GENERAL INFORMATION

1.1 Manufacturers on this list fall into two categories:
   a. Preferred Manufacturers: indicated in highlighted text, these products are pre-approved.
   b. Conditional Approval: Manufacturers approved for certain projects. Contact Columbia University Facilities (CUF) for approval to use on new projects.

1.2 This list is intended to cover major equipment vendors listed in the Specification sections. Often, ancillary vendors used to construct the equipment are listed within the specification sections (e.g. pipe and duct sealants, firestopping, etc.). This list does not absolve the Consultant from reading and complying with the requirements set forth in the Specification Sections and sound engineering practices.

1.3 Corrections/Substitutions: If there are errors in model numbers or manufacturers listed, or if a model is no longer available, notify Columbia University Facilities in writing for a clarification. A response regarding the Correction or Substitution will be provided.

PREFERRED MANUFACTURERS AND PRODUCTS

23 05 16 – EXPANSION JOINTS AND LOOPS

1. Expansion Joints - Bellow Type (Packless)
   a. Badger Company Series 300
   b. Adsco Company

2. Expansion Joints - Slip Joint (Packed) For Steam Piping
   a. Advanced Thermal Systems
   b. Adsco Company
   c. Hyspan

23 05 23 - General-Duty Valves for HVAC Piping

1. Ball Valves (4" and Smaller)
   a. Apollo 70-10X Series (70-20X Series for Solder)
   b. Jamesbury 351 (341 for Solder)
   c. Watts 8-6000 Series (8-6000 Series for Solder)

2. Drain Valves (Ball) - Apollo

3. Gate Valves (2" and Smaller)
   a. Milwaukee 1169
   b. Stockham 8-124

4. Gate Valves (2-1/2" and Larger)
   a. Milwaukee F-2885
   b. Stockham G-623
   c. Crane 465-1/2

5. Globe Valves (2" and Smaller)
   a. Milwaukee 590T
   b. Stockham B-22T

6. Globe Valves (2" and Larger) - Crane 151

7. Butterfly Valves (High Performance)
   a. Jamesbury HP 815L
   b. Keystone K Lok

8. Plug Valves (2” and 3”) - Nordstrom wrench-operated

9. Plug Valves (4” and Larger) - Nordstrom worm gear operated

10. Swing Check Valves (2” and Smaller)
    a. Milwaukee
    b. Stockham B-309/319
    c. Crane T/S-433

11. Swing Check Valves (2” and Larger)
    a. Milwaukee F-2974
    b. Stockham G-931
    c. Crane 373
12. Spring Check Valves (2” and Smaller) - Mueller 105M-BP
13. Spring Check Valves (2” and Larger) - Mueller 105M-AP
15. Flow Control Valves (2-1/2” and Larger) a. Belimo
16. Triple Duty Valves - NONE - Triple Duty Valves are NOT to be used on Columbia University Projects.

23 05 29 - HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT

23 07 00 - MECHANICAL INSULATION
1. Pipe Insulation Type A - Calcium Silicate - Manville, Thermo 12
3. Pipe Insulation Type D - Foam a. Armstrong - Type AP ARMAFLEX b. Nomaco, Inc. - Type THERMA-CEL
5. PVC Covering (Elbows and Fittings) a. Zeston b. Proto c. Ceel-co
6. Pipe Shields - Grinnell Figure 186
9. High Temperature Applications - Calcium Silicate a. Manville b. Industrial Insulation Group
11. Pump Enclosures - Rigid Glass Fiber a. Owens-Corning - Type 705 b. Manville - Type 800 c. Certainteed - Certapro
23 09 00 – BUILDING AUTOMATION SYSTEMS (BAS)

1. Building Automation Systems - Note: BAS selected MUST match existing Building BAS if used in renovation work.
   a. Andover
   b. Siemens Building Technologies

