Energy Efficient

Water Heating Solutions

Reference Guide to Products and Services

Presented by Dipesh Parekh and Rohan Scafe

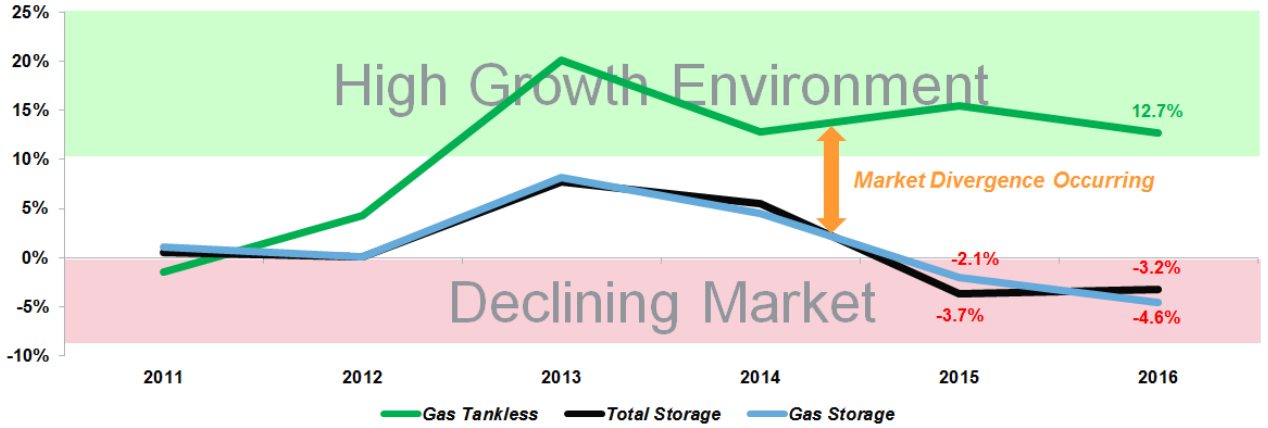
Enhancing Lives By Changing The Way Water Is Heated

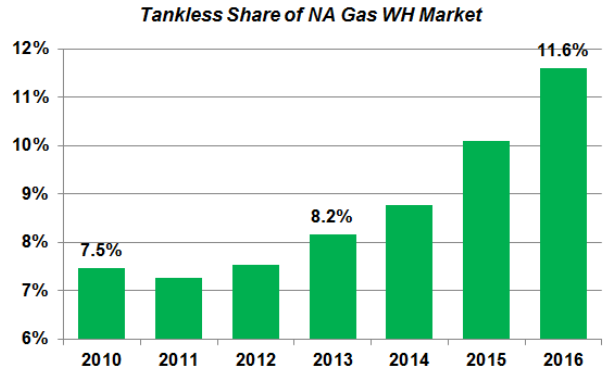
Rinnai

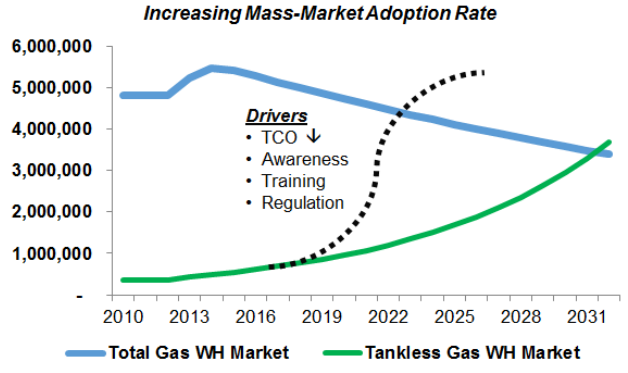
Rinnai Global Capabilities

- Based in Nagoya, Japan with over 10,000 employees world-wide
- Over 29 Global Subsidiaries and Affiliates in 43 countries
- Established in 1920 - Tanklesss introduced to NA in 1999.
- Used in Japan's first "low carbon certified" building
- Certified CSA Testing Laboratory
- North American Headquarters located in Peachtree City, GA
- #1 Tankless Water Heater Manufacturer in U.S. and Canada

U.S. Water Heater Market







ENHANCING LIVES BY CHANGING THE WAY WATER IS HEATED

“Quality is our Destiny”

Rinnai

20.0 %

6.9%

3.8%

1.0%

<.5%

Products for every application

ENHANCING LIVES BY CHANGING THE WAY WATER IS HEATED

Current Product Portfolio

Rinnai

Emergency Replacement

Planned Replacement
and New Construction

DuoSmart™
TANK TECHNOLOGY

ThermaCirc360™
Wait less. Waste less.

