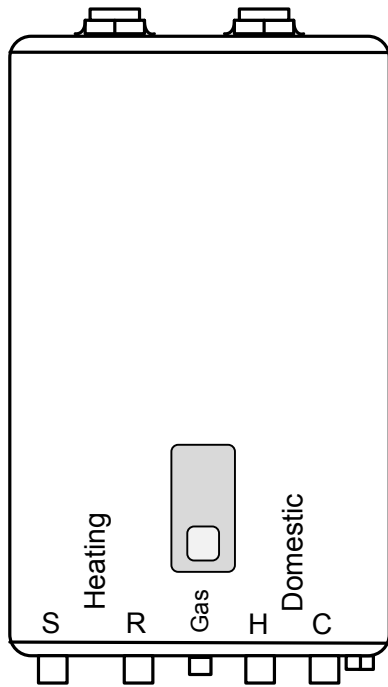
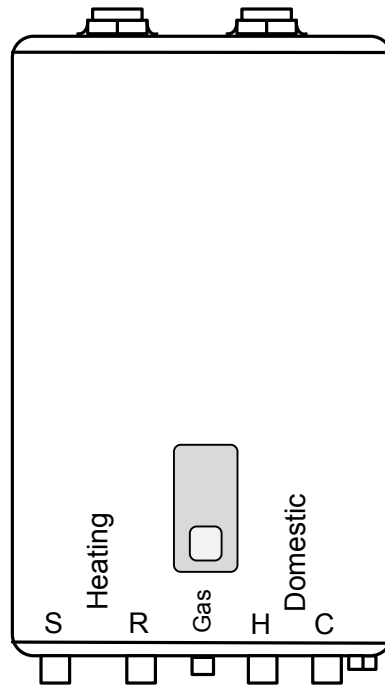


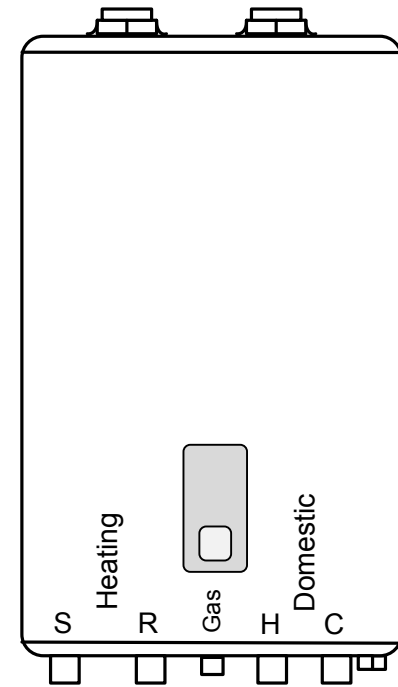
NCB Series Application Drawings



NCB-240ASME



NCB-210ASME



NCB-180ASME

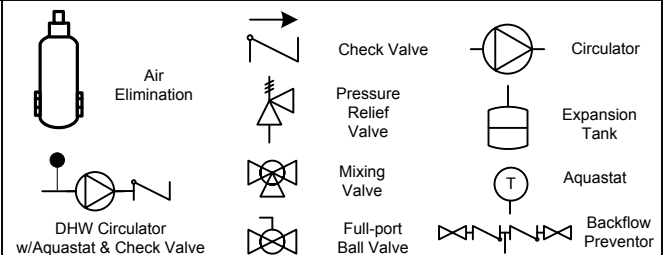


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Guide Only

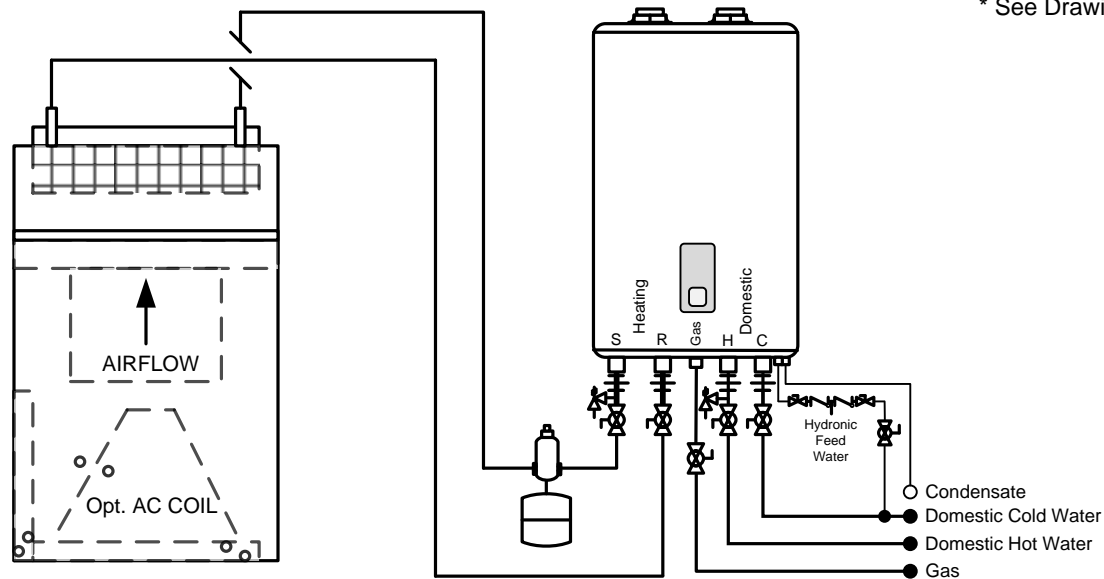
These drawing are intended as a guide only and not as a replacement for professionally engineered project drawings. These concept system drawings do not imply compliance with local building codes. Actual installations may vary depending on installation location & parameters and it must be done in accordance with all local building codes. Verify with local building officials before commencement of system installations.



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Installation Notes:

1. 25' Total Maximum Boiler-Side Piping Connection Length Allowed.
 2. Boiler-Side Pipe Length Exceeding 25' Total or a 50MBTUH Coil Output or More Requires Primary/Secondary Piping Configuration with Separate System Circulator.
 3. Air Handlers with Internal or External Circulator Requires Crossover Pipe at A/H Unit or CH Unit to Complete Primary/Secondary Configuration*.
- * See Drawing NCB-AHU-P-BF01



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NCB Series Combi-Boiler

**Navien CH Combi Boiler Application
with Air Handler - Direct Connection**

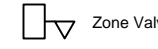
Drawn By: B. Fenske

NCB-AHU-BF01

November 1, 2013



Air Elimination



Zone Valve



DHW Circulator
w/Aquastat & Check Valve



Check Valve



Pressure
Relief
Valve



Mixing
Valve



Full-port
Ball Valve



Circulator



Expansion
Tank



Aquastat

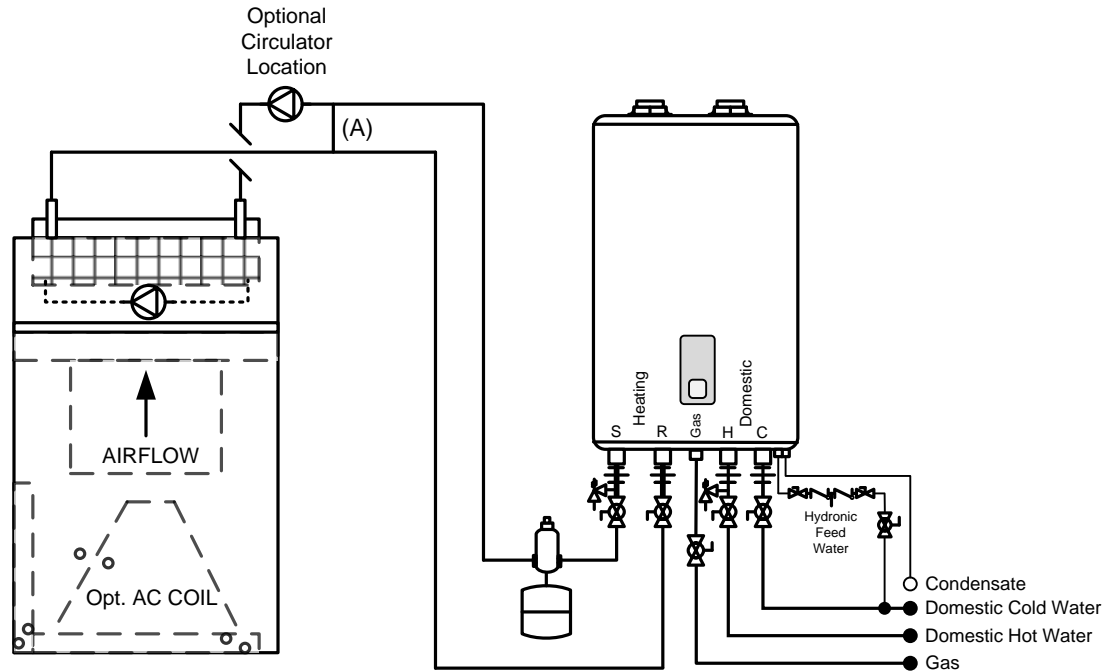


Backflow
Preventer

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Installation Notes:

1. 100' Total Maximum Boiler-Side Piping Connection Length Allowed.
2. Boiler-Side Pipe Length Exceeding 100' Total or a 50MBTUH Coil Output or More Requires Primary/Secondary Piping Configuration (A) with A/H connection the tertiary secondary.



