

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am NICET Certified.

Brent D Kotula Date: 9/26/2024
NICET Certification No. 113889
Water-Based Systems Layout - Level IV
Certification Expires: June 1, 2026

NREV24-0031 / 1015 E. Rork Ct, Newberg / Calculations
REVIEWED AND APPROVED FOR CODE COMPLIANCE
PLAN REVIEW DOES NOT AUTHORIZE CONSTRUCTION TO PROCEED IN VIOLATION OF FEDERAL, STATE, OR LOCAL REGULATIONS, NOR DOES IT RELIEVE DESIGNER FROM ANY LIABILITY OR RESPONSIBILITY.
By: Clair Company; December 9, 2024
Clair Project #1041-100

Uponor

AquaSAFE™ Fire Safety System

Uponor
5925 148th Street West

Apple Valley, MN 55124
800-321-4739

Job Name : RORK - One Head Calculation (H.5)
Drawing : RESIDENTIAL
Location : 1015 RORK CT NEWBERG OR 97132
Remote Area : F100
Contract : 48294
Data File : 48294F Rourke.wx1

HYDRAULIC DESIGN INFORMATION SHEET

Name - RORK Date - 9/15/24
 Location - NEWBERG OR 97132
 Building - RESIDENTIAL System No. - F100
 Contractor - SAYBEL CONTRACTORS Contract No. - 48294
 Calculated By - RACHEL GUNDERSON Drawing No. - 1
 Construction: (X) Combustible () Non-Combustible Ceiling Height VARIES
 OCCUPANCY - RESIDENTIAL

S Type of Calculation: ()NFPA 13 Residential ()NFPA 13R (X)NFPA 13D
 Y Number of Sprinklers Flowing: (X)1 ()2 ()4 ()
 S ()Other
 T ()Specific Ruling Made by Date
 E
 M Listed Flow at Start Point - 17 Gpm System Type
 Listed Pres. at Start Point - 12 Psi (X) Wet () Dry
 D MAXIMUM LISTED SPACING 18 x 18 () Deluge () PreAction
 E Domestic Flow Added - 0 Gpm Sprinkler or Nozzle
 S Additional Flow Added - Gpm Make SENJU Model RC-RES
 I Elevation at Highest Outlet - 118 Feet Size 7/16 K-Factor 4.9
 G Note: Temperature Rating 162
 N

Calculation Gpm Required 17 Psi Required 44.64 At Ref Pt STR
 Summary C-Factor Used: Overhead 150 Underground 150

W Water Flow Test: Pump Data: Tank or Reservoir:
 A Date of Test - 3/10/24 Rated Cap. Cap.
 T Time of Test - 10AM @ Psi Elev.
 E Static (Psi) - 70 Elev.
 R Residual (Psi) - 65 Other Well
 Flow (Gpm) - 300 Proof Flow Gpm
 S Elevation - 100

