



**TRANE**<sup>®</sup>



## Alarm and Signal Systems Facility Management Systems

FSC Group 084 Total Solutions for Law Enforcement, Security, Facilities Management, Fire, Rescue, Clothing, Marine Craft and Emergency/Disaster Response  
FSC CLASS: 63

**Special Item Numbers:**

- 246-42(1) Facility Management Systems (Energy Management Functions) and Related Equipment
- 246-1000 Ancillary Services
- 246-51 Installation Requiring Construction
- 246-52 Facility Management Services (Software and Training Services, Educational Literature and Materials)
- 246-53 Leasing (Alternative Financing Method, ESPC Projects, and Straight Leasing) and Rental of Air Conditioning Units



Ingersoll Rand, member  
DJSI, World and North America 2012

Trane U.S. Inc. (d/b/a TRANE),  
an Ingersoll Rand Company  
3600 Pammel Creek Road  
LaCrosse, Wisconsin 54601-7599  
1-800-877-1327

Contract Number: GS-07F-0248K

Contract Period: October 1, 2015 through April 3, 2020

Business Size: Large

# Authorized FSS Schedule Price List

**Federal Supply Service**  
U.S. General Services Administration

**TABLE OF CONTENTS**

<i>Section</i>	<i>Page</i>
Information for Ordering Activities.....	3
Trane Sales Offices in the United States .....	10
Equipment and Services Price List:	
+ Rotary Liquid Chillers and Scroll Liquid Chillers .....	15
+ CenTraVac™ Water-Cooled	
+ Centrifugal Liquid Chillers .....	16
+ Air-Cooled Liquid Chillers, Single-Zone	
+ Rooftop Air Conditioners, and Split	
+ System Air-Cooled Condensing Units.....	17
+ Climate Changer Air Handlers .....	19
+ Water Source Heat Pump Categories .....	20
+ Unit Ventilators.....	22
+ Coil Products.....	23
+ Building Energy Management and Control	
+ Products.....	24
+ Trane Rental Services .....	30
+ C.D.S. Software .....	35
+ C.D.S. Training Seminars .....	37
+ CDS Software and Training Seminars	
+ Purchased Together .....	39
+ Educational Literature and Materials .....	40
+ Ancillary Services and	
+ Installation Involving Construction Services.....	58
+ Installation Involving Construction Services for	
+ Labor Categories Covered by the Davis-Bacon Act...	64

**CONTRACT MODIFICATIONS**

This Schedule Contract Price List includes Modifications through No. **PO-0182, effective September 13, 2016.**

**INFORMATION FOR ORDERING OFFICES**

**1a. Awarded Special Item Numbers:**

SIN	Description
246-42(1) .....	Energy Management Functions and Building Automation Systems
246-1000.....	Ancillary Services
246-51.....	Installation Requiring Construction
246-52.....	Facility Management Services (Software and Training Services, Educational Literature and Materials)
246-53.....	Leasing (Alternative Financing Method, ESPC Projects, and Straight Leasing) and Rental of Air Conditioning Units

**1b. Lowest Price Model Number and Lowest Unit Price for the Special Item Number Awarded in the Contract.**

Lowest Priced Model No.	Description
\$6.....	Air flow sampling probe

**2. Maximum Order:**

- SIN 246-42(1) .....\$150,000 per order.
- SIN 246-1000.....\$200,000 per order.
- SIN 246-51.....\$200,000 per order.
- SIN 246-52.....\$200,000 per order.
- SIN 246-53       \$200,000 per order.

Pursuant to FAR 8.405-1, The Maximum Order established in Schedule contracts is the threshold at which it is advantageous for an ordering office to seek further concessions from a Contractor. The Contractor may accept an order of any amount, including one exceeding the maximum order threshold. For an order in an amount above the maximum order threshold for the specific SIN in the contract, a Government purchaser should seek further concessions from the Contractor. When presented with such a request, the Contractor may grant additional concessions, offer the product at the existing contract price, or refuse the order.

**3. Minimum Order:**

\$100.00 per order.

**4. Geographic Coverage (delivery area):**

The scope of the contract is the 48 contiguous states, Alaska, Hawaii, Puerto Rico, Washington, D.C., and U.S. territories for products, software, and services under SIN 246-42(1), SIN 246-1000, SIN 246-51, SIN 246-52, and SIN 246-53.

**5. Points of Production (city, county, and state or foreign country):**

Name of Manufacturer	Production Point
Trane U.S. Inc.	3600 Pammel Creek Road LaCrosse LaCrosse County Wisconsin 54601-7599 Phone: 608-787-2000 Phone (Marketing):608-787-3907 Fax: 608-787-2204 <a href="http://www.trane.com">www.trane.com</a>
Trane U.S. Inc.	4833 White Bear Parkway St. Paul Ramsey County Minnesota 55110 Phone: 1-800-877-1327 Fax: 651-407-4197 E-mail: <a href="mailto:tranefsscontact@trane.com">tranefsscontact@trane.com</a> <a href="http://www.trane.com">www.trane.com</a>
Trane U.S. Inc.	C.D.S. 3600 Pammel Creek Road LaCrosse LaCrosse County Wisconsin 54601-7511 Phone: 608-787-3926 Fax: 608-787-3005 E-mail: <a href="mailto:cdshelp@trane.com">cdshelp@trane.com</a> <a href="http://www.trane.com">www.trane.com</a>
Trane U.S. Inc.	101 William White Boulevard Pueblo Pueblo County Colorado 81001-4800 Phone: 1-888-244-5537 Fax: 719-585-3896 <a href="http://www.trane.com">www.trane.com</a>

Trane U.S. Inc. 2701 Wilma Rudolph Blvd.  
 Clarksville  
 Montgomery County  
 Tennessee 37040-5846  
 Phone: 931-648-5945  
 Fax: 931-648-5901  
[www.trane.com](http://www.trane.com)

Trane U.S. Inc. 182 Cotton Belt Parkway  
 McGregor  
 McLennan County  
 Texas 76657-3411  
 Phone: 254-299-6300  
 Fax: 254-299-6671  
[www.trane.com](http://www.trane.com)

Trane U.S. Inc. Inland Marketing Services  
 3030 Airport Road  
 La Crosse  
 La Crosse County  
 Wisconsin 54603-1251  
 Phone: 608-787-3926  
 Fax: 608-783-4705  
[www.trane.com](http://www.trane.com)

Trane U.S. Inc. 4500 Morris Field Drive  
 Charlotte  
 Mecklenberg County  
 North Carolina 28208  
 Phone: 800-755-5115  
 Fax: 704-398-4681  
[www.trane.com](http://www.trane.com)

Trane U.S. Inc. 1515 Mercer Road  
 Lexington  
 Lexington-Fayette County  
 Kentucky 40511  
 Phone: 800-228-1666  
 Fax: 859-288-2618  
[www.trane.com](http://www.trane.com)

Trane U.S. Inc. 7610 Industrial Highway  
 Macon  
 Bibb County  
 Georgia 31216  
 Phone: 478-781-6495  
 Fax: 478-784-4239  
[www.trane.com](http://www.trane.com)

Trane U.S. Inc. Lynn Haven Unit  
 200 Aberdeen Loop  
 Panama City  
 Bay County  
 Florida 32405  
 Phone: 850-271-6030  
 Fax: 850-271-6040  
[www.trane.com](http://www.trane.com)

Trane U.S. Inc. 400 Killian Road  
 Columbia  
 Lexington County  
 South Carolina 29203  
 Phone: 1-877-788-7263  
[www.trane.com](http://www.trane.com)

**6. Discounts from Commercial List Prices:**

All prices contained are inclusive of negotiated discounts. See Government Price List for net prices. Net prices do not include surcharge for expedited and overnight delivery. See Item 11b.

**7. Quantity Discounts:**

The Quantity/Volume Discount is the same as the discount extended to commercial customers. The discount is product code dependent and may have multiple discount levels based on dollar amount that is automatically calculated by Trane's ordering system

**8. Prompt Payment Terms:**

Prompt payment is ½% 10 days Net 30 days from date of invoice or date of acceptance, whichever is later. Credit card transactions are excluded.

**9a. Government Commercial Credit Card:**

VISA and MasterCard credit cards are accepted for orders with the Contractor. These credit card orders can be placed with the following location:

Trane U.S. Inc.  
 3600 Pammel Creek Road  
 LaCrosse, WI 54601-7599  
 Phone: 608-787-2629  
 Fax: 651-407-4358

**9b. Government Commercial Credit Card:**

Government Commercial Credit Cards will be accepted for all purchase, both above and below the micropurchase threshold of \$3000.

**10. Foreign Items (list items by country of origin):**

None

**11a. Time of Delivery:**

The Contractor shall deliver to destination within the number of calendar days after receipt of order (ARO), as set forth below.

Special Item Number	Delivery Time (Days ARO)
246-42(1).....	See below
246-52 .....	28 Days

Standard delivery time may vary from 28 to 126 days ARO depending upon the products being ordered under SIN 246-42(1).

Time of delivery of services under SIN 246-1000, SIN 246-51 or SIN 246-53 shall be a part of the negotiated Statement of Work between the Contractor and the ordering office.

#### 11b. Expedited Delivery:

Quicker delivery times than those set forth in paragraph (a) above are available from the Contractor based on the availability of product inventory. Delivery times of 1-15 days after receipt of order (ARO) are available, as negotiated between the Ordering Office and the Contractor. The Contractor adds a delivery fee of 15% of the purchase price for delivery within one week.

#### 11c. Overnight and 2-Day Delivery:

When schedule customers require overnight or 2-day delivery, agencies are encouraged to contact the Contractor or Authorized Government Resellers for the purpose of obtaining accelerated delivery. The Contractor provides overnight and 2-day delivery times subject to the availability of product inventory. The Contractor shall pay for shipment, with freight prepaid and invoiced. The Contractor adds a delivery fee of 20% of the purchase price for overnight delivery. Authorization must be included on the Government order for products.

#### 11d. Urgent Requirements:

When the Federal Supply Schedule contract delivery period does not meet the bona fide urgent delivery requirements of an ordering agency, agencies are encouraged, if time permits, to contact the Contractor for the purpose of obtaining accelerated delivery. The Contractor shall reply to the inquiry within 3 workdays after receipt. (Telephonic replies shall be confirmed by the Contractor in writing.) If the Contractor offers an accelerated delivery time acceptable to the ordering agency, any order(s) placed pursuant to the agreed upon accelerated delivery time frame shall be delivered within this shorter delivery time and in accordance with all other terms and conditions of the contract.

#### 12. FOB Point:

For locations in the 48 contiguous States, Alaska, Hawaii, Puerto Rico, and Washington D.C., shipment shall be F.O.B. destination with title passing to the Government upon delivery by the carrier, freight prepaid and invoiced. For shipments with a final destination in the U.S. territories, shipment shall be FOB destination, with

freight prepaid and allowed, to the nearest point of embarkation. Delivery costs to U.S. territories shall be negotiated between the Contractor and each agency placing an order.

The Contractor shall be responsible for all expenses connected with the return of defective products or parts. The government shall be responsible for expenses connected with all other returns. A restocking fee of 15% of the purchase price shall be charged to the Government for the return of non-defective products or parts.

#### 13. Ordering Address:

See "Trane Sales Offices" section for listing of ordering addresses.

#### 13b. Ordering Procedures:

For supplies and services, the ordering procedures, information on Blanket Purchase Agreements (BPA's), and a sample BPA can be found at the GSA/FSS Schedule homepage ([www.fss.gsa.gov/schedules](http://www.fss.gsa.gov/schedules)).

#### 14. Payment Address:

Payment may be made to:

Trane U.S. Inc.  
4833 White Bear Parkway  
St. Paul, MN 55110

or to Trane U.S. Inc. in care of one of the Participating Dealers listed in the "Trane Sales Offices" section.

Trane may direct a purchasing office to forward payment to one of the following "remit to" addresses, which will be listed on the invoice:

Trane U.S. Inc.  
P.O. Box 406469  
Atlanta, GA 30384-6469

Trane U.S. Inc.  
P. O. Box 98167  
Chicago, IL 60693

Trane U.S. Inc.  
P. O. Box 845053  
Dallas, TX 75284-5053

Trane U.S. Inc.  
File 56718  
Los Angeles, CA 90074-6718

Schedule customers seeking to make EFT payments should access CCR (Trane Cage Code 60532, DUNS No. 12-636-5795) or contact Trane Accounts Receivables Department at (608) 787-2629.

**15. Warranty Provisions:**

The Contractor warrants for a period of 12 months from initial start-up or 18 months from date of shipment, whichever is less, that the Contractor's products covered by this order (1) are free from defects in material and manufacture and (2) have the capacities and ratings set forth in the Contractor's catalogs and bulletins; provided that no warranty is made against corrosion, erosion or deterioration. The Contractor's obligations and liabilities under this warranty are limited to furnishing F.O.B. factory or warehouse at Contractor designated shipping point, freight allowed the Contractor's warranty agent's stock location (or port of export for shipments outside the conterminous United States) replacement equipment (or at the option of the Contractor parts therefore) for all Contractor products not conforming to this warranty and which have been returned to the manufacturer. The Contractor shall not be obligated to pay for the cost of lost refrigerant.

No liability whatever shall attach to the Contractor until said products have been paid for and then said liability shall be limited to the purchase price of the equipment shown to be defective.

The Contractor makes certain further warranty protection available on an optional extra-cost basis. Any further warranty must be in writing, signed by an officer of the Contractor.

**Warranty Disclaimer:**

The above warranties are given in lieu of all other warranties, express or implied, including THE IMPLIED WARRANTY OF MERCHANTABILITY, any implied warranty of fitness for a particular purpose and any implied warranties otherwise arising from course of dealing or trade.

**16. Export Packing Charges:**

Point of Exportation for all other overseas locations. In place of a delivery/installation date for equipment, a shipping date shall be specified on the order. The Contractor shall pay for shipment to a CONUS APO/FPO. At the option of the Government, F.O.B. will be Point of Origin, with freight prepaid and invoiced. Authorization for all shipping, export, and other charges must be included on the Government order.

**17. Terms and Conditions of Government Purchase Card Acceptance (any thresholds above the micropurchase level):**

No special concessions granted.

**18. Terms and Conditions of Rental, Maintenance, or Repair:**

For locations in the 48 contiguous states, Alaska, Hawaii, Puerto Rico, and Washington, D.C., maintenance and repair is performed by the sales offices listed in the attached list of Trane Sales Offices in the United States, based on terms and prices set at each sales office. Contact each sales office for maintenance and repair available.

**19. Terms and Conditions of Installation:**

Installation for locations in the 48 contiguous states, Alaska, Hawaii, Puerto Rico, and Washington, D.C. is performed by the sales offices listed in the attached list of Trane Sales Offices in the United States, based on terms and prices set by each sales office.

**20. Terms and Conditions of Repair Parts:**

Repair parts are stocked and sold by the sales offices listed under the section "Trane Sales Offices."

**21. List of Service and Distribution Points:**

See Attached List of Trane Sales Offices.

**22. List of Participating Dealers:**

See Attached List of Trane Sales Offices.

**23. Preventive Maintenance:**

Preventive Maintenance is performed by the sales offices shown on attached list of Trane Sales Offices.

**24a. Environmental Attributes (e.g., recycled content, energy efficiency, and/or reduced pollutants):**

The right HVAC system is critical to green building and there are many HVAC strategies to help address energy, indoor environmental quality and water elements that in turn, can help earn LEED credits. Trane, as a leading global supplier of HVAC systems, services and solutions, helps achieve green building goals. Here are just some of the ways that Trane offering is helping buildings go green and attain LEED certification.