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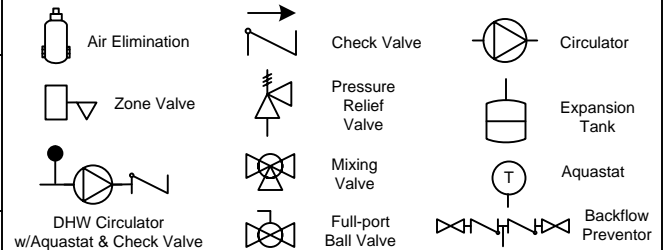
NCB Series Combi-Boiler

**Navien NCB Combi-Boiler Application
Air Handler with Internal/External Pump**

Drawn By: B. Fenske

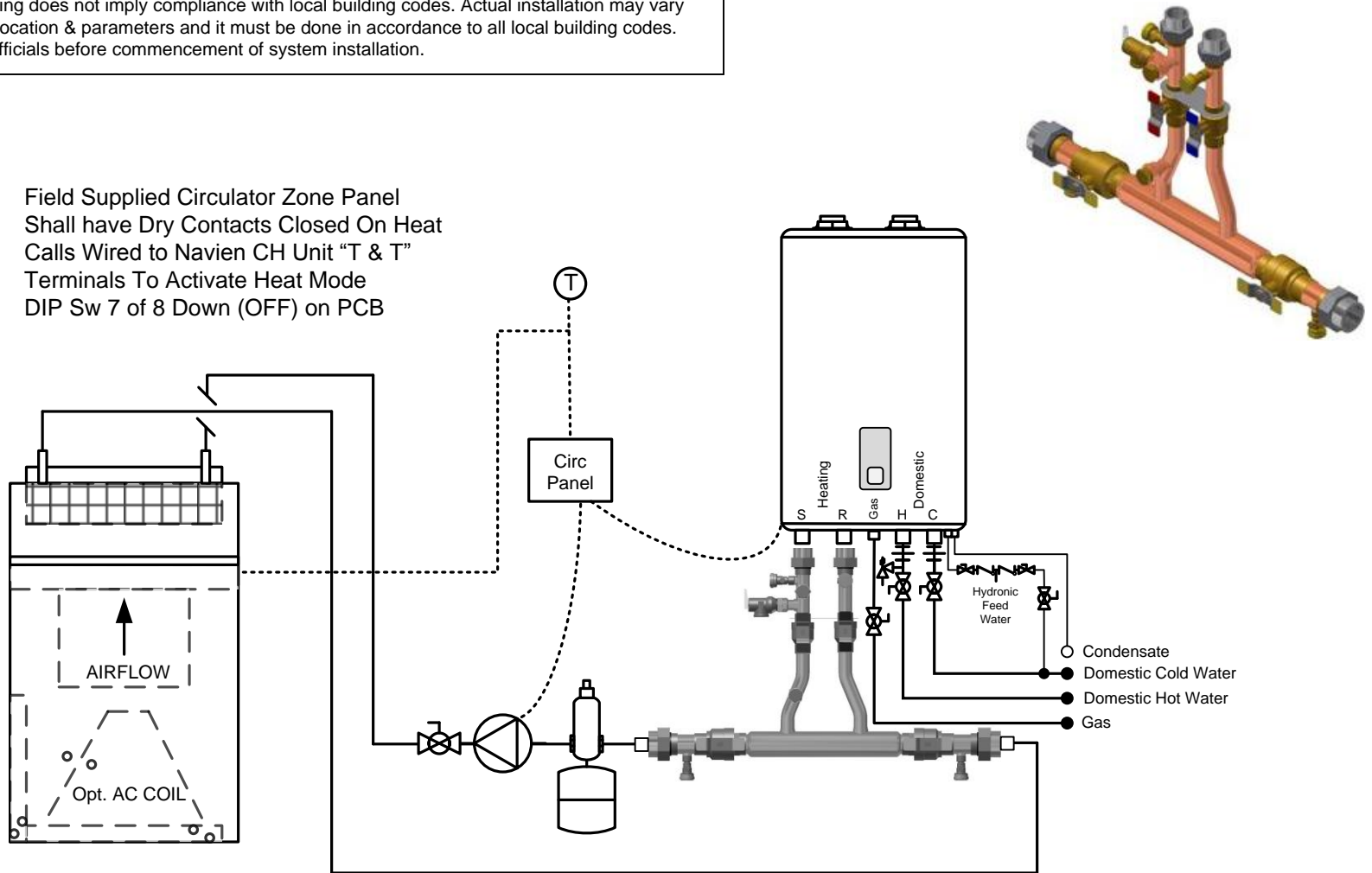
NCB-AHU-P-BF01

November 1, 2013



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Field Supplied Circulator Zone Panel
 Shall have Dry Contacts Closed On Heat
 Calls Wired to Navien CH Unit "T & T"
 Terminals To Activate Heat Mode
 DIP Sw 7 of 8 Down (OFF) on PCB



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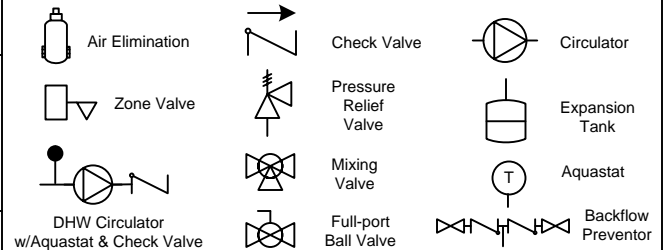
NCB Series Combi-Boiler

Navien NCB Combi Boiler
 With CH Quik-Install Manifold Kit
 Single System Circulator with AHU Shown