Transforming the way water is heated

ENHANCING LIVES BY CHANGING THE WAY WATER IS HEATED

Products that change the way water is heated

Rinnai

Existing Boiler Room

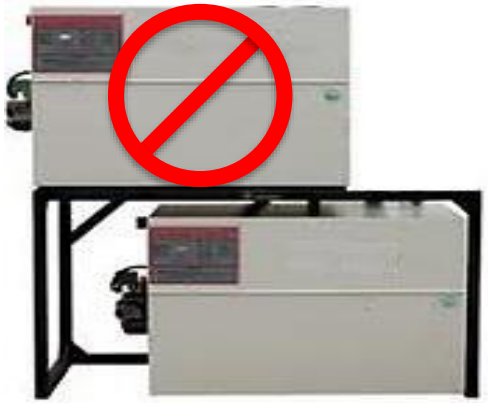
Same Boiler Room with Multiple Solutions

Rinnai Tankless Rack Systems - TRS™

Example: 1,000,000 Btu System

One Rinnai tankless disabled:
loss of 16% DHW

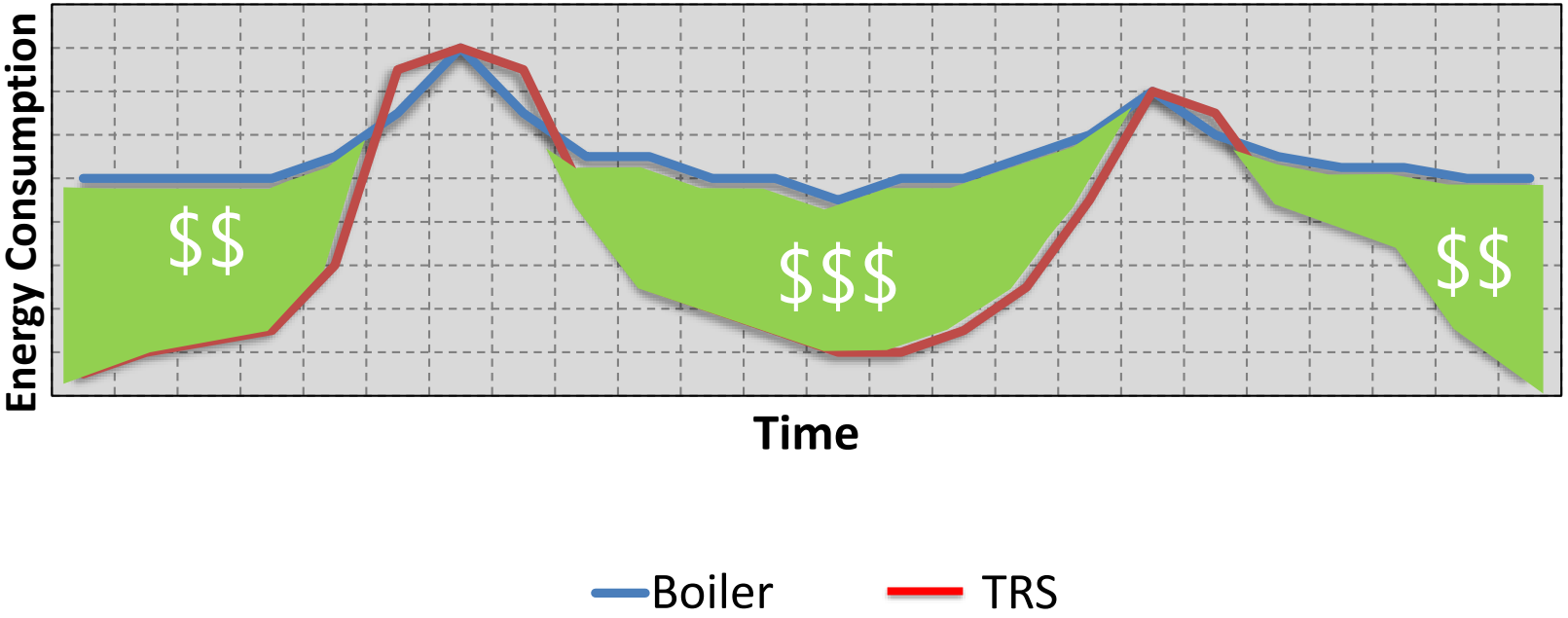
Tank disabled:
100% loss of DHW



One unit disabled:
50% loss of DHW

Rinnai Tankless Rack Systems - TRS™

TRS can Track the Load from one fixture to the entire facility under peak demand



Rinnai Commercial Products

Reduce Capital and Operating Costs

Multi-Zoned Installations provide VE opportunities

Eliminate large, complicated and expensive central systems

- Ability to separate DHW from high temp HW without expensive mixing valves
- Shorter recirculation loops reduces pump size and saves energy
- Space savings with smaller, wall-mount TRW
- Redundancy provides maximum uptime

Guest Rooms 120°F

OR

Zoned Guest Rooms, 1 per floor or every other floor

Kitchen / Laundry 140°F

$15 to $25K Mixing Valve

Overall lower cost to install

Alignment of Sustainability Goals

Rinnai

2025 SUSTAINABILITY AND SOCIAL IMPACT GOALS: REDUCE ENVIRONMENTAL IMPACTS

GOAL Reduce environmental footprint by 15% | 30% | 45% across the portfolio by 2025
(from a 2016 baseline; for water | carbon | waste on an intensity basis)

SUPPORTING GOALS

WATER
Reduce water intensity by 15%

- Zoned Water Heating
- Strategically Locate tankless,
- Integrated Recirculation

All can reduce waste by reducing time to purge cold water from lines

CARBON EMISSIONS
Reduce carbon intensity by 30%
Commit to analyze the opportunity to set a science-based target by 2018

- High efficiency technology
- Superior load tracking
- Integrated recirculation control