**Designing and Engineering Your Green**

**Building** - TRACE™ 700 is the complete design tool for load, system, energy and economic analysis, and is used to earn LEED EAc1 points. TRACE 700 complies with

Appendix G for Performance Rating Method of ASHRAE Standard 90.1-2007 for LEED analysis, and was the first simulation software approved by the IRS for energy-savings certification (EPAc). TRACE is also tested in compliance with ANSI/ASHRAE Standard 140-2007.

**Constructing Your Green Building -**

**EarthWise™ Systems** use state-of-the-art Trane products, systems and controls to optimize performance. This includes the ability to balance installed cost and operating cost while improving comfort, indoor air quality, and acoustics. EarthWise Systems provide high efficiency/low emissions performance that can be documented over the entire lifetime of the building.

**EarthWise™ CenTraVac Chillers** are rated by the U.S. Environmental Protection Agency as best-in-class energy-efficient designs and **FEMP** designation. CenTraVac Chillers are also a three time Climate Protection Award winner as the most energy-efficient, lowest-emission large chillers available and are the only chillers in the world to earn Environmental Product Declaration (EPD) registration following the requirements of ISO 14025.

**Voyager™, Precedent™ and Intellipak™** commercial rooftop air conditioner units and **Odyssey™** split system performance meets or exceeds ASHRAE 90.1 standard. This standard sets acceptable energy efficiency performance requirements and is used by the DOE for both NAECA and EPAc. Some product lines have 2 or 3 tiers of efficiency levels available to choose from and some **Voyager™** Model TC\* and YC\* are **Energy Star**.

**Trane Axiom™** water-source heat pumps (WSHP) deliver high-performance heating and cooling with exceptional efficiency: up to 40 EER on select systems. Within Trane's WSHP line, units are offered for the application of Geothermal and other WSHP systems that help your buildings work better and is a highly efficient technology that uses the ground as a heat source in winter and as a heat sink in summer. Technology is considered as a Renewable Energy.

**Operating and Controlling Your Green**

**Building - Tracer™ controls** provide advanced control of complex systems to achieve energy savings and measure performance. Trane 2,000 factory-authorized service professionals, over 300 LEED AP Certified, and over 145 Certified Energy Managers contribute to efficient and sustainable building operations.

Products are identified with environmentally sustainable products symbols in Trane Price List (Catalog or GSA Advantage) as appropriate.

Trane currently has products with the following sustainable products symbol designations.



**24b. Section 508 Compliance:**

Not Applicable

**25. Data Universal Number System (DUNS) number:**

DUNS No. 12-636-5795

**26. Notification Regarding Registration in Central Contractor Registration (CCR) Database:**

The Contractor has registered with the Central Contractor Registration Database and has been assigned Cage Code 60532.

**27. Rotary and Scroll Liquid Chillers (SIN 246-42(1))**

The Contractor offers Series R Rotary Liquid Chillers and Water-Cooled and Condenserless Scroll Liquid Chillers under this contract. The ordering office should contact the Contractor for information on pricing and equipment specifications and configurations for the Rotary Liquid Chiller or Scroll Liquid Chiller appropriate for the ordering office's needs. Government discounts will be applied to commercial list prices on all orders. The ordering office should contact its local Trane Sales Office or the Contractor's Office at:

Trane  
Pueblo Business Unit  
101 William White Boulevard  
Pueblo, Colorado 81001  
Phone: 888-244-5537  
Fax: 719-585-3896

**28. Centrifugal Liquid Chillers (SIN 246-42(1))**



The Contractor offers CenTraVac™ Water-Cooled Centrifugal Liquid Chillers under this contract. The ordering office should contact the Contractor for information on pricing and equipment specifications and configurations for the CenTraVac™ Water-Cooled Centrifugal Liquid Chiller appropriate for the ordering office's needs. Government discounts will be applied to commercial list prices on all orders. The ordering office should contact its local Trane Sales Office or the Contractor's Office at:

Trane  
La Crosse Business Unit  
3600 Pammel Creek Road  
La Crosse, Wisconsin 54601

Phone: 608-787-3907  
Fax: 608-787-2204

**29. Air-Cooled Liquid Chillers, Single-Zone Rooftop Air Conditioners, and Split System Air-Cooled Condensing Units (SIN 246-42(1))**

The Contractor offers Air-Cooled Liquid Chillers, Single-Zone Rooftop Air Conditioners, and Split System Air-Cooled Condensing Units under this contract. The ordering office should contact the Contractor for information on pricing and equipment specifications and configurations for the Liquid Chillers, Rooftop Air Conditioners, and Split System Condensing Units appropriate for the ordering office's needs. Government discounts will be applied to commercial list prices on all orders. The ordering office should contact its local Trane Sales Office or the Contractor's Office at:

Trane  
Clarksville Business Unit  
2701 Wilma Rudolph Boulevard  
Clarksville, Tennessee 37040-5846  
Phone: 931-648-5945  
Fax: 931-648-5901

**30. Water Source Heat Pumps (SIN 246-42(1)):**

The Contractor offers Water Source Heat Pumps in five categories under this contract:

- Residential Premium Efficiency
- Commercial High Efficiency
- Commercial Premium Efficiency
- Commercial Standard Efficiency
- Optional Factory Mounted Controls

The ordering office should contact the Contractor for information on pricing and equipment specifications and configurations for the model water source heat pump appropriate for the ordering office's needs. Government discounts will be applied to commercial list prices on all orders. The ordering office should contact its local Trane Sales Office or the Global Controls and Contracting Office at:

Trane  
Waco Business Unit  
182 Cotton Belt Parkway  
McGregor, Texas 76657-3411  
Phone: 254-299-6300  
Fax: 254-299-6671

**31. Unit Ventilators (SIN 246-42(1)):**

The Contractor offers Unit Ventilators under this contract. The ordering office should contact the Contractor for information on pricing and equipment specifications and configurations for the model Unit Ventilator appropriate for the ordering office's needs. Government discounts will be

applied to commercial list prices on all orders. The ordering office should contact its local Trane Sales Office or the Macon Business Unit at:

Trane  
Macon Business Unit  
7610 Industrial Highway  
Macon, Georgia 31216  
Phone: 478-781-6495  
Fax: 478-784-4239

**32. Climate Changer Air Handlers (SIN 246-42(1)):**

The Contractor offers Performance Climate Changer™ and Controls for Climate Changer Air Handlers under this contract. The ordering office should contact the Contractor for information on pricing and equipment specifications and configurations for the model Unit Ventilator appropriate for the ordering office's needs. Government discounts will be applied to commercial list prices on all orders. The ordering office should contact its local Trane Sales Office or the Lexington Business Unit at:

Trane  
Lexington Business Unit  
1515 Mercer Road  
Lexington, Kentucky 40511  
Phone: 800-228-1666  
Fax: 859-288-2618

**33. Ancillary Services (SIN 246-1000) and Installation Requiring Construction (SIN 246-51):**

The Contractor offers ancillary services (SIN 246-1000); including services necessary to install the facility management system (from design through start-up), maintain the system (including maintenance agreements, which may not exceed the term of this contract), or training. The ancillary services do not include construction, as defined by FAR 36.102. The Contractor also offers installation services, which may require construction as defined by FAR 36.102 (SIN 246-51).

The Contractor may offer these Special Item Numbers in conjunction with facility management systems offered under SIN 246-42(2). All services are based on negotiated Statements of Work and are evaluated on a "Best Value" basis to be negotiated between the ordering office and the Contractor per the solicitation.

The ordering office should contact the following address for further information:

Trane  
4831 White Bear Parkway  
St. Paul, Minnesota 55110  
Phone: 1-800-877-1327  
Fax: 651-407-3940

**34. Facility Management Services (Software, Software Training, and Educational Literature and Materials) (SIN 246-52):**

The Contractor offers HVAC system design and analysis software and training on the operation of Trane's software, and other training to include system applications and service training for government personnel. The Contractor also offers educational literature and design tools. The educational literature includes scripted training presentations and reference guides to educate on HVAC fundamentals.

The ordering office should contact the following address for further information on Trane's software and software training:

Trane  
CDS Unit  
3600 Pammel Creek Road  
LaCrosse, Wisconsin 54601  
Phone: 608-787-3926  
Fax: 608-787-3005

The ordering office should contact the following address for further information on educational literature and materials:

Trane  
Inland Marketing Services  
3030 Airport Road  
LaCrosse, Wisconsin 54603  
Phone: 608-787-3926  
Fax: 608-787-4705

**35. Leasing (Straight Leasing, ESPC Projects, and Alternative Financing Method) (SIN 246-53):**

The Contractor offers leasing of facility management systems under Energy Savings Performance Contracts that comply with the requirements of 42 U.S.C. 8287. The Contractor also offers straight leasing utilizing the same rates as are available under the Alternative Financing Method for Energy Savings Performance Contracts. The ordering office should contact the Contractor for negotiation of terms and conditions specifically applicable to this SIN at the following address:

Trane  
4831 White Bear Parkway  
St. Paul, Minnesota 55110  
Phone: 1-800-877-1327  
FAX: 651-407-3940

**36. Trane Rental Service – Rental of Air Conditioning Units (SIN 246-53):**

The Contractor offers rental of Air Conditioning Units under this contract. Pricing and equipment specifications are set out in this Authorized FSS Schedule Price List. The prices contained in this Price List are inclusive of negotiated Government discounts. The ordering office should contact the Contractor for information on configurations for the rental units appropriate for the ordering office's needs and for information on the terms of the Rental Agreement. The ordering office should contact the Contractor's office at:

Trane  
Trane Rental Services  
4500 Morris Field Drive  
Charlotte, North Carolina 28208  
Phone: 800-755-5115  
Fax: 704-398-4681

**37. Trane Heating and Cooling Coil Products (SIN 246-42(1)):**

The Contractor offers Heating and Cooling Coil Products under this contract. The ordering office should contact the Contractor for information on pricing and equipment specifications and configurations for the model Unit Ventilator appropriate for the ordering office's needs. Government discounts will be applied to commercial list prices on all orders. The ordering office should contact its local Trane Sales Office or the Macon Business Unit at:

Trane  
Macon Business Unit  
7610 Industrial Highway  
Macon, Georgia 31216  
Phone: 478-781-6495  
Fax: 478-784-4239

**TRANE SALES OFFICES****Albany, NY – Central New York**

(518) 785-1315  
FAX: (518) 785-4359 - Sales  
301 Old Niskayuna Road  
Latham, New York 12110-2214

**Albuquerque, NM**

(505) 884-2044  
FAX: (505) 884-2449  
5501 San Diego Avenue NE  
Albuquerque, New Mexico 87113

**Allentown, PA**

(484) 223-1730  
FAX: (484) 2231-1824  
5925 Tilghman Street, Suite 70  
Allentown, PA 18104

**Anchorage, AK**

(907) 267-7400  
FAX: (907) 267-7481  
12101 Industry Way, Bldg C1  
Anchorage, AK 99515

**Appleton, WI**

(920) 734-4531  
FAX: (920) 734-2044  
2500 N. Lynndale Drive  
Appleton, Wisconsin 54914

**Asheville, NC**

(828) 277-8664  
FAX: (828) 277-5848  
1400 Sweeten Creek Road  
Asheville, NC 28803

**Atlanta, GA**

(404) 321-7500  
FAX: (404) 636-5204  
4000 Dekalb Technology Pkwy, Suite 100  
Atlanta, Georgia 30340

**Augusta, GA**

(706) 738-8157  
FAX: (706) 733-7842  
3342 Commerce Drive  
Augusta, GA 30909

**Austin, TX**

(512) 416-8822  
FAX: (512) 416-8894  
9801 Metric Blvd., Suite 400  
Austin, TX 78758

**Baltimore, MD**

(410) 403-2200  
FAX: (410) 403-2225  
10947 Golden West Drive, Suite 100  
Hunt Valley, Maryland 21031

**Baton Rouge, LA**

(225) 298-4280  
FAX: (225) 291-9472  
11534 Cloverland Avenue  
Baton Rouge, LA 70879-8158

**Birmingham, AL**

(205) 7474-4000  
FAX: (205) 747-4006  
1030 London Drive, Suite 100  
Birmingham, Alabama 35211

**Boise, ID**

(208) 362-0916  
FAX: (208) 362-7463  
351 N. Mitchell St., Suite 100  
Boise, ID 83704

**Boston, MA**

(781) 938-9700  
FAX: (781) 938-8912  
181 Ballardvale Street  
Wilmington, Massachusetts 01887

**Burlington, VT**

(802) 864-3816  
FAX: (802) 864-5093  
175 Leroy Road  
Williston, VT 05495

**Cape Girardeau, MO**

(573) 334-0591  
FAX: (573) 334-0680  
1078 Wolverine Lane #D  
Cape Girardeau, MO 63701

**Charleston, SC**

(843) 375-4775  
FAX: (843) 375-4776  
2011 Clements Ferry Road  
Charleston, SC 29492

**Charlotte, NC**

(704) 525-9600  
FAX: (704) 525-8582  
4501 South Tryon Street  
P.O. Box 240605 (28224)  
Charlotte, North Carolina 28217

**Chattanooga, TN**

(423) 296-1506  
FAX: (423) 485-8139  
6138 Preservation Drive, Suite 500  
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FAX: (630) 323-9040  
7100 South Madison  
Willowbrook, Illinois 60527-5505

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(513) 771-8884  
FAX: (513) 772-7281  
10300 Springfield Pike  
Cincinnati, Ohio 45215

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(719) 599-3900  
FAX: (719) 268-0200  
4242 N. Nevada Avenue  
Colorado Springs, CO 80907

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(803) 936-4700  
FAX: (803) 936-4715  
111 Lott Court  
West Columbia, South Carolina 29169

**Columbus, OH**

(614) 473-3500  
FAX: (614) 473-3501  
2300 City Gate Drive, Suite 100  
Columbus, Ohio 43219-3652

**Dallas, TX (TSO)**

(972) 406-6000  
FAX: (972) 243-1398  
P.O. Box 814609  
Dallas, Texas 75381-4609  
1400 Valwood Parkway, Suite 100  
Carrollton, Texas 75006

**Davenport, IA**

(563) 468-4900  
FAX: (563) 391-0277  
4801 Grand Ave.  
Davenport, Iowa 52807

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(303) 228-3300  
FAX: (303) 228-2828  
445 Bryant St., Unit 5  
Denver, Colorado 80204

**Detroit, MI**

(248) 596-3600  
FAX: (248) 596-3636  
37001 Industrial Road  
Livonia, Michigan 48150

**El Paso, TX**

(915) 593-3484  
FAX: (915) 593-3490  
1405 Vanderbilt Drive  
El Paso, TX 79935

**Fargo, ND**

(701) 235-0521  
FAX: (701) 293-3136  
300 45<sup>th</sup> Street SW  
Fargo, North Dakota 58103

**Fort Collins, CO**

(970) 490-1052  
FAX: (970) 490-1191  
2416 Donnell Court, Unit D  
Fort Collins, CO 80524

**Fort Wayne, IN**

(260) 489-0884  
FAX: (260) 489-5117  
6602 Innovation Blvd.  
Fort Wayne, IN 46818

**Fort Worth, TX**

(817) 838-1300  
FAX: (817) 831-8135  
4200 N. Sylvania Avenue  
Fort Worth, TX 76137

**Fresno, CA**

(559) 271-4625  
FAX: (559) 271-4630  
5599 N. Golden State Blvd.  
Fresno, California 93722

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(970) 242-4438  
FAX: (970) 248-3959  
2387 River Road, Unit 110  
Grand Junction, CO 81505

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(616) 971-1400  
FAX: (616) 971-1401  
5005 Corporate Exchange Blvd. S.E.  
Grand Rapids, Michigan 49512