P Location: x
 P
 L Source of Information: x
 Y

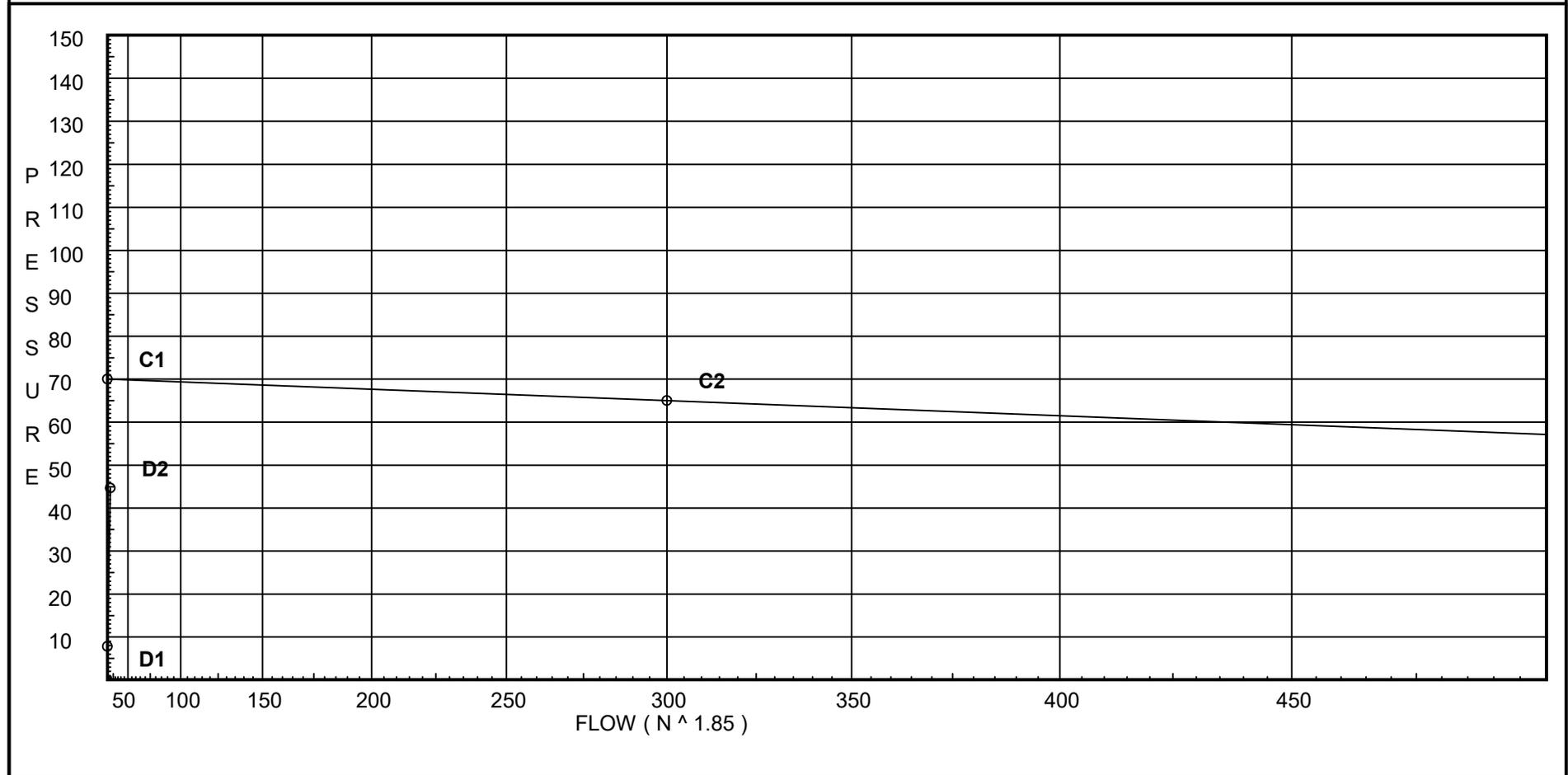
Water Supply Curve C

Uponor
RORK - One Head Calculation (H.5)

Page 2
Date 9/23/2024

City Water Supply:
C1 - Static Pressure : 70
C2 - Residual Pressure: 65
C2 - Residual Flow : 300

Demand:
D1 - Elevation : 7.796
D2 - System Flow : 16.974
D2 - System Pressure : 44.643
Hose (Demand) :
D3 - System Demand : 16.974
Safety Margin : 25.332



Fittings Used Summary

Uponor
RORK - One Head Calculation (H.5)

Page 3
Date 9/23/2024

Fitting Legend

Abbrev.	Name	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
Uel *	Aquapex 90 Elbow	11	11	12	11	13	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utb *	Aquapex Tee - Branch	2	17	14	9	12	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utr *	Aquapex Tee - Run	1	2	2	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Units Summary

Diameter Units Inches
 Length Units Feet
 Flow Units US Gallons per Minute
 Pressure Units Pounds per Square Inch

Flow Summary - NFPA 2007

Uponor
RORK - One Head Calculation (H.5)

Page 4
Date 9/23/2024

SUPPLY ANALYSIS

<i>Node at Source</i>	<i>Static Pressure</i>	<i>Residual Pressure</i>	<i>Flow</i>	<i>Available Pressure</i>	<i>Total Demand</i>	<i>Required Pressure</i>
STR	70.0	65	300.0	69.975	16.97	44.643

