -CP
Nickel Bronze -NB
Polished Bronze -PB

VARIATIONS:
Less Dome -LD
Standpipe Height other than 6" (150) (Specify Height)

SUFFIX	A SIZE	X MIN	X MAX
-Y	2 (51)	3/4 (19)	2 1/8 (54)
-Z	3 (76)	3/4 (19)	2 1/8 (54)

SUFFIX -Y-Z Specify Type, Size & Finish eg: YCP, ZCP

HEAVY DUTY ADJUSTABLE

FUNCTION: Used in finished floors where light wheeled loads and or heavy foot traffic are anticipated.

MATERIALS:
Polished Bronze -PB
Rough Bronze -RB
Nickel Bronze -NB

VARIATIONS:
Flapper Type Backwater Valve(Specify Suffix -69V)
Sediment Bucket -B
Vandal Proof Screws -U

SUFFIX -69 eg: A06NB-69

Fig. 3580

Fig. 3581

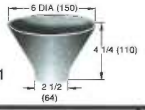


Fig. 3590

Fig. 3591

REV.	DATE	DESCRIPTION	BY	CKD. BY
H	8-24-99	Revised	TBW	BS
G	6-11-99	Revised Tables	CMD	
F	1-22-99	T Strainer was S Strainer	TBW	BS
E	11-4-97	Added Nickel Bronze	EMB	BS
D	10-28-96	Chg'd Func of Suffix -V -W		BS

FIGURE NUMBER
2010 SERIES OPTIONAL STRAINER HEADS
2 of 2

NOTE: Dimensions shown in parenthesis are in millimeters.

FIGURE NUMBER: 2010 SERIES OPTIONAL STRAINER HEADS
DRAWN BY: PJ
CHECKED BY: TD
APPROVED BY: TD
DATE: 5-17-85
SCALE: NONE
SIZE: A
DRAWING NUMBER: PM0457 SH 2 of 2
H

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FD-2

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CUSTOMER DRIVEN
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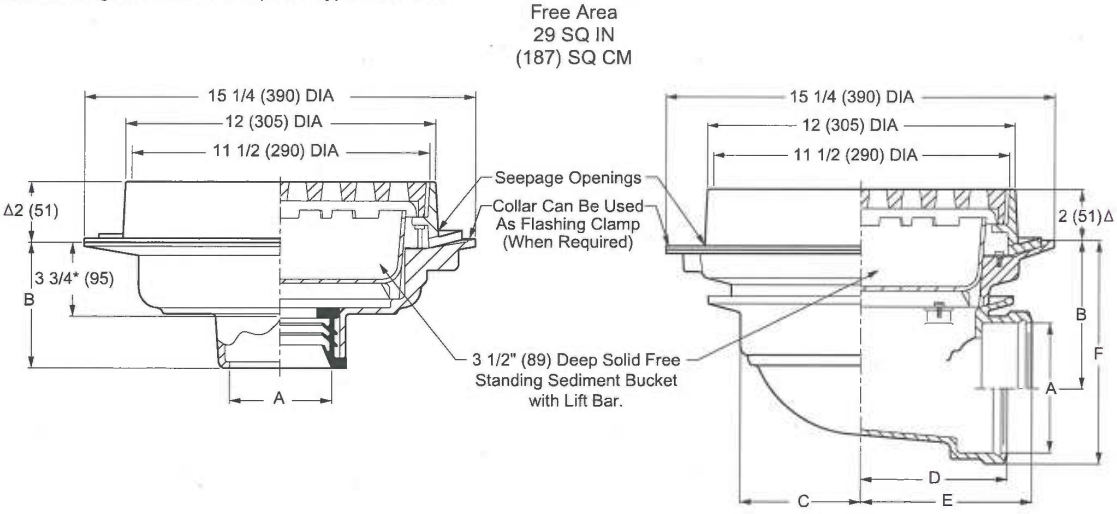
FLOOR DRAINS
WITH HEAVY DUTY TRACTOR GRATE

12" (305) ROUND TOP SOLID FREE STANDING SEDIMENT BUCKET

FUNCTION: Used in heavy trucking or traffic areas where waste water contains sand, sediment and other debris. Drain has solid free standing bucket to intercept this type of debris.



☐ Fig. 2142C.....CAULK OUTLET
☒ Fig. 2142Y.....NO-HUB OUTLET

☐ Fig. 2147C.....CAULK OUTLET
☐ Fig. 2147T.....THREADED OUTLET

A Size	B	
	Caulk, NO-HUB & Speedi-Set	Threaded
02(50,03(75)04(100) 05(125) & 06(150)	5 (125)	3 3/4 (95)

A SIZE	02(50)	03(75)	04(100)	05(125)	06(150)
B	6 7/8(175)	6 3/8(162)	5 7/8(149)	5(125)	4 1/2(115)
C	4 3/4(120)	4 3/4(120)	4 3/4(120)	6 1/4(160)	6 1/4(160)
D	6(150)	6(150)	6(150)	6 5/8(168)	6 7/8(175)
E	7 1/4(185)	7 1/2(190)	7 3/4(195)	7 3/4(195)	7 3/4(195)
F	8 5/8(219)	8 3/4(220)	8 3/4(220)	8 1/2(215)	8 1/2(215)

REGULARLY FURNISHED:
Duco Cast Iron Body and Flashing Collar with Cast Iron Tractor Grate and Solid Free Standing Sediment Bucket.

VARIATIONS:
- ☐ Flat Bottom Strainer -FBS
- ☐ L Speedi-Set Service Weight 02(50), 03(75) & 04"(100) sizes only. (Fig. 2142 only)
- ☐ LXH Speedi-Set Extra Heavy 02(50), 03(75) & 04"(100) sizes only. (Fig. 2142 only)
- ☐ NO-HUB Adaptor (Specify Fig. 2646Y) (Fig. 2140 & 2147 only)
- ☐ Seepage Holes in Bucket -FP (Frost Proof)
- ☐ Square Top -S
- ☐ Trap Primer Connection -P050 1/2" (13) & -P075 3/4" (19) (Fig. 2142 only)
- ☐ Vandal Proof Grate -U
- ☐ T Threaded Outlet

OPTIONAL MATERIALS:
- ☒ Ductile Iron Grate -M
- ☐ Galvanized Cast Iron -G
- ☐ Nickel Bronze Top -NB
- ☐ Polished Bronze Top -PB

Δ Add 1/8" (3) when bronze top is specified.
*This dimension to internal stop of Speedi-Set gasket.

NOTE: 02(50, 03(75), & 04"(100) sizes require a transition collar (as shown in above illustration) which fits between the body & collar. 05(12) & 06"(150) sizes do not require transition collar.

NOTE: Dimensions shown in parentheses are in millimeters.

REV.	DATE	DESCRIPTION	BY	CKD.
G	01/30/04	Revised Bucket Note	JJ	JM
F	1-18-99	Submittal redraw Illustrator	CMD	BS
E	2-6-96	Added Millimeters	EMB	BS

WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER **2142, 2147**

FIGURE NUMBER: 2142, 2147
DRAWN BY: BS
CHECKED BY: TD
APPROVED BY: TD
DATE: 5-17-85
SCALE: NONE
SIZE: A
DRAWING NUMBER: S2142, 2147
G

FS-1

FIGURE NUMBER	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:	SCALE:	SIZE	DRAWING NUMBER	L
3140-3161 Series	PJ	JD	SJM	9-19-85	NONE	A	S3140	

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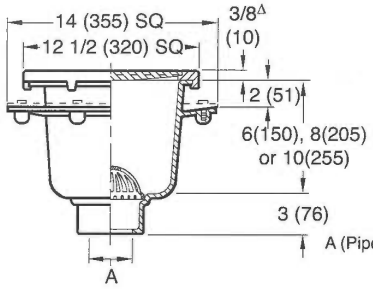
SANI-CEPTOR® ACID RESISTANT COATED FLOOR & INDIRECT WASTE DRAINS

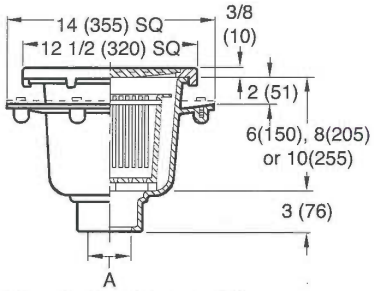
SQUARE NICKEL BRONZE TOP

12 1/2" (320) TOP - MEDIUM, DEEP & EXTRA DEEP RECEPTORS

FUNCTION: Used in kitchens, hospitals, food markets, restaurants, schools and all types of food handling areas where the ultimate in sanitation is desirable and a medium capacity receptor is required.



Free Area
42 SQ IN
(271) SQ CM



WITH DOME BOTTOM STRAINER

	6"(150) deep	8"(205) deep	10"(255) deep		WITH SEDIMENT BUCKET 6"(150) deep	8"(205) deep	10"(255) deep
Fig.	3140C	3150C	3160C	CAULK OUTLET	3141C	3151C	3161C
Fig.	3140Y	3150Y	3160Y	NO-HUB OUTLET	3141Y	3151Y	3161Y

FEATURES, OPTIONS & ORDERING INFORMATION

REGULARLY FURNISHED: Cast Iron Flanged Receptor with Seepage Holes, Acid Resistant Coated Interior, Nickel Bronze Rim and Secured Grate. Aluminum Dome Bottom Strainer or White ABS Sediment Bucket as Indicated by Figure Number.

OPTIONAL MATERIALS:
- ☐ All Duco Cast Iron Receptor -CI
- ☐ All Galvanized Receptor -G

NOTE: Dimensions shown in parentheses are in millimeters.

VARIATIONS:
- ☐ Aluminum Flat Bottom Strainer -FBS
- ☐ Flashing Clamp -C
- ☐ Less Flange (Fig. 3155, 3156 only)
- ☐ Polished Aluminum Dome Bottom Strainer -PDBS
- ☐ Vandal Proof Screws -U
- ☐ L Speedi-Set Service Weight 02(50), 03(75) & 04"(100) sizes only
- ☐ LXH Speedi-Set Extra Heavy 02(50), 03(75) & 04"(100) sizes only

SUFFIX NUMBER SQUARE RIM	DESCRIPTION
☐ -10	Less NB Rim and Grate
☐ -11	Less Grate w/NB Rim
☐ -12	With NB Rim and 1/2 Grate
☐ -13	With NB Rim and 3/4 Grate
☐ -14	With NB Rim and Grate with 2 1/2"(64) SQ Center Hole
☐ -15	With NB Rim and Aluminum Recessed Grate
☐ -19	With NB Rim and Hinged Grate
☐ -21	With NB Rim and Grate with 4"(100) DIA NB Funnel
☐ -22	With NB Rim and Grate with 6"(150) DIA NB Funnel
☐ -25	With NB Rim and Grate with 8 1/4(210) x 3 1/4(83) x 4 1/2"(115) High Oval NB Funnel
☐ -26	With NB Rim and Grate with 6(150) x 2 1/2(64) x 1"(25) High Oval NB Funnel
☐ -41	With NB Rim and Solid Cover
☐ -42	With NB Rim and 1/2 Solid Cover
☐ -43	With NB Rim and 3/4 Solid Cover
☐ -44	With NB Rim and Solid Cover with 2 1/2"(64) DIA Center Hole
☐ -69	With NB Rim and XH Stainless Steel Secured Grate [Δ3/8"(10) dimension becomes 1"(25)]

REV.	DATE	DESCRIPTION	BY	CKD. BY
L	8-4-14	Revised Variations	TBW	CL
K	6-10-14	Revised Reg. Furn., Var.	TBW	TWK
J	10-31-12	Revised Variations	TBW	BW
H	01/20/11	Updated Logo	JJ	TW

WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER 3140-3161 Series

HB-1

(../WFDIndex.html)Woodford Model 26 Wall Faucet

Model 26 Specs | Stem Lock | Modular Box | Pricing | Buy Online | Troubleshooting | Submittal Sheets | Print PDF

The Model 26 and B26 are field testable, backflow protected wall faucets intended for irrigation purposes in mild climate areas. The Model B26 is enclosed in a wall mounted box. Both models are designed to blend with modern architecture for installation on or in homes, service stations, churches, motels, drive-in restaurants, etc. The Model Y26 is designed to be used on a stand pipe in the lawn and garden, etc.

SPECIFICATIONS:

MODEL 50HF BACKFLOW PREVENTER - *Patent Pending*

- ASSE 1052 Approved
- Listed by IAPMO
- Field Testable
- Two Independent Check Valves
- Drains automatically when hose is removed
- No spray back

FEATURES:

EPDM PACKING: Prevents leaking.

PACKING NUT: Adjustable brass nut with deep stem guard.

VALVE SEAT: Standard "O" size washer.

HANDLES: Furnished with polycarbonate wheel handle and loose tee key. Optional: Metal wheel handle.

INLETS: Model 26 as shown below.
Model B26: 26P- ½ or 26P ¾ only.
Model Y26: ¾ " FPT.

MAX PRESSURE: 125 p.s.i.

MAX TEMPERATURE: 120° F

SHIPPING WEIGHT: (per unit)

MODEL 26 & Y26: 1.2 lbs

MODEL B26: 14.6 lbs (brass or chrome box)
6.5 lbs (aluminum box)

Inlet Descriptions

MODEL 26/B26
P-½ Inlet
½" FPT
P-¾ Inlet
¾" FPT

MODEL 26 ONLY
CP Inlet
COMBINATION
½" COPPER TUBE
½" MPT

MODEL 26 ONLY
C Inlet
COMBINATION
½" COPPER TUBE
¾" COPPER TUBE

For Installation / Troubleshooting Instructions go to www.woodfordmfg.com or call 1-800-621-6032

WOODFORD

Backflow Protected
Wall Faucets
Model 26/B26/Y26

MODEL 26

Exterior Finish:
Standard - Chrome
Optional- Rough Brass (BR) or Polished Chrome (PC)

MODEL B26

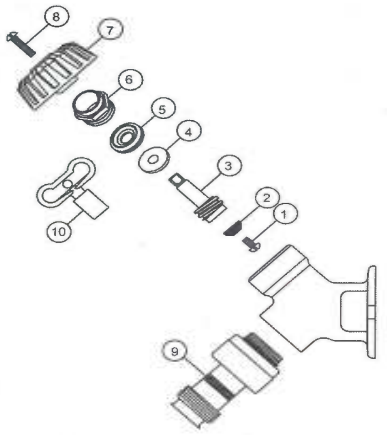
Exterior Finish:
Standard - Chrome
Optional- Rough Brass (BR) or Polished Brass (PB)
Other Options: Anodized Aluminum Box and Door

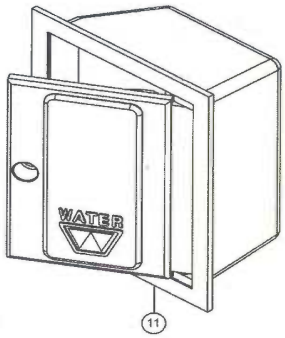
MODEL Y26

Exterior Finish:
Standard - Chrome
Optional- Rough Brass (BR) or Polished Chrome (PC)

Rev. 02/12 Form No. 26.109

WOODFORD

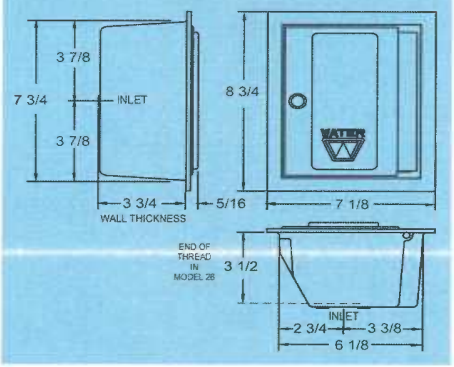




MODEL 26/B26/Y26 PARTS LIST

ITEM	PART#	DESCRIPTION
1	30009	Washer Screw
2	30008	Washer
3	30104	Operating Stem
4	30105	Packing Support Washer
5	30247	EPDM Packing
6	30109	Packing Nut - chrome
	30107	Packing Nut - Brass
7	30120	Wheel Handle - Clear
	30233	Wheel Handle - Tan
8	30121	Handle Screw - Nickel
	30002	Handle Screw - Brass
9	50HF-CH	50HF Backflow Preventer - Chrome
	50HF-BR	50HF Backflow Preventer - Brass
10	50009	Tee Key
11	B26BX	Box/Door Assembly - Chrome
	B26BX-BR	Box/Door Assembly - Brass
	B26BX-PB	Box/Door Assembly - Polished Brass
	B26BX-AL	Box/Door Assembly - Anodized Aluminum
	RK-24	Chrome Repair Kit (Includes items 1-8)
	RK-H34	Brass Repair Kit (Includes items 1-8)

MODEL B26
Rough-In Dimensions



Manufactured under one or more of the following patents: U.S. Patents: 3,414,001; 3,543,786; 4,178,956; 4,316,481; D216,790; D216,791; D277,365; D277,366; Canada Patents: 822,458; 852,529; 865,995

For more information contact...

WOODFORD MANUFACTURING COMPANY

2121 Waynoka Road, Colorado Springs, Colorado 80915 • **Phone:** (800) 621-6032 • **Fax:** (800) 765-4115

To view our complete product line visit: ***www.woodfordmfg.com*** *or email:* ***sales@woodfordmfg.com***

A Division Of WCM Industries, Inc.

L-1

SLOAN®

Model
SS-3002 Series
Oval Drop-in Lavatory

DESCRIPTION

Complete vitreous china lavatory

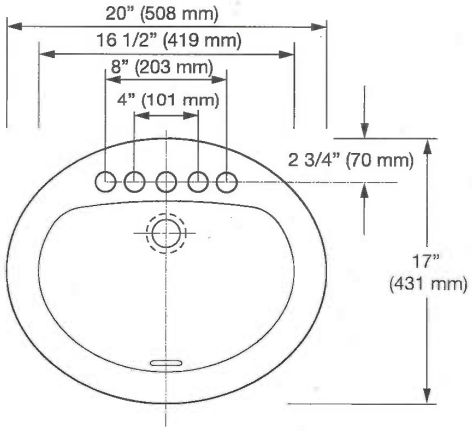
- ☐ Model SS-3102-Single Hole
  Code: 3873102
- ☐ Model SS-3002-4" (102 mm) Centers
  Code: 3873002
- ☐ Model SS-3802-8" (203 mm) Centers
  Code: 3873802

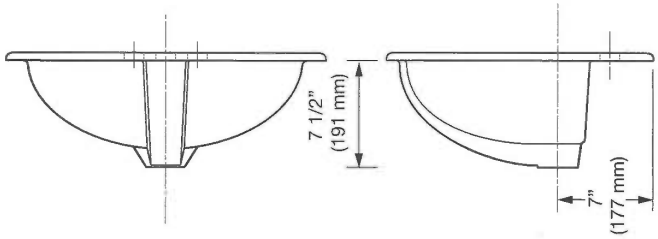
Model SS-3002 Shown

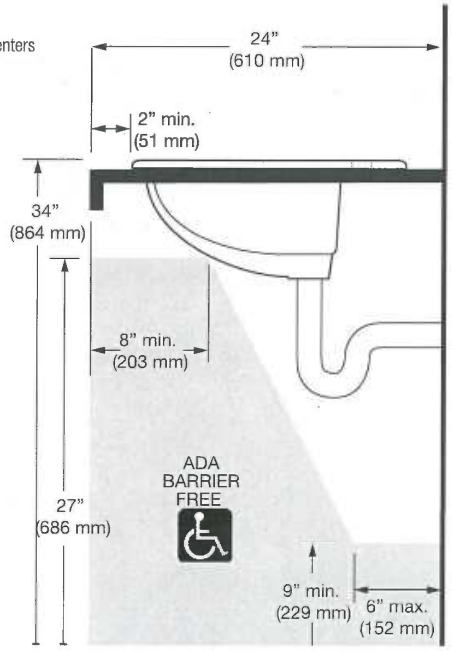
SPECIFICATIONS

Lavatory

- White vitreous china
- Self-rimming
- Single hole, 4" (102 mm) and 8" (203 mm) centers
- Front overflow
- ADA compliant when mounted with lavatory mounted at 34" from finished floor. See illustration for recommended ADA installation
- 20" (508 mm) x 17" (431 mm)
- Compliant to the applicable sections of ASME A112.19.2/CSA B45.1







Product Specification
Sink shall be made of vitreous china with an overflow. Sink shall be drop-in mounted. Sink shall have a 4" centerset. Sink shall be Sloan Model SS-3_02.

NOTE: All vitreous china dimensions shown in these drawings are nominal. Dimensions can vary within the tolerances established in the governing ASME A112.19.2/CSA B45.1 standard. Please take this into consideration when planning rough-in and plumbing layouts.

UPC C ®

This space for Architect/Engineer approval

Job Name _____ Date _____

Model Specified _____ Quantity _____

Variations Specified _____

Customer/Wholesaler _____

Contractor _____

Architect _____

The information contained in this document is subject to change without notice.

SLOAN®

Sloan Valve Company
10500 Seymour Avenue
Franklin Park, IL 60131
Phone: 1-800-9-VALVE-9 (982-5839)
or 1-847-671-4300
Fax: 1-800-447-8329 or 1-847-671-4380
www.sloanvalve.com

SS-3002 09-13

L-1,2

SLOAN®
OPTIMA SYSTEMS

OPTIMA® plus
Battery Powered Hand Washing Faucet

EBF-85

Description
Battery Powered, Sensor Activated Electronic Hand Washing Faucet for tempered or hot/cold water operation.

Flow Rate
☐ 0.5 gpm/1.9 Lpm Vandal Resistant Spray Head
(See Accessories for other Spray Head options)

Specifications
ADA Compliant, Battery Powered, Sensor Activated, Chrome Plated Brass Hand Washing Faucet with the following features:

- Splash-proof Circuit Control Module
- Fiber Optic, Automatic, Self-adaptive Sensing
- Isolated Latching Solenoid Operator, isolates magnetic components from water contact
- Audible Tone Low Battery Indicator
- Serviceable Filtered Solenoid Valve
- Bak-Chek® Tee for Hot/Cold Supply
- Trim Plate with Anti-Rotation Pin (specify 4" or 8")
- Vandal Resistant Spray Head with Pressure Compensating Flow Control
- Polypropylene Optic Cable Protection
- Includes four (4) C-size Alkaline Batteries

Variations
(Add suffix to Model Number for inclusion with Faucet)

- Trim Plate (must be specified)
  - ☐ -4 Trim Plate for 4" Centerset Sink
  - ☐ -8 Trim Plate for 8" Centerset Sink
- Temperature Mixing Valves (optional)
  - ☐ ADM Above Deck Mechanical Mixing Valve
  - ☐ BDM Below Deck Mechanical Mixing Valve
  - ☐ BDT Below Deck Thermostatic Mixing Valve

Bak-Chek® Tee not required or provided when a Temperature Mixing Valve is included with the faucet.

