

Sudden Valley Community Association

360-734-6430 4 Clubhouse Circle Bellingham, WA 98229 www.suddenvalley.com

Board of Directors Regular Meeting

October 12th, 2023, 7:00 PM, IN-PERSON, DANCE BARN

Call to Order

Land Acknowledgement & Anti-Racism Statement

Roll Call

Item 1) Adoption of Agenda

- Item 2) Announcements
- Item 3) Property Owner Comments 15 Minutes Total

Please note that comments are limited to 3 minutes per person.

- Item 4) Closed Session –Legal
- Item 5) General Manager Report
- Item 6) New Business
 - 6a. Capital Request Maintenance Shop Remodel
 - 6b. Approval Request Auditor's Engagement Letter
 - 6c. Approval Request Appeals Process
 - 6d. Appointment of Appeals Committee

Adjournment



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CAPITAL REQUEST MEMO

То:	Sudden Valley Community Association Board of Directors
From:	Jo Anne Jensen, General Manager
Date:	October 12 th , 2023
Subject:	Capital Request – Maintenance Shop Remodel Change Order to Capital Code 9722.08

<u>Purpose</u>

To request additional funding for the Maintenance Shop Remodel, SVCA Capital Code 9722.08, per PNW's summary dated October 9, 2023.

Background

On October 27, 2022, this project was brought to the Board and approved to start design, permitting, and included funding based on an initial cost estimate of \$254,657. PNW's summary from the October 27, 2022 Board packet is included in PNW's backup dated October 9, 2023.

<u>Analysis</u>

The project proposed on October 27, 2022 was an interior remodel of the Maintenance Shop as it was believed a full remodel to the building wasn't feasible without bringing the entire building up to code. Through design and permitting it was discovered the building could receive a full remodel to include new siding, roof, full replacement of HVAC/electrical/plumbing, new windows/doors, and include the proposed interior remodel. This project will also bring the building up to ADA requirements. The expansion of the scope has increased the proposed project cost but will deliver what is essentially a new Maintenance Shop for about one-third the price of building a new shop. (On December 31, 2019, PNW provided a cost estimate to build a new Maintenance Shop prepared by Carletti Architects with a budget of \$1,564,059.00 that is provided for reference in PNW's summary dated October 9, 2023.)

<u>Proposal</u>

Provide funding for remodeling the Maintenance Shop per PNW's summary dated October 9, 2023. This includes:

- \$6,500.00 Additional cost of design and permitting
- <u>\$222,241.36</u> Additional project funds required for construction and oversight
- \$228,741.36 Total additional funds requested per PNW's summary

In addition, the Maintenance Department requests that a Generac propane generator be installed to power the Maintenance Shop when the power is out. Often when the power is out it is because of storms, and the Maintenance Department is onsite working. Having power in



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the shop increases their effectiveness and provides a safe working environment. The cost to have a 22KW propane Generac generator installed with an automatic transfer switch is typically \$13,000 to \$15,000 not including WSST. We are requesting \$15,000.00 be approved for SVCA to add a generator as part of the project remodel.

<u>Request 1</u>

Request \$228,741.36 from CRRRF for project change order funding to move the project forward with construction.

Request 2

Request that the Board of Directors authorize the General Manager to execute SVCA's standard construction contract with Cool Runnings with a not to exceed amount of \$388,788.

Request 3

Request \$15,000.00 plus WSST at 8.6% for a total of \$16,290.00 to purchase and install a Generac propane generator with an automatic transfer switch.

Motion 1

Move that the SVCA Board of Directors approve the allocation of \$228,741.36 from CRRRF to SVCA Capital Code 9722.08.

Motion 2

Move that the SVCA Board of Directors authorize the General Manager to execute SVCA's standard construction contract with Cool Runnings with a not to exceed amount of \$388,788.

Motion 3

Move that the SVCA Board of Directors approve the allocation of \$16,290.00 from CRRRF to purchase and install a Generac generator for the Maintenance Shop.

Board of Directors Approval 1 Approved: ______ Not Approved: _____SVCA Board of Directors

Board of Directors Approval 3

Approved: _____ Not Approved: _____SVCA Board of Directors



October 9, 2023

Sudden Valley Community Association Attn: Jo Anne Jensen 4 Clubhouse Circle Bellingham, WA 98229

RE: Project Scope Letter Maintenance Shop Remodel – Construction Estimate SVCA Capital Code: 9722.08

PNW is providing this overall project scope letter to SVCA for the proposed Maintenance Shop Remodel, SVCA Capital Code 9722.08. The permit will be issued upon contract award, and Whatcom County being notified of who the contractor is to list on the permit. Summary of the project:

- Design, Permitting, & Contractor Bids
 - Design and permitting was updated to include full replacement of the HVAC, plumbing, electrical, metal siding, and metal roof. The original project scope assumed these components wouldn't be allowed by Whatcom County without triggering a larger project requiring the full building to be brought up to current code. Sarah Brown completed the initial design for a basic interior remodel, and submitted to Whatcom County along with asking about scope additions. Whatcom County agreed these additional scopes could be added without having to seismically retrofit the building and add fire suppression. This allowance added design and permitting fees that are identified below. With this the Maintenance Shop will essentially be a new building without the cost of a new building.
 - The project was issued for bid on 9-2-23 to 6 contractors recommended by Sarah Brown requesting quotes.
 - Cool Runnings Construction Quote received.
 - Wellman & Zuck Quote received.
 - Ethos West Construction No quote.
 - The Franklin Corporation No quote.
 - Tiger / Pearson Construction No quote.
 - Axthelm Construction No quote.

Bids were originally due on 9-22-23, and a 2-week extension was issued at the request of contractors for additional time to quote with bids due 10-6-23.

- Construction
 - Construction is proposed to start in November of 2023 assuming Board approval for contract award. Once approved, SVCA's maintenance department will begin vacating the existing shop into a temporary office trailer and storage containers that were budgeted in the 10-24-22 budget. Construction will take approximately 5 months to complete.

РΟ	Вох	30498	•	Bellingham,	WΑ	98228	•	р:	4 2 5 - 9 5 4 - 9 6 1 4
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- The scope of work to complete is shown in the attached bid drawings dated 8-15-23. The expanded scope of work includes:
 - New metal siding and metal roof.
 - New HVAC system, plumbing, and electrical.
 - New windows and doors.
 - Demolition of existing office/bathroom interior, and remodel of this space with all new finishes including wall coverings, cabinets, painting, flooring, etc. The shop portion of the maintenance shop will remain as is where tools are stored and equipment is worked on. This space will be retrofitted to accommodate HVAC and electrical replacements.
 - The interior remodel will meet ADA requirements.
- As part of the Area Z Tall Barn remodel, it was discovered the electrical service for the Maintenance Shop is connected to the Tall Barn. Currently a single 200amp service, ran overhead from across the creek, feeds the Tall Barn. This service then has 90-amps that feeds the Maintenance Shop. A 90-amp service is too small to feed the maintenance shop as experienced by the Maintenance Department with not understanding why breakers occasionally blew. In addition, with this line being overhead it is subject to tree and branch damage each storm. This capital request includes a funding allowance to replace the existing electrical service. Final costs are still being developed with PSE, and the below estimates are preliminary. This included scope of work assumes:
 - The existing transformer in Area Z located between the Maintenance Shop and Tall Barn will be utilized to provide the new service. PSE has confirmed this has the capacity and can have a service from it.
 - The new service will be installed underground in conduit from the transformer to the Maintenance Shop. The new service will be a 400-amp service with 310 amps dedicated to the Maintenance Shop. This will provide adequate capacity then for the Maintenance Shop to function without blowing breakers. The remaining 90-amps will be dedicated to the Tall Barn. This will be installed underground in conduit sharing the trench with the new service to the Maintenance Shop.
 - The old overhead service will be removed.
- On 12-31-19 PNW submitted a cost estimate to SVCA prepared by Carletti Architects to construct a new maintenance shop, see attached. This preliminary estimate was valued at \$1,564,059.00. While the proposed remodel is not a new maintenance shop, it is completing remodeling the existing maintenance shop to be like a new building leaving the existing foundation and framing in place. All other components are pretty much being replaced. The proposed remodel total cost of \$483,398.54 is roughly 1/3 of the cost to replace the existing shop (Original 10-24-23 value at \$254,657.18 plus 10-9-23 request at \$228,741.36).



Summary of anticipated costs:

Additional HVAC Scope – Design & Permitting	
- Berona Engineers Inc. – Design & Permitting for Existing HVAC	\$3,000.00
Replacement and Plumbing	
- Sarah Brown Architecture & Design – Scope expansion to	\$3,500.00
incorporate HVAC, plumbing, metal siding, and roof replacements.	
Total Additional Design & Permitting	\$6,500.00
Construction Oversight	
- Sarah Brown Architecture & Design – Allows 20 hours during	\$3,700.00
construction if questions arise by contractor.	
- PNW Services Inc. – In Original Request.	\$0.00
Total – Construction Oversight Addition	\$3,700.00
Construction Estimate	
- Cool Runnings Construction – Quote Dated 10-5-23	\$388,788.00
- 10-24-22 Budget – Preliminary Construction Estimate (\$159,120.00	<\$172,804.32>
+ \$13,684.32)	
- 10-24-22 Budget – Contingency	<\$42,442.32>
- New Electrical Service – PSE Allowance	\$15,000.00
- New Electrical Service – SVCA Maintenance Department –	\$10,000.00
Trenching & Backfill Allowance	
- New Electrical Service – New Panels & Wiring Allowance	\$20,000.00
Subtotal Construction Estimate	\$218,541.36
Total Additional Oversight & Construction	\$222,241.36
Total Combined Funding Request	\$228,741.36

Please let me know if you have any questions, or if you would like any further information.

Sincerely,

Tyler Andrews President

October 6, 2023 - Bid Tabulation

Project:	Maintenance Shop Remodel		Cool R	unnings	Wellman & Zuck		
				Constr	Construction		tors, LLC
Item #	Description	Quantity	Unit	Unit Price	Total	Unit Price	Total
1	Mobilization	1	LS	\$ 2,000.00	\$ 2,000.00	\$ 86,013.10	\$ 86,013.10
2	Metal Roof	1	LS	\$ 26,400.00	\$ 26,400.00	\$ 58,995.00	\$ 58,995.00
3	Metal Siding	1	LS	\$ 29,100.00	\$ 29,100.00	\$ 65,032.50	\$ 65,032.50
4	HVAC	1	LS	\$ 67,500.00	\$ 67,500.00	\$ 51,750.00	\$ 51,750.00
5	Electrical	1	LS	\$ 13,000.00	\$ 13,000.00	\$ 18,193.00	\$ 18,193.00
6	Plumbing	1	LS	\$ 48,000.00	\$ 48,000.00	\$ 23,000.00	\$ 23,000.00
7	All Other Work	1	LS	\$162,000.00	\$162,000.00	\$253,660.10	\$253,660.10
8	Minor Changes	1	EST.	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
	Schedule A Subtotal				\$358,000.00		\$566,643.70
	WSST @ 8.6%				\$ 30,788.00		\$ 48,731.36
	Schedule A Total w/ WSST				\$388,788.00		\$615,375.06



September 25, 2023 – Addendum #2 Bid Form

Attn: Bidders

RE: Sudden Valley Community Association (SVCA) Bid Form – Maintenance Shop Remodel

Bid submissions are due by 1:00pm on Friday, 10-6-23. Email bid submissions to tylera@pnwcivil.com.

Firm Name: Cool Runnings Construction

Bid Sc	Bid Schedule – Maintenance Shop Remodel						
Item	Description	Quantity	Unit	Unit Price	Total		
#							
1.	Mobilization	1	LS	\$ 2,000	\$ 2,000		
2.	Metal Roof	1	LS	\$ 26,400	\$ 26,400		
3.	Metal Siding	1	LS	\$ 29,100	\$ 29,100		
4.	HVAC	1	LS	\$ 67,500	\$ 67,500		
5.	Electrical	1	LS	\$ 13,000	\$ 13,000		
6.	Plumbing	1	LS	\$ 48,000	\$ 48,000		
7.	All Other Work	1	LS	\$ 162,000	\$ 162,000		
8.	Minor Changes	1	EST.	\$10,000.00	\$10,000.00		
	Subtotal			\$358,000	\$ 358,000		
	WSST @ 8.6%			\$30,788	\$ 30,788		
	Total w/ WSST			\$388,788	\$ 388,788		

Acknowledgement of addendums: David Campbell, Owner

mphill By:

Date:____10/06/2023

Signature of Authorized Person

Print Name & Title: David Campbell, Owner

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September 25, 2023 - Addendum #2 Bid Form

Attn: Bidders

RE: Sudden Valley Community Association (SVCA) Bid Form – Maintenance Shop Remodel

Bid submissions are due by 1:00pm on Friday, 10-6-23. Email bid submissions to tylera@pnwcivil.com.

Firm Name: ____Wellman & Zuck Constructors, LLC

Bid Sc	Bid Schedule – Maintenance Shop Remodel						
Item	Description	Quantity	Unit	Unit Price	Total		
#							
1.	Mobilization	1	LS	\$	\$ 86.013.10		
2.	Metal Roof	1	LS	\$	\$ 58,995.00		
3.	Metal Siding	1	LS	\$	\$ 65,032.50		
4.	HVAC	1	LS	\$	\$ 51,750.00		
5.	Electrical	1	LS	\$	\$ 18,193.00		
6.	Plumbing	1	LS	\$	\$ 23,000.00		
7.	All Other Work	1	LS	\$	\$ 253,660.10		
8.	Minor Changes	1	EST.	\$10,000.00	\$10,000.00		
	Subtotal				\$ 566, 643.70		
	WSST @ 8.6%				\$ 48,731.36		
	Total w/ WSST				\$ 615,375.06		

2 Acknowledgement of addendums: By:_

Date: 10/06/2023

.

Signature of Authorized Person

Print Name & Title: Chris Abbey, Partner

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September 2, 2023

Attn: Bidders

RE: Sudden Valley Community Association (SVCA) Quote Request – Maintenance Shop Remodel

SVCA is requesting quotes for the Maintenance Shop Remodel project. The existing maintenance shop is a pole building that will be remodeled per the design drawings by Sarah Brown Architecture + Design dated 8-15-23. Bid proposals are due by 10:00am on Friday, 9-22-23. To review the interior, contractors need to schedule a time Monday thru Friday, 8:00am to 3:00pm. Please contact Mike Brock at <u>mike.brock@suddenvalley.com</u> to schedule any visits.

Summary of Work:

- 1. The project will go in front of the SVCA Board on Thursday, 9-28-23, for contract award. NTP is anticipated 10-16-23.
- 2. All work is assumed to be completed under 1 mobilization.
- 3. All work shall be completed by 3-15-24.
- 4. Contractor shall provide a schedule and submittals to SVCA within 14 days of NTP.
- 5. SVCA work hours are 8:00am 7:00pm Monday through Friday, and 8:00am 6:00pm Saturday.
- 6. SVCA will work with the contractor to provide adequate staging around the maintenance shop. Contractor shall utilize existing gravel surfaces for staging, and any soil disturbance shall be restored.
- 7. SVCA's maintenance department will empty the shop of all items prior to contractor starting. This includes tools, equipment, and furniture. All items noted for removal on the drawings are contractor's responsibility.
- 8. SVCA's maintenance department will continue operations out of Area Z, and contractor shall not interfere with this operation. SVCA will bring in a temporary office trailer and metal storage containers to operate out of. These will be located next to the Tall Barn which is the (E) Shed per A1.01 located on the east side of the driveway as you enter Area Z.
- 9. Contractor shall hire a professional cleaner to clean the maintenance shop upon completion prior to turnover to SVCA.
- 10. All permits will be by SVCA except electrical. Contractor will be responsible for coordinating necessary inspections, and getting the electrical permits. SVCA received a building permit from Whatcom County on 6-16-23. An amendment was submitted to Whatcom County to include HVAC/Plumbing, and the updated permit will be provided to contractor upon receipt. SVCA anticipates the updated permit to be issued in September.
- 11. Force account work to receive 15% markup.
- 12. Contractor shall provide Performance and Payment Bonds. Bid bonds are not required.
- 13. This is a private project, and prevailing wages are not applicable.
- 14. Contractor shall warranty work for 1 year from final completion.

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Scope of Work Clarifications:

- Bid Item #4 HVAC
 - Vents shown on Grid 1 on Drawing M2.0 shall be extended to the exterior wall of the Existing Shed 2 as shown on Drawing A2.01.
- Bid Item #5 Electrical
 - SVCA is installing a new electrical service to the maintenance shop that is intended to be completed by 10-16-23. This will include:
 - A new 400 amp panel will be installed where the existing panel is located.
 - From this panel a 90-amp service is for the Tall Barn. Contractor shall maintain power to the Tall Barn during construction as SVCA will be utilizing this service for their temporary office / staging setup.
 - All other electrical is the responsibility of the contractor. The new panel will be installed with only the 90-amp service connected. The maintenance shop will not have anything else connected to the new panel prior to contractor starting.
 - The air compressor and welder shown on A2.01 shall have a 50amp circuit to each location.
- Bid Item #6 All Other Work
 - Door 105D shall include an electric operator.
 - Hose bib faucet at Grid A9 shown on P2.1 shall include hot and cold water.
 - SVCA will supply the refrigerator and microwave for installation by contractor.

Attachments:

- 1. Bid Form 1 Page
- 2. Drawings Sarah Brown Architecture + Design 24 Pages
- 3. Whatcom County Building Permit Dated 6-16-23 11 Pages
- 4. SVCA Standard Contract 12 Pages

Questions are due by 5:00pm on 9-13-23 and shall be directed to Tyler Andrews at <u>tylera@pnwcivil.com</u>. Contractors are encouraged to independently visit the site; no formal prebid is scheduled. Bids are due by 10:00am on Friday, 9-22-23. Email bid submissions to <u>tylera@pnwcivil.com</u>.



September 2, 2023

Attn: Bidders

Sudden Valley Community Association (SVCA) RE: **Bid Form – Maintenance Shop Remodel**

Bid submissions are due by 10:00am on Friday, 9-22-23. Email bid submissions to tylera@pnwcivil.com.

Firm Name:_____

Bid Sch	Bid Schedule – Maintenance Shop Remodel					
Item #	Description	Quantity	Unit	Unit Price	Total	
1.	Mobilization	1	LS	\$	\$	
2.	Metal Roof	1	LS	\$	\$	
3.	Metal Siding	1	LS	\$	\$	
4.	HVAC	1	LS	\$	\$	
5.	Electrical	1	LS	\$	\$	
6.	All Other Work	1	LS	\$	\$	
7.	Minor Changes	1	EST.	\$10,000.00	\$10,000.00	
	Subtotal				\$	
	WSST @ 8.6%				\$	
	Total w/ WSST				\$	

By:___

Signature of Authorized Person

Date:

Print Name & Title:

PROJECT LOCATION



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OJECT DATA:	E ADDRESS:
PRO.	SITE

-	(1)	
		RIPTION:
	- NO.:	DESCI
	ARCEI	EGAL I

2800 LAKE LOUISE RD. BELLINGHAM, WA
3704073823790000
THAT PTN OF TRACT 3 SUDDEN VALLEY SHORT PLAT NO 38 AS REC BOOK 2 SHORT PLATS PG 34 DAF-THAT PTN OF SW NE LY NLY-ELY OF LAKE LOUISE RD-THAT PTN BEG AT SE COR OF SW NE-TH N 89 DEG 57'08" W ALG S LI OF SD SUBDIV 50.93 FT M/L TO INTERS WI SWI Y MARGIN OF I AKF

PROPERTY CHARACTERISTICS

FSW LWWS

PROJECT DESCRIPTION:

THIS IS A TENNANT IMPROVEMENT PROJECT. AN EXISTING POLE BARN, CURRENTLY HOUSING THE SUDDEN VALLEY MAINENANCE DEPARTMENT, IS TO HAVE WORK DONE TO THE INTERIOR SPACE AND INCLUDE NEW FINISHES THROUGHOUT WITH NEW WINDOWS AND DOORS.

BUILDING AREAS:

1981 SQFT	935 SQFT OR 47% TI	
GROUND FLOOR:	TI AREA:	

PROVIDE & LOCATE FIRE ALARM NOTIFICAITON APPLICANCE(S) STATION(S) AND SENSOR(S) AS REQ'D BY FIRE DEPARTMENT

PARKING PROVIDED: 6 STALLS (EXISTING)

NONE, NO WORK

FIRE SPINKLERS:

FIRE ALARM:

DEFERRED SUBMITTAL

PLUMBING DESIGN HVAC ENGINEERING & ENERGY FORM ELECTRICAL ENGINEERING & ENERGY FORM

DRAWING INDEX:

SITE PLAN EXISTING & DEMO PLAN FLOOR PLANS PROJECT INFORMATION <u>ARCHITECTURAL</u> G0.01 A1.00 A2.00 A2.01

A2.02	ENLARGED PLANS & INT. ELEVATIONS
A2.03	ROOF PLAN
A3.01	ELEVATIONS
A4.01	BUILDING SECTIONS
A7.01	
A7.02	WINDOW FLASHING DETAILS
MECHANCIAL	
M0.0	LEGENDS AND NOTES
M0.1	SPECIFICATIONS
M0.2	SPECIFICATIONS
M0.3	SPECIFICATIONS
M0.4	
M2.0 M3.0	HVAC FLOOR FLAN HVAC DETAILS
PLUMBING	
P0.0 P0.1	PLUMBING LEDENDS AND NOTES PLUMBING SCHEDULES
P2.0	PLUMBING FOUNDATION
P2.1	PLUMBING FLOOR PLAN
P3.0	PLUMBING RISER DIAGRAMS
P4.0	PLUMBING DETAILS

INFORMATION

PROJECT

+ DESIGN Savel ARCHITECTURE +

LINGHAM, WA 98226 C) 360.920.5498 BARCHDESIGN.COM E) SARAI



\vdash MAINT. SHED AREA 'Z

202203.14 08.15.2023 SUDDEN VALLEY ASSOCIATION 4 CLUBHOUSE ROAD BELLINGHAM, WA SB JOB NO: DATE:

DATE 08.15.2023 SET SUED FOI BID ŝ

G0.01

8/14/2023 1:14:27 PM



PROJECT NOTES

FLOOR PLAN NOTES:

PROVIDE BARRIER FREE SIGNAGE AT RESTROOMS
 CONFIRM ALL ROUGH OPENINGS FOR DOORS AND WINDOWS PRIOR TO FRAMING AND ORDERING.
 CONFIRM ALL FINISHES W. OWNER AND ARCHITECT PRIOR TO ORDERING

DEMOLITION NOTES:

LEGALLY REMOVE DEMOLITION DEBRIS FROM SITE.
 PROTECT ALL STRUCTURAL MEMBERS AND COLUMNS.
 DEMOLITION DEBRIS SHALL NOT BE ALLOWED TO DAMAGE OR OVERLOAD THE EXISTING STRUCTURE.

ELECTRICAL:

INSTALL NEW POWER OUTLETS AS SHOWN
 INSTALL NEW DATA DROPS AS SHOWN.
 TRIM TO MATCH EXISTING.

PLUMBING NOTES:

1. RELOCATE AND INSTALL NEW PLUMBING AS SHOWN

HVAC NOTES:

1. RELOCATE EXISTING HVAC DUCTING AND REGISTERS AS REQ'D



VICINITY MAP NTS

OWNER:

SUDDEN VALLEY COMMUNITY ASSOCIATION 4 CLUBHOUSE CIRCLE BELLINGHAM, WA 98229 ARCHITECT SARAH BROWN ARCHITECTURE + DESIGN CONTACT: SARAH BROWN 3222 EAGLERIDGE WAY BELLINGHAM, WA 98226 C) 360.920.5498 DESIGN TEAM:

WSEC - AL

WSEC - ALTERATION	COMPLIANCE
ROOF:	EXISTING INSULATION
WALLS:	NEW WALL CAVITIES R-21
FLOOR:	SLAB ON GRADE EXISTING
WINDOWS:	VINYL WINDOWS U=30 ; SHGC = .38
DOORS:	R-10 FOR OVERHEAD DOORS U.37 FOR OPAQUE MAN DOORS
NEW LIGHTING:	SHALL COMPLY WITH THE WSEC
NEW HVAC:	SHALL COMPLY WITH THE WSEC
NEW VENTILATION:	SHALL COMPLY WITH THE IMC







DEMO PLAN

~	DATE				
BID SET 08.15.2023	ISSUED FOR				
	No.				

202203.14 08.15.2023 SB JOB NO: DATE:

SUDDEN VALLEY ASSOCIATION 4 CLUBHOUSE ROAD BELLINGHAM, WA

MAINT. SHED TI



DEMO WALL NEW WALL $\overline{\Box}$

EXISTING WALL

WALL KEY

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REMOVE WALL & SIDING FOR NEW DOOR REMOVE EXISTING O.H.DOOR & TRACK. ّ ک Ш

EXISTING SHOP - REMOVE & REPLACE DOOR WITH NEW DOOR & FRAME E/5/2/5/5/3/2/5/3

IDGE WAY, BELLINGHAM, WA 98226 C) 360.920.5498 E) SARAH@SBARCHDESIGN.COM Savel Brown Architecture + DEsign 3222 EAGLEF





 $(1) \frac{\text{GROUND FLOOR DEMO PLAN}}{1/4" = 1'-0"}$



8/14/2023 1:13:49 PM

			AREA 2	Z DOOR SCHEI	DULE			
MARK	WIDTH	HEIGHT	ROOM TYPE	DOOR TYPE	FRAME TYPE	CONSTRUCTION	GLASS	HARDW/
100A	3'-0"	7'-0"	ENTRY HALL	в	HM1	METAL INSULATED	ΤI	LEVER/ KE
100B	3'-0"	7'-0"	LINEN CLOSET	В	HM1	HOLLOW METAL	IT	LEVER/ KE
101A	3'-0"	7'-0"	TOILET ROOM	A	HM1	METAL INSULATED	4	LEVER/AD
101B	2'-4"	7'-0"	TOILET ROOM	A	HM1	HOLLOW METAL	4	LEVER
102A	3'-0"	7'-0"	LOCKER ROOM	В	HM1	HOLLOW METAL	ΤI	LEVER
102B	2'-10"	7'-0"	LOCKER ROOM	В	HM1	HOLLOW METAL	ΤI	LEVER/AD
103	3'-0"	7'-0"	OFFICE	в	HM2	HOLLOW METAL	TI	LEVER/ KE
104	3'-0"	7'-0"	OFFICE	в	HM2	HOLLOW METAL	ΤI	LEVER/ KE
105A	3'-0"	7'-0"	GARAGE	A	HM1	METAL INSULATED	ΤI	LEVER/ KE
105B	3'-0"	7'-0"	GARAGE	A	HM1	METAL INSULATED	IT	LEVER/ KE
105C	3'-0"	7'-0"	GARAGE	A	HM1	METAL INSULATED	ΤI	LEVER/ KE
105D	12'-0"	8'-0"	GARAGE	J	MFR	METAL INSULATED	a	PER MFR.
106A	3'-0"	2،-0"	(E) SHED 2	A	HM1	HOLLOW METAL	т	LEVER/ KE
106B	3'-0"	7'-0"	(E) SHED 2	A	HM1	HOLLOW METAL	н	LEVER/ KE





		-		_		
	DATE					
08.15.2023	ISSUED FOR					
	No.					

202203.14 08.15.2023 Ш С BID

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THEOR

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2:3"



CONTROLS ON SIDE WALL OF SEAT

LL-IN-TYPE SHOWER

















34" MAX.