NODE ANALYSIS

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>
H.5	118.0	4.9	12.0	16.97	
T.24	118.0		12.56		
T.23	118.0		12.86		
H.6	118.0		12.91		
T.25	118.0		13.1		
T.35	108.0		18.22		
S.1	104.0		20.91		
MTR	100.0		37.29		
STR	100.0		44.64		
T.20	118.0		12.29		
T.33	108.0		17.25		
H.13	108.0		17.3		
H.14	108.0		17.55		
T.34	108.0		17.72		
T.38	108.0		17.96		
T.37	108.0		17.98		
T.36	108.0		18.18		
T.19	118.0		12.43		
H.2	118.0		12.51		
T.18	118.0		12.6		
T.30	108.0		17.26		
H.12	108.0		17.45		
H.15	108.0		17.9		
H.7	118.0		12.65		
H.10	118.0		12.75		
H.8	118.0		12.9		
T.29	118.0		13.0		
H.9	118.0		13.05		
T.28	118.0		13.1		
H.1	118.0		12.62		
T.16	118.0		12.64		
T.17	118.0		12.67		
H.3	118.0		12.73		
H.4	118.0		12.76		
T.21	118.0		12.76		
T.22	118.0		12.8		
H.11	108.0		17.25		
T.31	108.0		17.25		
T.27	118.0		13.1		

Final Calculations - Hazen-Williams

Uponor
RORK - One Head Calculation (H.5)

Page 5
Date 9/23/2024

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
H.5 to T.24	118 118	4.90	7.32	1	Utr	2.0 0.0	14.000 2.000	150	12.000 0.0			
			7.32	0.862		0.0	16.000	0.0349	0.559	Vel =	4.02	
T.24 to T.23	118 118		-4.10	1	2Utb	34.0 0.0	11.000 28.000	150	12.559 0.0			
			3.22	0.862		0.0	39.000	0.0076	0.298	Vel =	1.77	
T.23 to H.6	118 118		1.76	1	Utr	2.0 0.0	1.000 2.000	150	12.857 0.0			
			4.98	0.862		0.0	3.000	0.0170	0.051	Vel =	2.74	
H.6 to T.25	118 118		0.0	1	Utr	2.0 0.0	9.000 2.000	150	12.908 0.0			
			4.98	0.862		0.0	11.000	0.0171	0.188	Vel =	2.74	
T.25 to T.35	118 108		-0.22	1	2Utb	34.0 0.0	22.000 28.000	150	13.096 4.331			
			4.76	0.862		0.0	50.000	0.0158	0.789	Vel =	2.62	
T.35 to S.1	108 104		12.21	1.25	Utr T	4.0 2.44	9.000 6.440	150	18.216 1.732			
			16.97	1.054		0.0	15.440	0.0621	0.959	Vel =	6.24	
S.1 to MTR	104 100		0.0	1.5	2E	3.443 0.0	20.000 3.443	150	20.907 15.732		** Fixed Loss = 14	
			16.97	1.244		0.0	23.443	0.0277	0.650	Vel =	4.48	
MTR to STR	100 100		0.0	0.75	E	1.85 0.0	20.000 1.850	150	37.289 0.0			
			16.97	0.745		0.0	21.850	0.3366	7.354	Vel =	12.49	
STR			0.0 16.97						44.643	K Factor =	2.54	
H.5 to T.20	118 118		9.65	1	Utr	2.0 0.0	3.000 2.000	150	12.000 0.0			
			9.65	0.862		0.0	5.000	0.0582	0.291	Vel =	5.31	
T.20 to T.33	118 108		-4.97	1	2Utb	34.0 0.0	13.000 28.000	150	12.291 4.331			
			4.68	0.862		0.0	41.000	0.0153	0.626	Vel =	2.57	
T.33 to H.13	108 108		-0.72	1	Utr	2.0 0.0	3.000 2.000	150	17.248 0.0			
			3.96	0.862		0.0	5.000	0.0112	0.056	Vel =	2.18	
H.13 to H.14	108 108		0.0	1	Utr	2.0 0.0	20.000 2.000	150	17.304 0.0			
			3.96	0.862		0.0	22.000	0.0112	0.246	Vel =	2.18	
H.14 to T.34	108 108		0.0	1	Utr	2.0 0.0	13.000 2.000	150	17.550 0.0			
			3.96	0.862		0.0	15.000	0.0112	0.168	Vel =	2.18	
T.34 to T.38	108 108		0.0	1	Utb	17.0 0.0	8.000 14.000	150	17.718 0.0			
			3.96	0.862		0.0	22.000	0.0112	0.246	Vel =	2.18	
T.38 to T.37	108 108		3.93	1.25		0.0 0.0	1.000 0.0	150	17.964 0.0			
			7.89	1.054		0.0	1.000	0.0150	0.015	Vel =	2.90	
T.37 to T.36	108 108		4.32	1.25	Utr	4.0 0.0	2.000 4.000	150	17.979 0.0			
			12.21	1.054		0.0	6.000	0.0338	0.203	Vel =	4.49	