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(864) 672-6000  
FAX: 864-672-6001  
288 Fairforest Way  
Greenville, South Carolina 29607

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FAX: (717) 561-5499  
3909 TecPort Drive  
Harrisburg, Pennsylvania 17111

**Hartford, CT**

(860) 616-6600  
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716 Brook Street, Suite 130  
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2969 Mapunapuna Pl, Ste 101  
Honolulu, Hawaii 96819

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FAX: (256) 837-2058  
4825 Commercial Drive  
Huntsville, AL 35816

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(317) 255-8777  
FAX: (317) 251-8556  
5355 North Post Road  
Indianapolis, Indiana 46216

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(904) 363-6088  
FAX: (904) 363-1134  
8929 Western Way, Suite 1  
Jacksonville, Florida 32256

**Johnson City, TN**

(423) 224-1150  
FAX: (423) 224-1151  
10384 Wallace Alley Street  
Kingsport, Tennessee 37663

**Johnstown, PA**

(814) 266-3020  
FAX: (814) 266-3015  
1255 Scalp Ave.  
Johnstown, Pennsylvania 15904

**Kansas City, MO**

(913) 599-4664  
FAX: (913) 599-4669  
8014 Flint  
Lenexa, Kansas 66214

**Knoxville, TN**

(865) 588-0607  
FAX: (865) 588-0600  
5220 S. Middlebrook Pk.  
Knoxville, TN 37921

**La Crosse, WI**

(608) 788-8430  
FAX: (608) 787-0454  
2525 Larson Street  
La Crosse, WI 54603

**Lincoln, NE**

(402) 438-9220  
FAX: (402) 438-9221  
7800 O Street, Suite 101  
Lincoln, NE 68540

**Long Island, NY**

(718) 269-3600  
FAX: (718) 269-3758  
245 Newtown Rd, Suite 500  
Plainview, NY 11803

**Los Angeles, CA**

(626) 913-7123  
FAX: (626) 913-7153  
17760 Rowland Street  
City of Industry, California 91748

**Lubbock, TX**

(806) 747-0266  
FAX: (806) 744-1033  
717 E 40<sup>th</sup> Street (79404)  
PO Box 3963  
Lubbock, TX 79452

**Macon, GA**

(478) 743-5429  
FAX: (478) 743-2731  
125 Macon West Drive  
Macon, GA 31210

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(608) 838-8200  
FAX: (608) 838-6015  
4801 Voges Road, Suite A  
Madison, Wisconsin 53718

**Manchester, NH**

(603) 263-2060  
FAX: (603) 263-2062  
47 Constitution Drive  
Bedford, New Hampshire 03110

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(901) 345-6000  
FAX: (901) 345-2803  
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Memphis, Tennessee 38132

**Miami, FL (TSO)**

(305) 592-0672  
(954) 499-6900  
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2884 Corporate Way  
Miramar, Florida 33025

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(414) 266-5200  
FAX: (414) 266-5216  
234 W. Florida Street  
Milwaukee, WI 53204

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(251) 665-2999  
FAX: (251) 665-2920  
4932 Tufts Road  
Mobile, Alabama 36619

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(334) 215-2900  
FAX: (334) 215-2901  
915 Lagoon Business Loop  
Montgomery, AL 36117

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(615) 242-0311  
FAX: (615) 726-3357  
601 Grassmere Park Drive, Suite 10  
Nashville, Tennessee 37211

**New Orleans, LA**

(504) 733-6789  
FAX: (504) 731-0833  
530 Elmwood Park Blvd.  
Harahan, Louisiana 70123

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FAX: (718) 269-3601  
45-18 Court Square  
Long Island City, New York 11101-4347

**North Jersey, NJ**

(973) 887-8800  
FAX: (973) 887-8844  
4 Wood Hollow Road  
Parsippany, New Jersey 07054-0436

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(405) 787-2237  
FAX: (405) 787-0752  
305 Hudiburg Circle  
Oklahoma City, Oklahoma 73108

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FAX: (402) 331-5200  
5720 S. 77th Street  
Ralston, Nebraska 68127-4202

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(407) 660-1111  
FAX: (407) 660-0303  
2301 Lucien Way, Suite 430  
Maitland, FL 32751

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(850) 473-3840  
FAX: (850) 505-9915  
580 East Burgess Road  
Pensacola, FL 32504

**Phoenix, AZ (CSO)**

(602) 258-9600  
FAX: (602) 253-3801  
850 West Southern Ave  
Tempe, Arizona 85282

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(412) 747-3000  
FAX: (412) 747-4550  
400 Business Center Dr.  
Pittsburgh, Pennsylvania 15205

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(207) 828-1777  
FAX: (207) 828-1511  
860 Spring St. Unit 1  
Westbrook, Maine 04092

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(401) 434-3145  
FAX: (401) 434-8537  
50 Vision Blvd.  
East Providence, Rhode Island 02914

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(605) 342-7929  
FAX: (605) 342-7930  
6807 Sturgis Road  
Black Hawk, SD 57718

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(775) 856-3343  
FAX: (775) 856-1704  
5595 Equity Avenue, Suite 100  
Reno, Nevada 89502

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10408 Lakeridge Parkway, Suite 100  
Ashland, Virginia 23005

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FAX: (540) 366-4958  
2303 Trane Drive  
Roanoke, Virginia 24017

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(585) 256-2500  
FAX: (585) 256-0067  
75 Town Centre Drive, Suite 300  
Rochester, New York 14623

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FAX (916) 577-1175  
4145 Delmar Road  
Rocklin, California 95677

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3565 Corporate Court  
San Diego, California 92123

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(787) 798-0999  
PR #1, Km. 25.1,  
Banco Quebrada Arenas  
San Juan, Puerto Rico 00926-1900

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3609 Ogeechee Blvd., Suite A  
Savannah, GA 31405

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FAX: (425) 643-4314  
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Bellevue, Washington 98008



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FAX: (605) 336-0824  
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2301 Bendix Drive, Suite 400  
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(413) 746-3090  
FAX: (413) 746-0537  
90 Carando Drive  
Springfield, MA 01104

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(417) 863-2110  
FAX: (417) 863-2111  
540 N. Cedarbrook  
Springfield, MO 65802-6324

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FAX: (636) 349-0601  
101 Matrix Commons Drive  
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FAX: (315) 433-9120  
15 Technology Place  
East Syracuse, New York 13057

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FAX: (850) 575-5880  
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FAX: (520) 748-1492  
4520 S. Coach Drive  
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1001 Hamilton Drive  
Holland, Ohio 43528

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(561-) 683-1521  
FAX: (561) 697-8714  
6965 Vista Parkway North #11  
West Palm Beach, FL 33411

**Westchester, NY**

(914) 593-0303  
FAX: (914) 593-7222  
12 Skyline Drive  
Hawthorne, NY 10532

**Wilkes Barre, PA - CO**

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FAX: (570) 654-0343  
10 Freeport Road  
Pittston, Pennsylvania 18640-9514

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FAX: (406) 248-5196  
3311 4<sup>th</sup> Avenue North, Suite 4  
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FAX: (937) 264-4360  
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2220 NW 108<sup>th</sup> Street  
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FAX: (812) 421-8735  
1024 East Sycamore Street  
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(810) 767-7800  
FAX: (810) 767-9058  
5335 Hill 23 Drive  
Flint, Michigan 48507

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(239) 275-9420  
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3036 S. Valley View Blvd.  
Las Vegas, Nevada 89102

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2350 Fortune Drive  
Lexington, KY 40509-4125

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FAX: (501) 661-9109  
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987 Airway Court, Suite 18  
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Shreveport, Louisiana 71106

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66 Southgate Blvd.  
New Castle, Delaware 19720

**Wilmington, NC**

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FAX: (910) 792-0466  
6736 Netherlands Drive, Suite A  
Wilmington, NC 28405



**Water-Cooled Series R Rotary Liquid Chillers, Air-Cooled Series R Rotary Liquid Chillers, Water-Cooled and Condenserless Scroll Liquid Chillers, and Water-Cooled and Condenserless Series R Rotary Liquid Chillers**

SIN	Model Number	Product Description	Product Code	GSA Price
246-42(1)	RTHD 	Water-Cooled Series R® Rotary Liquid Chillers (175-450 Tons) - Utilize a single compressor/single circuit design with R-134a refrigerant. This model uses the CH530 control panel.	153	See Note 1 Below
246-42(1)	CGAM 	Air-Cooled Scroll Liquid Chillers (20-130 Tons) - Uses HFC-410A refrigerant	664	See Note 1 Below
246-42(1)	RTAC 	Air Cooled Series R® Rotary Liquid Chillers (130-500 Tons)	154	See Note 1 Below
246-42(1)	RTWD 	Water-Cooled Series R Rotary Liquid Chillers (60-250 tons)	703	See Note 1 Below
246-42(1)	RTAE 	Stealth™ Helical Rotary Chiller (Model RTAE, 150-300 tons)	895	See Note 1 Below

**NOTES:**

<p>(1) GSA Pricing: A Customer should contact Trane for information on pricing and equipment specifications and configurations for the model liquid chiller appropriate for the ordering office's needs.</p> <p>(2) Standard delivery can be 70-126 days.</p> <p>(3) Expedited delivery times may be available based upon the availability of product inventory and plant production schedules. A Customer should contact Trane for information on accelerated delivery times.</p> <p>(4) The standard warranty for Commercial Products under Product Codes 153, 154, 664 and 703 is 12 months from initial start-up or 18 months from shipment, whichever is less (PO-0100)</p> <p>(5) Extended warranties are available from Trane. See <a href="http://www.trane.com/commercial/equipment/extended.asp">www.trane.com/commercial/equipment/extended.asp</a>.</p>
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Equipment Price List



CenTraVac™ Water-Cooled Centrifugal Liquid Chillers

SIN	Model Number	Product Description	Product Code	GSA Price	Ecolabel
246-42(1)	CVHE 	CenTraVac™ Water-Cooled Centrifugal Liquid Chillers (120-500 Tons)	347	See Note 1 Below	<b>FEMP</b>
246-42(1)	CVHF 	CenTraVac™ Water-Cooled Centrifugal Liquid Chillers (325-2000 Tons)	347	See Note 1 Below	<b>FEMP</b>
246-42(1)	CVHL 	CenTraVac™ Centrifugal Water-Cooled Chillers - Series L (400-1800 Tons)	347	See Note 1 Below	<b>FEMP</b>
246-42(1)	CVHS 	CenTraVac™ Centrifugal Water-Cooled Chillers - Series S (180-390 Tons)	047	See Note 1 Below	<b>FEMP</b>
246-42(1)	CDHF 	CenTraVac™ Water-Cooled Centrifugal Liquid Chillers (1500-3950 Tons)	347	See Note 1 Below	<b>FEMP</b>

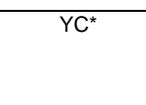
**NOTES:**

- (1) GSA Pricing: A Customer should contact Trane for information on pricing and equipment specifications and configurations for the model centrifugal liquid chiller appropriate for the ordering office's needs.
- (2) Standard delivery can be 63-98 days.
- (3) Expedited delivery times may be available based upon the availability of product inventory and plant production schedules. A Customer should contact Trane for information on accelerated delivery times.
- (4) The standard warranty for Commercial Products under Product Codes 047 and 347 is 12 months from initial start-up or 18 months from shipment, whichever is less
- (5) Centrifugal Chiller models that are configured and selected to achieve an energy efficiency performance better than 0.55 kW/ton are given the "Earthwise™" designation. The purchaser must contact his Trane representative to analyze selection options, chiller performance, pricing, and life-cycle cost benefits in choosing an Earthwise™ model that meets the specific job performance requirements. Earthwise™ chillers conform to the requirements of Executive Order 13123 by being in the top 25th percentile of efficiency for Centrifugal Chiller products sold in the marketplace. Earthwise™ chillers exceed the minimum performance recommendations established by the DOE, Federal Energy Management Program. Trane's Earthwise™ Chiller has received the EPA's Climate Protection Award or being the highest in energy efficiency and lowest in refrigerant emissions.
- (6) Extended warranties are available from Trane. See [www.trane.com/commercial/equipment/extended.asp](http://www.trane.com/commercial/equipment/extended.asp).
- (7) Products showing the **FEMP** ecolabel meet Federal Energy Management Program (FEMP) recommended performance standards that are in the upper 25% of energy efficiency of that product group, and required under Federal Acquisition Regulation (FAR) Subpart 23.2.



Equipment Price List

Air-Cooled Liquid Chillers, Single-Zone Rooftop Air Conditioners, and Split System Air-Cooled Condensing Units

SIN	Model Number	Product Description	Product Code	GSA Price	Ecolable
246-42(1)	YC*, TC*, TE* 	Single-Zone Rooftop Air Conditioners (27 1/2 - 50 tons) Voyager	382	See Note 1 Below	
246-42(1)	S*HL 	Single-Zone Rooftop Air Conditioners (20 - 75 tons) IntelliPak	383	See Note 1 Below	
246-42(1)	RAUJ 	Split System Air-Cooled Condensing Units (20 - 60 tons)	361	See Note 1 Below	
246-42(1)	RAUJ 	Split System Air-Cooled Condensing Units (80 - 120 tons)	362	See Note 1 Below	
246-42(1)	CAUC	Split System Air-Cooled Condensing Units (20 - 60 tons)	385	See Note 1 Below	
246-42(1)	CAUC	Split System Air-Cooled Condensing Units (80 - 120 tons)	386	See Note 1 Below	
246-42(1)	TC* 	Voyager 11 Access - 12.5-25 Ton - Packaged Optional Electric Heat/Cooling Rooftop Unit	463	See Note 1 Below	
246-42(1)	WC*	Voyager 11 Access - 12.5-20 Ton - Packaged Heat Pump/Cooling Rooftop Unit	465	See Note 1 Below	
246-42(1)	YC* 	Voyager 11 Access - 12.5-25 Ton - Packaged Gas Heat/Cooling Rooftop Unit	467	See Note 1 Below	
246-42(1)	BAY*, FIY*	Voyager 11 Access - 12.5-25 Ton - Accessories	390	See Note 1 Below	

NOTES:

- (1) GSA Pricing: A Customer should contact Trane for information on pricing and equipment specifications and configurations for the model liquid chiller, rooftop air conditioner, or split system condensing unit appropriate for the ordering office's needs.  
 (2) Standard delivery can be 12-84 days depending on the product line.

SIN	Model Number	Product Description	Product Code	GSA Price	Ecolable
<p>(3) Expedited delivery times may be available based upon the availability of product inventory and plant production schedules. A Customer should contact Trane for information on accelerated delivery times.</p> <p>(4) The standard warranty for Commercial Products under Product Codes 382, 383, 361, 362, 385, 386, 463, 465, 467, and 390 is 12 months from initial start-up or 18 months from shipment, whichever is less.</p> <p>(5) Extended warranties are available from Trane. See <a href="http://www.trane.com/commercial/equipment/extended.asp">www.trane.com/commercial/equipment/extended.asp</a>.</p>					



Equipment Price List

Split System Units

SIN	Model Number	Product Description	Product Code	GSA Price	Ecolable
246-42(1)	TWA 	Odyssey Split System Heat Pumps (6-20 Tons, 60 HZ)	411	See Note 1 Below	
246-42(1)	TWE 	Odyssey Split System Air Handlers (5-20 Tons, 60 HZ)	416	See Note 1 Below	
246-42(1)	TTA 	Odyssey Split System Air Conditioners Handlers (5-20 Tons, 60 HZ)	419	See Note 1 Below	
246-42(1)		Odyssey Split System Accessoriers	351	See Note 1 Below	

**NOTES:**

- (1) GSA Pricing: A Customer should contact Trane for information on pricing and equipment specifications and configurations for the model liquid chiller, rooftop air conditioner, or spit system condensing unit appropriate for the ordering office's needs.
- (2) Standard delivery can be 12-84 days depending on the product line.
- (3) Expedited delivery times may be available based upon the availability of product inventory and plant production schedules. A Customer should contact Trane for information on accelerated delivery times.
- (4) The standard warranty for Commercial Products under Product Codes 351, 411, 416, and 419 is 12 months from initial start-up or 18 months from shipment, whichever is less.
- (5) Extended warranties are available from Trane. See [www.trane.com/commercial/equipment/extended.asp](http://www.trane.com/commercial/equipment/extended.asp).