SARAH STATE OF



IGE WAY, E) SARA

8/14/2023 1:13:55 PM

PLANS & INT **ELEVATIONS**

DOOR CLEARANCES

1











2' - 0"

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(3) WOOD FRAMED PARTITION WALL 3/4" = 1'-0"

Ž

5/8"

"0 - '9

CEILING SUSPENSION NOTES:

Care Architecture + DEsign

RUNNER

Sarah Brown Architecture + Design | Kennedy Interior Design Sudden Valley Maint Shed TI | 4 Clubhouse Road, Bellingham 98229

ROOM FINISH SCHEDULE RM# Room Use 100 MEETING ROOM

For Bid Purposes Only 8/10/2023

101 102A 102B 103

 Vertical/Cabinetry Face Laminate and Windwo Sills

 Meeting Room Kitchenette 100

 PLAM-2

 Wilsonart

 FINISH:

 Pewter Mesh 4878-38

 SIZE:

 Fine Velvet

 Matching self edge/edge banding

 See drawings A2.02

ITEM: LOCATION: CODE: MANUFACTURER: PRODUCT;

Remarks Susp. Acoust. Tile Rubber Base North Wall East Wall South Wall West Wall SAT RB Gypsum Board / Paint Lux. Vinyl Plank Sheet Vinyl GB-P LVP SV CLG SAT SAT SAT SAT GB/ Cabinetry Carpet
 Floor
 Wall Base

 LVP-1
 RB-1
 CAB CPT

END OF FINISH SCHEDULE

For Bid Purposes Only 8/1/2023

202203.14

06.29.2022

SB JOB NO: DATE:

PERMIT

SET

DATE

ISSUED FOR

°. N

SPECIFICATIONS

FINISH

8/14/2023 1:14:23 PM

A5.01

For Bid Purposes Only 8/10/2023

Sarah Brown Architecture + Design | Kennedy Interior Design Sudden Valley Maint Shed TI | 4 Clubhouse Road, Bellingham 98229 CABINETRY and WINDOW SILLS

m 1028, Toilet Room 101 lations sister Sister Solution is Sheet I flooring is Sheet I flooring is Sheet is Shee

Northbrook Lever & Upland Trim, i Satin Chromë Half Pome door Stob

Interior Door Hardware All Interior Doors Schlage Schlage SERIES FINISH: Northbrook Le FINISH: Satin Chrome DOK 570PS: Half Dome doo Builda com – Hardware Builda com – Hardware Owner to confirm which interior doors are

URER

ITEM: LOCATION: MANUFACT PRODUCT:

OOR HARDWARE

R

Coved Rubber Base Rubber, matte 4.ª

TYPE: FINISH: SIZE: Per Manu

INSTALLATION: NOTES:

LOCATION: CODE: MANUFACTURER: PRODUCT:

ting Rm 100, Locker Rm 102A,She RB-1

Rubber Base

ITEM:

TRIM

INSTALLATION: NOTES:

Door Accessories Collection Oil Rubbed Bronze Half Dome door Stop or Equal

Emtek SERIES: FINISH: POOR STOPS: Emtek – Door S

LINK: NOTES:

Door Stops

LINK: NOTES:

ITEM: CODE: MANUFACTURER: PRODUCT:

 & 167-42" as specified

 iont Mount

 iont

 iont

Architectural Shallow Plenum Recessed LED Troffer TYPE 8 24-OVHP-LED-TWH-5OK-27K-5000L-DIMIO-MVOLT-90 White 2000 Julyio

Recessed LED Troffet Throughout Oracle Lighting MODEL:

ITEM: LOCATION; MANUFACTURER; PRODUCT;

FINISH/KELVIN: SIZE:

INSTALLATION:

Wall Plate Decora Thim Toggle Switches White As Needed

FINISH: SIZE:

ostats

Electrical Trir Throughout Decora or eq MODEL:

ITEM: LOCATION: MANUFACTURER: PRODUCT;

Halo Commercial HC610D010/ HM612827 / 61MDC/ 61 RWWIC TYPE R White, 3000 kelvin 6*

Recessed LED Can Lights Throughout MOPEL:

ITEM: LOCATION: PRODUCT:

FINISH/KELVIN: SIZE:

INSTALLATION:

ACCESSORIES

 Grieb Bars

 Teulet Room 101

 ASI - American Specialities, Inc

 ASI - American Specialities, Inc

 MODEL:

 MODEL:

 ISS

 NAME:

 Security Grab Bar- Front Mount

 FINISH:

 Statinless steel

 SIZE:

 ASI - 16* Clock Bar

ITEM: LOCATION: MANUFACTURER: PRODUCT:

2

LINK

ELECTRICAL

Sarah Brown Architecture + Design | Kennedy Interior Design Sudden Valley Maint Shed TI | 4 Clubhouse Road

FLOORING	and a second		
in the second se	ITEM:	Vinyl Flooring	
	CODE:	All rooms except Locker	אסטוו וראלא, אושאכר אסטוו ו
ļ	MANUFACTURER:	K-Trade	
	PRODUCT;	SERIES:	Rigid Core
		FINISH/COLOR:	Vivara - LLP151
		DETAILS	20 ml
	INSTALLATION:	Full spread adhesive, as p	er manufacture reccomendatio
	LINK:	XXL Flooring - Floor	
	ITFM.	Sheet Vinvi	
	LOCATION:	Locker Room 102A, Sho	wer Room 1028, Toilet Room
	CODE:	SV-1	
	MANUFACTURER:	Mannington	
	PRODUCT:	SERIES:	Biospec Choices
		FINISH/COLOR:	Hojicha 15417 or Ecru 1536.
		SIZE:	6'-6" wide Hamogeneous S
	INICE AND A TOWN	DEIAILS:	Welded seam sheet viny! flo
	LINK:	Mannington - Vinyl She	Imendations
	ITEM:	Entry Carpet Tile	
	CODE.		
	MANIL/FACTURER.	717	
1	PRODUCT:	SERIES:	All Access - Path Tile
		FINISH	5T034
		SIZE	24×24
		COLOR	Ebony 34500
	INSTALLATION:	Per Manufacturers recom	imendations
	PATTERN:	Inset at front hall way - 9	straight/Monolithic. Butts up
ALC: NOT THE REAL PROPERTY OF A	LINK:	Shaw Contract - Entry C	arpet
DAINT			
I SINCE	ITEM:	Wall Paint	
	LOCATION:	Walls Throughout	
	CODE:	P-1	
	PRODUCT:	PRODUCT:	Sherwin Williams ProMar 20
		COLOR	Wordly Gray #SW-7043
	ALOTIC .	FINISH/SHEEN:	Low Sheen Eggshell (one sh
	INCIES:	Can be mixed in ben aim	on moore or clovergale equil
	ITEM:	Trim Paint	
	LOCATION:	Doors and Trim	
	CODE:	P-2	6 11 G 100
	PROPUCIE	PRODUCT For MFTAL.	Shewin Williams Promar 20 Shewin Williams Classic 99
		COLOR	match Rubber Base color
		FINISH/SHEEN1	Satita
	NOTES:	Can be mixed in Benjaim	on Moore or Cloverdale equiv
COUNTERTOP	the second s		
	ITEM:	Countertop & Backsplas	
	LOCATION:	Meeting Room Kitchene	tte 100
	COVE: MANI JEACTI JEEP.	PLAM-1	
	PRODUCT	VIISUIGIU	Premium Laminate
		SERIES;	AEON Strach Resistance
		COLOR	Polished Concrete
		FINISH:	Antique Finish
		CODE:	5022K=22 Matchias collectorization ho
	INSTALLATION:	CLUCE:	אומנכחוחק אבור בקאבי בקאר אי
	AT THE PARTY AND A		

For Bid Purposes C 8/10/2

ngham 98229

Sarah Brown Architecture * Design | Kennedy Interior Design Sudden Valley Maint Shed TI | 4 Clubhouse Road, Bellir

For Bid Pui

Modern Collection Modern Shower Single Function Shower Head Stainless

Shower Shower Room 102B Delta MODEL: NAME: FINISH:

ITEM: LOCATION: MANUFACTURER; PRODUCT; INNK:

A

1

Modern Collection Delta Modern Single Hole Bathro Stainless

 Faucet

 Locker Room 102A, Toilet Room 101

 Delta

 MOPEL:

 MOPEL:

 NAME:

 Pelta Modern Coll

 NAME:

 FINISH:

 Build.com - Bathnoom Faucet

I'URER:

ITEM: LOCATION: MANUFACT PRODUCT:

m - Bathroom F

LINK: NOTES

Cabinetry Handware Meeting Room Kitchenette 100 FINISH: Satin Ch SiZE: 59 Amazon - Cabinet Handles

IITEM: LOCATION: PRODUCT: LINK: NOTES

MILLWORK HARDWA

Simplice Collection Single Hole Pull Down Kitchen Faucet - No Escutchec Vibrant Stainless

Kitchen Faucet

LINK: NOTES:

Kitchen Fau Meeting Ro Kohler MODEL: NAME: FINISH: Kohler - K

ITEM: LOCATION: MANUFACTURER: PRODUCT:

-

1

Triana Collection Triana 50" Undermount Single Basin 16 Gaugge Stainless Steel 28"L × 18"W× 10"P

Kitchen Sink Meeting Room Ruvati MODEL: NAME: FINISH: SIZE: Bulld.com - Ki

URER

ITEM: LOCATION: MANUFACI PRODUCT:

Ø

1 Kitchenette 100

Invite Series H–Classic SS Instant Hot Water Dispenser Stainless Steel

inser enette 100

Insta Hot Wat Meeting Room InSinkerator MODEL: NAME: FINISH:

ITEM: LOCATION: MANUFACTURER: PRODUCT;

- Off

NOTES:

LINK: NOTES:

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Interview MANUFACTVRER, MANUFACTVRE				
MOTION MANUFACTORER	and the second se	ITEM:	Tollet Paper Dispenser Tollat Donin 404	
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MAME: INAME: IDAME: IDAME: <thidame:< th=""> <thidame:< th=""> <thidame:< th=""></thidame:<></thidame:<></thidame:<>	-	PRODUCT:	MODEL:	39
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Image: Number of the state		PRODUCT:	ASI - American specialtic MODEL:	v. Inc. 0600-C2436
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5 SCALE: NTS

INSTALL LAP SIDING PER MFRS RECOMMENDED PROCEDURES

NOTES STATE (WSEC) WASHINGTON CODE ENERGY 2018

- HVAC EQUIPMENT SHALL HAVE MINIMUM PERFORMANCE AT SPECIFIED RATING CONDITIONS NOT LESS THAN THE VALUES INDICATED IN TABLE C403.3.2(1) THRU C403.3.2(12) OF THE WSEC AND AS INDICATED ON THE CONTRACT DOCUMENTS
 - PROVIDE DEADBAND BETWEEN HEATING/COOLING SPACE SENSOR SETPOINTS OF 5 DEGREES AS REQUIRED BY SECTION C403.4.1.2 OF THE WSEC OR AS DESCRIBED IN THE TEMPERATURE CONTROL SEQUENCES, IF PROVIDED. ц.
- HVAC SYSTEMS SHALL BE EQUIPPED WITH AUTOMATIC CONTROLS CAPABLE OF ACCOMPLISHING SETBACK OR SHUTDOWN DURING UNOCCUPIED PERIODS AS REQUIRED BY SECTION C403.4.2 OF THE WSEC AND AS DESCRIBED IN THE TEMPER CONTROL SEQUENCES, IF PROVIDED. ы.
- PROVIDE BALANCING DEVICES IN ALL BRANCH DUCTS AND PIPE RUNS TO TERMINAL DEVICES AS REQUIRED BY SECTION C408.2.2 AND C408.2.2.1 OF THE WSEC AND AS INDICATED ON THE CONTRACT DOCUMENTS. 4.
 - ALL DUCTWORK SHALL COMPLY WITH SMACNA STANDARDS FOR CONSTRUCTION OF GALVANIZED DUCTWORK. ALL DUCTWOR SHALL BE SEALED AS REQUIRED BY SECTION C403.10.1 "DUCT AND PLENUM INSULATION AND SEALING" OF THE WSEC. DUCT TAPE NOT ALLOWED. 5.
- ALL DUCTWORK SHALL BE INSULATED AS REQUIRED BY SECTION C403.10.1 "DUCT AND PLENUM INSULATION AND SEALING" OF THE WSEC. <u>ن</u>
- ALL PIPING SHALL BE INSULATED AS REQUIRED BY SECTION C403.10.3 OF THE WSEC.
- HEATING AND COOLING EQUIPMENT FANS, CIRCULATION PUMPS AND TERMINAL UNIT FANS SHALL BE SHUT OFF DURING UNOCCUPIED PERIODS AS REQUIRED BY SECTION C403.3.5.2 OF THE WSEC AND AS DESCRIBED IN THE TEMPERATURE CONTROL SEQUENCES, IF PROVIDED. യ്
 - SUPPLY AIR AND WATER TEMPERATURES SHALL BE AUTOMATICALLY RESET AS REQUIRED IN SECTION C403.4.4 AND C403.6.4 OF THE WSEC OR AS DESCRIBED IN THE TEMPERATURE CONTROL SEQUENCES, IF PROVIDED. റ്
- ALL AIR SYSTEMS SHALL BE PROVIDED WITH A 100% CAPABLE AIR ECONOMIZER CAPABILITY AS REQUIRED BY THE SECTION C403.5 OF THE WSEC AND AS DESCRIBED IN THE TEMPERATURE CONTROL SEQUENCES, IF PROVIDED. <u>o</u>
- AIR ECONOMIZERS SHALL BE CAPABLE OF PROVIDING PARTIAL COOLING EVEN WHEN ADDITIONAL MECHANICAL COOLING REQUIRED TO MEET THE REMAINDER OF THE COOLING LOAD, AS REQUIRED IN SECTION 403.5.1 OF THE WSEC. Ξ.
- SIMULTANEOUS HEATING AND COOLING TO INDIVIDUAL ZONES SHALL BE PROHIBITED AS DESCRIBED IN THE TEMPERATURE CONTROL SEQUENCES EXCEPT WHERE PERMITTED IN SECTION C403.4.1, EXCEPTIONS 1 THROUGH 3 OF THE WSEC. 12.
- Variable frequency drives shall be provided for variable flow heating and air handling systems as required by section C403.2.3 of the wsec and as described in the contract documents including temperature control sequences, if provided. <u>1</u>3.
- MOTOR EFFICIENCY SHALL NOT BE LESS THAN THE MINIMUM CALLOUTS PER SECTION C405.8 OF THE WSEC FOR FULL LOAD EFFICIENCIES. 14.
 - ELECTRIC WATER HEATERS LOCATED IN UNCONDITIONED SPACES OR ON CONCRETE FLOORS SHALL BE SEPARATED FROM SUPPORTING SURFACE WITH R-10 RIGID INSULATION AS DESCRIBED IN SECTION C404.5 OF THE WSEC. HVAC SYSTEMS SHALL BE BALANCED AS REQUIRED BY SECTION C408.2 OF THE WSEC. 15. 16.
- Domestic hot water circulation pumps shall be automatically shut down during unoccupied periods as required by section C404.7.1 of the wsec and as described in the temperature control sequences if provided. 17.
- OPERATION AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE OWNER AS REQUIRED BY SECTION C103.6.2 OF THE WSEC. AS A MINIMUM, THE MANUALS SHALL INCLUDE: ø.

 - SUBMITTAL DATA. OPERATION AND MAINTENANCE DATA FOR EQUIPMENT. NAMES AND ADDRESSES OF SERVICE AGENCIES. HVAC CONTROLS SYSTEM MAINTENANCE AND CALIBRATION INFORMATION. പ്പറ്റ
- COMMISSIONING SHALL BE PROVIDED AND A REPORT OF COMMISSIONING BE SUBMITTED TO THE OWNER AS REQUIRED BY SECTION C408 OF THE WSEC. AND CONTRACTOR SHALL SUBMIT FORM "FIGURE C408.1.4.1" COMMISSIONING COMPLIANCE CHECKLIST. <u>.</u>
- THE MECHANICAL SYSTEM SHALL COMPLY WITH ALL THE REQUIREMENTS OF SECTION C403.6 "DEDICATED OUTDOOR AIR SYSTEMS (DOAS) OF THE WSEC. 20.
- IF NOT SPECIFICALLY STATED ABOVE, CONTRACTOR SHALL COMPLY WITH THE WSEC ITEMS THAT DO APPLY TO THIS PROJECT. 21.

CODES APPLICABLE

2018 INTERNATIONAL BUILDING CODE W/ WA STATE AMENDMENTS 2018 INTERNATIONAL MECHANICAL CODE WITH WA STATE AMENDMENTS 2018 WA STATE ENERGY CODE 2018 UNIFORM PLUMBING CODE

(CONT.) HVAC NOTES GENERAL

- PROVIDE ACCESS DOORS IN DUCTWORK TO PROVIDE ACCESS FOR ALL VOLUME DAMPERS AND OTHER ITEMS LOCATED IN THE DUCTWORK WHICH REQUIRE SERVICE AND/OR INSPECTION. 12.
- ALL DUCTS SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING GROUNDING STRAPS SHALL BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT. 13.
- ALL OSA, RELIEF/EXHAUST AIR, AND RETURN AIR DAMPERS SHALL BE MOTORIZED CONTROL AND SHALL HAVE A MAX LEAKAGE OF 4CFM/FT² @ 1.0"WG IN ACCORDANCE W/ AMCA 500D.ACCEPTABLE ACCESS PROVISIONS FOR REMOVAL OF FILTER AND MAINTENANCE FOR ALL INDOOR UNITS. 14.
 - ALL AIR DISTRIBUTION SUPPLY OUTLETS AND RETURN/EXHAUST INLETS SHALL HAVE VOLUME CONTROL DEVICES. 15.
- ALL 90 DEGREE TRUNK DUCT ELBOWS SHALL BE SMOOTH-ROUND OR SQUARE WITH TURNING VANES. 16.
- CONTRACTOR SHALL LOCATE AND COORDINATE EXACT LOCATION OF DUCTWORK WITHIN THE STRUCTURE AT SITE. 17.
- ALL FAN SYSTEMS WITH OVER 2000 CFM SHALL HAVE SMOKE/DUCT DETECTORS TO SHUT-DOWN FAN UPON DETECTION. DUCT/SMOKE DETECTORS FURNISHED AND INSTALLED BY ELECTRICAL AND WIRED BY ELECTRICAL. DUCT/SMOKE DETECTORS SHALL BE LISTED BY AN APPROVED AGENCY AND FOR INSTALLATION IN AIR DUCTS PER IMC. <u>18</u>

LEGENDS AND

NOTES

- ALL DUCT PENETRATIONS THROUGH RATED ENCLOSURES SHALL BE FIRE DAMPERED AND/OR SMOKE DAMPERED AS REQUIRED. 19.
 - ALL MECHANICAL HEATING AND VENTILATION EQUIPMENT SHALL CONFORM TO SMACNA, LOCAL AND STATE REGULATIONS FOR SEISMIC RESTRAINT (INCLUDING PIPING AND DUCTWORK). COORDINATE WITH STRUCTURAL. 20.
- 21.
- ALL RECTANGULAR DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS. SUPPLY AND RETURN DUCTWORK FOR HVAC TO HAVE 1" SOUNDLINING FOR THE FIRST 10 FEET FROM UNIT DISCHARGE OUTLET. ALL DUCT LINING TO MEET AND EXCEED MOLD, HUMIDITY, EROSION RESISTANT, ETC. TO MEET 1MC CHAPTER 6. ALL DUCTWORK TO BE CLASS-I AIR DUCTS. CLASS-II DUCTS SHALL NOT BE USED. PROVIDE COMPLETE REFRIGERATION PIPING, INSULATION AND CONTROLS TO ALL MECHANICAL REFRIGERANT EQUIPMENT. 22.

PERMIT SET 8-14-2023

BELLINGHAM, WA 98229 **4** CLUBHOUSE CIRCLE **MAINTENANCE SHOP SUDDEN VALLEY**

RR	KB	RR	8/14/2023	2023.15 M0.0-0.3.DWG
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(CONT. **ABBREVIATIONS**

PREVENTER DIAMETER INTERNATIONAL BUILDING CODE INDIRECT DRAIN INVERT ELEVATION INTERNATIONAL MECHANICAL CODE INCH INCH INSULATE, INSULATION INDIRECT WASTE UNITS GAGE RETURN AIR ROOF DRAIN RECIRCULATING RECTANGULAR REFERENCE REGULATOR REGULATOR REGULATOR REGULATOR REQUIRED REQUIRED REQUIND REDUCED PRESSURE BACKFLOW P REVOLUTIONS PER MINUTE RELIEF VALVE TO BE DETERMINED TEMPERATURE, TEMPORARY THERMOSTAT THROUGH TOP OF DUCT TOP OF PIPE TRAP PRIMER TEMPERATURE SENSOR TURNING VANE TEMPERED WATER RECIRCULATE STATIC PRESSURE SPECIFICATION SPECIFICATION SPECIFIED STAINLESS STEEL SOIL STACK, SANITARY SEWER SOIL STACK, SANITARY SEWER SUPPLY WALL GRILLE SUPPLY WALL GRILLE I THOUSAND BRITISH THERMAL U MINIMUM CIRCUIT AMPACITY MOTOR CONTROL CENTER MOTORIZED DAMPER OUTDOOR AIR CONDITIONER OUTSIDE AIR TEMPERATURE OUTSIDE DIAMETER, OVERALL C OVERHEAD OVERFLOW ROOF DRAIN OUTSIDE AIR POINT OF CONNECTION PRELIMINARY PRESSURE PRESSURE REDUCING VALVE POUNDS PER SQUARE INCH POUNDS PER SQUARE INCH G SANITARY SANITARY SCHEDULE SUPPLY DIFFUSER SUPPLY FAN, SQUARE FEET SUPPLY GRILLE SUPPLY GRILLE SCREENED OPENING SHUT OFF VALVE STATIC PRESSURE CFICATION MANUFACTURER MANUFACTURER MINIMUM, MINUTE MISCELLANEOUS MOTOR OPERATED DAMPER MOUNTED MOUNTING PUMP PRESSURE DROP, PIT DRAIN Length Lavatory Leaving air temperature Pounds Lineal Foot Leaving UNIFORM PLUMBING CODE UP THRU ROOF NOT APPLICABLE NOISE CRITERIA NOT IN CONTRACT NOT TO SCALE KILOWATT KILOWATT HOUR IXED AIR AXIMUM MBTU SAN SCHED SCHED SS SS SSPEC SSRUCT SSRUCT SSRUCT P PD PH PRELIM PRESS PSIC PSIC RA RCI RECIRC RECT REC RPBP RPBP RPBP RPBP IBC INC INC INSUL MA MAA MBH, MECH MIN MIN MIN MISC MISC KWH KWH L R L AT V NA NUC NUC NUC OAT OAT OBA OSA UPC UTR

DRAWING LIST LEGEND & NOTES SPECIFICATIONS SPECIFICATIONS SPECIFICATIONS HVAC SCHEDULES HVAC FLOOR PLAN HVAC DETAILS MMMM0.0 M200.2 M200.2

11.

NOTES GENERAL

- COMPLETE INSTALLATION OF THE MECHANICAL SYSTEM SHALL BE PER THE LATEST ADOPTED VERSION OF INTERNATIONAL BUILDING CODE (IBC), INTERNATIONAL BUILDING CODE (IBC), INTERNATIONAL MECHANICAL CODE (IMC), WASHINGTON STATE ENERGY CODE (WSEC), UNIFORM PLUMBING CODE (UPC), INTERNATIONAL FUEL GAS CODE (IFGC), INTERNATIONAL FIRE CODE (IFC), NFPA AND HEALTH CODES AND REGULATIONS AS ADOPTED BY THE LOCAL JURISDICTIONS. ÷.
 - CONTRACTOR SHALL COORDINATE DIFFUSER, GRILLE AND REGISTER LOCATIONS AND DUCT ROUTING CLEARANCES WITH THE STRUCTURAL, REFLECTED CEILING AND LIGHTING PLANS. ц,
 - MAKE ACCEPTABLE ACCESS PROVISIONS FOR REMOVAL OF FILTER AND MAINTENANCE FOR ALL INDOOR UNITS. REFER TO MANUFACTURER'S INSTALLATION GUIDE. ы.
 - ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE. 4.
- WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACT. <u>ъ</u>.
- THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE DOCUMENTS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS. 6.
 - ALL GAS EQUIPMENT SHALL BE INSTALLED PER THEIR LISTINGS, IMC, UPC, IFGC AND LOCAL CODES. ~
 - ALL ROOF PENETRATIONS SHALL BE MINIMUM OF 5 FEET AWAY FROM THE AREA/OCCUPATION SEPARATION WALLS. ALL PIPE, DUCT AND CONDUIT PENETRATIONS THROUGH RATED ASSEMBLIES SHALL BE FIRE AND SMOKE STOPPED PER CODE. ω.
- ALL EQUIPMENT, DAMPERS, PIPING, AND ACCESSORIES IN CONCEALED SPACES REQUIRING ACCESS SHALL HAVE ACCESS DOORS. ALL ACCESS DOORS IN FIRE RATED STRUCTURE SHALL BE FIRE RATED. COORDINATE LOCATIONS WITH ARCHITECT. CONTRACTOR TO PROVIDE ACCESS DOORS. <u>.</u>
- AND all equipment shall be free from defects in material, workmanship, and shall be of the kind quality described herein. <u>1</u>0
- AND COORDINATE WITH THE STRUCTURAL ENGINEER AND GENERAL CONTRACTOR TO PROVIDE STRUCTURAL SUPPORT SEISMIC RESTRAINTS FOR ALL EQUIPMENT. 1.
 - ALL EQUIPMENT SHALL BE APPROVED FOR INSTALLATION IN THE STATE OF WASHINGTON AND SHALL HAVE ALL CERTIFICATIONS AND RATINGS REQUIRED TO MEET ALL ENERGY, POLLUTION, ENVIRONMENTAL, SEISMIC, ETC. CODES AND REGULATIONS. 12.
 - VERIFY ALL THE MECHANICAL EQUIPMENT'S ELECTRICAL LOADS VOLTAGE/PHASE, ETC. WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING. 13.
- 14.
- WHERE MULTIPLE RISERS OR HORIZONTAL LOOPS ARE USED, BALANCING VALVES IN THE RETURN LINES ARE REQUIRED. A CHECK VALVE SHALL BE PROVIDED IN EACH RETURN TO PREVENT TEMPORARY REVERSAL OF FLOW. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY IMC, UPC, IBC, WASHINGTON STATE ENERGY CODE AND ALL APPLICABLE LOCAL AMENDMENTS. 15.
 - INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS. 16.
- COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, ELECTRICAL WORK, ETC., SHOWN ON CONTRACT DOCUMENT DRAWINGS. 17.
 - ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED. 18.
- TESTING, ADJUSTING, AND BALANCING AGENCY SHALL BE A MEMBER OF NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TESTING, ADJUSTING, AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE NEBB STANDARDS. AABC ACCEPTABLE PENDING AGENCY APPROVAL. ONE 19.
 - WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF MANUFACTURER SHALL BE USED. 20.
- 21. LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
 - REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION. 22. 23.
- AIR AND FLUID FLOW RATES SHALL BE TESTED AND BALANCED WITHIN THE TOLERANCES DEFINED IN SPECIFICATIONS OR SHOWN ON PLANS. SYSTEMS SHALL BE BALANCED IN A MANNER TO FIRST MINIMIZE THROTTLING LOSSES, THEN ADJUSTED TO MEET DESIGN FLOW CONDITIONS. 24.
- RECORD DRAWINGS SHALL BE PROVIDED TO THE OWNER WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE AS REQUIRED BY SECTION C103.6 OF THE WSEC. THE DRAWINGS SHALL INDICATE THE LOCATION AND PERFORMANCE DATA OF EQUIPMENT, GENERAL CONFIGURATION OF DUCTWORK AND PIPING DISTRIBUTION SYSTEMS, INCLUDING FLOW RATES AS A MINIMUM, THAT HAVE BEEN DEVIATED FROM THESE DOCUMENTS. A COMPLETE RECORD OF CHANGES SHALL BE KEPT TO DATE ON A DAILY BASIS AND MADE ACCESSIBLE TO OWNER AND ENGINEER.

GENERAL HVAC NOTE:

- CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
 - LOCATE ALL TEMPERATURE, DEVICES IN DUCTWORK LOCATIONS WITH STRAIGHT SECTION OF DUCT UP AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY. 5
- COORDINATE AND PROVIDE ALL DUCT TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT DIMENSIONS BEFORE FABRICATION. m.

VENT VARIABLE AIR VOLUME VACUUM BREAKER VOLUME DAMPER VELOCITY

V VBV VERT VCR VCR VCR

VOLUME VENT STACK VENT TO ROOF

- ALL EQUIPMENT, DUCTWORK, ETC., SHALL BE SUPPORTED AS REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION, AND SEISMICALLY BRACED AS REQUIRED. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE. 4.
- CERTAIN ITEMS SUCH AS RISES AND DROPS IN DUCTWORK, ACCESS DOORS, VOLUME DAMPERS, ETC. ARE INDICATED ON THE CONTRACT DOCUMENT DRAWINGS FOR CLARITY FOR A SPECIFIC LOCATION REQUIREMENT AND SHALL NOT BE INTERPRETED AS THE EXTENT OF THE REQUIREMENTS FOR THESE ITEMS. ഹ്
 - UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS 4'-0" (CENTERLINE) ABOVE FINISHED FLOOR. NOTIFY THE ENGINEER OF ANY ROOMS WHERE THE ABOVE LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION. <u>ن</u>
 - ALL DUCTWORK SHALL CLEAR DOORS AND WINDOWS. ۲.