Final Calculations : Hazen-Williams

Uponor
RORK - One Head Calculation (H.5)

Page 6
Date 9/23/2024

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
T.36 to T.35	108 108		0.0 12.21	1.25 1.054		0.0 0.0	1.000 0.0	150	18.182 0.0			
			0.0						0.034	0.034	Vel = 4.49	
T.35			12.21						18.216		K Factor = 2.86	
T.20 to T.19	118 118		4.97	1	Utr	2.0 0.0	6.000 2.000	150	12.291 0.0			
			4.97	0.862		0.0	8.000	0.0170	0.136		Vel = 2.73	
T.19 to H.2	118 118		0.0	1	Utr	2.0 0.0	3.000 2.000	150	12.427 0.0			
			4.97	0.862		0.0	5.000	0.0170	0.085		Vel = 2.73	
H.2 to T.18	118 118		0.0	1	Utr	2.0 0.0	3.000 2.000	150	12.512 0.0			
			4.97	0.862		0.0	5.000	0.0172	0.086		Vel = 2.73	
T.18 to T.30	118 108		-1.76	1	2Utb	34.0 0.0	15.000 28.000	150	12.598 4.331			
			3.21	0.862		0.0	43.000	0.0076	0.326		Vel = 1.76	
T.30 to H.12	108 108		0.73	1	Utr	2.0 0.0	16.000 2.000	150	17.255 0.0			
			3.94	0.862		0.0	18.000	0.0111	0.200		Vel = 2.17	
H.12 to H.15	108 108		0.0	1	Utr	2.0 0.0	38.000 2.000	150	17.455 0.0			
			3.94	0.862		0.0	40.000	0.0111	0.443		Vel = 2.17	
H.15 to T.38	108 108		0.0	1	Utr	2.0 0.0	4.000 2.000	150	17.898 0.0			
			3.94	0.862		0.0	6.000	0.0110	0.066		Vel = 2.17	
T.38			0.0						17.964		K Factor = 0.93	
T.38			3.94									
T.24 to H.7	118 118		4.10	1	Utr	2.0 0.0	6.000 2.000	150	12.559 0.0			
			4.1	0.862		0.0	8.000	0.0119	0.095		Vel = 2.25	
H.7 to H.10	118 118		0.0	1	Utr	2.0 0.0	6.000 2.000	150	12.654 0.0			
			4.1	0.862		0.0	8.000	0.0120	0.096		Vel = 2.25	
H.10 to H.8	118 118		0.0	1		0.0 0.0	13.000 0.0	150	12.750 0.0			
			4.1	0.862		0.0	13.000	0.0119	0.155		Vel = 2.25	
H.8 to T.29	118 118		0.0	1	Utr	2.0 0.0	6.000 2.000	150	12.905 0.0			
			4.1	0.862		0.0	8.000	0.0120	0.096		Vel = 2.25	
T.29 to H.9	118 118		0.0	1	Utr	2.0 0.0	2.000 2.000	150	13.001 0.0			
			4.1	0.862		0.0	4.000	0.0120	0.048		Vel = 2.25	
H.9 to T.28	118 118		0.0	1	Utr	2.0 0.0	2.000 2.000	150	13.049 0.0			
			4.1	0.862		0.0	4.000	0.0120	0.048		Vel = 2.25	
T.28 to T.37	118 108		0.22	1	2Utb	34.0 0.0	14.000 28.000	150	13.097 4.331			
			4.32	0.862		0.0	42.000	0.0131	0.551		Vel = 2.37	

Final Calculations : Hazen-Williams

Uponor
RORK - One Head Calculation (H.5)