Equipment Price List

LCU and Small Split Systems

SIN	Model Number	Product Description	Product Code	GSA Price	Ecolable
246-42(1)		Light Commercial Unit (LCU) Heaters	161	See Note 1 Below	
246-42(1)		Accessories for Small Split Systems, Single Phase	425	See Note 1 Below	
246-42(1)		Small Split System Heat Pumps, Single Phase	428	See Note 1 Below	

**NOTES:**

- (1) GSA Pricing: A Customer should contact Trane for information on pricing and equipment specifications and configurations for the model liquid chiller, rooftop air conditioner, or spit system condensing unit appropriate for the ordering office's needs.
- (2) Standard delivery can be 12-84 days depending on the product line.
- (3) Expedited delivery times may be available based upon the availability of product inventory and plant production schedules. A Customer should contact Trane for information on accelerated delivery times.
- (4) The standard warranty for Commercial Products under Product Codes 161, 425, and 428 is 12 months from initial start-up or 18 months from shipment, whichever is less.
- (5) Extended warranties are available from Trane. See [www.trane.com/commercial/equipment/extended.asp](http://www.trane.com/commercial/equipment/extended.asp).



Equipment Price List

Split System Air Handlers

SIN	Model Number	Product Description	Product Code	GSA Price	Ecolable
246-42(1)		Small Split System Air Handler Accessories	391	See Note 1 Below	
246-42(1)		Small Split System Air Handlers, Single Phase, Hyperion & XB TEM	420	See Note 1 Below	

**NOTES:**

- (1) GSA Pricing: A Customer should contact Trane for information on pricing and equipment specifications and configurations for the model liquid chiller, rooftop air conditioner, or spit system condensing unit appropriate for the ordering office's needs.
- (2) Standard delivery can be 12-84 days depending on the product line.
- (3) Expedited delivery times may be available based upon the availability of product inventory and plant production schedules. A Customer should contact Trane for information on accelerated delivery times.
- (4) The standard warranty for Commercial Products under Product Codes 391 and 420 is 12 months from initial start-up or 18 months from shipment, whichever is less.
- (5) Extended warranties are available from Trane. See [www.trane.com/commercial/equipment/extended.asp](http://www.trane.com/commercial/equipment/extended.asp).



Equipment Price List

Precedent Rooftop Units

SIN	Model Number	Product Description	Product Code	GSA Price	Ecolable
246-42(1)	Y*C 	Precedent™ GE, 3-10 Tons Gas/Electric Packaged Rooftop Unit, 3 phase 60Hz	514	See Note 1 Below	
246-42(1)	WSC	Precedent™ HP, 3-10 Tons Heat Pump Packaged Rooftop Unit, 3 phase 60Hz	516	See Note 1 Below	
246-42(1)	T*C 	Precedent™ AC 3-10 Tons Cooling Packaged Rooftop Unit, 3 phase 60Hz	518	See Note 1 Below	
246-42(1)	Y*C 	Precedent™ Packaged Rooftop AC products, 3-5 Tons, Gas/Electric, single phase 60 Hz	513	See Note 1 Below	
246-42(1)	WSC 	Precedent™ Packaged Rooftop AC products, 3-5 Tons, Heat Pump, single phase 60 Hz	515	See Note 1 Below	
246-42(1)	T*C 	Precedent™ Packaged Rooftop AC products, 3-5 Tons, Cooling, single phase 60 Hz	517	See Note 1 Below	
246-42(1)	BAY*, SEN*	Precedent G/E - 3-10 Ton Accessories	289	See Note 1 Below	
246-42(1)	YHC**7 	Precedent™ 17 Plus Packaged Rooftop Air Conditioner, 17.5 SEER, 3-5 Tons, Gas/Electric, 3 phase 60 Hz	514	See Note 1 Below	
246-42(1)	THC**7 	Precedent™ 17 Plus Packaged Rooftop Air Conditioner, 17.5 SEER, 3-5 Tons, Cooling, 3 phase 60 Hz	518	See Note 1 Below	
246-42(1)	YZC	Precedent™ eFlex™Technology Packaged Rooftop Air Conditioners, 20 SEER, 3 – 5 Tons, DX Cooling and gas heat and, 3 phase 60 Hz	514	See Note 1 Below	
246-42(1)	TZC	Precedent™ eFlex™Technology Packaged Rooftop Air Conditioners, 20 SEER, 3 – 5 Tons, DX Cooling and electric heat, 3 phase 60 Hz	518	See Note 1 Below	

NOTES:

SIN	Model Number	Product Description	Product Code	GSA Price	Ecolable
<p>(1) GSA Pricing: A Customer should contact Trane for information on pricing and equipment specifications and configurations for the model liquid chiller, rooftop air conditioner, or spit system condensing unit appropriate for the ordering office's needs.</p> <p>(2) Standard delivery can be 12-84 days depending on the product line.</p> <p>(3) Expedited delivery times may be available based upon the availability of product inventory and plant production schedules. A Customer should contact Trane for information on accelerated delivery times.</p> <p>(4) The standard warranty for Commercial Products under Product Codes 289, 513, 514, 515, 516, 517, and 518 is 12 months from initial start-up or 18 months from shipment, whichever is less.</p> <p>(5) Extended warranties are available from Trane. See <a href="http://www.trane.com/commercial/equipment/extended.asp">www.trane.com/commercial/equipment/extended.asp</a>.</p>					



**Equipment Price List**

**Climate Changer Air Handlers**

SIN	Model Number	Product Description	Product Code	GSA Price
246-42(1)		Performance Climate Changer™ Air Handler - Unit Sizes 3-120.	50	See Note 1 Below
246-42(1)		Low Voltage Controls for Climate Changer Air Handling Units	200	See Note 1 Below
246-42(1)		Performance Climate Changers air handler UCCA	958	See Notes Below
246-42(1)	**	Performance Climate Changers air handler controls	959	See Notes Below

\*\* Embedded in product model number

**NOTES:**

- (1) GSA Pricing: A Customer should contact Trane for information on pricing and equipment specifications and configurations for the model climate changer air handler appropriate for the ordering office's needs.
- (2) Standard delivery can be 70-126 days for Climate Changer Air Handlers.
- (3) Expedited delivery times may be available based upon the availability of product inventory and plant production schedules. A Customer should contact Trane for information on accelerated delivery times.
- (4) The standard warranty for Commercial Products under Product Codes 50, 200, 298, and 299 is 12 months from initial start-up or 18 months from shipment, whichever is less.
- (5) Extended warranties are available from Trane. See [www.trane.com/commercial/equipment/extended.asp](http://www.trane.com/commercial/equipment/extended.asp).



Equipment Price List

Water Source Heat Pump Categories

SIN Number	Model Number	Product Description	Product Codes	GSA Price
<b>Commercial Premium Efficiency</b>				
246-42(1)	EXVE 	Water Source Heat Pumps - High Efficiency Vertical	176	See Note 1 Below
246-42(1)	EXHE 	Water Source Heat Pumps - High Efficiency Horizontal	176	See Note 1 Below
<b>Commercial High Efficiency</b>				
246-42(1)	EXWE 	Water Source Heat Pumps - Commercial High Efficiency Water-to-water	75	See Note 1 Below
246-42(1)	GEVE	Water Source Heat Pumps - Vertical	331	See Note 1 Below
246-42(1)	GEHE 	Water Source Heat Pumps - Horizontal	331	See Note 1 Below
246-42(1)	GECE 	Water Source Heat Pumps - High Efficiency Console	331	See Note 1 Below
246-42(1)	GETE 	Water Source Heat Pump - Vertical Stack	332	See Note 1 Below
246-42(1)	Controls	Water Source Heat Pumps - Optional Factory Mounted Controls	126	See Note 1 Below

**Notes:**

(1) GSA Pricing: A Customer should contact Trane for information on pricing and equipment specifications and configurations for the model water source heat pump appropriate for the ordering office's needs.
(2) All Units include Condensate Overflow, Copper Heat Exchanger and 24V Controls.
(3) Standard delivery can be 49-70 days.
(4) For expedited delivery of 10 days after receipt of order (ARO), Contractor adds a delivery fee of 15% of the purchase price.
(5) The standard warranty for Commercial Water Source Heat Pumps under Product Codes 075, 176, 331, and 332 and for Controls under PC 126 is 12 months from initial start-up or 18 months from shipment, whichever is less.
(6) Extended warranties are available from Trane. See <a href="http://www.trane.com/commercial/equipment/extended.asp">www.trane.com/commercial/equipment/extended.asp</a> .



**Equipment Price List**

**Unit Ventilators**

**Classroom Unit Ventilators, Unit Ventilator Accessories, Self Contained Unit Ventilators and Unit Ventilator Controls**

SIN	Model Number	Product Description	Product Code	GSA Price
246-42(1)	VUVB 	Vertical Classroom Unit Ventilators	042	See Note 1 Below
246-42(1)	HUVB 	Horizontal Classroom Unit Ventilators	042	See Note 1 Below
246-42(1)	SHLA	Unit Ventilator Shelving and Accessories	077	See Note 1 Below
246-42(1)	Wall Boxes	Unit Ventilator Accessories	077	See Note 1 Below
246-42(1)	SWE	Unit Ventilator Sidewall Exhaust	077	See Note 1 Below
246-42(1)	Controls	Unit Ventilator Controls	242	See Note 1 Below

**NOTES:**

- (1) GSA Pricing: A Customer should contact Trane for information on pricing and equipment specifications and configurations for the model unit ventilator, accessories, or controls appropriate for the ordering office's needs.
- (2) Standard delivery can be 49-72 days.
- (3) Expedited delivery may be available based upon production schedules at the factory and the availability of product inventory. For expedited delivery of 10 days after receipt of order (ARO), Contractor adds a delivery fee of up to 15% of the purchase price. A Customer should contact Trane for information on availability of product, accelerated delivery times, and pricing.
- (4) The standard warranty for Unit Ventilators under Product Codes 042 and 077 and for Controls under Product Code 242 is 12 months from initial start-up or 18 months from shipment, whichever is less.
- (5) Extended warranties are available from Trane. See [www.trane.com/commercial/equipment/extended.asp](http://www.trane.com/commercial/equipment/extended.asp).



**Equipment Price List**

**Macon and Columbia Coil Products**

SIN	Model Number	Product Description	Product Code	GSA Price
246-42(1)		Cooling Coils	081	See Notes Below
246-42(1)		Heating Coils	082	See Notes Below
246-42(1)	**	UniTrane Fan Coil Controls	223	See Notes Below
246-42(1)	FF 	Force-Flo Cabinet Heater	277	See Notes Below
246-42(1)	FC 	UniTrane Fan-Coil	278	See Notes Below
246-42(1)	BC 	Blower Coil Air Handler	290	See Notes Below
246-42(1)	**	Blower Coil Controls	292	See Notes Below

\*\* Embedded in product model number

**NOTES:**

- (1) GSA Pricing: A Customer should contact Trane for information on pricing and equipment specifications and configurations for the coil product appropriate for the ordering office's needs.
- (2) Standard delivery ranges from 28-49 days and with the specific time depending on the unit ordered, configuration and season of year ordered.
- (3) Expedited delivery may be available based upon production schedules at the factory and the availability of product inventory. A Customer should contact Trane for information on availability of product, accelerated delivery times, and negotiated pricing.
- (4) The standard warranty for products under Product Codes 081, 082, 223, 277, 278, 290, 292, is 12 months from initial start-up or 18 months from shipment, whichever is less.
- (5) Extended warranties are available from Trane.  
See [www.trane.com/commercial/equipment/extended.asp](http://www.trane.com/commercial/equipment/extended.asp).



Equipment Price List

Building Energy Management and Control Products

SIN Number	Model Number	Product Description	Product Code	GSA Price
<b>ZN511 Products</b>				
246-42(1)	4950 0469	Tracer ZN511 Zone Controller with Plastic Cover	100	\$213.47
				
246-42(1)	4950 0569	Tracer ZN511 Zone Controller with Metal Enclosure	100	\$267.65
<b>MP501 Products</b>				
246-42(1)	4950 0486	Tracer MP501 Setpoint Controller with Plastic Cover	103	\$212.39
				
246-42(1)	4950 0586	Tracer MP501 Setpoint Controller w/ Metal Enclosure	103	\$266.57
<b>Service Tools</b>				
246-42(1)	4020 1199	Rover-Software Upgrade Package (s/w)	104	\$194.70
246-42(1)	X1365149701	Rover LonTalk Hardware Kit	104	\$923.81
246-42(1)	X1365149801	Rover Comm4 Hardware Kit	104	\$388.48
246-42(1)	X1365150001	Rover LonTalk & Comm4 Software and Hardware	104	\$1,424.58
246-42(1)	X1365149901	Rover LonTalk Software and Hardware	104	\$971.20
246-42(1)	X1365150201	Rover LonTalk Configuration Only Software and Hardware	104	\$776.96
246-42(1)	X1365150301	Rover Air and Water Balancing Only	104	\$907.22
246-42(1)	X1365150101	Rover Comm4 Software and Hardware	104	\$647.62
246-42(1)	X4509148201	Kit - Tracer TU for Chillers	104	\$1,233.25
246-42(1)	X4509151201	Kit - Tracer TU Controls	104	\$1,541.56
246-42(1)	X4509151301	Kit - Tracer TU Complete	104	\$2,569.27
246-42(1)	X4509153601	Tracer TU Balancing Tool	104	\$202.36
<b>End Devices and Sensors</b>				
246-42(1)	3430 3017	24 VAC/SPDT Relay Only	107	\$9.38
246-42(1)	3430 3020	24 VAC/SPDT Relay with Enclosure	107	\$18.39
246-42(1)	3580 3005	24 VAC Wall Plug-in Transformer	107	\$13.13
246-42(1)	3581 2021	UL Component Recognized Transformer 120/208/240 VAC, 75 VA	107	\$27.77
246-42(1)	3581 2022	UL Component Recognized Transformer 120 VAC, 40 VA	107	\$10.30
246-42(1)	4020 1159	5V Differential Duct Static Pressure Sensor	107	\$52.17
246-42(1)	4190 2006	Air Flow Sampling Probe	107	\$6.01
246-42(1)	4190 7020	4-20mA 3% Duct Humidity Sensor	107	\$124.94
246-42(1)	4190 7021	4-20mA 3% Outside Air Humidity Sensor	107	\$159.49
246-42(1)	4190 1080	Balco Transmitter - use w/ PCM AI 3-6	107	\$58.92
246-42(1)	4190 1084	Low Temp. Cutout Manual Reset	107	\$84.62
246-42(1)	4190 1096	0-50 PSID Diff. Pressure Sensor	107	\$374.53
246-42(1)	4190 1097	Electric to Pneumatic Transducer w/ Override	107	\$102.83
246-42(1)	4190 1104	4" Brass Immersion Well	107	\$20.64
246-42(1)	4190 1106	375 Platinum Outdoor Air Temp w/ Enclosure	107	\$22.52
246-42(1)	4190 1108	4" Stainless Steel Immersion Well	107	\$24.39
246-42(1)	4190 1100	Therm. Sealed Temp. Sensor	107	\$10.13
246-42(1)	4190 1101	Therm. Outdoor Air Temp Sensor	107	\$20.64
246-42(1)	4190 1112	6" Brass Immersion Well	107	\$22.52
246-42(1)	4190 1113	6" Stainless Steel Imm Well	107	\$28.15
246-42(1)	4190 1114	Thermal Well Compound	107	\$11.26
246-42(1)	4190 1119	385 Plat Duct Avg 24'	107	\$91.94
246-42(1)	4190 1122	20' Averaging Duct Temperature Sensor	107	\$86.31
246-42(1)	4190 1123	6' Averaging Duct Temperature Sensor	107	\$60.79
246-42(1)	4190 1129	4" Thermistor Duct 6' Lead Temperature Sensor	107	\$20.64
246-42(1)	4190 1130	4" Balco Duct/Immersion Temperature Sensor	107	\$39.00
246-42(1)	4190 1131	4" 375 Platinum Duct/Immersion Temperature Sensor	107	\$31.64
246-42(1)	4190 1132	4" Thermistor Duct/Immersion Temperature Sensor	107	\$20.64