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WITHOUT WASTE STACK WEIGHT WATER SUPPLY FIXTURE UNIT

WASTE WALL CLEAN OUT WET BULB TEMPERATURE WALL EXHAUST FAN WATER GAGE WATER HAMMER ARRESTOR

WWEF WWE WV/ WV/O WV/O VV/O VV/O VV/O

- INDICATED. PROVIDE ALL 90 DEGREE SQUARE ELBOWS WITH DOUBLE RADIUS TURNING VANES UNLESS OTHERWISE PROVIDE ACCESS DOORS UPSTREAM OF ALL ELBOWS WITH TURNING VANES.
- UNLESS OTHERWISE NOTED, ALL DUCTWORK IS OVERHEAD, TIGHT TO THE UNDERSIDE OF THE STRUCTURE (WITHIN TRUSSES), WITH SPACE FOR INSULATION IF REQUIRED. *.*б
 - 10. MAXIMUM LENGTH OF FLEXIBLE DUCTS LOCATED ABOVE HARD CEILINGS SHALL BE AS CODE PERMITS BUT NO LONGER THAN 4 FEET.
- ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS ,INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

HVAC (CONT.)	LINEAR SUPPLY AIR DIFFUSER	SQUARE SUPPLY AIR DIFFUSER SQUARE RETURN AIR CRILLE	SIDEWALL SUPPLY AIR GRILLE OR REGISTER	OR REGISTER	AIR FLOW DIRECTION THRU DOOR GRILLE OR UNDERCUT	ABBREVIATIONS		AC AIR CUNDITIONING ACF AIR CURTAIN FAN ADA AMERICAN DISABILITIES ACT AD AREA DRAIN ADJ ADJACENT, ADJUSTABLE, ADJUSTMENT AFF ABOVE FINISHED FLOOR	AL ACOUSTIC LINED ALIGN ALIGNMENT AP ACCESS PANFI	APPROX APPROXIMATELY ARCH ARCHITECTURAL ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS	BFF BELOW FINISH FLOOR	BHP BRAKE HORSEPOWER BLDG BUILDING BOD BOTTOM OF DUCT BOD BOTTOM OF DUCT	BPD BACKFLOW PREVENTION DEVICE BTU BRITISH THERMAL UNIT BTUH BRITISH THERMAL UNITS PER HOUR BV BALANCING VALVE	CD CEILING DIFFUSER CFM CUBIC FEET PER MINUTE	CG CEILING GRILLE CI CAST IRON CLG CEILING	CO CLEANOUT CONN CONNECT, CONNECTED, CONNECTION CONST CONSTRUCTION CONT CONTINUATION	COURD COURDINATE CORR CORRIDOR COTG CLEANOUT TO GRADE CU FT CUBIC FEET	CU IN CUBIC INCHES CW COLD WATER	DB DRY BULB TEMPERATURE DCV DEMAND CONTROL VENTILATION DCVA DOUBLE CHECK VALVE ASSEMBLY	DEG DEGREE DET DETAIL DFU DRAINAGF FIXTURF UNIT	DIA DIAMETER DIFF DIFFERENTIAL, DIFFERENT, DIFFUSER DIM DIMENSION	DISCH DISCHARGE DN DOWN DOM DOMESTIC	DR DRAIN DS DOWNSPOUT DSD DUCT SMOKE DETECTOR	DWG DRAWING EA EACH	EAT ENTERING AIR TEMPERATURE EF EXHAUST FAN FFF FFFICIENCY	EG EXHAUST GRILLE ELECT ELECTRICAL ELEV ELEVATION	EMERG EMERGENCY ENT ENTERING EXH EXHAUST	EXP EXPANSION	F FAHRENHEIT FC FANCOIL FCO FLOOR CLEANOUT	FD FIRE DAMPER, FLOOR DRAIN FDC FIRE DEPARTMENT CONNECTION FIO FURNISHED AND INSTALLED BY OWNER	FLA FULL LOAD AMP FLEX FLEXIBLE FLR FLOOR FOR FLAT ON BOTTOM	FOIC FURNISHED BY OWNER INSTALLED BY CONTRACTOR FOT FLAT ON TOP	FPM FEET PER MINUTE FPS FEET PER SECOND FSD FIRE SMOKE DAMPER FT FOOT FFFT	FU FIXTURE UNITS G GAS	GA CAGE GAL GALLON GALV GALVANIZED CC CENEPAL CONTPACTOP	GEN GENERAL GND GROUND GPH GALLONS PER HOUR	GPM GALLONS PER MINUTE GW GREASE WASTE	H HEIGHT, HIGH HB HOSE BIBB HP HOREPOWEP	HP NUKSEPUWER HR HOUR HTG HEATING UNAM LEATING VIENTILATING AND AIR CONDITIONING	HWC HOT WATER HWC HOT WATER CIRCULATING HWR HOT WATER HEATING RETURN	HWS HOT WATER HEATING SUPPLY HZ HERTZ	
ERAL	NORTH ARROW	SECTION CALLOUT	DETAIL CALLOUT	POINT OF CONNECTION	Revision Note	FLAG NOTE (CONSTRUCTION) FOUIPMENT IDENTIFIER	LIGHT I INF WEIGHT INDICATES EXISTING WORK	BOLD LINE WEIGHT INDICATES EXISTING WORK BOLD LINE WEIGHT INDICATES NEW WORK	BE ABANDONED OR REMOVED	TO BE DEMOLISHED		CUBIC FEET PER MINUTE CENTER LINE	ROUND DUCT INDICATOR THERMOSTAT LINE	DIRECTION OF RISE FOR DUCT	DUCT (FIRST FIGURE DENOTES VIEW SHOWN)	SINGLE LINE DUCTWORK INDICATES DUCT WITH VIEW DIMENSION LESS THAN 12 INCHES	SUPPLY OR EXHAUST TAKEOFF	SUPPLY DUCT TURNING TOWARD, UP	SUPPLY DUCT TURNING AWAY	EXHAUST DUCT TURNING TOWARD, UP	EXHAUST DUCT TURNING AWAY	ROUND DUCT TURNING TOWARD, UP ROUND DUCT TURNING AWAY	CONICAL WYE	CONICAL TEE	VOLUME DAMPER(VD)	FIRE SMOKE DAMPER(FSD)	FIRE DAMPER(FD)	3-WAY SUPPLY DIFFUSER	2-WAY SUPPLY DIFFUSER	2-WAY CORNER SUPPLY DIFFUSER 1-WAY SUPPLY DIFFUSER	DOUBLE LINE, LINED DUCT/ ACOUSTIC DUCT	SINGLE LINE, LINED DUCT/ ACOUSTIC DUCT	RECTANGULAR 90° ELBOW W/ TURNING VANES TYPICAL	RECTANGLE TO ROUND FITTING	SOUND ATTENUATOR	ACCESS DOORS	FLEXIBLE DUCT	THERMOSTAT OR TEMPERATURE SENSOR	THERMOSTAT OR TEMPERATURE SENSOR(CEILING)	DUCI SMUKE VEIEVIUR DIFFERENTIAL PRESSURE TRANSDUCER	ROUND SUPPLY AIR DIFFUSER ROUND SUPPLY AIR DIFFUSER WITH	PORTION BLANKED OFF
GENI				$\left \right\rangle$]				> ~	:) ()	Ø		24×12 ↓	7 10×8 10×8		× N		I -				K	ſ	↓ c					I			UXAUC 18" #						Idd	() () () ()))

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JOB NUMBER	2023.15

SPECIFICATIONS

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ANUFACTURER'S NAME AND PRESSURE RATING MARKED ON VALVE BODY. ANUFACTURER'S NAME AND PRESSURE RATING MARKED ON VALVE BODY. CCEPT VALVES AND ACCESSORIES ON SITE IN SHIPPING CONTAINERS WITH ABELING IN PLACE. ROVIDE TEMPORARY PROTECTIVE COATING ON CAST IRON AND STEEL ALVES. ROVIDE TEMPORARY END CAPS AND CLOSURES ON VALVES AND CCESSORIES. MAINTAIN IN PLACE UNTIL INSTALLATION. VFS.

AMMOND. ROPOSED SUBSTITUTIONS SHALL MEET OR EXCEED ALL REQUIREMENTS OF HESE SPECIFICATIONS.

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CTURERS: AUKEE.

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BELLINGHAM. WA 98229
4 CEUBHOUSE CIRCLE
MAINTENANCE SHC
SUDDEN VALLEY

COLOR: UNLESS SPECIFIED OTHERWISE, CONFORM WITH ANSI/ASME A13.1. PLASTIC NAMEPLATES: LAMINATED THREE LAYER PLASTIC WITH ENGRAVED BLACK LETTERS ON LIGHT CONTRASTING BACKGROUND COLOR. PLASTIC TAGS: LAMINATED THREE LAYER PLASTIC WITH ENGRAVED BLACK LETTERS ON LIGHT CONTRASTING BACKGROUND COLOR. TAG SIZE MINIMUM 1 -1/2 INCH DIAMETER ROUND OR SQUARE. METAL TAGS: BRASS WITH STAMPED LETTERS; TAG SIZE MINIMUM 1 -1/2 INCH DIAMETER ROUND WITH SMOOTH EDGES. With clean cut symbols and letters of following size:

C. MATERI a. CC b. PL

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MARKING SERVICES INCORPORATED. ROPOSED SUBSTITUTIONS SHALL MEET OR EXCEED ALL REQUIREMENTS OF HESE SPECIFICATIONS. ONTRACTOR SHALL BE RESPONSIBLE FOR THE SUBSTITUTED EQUIPMENT OR ATERIALS FITTING THE AVAILABLE SPACE AND FOR ANY IMPACTS TO OTHER RADES.

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UFACTURERS: SUBMIT LIST OF WORDING, SYMBOLS, LETTER SIZE, AND COLOR CODING FOR MECHANICAL IDENTIFICATION. SUBMIT VALVE CHART AND SCHEDULE, INCLUDING VALVE TAG NUMBER, LOCATION, FUNCTION, AND VALVE MANUFACTURER'S NAME AND MODEL NUMBER. UFACTURERS: THE FOLLOWING MANUFACTURERS MAY BE CONSIDERED SUBJECT TO REVIEW.

B. MANUF a. Th

<u>ب</u>

dC

Anufaction indicating flow differing reading flow intervention indicating flow direction arrow and fluid being conveyed.
PLASTIC TAPE PIPE MARKERS: FLEXIBLE, VINYL FILM TAPE WITH PRESSURE SENSITIVE ADHESIVE BACKING AND PRINTED MARKINGS.
UNDERGROUND PLASTIC PIPE MARKERS: BRIGHT COLORED CONTINUOUSLY PRINTED PLASTIC RIBBON TAPE OF NOT LESS THAN 6 INCH WIDE BY 4 MILTICK, MANUFACTURED FOR DIRECT BURIAL SERVICE.
VALVES AND ACCESSORIES
A. GENERAL VALVES:

÷ ÷

0'-2 1/2" 0'-3 1/2"

1/2"

0'-2

AND EQUIPMENT

DUCTWORK

OVER

SIZE OF LETTERS

LENGTH OF COLOR FIELD

OUTSIDE DIAMETER OF INSULATION OR PIPE

Stencils:

ъ.

0'-0 1/2" 0'-0 3/4

0,-8

0'-1 1/4"

0'-8" 1'-0"

2-1/2"

1-1/2"

L		ACCESSORIES. MAINTAIN IN PLACE UNTIL INSTALLATION.
	i i	ALLE VALVES. 1. UP TO AND INCLUDING 2 INCHES: BRONZE BODY, BRONZE TRIM, NON – RISING STEM HANDWHEFT INSIDE SCREW SINGLE WEDGE DISC SOLDER OR
		THREADED ENDS, 125 LB. SWP.
		 OVER 2 INCHES: IRON BODY, BRONZE TRIM, RISING STEM, HANDWHEEL, OS&Y, SINGLE WEDGE, FLANGED ENDS. 125 LB, SWP.
	0	BALL VALVES:
	0	1. UP TO AND INCLUDING 2 INCHES: BRONZE ONE PIECE BODY, STAINLESS
		STEEL BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE, SOLDER OR THREADED FNDS WITH LINION BOD IR WOG
	Ψ	. OVER 2 INCHES: CAST STEEL BODY, CHROME PLATED STEEL BALL, TEFLON
		SEAT AND STUFFING BOX SEALS, LEVER HANDLE, FLANGED.
0	ට (ර	SLOBE VALVES: • IID TO AND INCLLIDING 3 INCHES: BRONZE RODY BRONZE TRIM BISING
		STEM, HANDWHEEL, INSIDE SCREW, RENEWABLE COMPOSITION DISC, SOLDER
		OR SCREWED ENDS, WITH BACK SEATING CAPACITY REPACKABLE UNDER
	-	PRESSURE.
). UVER Z INCHES: IRUN BUDT, BRUNZE IRIM, RISING SIEM, HANDWHEEL, US&T, PILIG - TYPF DISC FLANGED FNDS RENEWARIF SFAT AND DISC
	Е	BUTTERFLY VALVES:
	0	1. UP TO AND INCLUDING 2 INCHES: BRONZE BODY, STAINLESS STEEL DISC,
		VITON SEAT, THREADED ENDS.
	ىد). OVER 2 INCHES: CAST OR DUCTILE IRON BODY, ALUMINUM BRONZE DISC,
		MATER FOR CAST IRON BODY, EXTENDED NECK.
ш		SWING CHECK VALVES:
	0	1. UP TO AND INCLUDING 2 INCHES: BRONZE SWING DISC 5° SEATED, SOLDER
		OR SCREWED ENDS, 125 LB. SWP.
	ىد	. OVER 2 INCHES: IRON BODY, BRONZE TRIM, SWING DISC, RENEWABLE DISC
	Ċ	AND SEAL, FLANGED ENDS, 125 LB. SWP.
		BE BY COUPLING MANUFACTURER.
u_		SPRING-LOADED CHECK VALVES:
	0	J. IRON BODY, BRONZE TRIM, STAINLESS STEEL SPRING, RENEWABLE
	-	COMPOSITION DISC, SCREWED, WAFER, UR FLANGED ENDS.
). CHECK VALVES IN MECHANICAL CUUPLING STSTEMS, I.E., VICTAUEIC, ETC., MAT BF BY COTIDIANC MANITIEACTITEER
	ш с	DE DI COOI EINO MANOI ACIONEIN. AACKFI OW PREVENTERS.
-	- 0 :	. MANUFACTURERS:
		• WATTS.
		 CMB INDUSTRIES; FEBCO DIV.
		 ZURN INDUSTRIES INC: WILKINS DIV.

ZURN INDUSTRIES, NC; WILKINS DIV. OTHER MANUFACTURERS OFFERING EQUIVALENT PRODUCTS AND APPROVED BY LOCAL JURISDICTION MAY BE CONSIDERED.

ED ONE END, CONCRETE,

ID LARGER: TS, 12 INCH VESS.

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PER PLATED. E Galvanized Imum 12

ustable Er or steel

ALL -ESCOPIC Y A MINIMUM OR DR GUIDES S, INC., OR

 B. TRENCH BOTTOMS AND SHELVES SHALL BE CUT TO SUIT REQUIRED GRADES OF MECHANICAL WORK. C. PIPING SHALL REST ON UNDISTURBED EARTH OR PEA GRAVEL. D. BELL HOLES SHALL BE PROVIDED FOR ALL BELL AND HUB OR MECHANICAL JOINT PIPING. E. AFTER WORK HAS BEEN INSPECTED, TESTED AND APPROVED, ALL EXCAVATION SHALL BE BACKFILLED IN LAYERS OF APPROXIMATELY 8 INCHES, EACH LAYER MOISTENED AS DIRECTED AND PNEUMATICALLY TAMPED TO MINIMUM COMPACTION OF 90 PERCENT. F. JETTING OR FLOODING WILL NOT BE PERMITTED. G. RESTORE ALL SURFACES TO ORIGINAL CONDITION, PROPERLY INSTALLED TO ELIMINATE AND SATISFACTORY TO ARCHITECT. H. REFER TO STRUCTURAL DRAWINGS FOR DETAILS OF PIPES PASSING THROUGH OR 	 PLATES AND FOUNDATIONS. PLATES AND ISOLATORS PLATES AND ISOLATORS CHROME PLATED, STAMPED OR CAST BRASS. CHROME PLATED, STAMPED OR CAST BRASS. CRINNELL FIGURE 10 OR BEATON CORBIN. CRINNELL FIGURE 10 OR BEATON CORBIN. SOLATORS: CRINNELL FIGURE 10 OR BEATON CORBIN. ISOLATORS:	 C. SLEEVES FOR PIPES THROUGH FIRE RATED AND FIRE RESISTIVE FLOORS AND WALLS, AND FIREPROOFING: PREFABRICATED FIRE RATED SLEEVES INCLUDING SEALS, UL LISTED. D. SLEEVES FOR ROUND DUCTWORK: FORM WITH GALVANIZED STEEL. E. SLEEVES FOR RECTANGULAR DUCTWORK: FORM WITH GALVANIZED STEEL. F. SIZE SLEEVES LARGE ENOUGH TO ALLOW FOR MOVEMENT DUE TO EXPANSION AND CONTRACTION. PROVIDE FOR CONTINUOUS INSULATION WRAPPING. G. STUFFING INSULATION: GLASS FIBER TYPE, NON - COMBUSTIBLE. H. CAULK: ACRYLIC SEALANT OF QUALITY SPECIFIED IN DIVISION 07. G. FIRE-RATED PENETRATION SEALS A. MANUFACTURERS: a. 3M FIRE BARRIER PENETRATION SEALING SYSTEM. 	 b. THOMAS & BETTS FLAME SAFE FIRE STOP. c. CHASE FOAM FIRE STOP SYSTEM. d. PROPOSED SUBSTITUTIONS SHALL MEET OR EXCEED ALL REQUIREMENTS OF THESE SPECIFICATIONS. e. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUBSTITUTED EQUIPMENT OR MATERIALS FITTING THE AVAILABLE SPACE AND FOR ANY IMPACTS TO OTHER TRADES. f. FURNISH WALL WRAP, PARTITIONS, CAPS OR OTHER ACCESSORIES AS REQUIRED. B. REQUIRED. a. ALL MATERIALS TO COMPLY WITH UL 1479 (ASTM E-814). b. THE FIRE RATING OF THE SEALANT SHALL BE AT LEAST THAT OF THE FLOOR, WALL ON CHILLIC INTO WHICH IT IS INSTALLED. 	 FLASHING METAL FLASHING: 26 GAGE GALVANIZED STEEL. A. METAL FLASHING: 26 GAGE GALVANIZED STEEL. B. LEAD FLASHING: 5 LB/SQ FT SHEET LEAD FOR WATERPROOFING; ONE LB/SQ FT SHEET LEAD FOR SOUNDPROOFING. C. FLEXIBLE FLASHING: 47 MIL THICK SHEET, COMPATIBLE WITH ROOFING. C. FLEXIBLE FLASHING: 47 MIL THICK SHEET, COMPATIBLE WITH ROOFING. C. FLEXIBLE FLASHING: 47 MIL THICK SHEET, COMPATIBLE WITH ROOFING. D. CAPS: STEEL, 22–GAGE MINIMUM; 16 GAGES AT FIRE RESISTANT ELEMENTS. B. INSERTS A. CONCRETE CONSTRUCTION C. GRINNELL FIG. 282, OR SUPER M–732, UNISTRUT P–3521. MICHIGAN 353. D. CANDROADD FILLER CONSTRUT P–3200, MICHIGAN CONCT. WITH END CAPS AND CANDRON OF ILLER STRICT 	 B. FRAME CONSTRUCTION: a. FLATTENED LAG SCREW WITH COUPLING OR SOCKET TO MATCH. b. ANGLE CLIP BOLTED OR SCREWED WITH COUPLING OR SOCKET TO MATCH. c. USE LAG SCREWS OR DRIVE SCREWS FOR EXTENSION BAR; NAILING NOT PERMISSIBLE. C. BRACKETS: SHELF BRACKET UNISTRUT P-1000 WITH P-1332 CORNER SUPPORT, MICHIGAN A-12 OR SUPER STRUT A-1200 WITH AB-214 CORNER SUPPORT. D. DOWER DRIVEN INSERTS ALLOWED ONLY ON ARCHITECTS APPROVAL. E. EXPANSION SHIELDS: DIAMOND, RAWL PLUG, STAR, PHILLIPS OR CINCH ANCHOR MANUFACTURE. 9. SUPPORTS AND ANCHORS a. FURNISH HANGER AND SUPPORT INSERTS AND SLEEVES FOR PLACEMENT INTO a. FURNISH HANGER AND SUPPORT INSERTS AND SLEEVES FOR PLACEMENT INTO 	 FORMWORK TO SERVE EQUIPMENT SUPPLIED UNDER OTHER SECTIONS BUT INSTALLED BY THIS CONTRACTOR. b. SUBMITTALS: INDICATE HANGER AND SUPPORT FRAMING AND ATTACHMENT METHODS. B. PIPE HANGERS AND SUPPORTS: a. HANGERS AND SUPPORTS: a. HANGERS FOR PIPE SIZES 1/2 TO 1 -1/2 INCH: GALVANIZED STEEL, ADJUSTABLE SWIVEL, LOOP HANGER. b. HANGERS FOR PIPE SIZES 2 TO 4 INCHES AND COLD PIPE SIZES 6 INCHES AND OVER: CARBON STEEL, ADJUSTABLE, CLEVIS. c. HANGERS FOR HOT PIPE SIZES 6 INCHES AND OVER: ADJUSTABLE STEEL YOKE, CAST IRON ROLL, DOUBLE HANGER. d. MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SPACERS 	 AND HANGER RODS; CAST IRON ROLL AND STAND FOR HOT PIPE SIZES 6 INCHES AND SUPPORTS EXPOSED TO WEATHER OR WET CONDITIONS SHALL BE GALVANIZED. F. WALL SUPPORT FOR PIPE SIZES 10 3 INCHES: CAST IRON HOOK. MALL SUPPORT FOR PIPE SIZES 4 INCHES AND OVER. WELDED SITEL BRACKET AND WROUGHT STEEL CLAMP; ADJUSTABLE STEEL YOKE AND CAST IRON ROLL FOR HOT PIPE SIZES 6 INCHES AND OVER. WELDED SITEL BRACKET AND WROUGHT STEEL CLAMP; ADJUSTABLE STEEL YOKE AND CAST IRON ROLL FOR HOT PIPE SIZES 6 INCHES AND OVER. h. VERTICAL SUPPORT: TYPE A: STEEL RISER CLAMP TYPE B: STEEL RISER CLAMP TYPE B: STEEL RISER CLAMP TYPE B: STEEL RISER CLAMP TYPE C: VIBRATION ISOLATIOR MANUFACTURER SHALL PROVIDE PIPE GUIDES CONSISTING OF A TELESCOPIC ARRANGEMENT OF TWO SIZES OF STEEL TUBING SEPARATED BY A MINIMUM, HALF-INCH THICKNESS OF HEAVY-DUTY NEOPRENE AND DUCK OR NEOPRENE ISOLATION. GUIDES SHALL BE THE GUIDES SHALL BE PRESET WITH A SHEAR PIN TO ALLOW VERTICAL MOTION DUE TO PIPE EXPANSION/CONTRACTION. GUIDES SHALL BE TREE GDA AS MANUFACTURED BY MASION INDUSTRIES, INC., OR APPROVED. TYPE D: VIBRATION ISOLATOR MANUFACTURER SHALL PROVIDE ALL MOTION DUE TO PIPE EXPANSION/CONTRACTION. GUIDES SHALL BE TREE DAR ANOUSTRIES, INC., OR APPROVED. TYPE D: VIBRATION ISOLATOR MANUFACTURER SHALL PROVIDE ALL DIRECTIONAL ACOUSTICAL PIPE ANCHORS CONSISTING OF A TELESCOPIC ARRANGEMENT OF TWO SIZES OF STEEL TUBING SEPARATED BY A MINIMUM HALF INCH THICKNESS OF HEAVY DUTY NEOPRENE AND DUCK OR NEOPRENE ISOLATION MATERIAL. ALL DIRECTIONAL ANCHORS OR GUIDES SHALL BE TYPE ADA AS MANUFACTURED BY MASON INDUSTRIES, INC., OR SADDAVED 	 FLOOR INVERSIGNED FOR PIPE SIZES TO 4 INCHES AND ALL COLD PIPE SIZES: CAST IRON ADUUSTABLE PIPE SADDLE, LOCKNUT NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT. FLOOR SUPPORT FOR HOT PIPE SIZES 6 INCHES AND OVER: ADUUSTABLE CAST IRON ROLL AND STAND, STEEL SCREWS, AND CONCRETE PIER OR STEEL SUPPORT. K. COPPER PIPE SUPPORT: CARBON STEEL RING, ADUUSTABLE, COPPER PLATED. SHIELD FOR INSULATED PIPING 2 INCHES AND SMALLER: 18 GAGE GALVANIZED INCHES LONG AT PIPE SUPPORT. M. SHIELD FOR INSULATED PIPING 2 1/2 INCHES AND LARGER (EXCEPT COLD WATER PIPING): PIPE COVERING PROTECTIVE SADDLES. N. SHIELD FOR INSULATED PIPING 2 1/2 INCHES AND LARGER (EXCEPT COLD WATER PIPING): PIPE COVERING PROTECTIVE SADDLES. N. SHIELD FOR INSULATED PIPING 2 1/2 INCHES AND LARGER (EXCEPT COLD WATER PIPING): PIPE COVERING PROTECTIVE SADDLES. N. SHIELD FOR INSULATED PIPING 2 1/2 INCHES AND LARGER (EXCEPT COLD WATER PIPING): PIPE COVERING PROTECTIVE SADDLES. N. SHIELDS FOR INSULATED OLD WATER PIPING 2 - 1/2 INCHES AND LARGER. MATER PIPING): PIPE COVERING PROTECTIVE SADDLES. N. SHIELDS FOR INSULATED CONDUCTING SADDLES IN 90 DEGREE SEGMENTS, 12 INCH MINIMUM LENGTH, BLOCK THICKNESS SAME AS INSULATION THICKNESS. O. SHIELDS FOR VERTICAL COPPER PIPE RISERS: SHEET LEAD. O. SHIELDS FOR VERTICAL COPPER PIPE RISERS: SHEET LEAD. O. SHIELDS FOR VERTICAL COPPER PIPE RISERS: SHEET LEAD. O. SHIELDS FOR VERTICAL COPPER PIPE RISERS: SHEET LEAD. O. SHIELDS FOR VERTICAL COPPER PIPE RISERS: SHEET LEAD. D. EQUIPMENT CURBS IN MECHANICAL ROOMS OF POURED IN PLACE CONCRETE, a "PHICH. D. EQUIPMENT SUPPORTED. E PROVIDE STEEL REINFORCING THROUGHOUT CURB AS REQUIRED TO SUSTAIN SEISMIC LOADS OF EQUIPMENT SUPPORTED. E BARICATION:
 MATERIALS SHOP AND FIELD INSTALLATION DRAWINGS. MATERIALS AND SHOP DRAWINGS. BINDING AND FORMAT: □BIND IN THREE-RING BINDER(S). LABEL FRONT OF BINDER(S) WITH NAME OF PROJECT, NAME OF OWNER, YEAR OF COMPLETION; TITLE □ MECHANICAL SUBMITTALS □, NAMES OF ENGINEER AND MECHANICAL CONTRACTOR, AND VOLUME NO. (IF APPLICABLE). LABEL BACK EDGE OF BINDER WITH TITLE, NAME OF PROJECT, OWNER, YEAR OF COMPLETION, AND VOLUME NO. (IF APPLICABLE). LABEL BACK EDGE OF BINDER WITH TITLE, NAME OF PROJECT, OWNER, YEAR OF COMPLETION, AND VOLUME NO. (IF APPLICABLE). FOLD DRAWINGS TO 8 □ SIZE AND BIND AS ABOVE (WITH REINFORCING AT PUNCHED HOLES) OR PLACE IN CLEAR PLASTIC HOLDER DESIGNED FOR THREE-RING BINDERS. INCLUDE OVERALL TABLE OF CONTENTS OF ITEMS SUBMITTED, ORGANIZED BY SPECIFICATION SECTION. 	 MITH SPECIFICATION SECTION NUMBER AND TITLE ON TAB. INCLUDE TABLE OF CONTENTS FOR EACH SPECIFICATION SECTION, INCLUDING CATALOG WITH SPECIFICATION SECTION NUMBERS IT APPROPRIATE. SUBMITTAL WILL NOT BE ACCEPTED UNLESS IT CONFORMS TO THESE REQUIREMENTS, AND WILL BE RETURNED TO CONTRACTOR UNREVIEWED. C. INCLUDE SUBMITTAL DATA ON MATERIALS AND EQUIPMENT AS INDICATED IN INDIVIDUAL SPECIFICATION SECTIONS. DO NOT ORDER, FABRICATE OR INSTALL UNTIL REVIEWED/ACCEPTED BY ARCHITECT/ENGINES. INCLUDE DESCRIPTIVE BULLETINS, DATA SHEFTS, CATALOG CUTS, DIAGRAMS, COMPLETE DIMENSIONAL DRAWINGS, AND OTHER ADDITIONAL INFORMATION AS REQUIRED. FABRICATION DRAWINGS. FOR WORK IN THIS DIVISION, PREPARE FABRICATION OF WORK. DO NOT FABRICATE OR INSTALL TRON OF WORK IN THIS DIVISION, PREPARE FABRICATION OR INSTALLATION OF WORK. DO NOT FABRICATE OR INSTALL STALLATION OF WORK. DO NOT FABRICATE OR INSTALL STALLATION OF WORK. DO NOT FABRICATE OR INSTALL STALLATION OF WORK. DO NOT FABRICATION AS REQUIRED. C. PREPARE FABRICATION DRAWINGS FOR THE FOLLOWING AREAS: 	 MECHANICAL (FURNACES, DOMESTIC HOTWATER HEATER) ROOMS. BOILER ROOMS. CHILLER ROOM. VERTICAL CHASES. VERTICAL CHASES. VERTICAL CHASES. UTILITY TUNNELS. FILTER ASSEMBLIES. FABRICATION AND INSTALLATION DRAWINGS SHALL BE PRODUCED AND SHOW COMPLETE DIMENSIONED INSTALLATION TO SCALE, CONSISTING OF DETAILED DRAWINGS IN AUTOCAD FORMAT, SAME SIZE AS CONTRACT DRAWINGS, COORDINATING WORK OR OTHER TRADES TO RESULT IN PROPER FIT IN THE AVAILABLE SPACE. DRAWINGS SHALL BE COMPLETED IN TIMELY MANNER, COORDINATED WITH THE CONSTRUCTION SCHEDULE. MINIMUM SCALE	 -0 c. SHEET METAL: PLANS SHOWING DUCTWORK, HANGERS, SUPPORTS, EQUIPMENT, WORK OF OTHER TRADES IN CLOSE PROXIMITY TO DUCTWORK. VERTICAL ELEVATIONS OR WORK ABOVE FINISHED FLOOR SHOWING CEILINGS, UIGHTS AND OTHER ITEMS NECESSARY TO FULLY COORDINATE THE INSTALLATION. d. PIPING: PLANS SHOWING PLUMBING AND HVAC PIPING, HANGERS, SUPPORTS, EQUIPMENT, WORK OF OTHER TRADES IN CLOSE PROXIMITY TO PIPING. d. PIPING: PLANS SHOWING PLUMBING AND HVAC PIPING, HANGERS, SUPPORTS, EQUIPMENT, WORK OF OTHER TRADES IN CLOSE PROXIMITY TO PIPING. VERTICAL ELEVATIONS OR WORK SHOWING FINISHED FLOOR, CEILINGS, LIGHTS AND OTHER ITEMS NECESSARY TO FULLY COORDINATE THE INSTALLATION. TEST REPORTS AND CERTIFICATES: SUBMIT IN ONE COMPREHENSIVE PACKAGE PRIOR TO SUBSTANTIAL COMPLETION. DAMICING AND TESTING REPORTS. SUBMIT IN ONE COMPREHENSIVE PACKAGE 	 OPERATION AND MAINTENANCE MANUAL: PROCESS: SUBMIT COMPLETE O & M MANUAL IN ONE COMPLETE PACKAGE. INCOMPLETE, PIECE-MEAL SUBMITTALS WILL NOT BE ACCEPTED, AND WILL BE RETURNED TO CONTRACTOR UNREVIEWED. INCLUDE MECHANICAL SPECIFICATION SECTIONS, WITH MATERIALS AND EQUIPMENT. BINDING AND FORMAT: BINDING AND FORMAT: BINDING AND FORMAT: BINDER(S) WITH NAME OF PROJECT, NAME OF OWNER, YEAR OF COMPLETION, TITLE MECHANICAL OPERATIONS AND MAINTENANCE MANUAL INAMES OF ENGINEER AND CONTRACTOR, AND VOLUME NO. (IF 	APPLICABLE). PERMANENILY IMPRINI BACK EDGE OF BINDEK WITH TITLE, NAME OF PROJECT, OWNER, YEAR OF COMPLETION, AND VOLUME NO. (IF APPLICABLE). FOLD DRAWINGS TO 8 SIZE AND BIND AS ABOVE (WITH REINFORCING AT PUNCHED HOLES) OR PLACE IN CLEAR PLASTIC HOLDER DESIGNED FOR THREE-RING BINDERS. INCLUDE OVERALL TABLE OF CONTENTS OF ITEMS SUBMITTED, ORGANIZED BY SPECIFICATION SECTION. INCLUDE HEAVY, TABBED DIVIDER SHEET FOR EACH SPECIFICATION SECTION, WITH SPECIFICATION SECTION NUMBER AND TITLE ON TAB. INCLUDE TABLE OF CONTENTS FOR EACH SPECIFICATION SECTION, INCLUDING CATALOG NUMBERS OR DRAWING NUMBERS IF APPROPRIATE. 0 & M MANUAL WILL NOT BE ACCEPTED UNLESS IT CONFORMS TO THESE REQUIREMENTS, AND WILL BE RETURNED TO CONTRACTOR UNREVIEWED.	 C. CUNTENTS: INCLUDE COMPLETE SUBMITTAL INFORMATION DESCRIBED UNDER PRODUCT DATA, DESIGN DATA IN THIS SECTION. INCLUDE INSTALLATION INSTRUCTIONS, OPERATION AND MAINTENANCE INFORMATION, START-UP INSTRUCTIONS, AND SPARE PARTS LISTS. INCLUDE NAMES, ADDRESS, TELEPHONE NUMBERS, AND FAX NUMBERS OF MANUFACTURERS AND VENDORS OF MATERIALS AND EQUIPMENT. INCLUDE INFORMATION ON THE SPECIFIC EQUIPMENT INSTALLED FOR THIS PROJECT. RECORD DRAWINGS: GENERAL 	 STALL DE MEALL MECHALITINGS AND ALL DE MEALL DE MEALL DE MEALL DE MEALL DE MEALL DE MEALL DE RINTS SHOWING THIS INFORMATION (IN RED), SHALL BE KEPT AT THE JOB SITE AND IN LETIDES. THESE MARKED PRINTS SHALL BE KEPT AT THE JOB SITE AND IN LERD AT THE JOB SITE AND IN LERD AT THE JOB SITE AND IN LERD AT THE COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL DBTAIN AUTOCAD V 2000, OF CONTRACT DRAWINGS. DRAWING FILES SHALL BE CORRECTED BY THE CONTRACTOR TO INDICATE ALL CHANGES AND CORRECTED BY THE CONTRACTOR TO INDICATE ALL CHANGES AND CORRECTIONS MADE DURING THE PROJECT. UPON COMPLETION, HE SHALL SUBMIT THE CORRECTED AUTOCAD DRAWING FILES PLUS 2 PLOT COPIES TO THE ARCHITECT FOR REVIEW. UPON COMPLETION, HE SHALL SUBMIT THE CORRECTED AUTOCAD DRAWING FILES PLUS 2 PLOT COPIES TO THE ARCHITECT FOR REVIEW. UPON COMPLETION, HE SHALL SUBMIT THE CORRECTED AUTOCAD DRAWING PROJECT. UPON COMPLETION, HE SHALL SUBMIT THE CORRECTED AUTOCAD DRAWING PROJECT. UPON COMPLETION, HE SHALL SUBMIT THE CORRECTED AUTOCAD DRAWING PROJECT. UPON COMPLETION, HE SHALL SUBMIT THE CORRECTED AUTOCAD DRAWING PROJECT. UPON COMPLETION, HE SHALL SUBMIT THE CORRECTED AUTOCAD DRAWING PROJECT. DUALITY OF WORKMANSHIP MUST BE CLEARLY LEGIBLE AND BE CONSISTENT WITH INDUSTRY DRAWINGS BY CONTRACTOR. LAYOUT OF FILLS NOT AND DRAWINGS BY CONTRACTOR. FOR ALL WORK IN MECHANICAL (FURMCE AND DOMESTIC HOTWATER HEATER) ROOMS, CONTRACTOR SHALL PREPARE ADDITIONAL DETAIL DRAWINGS TO SCALE SIMILAR TO THAT OF THE BIDDING DRAWINGS, PREPARED ON MYLAR PAPER SAME SIZE AS CONTRACT DRAWINGS AND SHALL WITH THESE LAYOUTS, COORDINATE HIS WORK WITH THE PRAWINGS AND SHALL WITH THESE LAYOUTS, COORDINATE HIS WORK WITH THE PRAVINGS AND SHALL WITH THESE LAYOUTS, COORDINATE HIS WORK WITH THE FIELD. AS CONTRACT DRAWINGS AND SHALL WITH THESE LAYOUTS, COORDINATE HIS WORK WITH THE FIELD. AS CONTRACT DRAWINGS AND SHALL WITH THESE DRAWINGS TO THE ARCHITECT FOR RE	CERTIFICATIONS: SUBMIT WRITTEN CERTIFICATIONS FROM THE GOVERNING BUILDING AUTHORITIES STATING THAT WORK HAS BEEN INSPECTED, ACCEPTED, AND COMPLIES WITH APPLICABLE CODES AND ORDINANCES. CUTTING & PATCHING CUTTING & PATCHING a. DO CUTTING, CORE-DRILLING AND SIMILAR WORK REQUIRED FOR INSTALLATION of SYSTEMS UNDER DIVISION 23. b. THROUGH CONCETE SLABS OR WALLS, ALL ROUND HOLES SHALL BE CORE DRILLED WITH A DIAMOND DRILL AND ALL RECTANGULAR OPENINGS SHALL BE CUT WITH A DIAMOND DRILL AND ALL RECTANGULAR OPENINGS SHALL BE CUT WITH A DIAMOND DRILL AND ALL RECTANGULAR OPENINGS SHALL BE CUT WITH A DIAMOND SAW. CONTRACTOR SHALL MAKE PROVISIONS FOR WATER, CAPTURE WHEN WORKING ABOVE OCCUPIED SPACES OR AREAS SUBJECT TO WATER, CAPTURE WHEN WORKING ABOVE OCCUPIED SPACES OR AREAS SUBJECT TO WATER DAMAGE. c. CUT NO STRUCTURAL MEMBERS WITHOUT PRIOR WRITTEN APPROVAL OF ARCHITECT/ENGINEER. d. DRILLING AND CUTTING OF CONCRETE AND OTHER WORK WHICH MAKES OBJECTTOWALE NOISE IN OCCUPIED BUILDING SHALL BE PERFORMED AT TIMES AS COORDINATED WITH THE OWNER BEFORE DOING THE WORK. PATCHING OF FINISHED BUILDING ELEMENTS AFTER MECHANICAL INSTALLATION SHALL BE IN ACCORDANCE WITH DIVISION 01, NOT BY DIVISION 23 SUBCONTRACTOR. SUBLOONTRACTOR. 23 WORK, INCLUDING ANT NECESSARY SHEATHING AND PUMPING.