Page 7
Date 9/23/2024

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
T.37			0.0 4.32						17.979		K Factor = 1.02	
T.18 to H.1	118 118		1.76	1	Utr	2.0 0.0	5.000 2.000	150	12.598 0.0			
H.1 to T.16	118 118		1.76	0.862		0.0	7.000	0.0024	0.017		Vel = 0.97	
H.1 to T.16	118 118		0.0	1	Utr	2.0 0.0	6.000 2.000	150	12.615 0.0			
T.16 to T.17	118 118		1.76	0.862		0.0	8.000	0.0025	0.020		Vel = 0.97	
T.16 to T.17	118 118		0.0	1	Uel	11.0 0.0	2.000 12.000	150	12.635 0.0			
T.17 to H.3	118 118		1.76	0.862		0.0	14.000	0.0025	0.035		Vel = 0.97	
T.17 to H.3	118 118		0.0	1	Uel Utr	11.0 2.0	9.000 14.000	150	12.670 0.0			
H.3 to H.4	118 118		1.76	0.862		0.0	23.000	0.0025	0.057		Vel = 0.97	
H.3 to H.4	118 118		0.0	1	Utr	2.0 0.0	9.000 2.000	150	12.727 0.0			
H.4 to T.21	118 118		1.76	0.862		0.0	11.000	0.0025	0.028		Vel = 0.97	
H.4 to T.21	118 118		0.0	1		0.0 0.0	4.000 0.0	150	12.755 0.0			
T.21 to T.22	118 118		1.76	0.862		0.0	4.000	0.0025	0.010		Vel = 0.97	
T.21 to T.22	118 118		0.0	1	Uel	11.0 0.0	3.000 12.000	150	12.765 0.0			
T.22 to T.23	118 118		1.76	0.862		0.0	15.000	0.0025	0.037		Vel = 0.97	
T.22 to T.23	118 118		0.0	1	Utr Uel	2.0 11.0	8.000 14.000	150	12.802 0.0			
T.23			0.0 1.76						12.857		K Factor = 0.49	
T.33 to H.11	108 108		0.72	1	Utr	2.0 0.0	6.000 2.000	150	17.248 0.0			
H.11 to T.31	108 108		0.72	0.862		0.0	8.000	0.0005	0.004		Vel = 0.40	
H.11 to T.31	108 108		0.0	1	Utr	2.0 0.0	1.000 2.000	150	17.252 0.0			
T.31 to T.30	108 108		0.72	0.862		0.0	3.000	0.0007	0.002		Vel = 0.40	
T.31 to T.30	108 108		0.0	1	Utr	2.0 0.0	2.000 2.000	150	17.254 0.0			
T.30			0.72	0.862		0.0	4.000	0.0002	0.001		Vel = 0.40	
T.30			0.0 0.72						17.255		K Factor = 0.17	
T.25 to T.27	118 118		0.21	1	Utr	2.0 0.0	1.000 2.000	150	13.096 0.0			
T.27 to T.28	118 118		0.21	0.862		0.0	3.000	0	0.0		Vel = 0.12	
T.27 to T.28	118 118		0.0	1	Utr	2.0 0.0	4.000 2.000	150	13.096 0.0			
T.28			0.21	0.862		0.0	6.000	0.0002	0.001		Vel = 0.12	
T.28			0.0 0.21						13.097		K Factor = 0.06	

Final Calculations : Hazen-Williams

Uponor
RORK - One Head Calculation (H.5)

Page 8
Date 9/23/2024

Node1	Elev1	K	Qa	Nom	Fitting		Pipe	CFact	Pt			
to					or		Ftngs		Pe	*****	Notes	*****
Node2	Elev2	Fact	Qt	Act	Equiv	Len	Total	Pf/Ft	Pf			

Markup Legend	
Delete Line	
Add Line	
Add Tee	
Add Elbow	
Add Coupling	
Add Head	
Delete Head	
Move Head	

VERTICAL PIPE TO BE PROPERLY PROTECTED AND INSULATED TO MAINTAIN A MINIMUM TEMPERATURE OF 40°F, TYPICAL

COLOR/LINETYPE LEGEND	
BLUE LINES= FEED TO FIXTURES (BATH, SHOWER, ETC.).	
GREEN LINES= INTERLEVEL CONNECTIONS/SUPPLY.	
BLACK LINES= SPRINKLER HEAD TO SPRINKLER HEAD.	
	= 1/2" PIPE SIZE
	= 3/4" PIPE SIZE
	= 1" PIPE SIZE
	= 1 1/4" PIPE SIZE

SPRINKLER SYMBOL DEFINITION	
	MAXIMUM SPACING (TYP)
	SPRINKLER MODEL (TYP)
	HEAD SYMBOL (TYP)