Equipment Price List

Building Energy Management and Control Products

SIN Number	Model Number	Product Description	Product Code	GSA Price
246-42(1)	4190 1133	6" Thermistor Duct/Immersion Temperature Sensor	107	\$22.52
246-42(1)	4190 1134	12" Thermistor Duct Temperature Sensor	107	\$24.65
246-42(1)	4190 5005	Water Differential Pressure Switch	107	\$63.42
246-42(1)	4190 5050	Building Static Pressure Sensor Selectable	107	\$114.46
246-42(1)	4190 5051	Duct Static Pressure Sensor Selectable	107	\$114.46
246-42(1)	4190 6006	Air Differential Pressure Switch	107	\$21.76
246-42(1)	4190 7015	Stainless Steel Therm. Wall Plate w/ Logo	107	\$10.51
246-42(1)	X13310270	Current Sensing Switch	107	\$57.03
246-42(1)	X1351152801	Zone Sensor (This product is only available as an optional component (part) of a Trane total solution for a Heating Ventilation Air Conditioning (HVAC) system. It is not available for individual purchase.)	107	\$16.13
246-42(1)	X1351153001	Zone Sensor w/ On + Cancel (This product is only available as an optional component (part) of a Trane total solution for a Heating Ventilation Air Conditioning (HVAC) system. It is not available for individual purchase.)	107	\$16.13
246-42(1)	X1351152701	Zone Sensor w/ On + Cancel + Set. Adj. (This product is only available as an optional component (part) of a Trane total solution for a Heating Ventilation Air Conditioning (HVAC) system. It is not available for individual purchase.)	107	\$28.52
246-42(1)	X1351152901	Zone Sensor w/ Set. Adj. (This product is only available as an optional component (part) of a Trane total solution for a Heating Ventilation Air Conditioning (HVAC) system. It is not available for individual purchase.)	107	\$28.52
246-42(1)	X1316105702	Thumbwheel Hot/Cold (Qty 12 per box)	107	\$5.09
246-42(1)	X1365146702	Comm. Module, Zone Sensor (Box of 12) (This product is only available as an optional component (part) of a Trane total solution for a Heating Ventilation Air Conditioning (HVAC) system. It is not available for individual purchase.)	107	\$33.91
246-42(1)	X13790422010	CO2 Demand Vent Wall Sensor	107	\$176.32
246-42(1)	X13790423010	CO2 Demand Vent Duct Sensor	107	\$166.25
246-42(1)	X1379044401	Zone Sensor Comb RH Temp 3% 4-20 mA	107	\$105.79
246-42(1)	X1379087901	Zone Sensor RH 5% 20-4 mA	107	\$82.56
246-42(1)	X1379084201	Zone Sen Set TOV 3SpFan (This product is only available as an optional component (part) of a Trane total solution for a Heating Ventilation Air Conditioning (HVAC) system. It is not available for individual purchase.)	107	\$36.78
246-42(1)	X1379084501	Zone Sen Set TOV Fan	107	\$36.78
246-42(1)	X1379084801	Zone Sen Set TOV 2SpFan (This product is only available as an optional component (part) of a Trane total solution for a Heating Ventilation Air Conditioning (HVAC) system. It is not available for individual purchase.)	107	\$36.78
<b>Building Control Unit</b>				
246-42(1)	4020 1095	CCP Upgrade ROM Kit	115	\$20.75
246-42(1)	4020 1204	BMTX Internal Modem	115	\$294.04
246-42(1)	4020 1224	BMTX BCU Operator Display Upgrade Kit	115	\$1,397.36
246-42(1)	4950 0457	Comm 5 Repeater	115	\$363.22
246-42(1)	BMTX001AAD000	Tracer Summit BMTX (Enhanced BCU), Power = 120 VAC	115	\$6,008.86





Equipment Price List

Building Energy Management and Control Products

SIN Number	Model Number	Product Description	Product Code	GSA Price
246-42(1)	BMTX001AAD001	Tracer Summit BMTX (Enhanced BCU), Power = 120 VAC, with Internal Modem	115	\$6,302.46
				
246-42(1)	BMTX001AAD010	Tracer Summit BMTX (Enhanced BCU), Power = 120 VAC, with Operator Display	115	\$7,405.78
				
246-42(1)	BMTX001AAD011	Tracer Summit BMTX (Enhanced BCU), Power = 120 VAC, with Operator Display and Internal Modem	115	\$7,699.82
				
246-42(1)	BMTX001BAD000	Tracer Summit BMTX (Enhanced BCU), Power = 230 VAC	115	\$6,008.86
				
246-42(1)	BMTX001BAD001	Tracer Summit BMTX (Enhanced BCU), Power = 230 VAC, with Internal Modem	115	\$6,302.46
				
246-42(1)	BMTX001BAD010	Tracer Summit BMTX (Enhanced BCU), Power = 230 VAC, with Operator Display	115	\$7,405.78
				
246-42(1)	BMTX001BAD011	Tracer Summit BMTX (Enhanced BCU), Power = 230 VAC, with Operator Display and Internal Modem	115	\$7,699.82
				
246-42(1)	BMTX001CAD000	Tracer Summit BMTX (Enhanced BCU), Frame Mount - CE Listed (24V)	115	\$6,008.86
246-42(1)	BMTX001CAD001	Tracer Summit BMTX (Enhanced BCU) Frame Mount w/ Modem - CE Listed (24V)	115	\$6,302.46
246-42(1)	BMTX001EAD000	Tracer Summit BMTX (Enhanced BCU) Frame Mount - UL Listed (24V)	115	\$6,008.86
246-42(1)	BMTX001EAD001	Tracer Summit BMTX (Enhanced BCU) Frame Mount w/ Modem - UL Listed (24V)	115	\$6,302.46
246-42(1)	4950 0531	BMTX Retrofit kit for BMTS & BMTW BCU	115	\$6,008.86
246-42(1)	4950 0535	BMTX Retrofit kit for BMTS & BMTW BCU with modem	115	\$6,302.46
246-42(1)	4950 0534	BMTX retrofit kit for Tracer 100 with modem	115	\$6,302.46
246-42(1)	4950 0532	BMTX retrofit kit for Tracer 100	115	\$6,008.86



Equipment Price List

Building Energy Management and Control Products

SIN Number	Model Number	Product Description	Product Code	GSA Price
<b>Trace Communications Bridges</b>				
246-42(1)	X13651587010	Bridge - Comm2	159	\$1,926.96
246-42(1)	X13651612010	Tracer Communication Bridge (Comm3 & Comm4): BMTW & BMTS to BMTB Retrofit Kit	159	\$1,043.02
246-42(1)	X13651613010	Tracer Communication Bridge (Comm3 & Comm4): BMTB Frame Mount	159	\$1,043.02
246-42(1)	X13651614010	Tracer Communication Bridge (Comm3 & Comm4): Tracer 100 to BMTB Retrofit Kit	159	\$1,043.02
246-42(1)	BMTB001AAA000	Tracer Communication Bridge (Comm3 & Comm4): BMTB with Enclosure 120VAC	159	\$1,043.02
246-42(1)	BMTB001BAA000	Tracer Communication Bridge (Comm3 & Comm4): BMTB with Enclosure 230VAC	159	\$1,043.02
246-42(1)	BMSB001AAA000	Tracer Communication Bridge (Comm3 & Comm4): Bridge Bundle Tracer SC, BMTB Bridge, PM014, 120V	159	\$1,850.18
246-42(1)	BMSB001AAA010	Tracer Communication Bridge (Comm3 & Comm4): Bridge Bundle Tracer SC, BMTB Bridge, UC400, PM014, 120V	159	\$2,012.66
<b>Tracer Summit Software</b>				
246-42(1)	4020 1111	Tracer Summit Current Version Work Package (Windows)	131	\$2,137.32
246-42(1)	4020 1112	Tracer Summit Current Version Work Demo Package (Windows)	131	\$42.83
246-42(1)	4020 1113	Tracer Summit Current Version Software Upgrade	131	\$568.66
246-42(1)	4020 1150	Summit + T100/Tracker Package	131	\$2,413.26
246-42(1)	4020 1151	T100/Comm Package	131	\$277.26
246-42(1)	4020 1152	Summit + Building Management Package	131	\$2,650.79
246-42(1)	4020 1153	Building Management Package	131	\$514.35
246-42(1)	4020 1154	Summit PCSW and Enterprise Management	131	\$4,162.94
246-42(1)	4020 1155	Summit Enterprise Management Add-On	131	\$2,026.06
<b>Tracker Hardware and Software</b>				
246-42(1)	4020 1185	Tracker PC Software	179	\$160.38
246-42(1)	4020 1238	Tracker 12 LAN Upgrade	179	\$650.17
246-42(1)	4020 1239	Tracker 24 LAN Upgrade	179	\$1,025.10
246-42(1)	BMTK000AAB0110	Building Management Tracker (BMTK): Model 12	179	\$1,217.11
246-42(1)	BMTK000AAB0210	Building Management Tracker (BMTK): Model 24	179	\$1,898.49
246-42(1)	BMTK000ABB0110	Building Management Tracker (BMTK): Model 12 with Ethernet and Modem	179	\$1,560.40
246-42(1)	BMTK000ABB0210	Building Management Tracker (BMTK): Model 24 with Ethernet and Modem	179	\$2,241.78
<b>Legacy Controllers</b>				
246-42(1)	35914260	RJ12 to RJ12 Interface Cable	182	\$19.54
246-42(1)	35914262	9-Pin Female for PC	182	\$19.54
246-42(1)	35914263	25-Pin Female for PC	182	\$19.54
246-42(1)	35914270	9 Pin to 25 Pin Adapter, 25 to 25 Pin Cable	182	\$37.93
246-42(1)	3591 4269	RJ12 to DB25 Male (Modem)	182	\$19.54
246-42(1)	4950 0341	Transformer/Relay Enclosure	182	\$160.35
246-42(1)	4950 0345	Large Rooftop Interface	182	\$266.46
246-42(1)	4950 0372	TCM: Std Ambient, Resin Enclosure	182	\$301.02
246-42(1)	4950 0373	TCM: Ext Ambient, NEMA 1 Enclosure	182	\$345.67
246-42(1)	4950 0374	TCM: Ext Ambient, NEMA 4 Enclosure	182	\$432.57
<b>VariTrac Central Control Panel</b>				
246-42(1)	X13650939010	Central Control Panel with Operator Display	183	\$711.93
246-42(1)	X13650941010	Central Control Panel without Operator Display	183	\$435.57
246-42(1)	X13760015010	Operator Display Panel Only	183	\$286.84
246-42(1)	X13650943010	Central Control Panel Relay Kit (New)	183	\$84.99
246-42(1)	X13650576010	Binary Input Controller	183	\$354.83

MP581 Products



Equipment Price List

Building Energy Management and Control Products

SIN Number	Model Number	Product Description	Product Code	GSA Price
246-42(1)	4020 1156	Operator Display Upgrade	187	\$597.61
246-42(1)	4020 1157	MP580/581 Elec Board Only	187	\$921.07
246-42(1)	4020 1180	Portable Programming Stand	187	\$117.03
246-42(1)	4950 0468	Wall Mount Operator Display	187	\$620.37
246-42(1)	4950 0491	Portable Operator Display with Case	187	\$672.39
246-42(1)	BMTM000AAD00	Input Power Supply: 120 VAC, with Enclosure, No Display	187	\$799.90
246-42(1)	BMTM000AAD01	Input Power Supply: 120 VAC, with Enclosure and Touch Screen Operator Display	187	\$1,236.31
				
246-42(1)	BMTM000BAD00	Input Power Supply: 230 VAC, with Enclosure, No Display	187	\$799.90
				
246-42(1)	BMTM000BAD01	Input Power Supply: 230 VAC, with Enclosure and Touch Screen Operator Display	187	\$1,236.31
				
246-42(1)	BMTM000CAD00	Input Power Supply: 230 VAC, Frame Mount, No Display	187	\$654.60
<b>Tracer UC600</b>				
246-42(1)	BMUC600USA0100011	Tracer UC600 Controller	536	\$595.95
				
246-42(1)	X1365153801	24 VAC to 1.4A 24 VDC	536	\$99.34
246-42(1)	X13651571010	Tracer TD7 Display	536	\$436.77
				
246-42(1)	X18210613010	TD7 Portable Carry Case	536	\$51.51
246-42(1)	X05010511010	Vesa Mount for Display	536	\$23.91
<b>ZN517 Products</b>				
246-42(1)	4950 0496	Tracer ZN517 Unitary Controller with Plastic Cover	639	\$363.45
				
246-42(1)	4950 0596	Tracer ZN517 Unitary Controller with Metal Enclosure	639	\$428.46
<b>VV551 Products</b>				
246-42(1)	4020 1219	Tracer VV551 Single Duct VAV Controller	640	\$203.31
246-42(1)	4020 1220	Tracer VV551 Single Duct VAV Controller w/ Belimo Actuator	640	\$244.38
246-42(1)	4020 1221	Tracer VV551 Single Duct VAV Controller w/ Trane Actuator	640	\$221.11

MP503 Products



Equipment Price List

Building Energy Management and Control Products

SIN Number	Model Number	Product Description	Product Code	GSA Price
246-42(1)	4950 0490	Tracer MP503 Setpoint Controller with Plastic Cover	641	\$287.70
				
246-42(1)	4950 0590	Tracer MP503 Setpoint Controller w/ Metal Enclosure	641	\$341.88
		<b>EX2 Products</b>		
246-42(1)	4950 0499	EX2 Expansion Module with Plastic Cover	642	\$421.86
				
246-42(1)	4950 0500	EX2 Expansion Module with Metal Enclosure	642	\$466.95
		<b>Enterprise Server</b>		
246-42(1)	X40250141001	Tracer ES Express Windows	643	\$2,620.65
246-42(1)	X4025010401	Tracer ES License (Unlimited)	643	\$31,447.90
246-42(1)	X40250126010	Tracer ES Full with 1 License	643	\$2,096.52
246-42(1)	X40250125010	Tracer ES Additional License	643	\$524.13
246-42(1)	X40250129010	Tracer ES Software Maintenance Plan (SMP) 1 Year	643	\$786.20
246-42(1)	X4025010701	Tracer ES Express Tower Server with 1 License	643	\$2,826.10
246-42(1)	X40250129020	Tracer ES Software Maintenance Plan (SMP) 2 Years	643	\$1,257.92
246-42(1)	X40250129030	Tracer ES Software Maintenance Plan (SMP) 3 Years	643	\$1,415.16
246-42(1)	X40250130010	Tracer ES Unlimited SMP 1 Year	643	\$7,861.96
246-42(1)	X40250131010	Tracer ES Renewal for Expired SMP Plan	643	\$262.07
		<b>ZN521 Products</b>		
246-42(1)	4950 0470	Tracer ZN521 Zone Controller with Plastic Cover	645	\$273.89
				