Consult Factory for Finish Variations

Accessories (Specify separately)

- Vandal Resistant Spray Heads
  - ☐ ETF-1027-A 2.2 gpm/8.3 Lpm Laminar Flow Spray Head (recommended for medical applications)
  - ☐ ETF-1022-A 2.2 gpm/8.3 Lpm Aerator
- Grid Strainer
  - ☐ ETF-460-A Chrome Plated Brass Grid Strainer w/1¼" Outlet Tube

See OPTIMA Accessories Section of the Sloan Catalog for a complete listing of OPTIMA Faucet Accessories and Variations.

ADA Compliant

Automatic
The Sloan OPTIMA *Plus*® EBF-85 Battery Powered, Electronic Hand Washing Faucet operates by means of an adaptive infrared sensor that is linked to the faucet by a fiber optic cable. Once the user's hands enter the sensor's effective range, the Solenoid activates the water flow. Tempered water flows from the Faucet until hands are moved away. The Faucet then automatically shuts off.

Hygienic
The ultimate in sanitary protection — there are no handles to turn or buttons to push. Helps to control the spread of infectious diseases.

Economical
Automatic operation provides water usage savings over other faucet devices. Reduces maintenance and operation costs. Self-adaptive Range Adjustment makes installation quick and easy. Battery operation ideal for Retrofit installations.

Warranty
3 year (limited)

Compliant to:
ASME A112.18.1-2005/CSA B125.1-05
ISO/IEC 17025

LOW-LEAD UPC C ®

This product may contribute to LEED credits. See details on LEED calculation worksheet.

This space for Architect/Engineer approval

Job Name _____ Date _____

Model Specified _____ Quantity _____

Variations Specified _____

Customer/Wholesaler _____

Contractor _____

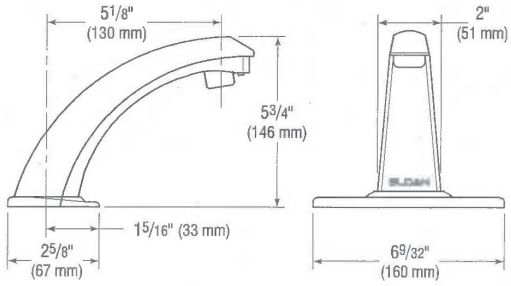
Architect _____

The information contained in this document is subject to change without notice.

Optima Plus EBF-85 S.S. — Rev. 2 (09/10)

EBF-85

FAUCET DIMENSIONS
(Shown with 4" Trim Plate)



▶ **Description**
Battery Powered, Sensor Activated Electronic Hand Washing Faucet for tempered or hot/cold water operation.

▶ **Flow Rate**
☐ 0.5 gpm/1.9 Lpm Vandal Resistant Spray Head
(See Accessories for other Spray Head options)

ELECTRICAL SPECIFICATIONS

▶ **Control Circuit**
6 VDC — Operates on four (4) alkaline C-size batteries. Self-adaptive Range Adjustment, Audible Troubleshooting and Low Battery Indicator. Fiber Optic Cable between Electronic Module and Faucet keeps all electronic signals below the sink.

▶ **Battery Life**
2 years at 8,000 cycles/month

▶ **OPTIMA® Sensor Range**
Nominal: 4"- 5" (102 mm - 127 mm)
Self-adaptive Zone: 2" - 8"
(51 mm - 203 mm) — Faucet self-adjustment range within this zone dependent upon depth and reflectivity of basin.

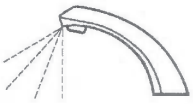
▶ **Solenoid Valve**
Low Energy Latching Solenoid with Self-cleaning By-pass and Integral Clean Out Strainer Filter.

▶ **Time Out Adjustment Settings**
30 seconds — The Faucet Time out Setting determines the maximum time the faucet will run upon continuous detection. The EBF-85 is factory set at the 30 second time out. Consult factory for time out settings to meet individual application requirements.

▶ **Maximum Distance Control Module may be installed from Spout**
30" (762 mm)

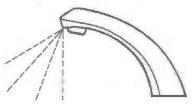
OPERATION

1. Continuous, invisible light beams are emitted from the OPTIMA® Sensor. Fiber optic cables transmit the light from the circuit to the spout.

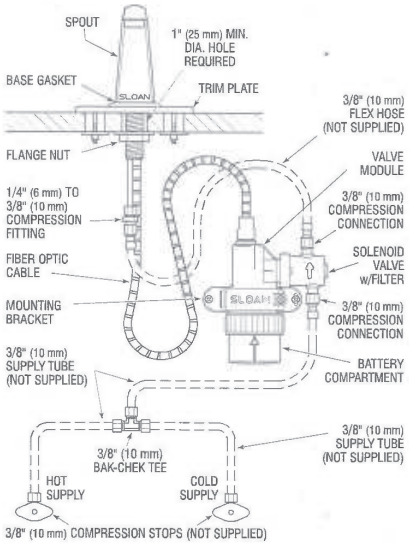


2. The faucet is activated by placing hands beneath the spray head, thus activating the Solenoid Valve. Tempered water flows for as long as hands continue to stay within the Sensor's range (30 second automatic shut off).

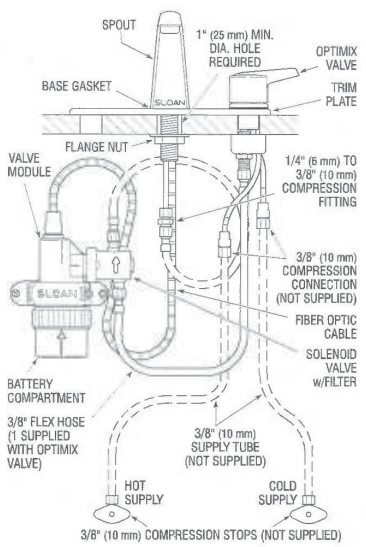
3. When hands are removed, the water flow automatically stops. The faucet is then ready for the next user.



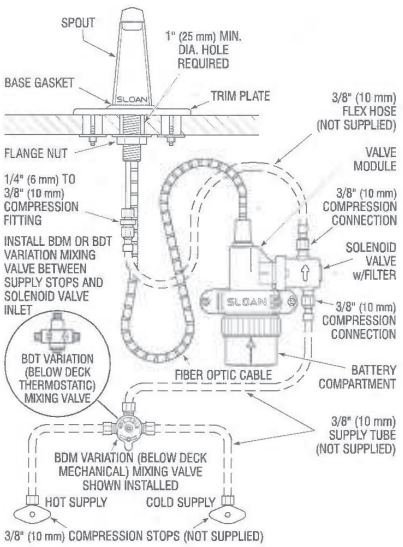
EBF-85 Faucet with Bak-Chek® Tee for Hot and Cold Water Supply (shown with 4" trim plate)



EBF-85 Faucet with ADM Variation Mixing Valve for Hot and Cold Water Supply (shown with 8" trim plate)



EBF-85 Faucet with BDM and BDT Variation Mixing Valves for Hot and Cold Water Supply (shown with 4" trim plate)



SLOAN VALVE COMPANY • 10500 SEYMOUR AVENUE • FRANKLIN PARK, IL 60131
Phone: 1-800-982-5839 or 1-847-671-4300 • Fax: 1-800-447-8329 or 1-847-671-4380 • www.sloanvalve.com

Optima Plus EBF-85 S.S. — Rev. 2 (09/10)

L-2

Dura-Ware® 1953 Series

18" Lavatory - ADA Compliant

1953-1-DMS-04-M-GT-TPT

1953-1-CSG-GT-TPT

Fixture May Show Some Available Options

Please visit ***www.acorneng.com*** for most current specifications.

18" Lavatory - ADA Compliant

Fixture is designed to be installed and serviced on the front side of a finished wall. The fixture is fabricated from 16 gage, type 304 stainless steel and is seamless welded construction. Exterior has a satin finish. Unit conforms with ANSI, UFAS and ADA requirements for accessibility. Compliance is subject to the interpretation and requirements of the local code authority.

Lavatory Rectangular Bowl is 14" x 12" x 5" deep. The deck has an integral, self-draining soap dish. The lavatory includes 1-1/2" drain punching to receive optional -GE or -GT grid strainer. Lavatory angle braces and fasteners for securing the braces to the lavatory are furnished. Wall fasteners by others.

Lavatory Valves (ADA compliant) available with valves and faucet/spouts that conform with lead free requirements for NSF61, Section 9 and CHSC 116875.

1. Air control pushbutton valves using atmospheric air; metering non-hold open type. Timing is from 5 to 60 seconds. Air control valves can be remotely located up to 10 feet from the operating pushbutton.

2. Electronic valve system using Modular Valve Controller for water metering through precise electronic control of a solenoid valve. Valve timing is from 1 second to 9 minutes. Modular Valve Controller can be remotely located up to 100 feet from the operating pushbutton.

3. Centerset with gooseneck spout and wrist blade handles, suffix -CSG.

Regularly furnished are angle braces and fasteners. Mounting screws and anchor shields are furnished by others.

GUIDE SPECIFICATION

Provide and install an Acorn Dura-Ware, 18" wide ADA Compliant Lavatory (specify model number and options). Fixture shall be fabricated from heavy gage, type 304 stainless steel. Construction shall be seamless welded with a satin finish exterior. Lavatory deck shall have an integral air-circulating, self-draining soap dish. Lavatory angle braces and fasteners shall be furnished by manufacturer. Installation shall be made in accordance with manufacturer's recommendation and details. Units to conform with ANSI, UFAS and ADA requirements for accessibility.

Acorn Engineering Company • 15125 Proctor Avenue • P.O. Box 3527 • City of Industry, CA 91744-0527 U.S.A.
Tel: (800) 488-8999 • (626) 336-4561 • Fax: (626) 961-2200 • www.acorneng.com • E-mail: info@acorneng.com

Dura-Ware® 1953: 18" Lavatory - ADA Compliant

WALL THICKNESS AND TYPE (Must Specify)
Thickness _____ Type: ❑ Concrete ❑ Block ❑ Steel

MODEL NUMBER AND OPTIONS SELECTION

BASE MODEL NUMBER
☑ 1953 18" x 22" ADA Compliant Lavatory

FIXTURE MOUNTING AND WASTE (Must Specify)
☑ -1 Off-Floor, Wall Outlet

BUBBLER OR SPOUT SELECTION (Must Specify)
❑ -CSG Centerset with Gooseneck Spout and Wrist Blade Handles
❑ -DMS Deck Mounted Spout, 1.4 GPM

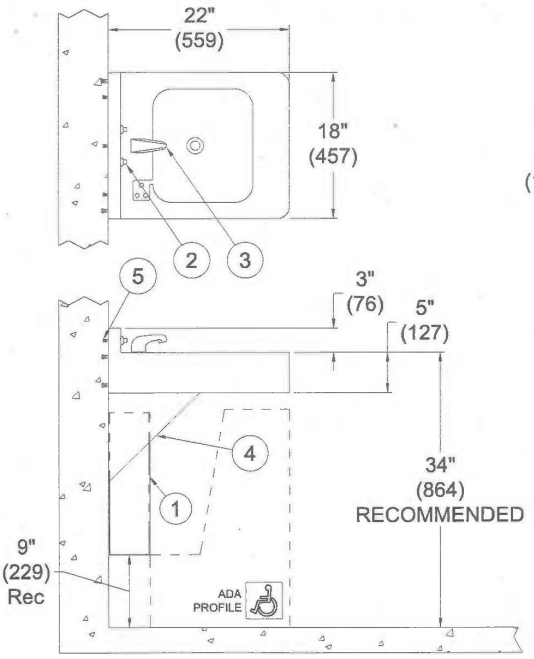
VALVE SELECTION (Must Specify)
❑ -03-M Air-Control, Single Temp, Metering
❑ -04-M Air-Control, Hot & Cold, Metering
❑ -9 Without Valves (Must Specify Deck Punching)
❑ -MVC1 Time-Trol - Single Temp
❑ -MVC2 Time-Trol - Hot & Cold
❑ -PPZ1 Programmable Piezo Button - Single Temp w/ 9VDC Plug-In Transformer
❑ -PPZ2 Programmable Piezo Button - Hot & Cold w/ 9VDC Plug-In Transformer

DECK PUNCHING
Must specify when indicating -09 Without Valves option, Ø1-5/16" holes provided.
❑ -H1 Single Hole, On Center
❑ -H24 4" Centerset; Two Holes
❑ -H34 4" Centerset; Three Holes
❑ -H28 8" Centerset; Two Holes*
❑ -H38 8" Centerset; Three Holes*
* Eliminates soap dish when selected.

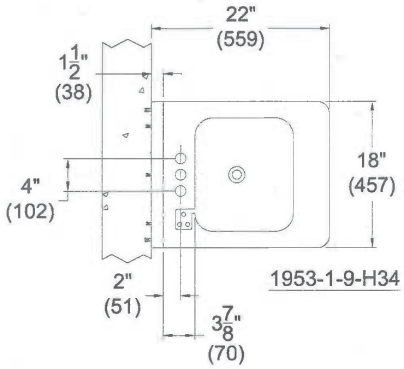
LAVATORY WASTE OPTIONS
❑ -GE Grid Strainer w/Close Elbow 1-1/4"
❑ -GT Grid Strainer w/Tailpiece 1-1/4"
❑ -OF Lavatory Overflow
❑ -TPT Tubular P-Trap 1-1/4" x 1-1/2"

PRODUCT OPTIONS
❑ -BRS Brass Body Valve
❑ -EE Elbow Enclosure
❑ -EG Enviro-Glaze Color, Specify: _____
❑ -FG 14 Gage Housing
❑ -TE Trap Enclosure

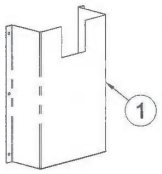
Please visit ***www.acorneng.com*** for most current specifications.



1953-1-DMS-04



1953-1-9-H34



NOTES:
1. Valve Cover Provided With Electronic Metering or Air-Control Valve Options Only
2. Lavy Valve Pushbuttons
3. Optional -DMS Deck Mounted Spout
4. Standard Angle Brace
5. Wall Mounting Anchors (By Others)

Important: Installation instructions and current rough-in are furnished with each fixture. Do not rough in without certified dimensions.

Selection Summary	Approved for Manufacturing
Model No. & Option_____	Company_____Title_____
Quantity_____	Signature_____ Date_____

Acorn Engineering Company • 15125 Proctor Avenue • P.O. Box 3527 • City of Industry, CA 91744-0527 U.S.A.
Tel: (800) 488-8999 • (626) 336-4561 • Fax: (626) 961-2200 • www.acorneng.com • E-mail: info@acorneng.com

MS-1

ELKAY®

Service Sink, Floor Model
Models EFS2523C and EFS3321C

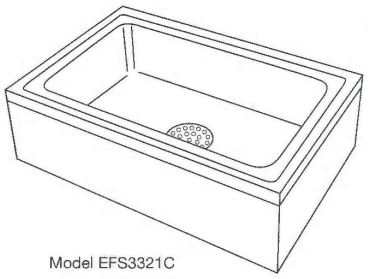
SPECIFICATIONS

GENERAL

#16 gauge, type 304 (18-8), stainless steel floor model service sink with 1-3/4" (44mm) radius vertical and horizontal coved corners. Apron on three sides. Top has 5/32" (4mm) raised rim. Exposed surfaces are polished to a lustrous satin finish. Underside is fully undercoated to prevent condensation and dampen sound. Furnished with wall hanger and LK43 drain with strainer.

(CHECK MODEL SPECIFIED)

☐ EFS2523C
☐ EFS3321C



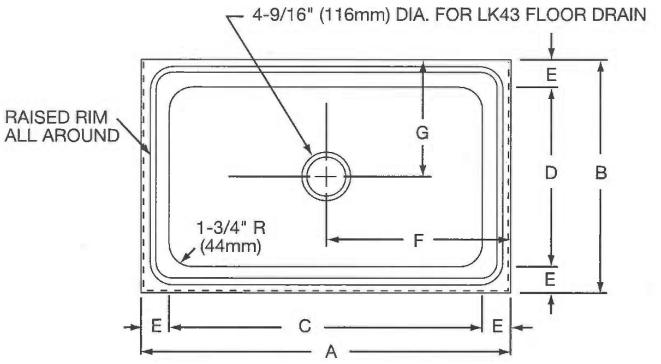
Model EFS3321C

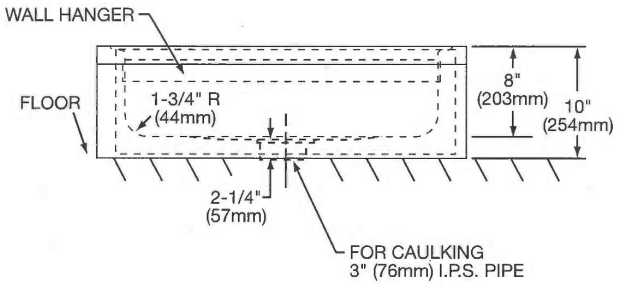
FURNISHED COMPLETE WITH:

DRAIN: LK43. Chrome plated brass body drain outlet fitting. Field adjustable stainless steel flat grid strainer or dome strainer. Designed to attach to 3" (76mm) I.P.S. pipe utilizing sealant by others.

DIMENSIONS

Model Number	A		B		C		D		E		F		G	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
EFS2523C	25	635	23	584	20	508	18	457	2½	64	12½	318	11½	292
EFS3321C	33	838	21	533	28	711	16	406	2½	64	16½	419	10½	267





In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice.

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

Elkay Manufacturing Company
www.elkay.com

2222 Camden Court
Oak Brook, IL 60523

(Rev. 1/02) 3-1F

MECHANICAL FAUCETS

897-CP

Manual and Metering Faucets

MS-1

CHICAGO FAUCETS
a Geberit company

Product Type

Wall Mounted 8" Body, Adjustable Arms 7 5/8" - 8 3/4" Hot and Cold Water Sink Faucet

Features & Specifications

- 8" Body, Adjustable Arms 7 5/8" - 8 3/4"
- 2-3/8" Lever Handle
- Quaturn Compression Operating Cartridge
- 1/2" NPT Adjustable Female Union Nut Supply Arms
- 3/4" Male Hose Thread Outlet
- Integral Stop Valves for Servicing the product
- Atmospheric Vacuum Breaker, Not Intended for Continuous Pressure Applications
- Vacuum Breaker Spout with Pail Hook and Wall Brace
- Atmospheric Vacuum Breaker, Not Intended for Continuous Pressure Applications
- CFNow! Item Ships in 5 Days

Performance Specification

- Rated Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140ºF

Warranty

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

Codes & Standards

- ASME A112.18.1/CSA B125.1
- ADA ANSI/ICC A117.1

Job Name _____

Item Number _____

Section/Tag _____

Model Specified _____

Architect _____

Engineer _____

Contractor _____

[ ] Submitted as Shown [ ] Submitted with Variations

Date _____

2100 South Clearwater Drive
Des Plaines, IL
P: 847/803-5000
F: 847/803-5454
Technical: 800/TEC-TRUE
www.chicagofaucets.com

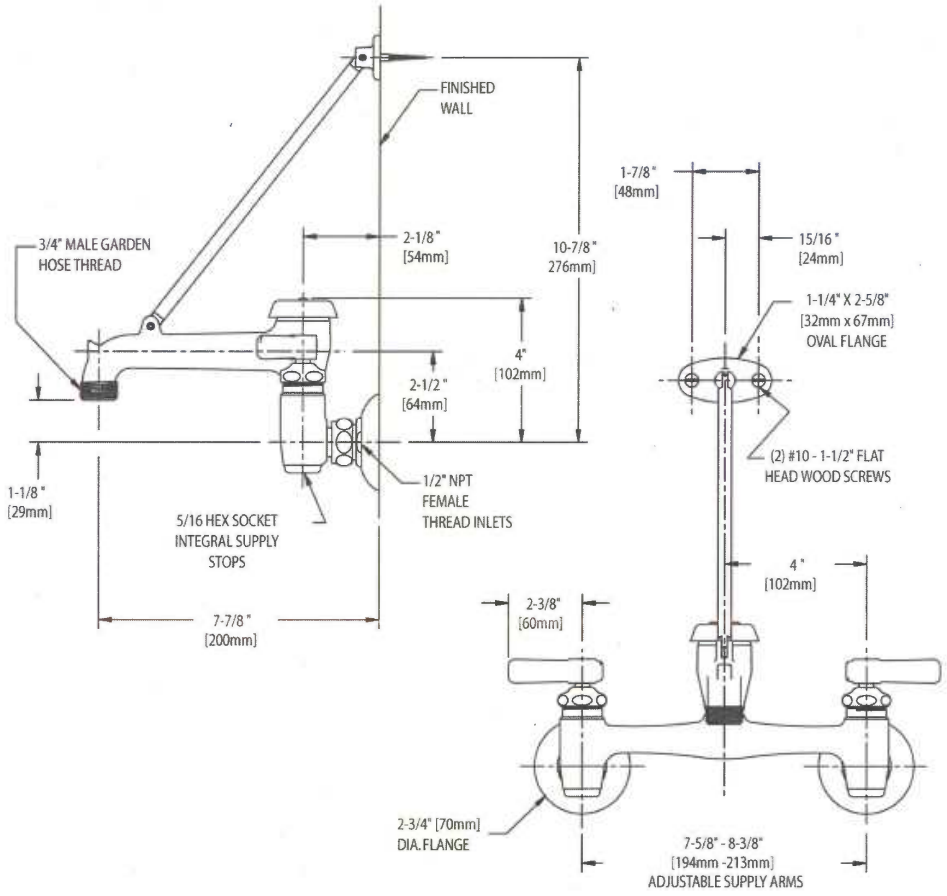
897-CP

Manual and Metering Faucets

CHICAGO FAUCETS
a Geberit company

Architect/Engineer Specification

Chicago Faucets No. 897-CP, Wall Mounted 8" Body, Adjustable Arms 7 5/8" - 8 3/4" Hot and Cold Water Sink Faucet, Chrome Plated solid brass construction. Vacuum Breaker Spout with Pail Hook and Wall Brace. 2-3/8" Metal Lever handle(s) with Eight Point Tapered Broach and Secured Blue and Red Buttons. Quaturn™ rebuildable compression cartridge, opens and closes 90°, closes with water pressure, features square tapered stem. 1/2" NPT Adjustable Female Union Nut Supply Arms. 3/4" Male Hose Thread Outlet. Integral Stop Valves for Servicing the product. Atmospheric Vacuum Breaker, Not Intended for Continuous Pressure Applications. Atmospheric Vacuum Breaker, Not Intended for Continuous Pressure Applications. Secondary Control Valve: Vacuum Breaker Spout with Pail Hook and Wall Brace. .