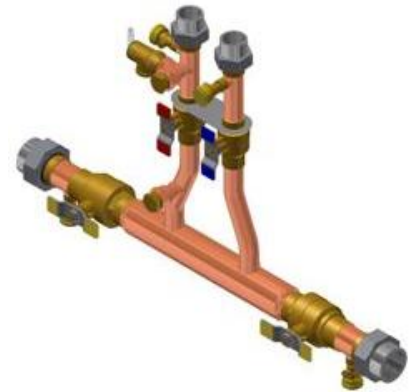
Drawn By: B. Fenske

NCB-NCBQuik4-BF01

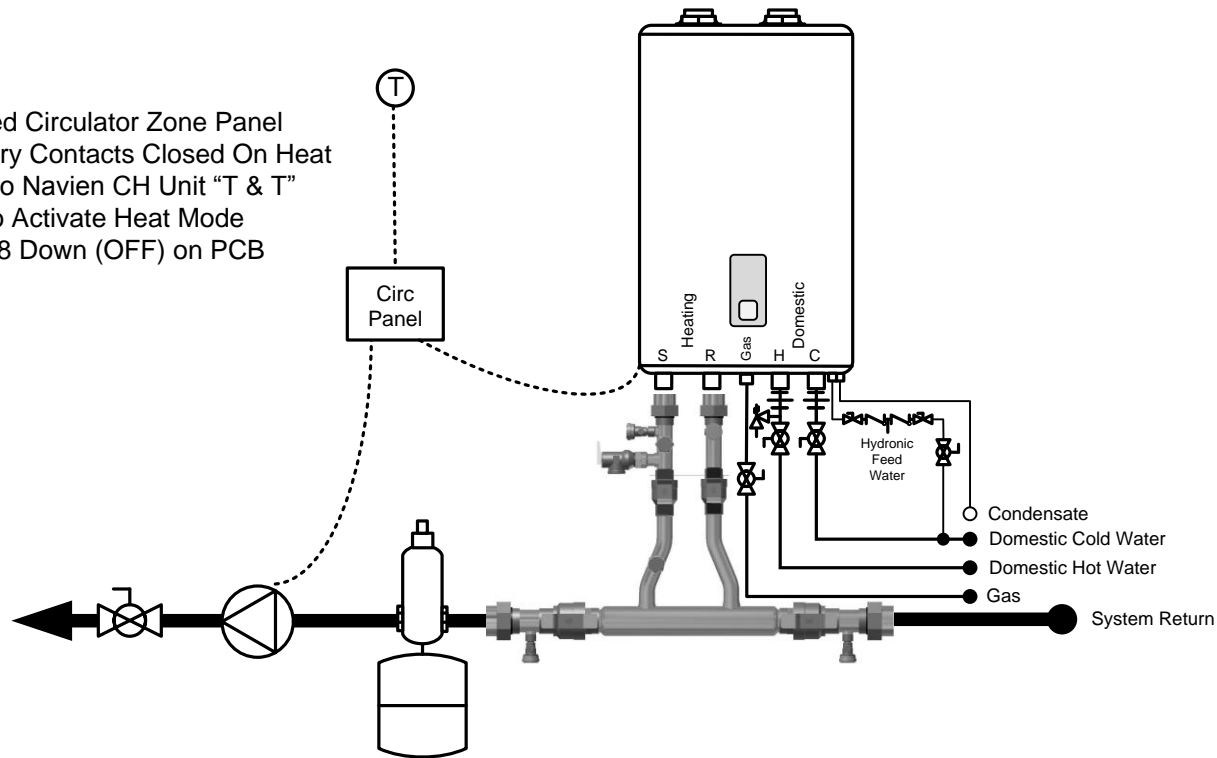
November 1, 2013



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Field Supplied Circulator Zone Panel
 Shall have Dry Contacts Closed On Heat
 Calls Wired to Navien CH Unit "T & T"
 Terminals To Activate Heat Mode
 DIP Sw 7 of 8 Down (OFF) on PCB



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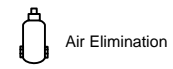
NCB Series Combi-Boiler

Navien NCB Combi Boiler
 With CH Quik-Install Manifold Kit
 Single System Circulator Shown

Drawn By: B. Fenske

NCB-NCBQuik1-BF01

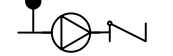
November 1, 2013



Air Elimination



Zone Valve



DHW Circulator
 w/Aquastat & Check Valve



Check Valve



Pressure
 Relief
 Valve



Mixing
 Valve



Full-port
 Ball Valve



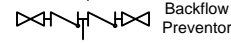
Circulator



Expansion
 Tank



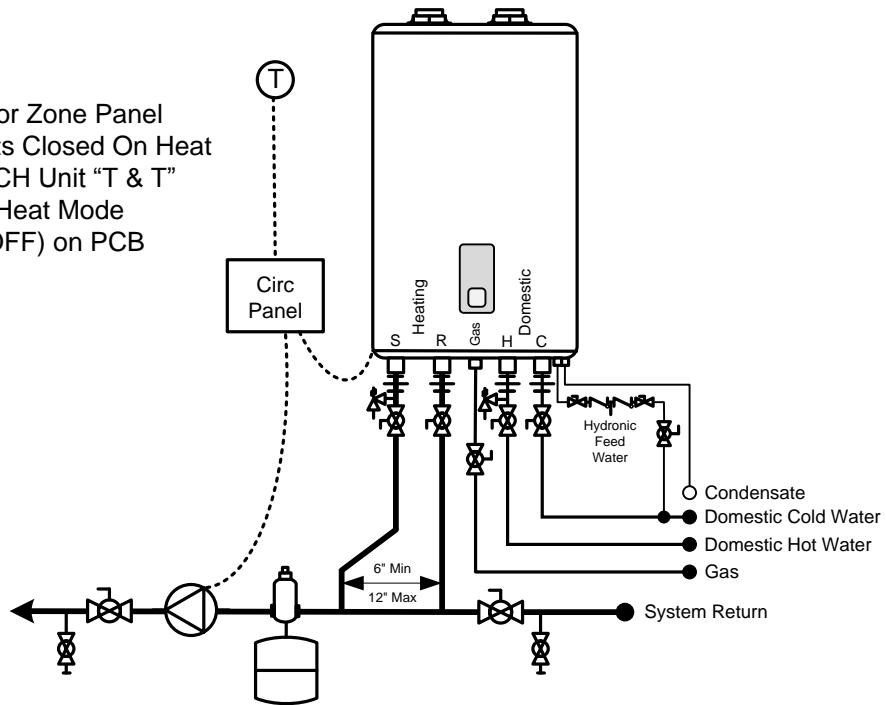
Aquastat



Backflow
 Preventer

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Field Supplied Circulator Zone Panel
 Shall have Dry Contacts Closed On Heat
 Calls Wired to Navien CH Unit "T & T"
 Terminals To Activate Heat Mode
 DIP Sw 7 of 8 Down (OFF) on PCB



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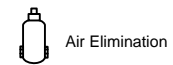
NCB Series Combi-Boiler

Navien NCB Combi-Boiler Application
 Single Circulator Zone Application

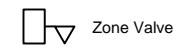
Drawn By: B. Fenske

NCB-1P-BF01

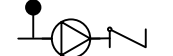
November 1, 2013



Air Elimination



Zone Valve



DHW Circulator
 w/Aquastat & Check Valve



Check Valve



Pressure
 Relief
 Valve



Mixing
 Valve



Full-port
 Ball Valve



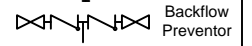
Circulator



Expansion
 Tank

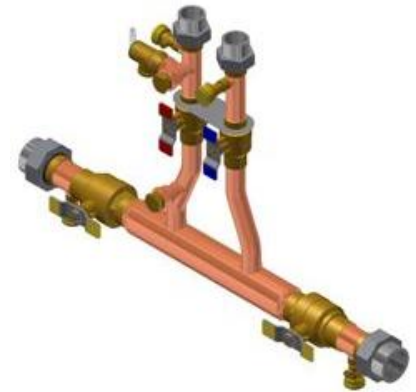


Purge
 Valve

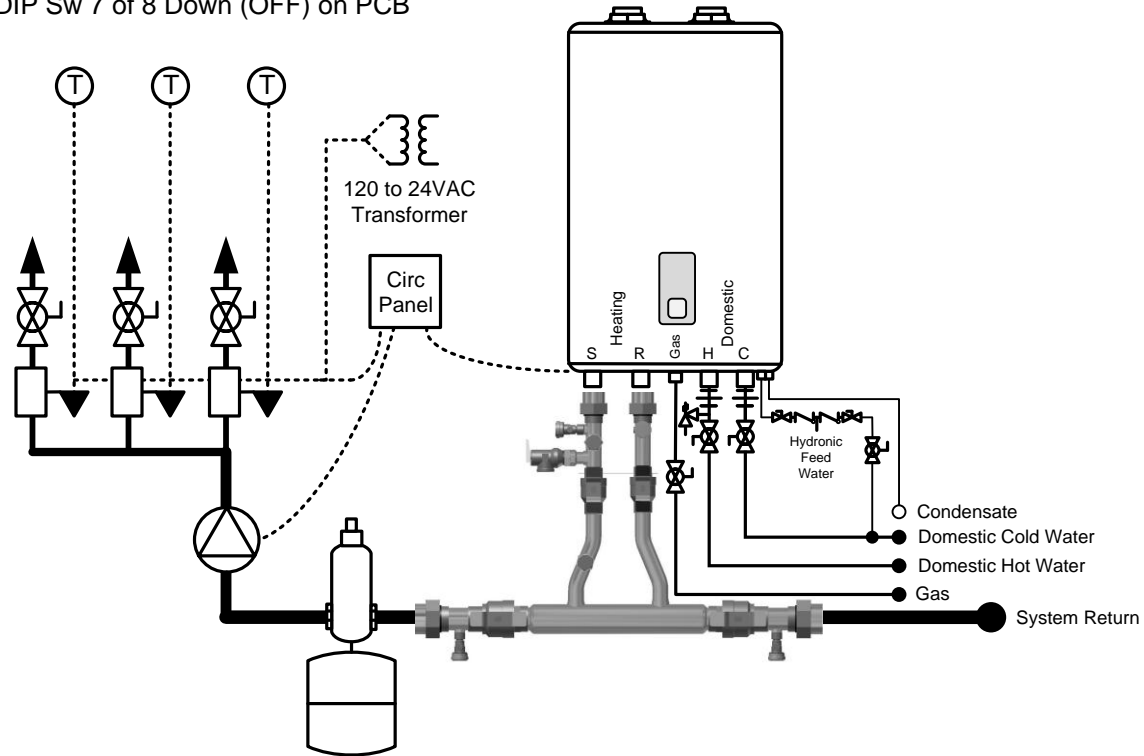


Backflow
 Preventer

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Field Supplied Circulator Zone Panel
 Shall have Dry Contacts Closed On Heat
 Calls Wired to Navien CH Unit "T & T"
 Terminals To Activate Heat Mode
 DIP Sw 7 of 8 Down (OFF) on PCB