 HOLDMAN, LICEGORDA, LINGAR, MILLING, ON HERROR, MONTAN, CARRON, C SUBMITTALS
 GENERAL: CONFORM TO DIVISION 1, WITH ADDITIONAL REQUIREMENTS AS INDICATED BELOW.
 B. PRODUCT DATA, DESIGN DATA:

 PRODUCT DATA, DESIGN DATA:
 PRODUCT DATA, DESIGN DATA:
 PROCESS: SUBMIT COMPLETE MECHANICAL SUBMITTAL IN MULTIPLE COMPLETE PACKAGES AS FOLLOWS. INCOMPLETE, □PIECE-MEAL □ SUBMITTALS WILL NOT BE ACCEPTED, AND WILL BE RETURNED TO CONTRACTOR UNREVIEWED. ALLOW MINIMUM 10 WORKDAYS FOR EACH SUBMITTAL REVIEW.
 ALL MECHANICAL SPECIFICATION SECTIONS, INCLUDING MATERIALS AND EQUIPMENT.

 REQUIREMENTS AS INDICATED

PROVISIONS GENERAL MECHANICAL PART 1 – GENERAL

BERONA ENGINEERS, INC.

8021 State Avenue Marysville, WA 98270 p (425)744-6033 www.beronaengineers.com

a. DESIGN HANGERS WITHOUT DISENGAGEMENT OF SUPPORTED PIPE.
b. PROVIDE COPPERE PLATED HANGERS AND SUPPORTS. FOR COPPER PIPING.
c. PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS. HANGERS AND SUPPORTS. LOCATED IN CARML. SPACES, PIPE SHATTS, AND SUSPENDED CELING SPACES ARE NOT CONSIDERED EXPOSED.
10. ACCESS DOORS
a. HART & COOLEY LLC/MILCOR.
b. J.L. INDUSTRIES.
c. RERINEARS:
a. HART & COOLEY LLC/MILCOR.
b. J.L. INDUSTRIES.
c. GREENHECK.
c. GREENHECK.
d. PROVIDE SUBSTITUTIONS SHALL MEET OR EXCEED ALL REQUIREMENTS OF THESE SPECIFICATIONS.
c. GREENHECK.
d. PROPORSD SUBSTITUTIONS SHALL MEET OR EXCEED ALL REQUIREMENTS OF THESE SPECIFICATIONS.
d. PROPOSED SUBSTITUTIONS SHALL MEET OR EXCEED ALL REQUIREMENTS OF THESE SPECIFICATIONS.
d. PROPOSED SUBSTITUTIONS SHALL MEET OR EXCEED ALL REQUIREMENTS OF THESE SPECIFICATIONS.
d. PROPOSED SUBSTITUTIONS SHALL MEET OR EXCEED ALL REQUIREMENTS OF THESE SPECIFICATIONS.
d. THESE SPECIFICATIONS.
B. FURNISH TO GENERD DIARCTOR HINGED METAL PANEL ACCESS DOORS OF PROPER SIZE, SUITABLE TO INSTALLATION CONDITIONS, WITH CONCEALED SPRING HINGES AND FLUSH SCREWORYNER OPERATED LOCKS. FIRE RATED WITH UL LABEL LOCATED IN A REQUIRED FOR CALLED TAMPER QUADRANT OR REGULATOR, MINIMUM SIZE.
a. 12" X 12" AT FIRE DAMPER QUADRANT OR REGULATOR, MINIMUM SIZE.
b. 2" X 12" AT FIRE DAMPER QUADRANT OR REGULATOR, MINIMUM SIZE.
c. STLE AND SIZE AS REQUIRED FOR CELLINGS OR OTHER WORK AS MICE ENDING.
d. 2" X 12" AT FIRE DAMPER QUADRANT OR REGULATOR, MINIMUM SIZE.
d. 2" X 12" AT FIRE DAMPER QUADRANT OR REGULATOR, MINIMUM SIZE.
d. 2" X 12" AT FIRE DAMPER QUADRANT OR REGULATOR, MINIMUM SIZE.
d. 2" X 12" AT FIRE DAMPER QUADRANT OR REGULATOR, MINIMUM SIZE.
d. 2" X 12" AT FIRE DAMPER QUADRANT OR REGULATOR, MORK AS MICE SESSARY.
d. 2" A 12" AT FIRE DAMPER QUADRANT OR REGULATOR

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- - PART 2 PRODUCTS
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E BRACED TO DISSIMILAR PARTS OF A G SYSTEMS THAT MAY RESPOND IN A JAKE. EXAMPLES: WALL AND A ROOF; DECK WITH LIGHTWEIGHT CONCRETE FILL. S THROUGH WALLS OR FLOORS TO

PIPING SYSTEM SHALL NOT BE E OR TWO DISSIMILAR BUILDING S I MODE DURING AN EARTHQUAKI NCRETE WALL AND A METAL DEC LARGE ENOUGH PIPE SLEEVES T OR ANTICIPATED DIFFERENTIAL MC

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DESIGNED	DRAWN	CHECKED	DATE	CADD FILE	JOB NUMBER	

SPECIFICATIONS

BELLINGHAM, WA 9822
4 CEUBHOUSE CIRCLE
MAINTENANCE SH
SUDDEN VALLE

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PERMIT SET 8-14-2023

ditachment < BRACING OF PIPES: a. ALL BRACING SHALL BE DESIGNED AND INSTALLED FOR ZONE 3 SEISMIC HAZARD. BRACE ALL PIPES 21" DIAMETER AND LARGER, WITH THE FOLLOWING EXCEPTIONS: b. BRACE ALL PIPING 1..." AND LARGER LOCATED IN BOILER ROOMS, MECHANICAL EQUIPMENT ROOMS AND REFRIGERATION MACHINERY ROOMS. b. BRACE ALL PIPING 1..." AND LARGER LOCATED IN BOILER ROOMS, MECHANICAL EQUIPMENT ROOMS AND REFRIGERATION MACHINERY ROOMS. b. BRACE ALL PIPING 1..." AND LARGER LOCATED IN BOILER ROOMS, MECHANICAL EQUIPMENT ROOMS AND REFRIGERATION MACHINERY ROOMS. BRACING REQUIREMENTS FOR PIPES LESS THAN 21" IN DIAMETER SHALL BE THE SAME AS FOR 21" PIPES IN ALL OTHER LOCATIONS. BRACING REQUIREMENTS FOR PIPES IN ALL OTHER LOCATIONS. BRACING REACES MAY BE OMITTED: WHEN THE TOP OF THE PIPE IS SUSPENDED 12" OR LESS FROM THE SUPPORTING STRUCTURE MEMBER AND THE PIPE IS SUSPENDED BY AN INDIVIDUAL HANGER. MHEN THE TOP OF THE PIPE IS AND THE PIPE IS SUSPENDED BY AN INDIVIDUAL HANGER. MHEN THE PIPING - "AND SMALLER. MALL PIPING - "AND SMALLER. LURAL STALING: TRANSVERSE BRACING TO OCCUR 30' - 0" O.C. MAXIMUM. (EXCEPT RECTANGULAR DUCTS 61" AND LARGER IN EITHER DIRECTION MAY BE BRACED AT 32' - 0" O.C.) TRANSVERSE BRACING SHALL BE INSTALLED AT EACH DUCT TURN AND AT EACH END OF A DUCT RUN. LONGITUDINAL BRACING SHALL OCCUR AT 60' - 0" O.C. MAXIMUM. EACH END OF TRANSVERSE BRACING SHALL OCCUR AT 60' - 0" O.C. MAXIMUM. TRANSVERSE BRACING FOR ONE DUCT SECTION MAY ALSO ACT AS LONGITUDINAL BRACING FOR A DUCT SECTION CONNECTED PERPENDICULAR INTERSECTION OF BOTH DUCTS AND BRACING IS SIZED FOR THE LARGER DUCT. DUCT JOINTS SHALL CONFORM TO SMACNA DUCT CONSTRUCTION STANDARD. ALL JOINTS IN DUCT SECTIONS SHALL PROVIDE A POSITIVE FASTENING TOGETHER OF THE ZON THE LARGER DUCT. DUCT JOINTS IN DUCT SECTIONS SHALL PROVIDE A POSITIVE FASTENING TOGETHER OF THE CONFORM TO SMACNA DUCT CONSTRUCTION STANDARD. ALL JOINTS IN DUCT SECTIONS SHALL PROVIDE A POSITIVE FASTENING TOGETHER OF THE ZON THE DUCT SUBPRINDED 12" OR LESS FROM THE SUPPORTING STRUCTURAL MEMBER AND ATTACHED TO TOP OF DUCT. A. ORRCINCIES REQUIRED IF THE TOP OF THE DUCT IS SUSPENDED 12" OR LESS FROM THE SUPPORTING STRUCTURAL MEMBER AND ATTACHED TO TOP OF DUCT. B. OROUP OF DUCTS MAY BE COMBINED INTO A LARGER SIZE FRAME USING THE OVERALL DIMENSIONS WITH MAXIMUM WEIGHT FOR SELECTION OF THE OVERALL DIMENSIONS WITH MAXIMUM WEIGHT FOR SELECTION OF THE OVERALL DIMENSIONS WITH MAXIMUM WEIGHT FOR SELECTION OF THE OVERALL DIMENSIONS WITH MAXIMUM WEIGHT FOR SELECTION OF THE MEMBER. LONGITUDINAL BRACINGS AT 80' - 0" O.C. MAXIMUM UNLESS OTHERWISE LONGITUDINAL BRACINGS AT 80' - 0" O.C. MAXIMUM UNLESS OTHERWISE NOTED. WHEN THERMAL EXPANSION OR CONTRACTION IS INVOLVED, PROVIDE LONGITUDINAL BRACINGS AT ANCHOR POINTS. THE LONGITUDINAL BRACES AND THE CONNECTIONS MUST BE CAPABLE OF RESISTING THE FORCE INDUCED BY EXPANSION AND CONTRACTION. TRANSVERSE BRACING FOR ONE PIPE SECTION MAY ALSO ACT AS LONGITUDINAL BRACING FOR THE PIPE SECTION CONNECTED PERPENDICULAR TO IT, IF THE BRACING IS INSTALLED WITHIN 24" OF THE ELBOW OR TEE OF SIMILAR SIZE. FOR THREADED PIPING THE FLEXIBILITY MAY BE PROVIDED BY THE INSTALLATION OF SWING JOINTS. IN WELDED OR SOLDER JOINT PIPING, THE FLEXIBILITY SHALL BE PROVIDED BY EXPANSION LOOPS OR MANUFACTURED FLEXIBLE CONNECTORS. FOR PIPING WITH MANUFACTURED BALL JOINTS SELECT LENGTH OF PIPING OFFSET USING "SEISMIC DRIFT" IN PLACE OF "EXPANSION PER JOINT MANUFACTURERS" SELECTION TABLE. SEISMIC DRIFT = 0.015 FT. PER FOOT OF HEIGHT. MAD USE BRANCH LINES TO BRACE MAIN LINES. SIZE. FLEXIBILITY MAY BE PROVIDED BY THE INTS. IN WELDED OR SOLDER JOINT PIPING, PROVIDED BY EXPANSION LOOPS OR CONNECTORS. FOR PIPING WITH MANUFACTURED TH OF PIPING OFFSET USING "SEISMIC DRIFT" IN & JOINT MANUFACTURERS" SELECTION TABLE. . PER FOOT OF HEIGHT. . PER FOOT OF HEIGHT. TO BRACE MAIN LINES. SED. PROVIDE FLEXIBILITY IN JOINTS WHERE GG SEISMIC OR EXPANSION JOINTS, OR WHERE MINECT TO EQUIPMENT WITH VIBRATION BRACE ALL RECTANGULAR DUCTS 6 SQ. FT. OF AREA AND LARGER. BRACE ALL ROUND DUCTS 28" IN DIAMETER AND LARGER. MALLS (INCLUDING GYP-BOARD NON-BEARING PARTITIONS) WHICH HAVE WALLS (INCLUDING GYP-BOARD NON-BEARING PARTITIONS) WHICH HAVE DUCTS RUNNING THROUGH THEM MAY REPLACE A TYPICAL TRANSVERSE BRACE. PROVIDE SOLID BLOCKINGS AROUND DUCT PENETRATION AT STUD WALL CONSTRUCTION. DUCTS AND PIPES NOT BRACED SHALL BE INSTALLED WITH 6" MINIMUM CLEARANCE TO VERTICAL CEILING HANGER WIRES. ALL SHEET METAL FOR BRACING TO BE FY=33KSI. IT IS THE RESPONSIBILITY OF THE INSTALLER TO ASCERTAIN THAT AN APPROPRIATE SIZE DEVICE BE SELECTED FOR EACH INDIVIDUAL PIECE OF - 0" O.C. MAXIMUM UNLESS OTHERWISE F OTHER APPROVED MATERIALS SHALL BE SUPPORTED IN ANCE WITH THEIR APPROVED INSTALLATION STANDARDS. CING: RSE BRACINGS AT 40' – 0" O.C. MAXIMUM UNLESS OTHE SVERSE PULES OF ACCORDA BRACE SPAC EQUIPMEN CING OF P ALL BRACI DO N TRAP B. BRACI ъ ÷ റ ÷ ч. е ÷ <u>..</u> غ . ف പ് ö

 CONDITIONS.
 B. PEEPARE DRAWINGS SHOWING PROPOSED REARRANGEMENT OF WORK TO MEET RECTOONS. ORTAN PERSION OF ARCHITECT/ENGINEER BEFORE PROCEEDING.
 C. REFER JC RECORD DRAWINGS.
 R. BINGMA OTHER TRADES THRU GENERAL CONTRACTOR AS TO REQUIREMENTS FOR SLEEVES, BOXES, OTHER OPENINGS, AND EMBEDDED ITEMS. COORDINATE WITH OTHER TRADES IN ORDER TO MANITAM JOB PROGRESS SCHEDULE AND TO ANOID CONFLICTS IN THE INSTALLATION OF WORK BY OTHER TRADES.
 B. LINNISH AND INFTALL PRE SLEEVES AND EMBEDDED ITEMS REQUIRED UNDER DISJALL REFIRY AT HE SITE ALL MEASUREMENTS NECESSARY FOR THE PROPER INSTALLATION OF HIS WORK.
 D. CONTRACTOR SHALL REFILS WHICH AFFECT THE MECHANICAL INSTALLATION AND SHALL CONFER WITH THOSE TRADES FOR FINISH ADJACENT TO HIS WORK AND ARRANGE TO HART INTO A DISTULTURAL DRAWINGS FOR INSTALLATION AND SHALL CONFER WITH THOSE TRADES FOR FINISH ADJACENT TO HIS WORK AND ARRANGE TO HART INTO A DISTULTURAL DRAWINGS FOR INSTALLATION AND SHALL CONFER WITH THOSE TRADES FOR FINISH ADJACENT TO HIS WORK AND ARRANGE TO HART INTO A DISTULTURAL DRAWINGS FOR FINISH ADJACENT TO HIS WORK AND ARRANGE TO ARCHITECTURAL DRAWINGS FOR FINISH ADJACENT TO HIS MARK AND ARRANGES OF AND HARMONIZE WITH THE FINISH IN A MANNER SATISFACTORY TO THE ARCHITECT.
 E CELLING HEIGHTS: REFER TO ARCHITECTURAL DRAWINGS FOR RUNNER SATISFACTORY TO HIS WORK AND ARCESS CLEARANCES SHALL RECURRENCES AND DIFER ADJACENS REPORT AND HARMONIZE WITH THE FINISH IN A MANNER SATISFACTORY TO THE ARCHITECT.
 E CELLING HEIGHTS: REFER TO ARCHITECTURAL DRAWINGS FOR CELLIN SIERES
 A. SIERES
 A. SIERES
 A. INSTALL 20 GAEG GALVANZED SIERES FOR PINIG THRU CONCRETE FLOORS ADDOFEGNOUND AND THRU MASONRY. PLASTERED AND FRAME WALLS. CLEARANCE AROUND AND THRU MASONRY. PLASTERED AND STALS. IRON PIPE SIERVES FOR PIPING THRU CONCRETE WALLS AND BEAMS. GROUT AROUND SIEEVES THRU WALLS.
 B. RON PIPE SIERVES THRU CONCRETE FLOORS SUBJECT TO FLOODING AND MOPPING. STIT TO EXTEND 1" ABOVE FINISHED FLOORS. SEALED OR CAULK.
 M. D. FLOOR PLATES.
 C. WHERE COVERING IS SPECIFIED, MAKE SIEEVES OR CORES PROPER SIZE TO LALOW FOR ISOLATORS THRU WALLS AND UNFINISHED FLOORS. SEALED OR CAULK.
 D. ELOOR PLATES.
 C. WHERE COVERING IS SPECIFIED, MAKE SIEEVES OR CORES PROPER SIZE TO ALLOW FOR ISOLATORS THRU WALLS AND UNFINISHED FLOORS.
 D. ELOOR PLATES.
 D. ELOOR PLATES.
 D. ELOOR SINGED IN THE FOREGOING, CUT SIEEVES FLUISH WITH SUFFACE.
 E. SIEEVE PASS NOTED IN THE FOREGOING, CUT SIEEVES FLUISH WITH SUFFACE.
 E. SIEEVE PASS NOTED IN THE FOREGOING, CUT SIEEVES FLUISH WITH SUFFACE.
 E. SIEEVE PASS NOTED IN THE DRECONG, CUT SIEEVES FLUISH WITH SUFFACE.
 E. SIEEVE PASS NOTED IN THE DRECONG, CUT SIEEVES FLUISH WITH SUFFACE.
 E. SIEEVE PASS NOTED IN THE DRECONG, CUT SIEEVES FLUISH WITH SUFFACE.
 SIGNEMAN TRISOLATORS THRU WALLS AND UNFLARES FLUISH WITH JON.
 COULIX AND COMPONIOS FOR PEGNATIONS, FILL VOID WITH DOW COULIX AND COMPONION OF BOLA.
 M. WETALI IN ACCORDANCE WITH MULL.
 SIGNE OFRILM WHERE STERNEY ON MASONRY. USING DAMOND DICTINURG STOR PREST THRU CONSTRUCTIONS AND RECOMMENDATIONS FOR PEGNAL.
 A. RISALL IN ACCORDANCE WITH MULLS.
 B. RISALL IN ACCORDANCE WITH MULLS.
 A. RISALL IN ACCORDA ete slabs Te beams. Erts FOR SION 23, THE RATIONAL TESTS PROJECT/SITE CONDITIONS EXAMINE PREMISES AND UNDERSTAND THE CONDITIONS, WHICH MAY AFFECT PERFORMANCE OF WORK OF THIS DIVISION BEFORE SUBMITTING PROPOSALS FOR THIS WORK. NO SUBSEQUENT ALLOWANCE FOR TIME OR MONEY WILL BE CONSIDERED FOR ANY CONSEQUENCE RELATED TO FAILURE TO EXAMINE SITE OVIDE ACOUSTICAL LEAD FLASHING AROUND DUCTS AND PIPES PENETRATING OVIDE ACOUSTICAL LEAD FLASHING AROUND DUCTS AND PIPES PENETRATING UIPMENT ROOMS, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S STRUCTIONS FOR SOUND CONTROL. OVIDE CURBS FOR MECHANICAL ROOF INSTALLATIONS 6 INCH MINIMUM HIGH OVER ROOFING SURFACE. FLEXIBLE SHEET FLASH AND COUNTERFLASH WITH EET METAL; SEAL WATERTIGHT. TALL WHERE PIPES PASS THROUGH FINISHED CEILINGS AND FLOORS. E INSERTS TO GENERAL CONTRACTOR FOR PLACEMENT IN CONCRETE DRK.

(2) 16 AWG A SELF-REGULATING SPOND TO EATER TO BE SED DIRECTLY ON I IN THE FIELD. S-LINKED MODIFIED

TING CABLE'S OF TINNED-COPPER

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NG TORQUE: LESS THAN 150 PERCENT OF FULL LOAD TORQUE. NG CURRENT: UP TO SEVEN TIMES FULL LOAD CURRENT. DOWN TORQUE: APPROXIMATELY 200 PERCENT OF FULL LOAD

PERMANENT -SPLIT CAPACITOR MOTORS:
PERMANENT -SPLIT CAPACITOR MOTORS:
STARTING TORQUE: EXCEEDING ONE FOURTH OF FULL LOAD TORQUE.
STARTING CURRENT: UP TO SIX TIMES FULL LOAD CURRENT.
MULTIPLE SPEED: THROUGH TAPPED WINDINGS.
MULTIPLE SPEED: THREE TIMES FULL LOAD TORQUE.
STARTING CURRENT: LESS THAN FIVE TIMES FULL LOAD TORQUE.
STARTING CURRENT: LESS THAN FIVE TIMES FULL LOAD TORQUE.
BREAKDOWN TORQUE: UP TO 350 PERCENT OF FULL LOAD TORQUE.
BREAKDOWN TORQUE: APPROXIMATELY 250 PERCENT OF FULL LOAD TORQUE.
MOTORS: CAPACITOR IN SFRIFS WITH FILME TO FULL LOAD TORQUE.

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MOTORS: CAPACITOR IN SERIES WITH STARTING WINDING; CAPACITOR -START/CAPACITOR -RUN MOTORS SHALL HAVE TWO CAPACITORS IN PARALLEL WITH RUN CAPACITOR REMAINING IN CIRCUIT AT OPERATING SPEEDS.

i. THREF PHASE MOTORS:
i. THREF PHASE MOTORS:
i. STATING TORQUE: BETWEEN ONE AND ONE -HALF TIMES FULL LOAD TORQUE:
i. STATING CURRENT: SIX TIMES FULL LOAD CURRENT.
i. POWER OUTPUT, LOCKED ROTOR TORQUE, BREAKDOWN OR PULLOUT TORQUE: NEMA DESIGN B CHARACTERISTICS.
i. DORQUE: NEMA G1 FOR DESIGN B MOTORS.
i. DESIGN, CONSTRUCTION, TESTING, AND PERFORMANCE: CONFORM TO ANSI/NEMA MG 1 FOR DESIGN B MOTORS.
i. INSULATION SYSTEM: NEMA CLASS F OR BETTER.
i. ISSULATION SYSTEM: NEMA CLASS F OR BETTER.
i. LOAD TEST MOTORS TO DEFERMINE FREEDOM FROM ELECTRICAL OR MECHANICAL DEFERMINE FREEDOM FROM MITH ANSI/IEEE 112, TEST METHOD MISERTS.
i. BEARINGS: CREASE LUBRICATED ANTI _FDIATON CON ALUMINUM WITH STEEL ALUMINUM WITH STEEL ADDITIONS CONTRUCTION CON ALUMINUM WITH STEEL ADDITIONS CONTRUCTIONS CONTRUCTION CONTR

INSEKIS.
BEARINGS: GREASE LUBRICATED ANTI -FRICTION BALL BEARINGS WITH HOUSINGS: GRUPPED WITH PLUGGED PROVISION FOR RELUBRICATION, RATED HOUSINGS EQUIPPED WITH PLUGGED PROVISION FOR RELUBRICATION, RATED FOR MINIMUM AFBMA 9, L -10 LIFE OF 200,000 HOURS. CALCULATE BEARING LOAD WITH NEMA MINIMUM V - BELT PULLEY WITH BELT CENTER LINE AT END OF NEMA STANDARD SHAFT EXTENSION. STAMP BEARING SIZES ON NAMEPLATE.
SOUND POWER LEVELS: TO ANSI/NEMA MG 1.
PART WINDING START WHERE INDICATED: USE PART OF WINDING TO REDUCE LOCKED ROTOR STARTING CURRENT WHILE PROVIDING APPROXIMATELY 50 PERCENT OF FULL WINDING LOCKED ROTOR CURRENT WHILE PROVIDING APPROXIMATELY 50 PERCENT OF FULL WINDING LOCKED ROTOR CURRENT WHILE REDUCE LOCKED ROTOR STARTING CURRENT WHILE PROVIDING APPROXIMATELY 50 PERCENT OF FULL WINDING LOCKED ROTOR RUTH ROTOR RUNCE MINDINGS USING VACUUM AND PRESSURE WITH ROTOR AND STARTER SURFACES PROTECTED WITH FPOXY ENAML. BEARINGS SHALL BE DOUBLE SHIELDED WITH PEPOXY ENAML. BEARINGS SHALL BE DOUBLE SHIELDED WITH PEPOXY ENAML. BEARINGS SHALL BE DOUBLE SURFACES PROTECTED WITH FOOT ROTOR CURRENT WHILE SURFACES PROTECTED WITH ROTOR AND STARTER SURFACES PROTECTED WITH ROTOR NON -WASHING SREASE.
NOMINAL EFFICIENCY: MEET OR EXCEED VALUES IN SCHEDULES AT FULL LOAD AND RATED VOLTAGE WHEN TESTED IN ACCORDANCE WITH ANSI/IEEE 112.
NOMINAL POWER FACTOR: MEET OR EXCEED VALUES IN SCHEDULES AT FULL LOAD AND RATED VOLTAGE WHEN TESTED IN ACCORDANCE WITH ANSI/IEEE 112.
IEGO, C-FACED MOTORS REQUIRED FOR VANE AXIAL FANS, CLASS F INSULATION.
MOTORS SHALL HAVE DIAR PATING ON ANAMPI AT FON CATUL AND AND TONS. THREE PLASE INSULATION.
MOTORS SHALL HAVE DIAR RATING ON ANAMPI AT FON CATUL AND AND RATE FON CATUL AND AND INSULATION.