All reduce energy usage and reduce carbon emissions

WASTE
Reduce waste to landfill by 45%

Reduce food waste by 50%

- Tankless technology has a longer expected life vs tanks
- Parts are field replaceable
- Parts are easily recyclable

Rinnai products reduce the impact to landfills

RENEWABLE ENERGY
Achieve a minimum of 30% renewable energy use

- Tankless technology is the preferred back-up to solar thermal water heating systems

Renewal systems such as solar thermal all require a back-up and method to handle peak demands

Rinnai Commercial Impact to Sustainability

Rinnai Life Cycle Cost Analysis - Hospitality

(2) Tankless Racks TRS04 and TRS06	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total LCC
Equipment Cost (Year 7 HX replacement)	$ 28,500	$ -	$ -	$ -	$ -	$ -	$ 4,000	$ -	$ -	$ -	$ 32,500
Installation Cost (Year 7 HX replacement)	$ 12,000	$ -	$ -	$ -	$ -	$ -	$ 1,000	$ -	$ -	$ -	$ 13,000
Utility Rebate(s)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Installed Cost	*$ 40,500*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ 5,000*	*$ -*	*$ -*	*$ -*	*$ 45,500*
Annual Maintenance	$ -	$ 2,000	$ -	$ 2,000	$ -	$ 2,000	$ -	$ 2,000	$ -	$ 2,000	$ 10,000
Annual Energy Cost	$ 11,670	$ 11,670	$ 11,670	$ 11,670	$ 11,670	$ 11,670	$ 11,670	$ 11,670	$ 11,670	$ 11,670	$ 116,700
Total Operating	*$ 11,670*	*$ 13,670*	*$ 11,670*	*$ 13,670*	*$ 11,670*	*$ 13,670*	*$ 11,670*	*$ 13,670*	*$ 11,670*	*$ 13,670*	*$ 126,700*
Productivity Add Inputs (revPAR and ADR)	*100*	*36,500*	*$ 2,500,000*	*$ 68*	*0.70*	*$ 97.85*	*20*				
	# OF RMS	*AVAIL RMS/YR*	*GROSS RM REV YR*	*revPAR*	*OCCUP. %*	*ADR*	*"NO HOT" WATER COMPS PER YR*				
Productivity Add Offset	*$1,957*	*$1,957*	*$1,957*	*$1,957*	*$1,957*	*$1,957*	*$1,957*	*$1,957*	*$1,957*	*$1,957*	*$19,569*
Total Cummulative A&M Cost	*$ 50,213*	*$ 61,926*	*$ 71,639*	*$ 83,352*	*$ 93,065*	*$ 104,778*	*$119,491*	*$ 131,204*	*$ 140,917*	*$ 152,631*	*$ 152,631*

Rebates may be available in some areas for tankless NG water heaters

(4) NG Tank (100 Gal.)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total LCC
Equipment Cost	$ 24,000	$ -	$ -	$ -	$ 24,000	$ -	$ -	$ -	$ -	$ 24,000	$ 72,000
Installation Cost	$ 8,000	$ -	$ -	$ -	$ 8,000	$ -	$ -	$ -	$ -	$ 8,000	$ 24,000
Utility Rebate(s)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Installed Cost	*$ 32,000*	*$ -*	*$ -*	*$ -*	*$ 32,000*	*$ -*	*$ -*	*$ -*	*$ -*	*$ 32,000*	*$ 96,000*
Annual Maintenance	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Annual Energy Cost	$ 13,670	$ 13,670	$ 13,670	$ 13,670	$ 13,670	$ 13,670	$ 13,670	$ 13,670	$ 13,670	$ 13,670	$ 136,700
Total Operating	*$ 13,670*	*$ 13,670*	*$ 13,670*	*$ 13,670*	*$ 13,670*	*$ 13,670*	*$ 13,670*	*$ 13,670*	*$ 13,670*	*$ 13,670*	*$ 136,700*
Total Cummulative A&M Cost	*$ 45,670*	*$ 59,340*	*$ 73,010*	*$ 86,680*	*$ 132,350*	*$ 146,020*	*$159,690*	*$ 173,360*	*$ 187,030*	*$ 232,700*	*$ 232,700*

ENHANCING LIVES BY CHANGING THE WAY WATER IS HEATED

Rinnai Commercial CU199 SENSEI

- Flexible installation options
  - (Interior/Exterior, Natural Gas/Propane)
- 97% Thermal Efficiency
- Common Vent up to 12 units/~2.4MMBTU (6” PVC)
- **Warranty**
  - **8 years or 12,000 operation hours heat exchanger**
  - **5 year parts**
  - **2 years labor***

SENSEI™

THE NEXT GENERATION IN TANKLESS WATER HEATING

Commercial CU199 SENSEI TWH

Focused on 3 ideals to Captivate Customers:

1. **Installation Ease**
2. **Operational Performance**
3. **Serviceability**

Every component was designed to be removed in under 10 minutes

Rinnai Control – R Wi-Fi Module

Real-time Status
Remote diagnostics and alerts
Shorter maintenance time
Control and convenience

Rinnai Tankless Rack Systems - TRS™

Tankless Rack System™

Up to 25 units working together

327:1 Turndown Ration = Superior Load Tracking

ThermaCirc360™
Wait less. Waste less.