Multipurpose Fire Safety Systems

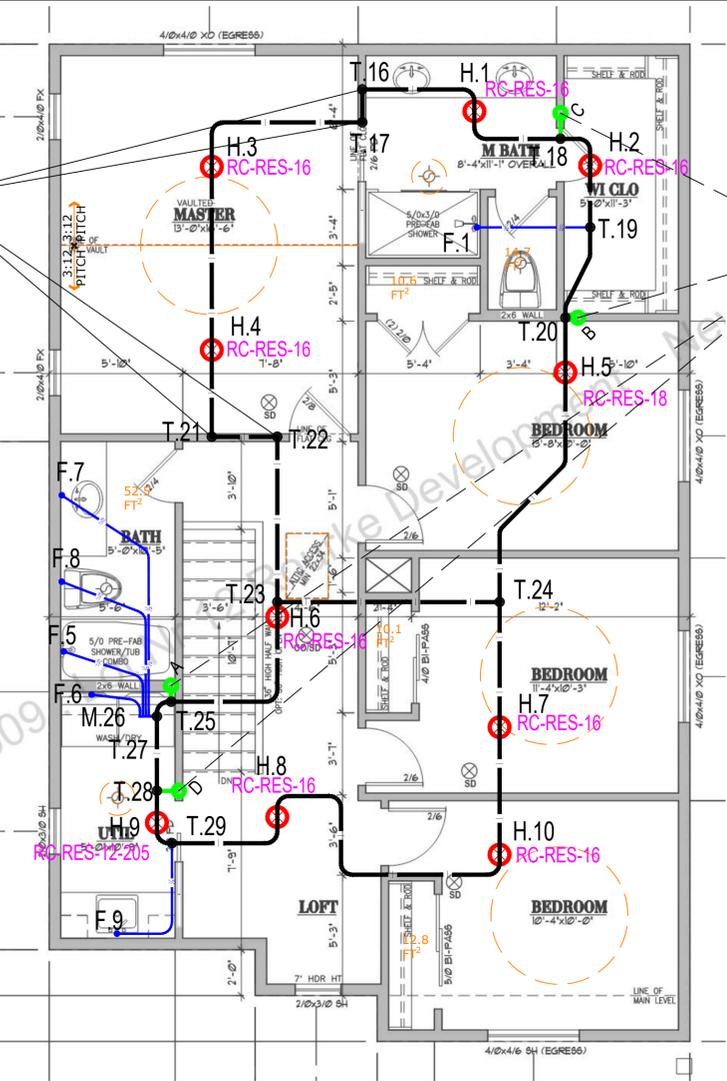
The Uponor Residential Fire Safety System is a residential fire protections system installed in combination with the cold side of the domestic potable water system. Only licensed contractors trained by Uponor can install this system.

What to do if Changes are Required
If any features or obstructions require the addition or deletion of sprinkler heads, or significant relocation of sprinkler heads, contact the Uponor Design Department to determine if observed changes require a redesign (888.594.7726).