PART 3

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MOTORS SHALL HAVE DUAL RATING ON NAMEPLATE FOR STILL AIR AIROVER OPERATION.
 NEMA OPEN MOTOR SERVICE FACTORS:

1800 RPM Ū.

MINIMUM NOMINAL FULL LOAD EFFICIENCY OF ENERGY EFFICIENT MOTORS RPM 86.5% 1.35 1.15 1.15 1.15 006 CLOSED 84.0% 84.0% 82.5% 1800 RPM 1200 RPM 1.15 1.15 1.15 82.5% 84.0% 75.5% 3600 RPM 1.25 1.15 1.15 84.0% 85.5% 80.0% 1200 RPM 3600 RPM 1800 RPM 1.15 82.5% 84.0% 84.0% 1.35 1.25 1.25 OPEN 82.5% 84.0% 3600 RPM 150 1-1/2 1/6 1 년 ய

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88.5% 89.5% 91.0% 91.0% 89.5% 91.7% 92.4% 91.0% 1.0% 91.0% 91.0%
 1.5

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 2.0

 3.0

 5.0

 7.5

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a. MODEL 100 OR 500 FOR PIPING THRU FRAME WALLS.
b. MODEL LS FOR PIPING THRU CONCRETE WALLS AND FLOORS.
c. PYRO-PAC IF FLOOR OR WALL IS FIRE RATED.
SLEEVES
INSTALL 20 GAGF CANTANTE

3. PLATES A. PLATES A. PLATES a. IN B. ISOLATO

15. A. ш.

MECHANICAL-ELECTRICAL INTERFACE SEPARATION OF WORK BETWEEN TRADES AND SUBCONTRACTORS IS NOT WITHIN THE SCOPE OF THESE SPECIFICATIONS. THE FOLLOWING IS PROPOSED FOR ASSISTANCE IN BIDDING ONLY. UNLESS OTHERWISE INDICATED, MECHANICAL EQUIPMENT AND CONTROLS ARE SUGGESTED TO BE FURNISHED, INSTALLED AND WIRED IN ACCORDANCE WITH TH FOLLOWING SCHEDULE; COORDINATE ALL WORK WITH DIVISION 26, ELECTRICAL:

MECHANICAL	- Equipment A	AND CONTR	OLS	
ITEM	POWER FURNISHED BY:	CONTROL INSTALLED BY:	Power Wiring By:	CONTROL WIRING BY:
EQUIPMENT MOTORS:	W	Μ	Е	Μ
MAGNETIC MOTOR STARTERS AUTOMATICALLY CONTROLLED WITH OR WITHOUT HOA SWITCHES:	ш	ш	ш	Ψ
MAGNETIC MOTOR STARTERS MANUALLY CONTROLLED:	Е	Е	E	Э
FURNISHED W/ MECH. EQUIPMENT, FACTORY-MOUNTED:	Μ	Μ	Ш	Μ
FURNISHED W/MECH. EQUIPMENT, FOR FIELD MOUNTING:	Μ	Е	Ш	Μ
DISCONNECT SWITCHES, MANUAL MOTOR STARTERS, THERMAL OVERLOAD SWITCHES:	ĿIJ	LLI	LLI	I
VALVES, FLOAT CONTROLS, DAMPER MOTORS, EP AND PE SWITCHES, OTHER MISCELLANEOUS	×	×	×	×
DIVISION 23 CONROLS	Ш	Σ	I	Σ

MECHANICAL-ELECTRICAL COORDINATION
a. CHECK MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS TO ASSURE PROPER LOCATION AND ELECTRICAL CHARACTERISTICS OF OUTLETS SERVING MECHANICAL AND ELECTRICAL EQUIPMENT.
b. ADVISE THE ARCHITECT/ENGINEER OF ANY MODIFICATIONS REQUIRED TO SUIT EQUIPMENT FURNISHED.
c. PROVIDE FUNCTIONAL TEST OF CONTROL SYSTEM, AIR DISTRIBUTION SYSTEM AND ALL MECHANICAL COMPONENTS. TEST TO BE CONDUCTED IN THE PRESENCE OF THE BUILDING OWNER'S REPRESENTATIVE. WRITTEN VERIFICATION OF TEST TO BE SIGNED BY OWNER'S REPRESENTATIVE. WRITTEN VERIFICATION OF TEST TO BE SIGNED BY OWNER'S REPRESENTATIVE. THE TESTS SHALL VERIFY THAT ALL SYSTEMS ARE FUNCTIONAL AND OPERATIONAL PRIOR TO SUBSTANTIAL COMPLETION. ANY WORK NOT PASSING THE TESTS SHALL BE CORRECTED IMMEDIATELY.
d. EXCEPT AS NOTED OTHERWISE, MOTOR STARTERS AND OTHER MEANS FOR OPERATION AND CONTROL OF EQUIPMENT ARE PROVIDED UNDER DIVISION 23, MIRING. MECHAr CHE Þ. ö ப் ப்

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8021 State Avenue Marysville, WA 98270 p (425)744-6033 www.beronaengineers.com

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WIRIN 5. Ū.

MIKING
a. POWER WIRING IS IN DIVISION 26.
b. PROVIDE UNDER DIVISION 23 ALL CONTROL WIRING, LINE OR LOW VOLTAGE, THROUGH THE COILS OF THE MAGNETIC STARTERS AND RELAYS AND THROUGH THE CONTACTS OF THERMOSTATS AND OTHER PILOT DEVICES.
c. PROVIDE UNDER DIVISION 23 CONDUIT FOR ALL LINE VOLTAGE CONTROL WIRING AND EXPOSED LOW VOLTAGE WIRING IN MECHANICAL ROOMS AND CELLING PLENUMS.
d. PROVIDE FLEXIBLE CONDUIT REQUIRED ON SHORT RUNS TO EQUIPMENT SUBJECT TO VIBRATION, I.E., MOTORS, FANS.
e. MOUNT STARTERS, DISCONNECTS AND PANELS ON WALLS WHERE PRACTICAL, NOT ON EQUIPMENT OR ON STAND FROM FLOOR.
f. PROVIDE ELECTRICAL EQUIPMENT FURNISHED UNDER THIS SECTION OF SPECIFICATIONS IN STRICT ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND LOCAL CODES.
T 3 - EXECUTION ъ. ပံ

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CONTD d. cont PROVISIONS

- MECHANICAL GENERAL PROVISIONS b. double check valve: b. double check valve: check seats, shafts and flange bolts, bronze ball valve test check seats, shafts and flange bolts, bronze ball valve test cocks, bronze ball valve shut-offs, strainer, threaded connections, 175 psi pressure rating. 2 -1/2" and over; epoxy coated iron body, bronze trim, stanless stell internal parts, removable bronze seats, gate valve shut-offs, strainer, flanged ends, 175 psi pressure rating. c. reduced pressure type: c. 2" and under; bronze body, rubber check valves with reduced pressure zone, stainless steel check seats, shafts and flange bolts, bronze ball valve test cocks, bronze ball valve shut-offs, strainer, threaded connections, 175 psi pressure
 - SHUI-OFFS, SIRAINER, IHREADED CONNECTIONS, 175 PSI PRESSURE RATING.
 2-1/2" AND OVER; EPOXY COATED IRON BODY, BRONZE TRIM, STAINLESS STEEL INTERNAL PARTS, REMOVABLE BRONZE SEATS, GATE VALVE SHUT-OFFS, STRAINER, FLANGED ENDS, 175 PSI PRESSURE RATING.
 C. WATER PRESSURE REDUCING VALVES:

 a. UP TO 2 INCHES
 b. UP TO 2 INCHES
 a. UP TO 2 INCHES
 b. DP TO 2 INCHES
 b. DP TO 2 INCHES
 b. OVER 2 INCHES
 c. CAST IRON BODY, BRONZE FITTED, NYLON REINFORCED ELASTOMERIC DIAPHRAGM AND SEAT DISC, FLANGED, PILOT OPERATED, ADUUSTABLE CLOSING SPEED, COPPER CONTROL TUBING WITH BRASS FLARED-END FITTINGS.
 b. MATTS ACV, CLA-VAL, CASH OR APPROVED.
 c. MATTS ACV, CLA-VAL, CASH OR APPROVED.
 d. MATTS ACV, CLA-VAL, CASH OR APPROVED.

- D. RELIEF VAL a. MANU a. MANU b. WAT b. B&(b. MANU b. MANU c. MANU b. MANU B.
- MATROL.
 OTHER MANUFACTURERS OFFERING EQUIVALENT PRODUCTS MAY BE OTHER MANUFACTURERS OFFERING EQUIVALENT PRODUCTS MAY BE CONSIDERED.
 BRONZE BODY, TEFLON SEAT, STEEL STEM AND SPRINGS, AUTOMATIC, DIRECT TEMPERATURE AND PRESSURE ACTUATED, CAPACITIES ASME CERTIFIED AND LABELED. . Þ

- E. CALIBRATED BALANCING VALVES:
 a. ADJUSTABLE ORIFICE TYPE:
 a. MANUFACTURERS:
 MANUFACTURERS:
 a. ARMSTRONG MODEL CBV.
 a. ARMSTRONG MODEL CBV.
 a. DAN FOSS.
 bAN FOSS.
 OTHER MANUFACTURERS OFFERING EQUIVALENT PRODUCTS MAY BE CONSIDERED.
 GENERAL:
 VALVES SHALL BE Y-PATTERN, EQUAL PERCENTAGE GLOBE STYLE
 VALVES SHALL BE Y-PATTERN, EQUAL PERCENTAGE GLOBE STYLE
- GENERAL:
 GENERAL:
 VALVES SHALL BE Y-PATTERN, EQUAL PERCENTAGE GLOBE STYLE PROVIDING PRECISE FLOW MEASUREMENT, PRECISE FLOW BALANCING AND POSITIVE DRIP TIGHT SHUT-OFF.
 VALVES SHALL HAVE MULTI-TURN ADJUSTMENT: MINIMUM 720=. VALVES SHALL HAVE MULTI-TURN ADJUSTMENT: MINIMUM 720=. VALVES SHALL HAVE MULTI-TURN ADJUSTMENT: MINIMUM 720=. UP TO 2" SIZEL BRASS OR BRONZE BODY WITH THREAD OR SWEAT CONNECTIONS, BRONZE BODY WITH THREAD OR SWEAT CONNECTIONS, BRONZE BODY WITH ATREAD OR SWEAT CONNECTIONS, BRONZE BODY WITH ATREAD OR SWEAT CONNECTIONS, BRONZE STEM WITH RESIN OR PFTE DISC, AND TWO, 1/4" PRESSURE/TEMPERATURE TEST PORTS WITH NORDEL CHECK VALVES AND GASKETED CAPS, ADDITIONAL PORTS FOR DRAIN CONNECTIONS.
 2 TO 12" SIZE: DUCTILE IRON BODY WITH GROOVED END OR FLANGED CONNECTIONS, BRONZE VALVE STEM AND PLUG DISC, TWO 1/4" TEMPERATURE AND PRESSURE TEST PORTS WITH NORDEL CHECK VALVES AND GASKETED CAPS, ADDITIONAL PORTS FOR DRAIN CONNECTIONS. BRONZE VALVE STEM AND PLUG DISC, TWO 1/4" TEMPERATURE AND PRESSURE TEST PORTS WITH NORDEL CHECK VALVES AND GASKETED CAPS, ADDITIONAL PORTS FOR DRAIN CONNECTIONS. BRONZE VALVE STEM AND PLUG DISC, TWO 1/4" TEMPERATURE AND PRESSURE TEST PORTS WITH NORDEL CHECK VALVES AND GASKETED CAPS, ADDITIONAL PORTS FOR DRAIN CONNECTIONS.
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- JULIVALENT PRODUCTS MAY BE JULIVIERAL
 JULIVERAL:
 ALVES SHALL BE BALL STYLE WITH INTEGRAL FIXED VENTURI PROVIDING PRECISE FLOW MASUREMENT, PRECISE FLOW BALANCING PROVIDING PRECISE FLOW MASUREMENT, PRECISE FLOW BALANCING AND POSITIVE DRIP TIGHT SHUT-OFF.
 VALVES SHALL HAVE DO' ADUSTMENT WITH MEMORY STOP.
 VALVES SHALL HAVE MEANS OF LOCKING IN BALANCED POSITION.
 UP TO 3" SIZE: BRONZE BODY WITH UNION ON INLET, THREAD OR SWEAT CONNECTIONS, STAINLESS STEEL OR BRASS BALL WITH TE SEAT RINGS AND TWO.....D RRESSURE/TEMPERATURE TEST PORTS WITH NORBEL CHECK VALVES AND GASKETED CAPS, ADDITIONAL PORTS FOR DRAIN CONNECTIONS, BRONZE VALVE STEM AND PLUG DISC AND TWO, 1/4" PRESSURE/TEMPERATURE TEST PORTS WITH NORBEL CHECK VALVES AND GASKETED CAPS, ADDITIONAL PORTS FOR DRAIN CONNECTIONS, BRONZE VALVE STEM AND PLUG DISC AND TWO, 1/4" PRESSURE/TEMPERATURE TEST PORTS WITH NORDEL CHECK VALVES AND GASKETED CAPS, ADDITIONAL PORTS FOR DRAIN CONNECTIONS, BRONZE VALVE STEM AND PLUG DISC AND TWO, 1/4" PRESSURE/TEMPERATURE TEST PORTS WITH NORDEL CHECK VALVES AND GASKETED CAPS, ADDITIONAL PORTS FOR DRAIN CONNECTIONS, BRONZE VALVE STEM AND PLUG DISC AND TWO, 1/4" PRESSURE/TEMPERATURE TEST PORTS WITH NORDEL CHECK VALVES AND GASKETED CAPS, ADDITIONAL PORTS FOR DRAIN CONNECTIONS, BRONZE VALVE STEM AND PLUG DISC AND TWO, 1/4" PRESSURE/TEMPERATURE TEST PORTS WITH NORDEL CHECK VALVES AND GASKETED CAPS, ADDITIONAL PORTS FOR DRAIN CONNECTIONS.
 MANUFACTURERS
 MANUFACTURERS
 MANUFACTURERS

- F. AUTOMATIC FLOW CONTROL VALVES:
 F. AUTOMATIC FLOW CONTROL VALVES:
 a. MANUFACTURERS
 a. MANUFACTURERS
 a. MANUFACTURERS
 b. MI HYDRONIC.
 cRISWOLD CONTROL.
 cRISWOLD CONTROL.
 a. MANUFACTURERS OFFERING EQUIVALENT PRODUCTS MAY BE GRISWOLD CONTROL.
 cRISWOLD CONTROL.
 cONSTRUCTION:
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 b. CONSTRUCTION:
 c. CONTROL ELEMENT(S): ONE OR MORE BRASS AND/OR STAINLESS STEEL ORTIF AND SPRING.
 b. CONSTRUCTION:
 c. FLOW CONTROL ELEMENT(S): ONE OR MORE BRASS AND/OR STAINLESS STEEL ORTIF AND SPRING.
 c. CONTROL ELEMENT(S): ONE OR MORE BRASS AND/OR STAINLESS STEEL ORTIF AND SPRING.
 c. CONTROL ELEMENT(S): ONE OR MORE PRASS AND/OR STAINLESS TOW, MAY BRASS OR WROUGHT COPPERVALVE BONY, FLANCED OR SMEAT CONNECTIONS, RATED ANSI CLASS 125. TWO, ... PRESSURE/TEMPERATURE TEST PORTS WITH AND ROTS VALVE BODY, FLANCED OR ROOVED CONNECTIONS, RATED ANSI CLASS 130. TWO, ... PRESSURE/TEMPERATURE TEST PORTS WITH EXTENSIONS AND NORDEL CHECK VALVES WITH GASKETED CAPS, AND ADDITIONAL PORTS FOR PRAIN CONNECTIONS, RATED ANSI CLASS 130. TWO, ... PRESSURE/TEMPERATURE TEST PORTS WITH EXTENSIONS AND NORDEL CHECK VALVES WITH GASKETED CAPS, AND ADDITIONAL DRAIN AND NORDEL CHECK VALVES WITH GASKETED CAPS, AND ADDITIONAL DRAIN AND NORDEL CHECK VALVES WITH GASKETED CAPS, AND ADDITIONAL DRAIN AND NORDEL CHECK VALVES WITH GASKETED CAPS, AND ADDITIONAL DRAIN AND NORDEL CHECK VALVES WITH GASKETED CAPS, AND ADDITIONAL DRAIN AND NORDEL CHECK VALVES WITH GASKETED CAPS, AND ADDITIONAL DRAIN AND NORDEL CHECK VALVES WITH GASKETED CAPS, AND ADDITIONAL DRAIN AND NORDEL CHECK VALVES WITH GASKETED CAPS, AND ADDITIONAL PORTS VALVE BODY, FLANCESCI CALBRATION
 c. C. CLUBRATION
 c. CALBRATION
 d. CONTROL CONTRC
 - STRAINERS: a. MANUF/

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- SIRAINERS:
 MANUFACTURERS:
 WATTS.
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 WATTS.
 MANUFACTURERS:
 MANUFACTURERS:
 ARMSTRONG.
 SIRAX/SARCO.
 SIRAX/SARCO.
 OTHER MANUFACTURERS OFFERING EQUIVALENT PRODUCTS MAY BE CONSIDERED.
 SIZE 2 INCH AND UNDER: SCREWED BRASS OR IRON BODY FOR 175 PSIC WORKING PRESSURE, Y PATTERN WITH 1/32 INCH STAINLESS STEEL PERFORATED SCREEN.
 SIZE 2 -1/2 INCH TO 4 INCH: FLANGED IRON BODY FOR 175 PSIC WORKING PRESSURE, Y PATTERN WITH 3/64 INCH STAINLESS STEEL PERFORATED SCREEN.
 SIZE 2 -1/2 INCH TO 4 INCH: FLANGED IRON BODY FOR 175 PSIC WORKING PRESSURE, PATTERN WITH 3/64 INCH STAINLESS STEEL PERFORATED SCREEN.
 SIZE 5 INCH AND LARGER: FLANGED IRON BODY FOR 175 PSIC WORKING PRESSURE, BASKET PATTERN WITH 1/8 INCH STAINLESS STEEL PERFORATED SCREEN. ч.
- BROVIDE NIPPLE AND BLOWDOWN VALVE WITH PLUG ON ALL STRAINERS 1"
 PIPE SIZE AND LARGER.
 13. HEAT TRACE FOR FREEZE PROTECTION
 A. MANUFACTURERS:
 a. BASIS FOR DESIGN: RAYCHEM XL-TRACE.
 b. SUBSTITUTE MANUFACTURERS MAY BE CONSIDERED SUBJECT TO REVIEW.
 c. PROPOSED SUBSTITUTIONS SHALL MEET OR EXCEED ALL REQUIREMENTS OF THESE SPECIFICATIONS.
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- CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUBSTITUTED EQUIPMENT OR WATERALS FITTING THE AVAILABLE SPACE AND FOR ANY IMPACTS TO OTHER TRADES.
 B. CONSTRUCTION:
 B. CONSTRUCTION:
 CONSTRUCTION:
 C. THE SELF-REGULATING HEATER SHALL CONSIST OF TWO (2) 16 AWG TRADES.
 B. CONSTRUCTION:
 a. THE SELF-REGULATING HEATER SHALL CONSIST OF TWO (2) 16 AWG TINED-COPPER BUS WIRES EMBEDDED IN PARALLEL IN A SELF-REGULATING TRAPEMENT OF TIMED-COPPER BUS WIRES CONSECTION OF THE HEATER TO BE CROSSED OVER TRSLET WITHOUT OVERHEATING, TO BE USED DIRECTLY ON WETALLIC OR PLASTIC PIPE, AND TO BE CUT TO LENGTH IN THE FIELD.
 b. THE HEATER SHALL BE COVERED BY A RADIATION CROSS-LINKED MODIFIED POLYOLEFIN (-CR).
 c. TO PROVIDE A GROUND PATH AND TO ENHANCE THE HEATING CABLE'S RUGGEDNESS, THE HEATER SHALL HAVE AN OUTER BRAID OF TINNED-COPPER AND AN OUTER JACKET OF MODIFIED POLYOLEFIN (-CR).
 c. ROVIDE A GROUND PATH AND TO ENHANCE THE HEATING CABLE'S RUGGEDNESS, THE HEATER SHALL HAVE AN OUTER BRAID OF TINNED-COPPER AND AN OUTER JACKET OF MODIFIED POLYOLEFIN (-CR).
 c. ROVIDE A GROUND PATH AND TO ENHANCE THE HEATING CABLE'S SUCCEDNORS, THE HEATER SHALL HAVE AN OUTER BRAID OF TINNED-COPPER (NEC), SECTION 427.
 a. SYSTEM SHALL MEET REQUIREMENTS OF CURRENT MATIONAL ELECTRIC CODE (NEC), SECTION 427.
 b. THE HEATER SHALL HAVE A SELF-REGULATING FACTOR OF A LEAST 30 PERCENT.
 c. ROBDER TO PROVIDE ENERGY CONSERVATION AND TO PREVENT CONTROL OF A LEAST 30 PERCENTION. PROVIDE SUFFICIENT HERMOSTATIC CONTROL OF THE PREVATION. THE RECULATION FACTOR IS DEFINED AS THE PERCENTION. PROVIDE SUFFICIENT HEAT CONTROL OF THE PREVATION. TO SOFT AND TO REPREATING. THE RECULATION AND TO PREVENT THAN CSTOR OF A LEAST 30 PERCENT. THE SELF-REGULATION AND TO REPRET AS STEED IN ACCORDANCE WITH FOLLOWING TABLE TO KEEP THE PREVATION. TO SOFT AND THE RECULATION FACTOR IS DEFINED AS THE PREVENTION. PROVIDE SUFFICIEN
 - HEAT TRACE WATTAGE BASED ON AMBIENT TEMPERATURE

IT TEMPERATU	-10°F	5 WATT	5 WATT	8 WATT	2-5 WATT	2-8 WATT	2-8 WATT	2-8 WATT
IINIMUM AMBIEN	0°F	5 WATT	5 WATT	8 WATT	8 WATT	2-5 WATT	2-5 WATT	2-5 WATT
V	10°F	5 WATT	5 WATT	5 WATT	8 WATT	8 WATT	8 WATT	8 WATT
חוחד גוזד		1/2 - 3 INCH	4 INCH	6 INCH	8 INCH	10 INCH	12 INCH	14 INCH

2-8 WATT

2-8 WATT

2-8 WATT

- OLONGARGINATION CONFIGURE FILL TREAT PART FILL TOTAL LISTED FOR LISTE APPORTED NAME AT TO PRECEDIM WITH INGESS AND CONCORDENS.
 IN STALLARD SHEL OR CONFORCE THE INSTANCE CONFIGURE TO OUT NOT THE REATION CONFOLDER.
 IN STALLARD SHEL OR CONFIDENCE THE INSTANCE CONFIGURE TO OUT NOT THE REATION CONFOLDER.
 IN STALLARD SHEL OR CONFIDENCE THE INSTANCE CONFIDENCE TO THE TOWARD TO THE REATION CONFORMED THE INSTANCE CONFIDENCE TO THE TOWARD TO THE REATION CONFIDENCE.
 IN STALLARD SHEL OR CONFIDENCE THE INSTANCE CONFIDENCE TO THE TOWARD TO THE TOWARD TO THE REATION CONFIDENCE TO THE TOWARD TO THE REATION TO THE REATIO

- INSUCATION SINGLE PHASE MOTORS: □DRIP -PROOF ENCLOSURE: CLASS A (50°C TEMPERATURE RISE) INSULATION, NEMA SERVICE FACTOR, PRELUBRICATED SLEEVE OR BALL BEARINGS. ENCLOSED MOTORS: CLASS A (50°C TEMPERATURE RISE) INSULATION, 1.0 SERVICE FACTOR, PRELUBRICATED BALL BEARINGS. SPLIT PHASE MOTORS:

 MECHANICAL GENERAL PROVISIONS CONTREPERS OF SMOTHER FORMAND OF THE RESET. PROVINCE ATTERN CONTROL FOR THE RESET.
 A. VERTION, PERE RESET, MERCER, MERCER FORSTEL, STROPPORT FOR THE RESET.
 K. OKT RAN INFRANCIA CONTROL FORMAND TO DECID. 30-00 CONTREPERS OF ANALOR IN STRUCTURE STRU LOUTROLS: IDENTIFY CONTROL PANELS AND MAJOR CONTROL COMPONENTS
 CONTROLS: IDENTIFY CONTROL PANELS AND MAJOR CONTROL COMPONENTS
 CUTSIDE PANELS WITH PLASTIC NAMEPLATES.
 K. VALVES: IDENTIFY VALVES IN MAIN AND BRANCH PIPING WITH TAGS.
 K. VALVES: IDENTIFY PIPING, CONCEALED OR EXPOSED, WITH PLASTIC PIPE MARKERS.
 IDENTIFY SERVICE, FLOW DIRECTION, AND PRESSURE. INSTALL IN CLEAR VIEW AND ALIGN WITH AXIS OF PIPING. LOCATE IDENTIFICATION NOT TO EXCEED 20 FEET ON STRAIGHT RUNS INCLUDING RISERS AND DROPS, ADJACENT TO EACH VALVE AND "1", AT EACH SIDE OF PENETRATION OF STRUCTURE OR ENCLOSURE, AND AT EACH OBSTRUCTION.DUCTWORK: IDENTIFY DUCTWORK WITH STENCILED PAINTING. IDENTIFY AS TO AIR HANDLING UNIT NUMBER, AND AREA SERVED. LOCATE IDENTIFICATION AT AIR HANDLING UNIT, AT EACH SIDE OF PENETRATION OF STRUCTURE OR ENCLOSURE, AND AT EACH OBSTRUCTION.
 AR HANDLING UNIT, NUMBER, AND AREA SERVED. LOCATE IDENTIFICATION AT AIR HANDLING UNIT, NT EACH SIDE OF PENETRATION OF STRUCTURE OR ENCLOSURE, AND AT EACH OBSTRUCTION.
 APPLICATION.DUCTWORK IDENTIFY DUCTWORK WITH STENCILED PAINTING. IDENTIFY AS TO AIR HANDLING UNIT, AT EACH OBSTRUCTION.
 APPLICATION OF STRUCTION.
 APPLICATION. LENGTH.
 THE INSTALLER SHALL PROVIDE RESISTANCE TEST FOR BOTH HEATING CABLE WIRES TO VERIFY THE CONNECTION OF ANY SPLICES OR TEES.
 E. MECHANICAL CONTRACTOR IS RESPONSIBLE TO COORDINATE INSTALLATION OF HEAT TRACING WITH ELECTRICAL CONTRACTOR AND ALL SUBCONTRACTORS.
 MECHANICAL IDENTIFICATION INSTALLATION
 A. DECHANICAL DENTIFICATION INSTALLATION
 A. DECHANICAL DENTIFICATION INSTALLATION
 B. RECHARCES IN ACCORDANCE WITH DIVISION 09 FOR STENCIL PAINTING.
 PREPARE SURFACES IN ACCORDANCE WITH DIVISION 09 FOR STENCIL PAINTING.
 PLASTIC OR METAL TAGS: INSTALL WITH CORROSIVE - RESISTANT MECHANICAL FASTENERS, OR ADHESIVE.
 D. PLASTIC OR METAL TAGS: INSTALL WITH CORROSIVE - RESISTANT CHAIN.
 C. PLASTIC OR METAL TAGS: INSTALL WITH CORROSIVE - RESISTANT CHAIN.
 C. PLASTIC OR METAL TAGS: INSTALL WITH CORROSIVE - RESISTANT CHAIN.
 C. PLASTIC OR METAL TAGS: INSTALL WITH CORROSIVE - RESISTANT CHAIN.
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 C. PLASTIC OR METAL TAGS: INSTALL WITH CORROSIVE - RESISTANT CHAIN.
 C. PLASTIC OR METAL TAGS: INSTALL WITH CORROSIVE - RESISTANT MECHANICAL FASTIC NAMENTING.
 C. PLASTIC PREVENS: INSTALL WITH CORROSIVE - RESISTANT CHAIN.
 C. PLASTIC PREVENS: INSTALL WITH CORROSIVE - RESISTANT CHAIN.
 C. PLASTIC PREVENS: INSTALL WITH CORROSIVE - RESISTANT CHAIN.
 C. PLASTIC PREVENS: INSTALL WITH MANULESCOMPACIANCE WITH MANULACTORES.
 MITH MANUFACTUREY'SINSTALL IN ACCORDANCE WITH MANULACTUREY'SINCH ARAKERS: INSTAL B. APPLY "ELECTRIC TRACED" SIGNS TO THE OUTSIDE OF THE THERMAL INSULATION AT TEN FOOT INTERVALS ALONG THE PIPE ON ALTERNATING SIDES. C. AFTER INSTALLATION, AND BEFORE AND AFTER INSTALLING THE THERMAL INSULATION, SUBJECT HEATER TO TESTING USING A 2500 VDC MEGGER. MINIMUM INSULATION RESISTANCE SHOULD BE 20 TO 1000 MEGAOHMS REGARDLESS OF C.B. A. C.B. A. T.P.F.K. T.P.F.K.