Demand Duo™ Commercial Family of Products

Rinnai

80 gal / 199K BTU
Standard Efficiency
Demand Duo 80
CHS19980HE (iN/iP)

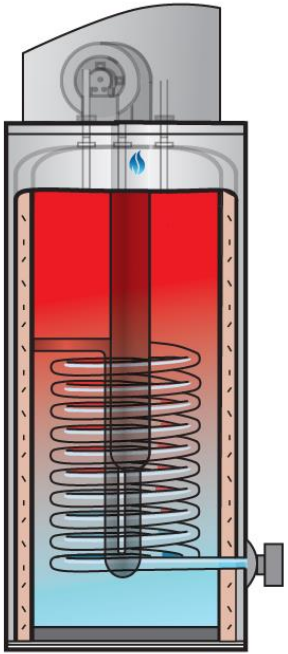
119 gal / 199K BTU
High Efficiency
Demand Duo 119
CHS199100CU (iN/iP)

119 gal / 398K BTU
High Efficiency
Demand Duo 2
CHS398100CU (iN/iP)

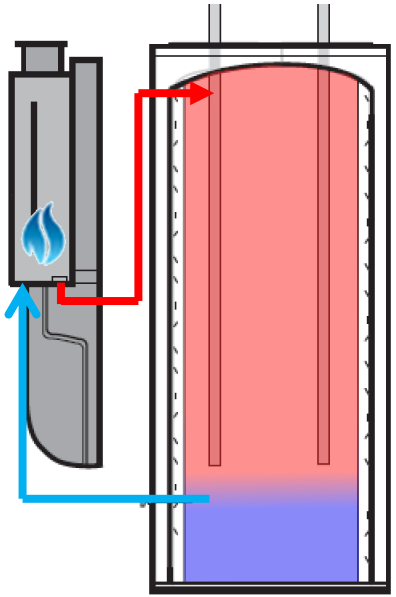
Demand Duo™ - How It Works

Rinnai

HE Commercial Water heater



Rinnai Demand Duo Hybrid Commercial Water Heater



Removed the heat source from the tank

Larger tank + 90% utilization = more hot water

Benefits:

1. Reduced Thermal Stress on the Tank
2. Easily replaced components
3. More Hot Water Capacity
4. Consistent Hot Water Temperature

The Demand Duo™ Value Proposition

Rinnai

Heating occurs in the tankless heat exchanger – not the tank

Set-point temperature water delivered to the tank

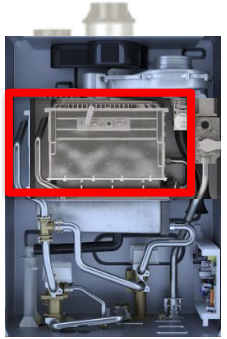
Removes stress from tank

Extends the life of the product

RESULT = 2x warranty (8 years HEX / 6 years Tank)

So, would you rather replace this at ~$7000

Or this at ~$400?



2x warranty – similar cost - repair vs replace = lower cost of ownership

Demand Duo Warranty

Rinnai

	Demand Duo 119 Demand Duo 2		Demand Duo 80	
		Commercial		Commercial
		CHS199100CU CHS398100CU		CHS19980HE
Heat Exchanger		8 years		5 years
Storage Tank	6 years			
Parts and Components	5 years			
Reasonable Labor	2 years*			

*Limitations apply, see Rinnai Limited Warranty Terms and conditions located in the installation and operation manual.

How Rinnai National Accounts Started…

Rinnai Sales: *“What do you like about this water heater?”*

Customer: *“Nothing, it’s expensive and it has to be replaced every 3 years.”*

Rinnai Sales: *“Great, you should try our Demand Duo.”*

Customer: *“Ok, what’s your National Accounts 24/7 phone number?”*

Rinnai: *“We don’t have one…”*

Customer: *“Sorry Rinnai, I can’t live without 24/7 replacement service. I hate the product, but love the service.”*

Sizing, Energy and Space Savings using a Commercial Tankless Solution

Rinnai Corporation

Rinnai

CREATING A HEALTHIER WAY OF LIVING

Role

- Manage a Team Engineers serving North America
- Sizing, design and quotation
- Custom engineered solutions via Made-to-Order (MTO)

  - piping, pump, controls, tank, design drawings and more
- Return-on-investment (ROI) calculations: cost, savings, carbon emissions and life cycle cost analysis
- Commercial system installation and troubleshooting support
- Consultation: Owners, MEPs, Architects, Mechanical Contractors, Facilities Managers, Builders, Developers and more

Sizing Fundamentals – Important Factors

- Hot water demand: How much hot water is required during peak?
- Incoming ground water temperature: Ground water temperature could increase system size by up to 40% in northern regions
- Altitude: Air to gas ratio is affected at high altitude
- Existing distribution water line size
- Mechanical space
- Available gas load: Tankless systems require high input rate. Must ensure gas meter, regulator and lines are sized for maximum input rate of system

Sizing Fundamentals – Formulas

Rate of heat transfer:

Btuh = GPH x ΔT x 8.33

Btuh = Q x ΔT x 500

GPH: Gallons per hr
Q: Water flow rate (gpm)
ΔT: Temperature rise (° F)

Btuh: Defined as the quantity of energy necessary to raise the temperature of 1lb of water 1° F in 1 hour

Used to determine energy loads

Mixed water temperature:

P = (Tm-Tc)/(Th-Tc)

P: Hot water multiplier
Tm: Temperature of mixed water (° F)
Tc: Temperature of cold water (° F)
Th: Temperature of hot water (° F)

Hot Water Flow Rate (gpm) =

Mixed Temperature Flow Rate X P

Max Flow Rate of Round Pipe (Q)

$Q = 2.448d^2V$

Q = flow rate (gpm)
D = pipe diameter (inches)
V = pipe velocity (ft/s)

Friction Head Loss (h):

$h = 0.000623q^2 \times L/d^5$

H= friction head (ft)
q = flow rate (gpm)
L = pipe length (ft)
d = pipe diameter (inch)
2.31 ft head = 1 PSI

Sizing Fundamentals – Ground Water Temperature Map

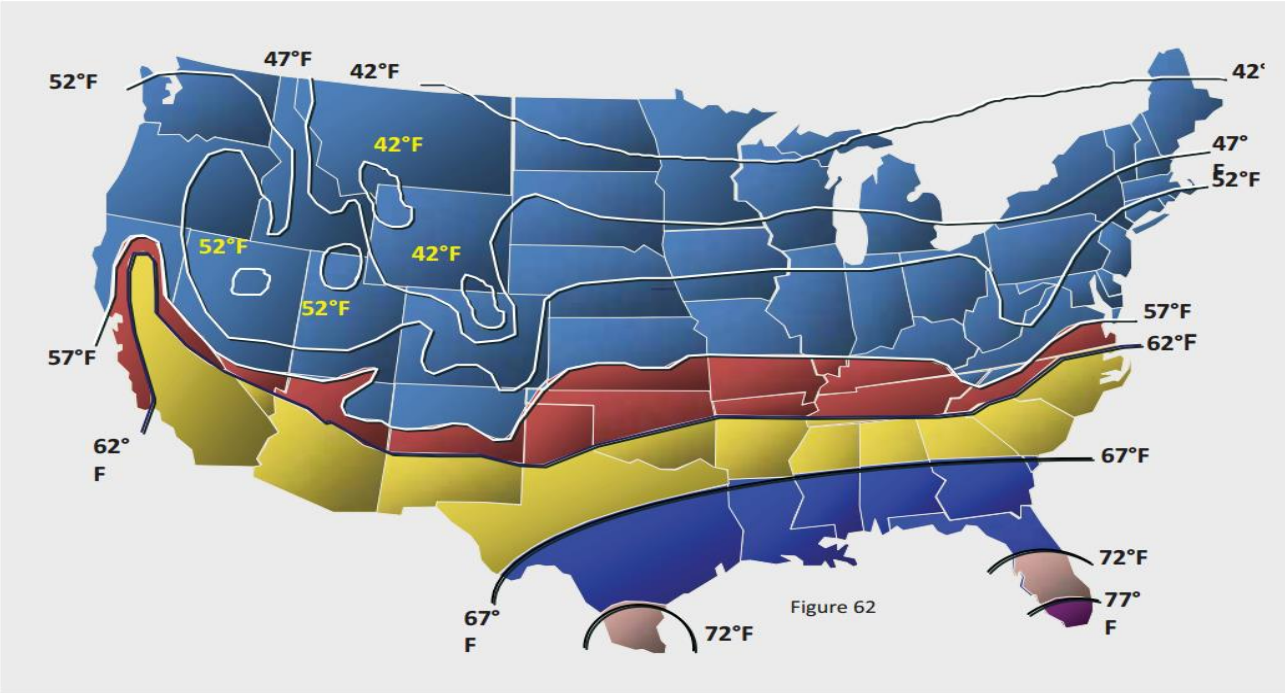


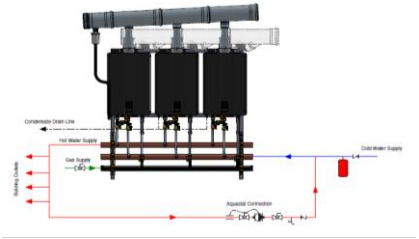
Fig. 40 Approx. ground water temperatures
Courtesy of epa.gov., accessed September 2012

Industry Sizing Methods – ASHRAE & ASPE

ASHRAE

Hot Water Fixture Units and the Modified Hunter's Curve:

- FU: An arbitrary unit assigned to different types of plumbing fixtures
- Most plumbing fixtures are assigned a FU
- Used when sizing tankless, instantaneous, on-demand water heaters (systems that do not incorporate storage)
- Used in conjunction with the Modified Hunter's Curve to estimate water flow rates
- The Modified Hunter's Curves are specific to the application
- Diversity is included in the curves



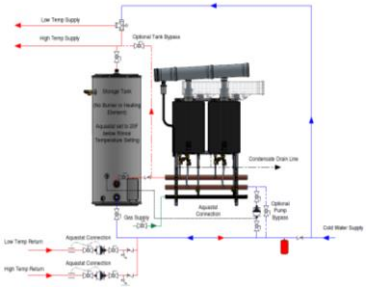
ASPE

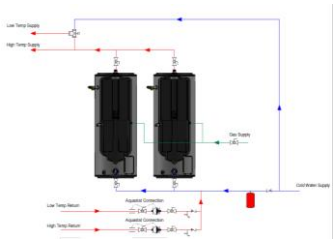
GALLONS PER HOUR (GPH) REQUIREMENT: an estimated measure of the total gallons of hot water the building will use during peak periods. Fixture GPH is specified by technical publications such as American Society of Plumbing Engineers (ASPE) or the fixture manufacturer. This method is used for sizing storage water heating systems.