246-42(1)	4950 0570	Tracer ZN521 Zone Controller with Metal Enclosure	645	\$325.47
		<b>Trane Connectivity Module</b>		
246-42(1)	X13651569010	Connectivity Module	668	\$662.25
		<b>Trane UC210</b>		
246-42(1)	BMUC210ACA0T00011	Preprogrammed UC210 for Bypass Control	898	\$190.13
				
246-42(1)	BMUC210AAA0100011	UC210 VAV Controller w/out Actuator	898	\$174.71
				
246-42(1)	BMUC210AAA0T00011	UC210 VAV Controller w/ Trane Actuator	898	\$190.13
				
246-42(1)	BMUC210AAA0B00011	UC210 VAV Controller w/ Belimo Actuator	898	\$210.68
				



Equipment Price List

Building Energy Management and Control Products

SIN Number	Model Number	Product Description	Product Code	GSA Price
<b>Tracer XT</b>				
246-42(1)	X45091562010	Tracer XT Software Kit, 700 I/O pts. 200 Historian Tags	949	\$18,596.17
246-42(1)	X45091562020	Tracer XT Software Kit, 1,500 I/O pts. 300 Historian Tags	949	\$30,064.15
246-42(1)	X45091562030	Tracer XT Software Kit, 35,000 I/O pts. 600 Historian Tags	949	\$38,258.42
<b>Tracer SC</b>				
246-42(1)	BMSC000AAA011000	Tracer SC w/ Power Supply and Base License	1009	\$780.95
				
246-42(1)	BMCF000AAA0AE00	15 Device Application License	1009	\$496.69
<b>Wireless Controls</b>				
246-42(1)	X13790963010	WCI BAA	1247	\$191.32
				
246-42(1)	X13790964010	WCI Outdoor BAA	1247	\$217.07
				
246-42(1)	X13790968010	WCS-SD BAA (Display Sensor)	1247	\$96.12
				
246-42(1)	X13790969010	WCS-SB BAA (Base Sensor)	1247	\$65.31
				
246-42(1)	X13790973010	WCS-SH (2% Humidity Module)	1247	\$95.59
				
<b>XM Expansion Modules</b>				
246-42(1)	X13651563010	XM32 Module (4 Relay)	1250	\$146.73
				
246-42(1)	X13651537010	XM30 I/O Module (4 UI/AO)	1250	\$146.73
				



Equipment Price List

Building Energy Management and Control Products

SIN Number	Model Number	Product Description	Product Code	GSA Price
246-42(1)	X13651597010	XM70 (8UI, 6UI/AO, 4R, 1P)	1250	\$459.18
				
<b>Enclosures</b>				
246-42(1)	501897940100	Metal Enclosure, UC210	1251	\$16.19
246-42(1)	X19091354010	10" DIN Rail Enclosure	1251	\$70.14
246-42(1)	X13651559010	13" DIN Rail Enclosure 120 V	1251	\$161.87
246-42(1)	X13651560010	13" DIN Rail Enclosure 230V	1251	\$161.87
246-42(1)	X13651552010	24" DIN Rail Enclosure 120V	1251	\$500.67
246-42(1)	X13651554010	24" DIN Rail Enclosure 230V	1251	\$500.67
246-42(1)	X13651553010	24" Enclosure Display Mount 120V	1251	\$577.54
246-42(1)	X13651555010	24" Enclosure Display Mount 230V	1251	\$577.54
246-42(1)	X13651596010	24" Enclosure Solid Door (UUKL) 120 VAC	1251	\$558.23
246-42(1)	X13651618010	16" DIN Rail Enclosure Solid Door, 120 VAC	1251	\$253.59
246-42(1)	X13651619010	16" Enclosure, Display Door, 120 VAC	1251	\$264.38



**BAS Training Price List**

**Trane University Course Listing - Pricing**

SIN Number	Course number	Course Name	Course Length	GSA Price for Individual Course w/ IFF
246-52	BSC01	Tracer Summit System Operation	3.5 days	\$ 1,550.00
246-52	BSC02	Tracer Summit 101	4.5 days	\$ 1,980.00
246-52	BSC03	Tracer Summit 102	4.5 days	\$ 1,980.00
246-52	BSC04	Tracer SC Operation	2.5 days	\$ 1,100.00
246-52	BSC05	Tracer SC Advanced Operation	3 days	\$ 1,320.00
246-52	BSC06	Tracer SC Air Systems*	4.5 days	\$ 1,980.00
246-52	BSC07	Tracer SC Central Plant Control*	3 days	\$ 1,320.00
246-52	BSC08	TGP2 Advanced Application*	4.5 days	\$ 1,980.00
246-52	BSC09	Tracer ES Operation ***	1.5 days	\$ 660.00
246-52	TS01	Air Conditioning Service	4.5 days	\$ 1,700.00
246-52	TS02	Commercial Service I	4.5 days	\$ 1,700.00
246-52	TS03	Airside System Service	4.5 days	\$ 1,700.00
246-52	TS04	HVAC Electrical Troubleshooting	4.5 days	\$ 1,700.00
246-52	TS05	Chilled Water Systems Service	3.5 days	\$ 1,700.00
246-52	TS06	CenTraVac System Operation and	3.5 days	\$ 1,900.00
246-52	TS07	CenTraVac Electronic Controls	3.5 days	\$ 1,900.00
246-52	TS08	CenTraVac Mechanical Overhaul Service	4.5 days	\$ 3,500.00
246-52	TS09	Single Stage Absorption Chillers	4.5 days	\$ 1,900.00
246-52	TS10	RTAA/WA/UA Rotary Chillers	3.5 days	\$ 1,900.00
246-52	TS11	RTAC Rotary Chillers	3 days	\$ 1,900.00
246-52	TS12	RTAE Rotary Chillers	3 days	\$ 1,900.00
246-52	TS13	RTHD Rotary Chillers	3 days	\$ 1,900.00
246-52	TS14	RTWD Rotary Chillers	3 days	\$ 1,900.00
246-52	TS15	Precedent Voyager Rooftops (3-25 ton)	3.5 days	\$ 1,900.00
246-52	TS16	IntelliPak I&II Rooftop Units	4.5 days	\$ 1,900.00
246-52	TS17	Commercial Rooftop Burner Service	3 days	\$ 1,900.00
246-52	TS18	Scroll Chiller Service & Troubleshooting	3.5 days	\$ 1,900.00
246-52	TS19	IntelliPak Human Interface Navigation and	online	\$ 75.00
246-52	TS20	ReliaTel Zone Sensor Testing	online	\$ 75.00
246-52	BSC010	Private Class	2.5 days	\$10,000.00
246-52	BSC011	Private Class	3 days	\$14,000.00
246-52	BSC012	Private Class	3.5 days	\$17,250.00
246-52	BSC013	Private Class	4.5 days	\$17,250.00
246-52	TS021	Private Class	2 days	\$ 6,000.00
246-52	TS022	Private Class	3 days	\$ 7,500.00
246-52	TS023	Private Class	4 days	\$ 9,500.00
246-52	PTP01	Platinum Training Package - includes	47,500 training credits	\$28,500.00
246-52	GTP02	Gold Training Package - includes 7,600	7,600 training credits	\$ 5,700.00



**Equipment  
Price List**

**Trane Rental Services**

SIN	Model Number	Product for Rent	Product Code	GSA Monthly Rental Rate
<b>Rental of Air Cooled Chillers</b>				
246-53	CS-ACC-01	10 Ton Air Cooled Chiller	197	\$2,244.82
246-53	CS-ACC-02	15 Ton Air Cooled Chiller	197	\$2,244.82
246-53	CS-ACC-03	25 Ton Air Cooled Chiller	197	\$2,244.82
246-53	CS-ACC-04	40 Ton Air Cooled Chiller	197	\$3,591.72
246-53	CS-ACC-05	60 Ton Air Cooled Chiller	197	\$4,393.08
246-53	CS-ACC-06	80 Ton Air Cooled Chiller	197	\$5,194.44
246-53	CS-ACC-07	100 Ton Air Cooled Chiller	197	\$5,995.80
246-53	CS-ACC-08	125 Ton Air Cooled Chiller	197	\$6,946.25
246-53	CS-ACC-09	170 Ton Air Cooled Chiller	197	\$8,986.07
246-53	CS-ACC-10	200 Ton Air Cooled Chiller	197	\$10,322.80
246-53	CS-ACC-11	300 Ton Air Cooled Chiller (includes trailer)	197	\$14,332.99
246-53	CS-ACC-12	400 Ton Air Cooled Chiller (includes trailer, pump, 6" hose box)	197	\$18,907.35
246-53	CS-ACC-13	500 Ton Air Cooled Chiller (includes trailer, pump, 6" hose box)	197	\$23,403.77
246-53	CS-ACC-14	155 Ton Air Cooled Chiller	197	\$8,403.26
246-53	CS-ACC-15	250 Ton Air Cooled Chiller	197	\$12,283.00
<b>Rental of Water-Cooled Chillers</b>				
246-53	CS-WCC-04	500 Ton Water Cooled Chiller	197	\$17,039.65
246-53	CS-WCC-06	750 Ton Water Cooled Chiller	197	\$23,496.61
246-53	CS-WCC-09	1000 Ton Water Cooled Chiller	197	\$29,374.15
246-53	CS-WCC-11	225 Ton Water Cooled Chiller	197	\$10,690.44
246-53	CS-WCC-12	350 Ton Water Cooled Chiller	197	\$13,576.36
<b>Pump Rental</b>				
246-53	CS-PU-01	3/5 HP Pump	197	\$314.69
246-53	CS-PU-02	7.5/10 HP Pump	197	\$472.21
246-53	CS-PU-03	15/20 HP Pump	197	\$806.10
246-53	CS-PU-04	25/30 HP Pump	197	\$1,010.76
246-53	CS-PU-05	40/50 HP Pump	197	\$1,573.92
246-53	CS-PU-06	60 HP Pump	197	\$1,760.28
246-53	CS-PU-08	125 HP Pump	197	\$3,148.51
246-53	CS-PU-10	100 HP Pump	197	\$2,535.89
<b>Hose Kit Rental</b>				
246-53	CS-HK-01	2.5" Diameter Hose Kit; contains 200 total feet	197	\$190.09
246-53	CS-HK-02	4" Diameter Hose Kit; contains 200 total feet	197	\$253.79
246-53	CS-HK-03	6" Diameter Hose Kit; contains 200 total feet	197	\$591.96
246-53	CS-HK-04	8" Diameter Hose Kit; contains 400 total feet	197	\$719.02
246-53	CS-HK-05	10" Diameter Hose Kit; contains 200 total feet	197	\$845.41
246-53	CS-HK-06	4" Dia Hose Kit for vertical/suction apps 96 ft total	197	\$591.96
<b>Transformer Rental</b>				
246-53	CS-TR-01	300 kVa Transformer	197	\$728.40
246-53	CS-TR-02	500 kVa Transformer	197	\$1,166.07
246-53	CS-TR-03	750 kVa Transformer	197	\$1,749.64
246-53	CS-TR-04	1000 kVa Transformer	197	\$1,944.16
246-53	CS-TR-05	1500 kVa Transformer	197	\$2,915.36
<b>Rental of DX/Voyager (Direct Exchange Refrigerant) Units</b>				
246-53	CS-VT-01	10 Ton DX (Direct Exchange Refrigerant) Vertical Tent Unit	197	\$1,577.65
246-53	CS-VT-02	20 Ton DX (Direct Exchange Refrigerant) Vertical Tent Unit	197	\$2,126.23
246-53	CS-DX-01	25 Ton DX/Voyager (Direct Exchange Refrigerant) Unit	197	\$2,620.52
246-53	CS-DX-02	35 Ton DX/Voyager (Direct Exchange Refrigerant) Unit	197	\$3,636.97
246-53	CS-DX-03	50 Ton DX/Voyager (Direct Exchange Refrigerant) Unit	197	\$5,241.75
<b>Tower Rental</b>				
246-53	CS-TO-01	500 Ton Tower (mounted on 48 foot step-deck trailer)	197	\$7,015.03
246-53	CS-TO-03	270 Ton Tower NO TRAILER	197	\$3,941.74
246-53	CS-TO-04	750 Ton Tower (mounted on 48 foot step-deck trailer)	197	\$10,283.83



**Equipment  
Price List**

**Trane Rental Services**

SIN	Model Number	Product for Rent	Product Code	GSA Monthly Rental Rate
<b>Air Handling Unit (AHU) Rental</b>				
246-53	CS-AHU-01	5000 cfm AHU	197	\$2,648.72
246-53	CS-AHU-02	10000 cfm AHU	197	\$2,738.85
246-53	CS-AHU-03	25000 cfm AHU	197	\$4,500.83
<b>Flex Duct Rental</b>				
246-53	CS-FD-01	20" Flex Duct [contains (4) 25 foot sections of Flex]	197	\$313.43
246-53	CS-FD-02	12" Flex Duct [contains (4) 25 foot sections Black]	197	\$259.21
246-53	CS-FD-03	12" Flex Duct [contains (4) 25 foot sections White]	197	\$259.21
<b>Rental of Electric Cable</b>				
246-53	CS-EC-01	2/0 Cable Box (4) 100' Sections of Electric Cable	197	\$501.76
246-53	CS-EC-02	4/0 Cable Box (4) 100' Section of Electric Cable	197	\$501.76
<b>Trailer Rental</b>				
246-53	CS-TA-01	48 foot Flatbed Trailer	197	\$906.80
246-53	CS-TA-02	28 foot Flatbed Trailer	197	\$906.80
246-53	CS-TA-03	32 foot Flatbed Trailer	197	\$906.80
246-53	CS-TA-04	48 or 53 ft Step Deck Trailer	197	\$1,108.31
<b>Rental of Generators - Standby Rate</b>				
246-53	SR36	36kW Generator - standby rate	197	\$913
246-53	SR60	60kW Generator - standby rate	197	\$1,366
246-53	SR100	100kW Generator - standby rate	197	\$1,678
246-53	SR120	120kW Generator - standby rate	197	\$1,839
246-53	SR140	140kW Generator - standby rate	197	\$2,000
246-53	SR200	200kW Generator - standby rate	197	\$2,666
246-53	SR350	350kW Generator - standby rate	197	\$4,409
246-53	SR450	450kW Generator - standby rate	197	\$5,458
246-53	SR500	500kW Generator - standby rate	197	\$5,512
246-53	SR750	750kW Generator - standby rate	197	\$7,875
246-53	SR1125	1125kW Generator - standby rate	197	\$9,360
246-53	SR1450	1450kW Generator - standby rate	197	\$10,845
<b>Rental of Generators - 8 hour Run Rate</b>				
246-53	08H36	36kW Generator - 8 hour run rate	197	\$1,074
246-53	08H60	60kW Generator - 8 hour run rate	197	\$1,608
246-53	08H100	100kW Generator - 8 hour run rate	197	\$1,976
246-53	08H120	120kW Generator - 8 hour run rate	197	\$2,164
246-53	08H140	140kW Generator - 8 hour run rate	197	\$2,353
246-53	08H200	200kW Generator - 8 hour run rate	197	\$3,135
246-53	08H350	350kW Generator - 8 hour run rate	197	\$5,188
246-53	08H450	450kW Generator - 8 hour run rate	197	\$6,422
246-53	08H500	500kW Generator - 8 hour run rate	197	\$6,485
246-53	08H750	750kW Generator - 8 hour run rate	197	\$9,264
246-53	08H1125	1125kW Generator - 8 hour run rate	197	\$11,011
246-53	08H1450	1450kW Generator - 8 hour run rate	197	\$12,759
<b>Rental of Generators - 16 hour Run Rate</b>				
246-53	16H36	36kW Generator - 16 hour run rate	197	\$1,612
246-53	16H60	60kW Generator - 16 hour run rate	197	\$2,412
246-53	16H100	100kW Generator - 16 hour run rate	197	\$2,962
246-53	16H120	120kW Generator - 16 hour run rate	197	\$3,246
246-53	16H140	140kW Generator - 16 hour run rate	197	\$3,531
246-53	16H200	200kW Generator - 16 hour run rate	197	\$4,704
246-53	16H350	350kW Generator - 16 hour run rate	197	\$7,781
246-53	16H450	450kW Generator - 16 hour run rate	197	\$9,716
246-53	16H500	500kW Generator - 16 hour run rate	197	\$9,728
246-53	16H750	750kW Generator - 16 hour run rate	197	\$13,896
246-53	16H1125	1125kW Generator - 16 hour run rate	197	\$16,517
246-53	16H1450	1450kW Generator - 16 hour run rate	197	\$19,138
<b>Rental of Generators - 24 hour Run Rate</b>				
246-53	24H36	36kW Generator - 24 hour run rate	197	\$2,149