CONTD. A. PROTECTION AND CLEANING A. PROTECT ALL MATERIALS, EQUIPMENT, FIXTURES, PIPING AND VALVES FROM A. PROTECT ALL MATERIALS, EQUIPMENT, FIXTURES, PIPING AND VALVES FROM DAMAGE AND AGAINST RUST AND DIRTY CONDITIONS DURING PROGRESS OF THE

Bukker, ND, Akansin SLA, Bukher AND FLISH ON ETMY CAUNT LIFE UND FERSION OF THE EURO FERSION ALL ELITIOREM TAND FLISH OUT AND CLEMENT ALL ELITIOREM TANDERS. AND STRUM CLEMENT AND FERSION SUPPLY REPORT NATIONAL CLEMENT CLEMENT FILE SAN OF STRUM. CLEMENT FILE SAN STRUMERS.
 C. CLEMENT AND STRUM CLEMENT FOR ELITION OF STRUM SUPPLY STRUM SU

BERONA BOZI State Avenue Marysville, WA 98270 p (425)741-6033 www.beronaengineers.com	And Strand And St And And And And And And And And And And	SUDDEN VALLEY 4 CLUBHOUSE CIRCLE 8ELLINGHAM, WA 98229 82229	REVISIONS Description NO DATE BY DESCRIPTION // - // - - - - - - - - - - - - - - - - - - -	HVAC SCHEDULES	DESIGNEDRRDRAWNKBDRAWNKBCHECKEDRRCHECKEDRRDATE8/14/2023DATE2023.15 M0.4.DWGJOB NUMBER2023.15 M0.4.DWGJOB NUMBER2023.15 M0.4.DWG
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NOTES 1,2,3 WEIGHT (LBS) 8 WATTS 500 ИОГТ/РН. 208/1 HEDULE E.S.P.

NOTES 1,3 1,3,4 1,2,3,4 1,2,3,4 W"xD") UTDOOR 'x42"x13" -

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MARK	MANUF	MODEL		SERVING		CFM E.	S.P. VOL	.т/рн. н.ғ	P./ (WATTS)	RPM	NOISE (de	(LB (LB	GHT 3S)	DIMENSIONS		NOTES
CEF-1	PANASONIC	FV-0511VQ1	RESTRC	JOM/ LOCKER	ROOM	100 0.	.25 11	5/1	(9.4)	1142	0.8	1 1	5	14"x14"x6"		1,2,3,4
CEF-2	PANASONIC	FV-0511VFC:	1 S	HOWER ROOI	Σ	80 0.	.25 11	15/1	(9.4)	1222	0.8	Ť	5	14"×14"×6"		1,2,3,4
IOTES: POWER WITH IN WITH SP CONTRC	WIRING, CONDUIT AND TEGRAL BACKDRAFT DA EED CONTROLLER. JL W/ WALL SWITCH.	DISCONNECT B MPER.	IN ELECTRICAL	CONTRACTOF	œ											
							ENERGY RE(COVERY VE	ENTILATOF	3 (ERV) SCHE	DULE					
TAG	MANUFACTURER	MODEL	SERV	ES TY	/PE EF	HEATING FECTIVENESS [COOLING	CFM		XTERNAL SP (IN.W.C.)	SUPPLY FA HP/ (WATT	N EXHAUS S) HP/ (WA	T FAN VOL ATTS)	LT/PHASE	MOCP (AMPS)	DIMENS (L × W
ERV-1	GREENHECK	SYNC180SCE-5	1 OFFIC	CO CO	JRE	88%	60%	150		0.5	(28)	(28)) 120V/	//1ph/60Hz	15	26"x24"
3. CONTR(4. PROVID	DL WITH OCCUPANCY S(E W/ MERV 13 FILTER	CHEDULE														
	-						-		AIK HAND	LEK / HEAL F		SCHEDULI		-	-	
					MODEL		CAP,	ACITY	CFM	ECONOMIZ	ZER	ELE(CTRICAL			
TAG	SERVES	Σ	IANUF.	EVAPORAI	TOR	CONDENSOR	COOL (BTUF	HEATIN (BTUH		I EXCEPTIO		3E PHASE	MCA	BREAKER	SEER	(HSPF)
HP-1	AH-1A, AH-1B, AI	H-1C MIT	SUBISHI	,	<	AXZ-SM36NAM	36,000	42,00(- 0	-	208	-	29	40	23	4
AH-1A	MEETING ROO	TIM	SUBISHI	PEAD-A18	AA8		18,000	21,60(0 575	1	208	1	2.4			
AH-1B	OFFICE	LIΜ	-SUBISHI	MSZ-GS05	ANE		9,000	10,90	0 300	1	208	-				
AH-1C	OFFICE	LIM	SUBISHI	MSZ-GS09	AN6	ı	9,000	10,900	0 300	1	208	1	1	ı	ı	I
NOTES: 1. POWER 2. WALL N 3. WITH R- 4. ECONO	WIRING, CONDUIT AND IOUNTED UNIT; FIELD RI 410A REFRIGERANT. VIZER IS NOT REQUIRED	DISCONNECT OUTE CONDEN: PER 2018 WSE	BY E.C. SATE DRAIN T(EC SECTION 40	D APPROVED	DRAIN. N 1.											
				DIF	FUSER SCH	IEDULE										
TAG	MANUFACTURER	MODEL	<u>⊥</u>	PE	NECK SIZI	Ш	ORDER		NOT	FES						
SD-1	PRICE INDUSTRIES	SCDA	SUP	PLY	SEE PLAN		T-BAR	ADJUSTABL	E SQUARE CC	DNE, SURFACE N	MOUNT					
SG-1	PRICE INDUSTRIES	510	SUP	ЪLY	SEE PLAN		FLAT	STEEL DOUE	BLE DEFLECTI	ION, SURFACE N	MOUNT					
SG-2	LIFEBREATH	TECHGRILLE	FRES	H AIR	4"		FLAT	ROUN	ND GRILLE, SI	URFACE MOUN						
RG-1	PRICE INDUSTRIES	530	RET	URN	SEE PLAN	_	T-BAR	STEEL DOUI	BLE DEFLECT	ION, SURFACE ^N	MOUNT					
					OUTS	IDE AIR CA	LCULATIO	NS								
							OUTSIDE AIR REQ'D									MARK
	ROOM ID	AREA (FT2) (AZ)	DCCUP. LDAD (#P/1000 FT2)	FIXTURES	OCCUPANTS (# PEOPLE)	CFM/FIXT (RP)	CFM/P (RP)	SFM/FT2 Z	REATHING DNE DSA E (VBZ)	ZENE ZONI EFFECT. OSA (EZ) (VOZ	E SUPPLY AIRFLOW) (PPZ)	EXHAUST AIRFLOW	AIR SYSTEI	Σ	Z H	EWH-1 DTES: POWER
		776		c	ç	c		900		00	00	00			ы. У	CONTR
		445	، م	-	01		۰ م	0.06		0.8 96 2.2	100 	100	EKV-1			
	HOWER	40	С	0	o	D	0	0	0	0.8 0	о —	50	EKV-1	Τ		

	-				-	EXHAUST FAN	SCHEDULE				-	-					
MARK	MANUF	MODEL		SERVING	CFM	S.P. VOL	т/рн. н.р.	./ (WATTS)	RPM	NOISE (di	BA) WEI	GHT DIM: S)	SNOINS	NOTES			
CEF-1	PANASONIC	FV-0511VQ.	1 RESTR	DOM/ LOCKER ROOM	100 ().25 11	5/1	(9.4)	1142	0.8	T	5 14"	<14"x6"	1,2,3,4			
CEF-2	PANASONIC	FV-0511VFC	<u>ب</u>	SHOWER ROOM	80 ().25 11.	5/1	(9.4)	1222	0.8	Ē	5 14"	<14"x6"	1,2,3,4			
NOTES: 1. POWER 2. WITH IN 3. WITH SF 4. CONTR ⁽	WIRING, CONDUIT AND ITEGRAL BACKDRAFT DA PEED CONTROLLER. OL W/ WALL SWITCH.) DISCONNECT AMPER.	BY ELECTRICAL	. CONTRACTOR.													
						ENERGY REC	COVERY VEI	NTILATOR	(ERV) SCHI	EDULE							
TAG	MANUFACTURER	MODEL	SERV	'ES TYPE	HEATING EFFECTIVENESS	COOLING	CFM		FERNAL SP N.W.C.)	SUPPLY F/ HP/ (WATT	AN EXHAUS [15] HP/ (WA	FAN VOLT/PH	ASE MOC (AMP;	P DIMENS	SIONS WEIC × H)	GHT	NOTES
ERV-1	GREENHECK	SYNC180SCE-	S1 OFFI	CE CORE	88%	60%	150		0.5	(28)	(28)	120V/1ph	(60Hz 15	26"x24"	'x10" 4.		1,2,3,4
1. POWE 2. FLOW 3. CONTR 4. PROVIE	r wiring, conduit an Arrangement is 100% ol with occupancy si de w/ merv 13 filter	ID DISCONNECT 6 OUTSIDE AIR. CHEDULE	Γ BY E.C.						-R / HFAT		- SCHEDLILE						
							•						_				
TAG	SERVES	2	1ANUF.	MODE	_	CAP/	ACITY / HEATING	CFM	ECONOM	IZER	ELE	CTRICAL	SEER	COP/	WEIGHT	(LBS)	SOUND
				EVAPORATOR	CONDENSOR	COOL (BTUH	(BTUH) (BTUH)	DESIGN	EXCEPTI	ON VOLTA	GE PHASE	MCA BR	EAKER	(нэкг)	INDOOR	2 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	(dBA)
						30,000	71 500	- L - L		80c		67	40	+ +	' (1/7	
АП-1А АН-1В				MSZ-GS09NA		0000'8T	10.900			200		1.4	, , , ,		23 60	, ,	3/ 45
AH-1C	OFFICE	MIN	TSUBISHI	MSZ-GS09NA	.	6,000	10,900	300		208			'	, .	23		45
NOTES: 1. POWER 2. WALL N 3. WITH R 4. ECONO	X WIRING, CONDUIT ANE AOUNTED UNIT; FIELD R 410A REFRIGERANT. MIZER IS NOT REQUIRED	DISCONNECT OUTE CONDEN O PER 2018 WS	BY E.C. ISATE DRAIN T EC SECTION 4(O APPROVED DRAIN. 3.5 EXCEPTION 1.				_			-						
				DIFFUSER S	CHEDULE												
TAG	MANUFACTURER	MODEL		PE NECK 5	IZE I	30RDER		NOTE	S								
SD-1	PRICE INDUSTRIES	SCDA	SUF	PLY SEE PL	AN	T-BAR	ADJUSTABLE	SQUARE COP	VE, SURFACE	MOUNT							
SG-1	PRICE INDUSTRIES	510	SUF	PLY SEE PL	AN	FLAT	STEEL DOUB	LE DEFLECTIC	IN, SURFACE	MOUNT							
SG-2	LIFEBREATH	TECHGRILLE	FRES	H AIR 4"		FLAT	ROUN	D GRILLE, SUI	SFACE MOUN	١T							
RG-1	PRICE INDUSTRIES	530	RET	URN SEE PI	AN	T-BAR	STEEL DOUB	LE DEFLECTIC	IN, SURFACE	MOUNT							
				OU	SIDE AIR C	VLCULATION	SI										
						OUTSIDE AIR REQ'D								MARK	MANUF	Ŭ	ODEL
		AREA	DCCUP. LDAD				BRI	EATHING 2	ZDNE	VE SUPPLY				EWH-1	MARKEL	>	2020
	ROOM ID	(FT2) (AZ)	(#P/1000 FT2)	OCCUPAN FIXTURES (# PEOPL	E) CFM/FIXT (RP) (RP)	CFM/P C (RP)	SEM/FT2 ZC (RA)	INE DSA EF (VBZ)	FECT OS (EZ) (VO	IZ) AIRFLOW	/ EXHAUST AIRFLOW	AIR SYSTEM		NOTES: 1. POWER / 2 MOUNT	WIRING, COND AT 12" AFF	UIT AND DIS [,]	CONNEC
100	AEETING ROOM	445	50	0	0	2	0.06	77	0.8 96	5 100	100	ERV-1		3. CONTRO	IL WITH REMO	THERMOS	ТАТ
102B 5	HOWER	40	0	0	0	0	0	0	0.8 0	0	50	ERV-1					

					-		KHAUST FA	N SCHEDUL	ш		-	-	-		-					
MARK	MANUF	MODEL		SERVING	Ċ	=M E.S.	P. VO	LT/РН. H.F	./ (WATTS)	RPM	NOISE (dB/	A) WEIG (LBS	S)	DIMENSIONS	NOTE					
CEF-1	PANASONIC	FV-0511VQ1	L RESTRO	OM/ LOCKER	ROOM 1(D0 0.2	5 1	15/1	(9.4)	1142	0.8	15		14"x14"x6"	1,2,3,	4				
CEF-2	PANASONIC	FV-0511VFC	1 St	HOWER ROON	8	30 0.2	5	15/1	(9.4)	1222	0.8	15		14"x14"x6"	1,2,3,	4				
NOTES: 1. POWER 2. WITH IN 3. WITH SF 4. CONTR ^I	WIRING, CONDUIT AND VTEGRAL BACKDRAFT DAI PEED CONTROLLER. OL W/ WALL SWITCH.	DISCONNECT B MPER.	3Y ELECTRICAL (CONTRACTOR																
							ENERGY RE	COVERY VE	ENTILATOR	(ERV) SCHE	EDULE									
TAG	MANUFACTURER	MODEL	SERVE	S TY	PE EFFE(EATING CTIVENESS EF	COOLING FECTIVENESS	CFM		FERNAL SP IN.W.C.)	SUPPLY FAN HP/ (WATTS	N EXHAUST () HP/ (WAT	FAN VOL TTS)	T/PHASE N (A	OCP DIMEI MPS) (L × V	V X H)	EIGHT	NOTES	1	
ERV-1	GREENHECK	SYNC180SCE-S	0FFICI	E COI	RE	88%	60%	150		0.5	(28)	(28)	120V/	1ph/60Hz	15 26"x2	4"×10"	42	1,2,3,4		
2. FLOW 3. CONTR 4. PROVIE	ARRANGEMENT IS 100% KOL WITH OCCUPANCY SC DE W/ MERV 13 FILTER	s outside air. chedule								ER / HEAT		SCHEDLILE								
TAG	SERVES	Σ	ANUF.	EVAPORAT		JNDENSOR	CAI COOL (BTU	ACITY 	CFM G DESIGN	EXCEPTIC	ZER DN VOLTAG	E PHASE	I RICAL MCA	BREAKER	EER COP, (HSPF) WEIG		SOUND POWER (dBA)	INDOOR	
HP-1	AH-1A, AH-1B, AF	H-1C MIT	SUBISHI	'	XW	z-SM36NAM	36,000	42,000	- 0	,	208	-	29	40	23 4	,	271	53		<u>5</u>
AH-1A	MEETING ROOM	MITIM	-SUBISHI	PEAD-A18A	\A8	1	18,000	21,600	575		208		2.4	1	1	60		37	10"x36"x28"	
AH-1B) OFFICE	MIT	-SUBISHI	MSZ-GS091	AN	1	000'6	10,900	300	7	208	-				23	ı	45	14x33x12	
AH-1C	OFFICE	MIT	-SUBISHI	MSZ-GS09	NA	I	000'6	10,900	300	H	208	H	1	I	1	23	1	45	14x33x12	
NOTES: 1. POWEF 2. WALL N 3. WITH R 4. ECONO	R WIRING, CONDUIT AND MOUNTED UNIT; FIELD R(-410A REFRIGERANT. MIZER IS NOT REQUIRED) DISCONNECT (OUTE CONDEN:) PER 2018 WSE	BY E.C. SATE DRAIN TO EC SECTION 403	APPROVED C	JRAIN. v 1.															
				DIFF	-USER SCHE	DULE														
TAG	MANUFACTURER	MODEL	ТҮР	Ĕ	NECK SIZE	BO	RDER		NOTE	S										
SD-1	PRICE INDUSTRIES	SCDA	SUPF	۲۲ ۱۷	SEE PLAN		-BAR	ADJUSTABL STEEL DOLIE	E SQUARE COI	NE, SURFACE	MOUNT									
									ים כפורוב כרו											
86-1	PRICE INDUSTRIES	530	RETU	RN N	SEE PLAN	- ⊢́	BAR	STEEL DOUE	BLE DEFLECTIO	N, SURFACE I	MOUNT									
														[
					OUTSIE	JE AIR CAL	CULATIO	NS								-	-	-	ELECTRIC H	EAT
							OUTSIDE AIR REQ'D								MARK	MANU		MODEL	SERVING	
		AREA	DCCUP. LDAD					B	REATHING	ZDNE	E SUPPLY				EWH-1	MARKE		W2020	RESTROOM	
	ROOM ID	(FT2) (AZ)	(#P/1000 FT2)	FIXTURES	(# PEOPLE)	CFM/FIXT (RP)	CFM/P (RP)	CFM/FT2 Z (RA)	ONE OSA E (VBZ)	FECT. 0S/ (EZ) (VO	Z) AIRFLOW Z) (PPZ)	EXHAUST AIRFLOW	AIR SYSTEI	5	NOTES: 1. POWE 2. MOUN	R WIRING, CON IT AT 12" AFF.	NDUIT AND D	ISCONNECT E	SY ELECTRICAL CO	JNTF
100	VIEETING ROOM	445	50	0	10	0	5	0.06	77	0.8 96	100	100	ERV-1		3. CONTI	kol with rem	IOTE THERMO	DSTAT		
102B 5	SHOWER	40	0	0	0	0	0	0	0	0.8 0	0	50	ERV-1							

			_		-	-			LE		-
MARK	MANUF	MODEL		SERVING		CFM	S.P. VOL	T/PH.	H.P./ (WATTS)	RPN	
CEF-1	PANASONIC	FV-0511VQ1	RESTR	OOM/ LOCKE	R ROOM	100	.25 11	.5/1	(9.4)	114	2
CEF-2	PANASONIC	FV-0511VFC1		SHOWER ROC	M	80 0	.25 11	.5/1	(9.4)	122	2
NOTES: 1. POWER 2. WITH IN 3. WITH SI 4. CONTR	WIRING, CONDUIT AND NTEGRAL BACKDRAFT DA PEED CONTROLLER. OL W/ WALL SWITCH.	DISCONNECT BY	/ ELECTRICAI	- CONTRACTO	ž						
							ENERGY RE	COVERY \	/ENTILATO	R (ERV)	SCHEDL
TAG	MANUFACTURER	MODEL	SER	/ES T	YPE	HEATING FECTIVENESS	COOLING EFFECTIVENESS	CFN		EXTERNAL (IN.W.C.)	4 4
ERV-1	GREENHECK	SYNC180SCE-S	1 OFFI	ICE	ORE	88%	60%	150		0.5	
1. POWE 2. FLOW 3. CONTR 4. PROVII	R WIRING, CONDUIT AN ARRANGEMENT IS 100% ROL WITH OCCUPANCY S DE W/ MERV 13 FILTER	D DISCONNECT I 6 OUTSIDE AIR. CHEDULE	3Y E.C.						AIR HANE	DLER / HI	
					MODEL			ACITY	CEM		UOMI7FR
TAG	SERVES	<u>۷</u>	ANUF.	EVAPORA	TOR	CONDENSOR		HEAT (BTU	ING DESIG	EXC I	EPTION
HP-1	AH-1A, AH-1B, A	H-1C MIT	SUBISHI	1		MXZ-SM36NAM	36,000	42,0	, 00		
AH-1A	MEETING ROC	MIT	SUBISHI	PEAD-A18	3AA8	1	18,000	21,6	00 575		L L
AH-1E	S OFFICE	MIT	SUBISHI	MSZ-GS0	9NA	I	9,000	10,9	00 300		1
AH-10	OFFICE	MIT	SUBISHI	MSZ-GS0	9NA	I	9,000	10,9	00 300		1
NOTES: 1. POWEF 2. WALL I 3. WITH F 4. ECONC	R WIRING, CONDUIT ANE MOUNTED UNIT; FIELD R R-410A REFRIGERANT. MIZER IS NOT REQUIREI	DISCONNECT B OUTE CONDENS D PER 2018 WSE	Y E.C. ATE DRAIN 1 C SECTION 4	TO APPROVED 03.5 EXCEPTIC	DRAIN. DN 1.						
				DIF	FUSER SCI	HEDULE					
TAG	MANUFACTURER	MODEL	Ĺ-	YPE	NECK SIZ	B	ORDER		ON	TES	
SD-1	PRICE INDUSTRIES	SCDA	SU	РРLҮ	SEE PLAI	z	T-BAR	ADJUSTAE	sle square c	CONE, SURI	ACE MOI
SG-1	PRICE INDUSTRIES	510	SU	РРLҮ	SEE PLAI	Z	FLAT	STEEL DO	UBLE DEFLEC	TION, SURI	ACE MOI
SG-2	LIFEBREATH	TECHGRILLE	FRES	SH AIR	4"		FLAT	ROI	JND GRILLE, S	SURFACE N	IOUNT
RG-1	PRICE INDUSTRIES	530	REJ	TURN	SEE PLAI	~	T-BAR	STEEL DO	UBLE DEFLECT	TION, SURI	ACE MOI
					OUTS	SIDE AIR CA	LCULATION	SN			
							OUTSIDE AIR REQ'D				
	ROOM ID	AREA (FT2) (AZ)	ПССИР. LПАЛ (#Р/1000 FT2)	FIXTURES	OCCUPANTS (# PEOPLE)	CFM/FIXT (RP)	CFM/P (CFM/FT2 (RA)	BREATHING ZONE DSA (VBZ)	ZDNE EFFECT. (EZ)	ZONE OSA (VOZ)
100	MEETING ROOM	445	50	0	10	0	ى	0.06	77	0.8	96
102B	SHOWER	40	0	0	0	0	0	0	0	0.8	0

MMM MMU/E MODEL M	MARK CEF-1	MANUF	MODEL FV-0511VQ		SERVING										
(P1:1) manonics modelines mo	CEF-1		FV-0511VQ					E.S.P. VO	LT/PH. H.	P./ (WATTS)	RPM	N	ISE (dBA)	WEIGHT (LBS)	
(Erg: 5. Now Nucl. Sector 5. Nov Nucl. Sector 6. Nov Nucl. Sect		PANASONIC		1 RESTR	OOM/ LOCKI	ER ROOM	100	0.25 1:	15/1	(9.4)	1142		0.8	15	
Nersense constructioner et el curando de la participante en la partici	CEF-2	PANASONIC	FV-0511VFC	1	SHOWER RO	MC	80	0.25 1:	15/1	(9.4)	1222		0.8	15	
146 MANUFACTURER FONCE Tested FEECOVERY VENTIATION (ERV) SCHEDULE FONTIALIZATION FONTIALIZATION </td <td>NOTES: 1. POWER 2. WITH IN 3. WITH SP 4. CONTR(</td> <td>WIRING, CONDUIT AN TEGRAL BACKDRAFT D EED CONTROLLER. JL W/ WALL SWITCH.</td> <td>D DISCONNECT AMPER.</td> <td>BY ELECTRICAL</td> <td>- CONTRACTO</td> <td>JR.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	NOTES: 1. POWER 2. WITH IN 3. WITH SP 4. CONTR(WIRING, CONDUIT AN TEGRAL BACKDRAFT D EED CONTROLLER. JL W/ WALL SWITCH.	D DISCONNECT AMPER.	BY ELECTRICAL	- CONTRACTO	JR.									
Total Multicitation Multicitation Service Tendencing Service Service <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ENERGY RE</td> <td>COVERY V</td> <td>ENTILATOR</td> <td>(ERV) SC</td> <td>HEDULE</td> <td></td> <td></td> <td></td>								ENERGY RE	COVERY V	ENTILATOR	(ERV) SC	HEDULE			
Electritic Laborational Control Static Laborational Control Conttenener Control Control Control Control Control Control	TAG	MANUFACTURER	MODEL	SER	/ES	LYPE EFF	HEATING ECTIVENESS	COOLING EFFECTIVENESS	CFM		(TERNAL SP (IN.W.C.)	AUP HP/	PLY FAN (WATTS)	EXHAUST FA HP/ (WATTS	
Turner In Vision In Vis	ERV-1	GREENHECK	SYNC180SCE-	S1 OFFI	ICE	ORE	88%	60%	150		0.5		(28)	(28)	120V
Tide SERVICE MANUE FMANDE COMMENTE COMME	NOTES: 1. POWEF 2. FLOW , 3. CONTR 4. PROVIC	8 WIRING, CONDUIT AI ARRANGEMENT IS 100 DL WITH OCCUPANCY E W/ MERV 13 FILTER	ND DISCONNECT % OUTSIDE AIR. SCHEDULE	BY E.C.							ER / HEA				-
Tube SERVES MANUE ENAMUE MANUE ENAMUE MANUE ENAMUE MANUE ENAMUE MANUE ENAMUE MANUE						MODEL		CAP	ACITY	CFM	ECONO	MIZER		ELECTRI	CAL
He-L AH-LA M-LB (AH-LA) MTS-050B(H) M-C-3406(AM) B6.000 24.000 575 1 208 1 24 AH-LA METGROM MTS-050B(H) MS-650B(M) MS-650B(M) MS-650B(M) MS-650B(M) 1 208 1 2 AH-LC OFFCC MTS-050B(H) MS-650B(M) MS-650B(M) 10 208 1 208 1 1 1 AH-LC OFFCC MTS-050B(H) MS-650B(M) MS-650B(M) 10 208 1 208 1 1 1 OFFCC MTS-050B(H) MS-650B(H) MS-650B(H) MS-650B(H) 1 208 1 1 1 OFFC MTS-050B(H) MS-650B(H) MS-650B(H) MS-650B(H) 1 208 1 1 1 OFFC MTAUDER MOTE MPS MOTE MOTE MOTE 208 1 1 1 1 1 1 1 1 1 1 1	TAG	SERVES	2	AANUF.	EVAPOR	ATOR	CONDENSOR	COOL (BTUI	HEATII (BTUF	NG DESIGN	EXCEP	TION	/OLTAGE	PHASE	MCA
M+14 Metrice Misubishi PE20-48.48.43 · · · · 18,000 215 1 208 1 1 24 A+1.16 OFFICE Misubishi Misubishi Misubishi Misubishi Misubishi Misubishi 244	HP-1	AH-1A, AH-1B, .	AH-1C MI	TSUBISHI	1	2	IXZ-SM36NAM	36,000	42,00	-			208	-	29
M+1B OFICE MTSUBSHI MSC6090A ·· 9,000 10,900 300 1 208 1 1 NT-1C OFFCC MTSUBSHI MSC6090A ·· 9,000 10,900 300 1 208 1 1 NTS VEX MTSUBSHI MSC5090A ·· 9,000 10,900 300 1 208 1 1 NTS VEX MTSUBSE MTSUBSE ·· 9,000 10,900 300 1 208 1 1 NTS PREX NOWITE STEED MSC55554 MSC5554 MSC5555 MSC5554 MSC	AH-1A	MEETING RO	MO MO	TSUBISHI	PEAD-A1	8AA8		18,000	21,60	0 575			208	1	2.4
M+LC OFICE MISJUBSHI MSZ6509MA ··· 9,000 10,900 100 1 208 1 1 10 FORSE MAHLE OPECTE MISJUBSHI MISJUBSHI MISJUBSHI MISJUBSHI 2000 10,900 300 1 208 1 1 1 10 FORSE MISJUBSHI MODEL TYPE BORDER MODEL MODEL 1 208 1	AH-1B	OFFICE	MI	TSUBISHI	MSZ-GS(DNA PN90	I	9,000	10,90	0 300	1		208	1	1
NOTE: NULL NOTE: WILL NOTE CONDECTATE PEC. WILL NOTE:	AH-1C	OFFICE	W	TSUBISHI	MSZ-GS(J9NA		6,000	10,90	0 300	1		208	1	1
TAGMANUFACTURERMODELTPFNECNECK SIZEBORDERMOTESTPRNOTES56.1PRICE INDUSTRIESSCDASUPPLYSEF PLANT-BARADUSTABLE SQUARE CONE. SUFFACE MOUNT56.2PRICE INDUSTRIESSCDASUPPLYSEF PLANA"FLATSTELE DOUBLE DEFECTION, SUFFACE MOUNT56.2PRICE INDUSTRIESS10SUPPLYSEF PLANA"FLATNOUND GRILLE, SUFFACE MOUNT56.2PRICE INDUSTRIESS10SUPPLYSEF PLANT-BARSTELE DOUBLE DEFECTION, SUFFACE MOUNT56.2PRICE INDUSTRIESTECHARILET-BART-BARSTELE DOUBLE DEFECTION, SUFFACE MOUNT56.2PRICE INDUSTRIESSEF PLANT-BART-BARSTELE DOUBLE DEFECTION, SUFFACE MOUNT56.2PRICE INDUSTRIESSEF PLANT-BART-BARSTELE DOUBLE DEFECTION, SUFFACE MOUNT56.2PRICE INDUSTRIESSEF PLANT-BART-BARSTELE DOUBLE DEFECTION, SUFFACE MOUNT56.2PRICE INDUSTRIESSTELE DOUBLE DEFECTION, SUFFACE MOUNTSTELE DOUBLE DEFECTION, SUFFACE MOUNT56.2PRICE INDUSTRIESSTELE DOUBLE DEFECTION, SUFFACE MOUNTSTELE PLAN56.2PRICE INDUSTRIESRECURANCET-BARPRICE INDUSTRIES56.2PRICE INDUSTRIESRECURANCERECURANCECFW/FIXCFW/FIX56.2PRICE INDUSTRIESRECURANCECFW/FIXCFW/FIXCFW/FIXCFW/FIX57.2RECONBRANRECONCFW/FIXCFW/FIXCFW/FIXCFW/FIX	NULES: 1. POWER 2. WALL N 3. WITH R 4. ECONO	WIRING, CONDUIT AN 10UNTED UNIT; FIELD -410A REFRIGERANT. MIZER IS NOT REQUIRI	ID DISCONNECT ROUTE CONDEN ED PER 2018 WS	BY E.C. ISATE DRAIN T ISEC SECTION 4	O APPROVEI 03.5 EXCEPTI) DRAIN. ON 1. FFUSER SCH	EDULE								
0.10 FINCE FIDUCITATES MONTER MONTER <t< td=""><td>TAG</td><td>MANILIEACTLIRER</td><td>MODEL</td><td>F</td><td>VDF</td><td></td><td></td><td>BOBDEB</td><td></td><td>ITON</td><td></td><td></td><td></td><td></td><td></td></t<>	TAG	MANILIEACTLIRER	MODEL	F	VDF			BOBDEB		ITON					
56-1 FIECE INDUSTRIES 510 SUPPLY SEE PLAN FLAT STEEL DOUBLE DEFLECTION, SURFACE MOUNT 56.2 UIFEBREATH TECHGRULE FRESHAIR 4" FLAT ROUND GRULE, SURFACE MOUNT 56.2 UIFEBREATH TECHGRULE FRESHAIR 4" FLAT ROUND GRULE, SURFACE MOUNT 56.2 UIFEBREATH TECHGRULE FRESHAIR 4" FLAT ROUND GRULE, SURFACE MOUNT 66.1 PRECINDARY SEE PLAN T-BAR TELEDOUBLE DEFLECTION, SURFACE MOUNT 76.1 PRECINDARY STEEL DOUBLE DEFLECTION, SURFACE MOUNT PRECINDARY PRECINDARY 71 PRECINDARY SEE PLAN TEDR PRECINDARY PRECINDARY 71 PRECINDARY PRECINDARY PRECINDARY PRECINDARY PRECINDARY 71 PRECINDARY PRECINDARY PRECINDARY PRECINDARY PRECINDARY 71 PRECINDARY PRECINDARY PRECINDARY PRECINDARY PRECINDARY 71 PRECINDARY PREALINARY PREALINARY PRECINDARY	SD-1	PRICE INDUSTRIES	SCDA	- N	PPLY	SEE PLAN		T-BAR	ADJUSTABI	E SQUARE CO	DNE, SURFAC	CE MOUNT	1.		
GG-2 LIFEBREATH FECHGRILLE FRESHAIR 4" FLAT FIAT ROUND GRILLE, SUFFACE MOUNT RG-1 PRICE INDUSTRIES 530 RETURN SEE PLAN JEBRE STEEL DOUBLE DEFLECTION, SUFFACE MOUNT RG-1 PRICE INDUSTRIES 530 RETURN STEEL DOUBLE DEFLECTION, SUFFACE MOUNT RG-1 PRICE INDUSTRIES 530 RETURN STEEL DOUBLE DEFLECTION, SUFFACE MOUNT Industries PRICE INDUSTRIES STEEL DOUBLE DEFLECTION, SUFFACE MOUNT STEEL DOUBLE DEFLECTION, SUFFACE MOUNT Industries PRICE INDUSTRIES PRICE INDUSTRIES STEEL DOUBLE DEFLECTION, SUFFACE MOUNT Industries PRICE INDUSTRIES PRICE INDUSTRIES STEEL DOUBLE DEFLECTION, SUFFACE MOUNT Industries PRICE INDUSTRIES PRICE INDUSTRIES PRICE INDUSTRIES PRICE INDUSTRIES Industries PRICE INDUSTRIES PRICE INDUSTRIES PRICE INDUSTRIES PRICE INDUSTRIES PRICE INDUSTRIES Industries PRICE INDUSTRIES PRICE INDUSTRIES PRICE INDUSTRIES PRICE INDUSTRIES PRICE INDUSTRIES Industries PRICE INDUSTRIES PRICE INDUSTRIES PRICE INDUSTRIES PRICE INDUSTRIES PRICE IN	SG-1	PRICE INDUSTRIES	510	SU	ррцу	SEE PLAN		FLAT	STEEL DOU	BLE DEFLECTION	ON, SURFAC	CE MOUNT	1.		
RG-1 PRICE INDUSTRIES S30 RETURN SEE PLAN T-BAR STEEL DOUBLE DEFLECTION, SUFFACE MOUNT Image: Simple integration integratintegration integratintegration integratedinameter integration int	SG-2	LIFEBREATH	TECHGRILLE	FRES	SH AIR	4"		FLAT	ROU	ND GRILLE, SL	JRFACE MOI	UNT			
OUTSIDE AIR CALCULATION Memory Memory<	RG-1	PRICE INDUSTRIES	530	REI	TURN	SEE PLAN		T-BAR	STEEL DOU	BLE DEFLECTI	ON, SURFAG	CE MOUNT	[.]		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$						OUTS	IDE AIR C	ALCULATIO	NS						
Image: bar								OUTSIDE AIR REO'D							
100 METING ROOM 445 50 0 100 50 77 0.8 96 100 100 ERV-1 102B SHOWER 445 50 0 0 5 0.06 77 0.8 96 100 100 ERV-1 102B SHOWER 40 0 0 0 0 0 0 5 ERV-1 103 OFFICE 120 5 0 12 0.8 15 25 0 ERV-1 104 OFFICE 115 5 0 12 0.66 12 0.8 15 25 0 ERV-1 104 OFFICE 115 5 0 12 0.8 15 25 0 6 17 16 17 104 OFFICE 120 12 0 12 0.8 15 15 16 17 16 17 12 12 12 15		ROOM ID	AREA (FT2) (AZ)	DCCUP. LDAD (#P/1000 FT2)	FIXTURES	OCCUPANTS (# PEOPLE)	CFM/FIX1 (RP)	. CFM/P (RP)	CFM/FT2 2	REATHING ZONE DSA E (VBZ)	ZDNE FFECT. Z (EZ) (0	ONE SL SSA AIF VOZ) (I	IPPLY RFLDW PPZ) AI	CHAUST RELOW A	IR SYSTE
100 MRETING KOUM 445 50 0 10 5 0.06 77 0.8 96 100 100 $EKV-1$ 1028 SHOWER 40 0				C L		2									
J02B SHOWEK 40 0 <th< td=""><td></td><td></td><td>0⁴⁴⁰</td><td>2</td><td>⊃ <</td><td>2</td><td>⊃ <</td><td>n (</td><td>0.00</td><td>: .</td><td>0.X</td><td><u>م</u></td><td></td><td></td><td>EKV-1</td></th<>			0 ⁴⁴⁰	2	⊃ <	2	⊃ <	n (0.00	: .	0.X	<u>م</u>			EKV-1
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	101 R	ESTROOM	82	0	~	C			_	с 					