Determining design load (Btuh):
Design load (Btuh)= GPH X ΔT X 8.33
ΔT: temperature rise (F)
8.33: weight of water (8.33lb/gal)

Engines = Design load (Btuh)
Engine max. input (Btuh) x Engine TE.

Tank vol. (gals.) = Design GPH x 0.20



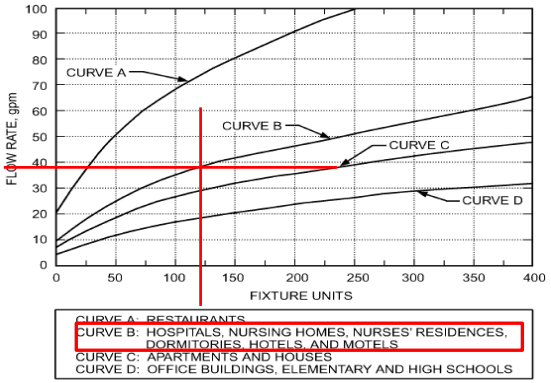


Sizing Example – Central Plant w/ Tankless Only

ASHRAE | 55 Suite Hotel | Location: Suburban Atlanta, GA | GWT: 65F| Supply temp: 120F| ΔT : 55F

Table 16 Hot-Water Demand in Fixture Units (140°F Water)

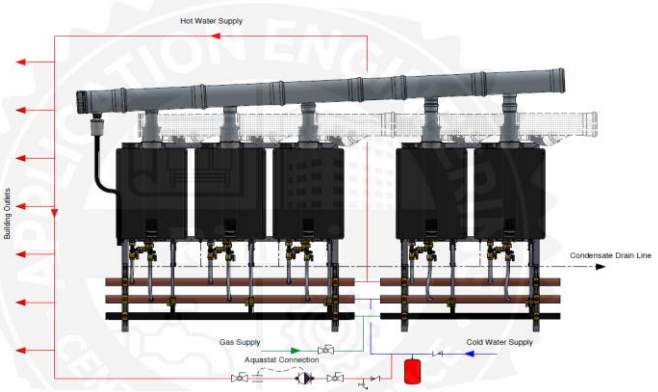
	Apartments	Club	Gymnasium	Hospital	Hotels and Dormitories	Industrial Plant	Office Building	School	YMCA
Basin, private lavatory	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Basin, public lavatory	—	1	1	1	1	1	1	1	1
Bathtub	1.5	1.5	—	1.5	1.5	—	—	—	—
Dishwasher*	1.5	Five fixture units per 250 seating capacity							
Therapeutic bath	—	—	—	5	—	—	—	—	—
Kitchen sink	0.75	1.5	—	3	1.5	3	—	0.75	3
Pantry sink	—	2.5	—	2.5	2.5	—	—	2.5	2.5
Service sink	1.5	2.5	—	2.5	2.5	2.5	2.5	2.5	2.5
Shower	1.5	1.5	1.5	1.5	1.5	3.5	—	1.5	1.5
Circular wash fountain	—	2.5	2.5	2.5	—	4	—	2.5	2.5
Semicircular wash fountain	—	1.5	1.5	1.5	—	3	—	1.5	1.5



HOT WATER FIXTURE LIST					
Fixtures	**Qty.**	**FU**	**Total FU**	**GPH**	**Total GPH**
Suites/rooms	55			12	660
Tub/showers	55	1.5	82.5		
Lavatory/hand sinks	55	0.75	41.25		
	Total WSFU		**124**	Total GPH	660
Design Flow Rate (gpm)	**36.8**		**Design GPH**		**660**

Flow rate/engine (CU199) @ 55F rise: 7 gpm

Engines :37/7 = 5 engines or 1-TRW03 + 1-TRW02



CREATING A HEALTHIER WAY OF LIVING

Sizing Example – Central Plant w/Storage

ASPE

Determine design load (Btuh):
Design load (Btuh)= GPH X ΔT X 8.33
ΔT: temperature rise (F)
8.33: weight of water (8.33lb/gal)
Engine qty. = Design load (Btuh)
Engine max. input (Btuh) x Engine TE.
Tank vol. (gals.) = Design GPH x 0.2