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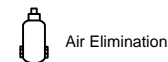
NCB Series Combi-Boiler

Navien NCB Combi Boiler
 With CH Quik-Install Manifold Kit
 Multiple System Zone Valves Shown

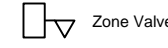
Drawn By: B. Fenske

NCB-NCBQuik3-BF01

November 1, 2013



Air Elimination



Zone Valve



DHW Circulator
 w/Aquastat & Check Valve



Check Valve



Pressure
 Relief
 Valve



Mixing
 Valve



Full-port
 Ball Valve



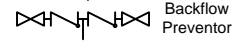
Circulator



Expansion
 Tank



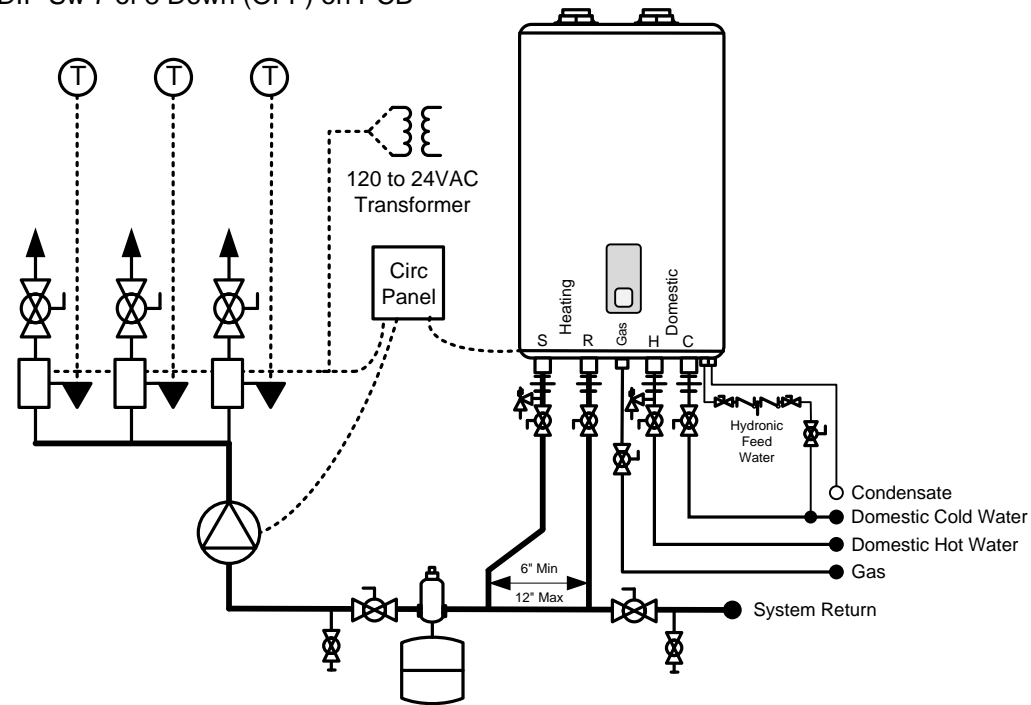
Aquastat



Backflow
 Preventer

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Field Supplied Circulator Zone Panel
 Shall have Dry Contacts Closed On Heat
 Calls Wired to Navien CH Unit "T & T"
 Terminals To Activate Heat Mode
 DIP Sw 7 of 8 Down (OFF) on PCB



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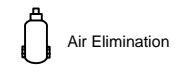
NCB Series Combi-Boiler

Navien NCB Combi-Boiler Application
 Single Circulator with Multiple Zone Valves Shown

Drawn By: B. Fenske

NCB-3P-BF01

November 1, 2013



Air Elimination



Zone Valve



DHW Circulator
 w/Aquastat & Check Valve



Check Valve



Pressure
 Relief
 Valve



Mixing
 Valve



Full-port
 Ball Valve



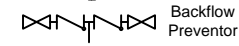
Circulator



Expansion
 Tank

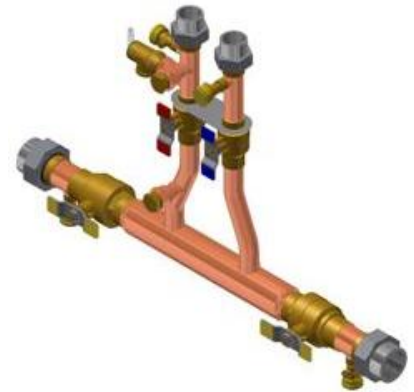


Purge
 Valve

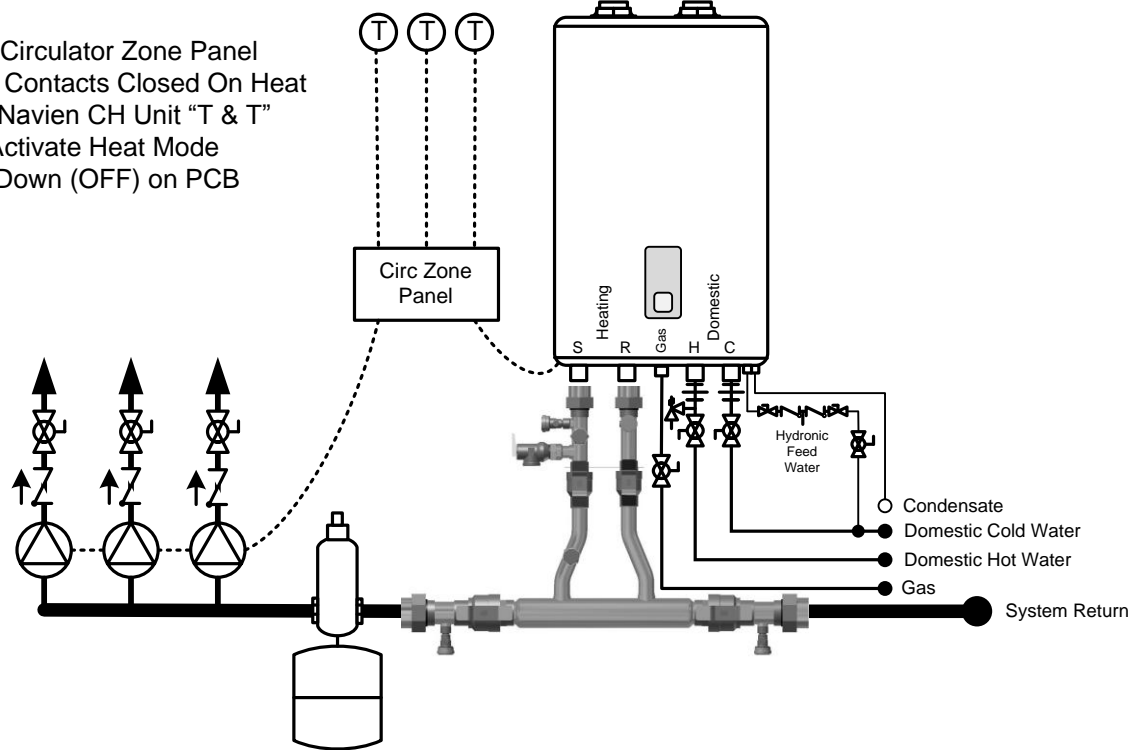


Backflow
 Preventer

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Field Supplied Circulator Zone Panel
 Shall have Dry Contacts Closed On Heat
 Calls Wired to Navien CH Unit "T & T"
 Terminals To Activate Heat Mode
 DIP Sw 7 of 8 Down (OFF) on PCB



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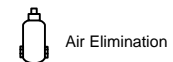
NCB Series Combi-Boiler

Navien NCB Combi Boiler
 With CH Quik-Install Manifold Kit
 Multiple System Circulators Shown