		ELECTRIC HE	EATER SCH
MANUF	MODEL	SERVING	CFM
MARKEL	W2020	RESTROOM	1
G, CONDUIT AN " AFF.	ND DISCONNECT	BY ELECTRICAL CO	NTRACTOR.

SCALE: 1/4"=1'-0"

AC DETAILS	RR	KB	RR	8/14/2023	.E 2023.15 M3.0.DWG	BER 2023.15	M3.0	
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REVISIONS

DATE

FOUNDATION (°*) (*)

BERONA ENGINEERS, INC.

BELLINGHAM, WA 98229

4 CLUBHOUSE CIRCLE

MAINTENANCE SHOP

SUDDEN VALLEY

LEGENDS AND

NOTES

PLUMBING

MOTORIZED VALVE

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BELLINGHAM, WA 98229 **4** CLUBHOUSE CIRCLE **MAINTENANCE SHOP SUDDEN VALLEY**

REVISION

DESCRIPTION	•					
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DESIGNED	RR
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APPLOABLE CODE W MA STATE	
BREVIATIONS CONT PUMP	
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Cold water PIPE	X Z	SHUT-OFF VALVE
HOT WATER CIRCULATION PIPE		TEMPERATURE AND
VENT, OR HIDDEN BELOW GRADE	-, \$	PRESSURE REDUC
WASTE OR SOIL PIPE	4->	MANUAL AIR VENT
HEATING WATER SUPPLY PIPE	Ĩ -	VALVE IN RISER (
HEATING WATER RETURN PIPE		VALVE IN NIJEN (
GAS FIRF SPRINKI FR		AUTOMATIC AIR VE
CHILLED WATER SUPPLY	G	PRESSURE REDUC
CHILLED WATER RETURN	Ĩ	VALVE(PRV), WITH
rain water leader	× V	PRESSURE REDUC VALVE(PRV), SELF
OVERFLOW RAIN WATER LEADER	87	
ELBOW, TURNING UP OR TOWARD	[;	VACUUM BREAKER
ELBOW, TURNING DOWN OR AWAY	0 FCO	FLOOR CLEAN OU
TEE, OUTLET UP OR TOWARD	•	GROUND CLEAN C
TEE, OUTLET DOWN OR AWAY	CO	
TEE, OUTLET DOWN OR AWAY(IN RISER)	_	
ELBOW, 90°		FIXTURE & RISER
PIPING CONNECTION		FLOOR DRAIN
PIPING INTERSECTION	0	FLOOR SINK
FLANGE	團(FLOOR SINK
UNION	0 (ROOF DRAIN
CAP, SCREWED OR SOLDER JOINT	0 '	ROOF DRAIN ABO
BLIND FLANGE	<u> </u>	2 WAY GALE VALV 2 WAY CLORF VAL
REDUCER, CONCENTRIC	L L ¢⊢ q	3 WAY GLOBE VA
REDUCER, ECCENTRIC STRAIGHT CROWN		3 WAY GATE VALV
REDUCER, ECCENTRIC STRAIGHT INVERT	, 	
DIRECTION OF SLOPE	>	HOSE BIBB
FLEXIBLE CONNECTOR	-	FUNNEL FI OW ARROW
BASKET STRAINER	Ū.	CONTECH ANNOW
THERMOMETER	- 0-	SOLENOID ACTUAT
	. L	
PRESSURE GAUGE		ACIUAIUK
ANCHOR	÷	OS & Y ACTUATC
PUMP(WITH FLOW DIRECTION INDICATED)	F	ACTUATOR VALVE
BALL VALVE(NORMALLY OPEN)	A&C	HOT & COLD WA
CALIBRATED BALANCING VALVE		IAG NUMBER.
PRESSURE/TEMPERATURE TEST PORT		
wye strainer with hose end drain valve		
WYE STRAINER		
AUTOMATIC CONTROL VALVE 2-WAY		
AUTOMATIC CONTROL VALVE 3-WAY		
CHECK VALVE		
TRIPLE DUTY VALVE		
RELIEF VALVE	P2.0 PLUMBING	FOUNDATION PLAN
GATE VALVE	P3.0 PLUMBING P4.0 PLUMBING	RISER' DIAGRAMS DETAILS
GLOBE VALVE		
BUTTERFLY VALVE		
SOLENOID VALVE		
AUTOMATIC FLOW CONTROL VALVE		
ANGLE VALVE		
PLUG VALVE		

WASHINGTON ON SCHEDULE SILE C403.2 C403.2.9

SPECIFICATION: 220716 PLUMB	NG PIPING INSULA	TION								
	TEMP RANGE	THERMAL	MEAN RATING	INSULATION						UDTEC
	(DEG F)	COND.	TEMPERATURE	MATERIAL	-1"	1" TO <1-1/2"	1-1/2" TO 4"	4" - 8"	OVER 8"	
DOMESTIC COLD WATER	40-60	0.21-0.27	75	MPI	0.5	0.5	1.0	1.0	1.0	1, 2, 4
NON-POTABLE COLD WATER	40-60	0.21-0.27	75	MPI	0.5	0.5	1.0	1.0	1.0	1, 2, 4
DOMESTIC HOT WATER	105-140	0.21-0.28	100	MPI	1.0	1.0	1.5	1.5	1.5	1, 2, 4, 5
NON-POTABLE HOT WATER	105-140	0.21-0.28	100	MPI	1.0	1.0	1.5	1.5	1.5	1, 2, 4, 5
RAINWATER DRAINAGE	ALL	0.21-0.28	75	MPI	1.0	1.0	1.0	1.0	1.0	9
FOR FURTHER INFORMATION OF	NINSLILATING SVS	TEMS AND FOLL	IPMENT FITHER I IS	TED OR NOT LISTER	SEF SPECIFI	CATION SECTION 23	NTOO "PLI IMBING II	NCITATION "		

NOTES: 1. FOR PIPING CLAMPED TO UNISTRUCT SUPPORTS, UTILIZE RIGID INSERTS WITH SHEETMETAL SHIELDS CONTINUOUS THROUGH THE HANGER; UTILIZE CALCIUM SILICATE INSERTS OR STYRENE INSERTS: 2. FOR PIPING SUPPORTED FFOM CLEVIS HANGERS, IF RIGID INSERTS ARE NOT UTILIZED THE INSULATION SHALL FULLY ENCLOSE THE HANGER; UTILIZE CALCIUM SILICATE INSERTS OR STYRENE INSERTS 3. DOMESTIC WATER PIPING SUPPORTED FFOM CLEVIS HANGERS, IF RIGID INSERTS ARE NOT UTILIZED THE INSULATION SHALL FULLY ENCLOSE THE HANGER AND BE SEALED AT THE TOP AROUND THE SUPPORT ROD; IF RIGID INSERTS ARE UTILIZED THE INSULATION SHALL BE CONTINUOUS THROUGH THE HANGER; INSERT MATERIAL TO BE CALCIUM SILICATE INSERTS OR STYRENE INSERTS SUPPORT ROD; IF RIGID INSERTS ARE UTILIZED THE INSULATION SHALL FULLY ENCLOSE THE HANGER, INSERTS ARE UTILIZED THE INSULATED. SUDMESTIC WATER PIPING AND WASTE DRAIN TRAPS EXPOSED TO OUTDOOR CONDITIONS SUCH AS THE GARAGE ENTRY AND FIRST GARAGE LEVEL BELOW GRADE SHALL BE HEAT TRACED AND INSULATED. 4. JAOKETING X. LUMINUM ROLLED JACKETING (NEL AREAS). 5. FOR PIPES SMALLER THAN 1-1/2 INCH AND LOCATED IN PARTIONS WITHIN A CONDITIONE SPACE, MAY REDUCE THICKNESSES BY 1 INCH BUT TOTAL THICKNESSE TO NOT BELOW 1⁺ AS ALLOWED BENCLED AND HE FLOOR (PIBLIC JAREAS). 5. FOR PIPES SMALLER THAN 1-1/2 INCH AND LOCATED IN PARTIONS WITHIN A CONDITIONE SPACE, MAY REDUCE THICKNESSES BY 1 INCH BUT TOTAL THICKNESSE TO NOT BELOW 1⁺ AS ALLOWED FOR PIPES SMALLER THAN 1-1/2 INCH AND LOCATED IN PARTIONS WITHIN A CONDITIONE SPACE, MAY REDUCE THICKNESSES BY 1 INCH BUT TOTAL THICKNESSE TO NOT BELOW 1⁺ AS ALLOWED FOR PIPES SMALLER THAN 1-1/2 INCH AND LOCATED IN PARTIONS WITHIN A CONDITIONE SPACE, MAY REDUCE THE HORIZZONTAL RUN IS LESS THAN 1⁺.</sup> FOR PROVENCED FOR PROVENCED FOR PROVENCED FOR PIPES SMALLER THAN 1-1/2 INCH AND LOCATED IN PARTIONS WITH A SMURF THE FORM INSULATION ON THE FORTER DAMANT PROUGH THE NEXT FLUDA TO RELOW THE ROM INSULATION PART WHERE THE HORIZZONTAL RUN IS LESS THAN 1⁺.</sup> FOR PIPER SAMENDARY FUNDA TO RRELOW PRED

			PLUMBIN	IG FIXTUR	KE UNIT CO	DUNT			
			WSFU				DF	ņ	
רואנותופ	QTY	FU	TOTAL	GPM	SIZE	άτγ	ΡIJ	TOTAL	SIZE
WC Tank	1	2.5	2.5			1	3	3	
UR Valve	1	10	10			τ	2	2	
LAV	1	1	T			τ	τ	1	
Shower	1	2	2			τ	2	2	
Sink	1	1.5	1.5			τ	2	2	
HB	1	2.5	2.5			τ	0	0	
FD	4	0	0			4	2	8	
TOTAL			19.5	15	3/4"			18	3"

PERMIT SET 8-14-2023

SCHEDULES

PLUMBING

BELLINGHAM, WA 98229 **4** CLUBHOUSE CIRCLE **MAINTENANCE SHOP SUDDEN VALLEY**

DATE BY DESCRIPTION	<u> </u>				
DATE					
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DRAWN CHECKED	R R R
DATE CADD FILE	8/14/2023 2023.15 P0.1.DWG
JOB NUMBER	2023.15

P0.1

			PLUMBING FIXTU	RE SCHEDULE					
MARK	FIXTURE		DESCRIPTION				LOCAL COI	NNECTION	
WC-1	WATER CLOSET	WATER CL WHITE. V. COMPLIAN OD COMP. SS 3/8" FII	LOSET, FLUSH TANK, 1.28 GPF SIPHON JET FLUSHING TTREOUS CHINA, ELONGATED BOWL, SOLID PLASTIC NT.BRASSCRAFT STOP VALVE, MODEL KTCR19, 1/4 T . X 3/8" OD COMP. PROVIDE WITH SINGLE PIECE CH FXIBLF SLIPPLY HOSF SFF ARCH FOR MAKF/MODFL	G ACTION, FLOOR MOUNTED, F C SEAT WITH COVER, ADA TURN, DIE-CAST HANDLE, ANGL ROME PLATED WALL ESCUTCH	LOOR OUTLET, E PATTERN, 1/2" EON. BRAIDED	ж Ж	2	CW 1/2	МН -
LV-1	LAVATORY - WALL MOUNT	BATHROO CHROME I (included) HANGER.1 TURN, DIE CHROME F	M SINK, WALL-MOUNTED, VITREOUS CHINA, 1-HOI PLATED CENTERSET FAUCET, SENSOR OPERATED, B, 5GPM AERATOR, 3/8" SUPPPLY HOSES. PROVIDE V 1-1/2" TAILPIECE, P-TRAP WITH CLEANOUT PLUG.BR E-CAST HANDLE, ANGLE PATTERN, 1/2" OD COMP. X PLATED WALL EXCUTCHEON. SEE ARCH FOR MAKE/	LE, 20-3/4"L × 18-1/4"W OVERA ATTERY POWERED, ASSE 1070 h WITH WALL-MOUNT SINK BRAC ASSCRAFT STOP VALVE, MODEI (3/8" OD COMP. PROVIDE WITH /MODEL OF SINK AND FAUCET	LL DIMENSION. AIXING VALVE KETS AND L KTCR19, 1/4 H SINGLE PIECE	5	5	1/2	1/2
UR-1	URINAL	URINAL, FI WASHDOV OF URINAI	LUSH VALVE. DEXTER WASHDOWN WALL-MOUNT (WN URINAL 0.125 GPF FLUSHOMETER VALVE. SLOA L	0.125 GPF URINAL WITH TOP SF N ROYAL 186-ESS.SEE ARCH FO	UD. R MAKE/MODEL	2	2	3/4	1
SH-1	SHOWER	ROLL-IN SI RECESS TH THERMOS HAND-HEL ARCH FOR	HOWER, 63"L X 39" D X 79" H. WITH HORIZONTAL, HESHOLD STATIC/ PRESSURE BALANCING VALVE WITH SHOW LD SHOWER WITH 24" SLIDE BAR, 1.5 GPM. PROVIE MAKE/MODEL OF SHOWER, VALVE AND TRIM	AND VERTICAL GRAB BARS, ANI /ER TRIM SET WITH LEVER HANI DE W/ 4" STAINLESS STEEL SHOV	D SEAT. NO DLE, AND WER DRAIN. SEE	7	7	1/2	1/2
S-1	MEETING RM SINK	SINGLE CC H. GOOSE 1-1/2" COI KTCR19, 1, SINGLE PIE MAKE/MO	DMPARTMENT. TOP MOUNT, SELF RIMMING, 20 G/ ENECK FAUCET, 4" LEVER HANDLES, 1.5 GPM AERAT INTINUOUS WASTE, 1-1/2" P-TRAP WITH CLEANOUT /4 TURN, DIE-CAST HANDLE, ANGLE PATTERN, 1/2" ECE CHROME PLATED ESCUTCHEONS. PROVIDE WIT DEL OF SINK AND FAUCET	A SS, THREE FAUCET HOLES, 27' OR. CRUMB STRAINER, 1-1/2" F PLUG. BRASSCRAFT STOP VAL' OD COMP. X 3/8" OD COMP. F 'H GARBAGE DISPOSAL. SEE AR	' W X 22" D X 8" TAILPIECE, /E, MODEL 'ROVIDE WITH CH FOR	7	7	1/2	1/2
HB	HOSE BIBB	ZURN Z13. AUTO-DR/ CONNECTI	(21, WALL FAUCET WITH BACKFLOW PREVENTER. N AINING, ALL BRONZE INTERIOR, VANDAL RESISTANT ION.	ON-FREEZE, EXPOSED ANTI-SIPI F OPERATING STEM, 3/4" MALE	HON, HOSE	ı	ı	3/4	I
FD-1	FLOOR DRAIN	ZURN Z41. AND TYPE PRIMER	.5BZ, CAST IRON BODY, BOTTOM OUTLET, CLAMP A BZ POLISHED NICKEL BRONZE, LIGHT-DUTY, 6.25-IN	ND ADJUSTABLE COLLAR WITH N. DIA. LEVELING STRAINER. WI	SEEPAGE SLOTS FH 1/2" TRAP	с	2	1/2 TP	
								Γ	
MARK				SCHEDULE					
ET-1 DOMES VOLUN DCVA DOUBL	STIC HW THERMAL E. 1E, 8" DIA X 14 " H, C E CHECK VALVE ASSE	XPANSION T DPERATING \ EMBLY: WAT	FANK: AMTROL THERM-X-TROL, ASME, 150 PSIG, M WEIGHT 26 LBS. LOCATED IN EACH RESIDENTIAL SP, TTS LF-709-3/4" MODEL, ASSE 1013 COMPLIANT	ODEL ST-5C, FIXED DIAPRAGM S ACE.	STYLE, IN LINE, VER	TICAL. 2 GA	L TANK		
TP TRAP P	PRIMER; PPP MODEL	P1-500, 1/2	." CONNECTION; SERVES 1-4 FLOOR DRAINS; LOCAT	E WITHIN 20 FEET OF FLOOR DF	RAIN(S)				
							ſ		
			PIPE MATERIAL, JOINTS, HANGERS AND	SUPPORTS					
MATERIALS SCHEDULE 40 PVC	DOMESTIC WA: VENT	STE &	PURPLE PRIMER, SOLVENT CEMENTED	HORIZONIAL HANGERS ALL SIZES, 4 FEET; ALLOW FOR EXPANSION EVERY 30 FEET 3	VEKIICAL S BASE AND EACH F PROVIDE MID-STC PROVIDE FOR EXP EVERY 30 FEET	UPPORIS FLOOR; DRY GUIDES ANSION			
ABS DWV	۸۸D		SOLVENT CEMENTED	ALL SIZES, 4 FEET; ALLOW FOR EXPANSION EVERY 30 FEET ³	BASE AND EACH F PROVIDE MID-STC PROVIDE FOR EXP EVERY 30 FEET	FLOOR; DRY GUIDES ANSION			
CPVC	DOM COLD/HC (BELOW GRADE BLDG, WATER F	DT WATER E, THRU RISERS)	ORANGE PRIMER, SOLVENT CEMENTED	1 INCH AND SMALLER, 3 FEET; 1-1/4 INCHES AND LARGER, 4 FEET	BASE AND EACH F PROVIDE MID-STC	:Loor; Jry guides			
PEX	DOM COLD/HO RECIRC BRANCI	JT WATER, HES	COLD EXPANSION, INSERT AND COMPRESSION	1 INCH AND SMALLER, 32 INCHES; 1-1/4 INCHES AND LARGER, 4 FEET	BASE AND EACH F PROVIDE MID-STC	:Loor; Jry guides			
NOTES: 1 SUPPORT ADJACE	ΈΝΤ ΤΟ JOINT, NOT T	TO EXCEED 1	L8 INCHES.						

BRACE NOT TO EXCEED 40 FOOT INTERVALS TO PREVENT HORIZONTAL MOVEMENT.
 SUPPORT AT EACH HORIZONTAL BRANCH CONNECTION.
 HANGERS SHALL NOT BE PLACED ON THE COUPLING.
 VERTICAL WATER LINES SHALL BE PERMITTED TO BE SUPPORTED IN ACCORDANCE WITH RECOGNIZED ENGINEERING PRINCIPLES WITH REGARD TO EXPANSION AND CONTRACTION, WHERE FIRST APPROVED BY THE AUTHORITY HAVING JURISDICTION.
 SOLVENT CEMENT JOINTS TO BE IN ACCORDANCE WITH RECOGNIZED ENGINEERING PRINCIPLES WITH REGARD TO EXPANSION AND CONTRACTION, WHERE FIRST APPROVED BY THE AUTHORITY HAVING JURISDICTION.
 SOLVENT CEMENT JOINTS TO BE IN ACCORDANCE WITH E2015 SEATTLE PLUMBING CODE (SPC) AND ASTM F656 FOR PRIMER AND ASTM 2564 FOR SOLVENT CEMENTS.

NOTES 1,2,3 ECOVERY WEIGHT DEG RISE) (LBS) (FULL) 500 21

ENERGY CODE: 2018 INTERNATIONAL ENERGY CODE WITH WASHINGTON AMENDMENTS TAB ENERGY CODE: 2018 INTERNATIONAL ENERGY CODE WITH WASHINGTON AMENDMENTS TAB SPECIFICATION: 220716 PLUMBING PIPING INSILLATION

ГОТ ГИТ ПЕК INFURMATION ON INSULATING SYSTE MPI: MINERAL WOOL PREFORMED PIPE INSULATION E: ELASTOMERIC CLOSED CELL INSULATION PF: POLYURETHANE FOAM CGPI: CELLULAR GLASS PIPE INSULATION CGPI: CELLULAR GLASS PIPE INSULATION CAL-SIL: CALCIUM SILICATE

			WATER HEAT	ER SCHED	ULE		
MARK	MANUF	MODEL	SERVING	GAL	ELECTRIC INPUT	EFFIC.	GPH R (АТ 90
WH-1	BRADFORD WHITE	RE340S6	DHW	40	4.5 Kw	0.91	
NOTES:							

POWER WIRING AND DISCONNECT BY ELECTRICAL CONTRACTOR.
 PROVIDE WITH EXPANSION TANK, ET-1.
 PROVIDE W/ STAND, INSULATION AND DRAIN PAN PER WSEC .

PLUMBING FOUNDATION PLAN scale: 1/4"=1'-0"

1

SCALE: 1/4" = 1'-0"

DOMESTIC WATER RISER DIAGRAM scale: NTS

RISER VENT AND WASTE scale: NTS

FLOOR

ROOF

FLOOR

- 3" W (18 DFU)

DRAIN INSTALLATION FLOOR scale: NTS (\sim)

5

1/2"

Whatcom County Planning and Development Services 5280 Northwest Drive Bellingham, WA 98226 Phone 360-778-5900 Inspection 360-778-5902 epermits@co.whatcom.wa.us

Permit Number: COM2023-00018

Permit Type: Building (Commercial)

Commercial Permit

Work Classification: Alteration-TI Issue Date: 06/16/2023

Permit Status: Issued

Permit

Location Address

2800 LAKE LOUISE RD, Bellingham, WA 98229

Parcel Number 3704073823790000

	Со	itacts	
Sudden Valley Community Association 4 CLUBHOUSE CIR, Bellingham, WA 98229 (360)734-6430	Owner	SARAH BROWN Applicant 3222 EAGLERIDGE WAY, BELLINGHAM, WA 98226]
accadmin@suddenvall	ey.com	sarah@sbarchdesign.com	
Tyler Andrews Con	tractor		
PO Box 30498, Bellingham, WA 98228 tylera@pnwcivil.com PNWCICI834C2 02/2	22/2025		

Construction Permit Details

Proposed Work: Tenant Improvement	Permit - Sudden Valley Maint	enance Building - Project includes upda	ted amenities.
Reconfigure 975sf			
Bldg. SQ. FT.			
New Sq. Footage	975	Original SF	0
Total Sq. Footage	975		
Building Info			
Basement	No	Census Code	A-200 Addition/Remodel
Foundation	Other	No. of Stories	1
Number of Bathrooms	1	Number of Units	1
Occupancy Group:	B, S1	Occupany Load	9
Sprinklered	No	Type of Construction:	VB
Type of Work:	REMOD		
Set Back			
Setback Front Ft.	P/L Lake Louise	Setback Rear Ft.	P/L
Setback Side1 Ft.	P/L	Setback Side2 Ft.	P/L
Site or Approval Info			
Commercial Project Type	Private Business	New Well Constructed after 1/19/2018	No
Shoreline	No		

POST THIS PERMIT ONSITE WITH THE APPROVED PLANS COMPLIANCE WITH ALL INSPECTIONS AND CONDITIONS REQUIRED PRIOR TO OCCUPANCY

ALL INSPECTIONS SHOULD BE SCHEDULED A MIMIMUM OF 1 BUSINESS DAY IN ADVANCE INSPECTION LINE 360-778-5902 or online at https://www.whatcomcounty.us/582/Scheduling

Whatcom County Planning and Development Services 5280 Northwest Drive Bellingham, WA 98226 Phone 360-778-5900 Inspection 360-778-5902 epermits@co.whatcom.wa.us

Permit

Permit Number: COM2023-00018

Permit Type: Building (Commercial)

Commercial Permit

Work Classification: Alteration-TI Issue Date: 06/16/2023

Permit Status: Issued

Inspection Type	Inspection Card (call inspections in the order they appear below)
Standard Inspections	Contractors, please call or schedule your inspection in this order
Pre-Construction (Com)	
Ground Plumbing	
Rough Frame & Roof	
Rough Plumbing	
Insulation - Walls	
Final Development (PW)	
Final Flood	
Final Planning/Zoning	
Final Natural Resources	
Fire Final Inspection	
Final Building	

Condition Name
BS - IRC/IBC APPV TO CONSTRUCT IRC/IBC - Approved to construct, subject to field inspections, special inspections, corrections and provisions of plan review.
BS - IRC/IBC/IMC VENTILATION REQD Per IRC/WAC 51-51 Section R303.2, every space intended for human occupancy shall be equipped with source specific and whole house ventilation systems designed and installed as specified in IRC/WAC 51-51 Sections M1507 and M1508.
BS - IRC/IBC DEFERED SUBMITTALS Deferred submittals shall be submitted to the registered design professional in charge for review and general conformance with the building/structure design prior to submittal to Whatcom County. Once received by Whatcom County, deferred submittals must be approved by the Building Official. Deferred submittal items shall not be installed until design documents are approved, per IBC Section 107.3.4.2. All systems are to remain accessible until approved for cover.
Fill and Grade Condition Fill and grading activities are not included within the scope of this permit. Please contact Whatcom County Planning and Development Services in the event fill and grade activities are proposed.
Bs - IRC/IBC PLANS & INSP RECORD Approved plans shall be kept on the building or work site at all times during which the work authorized thereby is in progress. Work requiring a permit shall not be commenced until the Inspection Record Card is posted or otherwise made available in a convenient location. (IRC Sections R105.7 & R106.3.1 / IBC Sections 105.7 & 107.3.1)
LU Conformance with site plan All activity on site shall be done in accordance with the site plan approved by the Whatcom County Planning and Development Natural Resources Division. Any alterations from the approved site plan will require further review by Planning and Development Services.
BS - IRC/IBC ANY DEVIATION IBC/IRC - Any deviation in construction from approved plans requires prior review and approval by Whatcom County Planning and Development Building Services and Land Use Departments.
BS - IRC/IBC WORK SITE POSTING The established address for the proposed work site shall be posted on a substantial, weather-resistant sign in a location readily visible from the public way. In all cases, when applicable, the sign shall also include the corresponding division and/or lot number. NO EXCEPTIONS. Sign lettering must have sufficient contrast from the sign background. Lettering must be clear, readable and large enough to be discernible from a passing vehicle. Signs are required to be posted prior to any inspection requests and shall remain visible for the duration of the project construction.