**Equipment  
 Price List**

**Trane Rental Services**

SIN	Model Number	Product for Rent	Product Code	GSA Monthly Rental Rate
246-53	24H60	60kW Generator - 24 hour run rate	197	\$3,215
246-53	24H100	100kW Generator - 24 hour run rate	197	\$3,951
246-53	24H120	120kW Generator - 24 hour run rate	197	\$4,328
246-53	24H140	140kW Generator - 24 hour run rate	197	\$4,704
246-53	24H200	200kW Generator - 24 hour run rate	197	\$6,272
246-53	24H350	350kW Generator - 24 hour run rate	197	\$10,375
246-53	24H450	450kW Generator - 24 hour run rate	197	\$12,827
246-53	24H500	500kW Generator - 24 hour run rate	197	\$12,952
246-53	24H750	750KW Generator - 24 hour run rate	197	\$18,528
246-53	24H1125	1125kW Generator - 24 hour run rate	197	\$22,023
246-53	24H1450	1450kW Generator - 24 hour run rate	197	\$25,518



Trane Rental Services

SIN	Model Number	Product for Rent	Product Code	GSA Monthly Rental Rate
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NOTES:

(1) The total monthly Rental Rate equals the GSA Monthly Rental Rate multiplied by both the Time of Year Multiplier and the Multi-Month Rental Multiplier.

(2) The **Time of Year Multiplier** is set out in the Table below.

Time of Year Multiplier	Time of Year Discount	Month
		0.8 January
		0.8 February
		0.8 March
		0.8 April
		0.9 May
		1 June
		1 July
		1 August
		0.9 September
		0.8 October
		0.8 November
		0.8 December

(3) The **Multi-Month Rental Multiplier** is set out in the Table below.

Multi-Month Rental Multiplier	Multiplier	Months
	1	1-2
		0.85 3-6
		0.75 7-12

(4) Trailers are rented at the rate of \$900 per month, regardless of the time of year or length of the rental. This rate is not discounted. Flatbed trailers are 48-Ft or 53-Ft.

(5) The rental rate for a Transformer is waived if the Transformer is rented with a Chiller.

(6) The Time of Year and Multi-Month Rental Multipliers are not applied to the Rental Rate for Electric Cable.

(7) For rental periods that include partial months, the Rental Rates will be calculated as follows:

First Month -	Weekly rate will equal 1/3 of monthly rate. Daily rate will equal 1/7 of weekly rate.
Ending Month -	Weekly rate will equal 1/4 of monthly rate. Daily rate will equal 1/7 of weekly rate.

The minimum rental period is one week.

(8) **Freight Charges** - A freight charge of \$1000 will be added to equipment rentals of up to \$7,000. The \$7,000 is for equipment portion only and does not include any startup, installation or decommissioning charges. No separate freight charges are included for equipment rentals above \$7,000. If equipment rental portion is over \$7,000, roundtrip freight is included. Equipment is to be shipped from and returned to Trane designated storage locations with outbound and return freight prepaid by Trane. The \$1000 freight charge on equipment rentals of up to \$7,000 shall be billed in the first rental period. Trane reserves the right to change freight charges for events such as natural disasters (hurricanes, etc..) and special projects that involve multiple loads.

(9) **Transformers** - Lugs for transformers must be provided by others and are not included. Transformers kVa 300, 500, 750 are for 208, 240, 480, & 600 Volts. Transformers kVa 1,000 & 1,500 (and some 750's) are for 480, 600, 2400, & 4160 Volts.

(10) **Hose Kits** - Trane will not split boxes of the 2.5", 4", or 6" hoses. For 2.5" , 4", and 6", each hose box contains (1) 10ft section, (1) 15ft section, (1) 25ft section, (3) 50ft sections, (2) 90's, (2) 45's, (2) vict-to-flange adapters & vict couplings. For 10" hose box it contains (1) 10ft section, (1) 15ft section, (7) 25ft sections, (2) 90's, (2) 45's, (2) vict-to-flange adapters & vict couplings

(11) **Electric Cable** - The Time of Year and Multi-Month Rental Multipliers are not applied to the rental rate for Electric Cable. Each 2/0 awg or 4/0 awg cable box contains (4) 100-ft sections, (4) 15-ft male pigtails, and (4) 15-ft female pigtails. If pricing electrical cable boxes please note multiple runs per phase might be required depending on the actual unit chosen. Please call Trane Rental Services at 800-755-5115 for any electrical questions regarding Trane Rental cable boxes. Wiring is only provided for 460V side. If a transformer is required the wiring for the building side must be provided by others.



Trane Rental Services

SIN	Model Number	Product for Rent	Product Code	GSA Monthly Rental Rate
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(12) **Chillers** - 300-ton Air-Cooled chiller pricing includes trailer and chiller is on trailer. 400-ton and 500-ton Air-Cooled chiller pricing includes trailer, pump, and 200-ft hose kit of 6-in hose. All Water-Cooled chillers are stored in Charlotte, NC and ship with a Nitrogen holding charge. Refrigerant will be shipped in cylinders on the trailer. The chiller will need to be charged at delivery and the refrigerant recovered before it is sent back.

(13) **Pumps** - Pumps do not have wiring. This must be provided by others.

(14) **Ancillary Items** - Items such as pumps, hose kits, transformers, trailers, and electrical cable can only be rented with a chiller or DX unit. Trane Rentals does not rent these items as stand-alone items. A customer seeking a special case rental during the off-season should contact Trane Rentals for negotiations on a case-by-case basis.

(15) **Generator Freight Charges** - Generator freight is not included in the generator rental rates. Roundtrip freight for generators will be based on actual freight charges. An estimate of the freight charges can be provided at the time the rental agreement is executed.

(16) **Generators** - A preventive maintenance (PM) service is required every 250 hours of generator run time. PM rates depend on unit size and are in addition to the rental rates above. Please contact Rental Services for PM rates.

(17) **Generator Fueling** is not included in the rental rates above and is the responsibility of the customer.



Software Price List

C.D.S. Software

SIN Number	Product Number	Product Description	Product Code	GSA Price for Standard License w/ IFF	GSA Price for each Additional License w/ IFF	GSA Price for LAN/Site License w/ IFF
246-42-1	CDS-PKG-C	TRACE® 700 	607	\$1,995.00	\$995.00	\$3,990.00
246-42-1	CDS-PKG-D	Trane Acoustics Program (TAP™) 	610	\$495.00	\$248.74	\$742.50
246-42-1	CDS-PKG-W	System Analyzer™ 	622	\$995.00	\$500.00	\$1,492.50
246-42-1	CDS-PKG-A	TRACE 700 Load Design 	603	\$695.00	\$349.24	\$1,042.50
246-42-1	CDS-PKG-T	Trace 700 Load Express™ (Version 4.1.1) 	604	\$495.00	\$248.74	\$742.50
246-42-1	CDS-PKG-CPA	TRACE 700 Chiller Plant Analyzer 	606	\$495.00	\$248.74	\$742.50
246-42-1	CDS-PKG-L	VariTrane™ Duct Designer 	605	\$495.00	\$248.74	\$742.50
246-42-1	CDS-PKG-P	Trane® Pipe Designer 	611	\$195.00	\$97.99	\$292.50
246-42-1	CDS-PKG-E	Distribution Suite	602	\$595.00	\$298.99	\$892.50
246-42-1	CDS-PKG-J	Trane® Engineering Toolbox 	619	\$95.00	\$47.74	\$142.50
246-42-1	CDS-PKG-FLS	TRACE 700 Family LAN Seats				\$75.00

SIN Number	Product Number	Product Description	Product Code	GSA Price for Standard License w/ IFF	GSA Price for each Additional License w/ IFF	GSA Price for LAN/Site License w/ IFF
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**NOTES:**

- (1) List prices are in U.S. dollars and subject to change without notice. Contact the C.D.S. Group for current pricing. All C.D.S. software is subject to an annual licensing fee billed at 25% of the program list price. Payment of this fee entitles the license.
- (2) Special university software suites and pricing are available. Contact C.D.S. for details.
- (3) Site users for the TRACE 700 family may install the software on multiple, stand alone computers at one specific location.
- (4) LAN users for the TRACE 700 family may install the software on a Local Area Network. Seats must be purchased for each user for a one time fee.



Training Price List

C.D.S. Training Seminars

SIN Number	Course number	Course Name	Product Code	Course Length		GSA Price for Individual Course w/ IFF	GSA Price for 2 Courses w/ IFF	GSA Price for 3 Courses w/ IFF	GSA Price for 4 Courses w/ IFF	GSA Price for each add'l student for a course w/ IFF
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C.D.S. Seminar Schedule at LaCrosse, Wisconsin Site

246-42-1	CDS-TRNGL1	System Analyzer™	616	1 Day		\$350.00	\$650.00	\$850.00	\$1,000.00	\$262.50
246-42-1	CDS-TRNGL2	TRACE® 700 Load Design	616	1 Day		\$350.00	\$650.00	\$850.00	\$1,000.00	\$262.50
246-42-1	CDS-TRNGL3	TRACE® 700	616	1 Day		\$350.00	\$650.00	\$850.00	\$1,000.00	\$262.50
246-42-1	CDS-TRNGL4	TRACE 700 Advanced Topics	616	1/2 Days		\$350.00	\$650.00	\$850.00	\$1,000.00	\$262.50

Notes:

(1) Multiple student discounts are applicable only at Trane's LaCrosse, WI location.

(2) Cancellations must be received two weeks prior to class date by fax, mail or email. A customer can apply the fee of \$200 to another class taken within three months of the original class or may send a substitute. No Shows will be charged full class price. Trane reserves the right to cancel classes due to weather, illness, or any other reason. All students will be notified as early as possible and CDS' liability will be limited to the return of registration fees.

On-Site Training at the Customer's Location

246-42-1	CDS-TRNGC1	First Day of Training On-Site or 1-10 people	616	1 Day		\$750.00				
246-42-1	CDS-TRNGC1 2	First Day of Training On-Site or 11-15 people	616	1 Day		\$1,000.00				
246-42-1	CDS-TRNGC1 3	First Day of Training On-Site or 16-20 people	616	1 Day		\$1,250.00				
246-42-1	CDS-TRNGC1 4	First Day of Training On-Site or 21-30 people	616	1 Day		\$1,500.00				
246-42-1	CDS-TRNGC2	Each Additional Day of Training for 1-10 people	616	Per Day		\$650.00				
246-42-1	CDS-TRNGC2 2	Each Additional Day of Training for 11-15 people	616	Per Day		\$750.00				
246-42-1	CDS-TRNGC2 3	Each Additional Day of Training for 16-20 people	616	Per Day		\$1,000.00				
246-42-1	CDS-TRNGC2 4	Each Additional Day of Training for 21-30 people	616	Per Day		\$1,250.00				

Notes:



Training Price List

C.D.S. Training Seminars

SIN Number	Course number	Course Name	Product Code	Course Length	GSA Price for Individual Course w/ IFF	GSA Price for 2 Courses w/ IFF	GSA Price for 3 Courses w/ IFF	GSA Price for 4 Courses w/ IFF	GSA Price for each add'l student for a course w/ IFF
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(1) **Cancellation Policy** - If this training is cancelled after the agreement form has been received, any charges incurred to C.D.S. will be charged back to customer. In addition, a \$200 administrative fee will apply to any cancellations occurring within 2 weeks of the agreed upon training date.

(2) The fees for on-site training are per trainer. A customer wishing to have more than 30 people trained at the same time should contact CDS and special arrangements will be made. Two trainers are required for training of more than 30 people.

(3) For training provided at the customer's location, training shall be provided at the billing rate shown above. The customer shall pay for the trainer's travel and per diem expenses. Rates paid as a result of travel must comply with the Federal Travel Regulations or Joint Travel Regulations, as applicable, in effect on the date(s) the travel is performed.

(4) If a customer wants CDS to do a training in conjunction with any other training, expenses will be negotiated.

Computer Rental for Use During Training at Customer's Location

246-42-1	CDS-COMRN T-15	1-5 Computers	616			\$400.00
246-42-1	CDS-COMRN T-610	10 Computers	616			\$550.00

Notes:

(1) C.D.S. will rent computers for use by the customer during on-site training.  
 (2) The customer shall pay for the cost of shipping and insurance on shipping the computers roundtrip from LaCrosse, Wisconsin to the site of the training and back to LaCrosse.

(3) Extra Manuals: There will be a charge of \$15 per manual for any extra training manuals required by the customer.



**Price List for Training and Software Purchased Together**

**Training and Software Purchased Together**

SIN Number	Product Number	Description	Product Code	Software Alone - GSA Price w/IFF	Training Alone - GSA Price w/IFF	Software & Training Together - GSA Price w/IFF
246-42-1	CDS-TNG-L700	TRACE® 700 Load Design	616	\$695.00	\$350.00	\$870.00
246-42-1	CDS-TNG-T700	TRACE® 700	616	\$1,995.00	\$350.00	\$2,170.00
246-42-1	CDS-TNG-SA	System Analyzer™	616	\$995.00	\$350.00	\$1,170.00

NOTES:

- (1) Package Pricing for the purchase of software and training together is available only at Regional locations and Trane's LaCrosse, WI. site.
- (2) At the end of the LaCrosse training seminar, all participants will receive a coupon to save 15% off the regular listed software price. To receive this discount, all software orders must be accompanied by this coupon.
- (3) Trane will hold training at regional locations other than LaCrosse, WI. based upon customer demand. Contact the LaCrosse location for additional information.



**EDUCATIONAL LITERATURE AND MATERIALS**

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
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**AIR CONDITIONING CLINICS**

Purpose: Scripted training presentations used to educate on the fundamentals of heating, ventilating, and air conditioning (HVAC). Each clinic includes a student workbook, with corresponding quiz questions/problems.

Audience: The content is technical in nature and the original intended audience was HVAC system designers and installing contractors who wanted to learn the basics of HVAC. However, in the past the audience has been extremely broad and has included HVAC system designers, installing contractors, architects, system operators, servicing technicians, and owners.