Operation and Maintenance

Installation should be in accordance with local plumbing codes. Flush all pipes thoroughly before installation. After installation, remove spout outlet or flow control and flush faucet thoroughly to clear any debris. Care should be taken when cleaning the product. Do not use abrasive cleaners, chemicals or solvents as they can result in surface damage. Use mild soap and warm water for cleaning and protecting the life of Chicago Faucet products. For specific operation and maintenance refer to the installation instructions and repair parts documents that are located at www.chicagofaucets.com.

Chicago Faucets, member of the Geberit Group, is the leading brand of commercial faucets and fittings in the United States, offering a complete range of products for schools, laboratories, hospitals, office buildings, food service, airports and sport facilities. Call 1.800.TECTRUE or 1.847.803.5000 Option 1 for installation or other technical assistance.

U.S. GREEN BUILDING COUNCIL MEMBER

2100 South Clearwater Drive
Des Plaines, IL
P: 847/803-5000
F: 847/803-5454
Technical: 800/TEC-TRUE
www.chicagofaucets.com

S-1

ELKAY SPECIFICATIONS

Gourmet Undermount Sink with Perfect Drain™
Model ELUHAD Series - A.D.A. Compliant

NEW ELUH Installation Options
ELUH models have been redesigned to accommodate 1/2" reveal and no reveal installation options.

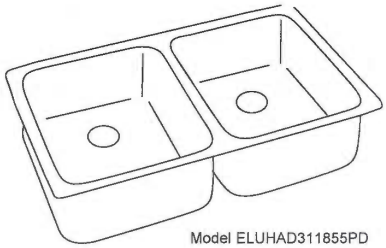
GENERAL
Highest quality sink formed of #18 (1.2mm) gauge, type 304 (18-8) nickel bearing stainless steel with **Perfect Drain**. Undermount.

DESIGN FEATURES
Bowl Depths: See chart on next page.
Coved Corners: 1-3/4" (44mm) vertical and horizontal radius.
Finish: Exposed surfaces are hand blended to a Lustrous Highlighted Satin finish.
Underside: Fully protected by Sound Guard® undercoating to reduce condensation and dampen sound.
Perfect Drain: Seamlessly welded stainless steel collar eliminates the gap between a traditional drain and the sink for a sanitary and gap free installation. Each sink shipped with two LKPD1 drain kits, or a garbage disposer can be installed on either sink bowl for user convenience.
Patent Pending

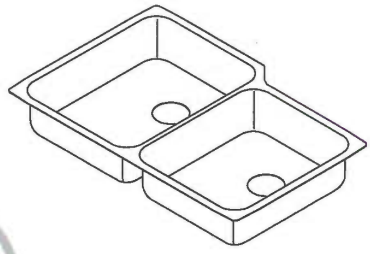
OTHER
Drain opening: 3-3/8" (86mm)
NOTE: All Elkay undermount sinks are designed to affix to the underside of any solid surface countertop.
Waste Fitting complies with ASME A112.18.2/CAN/CSA-B125.2
Sink complies with ASME A112.19.3/ CSA B45.4

Sinks are listed by IAPMO® as meeting the applicable requirements of the Uniform Plumbing Code®, International Plumbing Code®, and National Plumbing Code of Canada.

THIS PRODUCT, AS CONSTRUCTED IS SUBJECT TO INTERPRETATION OF A.D.A. REQUIREMENTS. THE UNOBSTRUCTED KNEE SPACE REQUIRED TO SATISFY A.D.A. STANDARDS MAY NOT BE DESIRABLE.



Model ELUHAD311855PD



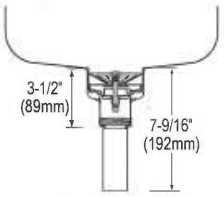
Model ELUHAD312045RPD

Sinks Are MADE IN USA™

inSinkErator®

Elkay® Perfect Drain™ sinks are designed and approved for compatible disposers manufactured by InSinkErator® utilizing the Quick Lock® mounting configuration. Use of non-approved disposers may void Elkay warranty.

InSinkErator, Quick Lock and the mounting collar configuration are trademarks of Emerson Electric Co.



Sink with Drain Kit Installed

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

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

Elkay
elkay.com

2222 Camden Court
Oak Brook, IL 60523

(Rev. 05/14) 1-421A

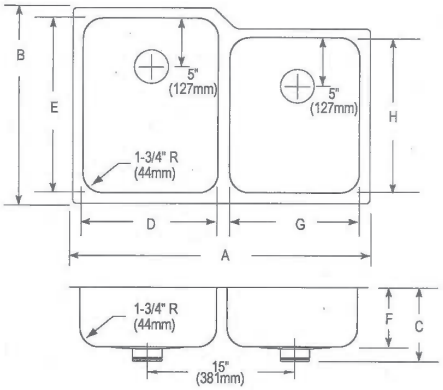
ELKAY SPECIFICATIONS

Gourmet Undermount Sink with Perfect Drain™
Model ELUHAD Series - A.D.A. Compliant

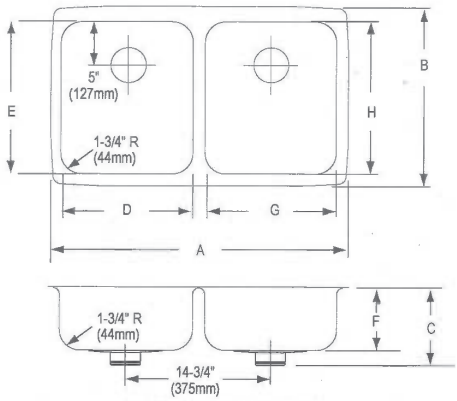
SINK DIMENSIONS*

Model Number	Overall L A	Overall W B	Overall D C	Inside Left Bowl L D	Inside Left Bowl W E	Inside Left Bowl D F	Inside Right Bowl L G	Inside Right Bowl W H	Inside Right Bowl D F	Cutout in Countertop	Minimum Cabinet Size
ELUHAD311845PD	30-3/4 (781mm)	18-1/2 (470mm)	5-7/8 (149mm)	13-1/2 (343mm)	16 (406mm)	4-3/8 (111mm)	13-1/2 (343mm)	16 (406mm)	4-3/8 (111mm)	See Template**	36 (914mm)
ELUHAD311850PD	30-3/4 (781mm)	18-1/2 (470mm)	6-3/8 (162mm)	13-1/2 (343mm)	16 (406mm)	4-7/8 (124mm)	13-1/2 (343mm)	16 (406mm)	4-7/8 (124mm)		36 (914mm)
ELUHAD311855PD	30-3/4 (781mm)	18-1/2 (470mm)	6-7/8 (175mm)	13-1/2 (343mm)	16 (406mm)	5-3/8 (137mm)	13-1/2 (343mm)	16 (406mm)	5-3/8 (137mm)		36 (914mm)
ELUHAD312045RPD	31-1/4 (794mm)	20-1/2 (521mm)	5-7/8 (149mm)	14 (356mm)	18 (457mm)	4-3/8 (111mm)	13-1/2 (343mm)	16 (406mm)	4-3/8 (111mm)		36 (914mm)
ELUHAD312050RPD	31-1/4 (794mm)	20-1/2 (521mm)	6-3/8 (162mm)	14 (356mm)	18 (457mm)	4-7/8 (124mm)	13-1/2 (343mm)	16 (406mm)	4-7/8 (124mm)		36 (914mm)
ELUHAD312055RPD	31-1/4 (794mm)	20-1/2 (521mm)	6-7/8 (175mm)	14 (356mm)	18 (457mm)	5-3/8 (137mm)	13-1/2 (343mm)	16 (406mm)	5-3/8 (137mm)		36 (914mm)

*Length is left to right. Width is front to back.
**Template #1000001312(ELUHAD3118) or #1000001388(ELUHAD3120R) is packed with every sink.

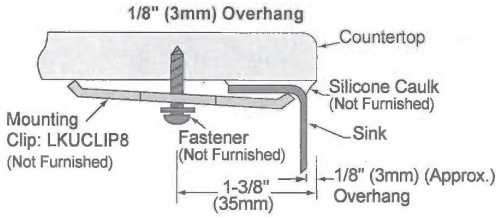


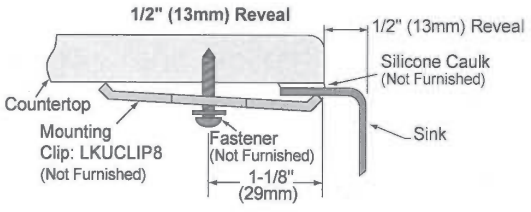
Model ELUHAD312055RPD Illustrated



Model ELUHAD311855PD Illustrated

Installation Profile





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

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Elkay
elkay.com

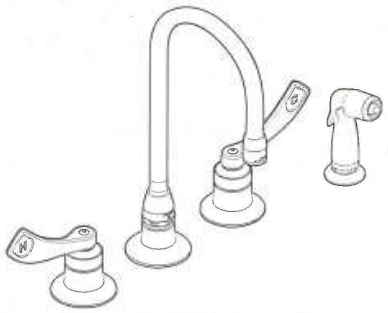
2222 Camden Court
Oak Brook, IL 60523

(Rev. 05/14) 1-421A

S-1,2

MOEN®
COMMERCIAL

Specifications



Two-Handle Kitchen Faucet w/Side Spray

Model: 8244

BUY AMERICAN ACT COMPLIANT

NOTE: Designed to be installed through 4 holes - 1" min. dia.

DESCRIPTION
- Brass construction with chrome plated finish
- 1/2" IPS connections
- Includes side spray with Hydrolock® quick-connect system

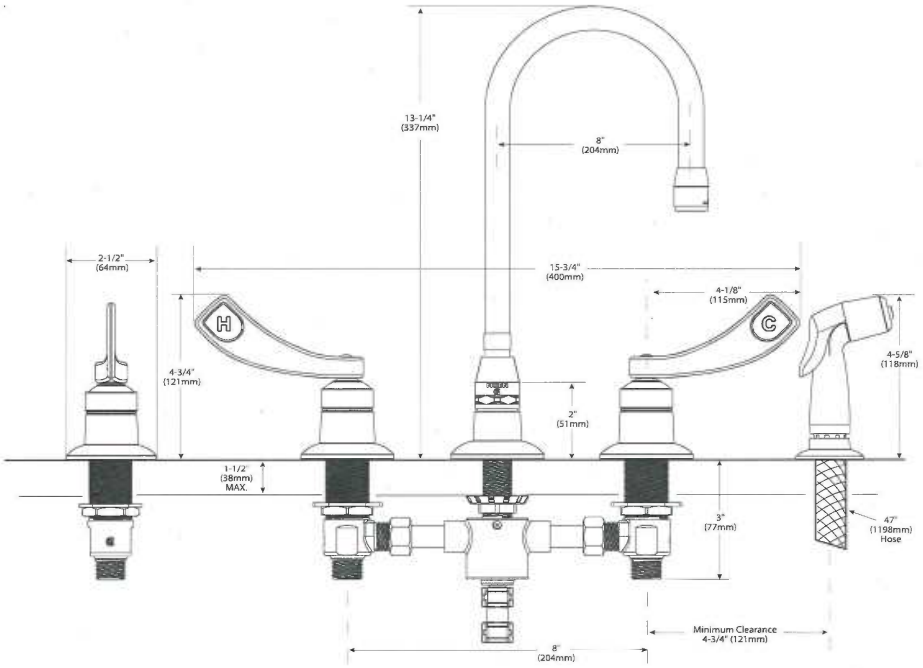
OPERATION
- Wrist blade style handles with hot and cold color indicators
- Vandal resistant torx head screws
- 1/4 turn to open (clockwise to close)

FLOW
- Aerator is limited to 2.2GPM Max (8.34 Min.)

CARTRIDGE
- Brass shell, ceramic disc cartridge
- Nonmetallic/nonferrouse and ceramic material

STANDARDS
- Third party certified to meet ASME A112.18.1/CSA B125.1 and all applicable specifications referenced therein
- Certified to NSF 61/9
- Contains no more than 0.25% weighted average lead content
- Complies with California Proposition 65 and with the Federal Safe Drinking Water Act
- **ADA** for lever handles

WARRANTY
- Warranted for 5 years against material or manufacturing defects



CRITICAL DIMENSIONS

(DO NOT SCALE)

Rev. 11/11

MOEN SPECIFIER SERVICES 1-800-321-8809 Ext. 2158
www.moen.com

S-2

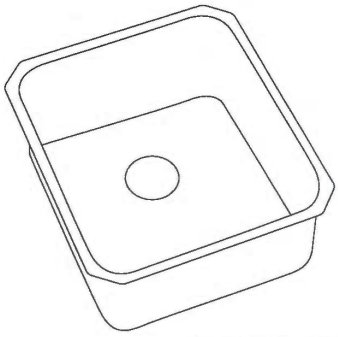
ELKAY® SPECIFICATIONS

Gourmet Undermount Sink with Perfect Drain™ Model ELUHAD Series - A.D.A. Compliant

NEW ELUH Installation Options
ELUH models have been redesigned to accommodate 1/2" reveal and no reveal installation options.

GENERAL
Highest quality sink formed of #18 (1.2mm) gauge, type 304 (18-8) nickel bearing stainless steel with **Perfect Drain**. Undermount.

DESIGN FEATURES
Bowl Depths: See chart on next page.
Coved Corners: 1-3/4" (44mm) vertical and horizontal radius.
Finish: Exposed surfaces are hand blended to a Lustrous Highlighted Satin finish.
Underside: Fully protected by Sound Guard® undercoating to reduce condensation and dampen sound.
Perfect Drain: Seamlessly welded stainless steel collar eliminates the gap between a traditional drain and the sink for a sanitary and gap free installation. Each sink shipped with one LKPD1 drain kit, or a garbage disposer can be installed on sink bowl for user convenience.
Patent Pending



Model ELUHAD131655PD

OTHER
Drain opening: 3-3/8" (86mm)
NOTE: All Elkay undermount sinks are designed to affix to the underside of any solid surface countertop.
Waste Fitting complies with ASME A112.18.2/CAN/CSA-B125.2

Sink complies with ASME A112.19.3/ CSA B45.4

Sinks are listed by IAPMO® as meeting the applicable requirements of the Uniform Plumbing Code®, International Plumbing Code®, and National Plumbing Code of Canada.

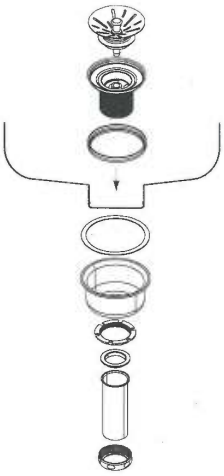
Sinks Are MADE IN USA™

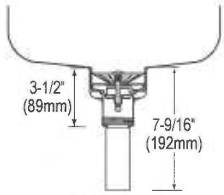
THIS PRODUCT, AS CONSTRUCTED IS SUBJECT TO INTERPRETATION OF A.D.A. REQUIREMENTS. THE UNOBSTRUCTED KNEE SPACE REQUIRED TO SATISFY A.D.A. STANDARDS MAY NOT BE DESIRABLE.

in sink erator®

Elkay® Perfect Drain™ sinks are designed and approved for compatible disposers manufactured by InSinkErator® utilizing the Quick Lock® mounting configuration. Use of non-approved disposers may void Elkay warranty.

InSinkErator, Quick Lock and the mounting collar configuration are trademarks of Emerson Electric Co.





Sink with Drain Kit Installed

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Elkay
elkay.com

2222 Camden Court
Oak Brook, IL 60523

(Rev. 06/14) 1-420A

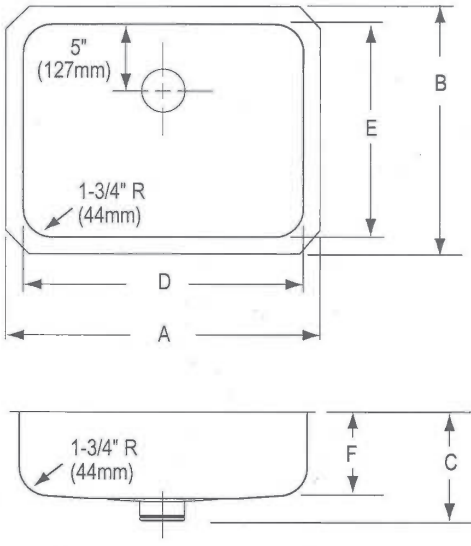
ELKAY SPECIFICATIONS

Gourmet Undermount Sink with Perfect Drain™
Model ELUHAD Series - A.D.A. Compliant

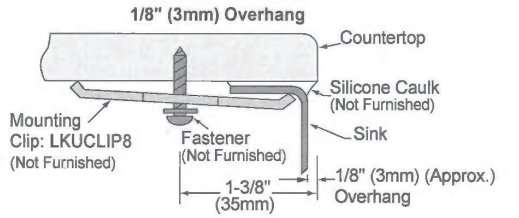
SINK DIMENSIONS*

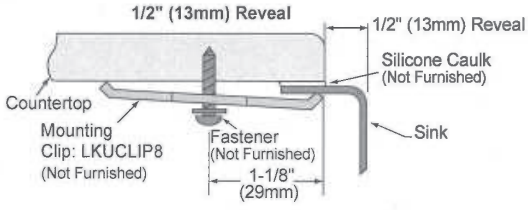
Model Number	Overall L (A)	Overall W (B)	Overall D (C)	Inside Bowl L (D)	Inside Bowl W (E)	Inside Bowl D (F)	Cutout in Countertop	Minimum Cabinet Size	Template Number
ELUHAD131645PD	16 (406mm)	18-1/2 (470mm)	5-7/8 (149mm)	13-1/2 (343mm)	16 (406mm)	4-3/8 (111mm)	See Template packaged with sink	21 (533mm)	1000001399
ELUHAD131650PD	16 (406mm)	18-1/2 (470mm)	6-3/8 (162mm)	13-1/2 (343mm)	16 (406mm)	4-7/8 (124mm)		21 (533mm)	1000001399
ELUHAD131655PD	16 (406mm)	18-1/2 (470mm)	6-7/8 (175mm)	13-1/2 (343mm)	16 (406mm)	5-3/8 (137mm)		21 (533mm)	1000001399
ELUHAD141845PD	16-1/2 (419mm)	20-1/2 (521mm)	5-7/8 (149mm)	14 (356mm)	18 (457mm)	4-3/8 (111mm)		21 (533mm)	1000001307
ELUHAD141850PD	16-1/2 (419mm)	20-1/2 (521mm)	6-3/8 (162mm)	14 (356mm)	18 (457mm)	4-7/8 (124mm)		21 (533mm)	1000001307
ELUHAD141855PD	16-1/2 (419mm)	20-1/2 (521mm)	6-7/8 (175mm)	14 (356mm)	18 (457mm)	5-3/8 (137mm)		21 (533mm)	1000001307
ELUHAD211545PD	23-1/2 (597mm)	18-1/4 (464mm)	5-7/8 (149mm)	21 (533mm)	15-3/4 (400mm)	4-3/8 (111mm)		27 (686mm)	1000001400
ELUHAD211550PD	23-1/2 (597mm)	18-1/4 (464mm)	6-3/8 (162mm)	21 (533mm)	15-3/4 (400mm)	4-7/8 (124mm)		27 (686mm)	1000001400
ELUHAD211555PD	23-1/2 (597mm)	18-1/4 (464mm)	6-7/8 (175mm)	21 (533mm)	15-3/4 (400mm)	5-3/8 (137mm)		27 (686mm)	1000001400
ELUHAD281645PD	30-1/2 (795mm)	18-1/2 (464mm)	5-7/8 (149mm)	28 (711mm)	16 (406mm)	4-3/8 (111mm)		36 (914mm)	1000001414
ELUHAD281650PD	30-1/2 (795mm)	18-1/2 (464mm)	6-3/8 (162mm)	28 (711mm)	16 (406mm)	4-7/8 (124mm)		36 (914mm)	1000001414
ELUHAD281655PD	30-1/2 (795mm)	18-1/2 (464mm)	6-7/8 (175mm)	28 (711mm)	16 (406mm)	5-3/8 (137mm)		36 (914mm)	1000001414

*Length is left to right. Width is front to back.



Installation Profile





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Elkay
elkay.com

2222 Camden Court
Oak Brook, IL 60523

(Rev. 06/14) 1-420

Fiber-Fab®

World Class Tubs & Showers

Submittal Sheet

Model 38H1, BF—ADA Compliant

Date: _____ Job Name: SH-1,2

Customer: _____ Bid #: _____

Modifications: _____ Quantity: _____

Color	White
Ext. Dim.	38" W x 42" D x 80 ¾" H
Warranty	10 Year Limited Warranty
Weight	150 Lbs. ± 10 Lbs
Material	Gelcoat

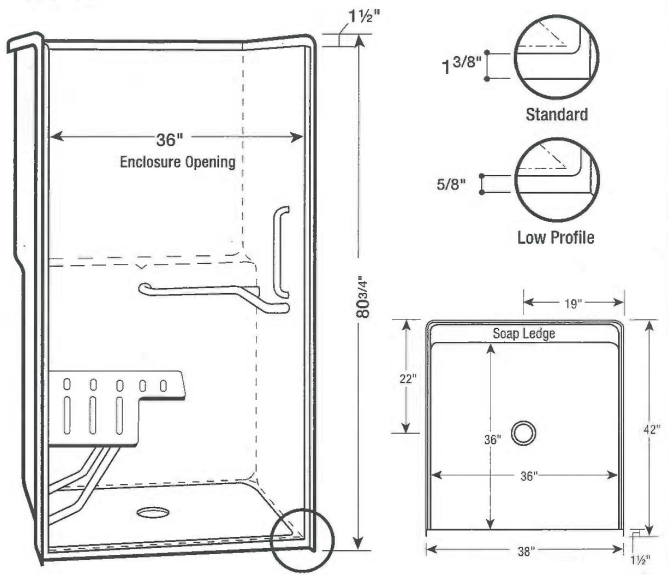
STANDARD FEATURES

1. Meets Federal ADA requirements.
2. One-piece construction allows for easy installation
3. Sandwich-Wall Construction
4. Sanitary Ware Gel Coat
5. Full-width soap and shampoo ledge across the back wall
6. Anti-slip floor provides added safety (meets ASTM -462)
7. Clear floor space is 36" x 36"

OPTIONAL FEATURES

- Low Profile bottom
- Pre-installed through-bolted curtain rod
- Pre-plumbed and installed pressure-balancing mixing valve with slide bar and hand-held spray
- Removable threshold
- Pre-installed through-bolted flangeless grab bar(s)
- Pre-installed four-legged fold-down seat
- Barrier-free ramps
- Barrier-free splash guard

Model 38H1



Dimensional Tolerance ± ¼". Dimensions needed for site preparation should be measured from the unit.