23 21 16 - HYDRONIC PIPING SPECIALTIES AND PIPING GUIDELINES

1. Manual Air Vents
   a. Bell and Gossett - No. 4V
   b. Taco, Inc. - 417
   c. Armstrong Pumps, Inc. - #72

2. Automatic Air Vents
   a. Bell and Gossett - #107 High Capacity Air Vent
   b. Taco, Inc. - Hy-vent
   c. Spirax/Sarco - 13WS

3. Diaphragm-type Expansion Tanks
   a. Bell and Gossett – Series B or Series D
   b. Taco, Inc. - CA Series
   c. Armstrong Pumps, Inc. - Series AX

4. Air Separators
   a. Bell and Gossett - Rolairtrol
   b. Taco, Inc. - Air Separator

5. Relief Valves
   a. Bell and Gossett
   b. Amtrol
   c. Armstrong
   d. McDonnell and Miller

6. Suction Diffusers
   a. Bell & Gossett
   b. Armstrong

7. Backflow Preventers - Double Check Type
   a. Watts No. 709
   b. Hersey

8. Backflow Preventers - Reduced Pressure Type
   a. Watts 909
   b. Hersey

9. Dielectric Fittings - Union Type - EPCO with Epconite No.1

10. Dielectric Fittings - Nipple Type
    a. ClearFlow
    b. EPCO

11. “Y” Type Strainers
    a. Sarco
    b. Armstrong
    c. Mueller

23 09 05 - METERS AND GAUGES

1. Thermometers
   a. Marsh
   b. Trerice - B Series
   c. Weiss
   d. Weksler

2. Pressure Gauges
   a. Ashcroft - Duraguage Series
   b. Marsh
   c. Weiss - PG Series
   d. Weksler - AAT Series
   e. WIKA
   f. U.S. Gauge
   g. Trerice - 500X Series

3. Air Flow Gauges (Magnehelic) - Dwyer

4. Test Plugs (Requires University Approval)
   a. Peterson - Petes Plug
   b. Weksler
   c. Trerice

5. Steam Meter - Emco

6. Chilled Water Meter - Siemens (Controlotron)
23 21 23 - HYDRONIC PUMPS

1. In-Line Circulators:
   a. Armstrong Pumps, Inc.
   b. Bell & Gossett ITT (Series 60 and 80)
   c. Grundfos Pumps Corp.

2. Compact In-Line Circulators
   a. Armstrong Pumps, Inc.
   b. Bell & Gossett ITT
   c. Grundfos Pumps Corp.
   d. PACO Pumps
   e. Taco

3. Vertical In-line Pumps:
   a. Armstrong Pumps, Inc.
   b. Bell & Gossett ITT
   c. Goulds Pumps, Inc.
   d. Grundfos Pumps Corp.
   e. PACO Pumps
   f. Peerless Pump Co.
   g. Taco

4. Flexible-Coupled, End-Suction Pumps:
   a. Goulds Pumps, Inc.
   b. Ingersoll-Dresser Pump Co.
   c. PACO Pumps.
   d. Taco
   e. Weil Pump Company, Inc.

5. Flexible-Coupled, Double Suction Pumps:
   a. Bell & Gossett ITT
   b. Goulds Pumps, Inc.
   c. Ingersoll-Dresser Pump Co.
   d. PACO Pumps.
   e. Peerless Pump Co.
   f. Taco
   g. Fairbanks Morse Pump Corp.