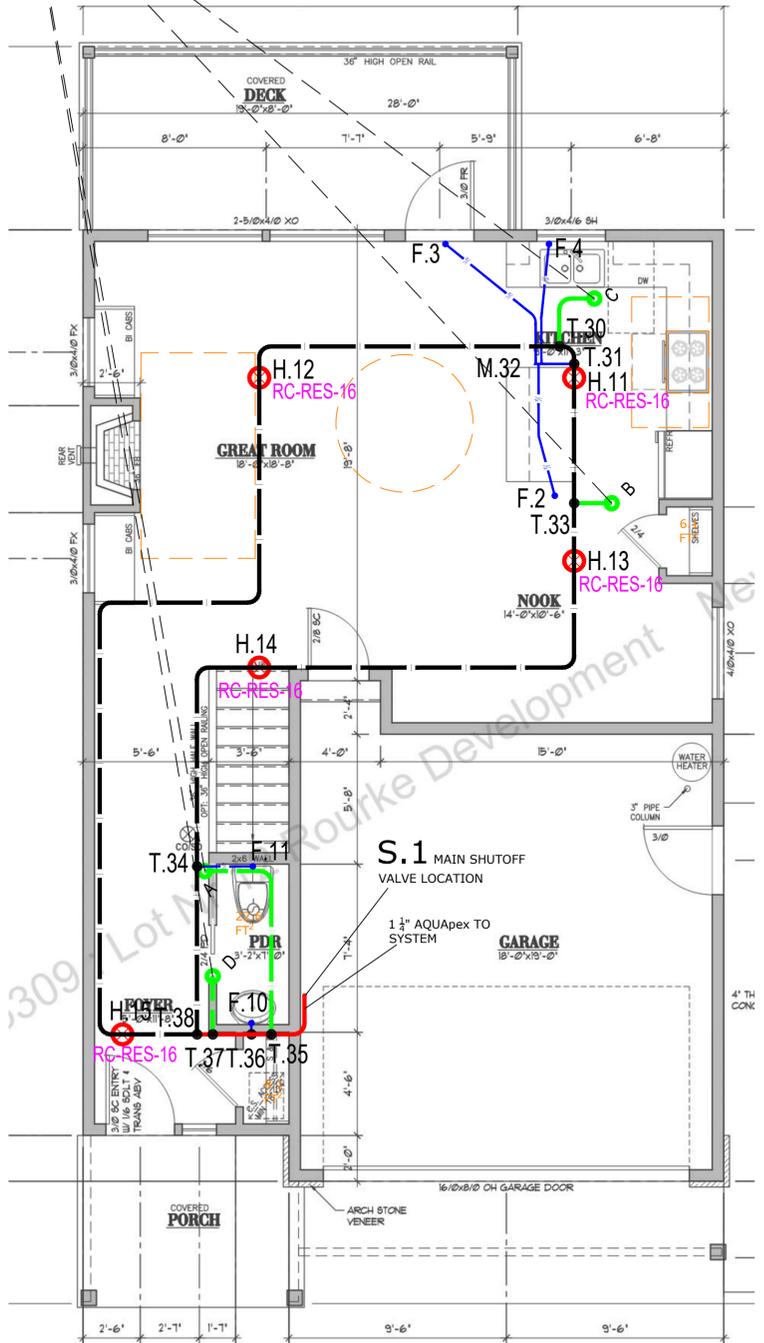
MOST HYDRAULICALLY REMOTE HEADS			
HEAD #	GPM	PRESSURE REQ'D AT STREET	
1 HEAD H.5	17	44.64	
2 HEAD H.3 & H.4	26.0096	56.15	

- 13 SENJU Model RC-RES Residential Flat Concealed Pendant SS8464 K=4.9, 162F°, 7/16" Orifice, Maximum Spacing 16"x16" Sprinkler head demand: 13 gpm @ 7.04
- 1 SENJU Model RC-RES Residential Flat Concealed Pendant SS8464 K=4.9, 162F°, 7/16" Orifice, Maximum Spacing 18"x18" Sprinkler head demand: 17 gpm @ 12
- 1 SENJU Model RC-RES205 Residential Flat Concealed Pendant SS8464 K=4.9, 205F°, 7/16" Orifice, Maximum Spacing 12"x12" Sprinkler head demand: 13 gpm @ 7.04

5 1st Floor
10 2nd Floor
15 TOTAL



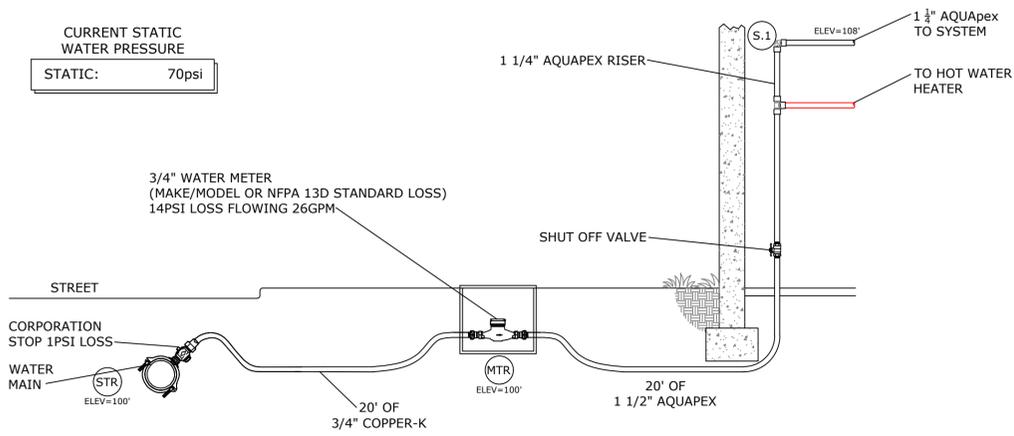
3 SECOND FLOOR
1/4" = 1'-0"



1 FIRST FLOOR
1/4" = 1'-0"

Note to Inspector: Dead legs in the piping system shall have an accessible method of flushing and shall not exceed 1.5 times the pipe diameter. Inspector to verify. 2023 OPSC Section 309.5