Design load: 660 x 55 x 8.33 = 302,379 Btuh

Engine qty. = 302,379 = 1.6 ~ 2 engines
199,000 x .97

Tank vol. = 660 x 0.2 = 130 ~ 119 gal

HOT WATER FIXTURE LIST					
Fixtures	**Qty.**	**FU**	**Total FU**	**GPH**	**Total GPH**
Suites/rooms	55			12	660
Tub/showers	55	1.5	82.5		
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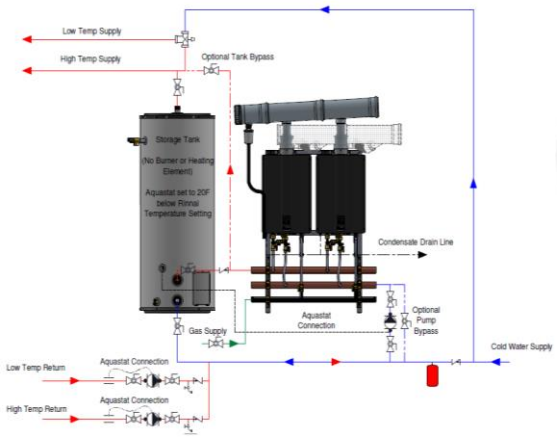
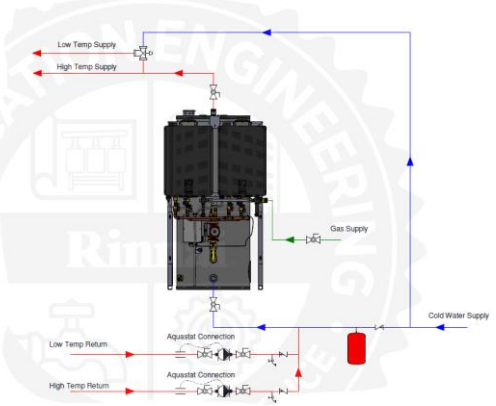




Energy Savings

Items needed:

- Job must be sized by Rinnai
- Make and model of spec'd or existing system
- Storage capacity
- Thermal efficiency
- Tank standby loss
- Age of tanks
- Utility rates

APPLICATION INFORMATION	
Application Type:	Hotel
Unit of Measure:	US
Rinnai Fuel Type:	Natural Gas
Tank Fuel Type:	Natural Gas
Location:	Indoor

DESIGN PARAMETERS		
Supply temp:	120	°F
Ground temp:	65	°F
Temperature rise:	55	°F
Age of existing WH	8	yrs

CALCULATION CONSTRAINTS		
	Rinnai TRS	2 Tank Water Heater
*Design peak demand (GPH)	660	660
*Temperature rise (°F)	55	55
Design Btuh	302,379	302,379
*Estimated peak demand duration (hr/day)	4	4
*Est. days per year of operation	365	365
*Est. water consumption/yr (gal.)	963,600	963,600
Average energy cost/ Therm	$0.798	$0.798

WATER HEATER DATA		
Model	Rinnai TRS	2 Tank Water Heater
Thermal efficiency (New)	97%	82%
Quantity	5	2
Max input rate/unit (Btuh)	199,000	199,000
Total system Btuh	995,000	398,000
Storage capacity/unit (gal.)		100
Total storage capacity (gal.)		200
*Standby loss (Btuh)		1,000
Total standby loss Btuh)		2,000
*Annual standby loss (Btuh)		17,520,000
Annual energy consumption (Btuh)	455,127,155	614,105,595
Energy used per year (Therm)	4,551	6,141

ANNUAL COST/SAVINGS SUMMARY				
	Cost		Rinnai Savings	
Cost/Savings Rinnai Tank	Rinnai TRS	2 Tank Water Heater	Year 1	Year 10
*Estimated annual operating cost	$3,631.91	$4,900.56	$1,268.65	$12,686.48
		Total Rinnai savings	$1,268.65	$12,686.48
Percent savings over tank		26%		

ANNUAL CARBON EMISSIONS ESTIMATES		
	Rinnai TRS	2 Tank Water Heater
CO_2 production (lbs)	54,948	74,142
Rinnai saves (lbs CO2)	19,194	
**Trees saved	331	

Space Savings

Rinnai 5 - Tankless

FLOOR SPACE = 0 SQFT

2-199/100 Water Heater

H: 75.75 in = 6.61 ft
Dia: 33.12” = 2.76 ft

FLOOR SPACE : 16+ SQFT
(includes space for clearances)

Value add to business owners:

1. Tighter mechanical room
2. Reduce material cost for new construction or major renovation
3. Saved space can be used to generate revenue for businesses
4. Low operational and maintenance cost
5. Longer life

System Comparison

Weigh advantages of each system to select option that is right for you

Tankless Rack Systems

Storage Water Heating Systems

No Standby Loss	Tank standby loss
No floor space (except Free Standing TRS)	Floor space required
Larger gas lines	Smaller gas line
Precise temperature control	Water temperature controlled by tank aquastat
Fully modulating system with Electronic Manifold Control (325:1 turn down ratio)	Modulation at higher Btuh input (25:1 turn down ratio)
Lower operating cost	Higher operating cost

Engineering Support

8:00AM – 8:00PM EST

***100% Sizing Guarantee**

24/7/365 Technical Support | 866.383.0707| engineering@rinnai.us

*No change to original fixture list and design parameters

Questions?