6. Steam Condensate Pump Units:
   a. Federal Pump
   b. Bell & Gossett ITT
   c. Roth Pump Company
   d. Sarco Pumps

7. Condensate Drainage Pump Units:
   b. Little Giant Pump Co.
   c. Marsh Manufacturing, Inc.

23 22 16 - STEAM AND CONDENSATE PIPING SPECIALTIES

1. Steam Traps - Thermostatic - Spirax/Sarco
   TA-125, TH-125

2. Steam Traps - Float and Thermostatic - Spirax/Sarco FT -30

3. Steam Traps - Inverted Bucket Trap - Spirax/Sarco B Series

4. Air Vents
   a. Spirax/Sarco VS206 (steam)
   b. Spirax/Sarco 13WS (condensate)

5. Vacuum Breakers - Spirax/Sarco VB14

6. Pressure Regulating Valves
   a. Leslie

7. Safety Shutoff Valves
   a. Spence Engineering Co. Type ED
   b. Leslie

8. Safety Relief Valves
   a. O.C. Keckley Bronze Series 40
   b. Spence Engineering Bronze Series 41
   c. Spirax/Sarco

9. “Y” Type Strainers
   a. Sarco Type
   b. Armstrong
   c. Mueller

23 31 00 - HVAC Ducts and Casings

1. Flexible Ductwork
   a) Clevaflex
   b) Thermaflex
   c) Flexmaster

2. Volume Dampers - Single Blade (Rectangular)
   a) Air Balance AC-111
   b) Greenheck
c) Ruskin MD25

3. Volume Dampers - Single Blade (Round)
   a) Air Balance AC-112
   b) Greenheck MBDR50
   c) Ruskin MORS25

4. Volume Dampers - Multiple Blade - Note: Opposed Blade Type ONLY
   a) Air Balance AC-2
   b) Greenheck MBD-15
   c) Ruskin

5. Fire Damper - Fusible Link
   a) Air Balance Inc. Series D19
   b) Imperial
   c) Prefco Products Series 5500
   d) Ruskin

6. Smoke Damper - Airflow Blade
   a) Air Balance Inc. SA 1
   b) Greenheck SD33
   c) Ruskin SD60
   d) Imperial

7. Combination Fire/Smoke Damper

8. Duct Sealant
   a) Ruskin FSD60
   b) 3M Fastbond 900
   c) Foster 32-14
   d) MEI44-52

   d) Hardcast Sure Grip 404, Hardcast Iron Grip 601

9. Louvers
   a) Ruskin
   b) Arrow
   c) Air Balance

10. Access Doors in Walls and Ceilings
   a) Cesco
   b) J L Industries
   c) Karp
   d) Milcor

11. Filters
   a) AAF International
   b) Farr Company
   c) Flanders Filters, Inc.
   d) Koch Filter Corporation

---

23 34 00 - HVAC Fans

1. Cabinet and Ceiling Fans
   a) Cook Gemini Series
   b) Greenheck Model SP, CSP and BCF
   c) Penn Zephyr Series

2. Square In-Line Centrifugal
   a) Cook SQI or SQN Series
   b) Greenheck Model SQ or BSQ
   c) Penn Centrex Inliner SX

3. Tubular Centrifugal
   a) Greenheck TCS Series
   b) Loren Cook

4. Centrifugal Utility Fans
   a) Greenheck
   b) Belted Utility Vent Sets
   c) Loren Cook

---

23 36 00 - Air Terminal Units

1. Air Terminal Units
   a) Anemostat
   b) Titus
   c) Environmental Technologies
   d) Krueger

2. Belted Utility Vent Sets - Laboratory Exhaust
   a) Loren Cook
   b) Buffalo Air

3. Roof/Wall Exhaust
   a) Cook AC Series
   b) Greenheck Models G, GB and C Series
   c) Penn Domex, Fumex

4. Axial Propeller Wall Fan
   a) Cook S Series Wall Ventilators
   b) Greenheck SB and S Series
   c) Penn Breezeway Series