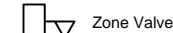
Drawn By: B. Fenske

NCB-NCBQuik2-BF01

November 1, 2013



Air Elimination



Zone Valve



DHW Circulator
 w/Aquastat & Check Valve



Check Valve



Pressure
 Relief
 Valve



Mixing
 Valve



Full-port
 Ball Valve



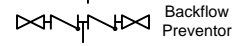
Circulator



Expansion
 Tank



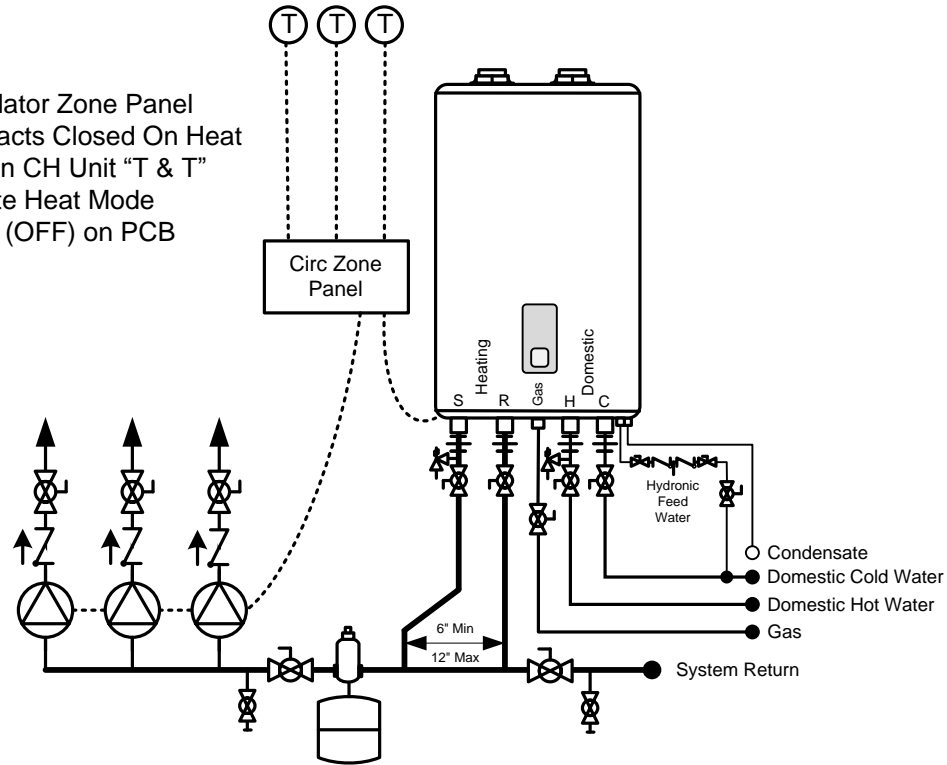
Aquastat



Backflow
 Preventer

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Field Supplied Circulator Zone Panel
 Shall have Dry Contacts Closed On Heat
 Calls Wired to Navien CH Unit "T & T"
 Terminals To Activate Heat Mode
 DIP Sw 7 of 8 Down (OFF) on PCB



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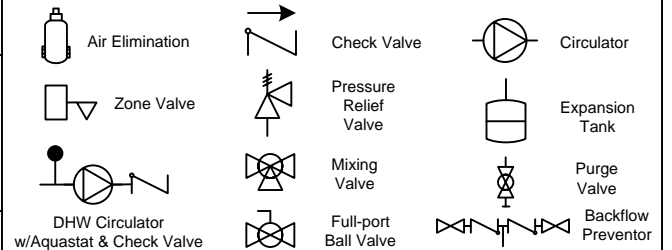
NCB Series Combi-Boiler

Navien NCB Combi-Boiler Application
 Multiple Zone Circulators Shown

Drawn By: B. Fenske

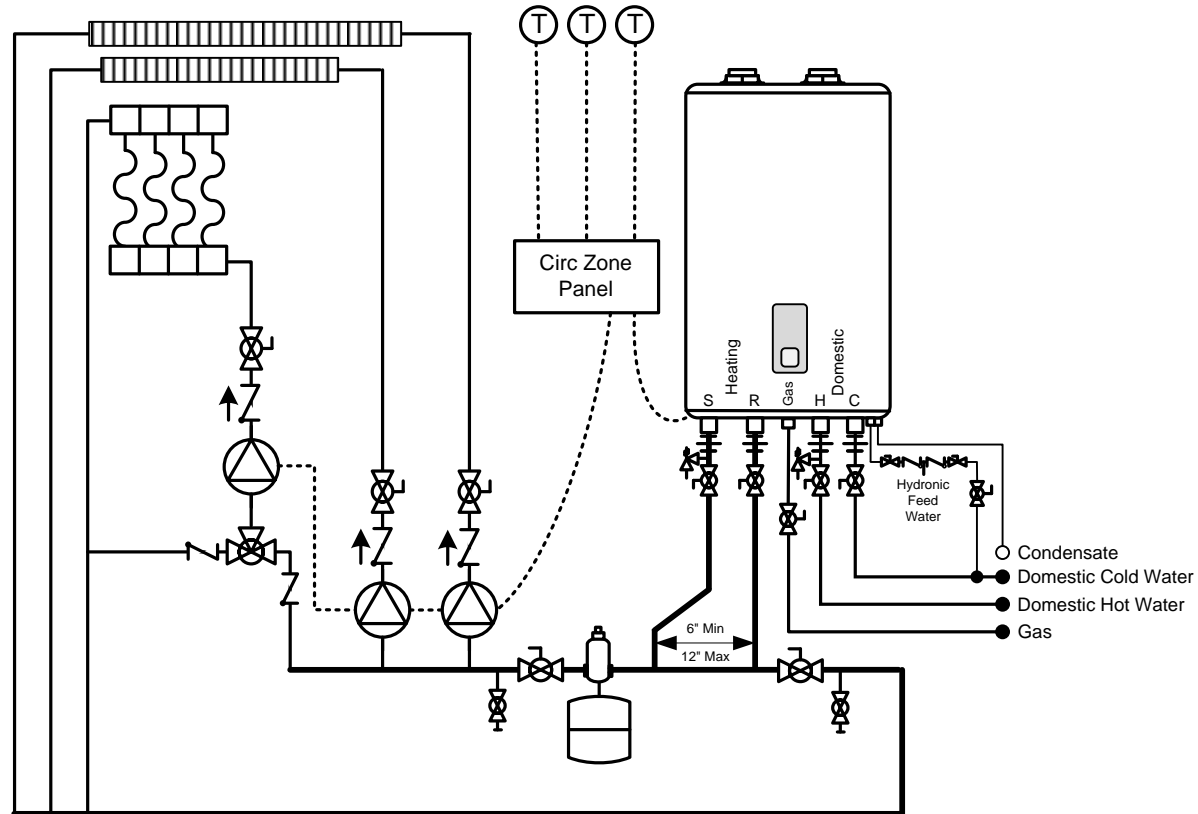
NCB-3P-BF01

November 1, 2013



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Field Supplied Circulator Zone Panel
 Shall have Dry Contacts Closed On Heat
 Calls Wired to Navien CH Unit "T & T"
 Terminals To Activate Heat Mode
 DIP Sw 7 of 8 Down (OFF) on PCB



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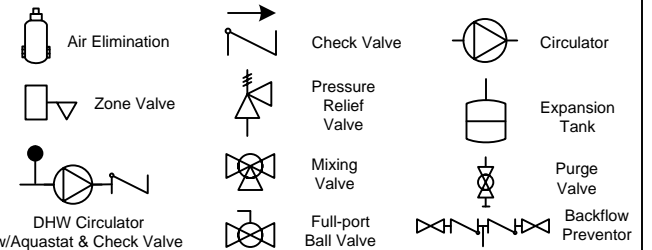
NCB Series Combi-Boiler

Navien NCB Combi-Boiler Application
 Multiple Zone Circulators
 Low Temperature Zone Shown