POST THIS PERMIT ONSITE WITH THE APPROVED PLANS COMPLIANCE WITH ALL INSPECTIONS AND CONDITIONS REQUIRED PRIOR TO OCCUPANCY

ALL INSPECTIONS SHOULD BE SCHEDULED A MIMIMUM OF 1 BUSINESS DAY IN ADVANCE INSPECTION LINE 360-778-5902 or online at https://www.whatcomcounty.us/582/Scheduling

ENVELOPE COMPLIANCE SUMMARY

2018 WSEC Compliance Forms for Commercia	ll Buildings including Grou	up R2, R3 & R4 over 3 stories and all R1		Administered by:	: ©2023 NEEA,	All rights reserved
	Project Title	Sudden Valley Area 'Z' Maintena	nce Shed TI - 2018 WSEC	For Building Department Use:	Date	Jah 77 2023
Project & Applicant	Project Address	4 Clubhouse Bellingham	Road , WA	REVIEWED FOR	Daw	CD 21, 2020
Information	Applicant Name	Sarah Bro	wn	COMPLIANCE		
	Applicant Phone					
	Applicant Email					
Fi	or questions about this rep	ort, contact WSEC Commercial Technical Su	pport at 360-539-5300 or via email at	com.tech support @waenergycodes.com		
General Occupancy	All Commercial	General Building Use Type(s)	Services, Repair/Maintenance	Building Cond. Floor Area	1,80	
					1 0.0	

						Project Cond. Floor Area		1,800	-
Project Scope		Alteration	Space Conditioning Catego	nies	Fully Conditioned	Floors Above Grade		1	-
						Compliance Method	Co	ompliance Method 1 - General	
Envelope Project Descrip	ntion 1	Alterations to existing	g maintenance building per WS inch. All new doors a	SEC Section C503 A ind windows to com	Iterations. All existing exposed wall caply with the minimum prescriptive U fa	vities will be insulated to full octor and shading coefficient p	lepth with insul r Table C402.4	lated rated at a minimu R3.0 per 4.	
Envelope Compliance Scop	be Space Conditio	ming Category	Compliance Method	WWR/SRR	UA Calculation Adjustment	Fenestration A	lternates	Compliance Verification	

Envelope Compliance Score and	Scope	Space Conditioning Category	Compliance Method	WWR/SRR per Category	UA Calculation Adjustment	Fenestration Alternates	Compliance Verification
Method	Alteration	Fully Conditioned	Prescriptive	4.08% / 0%	No Calculation Adjustments allowed	No alternates selected	COMPLIES
Air Barrier Testing		Air barrier testing not included	Air Barrie	r Comments		Alteration project	

		-				
Project Title S	udden Valley Area 'Z' Ma	aintenance Shed TI - 2018 WSEC			Date Feb 27, 2023	
Scope & Space Conditi	oning ALTER	ATION - FULLY CONDITIONED		Compliance Verification	COMPLIES	
Window-to-wall Ratio	4.08	8% Skvlight-to-roof-ratio	0%	Vertical Fenestration Alternate	No alternates sele	ed

Fenestration & Opaque Door Asse	mblies							
				Insulat	ion R-Values			
Opaque Doors	Location in Documents	Assembly ID	Assembly Location	Door Insulation			U-Factor	Rough Opening (SF)
Swinging	A2.01	Exterior Doors	Exterior				U-0.37	84
	What percentage of this opaque door is	glazing?: 50% or less		U-Factor Source: WSEC Appen	dix A			
	U-Factor Source Description: Default v	alue for insulated core m	netal doors	Is this assembly exterior or inter	nor?: Exterior			
	Is this a public entrance door?: No			Is assembly new, upgraded or u	naltered existing?: N	ew assembly		
Garage, Sectional	A2.01	Garage door	Exterior	R-8			U-0.31	96
	What percentage of this opaque door is	glazing?: 50% or less		U-Factor Source: Other U-Facto	or Source			
	U-Factor Source Description: Manufact	ure for 2" insulated door	· sections	Is this assembly exterior or inter	nor?: Exterior			
	Is assembly new, upgraded or unaltered	existing?: New assembl	y					
Vertical Fenestration	Location in Documents	Assembly ID	Assembly Location	Orientation	Shading (PF)	Fenestration SHGC	Fenestration U-Factor	Rough Opening (SF)
All other fenestration types	A2.01	New glazing	Exterior	South/East/West Facing	PF < 0.2	SHGC-0.38	U-0.30	84
	U-Factor & SHGC Source: NFRC Ratii	ß		U-Factor Source Description: N	lanufacturer			
	Is this assembly exterior or interior?: Ey	cterior		Is assembly new, upgraded or ur	naltered existing?: N	ew assembly		

https://waenergycodes.com/print_project_summary_form.php?k=Y29tYm9fdGZ2X3B0PXNjY19mdWxseV9jb25kaXRpb25IZCU3Q3BkX2FsdGVyYXRpb24mdGZ2PXNjY19mdWxseV9jb25kaXRpb25IZC... 1/1

Building Envelope Requirements List, pg 1 of 8

2018 WSEC Requirements for Commercial Buildings including Group R2, R3 & R4 over 3 stories & all R1 -- Administered by ©2023 NEEA, All rights reserved The following information is necessary to check a building permit application for compliance with the building envelope requirements in the Washington State Energy Code, Commercial Provisions.

For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

Project: Sudden Valley Area 'Z' Maintenance Shed TI - 2018 WSEC 4 Clubhouse Road Bellingham, WA

REVIEWED FOR COMPLIANCE

Date: 2023-02-27

Applies	Code Section	Component	Compliance Information Required In Permit Documentation	Location in Documents	Building Department Notes
SCOPE					
	C103.1	Construction documents - General	For a tenant space (first build-out) project, indicate if there is no envelope scope included in the project.		
	C103.1	Construction documents - General	For an alteration project, indicate if there is no envelope scope included in the project.		
	C402.1.1.1	Low energy spaces	Identify low energy spaces on plans; include calculations if applicable that demonstrate eligibility for envelope provisions exemption		
	C402.1.1.2	Semi-heated spaces	Identify semi-heated spaces on plans, include mechanical heating system type and calculations that demonstrate eligibility for wall insulation exemption		
	C402.1.1.3	Greenhouse spaces	Identify greenhouse spaces on plans; include non-opaque assembly information and mechanical heating system type if applicable, that demonstrates eligibility for envelope provisions exemption		
	C402.1.2	Equipment buildings	Provide building sf area, average wall and roof U-factor, installed electrical and mechanical equipment information and heating setpoint restriction, that demonstrates eligibility for envelope provisions exemption		
	C402.1.2.1	Standalone elevator hoistways	Provide building area, average wall and roof U-factor, installed mechanical equipment information and heating setpoint restriction, that demonstrates eligibility for envelope provisions exemption		
	C410.2	Walk-in cooler and freezer spaces	Identify walk-in cooler and freezer spaces on plans; including site assembled, site constructed and prefabricated units		
			Identify warehouse cooler and freezer spaces on plans		
	C101.4.1	Mixed residential & commercial building	Identify spaces with different occupancy requirements on plans		
	C503.2	Change of space conditioning alteration	Identify on plans existing unconditioned spaces changing to semi-heated or conditioned space, and existing semi-heated spaces changing to conditioned space; provide calculations for existing and final level of space conditioning		
	C505.1	Change of occupancy alteration	Identify on plans existing F, S and U- occupancy spaces undergoing a change in occupancy and final occupancy type		

Building Envelope Requirements List, pg 2 of 8

2018 WSEC Requirements for Commercial Buildings including Group R2, R3 & R4 over 3 stories & all R1 -- Administered by ©2023 NEEA, All rights reserved The following information is necessary to check a building permit application for compliance with the building envelope requirements in the Washington State Energy Code, Commercial Provisions.

			Group R spaces permitted before July 1, 2002 that are undergoing a change to a commercial occupancy shall be identified on plans		
			Commercial (non-Group R) occupancy spaces undergoing a change to Group R shall be identified on plans		
ENVELOPE PR	OVISIONS	·		·	·
YES	C103.2 C103.6.3 C402.1.3 C402.1.4	Compliance documentation	Indicate envelope thermal performance compliance path (prescriptive or component performance) and provide WSEC envelope compliance reports	compliance forms	
	C402.1.5		If complying via component performance, demonstrate that the Proposed Total UA is equal to or less than the Allowable Total UA		
			If complying via total building performance, provide a list of all proposed envelope component types, areas and U-values		
	C303.1.1 C303.1.2	Insulation identification	Indicate identification mark shall be applied to all insulation materials and insulation installed such that the mark is readily observable during inspection		
YES	C303.1.3 C402.4.3	Fenestration product rating	Indicate fenestration products shall be labeled with NFRC U-factor, SHGC, VT and leakage rating, or if products do not have an NFRC rating, indicate applicable Chapter 3 default values	NFRC Rating from manufacturer	
	C303.1.1 C402.2.1	General insulation installation	Indicate installation methods, thicknesses, densities and clearances to achieve the intended R-value of all insulation materials		
			Where two or more layers of rigid insulation will be used, indicate that edge joints between layers are staggered, or exception taken		
	C103.2 C402.2.1	Roof assembly insulation	Indicate R-value(s) of cavity/continuous insulation on roof sections		
			Indicate framing materials on roof sections		
			Indicate method of framing for ceilings below vented attics and vaulted ceilings per A102.2 (std, adv)		
			Provide area weighted average U-factor calculation for insulation whose thickness varies by 1 inch or less		
			Indicate effective U-factors of tapered insulation entirely above deck per A102.2.6; include roof configuration and slope, maximum R-value at peak and minimum R- value at low point for all roof surfaces		
			Indicate R-values for thermal spacers and each insulation layer, and liner system (LS) method for metal building roofs		

Building Envelope Requirements List, pg 3 of 8

2018 WSEC Requirements for Commercial Buildings including Group R2, R3 & R4 over 3 stories & all R1 -- Administered by ©2023 NEEA, All rights reserved The following information is necessary to check a building permit application for compliance with the building envelope requirements in the Washington State Energy Code, Commercial Provisions.

	C402.2.1.1	Skylight curb insulation	Indicate skylight curb insulation R-value on roof section, if not included in skylight NFRC rating		
	C402.2.1.2	Rooftop HVAC equipment curbs	Indicate rooftop HVAC equipment curb insulation R-value on roof section		
	C103.2 C402.2.3	Above/below grade wall insulation	Indicate R-value(s) of cavity/continuous insulation on wall sections		
	C402.2.4 C303.2.1		Indicate framing materials on wall sections		
			Indicate method of framing for wood construction per A103.2 (std, int, adv)		
			Indicate material density category, wall weight and heat capacity for qualifying mass walls		
			For qualifying ASTM C90 masonry walls, indicate loose-fill core insulation material and percentage of cores filled including grouted cores, bond beams, vertical fills, headers and any other grouted cores		
			Indicate method of protection of exposed exterior basement/crawlspace wall insulation		
YES	C103.2 C402.4.4	Opaque doors	Indicate rated U-factor or R-value (non- swinging) on wall sections or in door schedules - applies to doors with less than 50% glazed area	G0.01	
YES	C402.4.4	Garage doors	Indicate rated U-factor for sectional and tilt- up garage doors on wall sections or in door schedules - applies to garage doors with less than 14% glazed area; all other garage doors shall comply as opaque doors	G0.01	
	C402.2.5	Floor over outdoor or unconditioned space	Indicate R-value(s) of cavity/continuous insulation on floor sections		
		insulation	Indicate framing material on floor sections		
			Indicate material density category and weight of qualifying mass floors		
	C402.2.6 C303.2.1	Slab-on-grade floor insulation	Indicate R-value of continuous insulation on wall section or foundation detail		
			Indicate insulation extends down vertically and/or horizontally the required distance from top of slab		
			Indicate method of protection of exposed exterior slab edge insulation		
			Indicate R-value of continuous insulation on wall section or foundation detail		
			Indicate insulation extends down vertically from top of slab and then horizontally under the entire slab		
			Indicate method of protection of exposed exterior slab edge insulation		

Building Envelope Requirements List, pg 4 of 8

2018 WSEC Requirements for Commercial Buildings including Group R2, R3 & R4 over 3 stories & all R1 -- Administered by ©2023 NEEA, All rights reserved The following information is necessary to check a building permit application for compliance with the building envelope requirements in the Washington State Energy Code, Commercial Provisions.

	C402.2.8	Radiant heating system insulation	Indicate insulation R-value behind radiant panels, U-bend/headers and bottom surface of radiantly heated floors (other than heated slab- on-grade)		
	C402.4.1 C502.2.1	Vertical fenestration maximum area	Provide total gross sf area of all above grade wall elements and rough opening sf area of all vertical fenestration elements in the building, for the prescriptive max allowed window-to- wall ratio (WWR) calculation in the WSEC envelope compliance reports; demonstrate compliance for each space conditioning category separately		
	C402.4.1.1 C405.2.4.1 C502.2.1	Increased prescriptive maximum vertical fenestration area with daylight zones and controls	Provide calculations showing that not less that 50% of the total conditioned floor area is within a daylight zone; demonstrate compliance for each space conditioning category separately		
			Indicate in envelope plans that all lighting fixtures located within daylight zones shall be provided with daylight responsive controls per Section C405.2.4.1		
			Indicate that the VT of vertical fenestration is at least 1.1 times the rated SHGC or no less than VT-0.55, whichever is greater		
	C402.4.1.3 C502.2.1	Increased prescriptive maximum vertical	Indicate high performance U-factors and SHGC values in fenestration schedules		
		fenestration area with high-performance glazing	Indicate if an area-weighted U-factor is used for multiple fenestration elements within the same fenestration category per Table C402.4; provide area-weighted U-factor calculation		
	C402.1.5	Wall/vertical fenestration target area adjustment	Indicate if component performance with target area adjustment will be used to account for vertical fenestration area in excess of the prescriptive maximum allowed; include target area adjustment in WSEC envelope compliance reports		
	C402.4.1 C502.2.2	Skylight maximum area	Provide total gross sf area of roof, and rough opening sf area of all skylight elements in the building, for the prescriptive max allowed skylight-to-roof ratio (SRR) calculation in the WSEC envelope compliance reports; demonstrate compliance for each space conditioning category separately		
	C402.1.5.2	Roof/skylight target area adjustment	Indicate if component performance with target area adjustment will be used to account for skylight area in excess of the prescriptive maximum allowed; include target area adjustment in WSEC envelope compliance reports		
YES	C402.4 C402.4.3.4 C303.1.3	U-factors, SHGC and VT for all fenestration assemblies	Indicate U-factors, SHGC and VT values in fenestration schedules	G0.01	

Building Envelope Requirements List, pg 5 of 8

2018 WSEC Requirements for Commercial Buildings including Group R2, R3 & R4 over 3 stories & all R1 -- Administered by ©2023 NEEA, All rights reserved The following information is necessary to check a building permit application for compliance with the building envelope requirements in the Washington State Energy Code, Commercial Provisions.

	7			
			Indicate if an area-weighted U-factor is used for multiple fenestration elements within the same fenestration category per Table C402.4; provide area-weighted U-factor calculation	
YES			Indicate if values are NFRC or default; if default then specify frame type, glazing layers, gap width, low-e coatings, gas-fill	NFRC
	C402.4.3	Permanent shading devices	For each group of windows with similar orientation and overhang or permanent projection geometry, provide projection factor calculations (Equation C4-6) for north and non-north orientations	
	C402.4.2	Single story spaces requiring skylights	Provide list of enclosed, single story spaces that exceed 2,500 sf; for each space identify the space use, floor area, floor to ceiling height, whether skylights are installed, and any exception taken	
	_		Provide calculations for percentage of conditioned floor area located within a toplit daylight zone; if exception is taken for spaces where the total floor area minus the sidelit zone area is less than 2,500 sf, include percentage of conditioned floor area located within a sidelit daylight zone in calculations	
	C410.2		Provide calculations for percentage of skylight area in each space over 2,500 SF, OR	
		410.2 Walk-in and warehouse cooler and freezer envelope	Provide calculations for skylight effective aperture (Equation C4-5) for each space over 2,500 SF	
			Indicate haze factor of skylight glazing material or diffuser	
			Indicate insulation R-value in cooler and freezer wall and ceiling assemblies	
	_		Indicate cooler and freezer door insulation R- value; indicate method of minimizing infiltration (strip doors, curtains, spring- hinged doors, etc); provide automatic door closure (or note exception taken)	
			For transparent reach-in doors and fixed windows, indicate number of glass panes (double or triple pane); identify whether the interstitial spaces between panes is filled with inert gas or if panes are heat-reflective treated glass	
ADDITIONAL I	EFFICIENCY (CREDITS - ENHANCE	D ENVELOPE PERFORMANCE	
	C406.10	Enhanced envelope performance	To comply with additional efficiency credit, demonstrate envelope thermal performance compliance via component performance; provide WSEC envelope compliance reports that demonstrate Proposed Total UA is 15% lower than the Allowable Total UA	

Building Envelope Requirements List, pg 6 of 8

2018 WSEC Requirements for Commercial Buildings including Group R2, R3 & R4 over 3 stories & all R1 -- Administered by ©2023 NEEA, All rights reserved The following information is necessary to check a building permit application for compliance with the building envelope requirements in the Washington State Energy Code, Commercial Provisions.

AIR LEAKAGE				
C402	2.5.1.1	Air barrier construction and	Identify location and provide diagram of continuous air barrier in plans and sections	
		sealing	Provide details for all joints, transitions in materials, penetrations in air barrier and note method of sealing (caulked, gasketed, or other approved method)	
C402 C402 C402	2.5.3 2.1.3 2.1.4	Rooms containing fuel burning space conditioning appliances	For room(s) located within the conditioned space that contain non-direct vent fuel- burning appliances that require outdoor air for combustion, indicate method of isolation from the conditioned space; include sealing of walls, floor and ceiling of room, doorway gasketting and sealing around ductwork and piping penetrations	
			Indicate walls, floor and ceiling of the room envelope are insulated to the same level required for exterior envelope, and combustion air ductwork that passes thru conditioned space is insulated to at least R-8	
C402	2.5.4	Doors and access openings to shafts, chutes, stairways and	Indicate locations of all doors and access openings to shafts, chutes, stairways and elevator lobbies	
		elevator lobbies	Indicate method of sealing of these openings (gasketing, weatherstripping, other sealing method); or exception taken	
C402 C403	2.5.5 3.7.8	Outdoor air intakes, exhausts and relief openings	Indicate locations of all stairway enclosure, elevator shaft and building pressurization relief openings, outside air intakes and exhaust openings	
			Note in envelope plans that all relief, outside air intake and exhaust openings shall be provided with dampers in accordance with Mechanical Section C403.7.8	
C402	2.5.8	Recessed lighting in building envelope	Indicate method of sealing between light fixture housing and wall or ceiling	
			Note in envelope plans that all recessed lighting fixtures shall be IC rated and have an air leakage rating not greater than 2 cfm per ASTM E283 test; include these requirements in lighting fixture schedules	
C402	2.5.6	Loading dock seals	Indicate weather seal at cargo and loading dock doors	
C402	2.5.7	Vestibules	Indicate locations and dimensions of vestibules for building entrances; also indicate vestibule information for exit-only doors in buildings where separate doors for entering and exiting are provided	
			Indicate locations of all building entrances and exit-only doors provided with an air curtain in lieu of a vestibule	

Building Envelope Requirements List, pg 7 of 8

2018 WSEC Requirements for Commercial Buildings including Group R2, R3 & R4 over 3 stories & all R1 -- Administered by ©2023 NEEA, All rights reserved The following information is necessary to check a building permit application for compliance with the building envelope requirements in the Washington State Energy Code, Commercial Provisions.

	1	1		
			Indicate exception and criteria utilized for all building entrances and exit-only doors that do not have a vestibule or air curtain	
	-		Indicate required performance for air curtains installed per Exception 7	
			For unconditioned vestibules, indicate which envelope assembly (interior or exterior) complies with the requirements for a conditioned space	
	C103.2 C402.5.1.2C 402.5.1.2.1	Building enclosure air leakage test	Indicate in project documents that building enclosure air leakage testing is required for WSEC compliance	
	- R402.4.1.2		Provide area calculations that account for all six sides of the air barrier boundaries	
			For commercial buildings, indicate that building enclosure air leakage testing shall be performed per ASTM C779 (or equivalent method approved by the code official) and the target leakage rate is 0.25 cfm/ft2 (1.5 L/s*m2) at 0.3 in. wg (75 Pa)	
			If the building is mixed residential / commercial and three stories or less above grade plane, indicate which building enclosure air leakage test procedure will be used for the Group R-2 / R-3 areas (Section R402.4.1.2 or C402.5.1.2); if per R402.4.1.2, indicate that the target leakage rate is 5 air changes per hour at 0.2 in. wg (50 Pa)	
			Include the following requirements in project documents: (1) Submit building enclosure air leakage test reports to jurisdiction and owner; (2) If initial test result exceeds 0.25 cfm/ft2 (1.5 L/s*m2), indicate that inspection and all practical corrective actions be completed and documented in the air leakage test report; (3) If initial test result exceeds 0.40 cfm/ft2 (2.0 L/s*m2), indicate that corrective actions shall also include re-testing; (4) Indicate that corrective measures and retesting must be repeated until the test result is 0.40 cfm/ft2 (2.0 L/s*m2) or less; (4) Include air barrier test report in project close out documentation provided to building owner.	
ADDITIONAL EFFICIENCY CREDITS - REDUCED AIR INFILTRATION				
	C406.9	Reduced air infiltration	To comply with additional efficiency credit, indicate in project documents that the building enclosure air leakage test results shall not exceed 0.17 cfm/ft2 at 0.3 in. wg (75 Pa); all documentation requirements per C103.2 and C402.5.1.2 apply	
ALTERATIONS				

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2018 WSEC Requirements for Commercial Buildings including Group R2, R3 & R4 over 3 stories & all R1 -- Administered by ©2023 NEEA, All rights reserved The following information is necessary to check a building permit application for compliance with the building envelope requirements in the Washington State Energy Code, Commercial Provisions.

	C503.1 C503.3.1	Roof alteration - insulation	For a roof alteration where existing ceiling cavities are exposed, indicate cavities are insulated to full depth at minimum nominal value of R-3.0 per inch		
	_		For a roof covering replacement where insulation is installed entirely above the roof deck, indicate insulation complies with requirements for new construction per Tables C402.1.3 or C402.1.4		
YES	C503.1	Wall and floor alteration - insulation	For a wall or floor alteration (floor over outdoor or unconditioned space) where existing envelope cavities are exposed, indicate cavities are insulated to full depth at minimum nominal value of R-3.0 per inch	forms	
YES	C503.3.2	Addition of vertical fenestration	Where the addition of new vertical fenestration results in a window-to-wall ratio (WWR) exceeding the prescriptive maximum allowed per C402.4.1, demonstrate method of compliance (prescriptive vertical fenestration alternate, component performance with target area adjustment for the alteration area and existing-to-remain areas combined, or total building performance per C407); demonstrate for each space conditioning category separately	forms	
NO	C503.3.3	Addition of skylights	Where the addition of new skylights results in a skylight-to-roof ratio (SRR) exceeding the prescriptive maximum allowed per C402.4.1, demonstrate method of compliance (component performance compliance with target area adjustment for the alteration area and existing-to-remain areas combined, or total building performance per C407), demonstrate for each space conditioning category separately		
	C103.2 C103.6.3 C503.2 C505.1	Change in space conditioning or occupancy compliance documentation	Indicate envelope alteration thermal performance compliance path (prescriptive or component performance with 110% allowance); provide WSEC envelope compliance reports		
	C103.2 C103.6.3 C503.2C 505.1	Change in space conditioning or occupancy compliance documentation	If complying via total building performance with 110% allowance, provide a list of all proposed envelope component types, areas and U-values		
PROJECT CLOSE OUT DOCUMENTATION					
	C103.6.3	Project close out documentation requirements	Indicate in plans that project close out documentation is required including applicable calculations, WSEC envelope compliance reports, and fenestration NFRC rating certificates		

CONSTRUCTION CONTRACT

This Construction Contract, including all appendices, (the "Contract") is made and entered into by and between Owner and Contractor on the date of the last signature below for the construction of the project described below.

OWNER

Owner's Name	Sudden Valley Community Association
Address	ATTN: General Manager 4 Clubhouse Circle Bellingham, WA 98229
Telephone Number	(360) 734-6490

CONTRACTOR

Contractor's Name	
Address	
Telephone Number	
Contractor's Authorized Representative	
Federal Identification Number	
Registration Number	
Washington UBI Number	

For and in consideration of the Contract Price noted below, subject to the terms and conditions contained herein, Contractor agrees to perform the following work (the "Work") in a timely and workmanlike manner, including supplying all necessary supervision, materials, equipment, supplies, and skilled and sufficient workforce to fully, completely, and faithfully comply with all the terms and conditions of this Contract.

1. PROJECT. The Project is described as follows:

Project Name:_____

Project Location:_____

2. WORK. The Contractor agrees to perform the following Work in accordance with all applicable laws, codes, and industry standards to construct the Project as follows:

(Insert and list above a precise description of the Work covered by this Subcontract, referring to the numbers of drawings and pages and/or sections of specifications including any applicable addenda and/or alternates, etc.)

3. CONTRACT DOCUMENTS. In addition to this Contract and the enclosed Standard Contract General Conditions, the Contract Documents for this Contract consist of:

Description of Document	Date

Any conflicting provisions in the Construction Documents shall be interpreted harmoniously if possible or, in the event they cannot be reconciled, then they shall be interpreted in the manner most favorable to the Owner, and the interpretation shall be governed in the following priority:

- i. This Contract;
- ii. Any drawings and/or specifications provided by the Owner;
- iii. Any Change Orders executed by and between the Owner and Contractor after execution of this Contract; and
- iv. The Contractor's Proposal.

4. CONTRACT PRICE. The Owner shall pay the Contractor \$_____, plus Washington State sales tax, for all Work completed in conformance with this Contract and the Construction Documents.

5. TIME OF PERFORMANCE. The Contractor shall commence construction no later than (the "Commencement Date"), and Contractor shall complete all Work within days of the Commencement Date (the "Contract Time"). The parties agree that time is of the essence of this Contract and the Owner will suffer damage and be put to additional expenses in the event that the Contractor does not have the Work substantially complete by the end of the Contract Time.

□ (CHECK IF APPLICABLE) Because it is difficult to accurately compute the amount of such costs and damages, the Contractor hereby covenants and agrees to pay to the Owner liquidated damages of \$____ per day for each day that expires after the time set forth above, which the Contractor and Owner agree reasonably approximates Owner's actual damages.

6. **INSURANCE**. Contractor shall purchase and maintain insurance in the following amounts on a per occurrence and aggregate basis naming the Owner as an additional insured by endorsement. All such insurance shall be primary to any coverage carried by Owner. Contractor shall provide Owner evidence of such coverage prior to commencing the Work.

	Per Occurrence Coverage	Aggregate Coverage
General Commercial Liability	\$1,000,000	\$2,000,000
Automobile Liability	\$250,000 or such higher amount as Contractor currently carries	NA

7. GENERAL CONDITIONS. The Standard Contract General Conditions (the "General Conditions") are attached hereto are incorporated herein by this reference.

8. REPRESENTATIONS. The Owner and the Contractor represent and warrant that the following statements are true and accurate:

THIS CONTRACT CONTAINS AN INDEMNIFICATION OF CERTAIN LIABILITIES AND A WAIVER OF CONTRACTOR'S TITLE 51 RCW IMMUNITY.

IN WITNESS WHEREOF, Owner and Contractor have executed this Contract, effective the date of the last authorized signature below.

OWNER:

CONTRACTOR:

SUDDEN VALLEY COMMUNITY ASSOCIATION

Date:_____

By: ______ Its: _____ Date: _____