5. Vaneaxial
   a) Greenheck VAB Series
   b) Cook Series VA Series

LAST REVISED: JUNE 2015
1. Directional Ceiling Supply Air Diffuser - Type "A"
   a) Titus TDC, with AG-65S damper and equalizer grid
   b) Krueger Series SH, with 5-11 damper and equalizer grid
   c) Anemostat SD, with DOB or DED damper and equalizer grid
2. Fixed Ceiling Supply Air Diffuser - Type "B"
   a) Titus TMS, with AG-65 damper and equalizer grid
   b) Krueger Series 1400, with R-11 damper and equalizer grid
   c) Anemostat E, with Columbia University-1 damper and equalizer grid
3. Perforated Ceiling Supply Air Diffuser - Type "C"
   a) Titus PAS, with AG-65 damper and equalizer grid
   b) Krueger Series 1100, with R-11 damper and equalizer grid
   c) Anemostat PR
4. Fixed Ceiling Supply Air Diffuser - Type "D"
   a) Titus TMS, with AG-65 damper and equalizer grid
   b) Krueger Series 1400, with R-11 damper and equalizer grid
   c) Anemostat E, with Columbia University-1 damper and equalizer grid
5. Ceiling Supply Air Linear Diffuser - Type "E"
   a) Titus ML-37, ML-38, or ML-39
   b) Krueger Series 1500-1600
   c) Anemostat AL
6. Sidewall, Sill, Or Floor Supply Linear Air Diffuser - Type "F"
   a) Titus CT-480 or CT-481
   b) Krueger Series 1500-1600
   c) Anemostat AL
7. Fixed Supply Air Register - Type "G"
   a) Titus 300RS with AG-15 damper
   b) Krueger 880V with OBD damper
   c) Anemostat S2VO
8. Perforated Ceiling Return Air Diffuser - Type "H"
   a) Titus PAR
   b) Krueger Series 1190
   c) Anemostat 3P
9. Ceiling Return Linear Air Diffuser - Type "I"
   a) Titus ML-37, ML-38, or ML-39
   b) Krueger Series 1900
   c) Anemostat SLAD
10. Return, Exhaust, Or Transfer Fixed Air Register - Type "J"
    a) Titus 300RS with AG-15 damper
    b) Krueger S80H with OBD damper
    c) Anemostat S30D
11. Perforated Return, Exhaust, Or Transfer Air Register - Type "K"
    a) Titus 8F with AG-35 damper
    b) Krueger S80P with OPO damper
12. Laboratory Perforated - Ceiling Supply and Diffuser - Type OIL"  
    a) Titus Tritec
13. Return, Exhaust, Or Transfer Fixed Air Grille - Type "M"
    a) Titus 350RL
    b) Krueger S80H
    c) Anemostat S3HD
14. Return, Exhaust, Or Transfer Perforated Air Grille - Type "N"
    a) Titus 8F
    b) Krueger S80P
15. Return, Exhaust, Or Transfer Eggcrate Air Grille - Type "O"
    a) Titus 50P
    b) Krueger EGC-5
    c) Anemostat GC5
16. Filter Return Grille - Type "P"
    a) Titus 4FF
    b) Krueger S80P5FF-1
    c) Anemostat 35HQ
17. Ducted HEPA Filter Supply Terminal - Type "Q"
    a) Flanders Filter Company Model 22.
23 57 00 - Heat Exchangers for HVAC

1. U- Tube Heat Exchangers (Steam to Water)
   a) Bell & Gossett ITT - Type 'SU'
   b) Taco, Inc. - 'Steam to Liquid Heat Exchanger.'

2. U-Tube Heat Exchangers (Water to Water)
   a) Bell & Gossett ITT - Type 'WU'
   b) Taco, Inc. - 'Liquid to Liquid Heat Exchanger.'

3. Plate and Frame Heat Exchangers
   a) Alfa Laval
   b) Trantex
   c) American Vicarb

4. Steam-to-Steam Heat Exchangers (Clean Steam Generators)
   a) Cemline
   b) Patterson-Kelly

23 73 00 - Air Handling Units

1. Modular AHUs
   a) Trane Modular Series
   b) Carrier
   c) York

2. Custom AHUs
   a) Buffalo Air
   b) Climate Craft