Drawn By: B. Fenske




NCB-3P-1LT-BF01

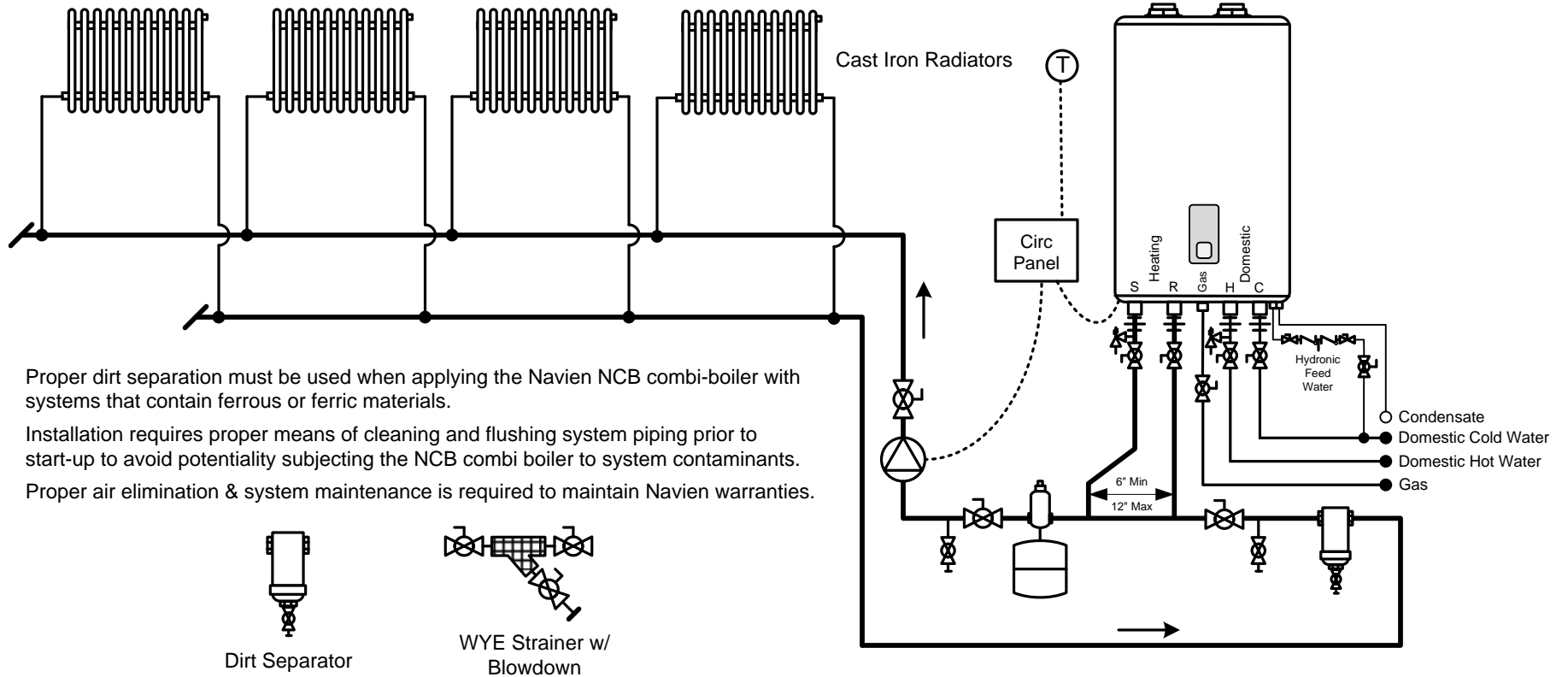
November 1, 2013



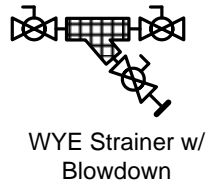
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Field Supplied Circulator Zone Panel
 Shall have Dry Contacts Closed On Heat Calls
 Wired to Navien CH Unit "T & T" Terminals To
 Activate Heat Mode
 DIP Sw 7 of 8 Down (OFF) on PCB

 Cast Iron Baseboard
 OR
 Cast Iron Fin Tube
 OR
 Cast Iron Radiators



Proper dirt separation must be used when applying the Navien NCB combi-boiler with systems that contain ferrous or ferric materials.
 Installation requires proper means of cleaning and flushing system piping prior to start-up to avoid potentiality subjecting the NCB combi boiler to system contaminants.
 Proper air elimination & system maintenance is required to maintain Navien warranties.



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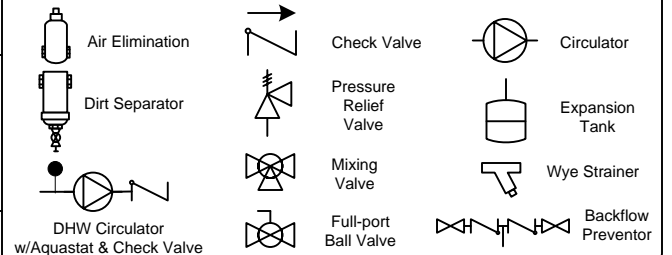
NCB Series Combi-Boiler

Navien NCB Combi-Boiler Application
 Two-Pipe Direct Return

Drawn By: B. Fenske

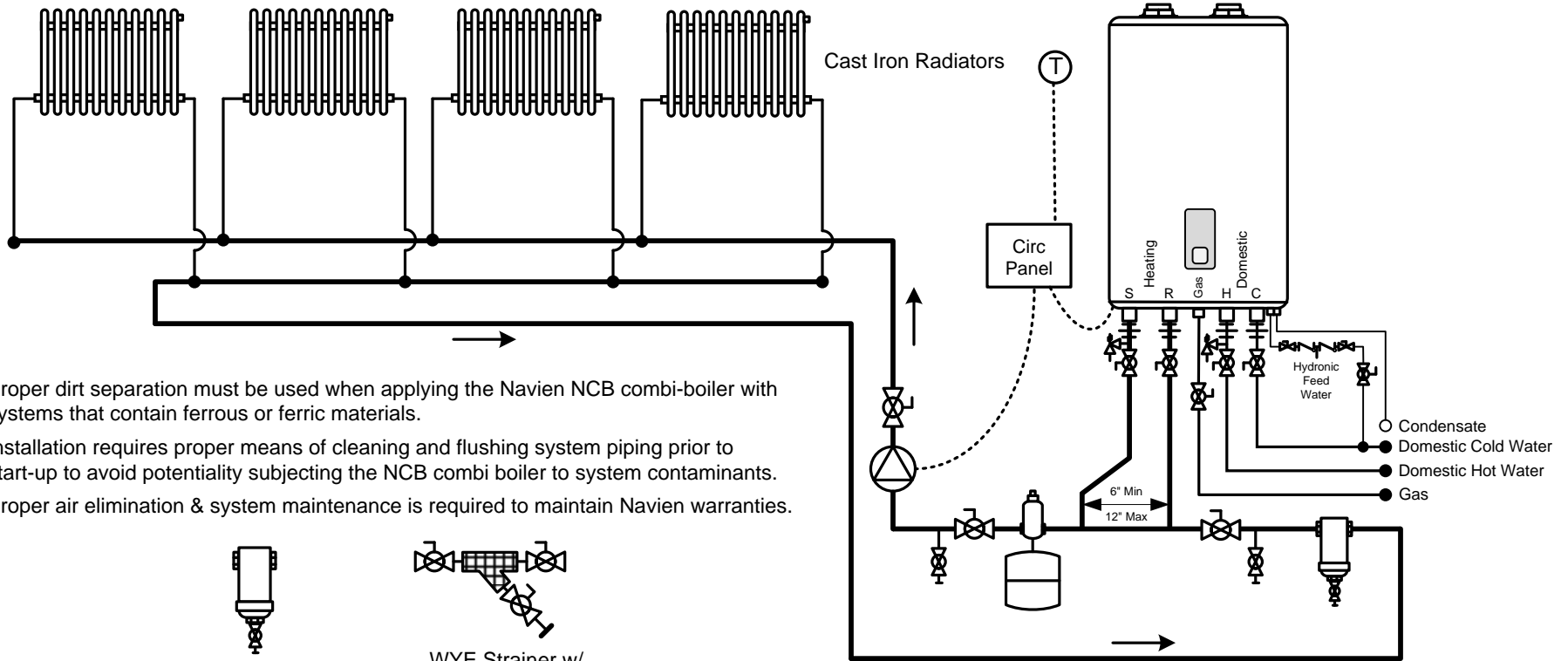
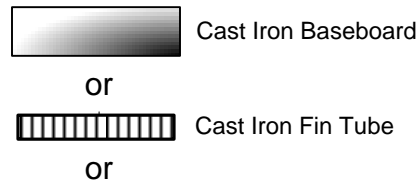
NCB-CI-2P-DR-BF01

November 1, 2013

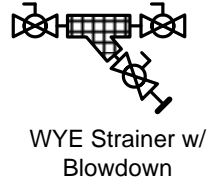


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Field Supplied Circulator Zone Panel
 Shall have Dry Contacts Closed On Heat Calls
 Wired to Navien CH Unit "T & T" Terminals To
 Activate Heat Mode
 DIP Sw 7 of 8 Down (OFF) on PCB



Proper dirt separation must be used when applying the Navien NCB combi-boiler with systems that contain ferrous or ferric materials. Installation requires proper means of cleaning and flushing system piping prior to start-up to avoid potentiality subjecting the NCB combi boiler to system contaminants. Proper air elimination & system maintenance is required to maintain Navien warranties.