Model 38H1: Is **ADA** and **ANSI 117** compliant and features a fold-down seat with phenolic plate and stainless steel support tubing, as well as a 1¼" diameter "L" shaped stainless steel grab bar and 18" vertical bar as shown above. Please specify Left– or Right– hand plumbing.*

Model 38BF: Is **ADA** ready, but it does not include a seat or bar. The seat and bar can be added at a later time for **ADA** compliance.**

Low Profile Option: This option brings the threshold height on the 38" transfer shower to ½ after the installation of flooring. **However, a 14"x14" area must be blocked out around the drain to allow the drain to sit below the subfloor.**

* Because the 38H1 is a transfer shower, the ADA guidelines allow a half-inch threshold.

** Revised ADA guidelines allow the installation of a barrier-free shower (no seat and no bar) provided the seat and grab bar can be added later. The two-legged or the four-legged fold-down seat may be installed after the initial construction.

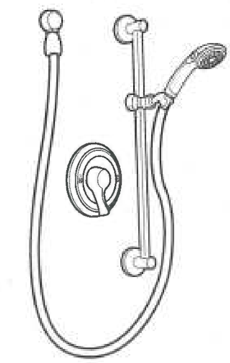
Plumbing Contractor Approval	Date	General Contractor Approval	Date
Engineer Approval	Date	Architect Approval	Date

12657 Portland Road NE • P.O. Box 78 Gervais, Oregon 97026-0078 • Phone: (503) 792-3456 • 1-877-792-3456 • Fax: (503) 792-3603
E-mail: ffi@fiberfab.com • www.fiberfab.com • Monday - Friday from 8:00 am to 4:30 pm

MOEN®
COMMERCIAL

SH-1,2

Specifications



Single-Handle Pressure Balancing Shower Valve With Hand-Held Shower System

Model: 8346, 8346EP15

BUY AMERICAN ACT COMPLIANT

WaterSense Meets EPA Criteria
Certified by IAPMO R&T

DESCRIPTION
- Chrome plated metal construction
- Pressure balancing cycle valve design with 1/4 turn stops
- Contains: hand-held shower with non-positive pause, 30" slide bar, drop ell, vacuum breaker, 69" metal hose and mounting hardware
- **Slide bar is NOT DESIGNED TO BE A GRAB BAR**
- Supplied with vandal resistant screws
- Quick cleaning rubber nozzles

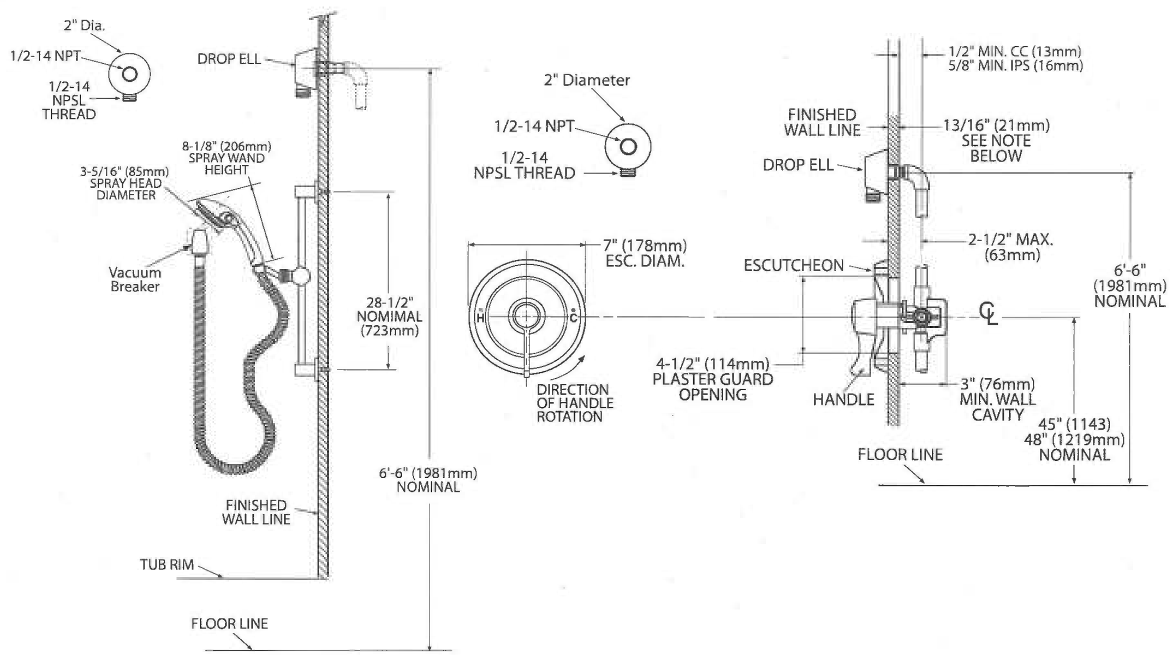
OPERATION
- Temperature valve has ADA compliant lever style handle
- Handle operates counterclockwise through a 270° arc with off at 6 o'clock, and maximum hot at the 9 o'clock position. Shut off in clockwise direction
- Adjustable temperature limit stop
- Pressure balancing mechanism maintains selected discharge temperature to ± 2°
- Single function spray pattern
- Easy to operate pause button (reduces the flow of water to a trickle)

FLOW
8346 (2.5gpm/9.5 lpm)
8346EP15 (1.5gpm/5.7 lpm); **WaterSense® Certified**

CARTRIDGE
- 1222HD brass cartridge design
- Brass construction with stainless steel materials
- Accommodates back-to-back installations

STANDARDS
- Third party certified to ASME A112.18.1/CSA B125.1 and all applicable requirements referenced therein
- **ADA** for lever handle

WARRANTY
- Warranted for 5 years against material or manufacturing defects



CRITICAL DIMENSIONS
(DO NOT SCALE)

Rev. 11/12

MOEN SPECIFIER SERVICES 1-800-321-8809 Ext. 2158
www.moen.com

U-1 & U-2

SLOAN®
Efficiency Series

Model
WEUS-1000.1411-0.125 ECOS® Hardwire
OPTIMA® Systems Hardwire HEU Flushometer and HEU Urinal

Buy American Act Compliant

DESCRIPTION

Complete HEU system with Exposed, Hardwired, Dual Flush, Sensor Activated Sloan ECOS® urinal Flushometer with Smart Sense Technology™ and vitreous china urinal.

Flush Cycle
Model WEUS 1000.1411-0.125 ECOS® (0.125 gpf/0.5 Lpf)
Code: 10001411

HEU HIGH-EFFICIENCY URINAL

SPECIFICATIONS

Quiet, exposed, chrome plated urinal Flushometer for either left or right hand supply with the following features:

Flushometer

- ADA Compliant Sloan ECOS® Hardwired Infrared Sensor for automatic "No Hands" operation
- Reduces water usage up to 80% over standard sensor urinal
- Engineered Metal Cover with replaceable Lens Window
- Courtesy Flush® Override Button
- Line Powered with 6 VAC Step Down Transformer
- Infrared Sensor Range Adjustment Screw
- Initial Set-up Range Indicator Light (first 10 minutes)
- 3/4" I.P.S. Screwdriver Bak-Chek® Angle Stop
- Free spinning, Vandal Resistant Stop Cap
- High Efficiency cartridge assembly
- Flush Accuracy Controlled by CID Technology
- Latching Solenoid Operator
- User friendly three (3) second Flush Delay
- Synthetic rubber seals for chloramine resistance
- High Back Pressure Vacuum Breaker Flush Connection with One-piece Bottom Hex Coupling Nut
- Spud Coupling and Flange for 3/4" Top Spud
- Sweat Solder Adapter w/Cover Tube and Cast Wall Flange w/Set Screw
- Infrared Sensor with Multiple-focused, Lobular Sensing Fields for high and low target detection
- High copper, low zinc brass castings for dezincification resistance
- Patented D598,974
- Fixed Metering Bypass and no external volume adjustment to ensure water conservation
- Stop Seat and Vacuum Breaker to be molded from PERMEX® rubber compound for chloramine resistance
- Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be in compliance to the applicable sections of ASSE 1037/ ASME A112.19.2/CSA B45.1

SPECIFICATIONS (CONTINUED)

Urinal

- Wall hung vitreous china
- Washdown flushing action
- Vandal resistant strainer assembly included
- 3/4" I.P.S. top spud inlet
- 2" NPT outlet flange
- All mounting hardware included
- Integral flushing rim
- 100 % factory flush tested
- Compliant to the applicable sections of ASME A112.19.2/CSA B45.1
- Carrier not included
- Compliant with Buy American Act when purchased as a combination

FEATURES

ADA Compliant

Automatic
Sloan ECOS® Hardwire Electronic Flushometers are activated via multi-lobular infrared sensor. Sloan ECOS® Electronic Urinal Flushometers are available without an override button to eliminate unnecessary casual activation. By detecting user presence and duration, the Sloan ECOS® Hardwire Smart Sense Technology™ will determine the proper flush volume for unequalled water efficiency.

Functional & Hygienic
Touchless, sensor operation eliminates the need for user contact to help control the spread of infectious diseases. The Sloan ECOS® Hardwire Flushometer is also provided with an Override Button to allow a "courtesy flush" for individual user comfort.

Smart Sense Technology
The Sloan ECOS® Hardwire Flushometer is equipped with Smart Sense Technology™ which applies extended range and logic techniques to significantly reduce water usage in high use urinal applications;such as when a continuous line of people, also known as a queue. forms. In fact during continuous queue, regardless the number of users, the maximum amount of water used is only 2.0 gallons. Please contact Sloan for specific Details.

Warranty
3 year (limited)

Meets the American Disabilities Guidelines and ANSI A117.1 requirements when installed according to these requirements.

NOTE: Plumbing System Requirements
√ Minimum Flowing Pressure: 25 PSI
√ Minimum Fixture Static Pressure: 80 PSI

WaterSense Meets EPA Criteria

GREEN UPC Water Efficiency

This space for Architect/Engineer approval

Job Name _____ Date _____

Model Specified _____ Quantity _____

Variations Specified _____

Customer/Wholesaler _____

Contractor _____

Architect _____

The information contained in this document is subject to change without notice.

SLOAN®
Sloan Valve Company
10500 Seymour Avenue
Franklin Park, IL 60131
Phone: 1-800-9-VALVE-9 (982-5839)
or 1-847-671-4300
Fax: 1-800-447-8329 or 1-847-671-4380
www.sloanvalve.com

WEUS-1000.1411 03-14

SLOAN®
Efficiency Series

Model
WEUS-1000.1411-0.125 ECOS® Hardwire
OPTIMA® Systems Hardwire HEU Flushometer and HEU Urinal

Buy American Act Compliant

DESCRIPTION

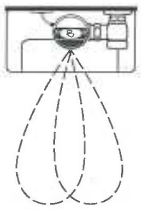
Complete HEU system with Exposed, Hardwired, Dual Flush, Sensor Activated Sloan ECOS® urinal Flushometer with Smart Sense Technology™ and vitreous china urinal.

Flush Cycle
Model WEUS 1000.1411-0.125 ECOS® (0.125 gpf/0.5 Lpf)
Code: 10001411

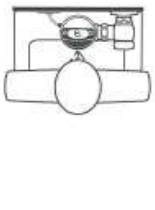
ELECTRICAL SPECIFICATIONS

- **Control Circuit**
  Solid State
  120 VAC Input
  4.5 VAC Output
  8 Second Arming Delay
  3 Second Flush Delay
- **Sloan ECOS® Sensor Type**
  Active infrared
- **Sloan ECOS® Sensor Range**
  Nominal 15" – 30" (381 mm – 762 mm),
  Adjustable ± 8" (203 mm)
- **Transformers**
  Sloan Part No. EL-386
  120 VAC, 60 Hz Primary
  6 VAC. 60 Hz Secondary
  Class II, 1/2 Amp - Plug-in Style
  Sloan Part No. EL-451
  120 VAC, 60 Hz Primary
  6 VAC. 60 Hz Secondary
  Class II, 25 VA - Box Style
- **Indicator Lights**
  Range adjustment/low battery
- **Operating Pressure**
  15 – 100 psi (104 – 689 kPa)
- **Sentinel Flush**
  Once every 72 hours after the last flush

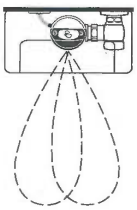
OPERATION



1. A continuous, invisible light beam is emitted from the Sloan ECOS® Dual Flush Sensor.

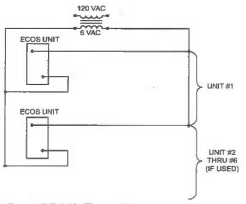


2. As the user enters the beam's effective range (15" to 30") the beam is reflected into the Sloan ECOS® Scanner Window and transformed into a low voltage electrical circuit. Once activated, the Output Circuit continues in a "hold" mode for as long as the user remains within the effective range of the Sensor.



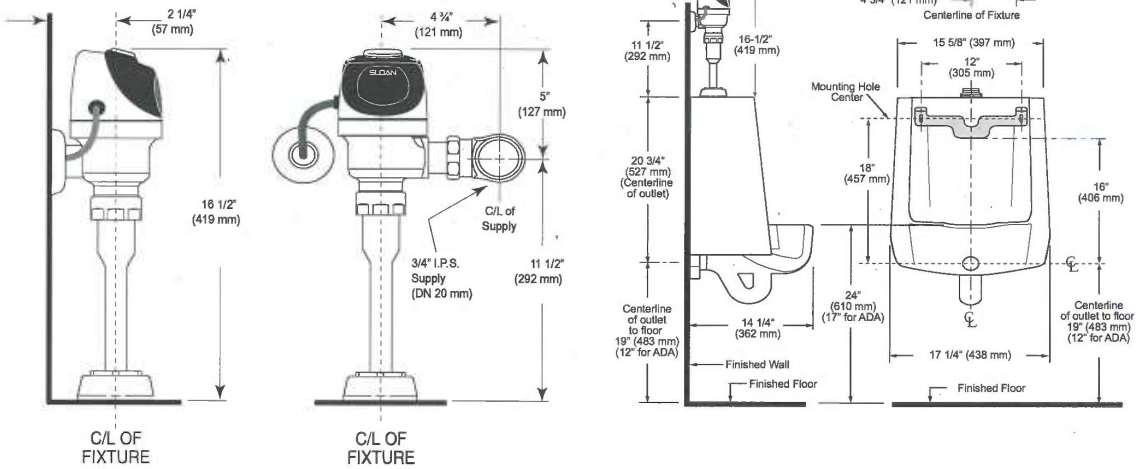
3. When the user steps away from the Sloan ECOS® Sensor, the Sensor initiates an electrical signal that operates the Solenoid. This initiates the flushing cycle to flush the fixture. The Circuit then automatically resets and is ready for the next user.

WIRING DIAGRAM



One 25 VA Transformer serves up to six ECOS units.

DIMENSIONS/ROUGH-IN



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WC-1 & WC-2

SLOAN®
Water Connects Us™

Model
WETS-2051.1101-1.1 ECOS®
Electronic HET Flushometer and HET Water Closet

Buy American Act Compliant

DESCRIPTION

Complete system with exposed, sensor activated, Sloan ECOS® electronic Flushometer and HET vitreous china water closet.

Flush Cycle
Model WETS 2051.1101-1.1 (1.1 gpf/4.2 Lpf)
Code: 20511101

HET HIGH-EFFICIENCY TOILET

Note: 1.1 gpf flushometer only recommended in new contruction installations or those where sufficient drain line carry can be assured. Alternatives include 1.28 gpf or 1.6 gpf flushometers.

Meets the American Disabilities Guidelines and ANSI A117.1 requirements when installed according to these requirements.

NOTE:
Plumbing System Requirements
- Minimum **Operating** Pressure: 25 PSI
- Maximum Fixture Operating Pressure: 80 PSI
- Minimum Operating Flow Rate: 18 GPM

SPECIFICATIONS

Quiet, exposed, battery powered, sensor activated, diaphragm type, ECOS® closet Flushometer for either left or right hand supply with the following features:

Flushometer
- PERMEX® Synthetic Rubber Diaphragm with Dual Filtered Fixed Bypass
- Flex Tube Diaphragm designed for improved life and reduced maintenance
- ADA Compliant Sloan ECOS® Battery Powered Infrared Sensor for automatic "No Hands" operation
- Infrared Sensor with Multiple-focused, Lobular Sensing Fields for high and low target detection
- Latching Solenoid Operator
- Engineered metal cover w/ replaceable lens window
- Courtesy Flush® Override Button
- User Friendly Three (3) Second Flush Delay
- Four (4) Size AA Batteries factory installed
- "Low Battery" Flashing LED
- Infrared Sensor Range Adjustment Screw
- Initial Set-up Range Indicator Light (first 10 minutes)
- 1" IPS screwdriver Bak-Chek® angle stop with Free Spinning Vandal Resistant Stop Cap
- High Back Pressure vacuum breaker flush connection with one-piece bottom hex coupling nut
- Spud coupling and flange for 1½" top spud
- Sweat solder adapter w/ cover tube and cast wall flange with set screw
- High copper, low zinc brass castings for dezincification resistance
- Flush Accuracy Controlled by CID Technology
- Diaphragm, Stop Seat and Vacuum Breaker to be molded from PERMEX® rubber compound for chloramine resistance
- Valve Body, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be in compliance with the applicable sections of ASSE 1037.

Water Closet
- Wall hung vitreous china elongated bowl
- Siphon jet flushing action
- 1½" IPS top spud inlet
- 2⅛" fully glazed trapway diameter
- Integral flushing rim
- Water spot area 9 ½" x 8 ¼"
- Mounting hardware, carrier and toilet seat not included
- Recommended seats:
  Bemis - 1955CT/1955SSCT & 2155CT/2155SSCT
  Church - 295CT/295SSCT & 2155CT/2155SSCT
- Water closet shall be in compliance to the applicable sections of ASME A112.19.2/CSA B45.1
- Compliant with the Buy American Act when purchased as a combination

FEATURES

Automatic
The Flushometer operates by means of an infrared sensor that adapts to its surroundings. Once the user enters the sensor's effective range and then steps away, the Flushometer Solenoid initiates the flushing cycle to flush the fixture.

Manual
Sloan ECOS® Electronic Flushometers include a button design for manual use. The flush is controlled by the button.

Hygienic
User makes no physical contact with the Flushometer surface.

Economical
Automatic operation provides water usage savings over other flushing devices. Reduces maintenance and operation costs.

Practical
Solid state electronic circuitry assures years of dependable, trouble-free operation.

Warranty
3 year (limited)

This space for Architect/Engineer approval

Job Name _____ Date _____

Model Specified _____ Quantity _____

Variations Specified _____

Customer/Wholesaler _____

Contractor _____

Architect _____

The information contained in this document is subject to change without notice.

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Franklin Park, IL 60131
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or 1-847-671-4300
Fax: 1-800-447-8329 or 1-847-671-4380
www.sloanvalve.com

WETS-2051.1101-1.1 11-14

SLOAN®
Water Connects Us™

Model
WETS-2051.1101-1.1 ECOS®
Electronic HET Flushometer and HET Water Closet

DESCRIPTION

Complete system with exposed, sensor activated, Sloan ECOS® electronic Flushometer and HET vitreous china water closet.

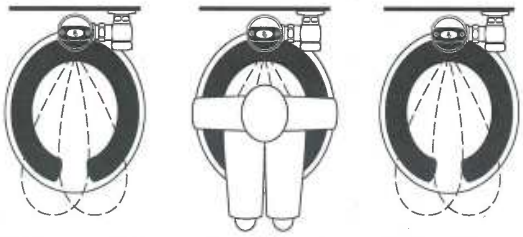
Flush Cycle
Model WETS 2051.1101-1.1 (1.1 gpf/4.2 Lpf)

Code: 20511101

ELECTRICAL SPECIFICATIONS

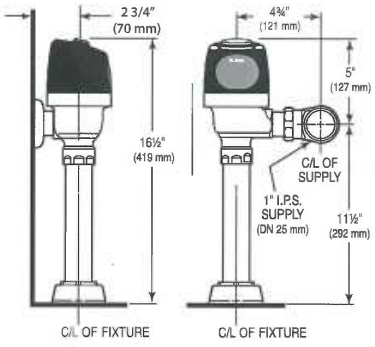
- **Control Circuit**
  Solid state
  6 VDC input
  8 second arming delay
  24 hour Sentinel Flush
- **Sloan ECOS® Sensor Type**
  Active infrared
- **Sloan ECOS® Sensor Range**
  Nominal 22" – 42" (559 mm – 1067 mm),
  Adjustable ± 8" (203 mm)
- **Battery Type**
  (4) AA Alkaline
- **Battery Life**
  3 Years @ 4,000 flushes/month
- **Indicator Lights**
  Range adjustment/low battery
- **Sentinel Flush**
  Once every 72 hours after the last flush

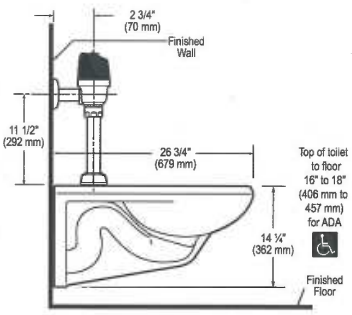
OPERATION



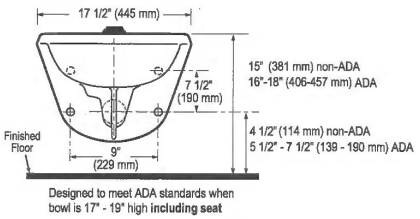
1. A continuous, invisible light beam is emitted from the Sloan ECOS® Sensor.
2. As the user enters the beam's effective range, 22" - 42" (559 mm to 1067 mm), the beam is reflected into the Scanner Window to activate the Output Circuit. Once activated, the Output Circuit continues in a "hold" mode for as long as the user remains within the effective range of the sensor. A full flush will automatically initiate when the user leaves.
3. Once a user is detected, the circuit automatically resets and is ready for the next user.