Thank you

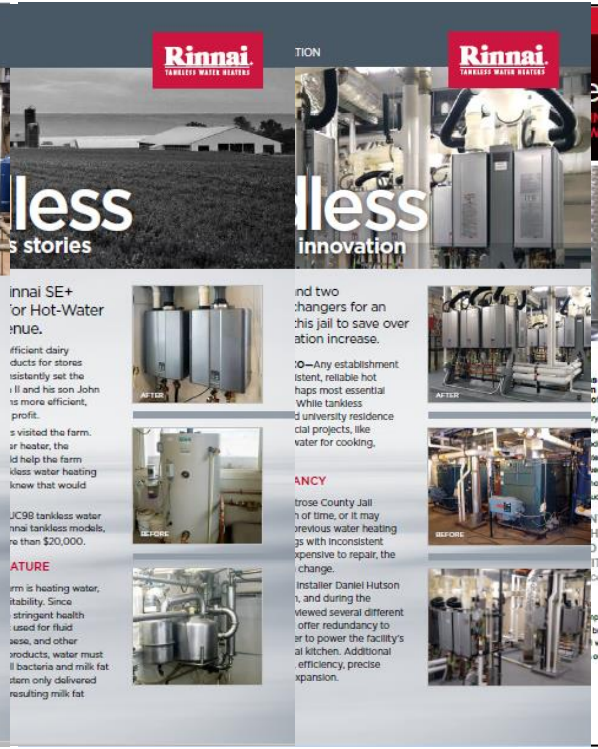
Rinnai

ENHANCING LIVES BY CHANGING THE WAY WATER IS HEATED

Group Discussion / Questions

Case Studies

Rinnai

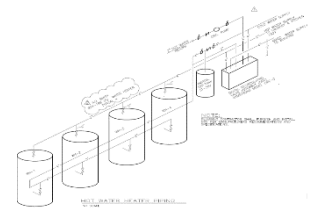


ENHANCING LIVES BY CHANGING THE WAY WATER IS HEATED

Hospitality

110-Room Courtyard

Application:	110-Room Full Service Hotel w/ kitchen, bar and laundry
Replaced:	Original spec was 4 AO Smith BTH 100/199
Install Date:	Winter 2015
Location:	Mid West / Canfield, OH
Equipment:	2 - TRW04iN + TRS06iN = (14 RUC98iN
Venting:	3 - Common Vent kits, Horizontal Terminations, Multiple Extensions
Accessories:	
Output:	2- REU-MSB-M, multiple MSB-C1 2.8M BTU, (2.0 for rooms and 800K for kitchen / laundry)
Comments:	TRS designed with split systems – 1 supplying the rooms; (10 units) and one supplying the kitchen, (4 units, not shown), bar and laundry.



Hospitality

183-Room Full Service Hotel

Application:	183-Room Full Service Hotel w/ kitchen, bar and laundry
Replaced:	7 AO Smith BTH 400A – 100 gallon
Install Date:	Spring 2014
Location:	Mid West / Perrysburg, OH
Equipment:	4 - TRW04iN + TRS04iN = (20 RUC98iN)
Venting:	3 - Common Vent kits, Horizontal Terminations, Multiple Extensions
Accessories:	
Output:	2 - MCC-91, 5 - REU-MSB-M, multiple
Comments:	3.2M BTU, 2500 GPH @ 140 F TRS designed with split systems – 1 supplying the rooms (16 units) and one supplying the kitchen (4 units, not shown), bar and laundry

Hospitality

112-Room Hotel

Application:	112-Room Hotel w/ small kitchen
Replaced:	New Construction
Install Date:	Summer 2013
Location:	Mid Atlantic / Virginia
Equipment:	2 – TRS06iN
Venting:	2 - Common vent kits, horizontal terminations, multiple extensions, elbows and 45s
Accessories:	2 - MCC-91, 3 - REU-MSB-M, multiple MSB-C1
Output:	3.2M BTU, 2500 GPH @ 140 F
Comments:	TRS designed with split systems – 1 supplying the rooms (16 units) and one supplying the kitchen (4 units, not shown), bar and laundry

Hospitality

Full Service Hotel

Application:	Full Service Hotel
Replaced:	6- 100Gal / 199K BTU high efficiency tanks
Install Date:	March 2016
Equipment:	6 – Demand Duo™ CHS199100iN
Venting:	8” PP Common Vent, Exhaust Only
Accessories:	None
Comments:	Provides hot water for hotel of 120 rooms

Hospitality

86-Room Full Service Hotel

Application:	Primary hot water for guest rooms, laundry and kitchen
Replaced:	New construction
Install Date:	September 2015
Location:	Oklahoma
Equipment:	2 TRS06 (12 units total) feeding a 300 gallon storage tank
Venting:	2 Common Vent kits, extension pieces, side wall termination
Accessories:	6-MCC91-2 commercial temperature controllers
Output:	1.2M BTU/ ~1400 GPH
Energy Info:	TBD
Comments:	This 4 star hotel is located just outside downtown OKC and Will Roger's International Airport. This project was specified for commercial tanks but went with Rinnai Tankless Rack System and storage

Hospitality

80-Room Full Service Hotel

Application:	80-Room Hotel w/ kitchen, bar and laundry
Replaced:	1.0M BTU with 500 gallons storage during renovation
Install Date:	Fall 2013
Location:	Tampa, FL
Equipment:	2 – TRW04eN wall rack system
Venting:	External – no venting required
Accessories:	1 - MCC-91, 1 - REU-MSB-M, multiple
Output:	MSB-C1
Energy Info:	1.6M BTU delivering approximately 3300 GPH
Comments:	Roof units free up space utilized by large storage. TRS will effectively track the hot water demand of this hotel and deliver hot water only when needed. The energy savings is realized by using high efficiency 95% condensing tankless and 105:1 TDR which allows modulation from 15.2K BTU up to 1.6M BTU.