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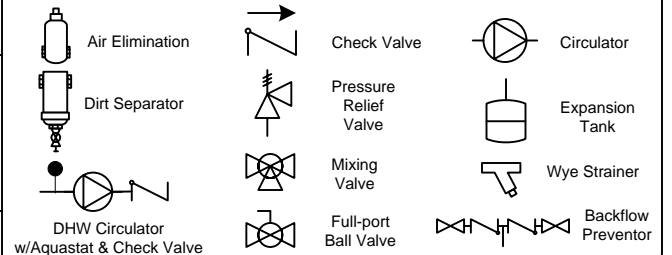
NCB Series Combi-Boiler

Navien NCB Combi-Boiler Application
 Two-Pipe Reverse Return

Drawn By: B. Fenske

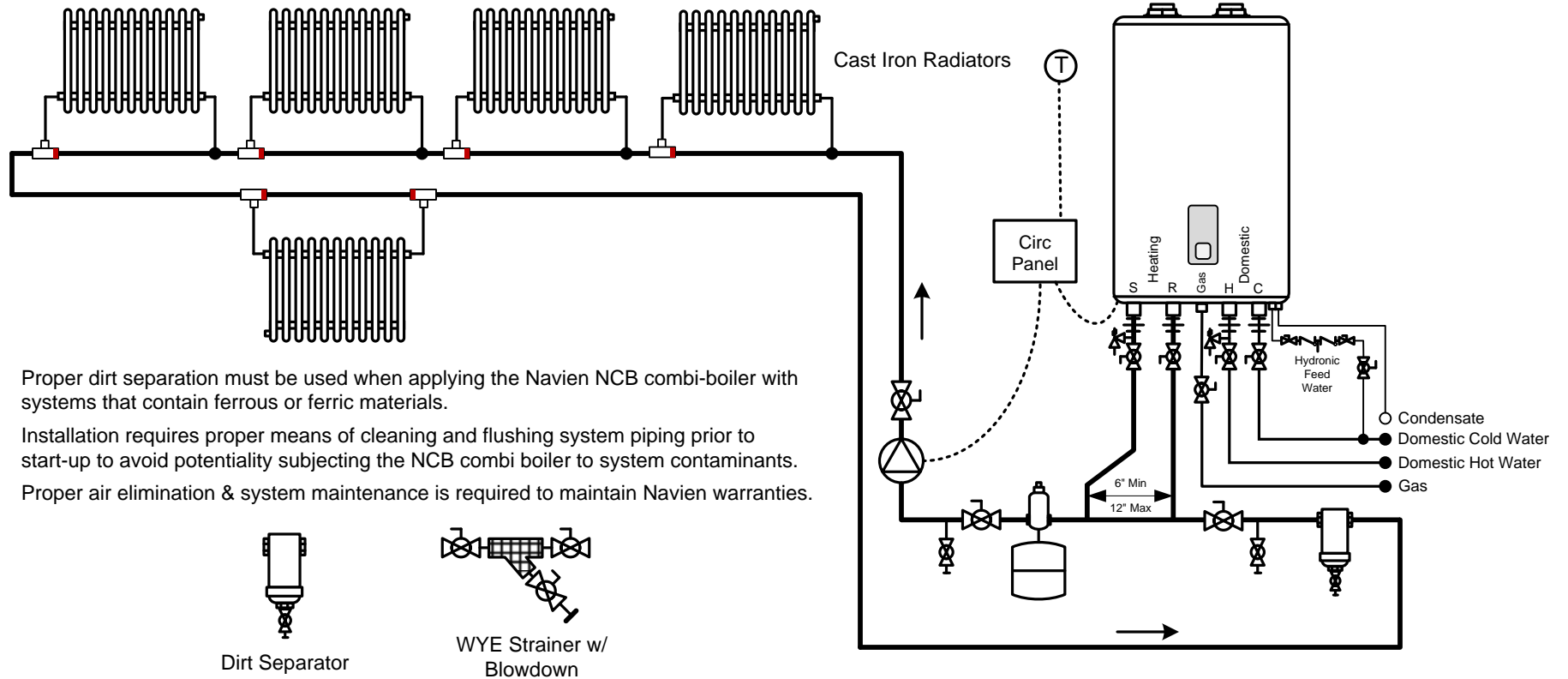
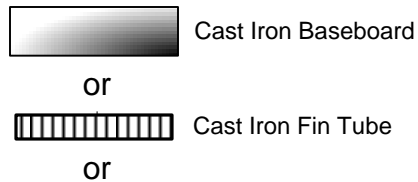
NCB-CI-2P-RR-BF01

November 1, 2013



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Field Supplied Circulator Zone Panel
 Shall have Dry Contacts Closed On Heat Calls
 Wired to Navien CH Unit "T & T" Terminals To
 Activate Heat Mode
 DIP Sw 7 of 8 Down (OFF) on PCB



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NCB Series Combi-Boiler

Navien NCB Combi-Boiler Application
 One-Pipe (Monoflo) Distribution System

Drawn By: B. Fenske

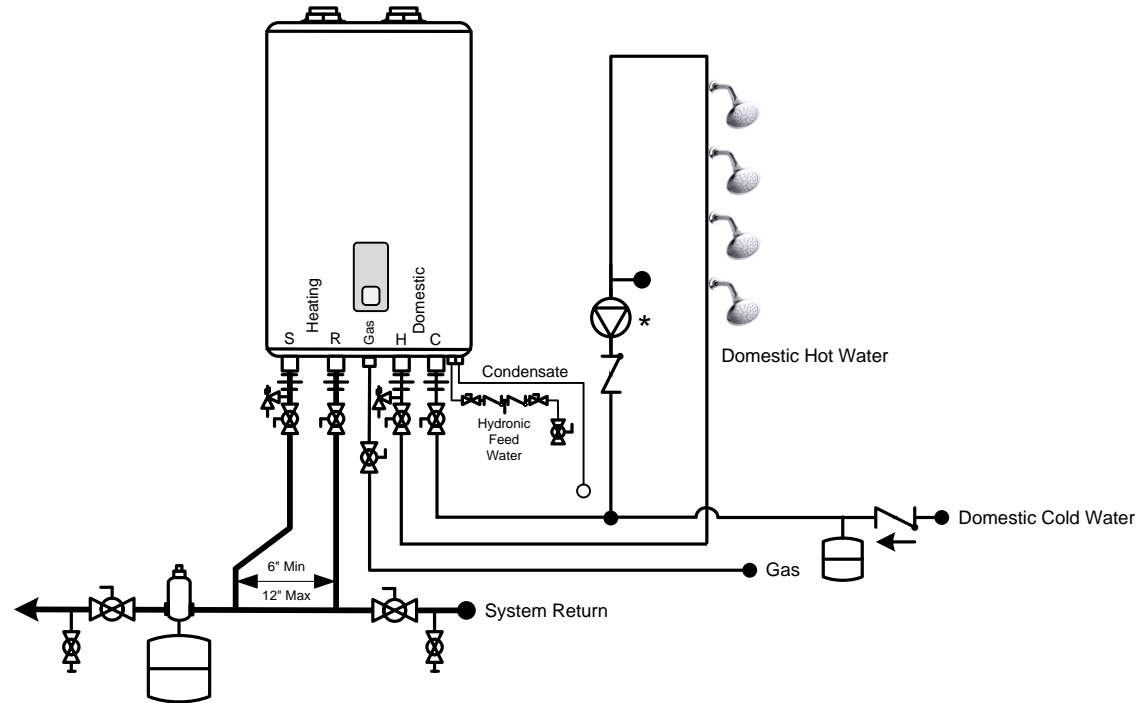
NCB-CI-MONO-BF01

November 1, 2013

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DHW Circulator Requirements:

1. S.S. or Bronze Body & Impeller
 - * DHW Side 2.5 PSI Pressure drop @ 2 GPM
2. > 0.5 GPM to Activate Burner
3. Maximum 2 GPM
4. Programmable Timer
5. Selectable Aquastat
 - * Set minimum 5°F below NCB DHW Setpoint