DIMENSIONS/ROUGH-IN





NOTE : All vitreous china dimensions shown in these drawings are nominal. Dimensions can vary within the tolerances established in the governing ASME A112.19.2/ CSA B45.1 standard. Please take this into consideration when planning rough-in and plumbing layouts.



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WK-1 & WK-2

SLOAN®
Water Connects Us™

ECOS
Hardwire Single Flush

Buy American Act Compliant

111-1.28 HW

HET
HIGH-EFFIC ENCY TOILET

Description
Exposed, Hardwire, sensor-activated Sloan ECOS® Hardwire high-efficiency water closet flushometer.

Flush Cycle
Model 111-1.28 High Efficiency (1.28 gpf/4.8 Lpf)

Specifications
Quiet, Exposed, Diaphragm Type, Chrome Plated Closet Flushometer for either left or right hand supply (includes 9" electrical cable, right hand electrical rough-in may require 18" cable – consult factory) with the following features:

- PERMEX® Synthetic Rubber Diaphragm with twin linear filtered bypass and vortex cleansing action
- Flex Tube Diaphragm designed for improved life and reduced maintenance
- ADA Compliant Sloan ECOS® Electronic Line Powered Infrared Sensor for automatic "No Hands" operation
- Infrared Sensor with Multiple-focused, Lobular Sensing Fields for high and low target detection
- Latching Solenoid Operator
- Engineered Metal Cover with replaceable Lens Window
- User friendly three (3) second Flush Delay
- Courtesy Flush® Override Button
- Line Powered with 6 VAC Step Down Transformer
- Infrared Sensor Range Adjustment Screw
- Initial Set-up Range Indicator Light (first 10 minutes)
- 1" I.P.S. Screwdriver Bak-Chek® Angle Stop
- Free Spinning, Vandal Resistant Stop Cap
- Adjustable Tailpiece
- High Back Pressure Vacuum Breaker Flush Connection with One-piece Bottom Hex Coupling Nut
- Spud Coupling and Flange for 1½" Top Spud
- Sweat Solder Adapter with Cover Tube and Cast Wall Flange with Set Screw
- High Copper, Low Zinc Brass Castings for Dezincification Resistance
- Fixed Metering Bypass and No External Volume Adjustment to Ensure Water Conservation
- Flush Accuracy Controlled by CID Technology
- Diaphragm, Stop Seat and Vacuum Breaker molded from PERMEX® Rubber Compound for Chloramine resistance

Valve Body, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be in compliance with the applicable sections of ASSE 1037. Installation conforms to ADA requirements.

Special Finishes

☐	**PB**	Polished Brass (PVD Finish)
☐	**BN**	Brushed Nickel (PVD Finish)
☐	**SF**	Satin Chrome

Accessories

☐	**EL-386**	Transformer Plug (120 VAC/6 VAC)
☐	**EL-451**	Transformer Box (120 VAC/6 VAC 25VA)

See Accessories Section and Sloan ECOS® Electronic Accessories Section of the Sloan catalog for details on these and other Sloan ECOS® Electronic flushometer variations.

Fixtures
Consult Sloan for matching Sloan brand fixture options.

Automatic
Sloan ECOS® Flushometers activate via multi-lobular sensor detection to provide the ultimate in sanitary protection and automatic operation.

Functional & Hygienic
Touchless, sensor operation eliminates the need for user contact to help control the spread of infectious diseases. The ECOS® Flushometer is provided with an Override Button to allow a "courtesy flush" for individual user comfort.

Warranty
3 year (limited)

Patented
D598,974

This space for Architect/Engineer approval

Job Name _____ Date _____

Model Specified _____ Quantity _____

Variations Specified _____

Customer/Wholesaler _____

Contractor _____

Architect _____

ECOS

MODEL
111-1.28
Hardwire

Description
Exposed, Hardwire, Sensor Activated Sloan ECOS® Hardwire High Efficiency Water Closet Flushometer.

Flush Cycle
Model 111-1.28 High Efficiency (1.28 gpf/4.8 Lpf)

ELECTRICAL SPECIFICATIONS

Control Circuit
Solid State
6 VAC Input
4.5 VAC Output
8 Second Arming Delay
3 Second Flush Delay

Sloan ECOS® Sensor Type
Active Infrared

Sloan ECOS® Sensor Range
Nominal 22" - 42" (559 mm -1067 mm),
Adjustable ± 8" (203 mm)

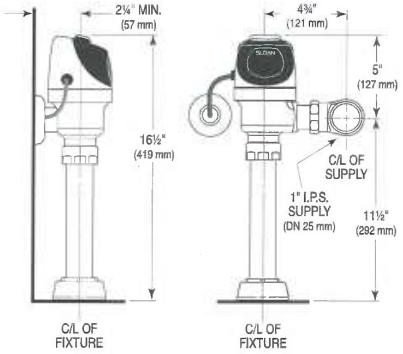
Indicator Lights
Range Adjustment

Operating Pressure
15 - 100 psi (104 - 689 kPa)

Sentinel Flush
Once Every 72 Hours After the Last Flush

Transformers
Sloan Part No. EL-386
120 VAC, 60 Hz Primary
6 VAC. 60 Hz Secondary
Class II, 1/2 Amp - Plug-in Style

Sloan Part No. EL-451
120 VAC, 60 Hz Primary
6 VAC. 60 Hz Secondary
Class II, 25 VA - Box Style



OPERATION

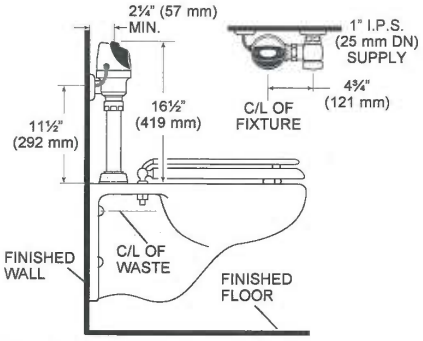
1. A continuous, invisible light beam is emitted from the Sloan ECOS® Sensor.

2. As the user enters the beam's effective range (22" to 42") the beam is reflected into the Sloan ECOS® Scanner Window and transformed into a low voltage electrical circuit. Once activated, the Output Circuit continues in a "hold" mode for as long as the user remains within the effective range of the Sensor.

3. When the user steps away from the Sloan ECOS® Sensor, the circuit waits 3 seconds (to prevent false flushing) then initiates an electrical signal that operates the Solenoid. This initiates the flushing cycle to flush the fixture. The Circuit then automatically resets and is ready for the next user.

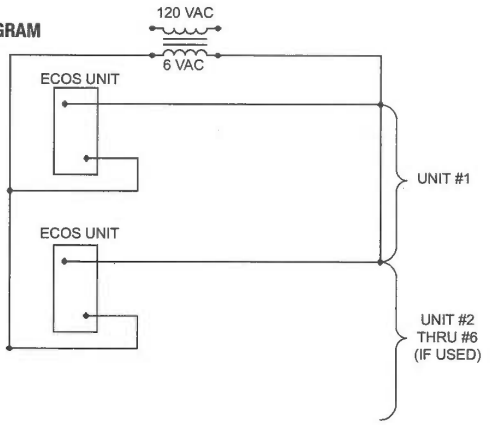
VALVE ROUGH-IN

Model 111



When installing the Sloan ECOS® Hardwire in a handicap stall:
Per the ADA Guidelines (section 604.9.4) it is recommended that the grab bars be split or shifted to the wide side of the stall.

WIRING DIAGRAM



One 25 VA Transformer serves up to six ECOS™ units.

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ECOS 111-1.28 HW 09-14

WC-3

Dura-Ware® 2105BAR Series

Bariatric Toilet - Off Floor

2105BAR-W-1-CN

Fixture May Show Some Available Options

Please visit ***www.acorneng.com*** for most current specifications.

Bariatric Toilet - Off Floor

Toilet is arranged to be installed on a finished wall from the front side using an appropriate support system optionally available or a support system by others. Optional -HSBJ Big John® hinged toilet seat is rated at 1,200 lbs. Toilet bowl and frame are fabricated from 14 gage, type 304 stainless steel, is seamless welded construction, and includes an integral contoured seat. Fixture is rated at 1000 lbs Bariatric load when used with the optional -MC Mounting Carrier support. Fixture interior and exterior has a satin finish.

Toilet is Siphon Jet type with elongated bowl manufactured to comply with ASME A112.19.3 and CSA B45.4 standards. Toilet requires a minimum of 25 PSI flow pressure and uses a minimum water consumption of 1.28 GPF. Trap has a minimum 3-1/2" seal, will pass a 2-1/8" ball and is fully enclosed. Toilet has a 1-1/2" NPT flush valve connection and a gasketed waste outlet.

Flush Valve supply is additionally available for exposed or concealed flush valve styles in 1.28 GPF, 1.6 GPF or 3.5 GPF with 1-1/2" NPT connection.

GUIDE SPECIFICATION

Provide and install Acorn Dura-Ware Bariatric Toilet (specify model number and options) rated at 1000 lbs. Toilet bowl and frame shall be fabricated from 14 gage, type 304 stainless steel. Construction shall be seamless welded and all exposed surfaces shall have a satin finish with an integral contoured toilet seat. Toilet shall be concealed Siphon Jet type with an elongated bowl and a self-draining flushing rim. Toilet shall be ASME A112.19.3 and CSA B45.4 compliant. Toilet requires a minimum of 25 PSI flow pressure and uses a minimum water consumption of 1.28 GPF. Toilet trap shall have a minimum 3-1/2" seal that shall pass a 2-1/8" diameter ball and be fully enclosed. Toilet waste outlet shall be a gasketed waste.

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Tel: (800) 488-8999 • (626) 336-4561 • Fax: (626) 961-2200 • www.acorneng.com • E-mail: info@acorneng.com

Dura-Ware®2105BAR: Bariatric Toilet - Off Floor

WALL THICKNESS AND TYPE (Must Specify)

Thickness _____ Type: ☐ Concrete ☐ Block ☐ Steel

MODEL NUMBER AND OPTIONS SELECTION

BASE MODEL NUMBER
☑ 2105BAR Bariatric Toilet

SUPPLY (Must Specify)
☐ -T Top (Exposed)
☒ -W Wall (Concealed)

FIXTURE MOUNTING AND WASTE
☑ -1 Off-Floor, Wall Outlet

FLUSH VALVE GPF's (Must Specify)
☒ -1.28 GPF (HET)
☐ -1.6 GPF
☐ -3.5 GPF

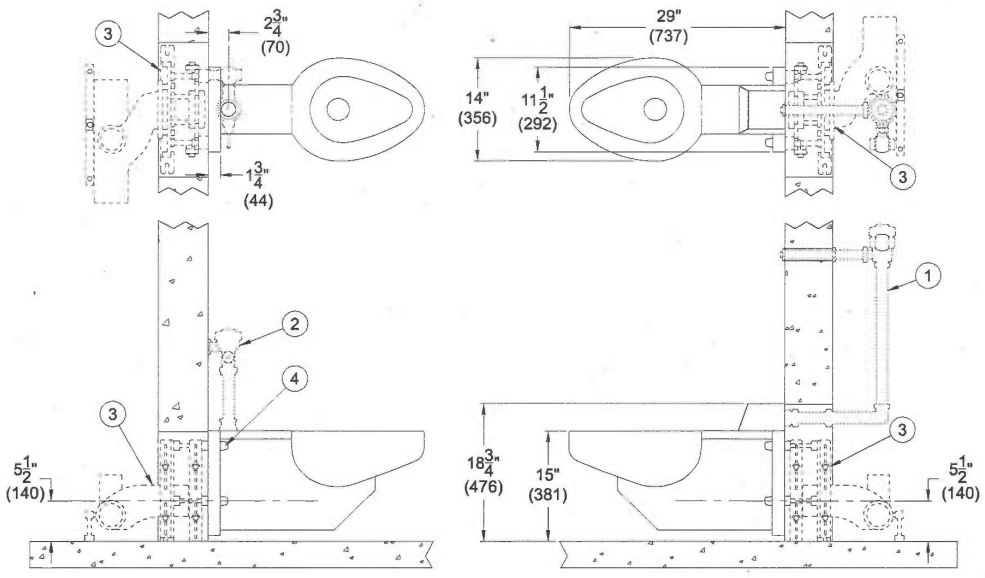
FLUSH VALVE OPTIONS (Must Specify)
SEE ACORN DURA-WARE SUPPLEMENTARY MATERIAL FOR FLUSH VALVE COVERS AND BOXES
☐ -FV Flush Valve (N/A for ADA)
☐ -FVBO Flush Valve by Others
☐ -FVH Flush Valve, Hydraulic
☒ -FVL Flush Valve, ADA Lever Handle (Wall Supply)
☐ -MVCFV Time-Trol Flush Valve (N/A for Top Supply)

TOILET SEAT OPTIONS
☐ -HSBJ Big John® Hinged Seat 1,200 lbs Rated
☐ -Open Front Less Cover
☐ -Open Front With Cover
☒ -HPS High Polish Integral Seat
☐ -PFS Punched for Seat by Others

TOILET OPTIONS
☐ -BL Bedpan Lugs
☐ -FT Flood-Trol (N/A w/ Top Supply)
☐ -FTA Flood-Trol Auto-Reset (N/A w/ Top Supply)
☐ -FTE Flood-Trol Electronic
☐ -FVT Flush Thru Wall Connector
☒ -HET High Efficiency Toilet Design
☐ -TF Transformer, 120VAC to 24VAC (For -MVCFV)
☐ -TSC Toilet Shipping Cover

PRODUCT OPTIONS
☐ -ADA 18" Integral Seat Height
☐ -BCN Blind Cap Nuts (4)
☒ -CN Cap Nuts (4)
☐ -EG Enviro-Glaze Color Specify:_____ Toilet Interior & Exterior
☐ -EGE Enviro-Glaze Color Specify:_____ Toilet Exterior Only
☒ -MC Bariatric Mounting Carrier, 1000 lb Rating Specify Type: _____
☐ -VAC AcornVac System

Please visit **www.acorneng.com** for most current specifications.



2105BAR-T-1 2105BAR-W-1

NOTES:
1. OPTIONAL -FV FLUSH VALVE -W WALL SUPPLY SHOWN
2. OPTIONAL -FV FLUSH VALVE -T TOP SUPPLY SHOWN
3. OPTIONAL -MC BARIATRIC MOUNTING CARRIER SHOWN
4. OPTIONAL -CN CAP NUTS SHOWN

Important: Installation instructions and current rough-in are furnished with each fixture. Do not rough in without certified dimensions.

Selection Summary	Approved for Manufacturing
Model No. & Option_____	Company_____ Title_____
Quantity_____	Signature_____ Date_____

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WCL-1 & WCL-2

Penal-Ware® 1440 Series

18" Lav/Toilet - Suicide Resistant Comby

1440-2-CT-BPH-04

Fixture May Show Some Available Options

Please visit ***www.acorneng.com*** for most current specifications.

18" Lav/Toilet - Suicide Resistant Comby

Fixture is arranged to be installed on finished wall and serviced from an accessible pipe chase. Fixture is fabricated from 14 gage type 304 stainless steel cabinet and toilet bowl, polished to a satin finish. The inside of the toilet bowl also has a satin finish. Cabinet interior is sound-deadened with fire-resistant material. Optional Wall Sleeve or Metal Template is recommended for all installations to provide required wall openings. This unit is intended to reduce any possible risk of the fixture being used as a suicide device.

Lavatory "D" Bowl is 15" x 13" x 5-1/2" deep. Standard elbow waste outlet is 1-1/2" O.D. plain end.

Optional Valve may be an Air-Control pneumatically operated, pushbutton valve using atmospheric air. Pushbutton requires less than 5 pounds to activate valve. Valve is direct acting, non-metering type and is optionally available as metering with non-hold open feature. Metering valve timing is adjustable from 5 to 60 seconds. Valve can be remotely located up to 10 feet from the operating pushbutton. Bubbler and valve pushbuttons are spherical type and do not include straight edges. Valve and bubbler conform with lead free requirements for NSF61, section 9, 1997 and CHSC 116875.

Toilet is blowout jet type with elongated bowl manufactured to ASME A112.19.3-2008 and CSA B45.4-2008 requirements and will flush with a minimum of 25 PSI flow pressure when used in conjunction with a minimum of 1.6 GPF. Trap has minimum 3-1/2" seal and will pass a 2-1/8" ball. Toilet waste outlet is 2-3/8" diameter plain end extending 3" beyond the fixture for wall outlet and Gasketed Waste for floor outlet.

GUIDE SPECIFICATION

Provide and install Acorn Penal-Ware 18" wide Lav/Toilet Suicide Resistant Comby (Specify model number and options). Provide hemispherical cabinet design to reduce risk of fixture being used as a suicide device. Fixture shall be fabricated from type 304 stainless steel. Construction shall be seamless welded and exposed surfaces shall have a satin finish. Provide D shape lavatory bowl. Fixture shall have an Air-Control pneumatically operated, pushbutton valve. Valve shall require less than 5 pounds to activate. Valve and bubbler conform with lead free requirements for NSF61, section 9, 1997 and CHSC 116875. Provide –BPH Hemispherical Penal Bubbler and –PBH Hemispherical Penal Pushbutton. Provide toilet bowl housing to prohibit the attachment of objects. Toilet shall be concealed blowout jet type with an elongated bowl, self-draining flushing rim, and an integral contoured seat. Toilet shall meet ASME A112.19.3-2008 and CSA B45.4-2008 requirements and will flush with a minimum of 25 PSI flow pressure when used in conjunction with a minimum of 1.6 GPF. Toilet trap shall have a minimum 3-1/2" seal that shall pass a 2-1/8" diameter ball and shall be fully enclosed. Cabinet interior shall be sound-deadened with fire-resistant material. Fixture shall withstand loading of 5,000 pounds without permanent damage. Fixture shall be furnished with necessary fasteners for proper installation.

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Penal-Ware® 1440: 18" Lav/Toilet - Suicide Resistant Comby

WALL THICKNESS AND TYPE (Must Specify)
Thickness: _____ Type: ❑ Concrete ❑ Block ❑ Steel

MODEL AND OPTIONS SELECTION:

BASE MODEL NUMBER
☑ 1440 18" Lav/Toilet - Suicide Resistant Comby

TOILET ORIENTATION (Must Specify)
❑ -AL Angled Left
❑ -AR Angled Right
❑ -CT Centered Toilet

FIXTURE MOUNTING AND WASTE (Must Specify)
☒ -2 On-Floor, Wall Outlet
❑ -3 On-Floor, Floor Outlet

BUBBLER SELECTION (Must Specify)
☒ -BPH Hemispherical Penal Bubbler

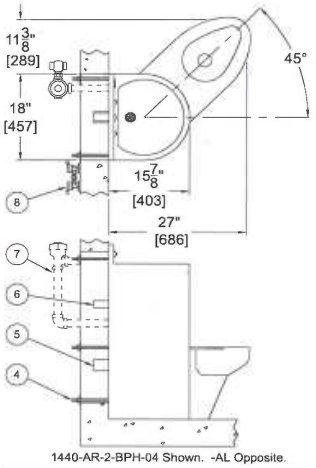
VALVE SELECTION (Must Specify)
❑ -03 Air-Control, Single Temp, Non-Metering
❑ -03-M Air-Control, Single Temp, Metering
❑ -04 Air-Control, H & C, Non-Metering
☒ -04-M Air-Control, H & C, Metering
❑ -9 Punched for Valve by Others (Specify Punching)
❑ -EVS1 Electronic Valve System - Single Temp
❑ -EVSP1 Electronic Valve Sys. w/ Piezo Pushbutton
❑ -EVS2 Electronic Valve System - Hot & Cold
❑ -EVSP2 Electronic Valve Sys. w/ Piezo Pushbuttons
❑ -MA Manifolded Valve ❑ 2 ❑ 3 ❑ 4
❑ -MH Metering, Hot Side Only
❑ -MVC1 Time-Trol - Single Temp
❑ -MVC1-BAT Time-Trol - Single Temp Battery Operated (Batteries Not Included)
☒ -MVC2 Time-Trol - Hot & Cold
❑ -MVC2-BAT Time-Trol - Hot & Cold Battery Operated (Batteries Not Included)
❑ -PPZ1 Programmable Piezo Button - Single Temp
❑ -PPZ2 Programmable Piezo Button - Hot & Cold

FLUSH VALVE GPF's (Must Specify)
❑ -HET-1.28 GPF ☒ -ULF-1.6 GPF ❑ -3.5 GPF

FLUSH VALVE OPTIONS (Must Specify)
❑ -EVSFV Electronic Flush Valve
☒ -EVSPFV Electronic Flush Valve w/ Piezo Pushbutton
❑ -FV Flush Valve, Mechanical
❑ -FVBO Flush Valve by Others
❑ -FVH Flush Valve, Hydraulic
❑ -MVCFV Time-Trol Electronic Flush Valve

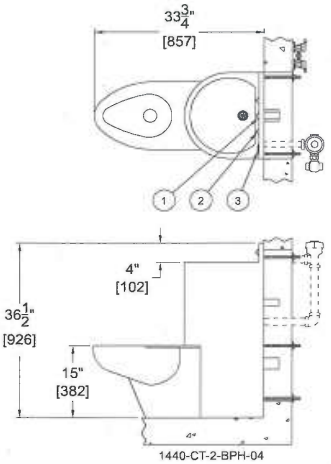
PRODUCT OPTIONS (Must Specify)
❑ -BRS Brass Body Valve
❑ -CI Cycle Interrupt for Time-Trol Valves
☒ -CO1 Cleanout w/ O-Ring, Connecting to No-Hub 4" (Plain End Only)
❑ -CO1-3 Cleanout w/ O-Ring, Connection to No-Hub 3" (Plain End Only, N/A with -WO3)
❑ -COH Cleanout Hook Assembly
❑ -CW Combined Waste
❑ -EG Enviro-Glaze, Specify Color: _____
❑ Toilet Exterior Only
❑ Toilet Interior
❑ -FMT Fixture Mounted Trim
☒ -FT Flood-Trol (Manual Reset)
❑ -FTA Flood-Trol Auto-reset
❑ -FTE Flood-Trol Electronic
❑ -FVO Flush Valve Opposite In Lieu of Standard Location
❑ -FVT Flush Valve Thru Wall Connector
❑ -GW Gasketed Toilet Waste
❑ -HET High Efficiency Toilet Design
❑ -HPS High Polished Seat #7 Finish
❑ -LPFV Less Punching for Flush Valve
☒ -LW1 Lavy thru Wall Extension with P-Trap
❑ -LWE Lavy Waste Extension (3" Standard) Specify Length Beyond Fixture: _____
❑ -MT Metal Template (Only 1 Required Per Project)
❑ -OF Lavatory Overflow
❑ -PBP Pushrod Activated Pushbutton
☒ -PC Pinned Cleanout Plug
☒ -PH Paper Holder ❑ L ❑ R
❑ -PT 1-1/2" Removable P-Trap Waste
☒ -SW Wall Sleeve
❑ -TF Transformer, 120VAC to 24VAC
❑ -TG 12-Gage Cabinet
❑ -TSC Toilet Shipping Cover
❑ -TWE Toilet Waste Extension (3" Standard) Specify Length Beyond Fixture: _____
❑ -VAC Acorn Vac System
❑ -WO3B 3" Waste Outlet from 2-3/8" Waste (1.6 or 3.5 GPF)

Please visit **www.acorneng.com** for most current specifications.