NREV24-0031 / 1015 E. Rork Ct, Newberg / Drawings
REVIEWED AND APPROVED FOR CODE COMPLIANCE
PLAN REVIEW DOES NOT AUTHORIZE CONSTRUCTION TO PROCEED IN VIOLATION OF FEDERAL, STATE, OR LOCAL REGULATIONS, NOR DOES IT RELIEVE DESIGNER FROM ANY LIABILITY OR RESPONSIBILITY.
By: Clair Company; December 9, 2024
Clair Project #1041-100



2 WATER SERVICE DETAIL
F100 NTS

uponor

DESIGN SERVICES
5729 56th Street West, Apple Valley, MN 55124
TEL: 888.594.7726
EMAIL: DESIGN.SERVICES@UPONOR.COM
WEB: WWW.UPONOR-USA.COM

DISCLAIMER
THIS SERIES OF DRAWINGS HAS BEEN PREPARED BY UPONOR, INC. TECHNICAL SERVICES DEPARTMENT. UPONOR, INC. IS NOT PROVIDING ANY DESIGN OR ENGINEERING SERVICES FOR YOUR USE IN THE SPECIFICATION, BIDDING AND SALE OF SUCH SYSTEMS. THEY HAVE BEEN PREPARED TO PROFESSIONAL STANDARDS OF DESIGN AND CONSTRUCTION BASED UPON INFORMATION PROVIDED BY YOU. BEFORE STARTING CONSTRUCTION, YOU SHOULD CONSULT WITH A LICENSED PROFESSIONAL ENGINEER OR ARCHITECT FOR A CAREFUL CHECK OF PIPE SIZE CALCULATIONS, MATERIALS, PLUMBING AND FIRE CODES USED. YOU MUST REPORT ANY ERRORS AND/OR DESIGN CHANGES TO UPONOR, INC. TECHNICAL SERVICES - DESIGN DEPARTMENT TO DETERMINE IF THE DESIGN OR ITS USE. ALL DESIGNS ARE PROVIDED "AS IS". IT SHALL BE YOUR SOLE RESPONSIBILITY TO ENSURE THE SYSTEM WILL FUNCTION IN ACCORDANCE WITH ALL APPLICABLE CODES AND TO SPECIFICATIONS.

SALES REP:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am NICET Certified.

Brent D Kotula Date: 9/26/2024
NICET Certification No. 113889
Water-Based Systems Layout - Level IV
Certification Expires: June 1, 2026

RORK CONTRACTORS		
COMPANY:	SAYBEL CONTRACTORS	
CONTACT:	MIGUEL DORANTES	
CONTACT PH. NUMBER:	503.965.5993	
ALLIANCE ID:	2197	
PLOT DATE:	9/15/24	
SQUARE FEET:	1,806 SQ. FT.	
REVISIONS		
NO.	DATE	DESCRIPTION

RORK
1015 RORK CT
NEWBERG OR, 97132

SHEET DESCRIPTION
FIRST & SECOND FLOOR

SHEET NUMBER
F100



© UPONOR - CONFIDENTIAL



December 9, 2024

Michele Faber
City of Newberg
414 E. First Street
Newberg, OR 97132

Project: 1015 E. Rork Ct, Newberg, OR
Subject: 1st Plan Review – Approved
Clair Project No.: 1041-100
Permit: NREV24-0031

Clair Company, Inc. (Clair) has completed the review for the above-mentioned project on behalf of the City of Newberg. Clair **recommends approval of the associated documents.**

If you have any questions regarding the information we have provided, please do not hesitate to contact our office at (800) 383-8855 or by email at comments@claircompany.com.

Respectfully Submitted,

Amy Cherry
Administrative Services Manager

Cc: Clair Project File #1041-100

CODES AND STANDARDS

State of Oregon 2022 edition Oregon Structural Specialty Code (OSSC)
State of Oregon 2023 edition Oregon Plumbing Specialty Code (OPSC)

SUBMITTAL LOG

Our plan review comments are based on the following submitted construction documents:

Date Received	Dated	From	Clair Number	Copies	Release date	Description
10/21/24	9/23/24	City of Newberg	1000	-	12/9/24	1015 E. Rork Ct, Newberg - Hydraulic calculations. Received electronically
10/21/24	9/15/24	City of Newberg	1001	-	12/9/24	1015 E. Rork Ct, Newberg - Drawing F100 and F001. Received electronically