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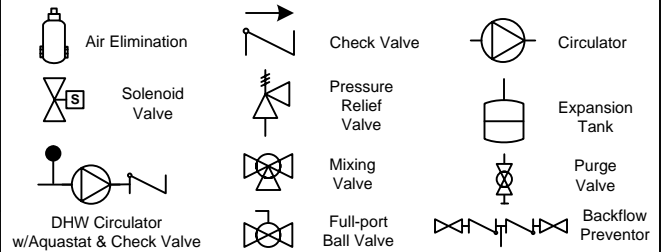
NCB Series Combi-Boiler

Navien NCB Combi-Boiler Application
DHW Recirculation Shown

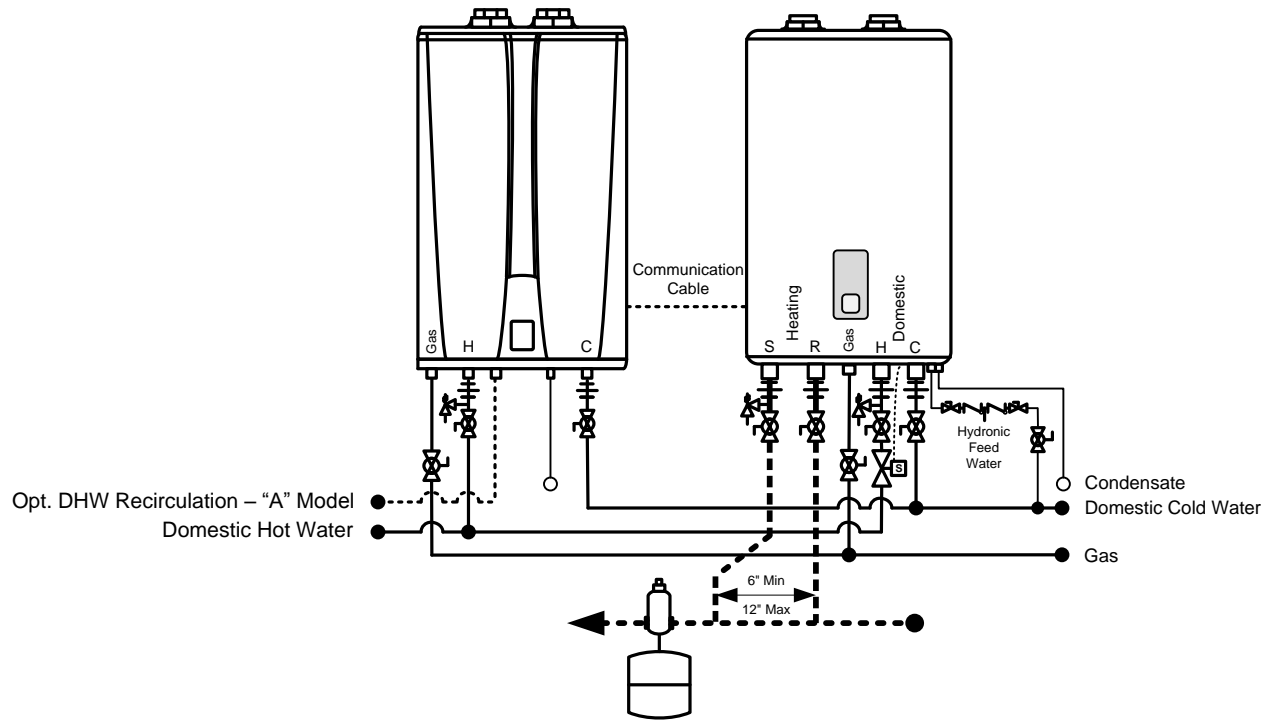
Drawn By: B. Fenske

NCB-DHWR-BF01

November 1, 2013



This drawing is intended only as a guide and not as a replacement for professionally engineered project drawings. This concept system drawing does not imply compliance with local building codes. Actual installation may vary depending on installation location & parameters and it must be done in accordance to all local building codes. Verify with local building officials before commencement of system installation.



KD Navien

20 Goodyear
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NCB Series Combi-Boiler & NPE (A/S) Series Tankless

Navien NCB Combi-Boiler Application
With NPE-A or S Tankless Water Heater

Drawn By: B. Fenske

NCB-NPE-BF01

November 1, 2013



Air Elimination



Solenoid Valve



DHW Circulator
w/Aquastat & Check Valve



Check Valve



Pressure
Relief
Valve



Mixing
Valve



Full-port
Ball Valve



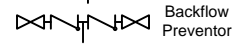
Circulator



Expansion
Tank

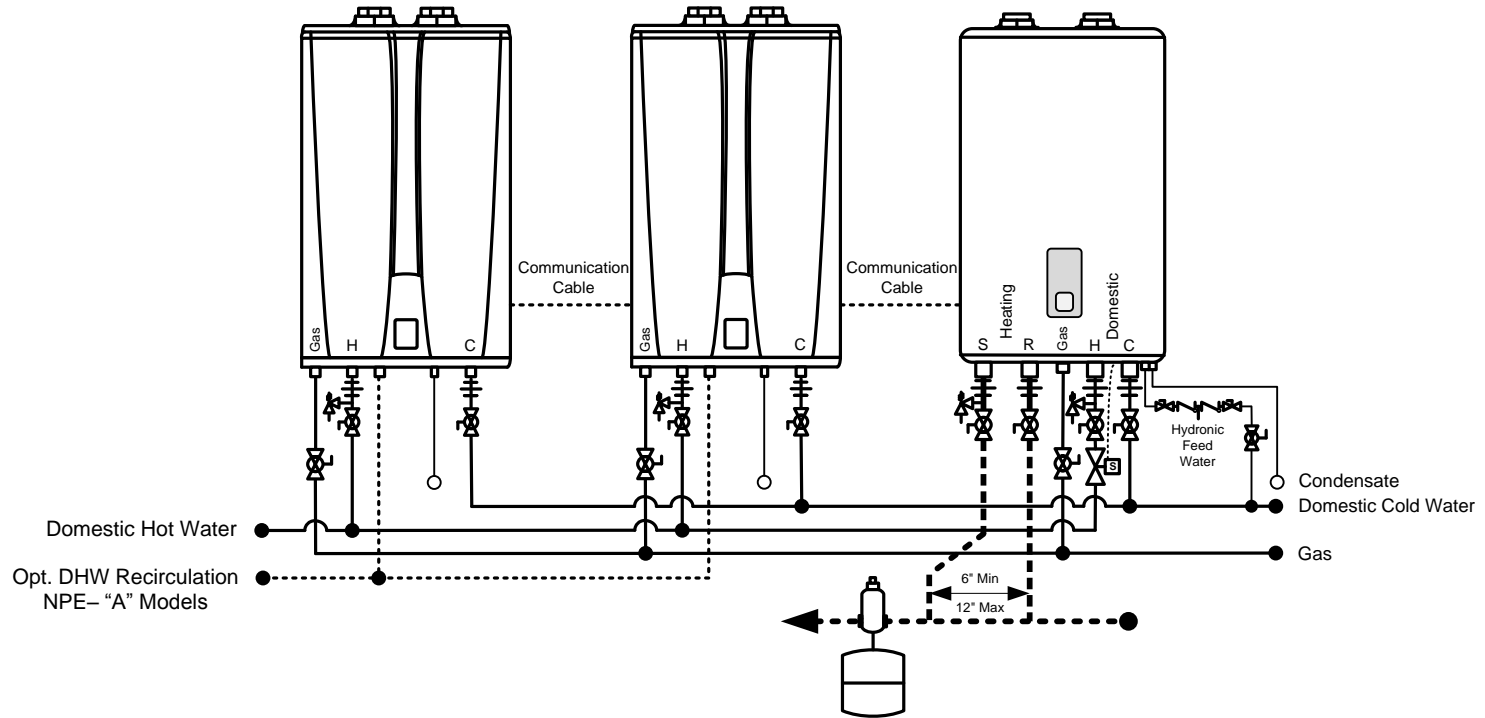


Aquastat



Backflow
Preventer

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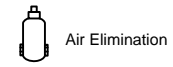
NCB Series Combi-Boiler & NPE (A/S) Series Tankless

Navien NCB Combi-Boiler Application
With Two NPE-A or S Tankless Water Heater

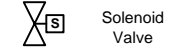
Drawn By: B. Fenske

NCB-2NPE-BF01

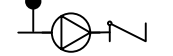
November 1, 2013



Air Elimination



Solenoid Valve



DHW Circulator
w/Aquastat & Check Valve



Check Valve



Pressure
Relief
Valve



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Valve



Full-port
Ball Valve



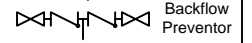
Circulator



Expansion
Tank



Aquastat



Backflow
Preventor