1440-AR-2-BPH-04 Shown. -AL Opposite.

NOTES:
1. LAVY BUBBLER.
2. LAVY VALVE PUSHBUTTONS.
3. FLUSH.VALVE PUSHBUTTON.
4. WALL MOUNTING HARDWARE.
5. TOILET WASTE OUTLET.
6. LAVY WASTE OUTLET.
7. OPTIONAL -FV FLUSH VALVE.
8. -04 AIR-CONTROL VALVE.



1440-CT-2-BPH-04

Important: Installation instructions and current rough-in are furnished with each fixture. Do not rough in without certified dimensions.

Selection Summary	Approved for Manufacturing
Model No. & Option_____	Company_____Title_____
Quantity_____	Signature_____ Date_____

Acorn Engineering Company • 15125 Proctor Avenue • P.O. Box 3527 • City of Industry, CA 91744-0527 U.S.A.
Tel: (800) 488-8999 • (626) 336-4561 • Fax: (626) 961-2200 • www.acorneng.com • E-mail: info@acorneng.com

WH-1

(../WFDIndex.html)Woodford Model 26 Wall Faucet

Model 26 Specs | Stem Lock | Modular Box | Pricing | Buy Online | Troubleshooting | Submittal Sheets | Print PDF

The Model 26 and B26 are field testable, backflow protected wall faucets intended for irrigation purposes in mild climate areas. The Model B26 is enclosed in a wall mounted box. Both models are designed to blend with modern architecture for installation on or in homes, service stations, churches, motels, drive-in restaurants, etc. The Model Y26 is designed to be used on a stand pipe in the lawn and garden, etc.

SPECIFICATIONS:

MODEL 50HF BACKFLOW PREVENTER -
Patent Pending

- ASSE 1052 Approved
- Listed by IAPMO
- Field Testable
- Two Independent Check Valves
- Drains automatically when hose is removed
- No spray back

FEATURES:

EPDM PACKING: Prevents leaking.

PACKING NUT: Adjustable brass nut with deep stem guard.

VALVE SEAT: Standard "O" size washer.

HANDLES: Furnished with polycarbonate wheel handle and loose tee key. Optional: Metal wheel handle.

INLETS: Model 26 as shown below.
Model B26: 26P- ½ or 26P ¾ only.
Model Y26: ¾ " FPT.

MAX PRESSURE: 125 p.s.i.

MAX TEMPERATURE: 120° F

SHIPPING WEIGHT: (per unit)

MODEL 26 & Y26: 1.2 lbs

MODEL B26: 14.6 lbs (brass or chrome box)
6.5 lbs (aluminum box)

Inlet Descriptions

MODEL 26/B26
P-½ Inlet
½" FPT
P-¾ Inlet
¾" FPT

MODEL 26 ONLY
CP Inlet
COMBINATION
½" COPPER TUBE
½" MPT

MODEL 26 ONLY
C Inlet
COMBINATION
½" COPPER TUBE
¾" COPPER TUBE

For Installation / Troubleshooting Instructions go to www.woodfordmfg.com or call 1-800-621-6032

Rev. 02/12 Form No. 26.109

WOODFORD

Backflow Protected
Wall Faucets
Model 26/B26/Y26

MODEL 26

Exterior Finish:
Standard - Chrome
Optional- Rough Brass (BR) or Polished Chrome (PC)

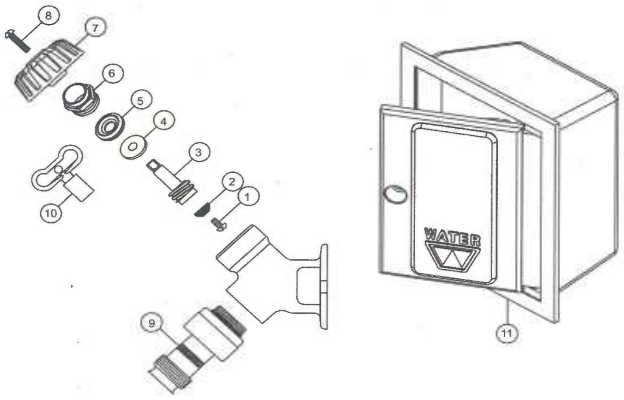
MODEL B26

Exterior Finish:
Standard - Chrome
Optional- Rough Brass (BR) or Polished Brass (PB)
Other Options: Anodized Aluminum Box and Door

MODEL Y26

Exterior Finish:
Standard - Chrome
Optional- Rough Brass (BR) or Polished Chrome (PC)

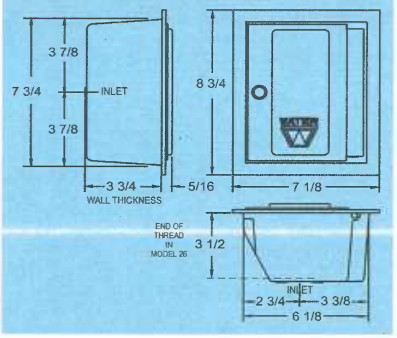
WOODFORD



MODEL 26/B26/Y26 PARTS LIST

ITEM	PART#	DESCRIPTION
1	30009	Washer Screw
2	30008	Washer
3	30104	Operating Stem
4	30105	Packing Support Washer
5	30247	EPDM Packing
6	30109	Packing Nut - chrome
	30107	Packing Nut - Brass
7	30120	Wheel Handle - Clear
	30233	Wheel Handle - Tan
8	30121	Handle Screw - Nickel
	30002	Handle Screw - Brass
9	50HF-CH	50HF Backflow Preventer - Chrome
	50HF-BR	50HF Backflow Preventer - Brass
10	50009	Tee Key
11	B26BX	Box/Door Assembly - Chrome
	B26BX-BR	Box/Door Assembly - Brass
	B26BX-PB	Box/Door Assembly - Polished Brass
	B26BX-AL	Box/Door Assembly - Anodized Aluminum
	RK-24	Chrome Repair Kit (Includes items 1-8)
	RK-H34	Brass Repair Kit (Includes items 1-8)

MODEL B26
Rough-In Dimensions



Manufactured under one or more of the following patents: U.S. Patents: 3,414,001; 3,543,786; 4,178,956; 4,316,481; D216,790; D216,791; D277,365; D277,366; Canada Patents: 822,458; 852,529; 865,995

For more information contact...

WOODFORD MANUFACTURING COMPANY

2121 Waynoka Road, Colorado Springs, Colorado 80915 • **Phone:** (800) 621-6032 • **Fax:** (800) 765-4115

To view our complete product line visit: ***www.woodfordmfg.com*** *or email:* ***sales@woodfordmfg.com***

A Division Of WCM Industries, Inc.

GWH-1A, 1B, 1C, 1D

A.O. Smith | Commercial Gas Water Heaters

Cyclone® MXi MODULATING

MODULATING BURNER ADVANCES THE CYCLONE TO HIGHER LEVELS OF EFFICIENCY

BTH-120(A) through BTH-500(A)

Model Shown: 100 Gallon

FEATURES

The full line of A. O. Smith Cyclone Mxi condensing water heaters has been designed to provide years of dependable service and feature industry leading technology. Models are available from 120,000 to 500,000 Btu/h and all deliver thermal efficiencies of 95% and higher. The unique helical coil heat exchanger limits weld joints for optimal service life while maximizing heat transfer.

Cyclone is the industry leader in high efficiency commercial water heating with over a quarter million Cyclones sold since 1996. The current Mxi modulating models adjust firing rate to the specific demand further increasing efficiency and money savings.

INTELLIGENT CONTROL SYSTEM WITH LCD DISPLAY
- Exclusive A. O. Smith designed control system
- Provides detailed water heater status information
- Precise temperature control adjustable from 90 to 180 degrees
- Built-in diagnostics
- Run history information
- Cyclone water heaters are compatible with the iCOMM™ remote monitoring system. Call 1.888.928.3702 for more information.

iCOMM
1.888.WATER02

SUBMERGED COMBUSTION CHAMBER, WITH HELICAL HEAT EXCHANGER COIL
- Positioned in center of tank, surrounded by water to virtually eliminate radiant heat loss from chamber
- Direct spark ignition
- Spiral heat exchanger keeps hot burner gases swirling, uses centrifugal force to maximize efficiency of heat transfer to water in tank
- Spiral heat exchanger reduces lime scale from forming on water-side surfaces, which maintains energy efficiency over time

POWERED ANODES STANDARD ON ALL MODELS
- Provides long-lasting tank protection in varying water conditions
- Powered anodes are non-sacrificial
- Automatically adjusts output needed to properly protect the tank

PERMAGLAS® ULTRA COAT™ GLASS LINING
- Glass coating is applied using a liquid slush coating technique to ensure uniform coating
- Heat exchanger coil is glassed both externally and internally for optimum protection

MECHANICAL VENTING VERSATILITY
- Conventional power venting or direct venting
- Vents vertically or through a sidewall
- Front located exhaust and condensate connections allow for easy install and access
- Vents with low cost PVC Schedule 40 intake and exhaust pipe. Approved for optional CPVC Schedule 40, Polypropylene and AL29-4C stainless steel vent materials
- Direct-vent intake and exhaust pipe can terminate separately outside building or through single opening, using concentric vent assembly
- Canadian installations require ULC S636 PVC/CPVC, ULC S636 Polypropylene and AL29-4C stainless steel pipe for intake and exhaust

HIGH EFFICIENCY MODULATING PRE-MIX POWERED BURNER
- Down-fired pre-mix burner provides optimum efficiency and quiet operation
- Top-mounted burner position prevents condensation from affecting burner operation

ASME (OPTIONAL) HLW · CERTIFIED UL WATER QUALITY ANSI/NSF-5 · GAS-FIRED c UL us LISTED · AHRI CERTIFIED · CSA · ENERGY STAR

A.O. Smith | Commercial Gas Water Heaters

OTHER CYCLONE Mxi FEATURES

SPACE-SAVING DESIGN FOR INSTALLATION FLEXIBILITY

- Reduced footprint, ease of service, protection from water damage in case of flooding
- Easy-to-remove top cover for convenient access to serviceable parts
- 0" installation clearances on sides and rear, 1-1/2" installation clearance on top
- Handhole cleanout allows easy access to tank interior for cleaning
- 0" clearance to combustibles, approved for installation on combustible floors

CODES AND STANDARDS

- CSA certified and ASME rated T&P relief valve
- Maximum hydrostatic working pressure: 160 PSI
- All models are design certified by Underwriters Laboratories (UL), Inc., to ANSI Z21.10.3 - CSA 4.3 Standards
- Meets the thermal efficiency and standby loss requirements of the U.S. Department of Energy and current edition ASHRAE/IESNA 90.1
- Design-certified by Underwriters Laboratories to NSF standard 5 for 180°F (62°C) water
- Complies with SCAQMD Rule 1146.2 and other Air Quality Management Districts with similar requirements for low-NOx emissions
- ASME tank construction optional on 120-500 model sizes

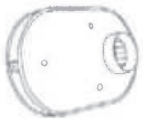
THREE-YEAR LIMITED TANK WARRANTY

- For complete warranty details, consult written warranty shipped with heater, or contact A. O. Smith (5-year tank extended warranty is optional)

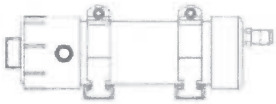
OPTIONAL KITS

- Optional Concentric Vent Kits
  BTH-120-250 vent kit p/n 9006328005
  BTH-300-500 vent kit p/n 9006144005

- Optional Low Profile Termination Vent Kits
  3" Flush Mount Vent Kit p/n 9008933005
  4" Flush Mount Vent Kit p/n 9008934005
  6" Flush Mount Kit p/n 9008935005



- Optional Condensate Neutralization Kits
  BTH-120-199 kit p/n 9007959005
  BTH-250-500 kit p/n 9007960005



VENTING REQUIREMENTS

BTH-120(A)-250(A)

NUMBER OF 90° ELBOWS INSTALLED	3 INCH PIPE MAXIMUM FEET (METERS)	4 INCH PIPE MAXIMUM FEET (METERS)
One (1)	45 feet (13.7 meters)	115 feet (35.0 meters)
Two (2)	40 feet (12.2 meters)	110 feet (33.5 meters)
Three (3)	35 feet (10.7 meters)	105 feet (32.0 meters)
Four (4)	30 feet (9.1 meters)	100 feet (30.5 meters)
Five (5)	N/A	95 feet (29.0 meters)
Six (6)	N/A	90 feet (27.4 meters)

BTH-300(A)-500(A)

NUMBER OF 90° ELBOWS INSTALLED	4 INCH PIPE MAXIMUM FEET (METERS)	6 INCH PIPE MAXIMUM FEET (METERS)
One (1)	65 feet (19.8 meters)	115 feet (35.0 meters)
Two (2)	60 feet (18.2 meters)	110 feet (33.5 meters)
Three (3)	55 feet (16.8 meters)	105 feet (32.0 meters)
Four (4)	50 feet (15.2 meters)	100 feet (30.5 meters)
Five (5)	45 feet (13.7 meters)	95 feet (29.0 meters)
Six (6)	40 feet (12.2 meters)	90 feet (27.4 meters)

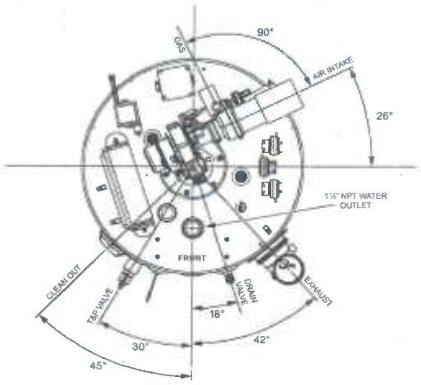
GAS PRESSURE REQUIREMENTS

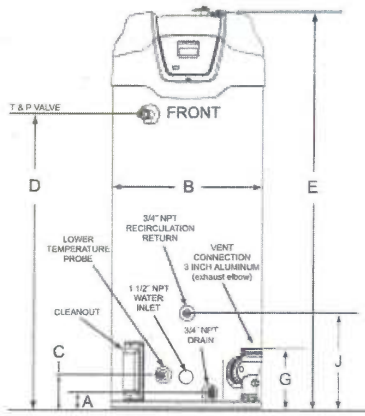
MODEL	MANIFOLD PRESSURE		MINIMUM SUPPLY PRESSURE		MAXIMUM SUPPLY PRESSURE	
	NATURAL GAS	PROPANE GAS	NATURAL GAS	PROPANE GAS	NATURAL GAS	PROPANE GAS
BTH-120(A)	0" W.C. (0 kPa)	0" W.C. (0 kPa)	4.4" W.C. (1.10 kPa)	8.5" W.C. (2.12 kPa)	14" W.C. (3.49 kPa)	14" W.C. (3.49 kPa)
BTH-150(A)	0" W.C. (0 kPa)	0" W.C. (0 kPa)	4.4" W.C. (1.10 kPa)	8.5" W.C. (2.12 kPa)	14" W.C. (3.49 kPa)	14" W.C. (3.49 kPa)
BTH-199(A)	0" W.C. (0 kPa)	0" W.C. (0 kPa)	4.4" W.C. (1.10 kPa)	8.5" W.C. (2.12 kPa)	14" W.C. (3.49 kPa)	14" W.C. (3.49 kPa)
BTH-250(A)	0" W.C. (0 kPa)	0" W.C. (0 kPa)	4.4" W.C. (1.10 kPa)	8.5" W.C. (2.12 kPa)	14" W.C. (3.49 kPa)	14" W.C. (3.49 kPa)
BTH-300(A)	0" W.C. (0 kPa)	0" W.C. (0 kPa)	4.8" W.C. (1.19 kPa)	8.5" W.C. (2.12 kPa)	14" W.C. (3.49 kPa)	14" W.C. (3.49 kPa)
BTH-400(A)	0" W.C. (0 kPa)	0" W.C. (0 kPa)	4.8" W.C. (1.19 kPa)	8.5" W.C. (2.12 kPa)	14" W.C. (3.49 kPa)	14" W.C. (3.49 kPa)
BTH-500(A)	0" W.C. (0 kPa)	0" W.C. (0 kPa)	4.8" W.C. (1.19 kPa)	8.5" W.C. (2.12 kPa)	14" W.C. (3.49 kPa)	14" W.C. (3.49 kPa)

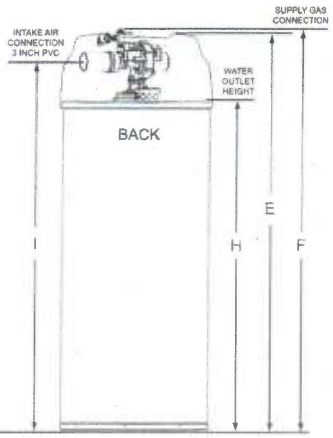
Commercial Gas Water Heaters

A.O. Smith

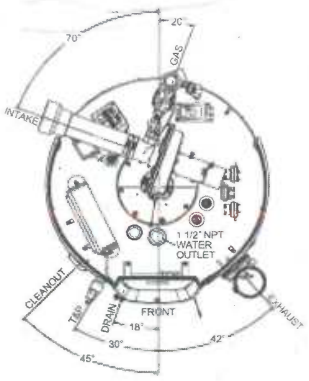
BTH-120(A) through BTH-250(A)

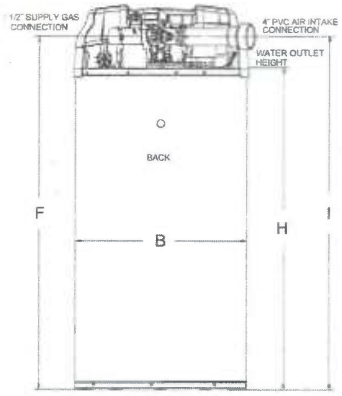


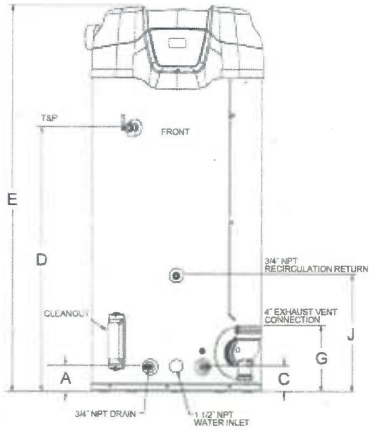




BTH-300(A) through BTH-500(A)







MODEL	APPROX. CAPACITY GALLON/LITER	DIMENSIONS										SHIPPING WEIGHT STD	SHIPPING WEIGHT ASME
		A	B	C	D	E	F	G	H	I	J		
		INCHES/CM	INCHES/CM	INCHES/CM	INCHES/CM	INCHES/CM	INCHES/CM	INCHES/CM	INCHES/CM	INCHES/CM	INCHES/CM	LBS/KG	LBS/KG
BTH-120(A)	60 / 227	3/7.62	27.75/70.5	6.3/16	35/88.9	55.5/141	53.5/135.9	11.25/28.6	42.25/107.32	48.5/123.2	18.25/46.36	460 / 208	490 / 220
BTH-150(A)	100 / 379	3/7.62	27.75/70.5	6.3/16	56.38/143.2	76/193.04	75.75/192.4	11.25/28.6	64/162.6	70/177.8	18.25/46.36	523 / 237	553 / 251
BTH-199(A)	100 / 379	3/7.62	27.75/70.5	6.3/16	56.38/143.2	76/193.04	75.75/192.4	11.25/28.6	64/162.6	70/177.8	18.25/46.36	523 / 237	553 / 251
BTH-250(A)	100 / 379	3/7.62	27.75/70.5	6.3/16	56.38/143.2	76/193.04	75.75/192.4	11.25/28.6	64/162.6	70/177.8	18.25/46.36	523 / 237	553 / 251
BTH-300(A)	119/450.96	4.75/12.07	33.12/84.12	4.75/12.07	52.00/132.08	75.75/192.41	73.75/187.3	12.75/32.39	63.13/160.35	69.25/175.9	23.00/58.43	855 / 387	855 / 387
BTH-400(A)	119/450.96	4.75/12.07	33.12/84.12	4.75/12.07	52.00/132.08	75.75/192.41	73.75/187.3	12.75/32.39	63.13/160.35	69.25/175.9	23.00/58.43	855 / 387	855 / 387
BTH-500(A)	119/450.96	4.75/12.07	33.12/84.12	4.75/12.07	52.00/132.08	75.75/192.41	73.75/187.3	12.75/32.39	63.13/160.35	69.25/175.9	23.00/58.43	855 / 387	855 / 387

Electrical characteristics-120V-60Hz A.C., 5.0 A
"A" in model represents ASME construction
Propane gas models available

For Technical Information and Automated Fax Service, call 800-527-1953. A. O. Smith Corporation reserves the right to make product changes or improvements without prior notice.

A.O. Smith | Commercial Gas Water Heaters

RECOVERY CAPACITY

MODEL	TYPE OF GAS	INPUT		THERMAL EFFICIENCY	U.S. GALLONS/HR AND LITRES/HR AT TEMPERATURE RISE INDICATED												
		BTU/HR	kW		APPROX. CAPACITY	F	30 F	40 F	50 F	60 F	70 F	80 F	90 F	100 F	110 F	120 F	130 F	140 F
						C	17 C	22 C	28 C	33 C	39 C	44 C	50 C	56 C	61 C	67 C	72 C	78 C
BTH-120(A)	NATURAL/ PROPANE	120,000	35	95%	60 U.S. Gals.	GPH	461	345	276	230	197	173	154	138	126	115	106	99
					227 Litres	LPH	1744	1308	1046	872	747	654	581	523	476	436	402	374
BTH-150(A)	NATURAL/ PROPANE	150,000	44	98%	100 U.S. Gals.	GPH	594	445	356	297	255	223	198	178	162	148	137	127
					379 Litres	LPH	2248	1686	1349	1124	964	843	749	674	613	562	519	482
BTH-199(A)	NATURAL/ PROPANE	199,900	58	97%	100 U.S. Gals.	GPH	783	588	470	392	336	294	261	235	214	196	181	168
					379 Litres	LPH	2965	2224	1779	1483	1271	1112	988	890	809	741	684	635
BTH-250(A)	NATURAL/ PROPANE	250,000	73	96%	100 U.S. Gals.	GPH	970	727	582	485	416	364	323	291	264	242	224	208
					379 Litres	LPH	3671	2753	2202	1835	1573	1377	1224	1101	1001	918	847	787
BTH-300(A)	NATURAL/ PROPANE	300,000	88	96%	119 U.S. Gals.	GPH	1164	873	698	582	499	436	388	349	317	291	269	249
					451 Litres	LPH	4405	3304	2643	2202	1888	1652	1468	1321	1201	1101	1017	944
BTH-400(A)	NATURAL/ PROPANE	399,900	117	95%	119 U.S. Gals.	GPH	1535	1151	921	767	658	576	512	460	419	384	354	329
					451 Litres	LPH	5810	4358	3486	2905	2490	2179	1937	1743	1585	1453	1341	1245
BTH-500(A)	NATURAL/ PROPANE	499,900	146	95%	119 U.S. Gals.	GPH	1919	1439	1151	959	822	720	640	576	523	480	443	411
					451 Litres	LPH	7263	5448	4358	3632	3113	2724	2421	2179	1981	1816	1676	1556

Recovery capacities are based on AHRI rated thermal efficiencies.

STORAGE CAPACITIES

MODEL	U.S. GALLONS	LITERS
BTH-120(A)	60	227
BTH-150(A)	100	379
BTH-199(A)	100	379
BTH-250(A)	100	379
BTH-300(A)	119	450.96
BTH-400(A)	119	450.96
BTH-500(A)	119	450.96

GAS LINE CONNECTION SIZE

MODEL	NATURAL GAS	PROPANE GAS
BTH-120(A)	3/4" NPT	3/4" NPT
BTH-150(A)	3/4" NPT	3/4" NPT
BTH-199(A)	3/4" NPT	3/4" NPT
BTH-250(A)	3/4" NPT	3/4" NPT
BTH-300(A)	1 1/2" NPT	1 1/2" NPT
BTH-400(A)	1 1/2" NPT	1 1/2" NPT
BTH-500(A)	1 1/2" NPT	1 1/2" NPT

SUGGESTED SPECIFICATION

(Natural or Propane) gas water heater(s) shall be A. O. Smith Cyclone Max model # _____ or equal, minimum 95% thermal efficiency, a storage capacity of _____ gallons, an input rating of _____ BTUH per hour, a recovery rating of _____ gallons per hour (gph) at 100°F rise and a maximum hydrostatic working pressure of 160 PSI. Water heater(s) shall: 1. Modulating gas burner that automatically adjusts the input based on demand. 2. Powered anodes that are non sacrificial and maintenance free. 3. Have seamless, glass-lined steel tank construction, with glass lining applied to all water side surfaces after the tank has been assembled and welded; 4. Meets the thermal efficiency and/or standby loss requirements of the U. S. Department of Energy and current edition of ASHRAE/IESNA 90.1; 5. Have foam insulation and a CSA Certified and ASME rated T&P relief valve; 6. Have a down-fired power burner designed for precise mixing of air and gas for optimum efficiency, requiring no special calibration on start-up; 7. Be approved for 0" clearance to combustibles.

The control shall be an integrated solid-state temperature and ignition control device with integral diagnostics, graphic user interface, fault history display, and shall have digital temperature readout.

1. All models are design certified by Underwriters Laboratories (U.L), Inc., according to ANSI Z21.10.3 - CSA 4.3 standards governing storage type water heaters; 2. Meet the thermal efficiency and standby loss requirements of the U. S. Department of Energy and current edition ASHRAE/IESNA 90.1. Complies with SCAQMD Rule 1146.2 and other air quality management districts with similar requirements for low NOx emissions.

120K-250K BTU Input:
For Standard Power Venting: Water heater(s) shall be suitable for power venting using a (3" or 4") _____ diameter PVC pipe for a total distance of (50 ft or 120 ft.) _____ equivalent feet of vent piping.

For Power Direct Venting: Water heater(s) shall be suitable for power direct venting using a (3" or 4") _____ diameter PVC pipe for a total distance of (50 ft or 120 ft.) _____ equivalent feet of vent piping and (50 ft. or 120 ft.) _____ equivalent feet of intake air piping.

300K - 500K BTU Input:
For Standard Power Venting: Water heater(s) shall be suitable for standard power venting using a (4" or 6") _____ diameter PVC pipe for a total distance of (70 ft. or 120 ft.) _____ equivalent feet of vent piping.

For Power Direct Venting: Water heater(s) shall be suitable for power direct venting using a (4" or 6") _____ diameter PVC pipe for a total distance of (70 ft or 120 ft.) _____ equivalent feet of vent piping and (50 ft. or 120 ft.) _____ equivalent feet of intake air piping.

Operation of the water heater(s) in a closed system where thermal expansion has not been compensated for (with a properly sized thermal expansion tank) will void the warranty.

Water heater should incorporate the iCOMM™ system for remote monitoring, leak detection and fault alert.

For Technical Information and Automated Fax Service, call 800-527-1953. A. O. Smith Corporation reserves the right to make product changes or improvements without prior notice.

www.hotwater.com

AOSCG10210

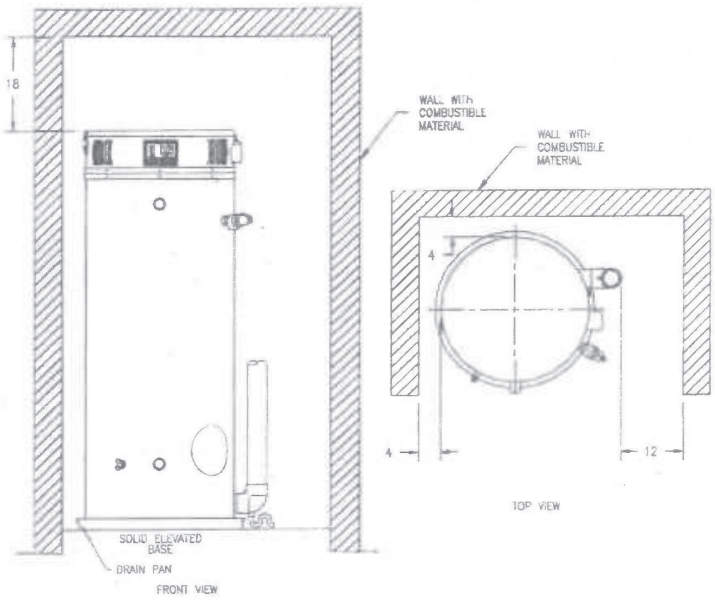


Figure 3b. Recommended Minimum Clearances For Service Access

REMOVE CRATE

1. Remove all banding and pry off crate sides carefully so as not to damage the water heater.
2. Carefully roll/lift the water heater from the crate base.

⚠ CAUTION

Do not drop water heater. Do not bump water heater jacket against floor.

Do not bump exhaust vent pipe against crate or other objects. This will damage the heater and cause it to be inoperable or create nuisance problems.

MOVE WATER HEATER TO PERMANENT POSITION by sliding or walking. Place drain pan underneath water heater

INSTALL TEMPERATURE AND PRESSURE RELIEF VALVE (if not already installed).

⚠ WARNING

Temperature and pressure relief valve discharge piping must be piped near floor to eliminate potential of severe burns. Do not pipe in any area where freezing could occur. Do not install any shut-off valves, plugs or caps to the temperature and pressure relief valve or piping.

⚠ CAUTION

If the building cold water supply has a back-flow preventer, check valve or water meter with check valve, provisions for thermal expansion of water in the hot water system must be provided.

UNPACKING

INSPECT SHIPMENT carefully for any signs of damage.

1. All equipment is carefully manufactured, inspected and packed.
2. Any claims for damage or shortage in shipment must be filed immediately with Bradford White Corporation and noted on the Bill of Lading.
3. Remove all venting components from the combustion assembly compartment by removing the latches.

NOTICE

The vent terminals and the condensate elbow that is supplied with this water heater are stored at the top in the Combustion Assembly Compartment. To access the vent terminals and condensate elbow, unlatch the top lid and remove parts. Be sure to replace the top and relatch.

LOCATE WATER HEATER in front of final position before removing crate.

1. LOCATE so that venting connections will be short and direct.
2. THIS WATER HEATER IS SUITABLE FOR INSTALLATION ON COMBUSTIBLE FLOOR. Do not install this water heater on carpeting.
3. FOR BASEMENT INSTALLATION, provide a solid level elevated base such as concrete or other suitable pad to raise the water heater at least 3" to provide a slope of 1/8" to ¼" per foot for the condensate line to a suitable drain.
4. Minimum clearance to combustible material is 0" for the Top, Sides, and Rear of this water heater. However, it is recommended that **at least 18" from the Top, 24" from the Front, 4" for the Left Side and Rear, and 12" from the Right Side Exhaust Elbow of the water heater be provided for servicing.** Clearance for servicing may be reduced down to minimum clearance to combustible material, but service time and effort may be greatly increased.

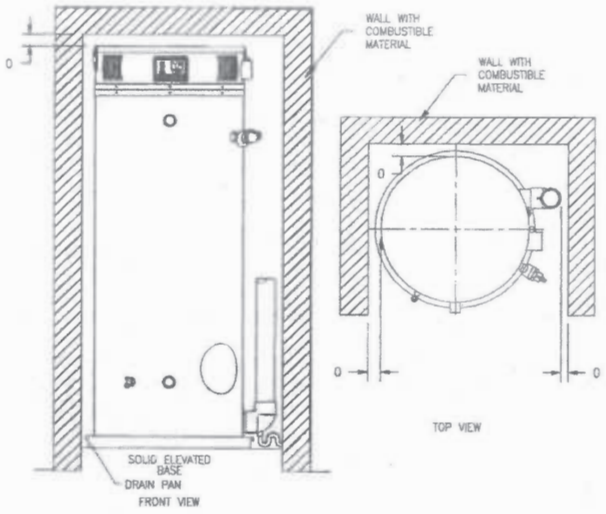


Figure 3a. Minimum Clearance To Combustible Material

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APPENDIX B: COST DOCUMENTS

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Construction FOCUS
Integrated Project Solutions

March 25, 2021
Revision #2

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT

STATEMENT OF PROBABLE COST

Prepared for:
Mackenzie
Portland, Oregon

Prepared by:
Steve Gunn

President
Construction Focus, Inc.

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT NEW BUILDING
Summary of Probable Cost

	QTY	UNIT	$/UNIT	TOTAL $
The Building	22,800	SF		
03 CONCRETE	22,800	SF	14.12	321,864
04 MASONRY	22,800	SF	18.61	424,413
05 METALS	22,800	SF	38.79	884,454
06 WOOD, PLASTICS, & COMPOSITES	22,800	SF	12.14	276,734
07 THERMAL & MOISTURE	22,800	SF	31.34	714,468
08 OPENINGS	22,800	SF	47.00	1,071,504
09 FINISHES	22,800	SF	54.89	1,251,471
10 SPECIALTIES	22,800	SF	4.84	110,356
11 EQUIPMENT	22,800	SF	0.33	7,637
12 FURNISHINGS	22,800	SF	3.26	74,364
21 FIRE SUPPRESSION	22,800	SF	6.91	157,524
22 PLUMBING	22,800	SF	16.52	376,582
23 HVAC	22,800	SF	32.00	729,600
26 ELECTRICAL	22,800	SF	40.60	925,680
31 EARTHWORK AT BUILDING	22,800	SF	5.17	117,970
			The Building Hardcost:	7,444,621
Site Development				
31 EARTHWORK AT SITE				517,573
32 EXTERIOR IMPROVEMENTS				882,144
33 UTILITIES				492,933
			Site Development Hardcost:	1,892,650

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT NEW BUILDING
Summary of Probable Cost

			QTY	UNIT	$/UNIT	TOTAL $
Right of Way Improvements						
OLD PORTLAND ROAD						93,751
KASTER ROAD						107,419
EXISTING ROW to SE						178,883
		Right of Way Improvements Hardcost:				380,052
		HARDCOST TOTAL:				9,717,323
Low Range		**Markups to the Hardcost**				**High Range**
971,732	10.00%	Estimating Contingency			20.00%	1,943,465
748,234	7.00%	General Conditions			7.00%	816,255
45,749	0.40%	Insurance			0.40%	49,908
688,982	6.00%	Profit & Overhead			6.00%	751,617
146,064	1.20%	Performance Bond			1.20%	159,343
492,723	4.00%	Escalation			8.00%	1,075,033
192,162	1.50%	Solar & Green Energy			1.50%	217,694
65,015	0.50%	OR Gross Receipts Tax			0.50%	73,653
3,350,662		**Markups Total**				5,086,968
13,067,985		**BASE BID TOTAL**				14,804,291
Alternates (Includes High Side Markups)						
ALT-1: Veneer - Norman Face in lieu of CMU						46,870
ALT-2: Veneer - Terracotta in lieu of CMU						193,422
ALT-3: Veneer - Thin Brick in lieu of CMU						413,292
ALT-4: Stone Base - BH Alpine in lieu of CR Basalt						-134,799
ALT-5: High Roof - GLB/CLT in lieu of Steel						98,690
ALT-6: Low Roof - GLB/CLT in lieu of Steel						610,680

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT NEW BUILDING
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
		Building Gross Area	22,800	SF		
	03 CONCRETE					
	Concrete Foundation					138,121
	Continuous foundations	allowance	801	LF	128.14	102,615
	Pad foundations	allowance	32	EA	1,109.57	35,506
	Concrete Slabs, Floors & Stairs					183,743
	Slab on grade	f/s/pl/fin 4"t_reinf	21,929	SF	8.01	175,651
	Slab on grade	f/s/pl/fin 6"t_reinf	871	SF	9.29	8,092
					03 CONCRETE HARDCOST	321,864
	04 MASONRY					
	Masonry Veneer					424,413
	Masonry veneer	CMU grd-fc_4x4x16	5,494	SF	38.98	214,144
	Stone base	Columbia River basalt	2,240	SF	93.87	210,269
					04 MASONRY HARDCOST	424,413
	05 METALS					
	Roof Construction: Steel					864,454
High roof	Roof framing	WF/girders/cols	3,460	SF	22.00	76,120
Low roof	Roof framing	WF/girders/cols	19,340	SF	22.00	425,480
	Entry canopy	HSS/channel	200	SF	71.07	14,214
	Covered parking	WF/girders/cols	2,000	SF	93.07	186,140
	Metal deck	20GA 'B' deck	25,000	SF	6.50	162,500
	Stairs: Steel					15,000
	Stairs: steel	stair/landing/handrail	1	SET	15,000.00	15,000
	Steel: Misc					5,000
	Bracing	diag. tension rods	1	LS	5,000.00	5,000
					05 METALS HARDCOST	884,454
	06 WOOD, PLASTICS, & COMPOSITES					
	Finish Carpentry					24,999
	Chair rail	wood w/ finish	830	LF	15.21	12,624
Court	Wood railing	3'H_decorative	45	LF	275.00	12,375
	Wood Wall Coverings					92,419
	Wood panel		2,403	SF	38.46	92,419
	Custom Casework					115,316
	Judge/witness stands	wood	45	LF	750.00	33,750
	Court benches	wood/plam	96	LF	150.00	14,400
	Base cabinets	wood w/ doors	50	LF	295.00	14,750
	Upper cabinets	wood w/ doors	50	LF	190.00	9,500
	Base cabinets	plam w/ doors	38	LF	265.00	10,070
	Upper cabinets	plam w/ doors	38	LF	145.00	5,510
	Island	plam w/ doors	8	LF	480.00	3,840
	Record counter	wood w/ bullet res glazing	35	LF	600.00	21,000

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT NEW BUILDING
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	Mail slots	plam cubbies	10	LF	249.58	2,496
	Countertops					44,000
	Countertop	solid surface	352	SF	125.00	44,000
					06 WOOD, PLASTICS, & COMPOSITES HARDCOST	276,734
	07 THERMAL & MOISTURE					
	Exterior Skin System & Sealants					37,031
	Metal wall panel	Alucobond Plus	617	SF	60.00	37,031
	Vapor Barriers & Insulation					57,000
Slab	Vapor barrier	15MIL	22,800	SF	2.50	57,000
	Roofing					535,250
High roof	Roofing: BUR	BUR 3-ply/cvr bd/R-30 (5")	3,460	SF	22.10	76,466
Low roof	Roofing: BUR	BUR 3-ply/cvr bd/R-30 (5")	19,340	SF	22.10	427,414
	Walkway pads		500	SF	15.00	7,500
Ext cvr	Roofing: std-sm metal	AEP Span_no insulation	2,200	SF	10.85	23,870
	Flashings, Gutters & Downspouts					70,287
	Copings & misc roof flashings	allowance	22,800	SF	2.00	45,600
	Wall flashings	allowance	12,344	SF	2.00	24,687
	Roof Openings & Fall Protection					14,900
	Roof hatch	4' x 8'	1	EA	3,500.00	3,500
	Fall protection	allowance	22,800	SF	0.50	11,400
					07 THERMAL & MOISTURE HARDCOST	714,468
	08 OPENINGS					
	Doors, Frames & Hardware-Exterior					57,073
Ext	Storefront door	AL_frm-AL_full glz_3x8	11	EA	3,450.00	37,950
Ext	Swing door	HM_frm-HM_3x8_security	1	EA	5,150.00	5,150
	Panic opener	ED5200_exit device	12	EA	1,164.41	13,973
	Doors, Frames & Hardware-Interior					244,236
	Swing door	wd ven_hm frm_3'x8'	65	EA	3,650.00	237,250
	Panic opener	ED5200_exit device	6	EA	1,164.41	6,986
	Overhead Doors					6,593
	Sectional door	steel_10'x8' w/ HSS frame	1	EA	6,592.50	6,593
	Storefront & Curtain Walls-Exterior					712,978
	Storefront	Kwnr 451UT/glaz	2,723	SF	105.63	287,601
	Curtain wall	alum frame/glazing	1,270	SF	111.98	142,215
Storefront	Storefront (ballistic)	ballistic_lvl-3	1,361	SF	208.00	283,163
	Storefronts & Relites-Interior					50,623
	Relites	frameless/glazing	910	SF	55.63	50,623
					08 OPENINGS HARDCOST	1,071,504

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT NEW BUILDING
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	09 FINISHES					
	Light Gauge Framing					403,810
	Exterior wall assembly	6" ltga/R-13 batt/R-7.5 rigid/WRB/ply	12,344	SF	15.87	195,893
	Interior partitions	3 5/8" ltga/R-13 acoustic	31,360	SF	6.63	207,917
	Wall Board & Coverings					439,741
	Gypsum bd: wall	type: X LVL 4_5/8"	69,408	SF	3.74	259,584
	Gypsum bd: wall	type: impact LVL 4_5/8"	5,656	SF	5.53	31,278
	Ballistic panels	lvl 3	1,008	SF	23.57	23,759
	FRP		300	SF	8.21	2,463
	Acoustic wall panel	Snaptex_1"	3,128	SF	16.69	52,206
	Ceramic tile: walls	thinset/backer board	2,580	SF	17.16	44,273
	Ceramic tile: floor		1,660	SF	15.77	26,178
	Ceilings					169,529
	Ceiling: suspended	ACT/grid_2x4	12,540	SF	6.50	81,510
	Soffit: suspended	type: X LVL 4_5/8"_w/grid	1,140	SF	7.21	8,219
	Soffit: suspended	Rulon/wood-backed panels	2,280	SF	35.00	79,800
	Floor Coverings					128,696
	Carpet tile		11,820	SF	5.06	59,809
	Polished concrete		6,840	SF	7.44	50,890
	Walkoff mat		200	SF	10.75	2,150
	Wall base	6" ceramic tile	460	LF	14.81	6,813
	Wall base	4" rubber	1,700	LF	2.25	3,825
	Wall base	4" cherry wood/finish	325	LF	16.03	5,210
	Painting, Coatings & Sealants					109,694
	Paint: wall (spray)	prime/2 top ct on gyp bd	69,408	SF	1.15	79,819
	Masonry sealer	Protectosil_Chem-trete BSM400	7,734	SF	1.45	11,214
	Paint: ceiling (spray)	prime/2 top ct on structure	6,840	SF	2.53	17,305
	Paint: ceiling (spray)	prime/2 top ct on gyp bd	1,140	SF	1.19	1,357
					09 FINISHES HARDCOST	1,251,471
	10 SPECIALTIES					
	Chalk & Tack Boards					39,391
	Whiteboard	4x8_glass	12	EA	1,755.45	21,065
	Whiteboard	4x4_glass	10	EA	1,462.87	14,629
	Tackboard	4x8_acoustic	8	EA	462.12	3,697
	Signage					18,500
Interior	Room signage	glass/stainless	60	EA	175.00	10,500
Exterior	Building signage		1	LS	8,000.00	8,000
	Toilet Partitions & Bath Accessories					18,628
	Toilet partition: ADA	stainless steel	4	EA	1,320.67	5,283
	Toilet accessories	various/mirrors	117	EA	114.06	13,345
	Lockers & Storage					29,000
	Evidence lockers		3	EA	7,333.34	22,000
	Weapons storage	wall mounted	2	EA	1,500.00	3,000
	Weapons storage	universal rack	4	EA	1,000.00	4,000
	Specialites					4,837
	Wall protection	ss_corner guard_48" h	31	EA	109.06	3,381

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT NEW BUILDING
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	Fire extinguisher cabinet	FEC	4	EA	364.06	1,456
					10 SPECIALTIES HARDCOST	110,356
	11 EQUIPMENT					
	Appliances					6,887
	Refrigerator/icemaker	CFCI	2	EA	789.14	1,578
	Undercounter refrigerator	CFCI	1	EA	659.00	659
	Microwave	CFCI	2	EA	329.00	658
	Dishwasher	CFCI	1	EA	743.57	744
	Garbage disposal	CFCI	1	EA	350.00	350
	Washer	CFCI	1	EA	1,399.00	1,399
	Dryer	CFCI	1	EA	1,499.00	1,499
	Fitness equipment	OFOI				
	AV Equipment					750
	Projector	OFCI	1	EA	500.00	500
	Projection screen	OFCI	1	EA	250.00	250
					11 EQUIPMENT HARDCOST	7,637
	12 FURNISHINGS					
	Window Treatment					74,364
	Window treatment	mechoshade_manual	3,993	SF	11.17	44,599
	Window treatment	mechoshade_manual_blkout	1,996	SF	13.41	26,771
	Window treatment	valances	200	LF	15.00	2,995
					12 FURNISHINGS HARDCOST	74,364
	21 FIRE SUPPRESSION					
	Fire Sprinkler System					157,524
	Wet system		22,799	SF	5.60	127,674
	Pre-action system		1	LS	15,000.00	15,000
	Dry system		2,200	SF	6.75	14,850
					21 FIRE SUPPRESSION HARDCOST	157,524
	22 PLUMBING					
	Fixtures					151,704
	Water closets		9	EA	4,848.39	43,636
	Lavatories		9	EA	3,527.32	31,746
	Sinks		3	EA	4,083.48	12,250
	Showers		4	EA	6,490.21	25,961
	Mop sinks		1	EA	3,119.85	3,120
	Drinking fountain		1	EA	6,274.54	6,275
	Emergency showers/eyewash		1	EA	8,075.86	8,076
	Water heater w/ recirc		1	EA	12,241.46	12,241
	Floor drains		7	EA	1,200.00	8,400
	Specialties & Accessories					66,474
	Fixture hook-up		4	EA	500.00	2,000
	Hydrants	hot & cold	2	EA	2,282.69	4,565

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT NEW BUILDING
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	Hose bibb		7	EA	266.93	1,909
	Plumbing specialties		1	LS	58,000.00	58,000
	Piping					128,400
	Domestic water piping		1,740	LF	48.00	83,520
	Sanitary piping		600	LF	62.00	37,200
	Sanitary vent piping		480	LF	16.00	7,680
	Roof Drains, Fittings & Insulation					30,003
	Roof drains/overflows		8	EA	3,947.81	30,003
					22 PLUMBING HARDCOST	376,582
	23 HVAC					
	HVAC Dry Side Equipment					729,600
	HVAC system	eqip/VAV/ducting/GRD/balancing	22,800	SF	26.00	592,800
	Controls		22,800	SF	6.00	136,800
					23 HVAC HARDCOST	729,600
	26 ELECTRICAL					
	Power					682,860
	Service gear & panels		22,800	SF	4.40	100,320
	Power studies		22,800	SF	0.50	11,400
	Lighting & controls		22,800	SF	12.00	273,600
	Devices		22,800	SF	2.60	59,280
	Equipment connections		22,800	SF	2.80	63,840
	Branch wiring		22,800	SF	3.60	82,080
	Feeder wiring		22,800	SF	2.20	50,160
	General conditions		22,800	SF	1.85	42,180
	Low Voltage					242,820
	Telecom		22,800	SF	1.95	44,460
	Clock/intercom		22,800	SF	2.10	47,880
	AV		22,800	SF	1.25	28,500
	Access control		22,800	SF	1.35	30,780
	Surveillance		22,800	SF	0.80	18,240
	Fire alarm		22,800	SF	3.20	72,960
					26 ELECTRICAL HARDCOST	925,680
	31 EARTHWORK AT BUILDING					
	Earthwork at Foundation					46,256
	Excavation: bulk	- included in site excavation -				
	Footing excavation	allowance	560	CY	35.00	19,600
	Footing backfill		784	TN	34.00	26,656

6/7

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT NEW BUILDING
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	Building Base Rock					54,096
	Base rock	cr rock_8"	2,352	TN	23.00	54,096
	Perimeter Drainage & Dewatering					17,618
	Foundation drainage	perforated piping_4"	766	LF	23.00	17,618
					31 EARTHWORK AT BUILDING HARDCOST	117,970
					HARDCOST TOTAL	7,444,621

The above HARDCOST TOTAL does not include typical general contractor markups.
Those plus contingencies are listed below as part of a Low-High Range.
Variables include fluctuations in market conditions, material selections, and design considerations.
The Cost Estimate Range will be consolidated as we move closer to the actual Bid Date.

LOW RANGE			HIGH RANGE	
		Markups:		
10.00%	744,462	Estimating Contingency	20.00%	1,488,924
7.00%	573,236	General Conditions	7.00%	625,348
0.40%	35,049	Insurance	0.40%	38,236
6.00%	527,842	Profit & Overhead	6.00%	575,828
1.20%	111,903	Performance Bond	1.20%	122,075
4.00%	377,485	Escalation	8.00%	823,603
1.50%	147,219	Solar & Green Energy	1.50%	166,780
0.50%	49,809	OR Gross Receipts Tax	0.50%	56,427
	2,567,004	**Markup Subtotals:**		3,897,220
	10,011,625	**BUILDING BASE BID TOTAL**		**11,341,841**

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT NEW BUILDING
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	LOW RANGE					**HIGH RANGE**
		ALTERNATES				
	41,373	ALT-1: Veneer - Norman Face in lieu of CMU				46,870
	170,737	ALT-2: Veneer - Terracotta in lieu of CMU				193,422
	364,819	ALT-3: Veneer - Thin Brick in lieu of CMU				413,292
	(118,989)	ALT-4: Stone Base - BH Alpine in lieu of CR Basalt				(134,799)
	87,115	ALT-5: High Roof - GLB/CLT in lieu of Steel				98,690
	539,057	ALT-6: Low Roof - GLB/CLT in lieu of Steel				610,680
	1,084,112	**ALTERNATES TOTAL**				**1,228,155**
	11,095,737	**BASE BID PLUS ALTERNATES TOTAL**				**12,569,996**

Refer to the "Emails & Assumptions" and the "Outline Specifications" for more detailed information.

NOTES
Wage rates: BOLI
This estimate assumes competitive bidding by local contractors
Use of a CMGC or special selection process for bidders will increase the estimated cost
Assumes provided fill material is suitalbe for structural fill. Additional processing for moisture, etc would be additional cost.

EXCLUSIONS
Design fees, permit fees, system development fees, utility hookup charges, testing, BOLI fee.
Commissioning
Hazardous materials abatement, moving expenses, anti-graffiti coating, fireproofing.
Overexcavation, rock excavation, wet weather sitework.

ABBREVIATIONS

EA= Each	SF=Square Feet	BCY=Bank Cubic Yard
LF= Linear Feet	LS=Lump Sum	TN=Ton
SY=Square Yard	OPNG=Opening	LB=Pounds
PR=Pair	HT=Height	

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT SITEWORK
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
		Site Gross Area	100,834	SF		
		Building Area	20,776	SF		
		Lot Area Towards ROW Improvements	1,688	SF		
		Landscaping Area	14,202	SF		
		Swales Gross Area	5,380	SF		
		Hardscapes Gross Area	58,788	SF		
	31 EARTHWORK AT SITE					
	Clearing & Grubbing					57,354
	Clearing	x_trees, x_vegetation	1	LS	20,000.00	20,000
	Stripping	haul away & dispose offsite	1,966	CY	19.00	37,354
	Survey, Erosion Control & Mobilization					79,000
	Surveying		1	LS	35,000.00	35,000
	Erosion control		1	LS	11,000.00	11,000
	Mobilization		1	LS	25,000.00	25,000
	Temp protection & dir of traffic		1	LS	8,000.00	8,000
	Excavation					31,157
	Excavation: cut	material to be used as fill	406	CY	12.00	4,872
	Footing excavation: retaining wall		289	CY	65.00	18,785
	Footing excavation: misc site fixtures		1	LS	7,500.00	7,500
	Embankments & Soil Stabilization					350,062
	Embankment: imported fill	material provided by City of St. Helens	15,175	CY	14.50	220,038
	Subgrade fabric		7,833	SY	1.10	8,616
Pavement	Aggregate base	cr rock_8"	2,678	TN	28.50	76,323
Sidewalk	Aggregate base	cr rock_4"	200	TN	61.00	12,200
Swale	Water quality topsoil	topsoil_18"	329	CY	70.00	23,030
Swale	Drainage rock	river rock_12"	219	CY	45.00	9,855
		31 EARTHWORK AT SITE HARDCOST				517,573
	32 EXTERIOR IMPROVEMENTS					
	Asphalt Paving					100,100
	Parking lot	AC_4"	1,100	TN	91.00	100,100
	Concrete Paving & Curbs					156,365
	Driveway	conc_7"	6,043	SF	8.00	48,344
	Sidewalk	conc_4"	5,266	SF	6.25	32,913
	Trash eclosure slab	conc_6"	763	SF	9.25	7,058
	Generator slab	conc_6"	659	SF	9.25	6,096
	Curbs: various	conc	2,385	LF	24.00	57,240
	Wheelstops	precast conc	41	EA	115.00	4,715
	Markings & Signage					13,793
	Parking striping	painted_4"	2,157	SF	0.75	1,618
	ADA stencil & sign		6	EA	350.00	2,100
	Signage: misc		25	EA	275.00	6,875
	Tactile pavers	truncated dome inserts	100	SF	32.00	3,200
	Fencing & Gates					26,500
	Cantilever gate: automatic	steel w/ metal panels_20'w x 8'h	1	EA	12,000.00	12,000
	Cantilever gate: automatic	steel w/ metal panels_24'w x 8'h	1	EA	14,500.00	14,500
	Site Improvements					21,400
	Flagpoles	base/pole	3	EA	4,700.00	14,100
	Bike rack	stl-loop_galv	6	EA	350.00	2,100
	Litter receptacle		2	EA	1,200.00	2,400
	Bench		2	EA	1,400.00	2,800
	Exterior Walls, Footings, and Steps					394,414

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT SITEWORK
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	CMU site wall	CMU-GF-Colr_8x4x16_reinf_9'h	3,010	SF	27.50	82,775
	CMU site & retaining wall	CMU-GF-Colr_8x4x16_reinf_15'h	4,725	SF	31.00	146,475
	Strip ftg	3'-6" W x 1'-6" D w/rebar	335	LF	113.04	37,868
	Strip ftg	5'-0" W x 2'-0" D w/rebar	315	LF	187.13	58,946
	CMU wall cap		650	LF	75.00	48,750
	Low planter walls	basalt stone	700	SF	28.00	19,600
	Site Structures					44,525
	Bike storage	allowance	175	SF	175.00	30,625
	Patio	allowance	695	SF	20.00	13,900
	Landscaping					125,047
	Parking lot planters	loam/comp/mulch/plnt/irrig	3,815	SF	6.55	24,988
	Perimeter landscaping	loam/comp/seed/irg	10,387	SF	4.66	48,403
	Stormwater swale	comp/grvl mulch/plnt/irrg	5,380	SF	7.84	42,179
	Trees	deciduous_2" cal_place-w/ts_(lg)	25	EA	379.05	9,476
					32 EXTERIOR IMPROVEMENTS HARDCOST	882,144
	33 UTILITIES					
	Fire Protection Systems					50,500
	DDCV w/vault		1	EA	19,000.00	19,000
	Fire service line	ductile iron_4"	160	LF	100.00	16,000
	Fire hydrant	w/ piping	1	EA	6,500.00	6,500
	Wet tap		2	EA	4,500.00	9,000
	Domestic Water Systems					18,000
	Backflow in vault		1	EA	4,900.00	4,900
	Meter vault		1	EA	4,600.00	4,600
	Domestic water piping	2", common trench with fire service line	160	LF	25.00	4,000
	Wet tap		1	EA	4,500.00	4,500
	Sanitary Sewer Systems					13,286
	Sanitary sewer piping	6"	168	LF	52.00	8,736
	Sanitary sewer manhole		1	EA	3,000.00	3,000
	Sanitary sewer cleanouts		2	EA	400.00	800
	Connect to existing system		1	EA	750.00	750
	Storm Sewer Systems					91,712
	Retaining drainage	perf pipe_4"	650	LF	22.00	14,300
	Overflow inlet		1	EA	1,000.00	1,000
	Overflow piping	12"	200	LF	55.00	11,000
	Storm sewer piping	8"	769	LF	48.00	36,912
	Roof drain piping to swale	6"	500	LF	22.00	11,000
	Catch basin		8	EA	1,300.00	10,400
	Storm sewer cleanout		6	EA	350.00	2,100
	Storm sewer control manhole		1	EA	3,500.00	3,500
	Connect to existing system		1	EA	1,500.00	1,500
	Electrical Distribution					67,985
	Laterals	conduit/conductors/trenching	300	LF	95.95	28,785
	Branch wiring	conduit/conductors/trenching	2,500	LF	15.68	39,200
	Site Lighting					121,450
	Pole lighting	base/pole/fixture	23	EA	4,250.00	97,750
	Illuminated bollards	base/bollard/fixture	12	EA	1,750.00	21,000
	Flag pole lights	base/fixture	3	EA	900.00	2,700

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT SITEWORK
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	Telecom & Security					30,000
	Security & surveillance		1	LS	15,000.00	15,000
	Access control		1	LS	15,000.00	15,000
	Emergency Power Generation					100,000
	Generator		1	EA	100,000.00	100,000
	Other Site Utilities					0
	Natural gas	- by utility provider -				0
	Low voltage utilities	- by utility provider -				0
					33 UTILITIES HARDCOST	492,933
					HARDCOST TOTAL	1,892,650

The above HARDCOST TOTAL does not include typical general contractor markups.
Those plus contingencies are listed below as part of a Low-High Range.
Variables include fluctuations in market conditions, material selections, and design considerations.
The Cost Estimate Range will be consolidated as we move closer to the actual Bid Date.

LOW RANGE		Markups:	HIGH RANGE	
10.00%	189,265	Estimating Contingency	20.00%	378,530
7.00%	145,734	General Conditions	7.00%	158,983
0.40%	8,911	Insurance	0.40%	9,721
6.00%	134,194	Profit & Overhead	6.00%	146,393
1.20%	28,449	Performance Bond:	1.20%	31,035
4.00%	95,968	Escalation	8.00%	209,385
1.50%	37,428	Solar & Green Energy	1.50%	42,400
0.50%	12,663	OR Gross Receipts Tax	0.50%	14,345
	652,611	**Markup Subtotals:**		990,792
	2,545,261	**SITE BASE BID TOTAL**		**2,883,442**

Refer to the "Emails & Assumptions" and the "Outline Specifications" for more detailed information.

NOTES
Wage rates: BOLI
This estimate assumes competitive bidding by local contractors
Use of a CMGC or special selection process for bidders will increase the estimated cost
Assumes provided fill material is suitalbe for structural fill. Additional processing for moisture, etc would be additional cost.

EXCLUSIONS
Design fees, permit fees, system development fees, utility hookup charges, testing, BOLI fee.
Commissioning
Hazardous materials abatement, moving expenses, anti-graffiti coating, fireproofing.
Overexcavation, rock excavation, wet weather sitework.

ABBREVIATIONS

EA= Each	SF=Square Feet	BCY=Bank Cubic Yard
LF= Linear Feet	LS=Lump Sum	TN=Ton
SY=Square Yard	OPNG=Opening	LB=Pounds
PR=Pair	HT=Height	

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT
ROW IMPROVEMENTS
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
		ROW Improvements Frontage Total	1,066	LF		
		Old Portland Road	255	LF		
		Kaster Road	296	LF		
		Existing ROW to SE	515	LF		
	OLD PORTLAND ROAD					
	Survey, Erosion Control & Mobilization					11,475
	Surveying		1	LS	3,825.00	3,825
	Erosion control		1	LS	2,550.00	2,550
	Mobilization		1	LS	3,060.00	3,060
	Temp protection & dir of traffic		1	LS	2,040.00	2,040
	Demolition & Excavation					8,742
	Sawcut		255	LF	3.00	765
	Demo & clearing		4,335	SF	1.05	4,552
	Excavation		107	CY	32.00	3,425
	Embankments & Soil Stabilization					8,293
	Subgrade fabric		368	SY	1.20	442
	Aggregate base: AC Paving	cr rock_12"	154	TN	32.00	4,920
	Aggregate base: sidewalk & curb	cr rock_6"	48	TN	61.00	2,931
	Paving & Curbs					21,565
	Asphalt paving	AC_6"	83	TN	103.00	8,560
	Sidewalk	conc_4"	1,020	SF	6.25	6,375
	Curb & gutter	conc	255	LF	26.00	6,630
	Markings & Signage					5,275
	Pavement markings		510	LF	2.50	1,275
	Street signage		1	LS	4,000.00	4,000
	Landscaping					12,900
	Planter strip		1,020	SF	8.00	8,160
	Street trees		12	EA	395.00	4,740
	Utilities					25,500
	Street lighting	allowance	1	LS	19,125.00	19,125
	Utility adjustments	allowance	1	LS	6,375.00	6,375
					OLD PORTLAND ROAD HARDCOST	93,751
	KASTER ROAD					
	Survey, Erosion Control & Mobilization					13,320
	Surveying		1	LS	4,440.00	4,440
	Erosion control		1	LS	2,960.00	2,960
	Mobilization		1	LS	3,552.00	3,552
	Temp protection & dir of traffic		1	LS	2,368.00	2,368
	Demolition & Excavation					10,148
	Sawcut		296	LF	3.00	888
	Demo & clearing		5,032	SF	1.05	5,284
	Excavation		124	CY	32.00	3,976
	Embankments & Soil Stabilization					9,627
	Subgrade fabric		428	SY	1.20	513
	Aggregate base: AC Paving	cr rock_12"	178	TN	32.00	5,711
	Aggregate base: sidewalk & curb	cr rock_6"	56	TN	61.00	3,402
	Paving & Curbs					25,033

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT
ROW IMPROVEMENTS
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	Asphalt paving	AC_6"	96	TN	103.00	9,937
	Sidewalk	conc_4"	1,184	SF	6.25	7,400
	Curb & gutter	conc	296	LF	26.00	7,696
	Markings & Signage					5,480
	Pavement markings		592	LF	2.50	1,480
	Street signage		1	LS	4,000.00	4,000
	Landscaping					14,212
	Planter strip		1,184	SF	8.00	9,472
	Street trees		12	EA	395.00	4,740
	Utilities					29,600
	Street lighting	allowance	1	LS	22,200.00	22,200
	Utility adjustments	allowance	1	LS	7,400.00	7,400
					KASTER ROAD HARDCOST	107,419
	EXISTING ROW to SE					
	Survey, Erosion Control & Mobilization					23,175
	Surveying		1	LS	7,725.00	7,725
	Erosion control		1	LS	5,150.00	5,150
	Mobilization		1	LS	6,180.00	6,180
	Temp protection & dir of traffic		1	LS	4,120.00	4,120
	Demolition & Excavation					16,110
	Sawcut	- NONE -		LF	0.00	0
	Demo & clearing		8,755	SF	1.05	9,193
	Excavation		216	CY	32.00	6,918
	Embankments & Soil Stabilization					16,749
	Subgrade fabric		744	SY	1.20	893
	Aggregate base: AC Paving	cr rock_12"	311	TN	32.00	9,937
	Aggregate base: sidewalk & curb	cr rock_6"	97	TN	61.00	5,919
	Paving & Curbs					43,554
	Asphalt paving	AC_6"	168	TN	103.00	17,289
	Sidewalk	conc_4"	2,060	SF	6.25	12,875
	Curb & gutter	conc	515	LF	26.00	13,390
	Markings & Signage					6,575
	Pavement markings		1,030	LF	2.50	2,575
	Street signage		1	LS	4,000.00	4,000
	Landscaping					21,220
	Planter strip		2,060	SF	8.00	16,480
	Street trees		12	EA	395.00	4,740
	Utilities					51,500
	Street lighting	allowance	1	LS	38,625.00	38,625
	Utility adjustments	allowance	1	LS	12,875.00	12,875
					EXISTING ROW to SE HARDCOST	178,883
					HARDCOST TOTAL	380,052

The above HARDCOST TOTAL does not include typical general contractor markups.
Those plus contingencies are listed below as part of a Low-High Range.
Variables include fluctuations in market conditions, material selections, and design considerations.
The Cost Estimate Range will be consolidated as we move closer to the actual Bid Date.

CITY OF ST. HELENS
ST. HELENS POLICE DEPARTMENT
ROW IMPROVEMENTS
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
LOW RANGE						**HIGH RANGE**
		Markups:				
10.00%	38,005	Estimating Contingency			20.00%	76,010
7.00%	29,264	General Conditions			7.00%	31,924
0.40%	1,789	Insurance			0.40%	1,952
6.00%	26,947	Profit & Overhead			6.00%	29,396
1.20%	5,713	Performance Bond:			1.20%	6,232
4.00%	19,271	Escalation			8.00%	42,045
1.50%	7,516	Solar & Green Energy			1.50%	8,514
0.50%	2,543	OR Gross Receipts Tax			0.50%	2,881
	131,047	**Markup Subtotals:**				198,955
	511,099	**ROW BASE BID TOTAL**				**579,008**

Refer to the "Emails & Assumptions" and the "Outline Specifications" for more detailed information.

NOTES
Wage rates: BOLI
This estimate assumes competitive bidding by local contractors
Use of a CMGC or special selection process for bidders will increase the estimated cost
Assumes provided fill material is suitalbe for structural fill. Additional processing for moisture, etc would be additional cost.
Scope of ROW Improvements estimated as 8' street widening, curb & gutter, 4' landscape strip, and 4' sidewalk along length of frontages.

EXCLUSIONS
Design fees, permit fees, system development fees, utility hookup charges, testing, BOLI fee.
Commissioning
Hazardous materials abatement, moving expenses, anti-graffiti coating, fireproofing.
Overexcavation, rock excavation, wet weather sitework.

ABBREVIATIONS

EA= Each	SF=Square Feet	BCY=Bank Cubic Yard
LF= Linear Feet	LS=Lump Sum	TN=Ton
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PR=Pair	HT=Height	

MACKENZIE.

For more information please contact:

Jeff Rhys Humphreys
Director of Architecture
JHumphreys@mcknze.com

RiverEast Center | 1515 SE Water Ave., Suite 100 | Portland, OR 97214
503.224.9560 | mcknze.com
Portland, OR ■ Vancouver, WA ■ Seattle, WA