**FUNDAMENTALS SERIES**

246-42-1	TRG-TRC001EN		IP units only	Discussion of the properties of air and the use of the psychrometric chart. Topics include: sensible and latent heat, heat and moisture change, elements of the psychrometric chart, sensible heat ratio (SHR), determining required airflow (cfm) and refrigeration (tons), analyses of basic systems at full and part load (modulating coil, reheat, face-and-bypass, variable volume).	\$16.00
246-42-1	TRG-TRC002-EN	Cooling and Heating Load Estimating (2000)	Dual units (IP/SI)	Presentation of cooling and heating load estimating procedures to used for accurate HVAC equipment selections. The clinic presents the ASHRAE Cooling Load Temperature Difference (CLTD), Solar Cooling Load Factor (SCL), and Cooling Load Factor (CLF) method. Topics include: human comfort, indoor and outdoor design conditions, cooling load estimation, conduction heat gain and loss, solar heat gain, internal heat gains, infiltration, ventilation, fan heat, heating load estimation, single-space psychrometric analysis (sensible heat ratio or SHR, supply airflow, supply air temperature, coil load), multiple-space psychrometric analysis (block load versus sum-of-peaks), plenum versus space loads, and benefits of computerized load analysis.	\$16.00
246-42-1	TRG-TRC003-EN	Refrigeration Cycle (1999)	Dual units (IP/SI)	Presentation of the basic principles of the vapor-compression refrigeration cycle. Topics include: principles of heat transfer, sensible heat, latent heat of vaporization, refrigerants, mechanical refrigeration cycle components (compressor, condenser, evaporator, expansion device), and pressure–enthalpy (P-h) chart (superheat, subcooling, refrigeration effect, heat of compression).	\$16.00
246-42-1	TRG-TRC004-EN	Refrigeration Compressors (2000)	Dual units (IP/SI)	Introduction of the common compressor types used in air-conditioning applications, including reciprocating, scroll, helical-rotary (screw), and centrifugal. Topics include: review of the basic refrigeration cycle, open, semi-hermetic, hermetic, types of compressors, principles of compressor operation, methods of compressor capacity control (cylinder unloaders, cycling, slide valve, inlet vanes, variable-speed), methods of system-level control (direct expansion versus chilled water, constant volume versus VAV), and preventing evaporator freeze-up (sensing suction temperature, hot gas bypass).	\$16.00
246-42-1	TRG-TRC005-EN	Refrigeration System Components (1998)	Dual units (IP/SI)	Discussion of the components used in a vapor-compression refrigeration system. Topics include: review of the refrigeration cycle, condensers (air-cooled, water-cooled, evaporative) and their control, evaporators (finned-tube, shell-and-tube) and their control, thermostatic expansion valve, superheat and subcooling, solenoid valve, liquid line filter drier, moisture-indicating sight glass, suction line filter, hot gas muffler, shutoff valve, and access ports.	\$16.00
246-42-1	TRG-TRC006-EN	Refrigerant Piping (2002)	Dual units (IP/SI)	Review of refrigeration system piping considerations, design guidelines, and sizing recommendations. Topics include: suction line, discharge (hot gas) line, liquid line, hot gas bypass line, traps, double risers, refrigeration accessories required, insulation.	\$16.00

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	TRG-TRC007-EN	Fundamentals of HVAC Acoustics (2001)	Dual units (IP/SI)	Discussion of the fundamental concepts of acoustics as it applies to buildings and HVAC systems. Topics include: sound wave, frequency, broadband sound, tones, octave bands, one-third octave bands, sound power and sound pressure, decibels, loudness, A-weighting, Noise Criteria (NC), Room Criteria (RC), sones, phons, acoustical analysis procedure, source-path-receiver model, computerized analysis tools, attenuation and regeneration, sound transmission, sound absorption, sound reflection, room effect, equipment sound rating, free field, reverberent field, semireverberent field, industry rating standards, reverberent room method, ARI Standard 260.	\$16.00

**EQUIPMENT SERIES**

246-42-1	TRG-TRC010-EN	Centrifugal Water Chillers (1999)	Dual units (IP/SI)	Description of the components, operation, and application of a centrifugal water chiller. Topics include: centrifugal compressor, condenser, expansion device (orifice plates), economizer, evaporator, motor, starters, controls, the refrigeration cycle, purge system, compressor capacity control (surge, inlet vanes, multi-stage compressor, adjustable frequency drive or variable speed drive), maintenance considerations, and application considerations (condensing temperature control, constant or variable evaporator water flow, heat recovery, free cooling, short water loops, ARI Standard 550/590-1998).	\$16.00
246-42-1	TRG-TRC011-EN	Absorption Water Chillers (2000)	Dual units (IP/SI)	Discussion of the fundamentals of the absorption refrigeration cycle as it pertains to water chillers. Topics include: absorption refrigeration cycle (generator or concentrator, condenser, evaporator, absorber, heat exchanger), system fluids (water, lithium bromide), equilibrium chart, single-effect versus double-effect chillers, indirect-fired versus direct-fired chillers, chiller/heaters, capacity control methods (energy valve, AFD), causes of crystallization and methods of prevention, purge operation, general maintenance considerations (corrosion inhibitors), cooling-water temperature limitations, combination gas-and-electric plants, special considerations for direct-fired chillers, ASHRAE Standard 15, and ARI Standard 560.	\$16.00
246-42-1	TRG-TRC012-EN	Helical-Rotary Water Chillers (1999)	Dual units (IP/SI)	Presentation of the components, operation, and application of a helical-rotary (screw) water chiller. Topics include: helical-rotary compressor, oil separator, condenser (water-cooled and air-cooled), expansion device, liquid/vapor separator, evaporator, starter, controls, the refrigeration cycle, refrigerants, compressor capacity control, slide valve operation, maintenance considerations, and a brief list of application considerations (air-cooled or water-cooled condensing, condensing temperature control, constant or variable evaporator water flow, short water loops, ARI Standard 550/590-1998).	\$16.00
246-42-1	TRG-TRC013-EN	Air Conditioning Fans (2004)	Dual units (IP/SI)	Coverage of fan system performance, types of fans, and methods of control. Topics include: static pressure vs. velocity pressure, fan performance curves, fan—system interaction, basic types of fans (forward curved - FC, backward inclined - BI, airfoil - AF, vaneaxial, and variable-pitch vaneaxial - VPVA), methods of fan control (riding the fan curve, discharge dampers, inlet vanes, variable speed, and variable-pitch blade control), and fan applications considerations (static pressure control, system effects, non-standard conditions – altitude, and equipment certification standards.).	\$12.00

**SYSTEMS SERIES**

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	TRG-TRC014-EN	VAV Systems (2001)	Dual units (IP/SI)	Summary of the variable air volume (VAV) approach to air conditioning. Topics include: explanation of VAV, components of a VAV system, terminal unit types (cooling only, reheat, parallel and series fan powered, dual duct), terminal unit controllers (pneumatic, electronic, DDC), diffusers, supply duct design, interior vs. perimeter spaces, system control modes, fan modulation, static pressure control, and system applications considerations (system-level ventilation, freeze protection for coils, part-load space humidity control, building pressure control.).	\$16.00
246-42-1	TRG-TRC015-EN	Water-Source Heat Pump Systems (2000)	Dual units (IP/SI)	Discussion of the water-source heat pump (WSHP) system. Topics include: operation and components of a heat pump, types of heat pumps, components of a WSHP system, system benefits and issues, system configurations (cooling tower/boiler, ground-coupled, types of ground heat exchangers, hybrid systems), system-level control issues, maintenance considerations, application considerations (ventilation, acoustics, space humidity control, condensate management, airside and waterside economizers, building pressurization, equipment rating standards.).	\$16.00
246-42-1	TRG-TRC016-EN	Chilled-Water Systems (2001)	Dual units (IP/SI)	Description of chilled-water systems. Topics include: vapor-compression and absorption chiller types, air-cooled vs. water-cooled condensers, packaged vs. split components, ASHRAE Standard 90.1-1999, equipment rating standards (ARI 550, 590, and 560), components of a chilled-water system, coil control (3-way valves, 2-way valves, face-and-bypass dampers), constant vs. variable evaporator flow, chiller plant design concepts (parallel, series, and primary-secondary or decoupled), combined energy (hybrid) plants, low-flow systems, variable-primary-flow systems, heat recovery, sidecar arrangement, free cooling (plate-and-frame heat exchanger, refrigerant migration), and chilled-water system control (chiller sequencing, swing chiller, failure recovery, system optimization, and system-level control).	\$16.00
246-42-1	TRG-TRC017-EN	HVAC System Control (2002)	Dual units (IP/SI)	Introduction to automatic control of HVAC equipment and systems. Topics include: control loops, types of control action (two position or on/off, floating, proportional, proportional-integral or PI, and proportional-integral-derivative or PID), pneumatic controls, analog-electric controls, microprocessor-based controls or DDC, unit-level control versus system-level control, example unit-level control loops for a VAV air handler (discharge-air temperature, ventilation, airside economizer, mixed-air temperature, static pressure, building pressurization), examples of system-level control (occupied versus unoccupied modes, morning warmup mode, changeover in a two-pipe system, water loop temperature control in a WSHP system), examples of system optimization strategies (fan-pressure optimization, optimum start, chilled-water reset, WSHP loop optimization), normally-open versus normally-closed actuators, common functions of a building automation system (responding to complaints, graphical user interface, time-of-day scheduling, centralized alarms and diagnostics, remote access, reports, preventive maintenance, integration with other systems, multiple-site support), network terminology, dedicated vs. shared networks, communication protocols, gateways, interoperability, BACnet, LonTalk, LonMark.	\$16.00

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	TRG-TRC018-EN	Introduction to HVAC Systems (2004)	Dual units (IP/SI)	Introduction to HVAC systems that dissects the entire system into five subsystems, or "loops." Topics include: requirements for occupant comfort, five "loops" (airside loop, chilled-water loop, refrigeration-equipment loop, heat-rejection loop, controls loop), factors that affect decision to choose a chilled-water versus a direct expansion (DX) system, packaged versus split systems, common HVAC system types, single-zone versus multiple-zone systems, constant-volume versus variable-air-volume systems, packaged terminal air conditioner (PTAC), single-zone packaged DX rooftop, DX split system, chilled-water terminal system (fan coils, classroom unit ventilators, blower coils), two-pipe versus four-pipe systems, water-source heat pump systems, dedicated outdoor-air systems, single-zone VAV, multizone system, three-deck multizone system, changeover-bypass system, multiple-zone VAV system, rooftop VAV system, self-contained DX VAV system, chilled-water VAV system, double-duct VAV system, and factors that impact the selection of the HVAC system.	\$16.00
246-42-1	TRG-TRC019-EN	Ice Storage Systems (2005)	Dual units (IP/SI)	This clinic focuses on glycol-based ice storage systems, which use an ice-chiller to cool a heat transfer fluid—often a mixture of water and antifreeze, such as glycol—to a temperature below the freezing point of water. This fluid is pumped through an ice storage tank, causing water inside the tank to freeze. Topics include: benefits of ice storage, on-peak versus off-peak, ice storage tank, full storage versus partial storage, ice-making chiller, heat transfer fluid, ethylene glycol versus propylene glycol, common system layouts (small versus large systems), retrofitting existing systems, control of ice storage systems (tactical control versus strategic control).	\$16.00
<b>BUNDLED SETS</b>					
246-42-1	1-43.186	Set of all <i>Air Conditioning Clinic</i> booklets		Set of all <i>Air Conditioning Clinic</i> booklets	\$205.00
246-42-1	1-43.165	"Air Conditioning Clinic" bundle		This bundle includes: - Set of all <i>Air Conditioning Clinic</i> booklets - Ductulator duct sizing calculator - Psychrometric Charts – pad of 25, standard altitude, I-P units	\$215.00
<b>TEXTBOOKS AND MANUALS</b>					
246-42-1	AC MANUAL	Trane Air Conditioning Manual (1996)	IP units only	A comprehensive textbook, initially published in the 1930's, on the fundamentals of heating, ventilating, and air conditioning (HVAC). The audience is broad and has historically included students, HVAC system designers, installing contractors, architects, system operators, and service technicians. Chapters include: Heat and Its Measurement, Comfort; Heat Gains; Properties Of Air and The Psychrometric Chart; Calculations For The Conditioned Air Supply; Refrigeration Theory, Compressors, and Refrigeration Cycle Components; Refrigeration and Cooling Apparatus; Use Of Water In Air Conditioning; Air Transport Systems; The Air Conditioning System.	\$40.00

SIN	Order Number <u>[ORDER FORM on Web]</u>	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
<b>APPLICATION MANUALS</b>					
<p>Purpose: Comprehensive reference guides to increase awareness and working knowledge of heating, ventilating, and air conditioning (HVAC) system design concepts, component combination possibilities, system operating/control concepts and characteristics, general industry issues, and HVAC fundamentals.</p> <p>Audience: The intended audience is HVAC system designers. However, depending on the topic, the manual may also be of interest to others in the industry. I-P units only (unless stated otherwise).</p> <p>Note: There are more application manuals that deal specifically with obsolete Trane products and control systems. If they do not appear on this list, these manuals can be found archived on Trane's Eagle™ product information system (search Literature Type = Application Manual). Contact your local Trane office, or e-mail bookstore@trane.com, for further information on Eagle.</p>					
246-42-1	SYS-APM001-EN	Multiple Chiller System Design and Control (2009)	Dual units (IP/SI)	Details basic multiple-machine chilled water systems. Topics include: components of a chilled water system, chillers in parallel, chillers in series, primary/secondary (decoupled) systems, effects of temperatures and flow, low flow system designs, distributed pumping, tertiary pumping, chiller plant controls, chilled water reset, chiller staging, variable-primary flow (VPF) systems, heat recovery, free cooling, sidestream arrangement, system design considerations, preferential loading, alternate energy sources, series-counterflow arrangement, redundancy, contingency planning, condenser water systems, and cooling tower control.	\$16.00
246-42-1	SYS-APM003-EN	Air-to-Air Energy Recovery in HVAC Systems (2008)	Dual units (IP/SI)	Discusses the various air-to-air energy recovery technologies and their application in HVAC systems. Topics include: why recover energy?, sensible- versus total-energy recovery, effectiveness, unbalanced airflow, outdoor-air preconditioning (or exhaust-air heat recovery), supply-air tempering (or reheat) in series or parallel, ASHRAE Standard 90.1, impact on first cost and operating cost, frost prevention methods, minimizing cross leakage, methods of capacity control, coil loops (or coil runaround loops), fixed-plate heat exchangers (or air-to-air heat exchangers), heat pipes, rotary heat exchangers (or heat wheels, enthalpy wheels, desiccant wheels), ARI Standard 1060, controlling energy recovery devices in dedicated outdoor-air systems and mixed-air systems (constant volume, VAV), economizer operation, active desiccant dehumidification systems, local versus centralized preconditioning.	\$16.00
246-42-1	SYS-APM004-EN	Dehumidification in HVAC Systems (2002)	Dual units (IP/SI)	Discusses the dehumidification performance of various, cold-coil commercial HVAC systems, particularly at part-load conditions. Topics include: why control humidity in buildings, sources of moisture, cold coil versus active desiccant dehumidification, full-load versus part-load conditions, ASHRAE weather data, dehumidification performance of constant-volume systems (impact of climate, impact of outdoor-air quantity, impact of packaged direct expansion DX equipment, impact of energy recovery, fan-speed adjustment, mixed-air bypass, return-air bypass, dual path air handlers, supply-air tempering or reheat), dehumidification performance of VAV systems (impact of minimum airflow settings, impact of supply-air temperature reset, supply-air tempering at VAV terminals, using colder supply-air temperatures), dedicated outdoor-air systems (neutral versus cold, to the space versus to other units, design procedures, general application considerations (humidity control during unoccupied periods, building pressure control, airside economizer control), psychrometric analyses, ASHRAE Standards 62 and 90.1.	\$16.00
246-42-1	SYS-APM005-EN	Waterside Heat Recovery in HVAC Systems (2003)	Dual units (IP/SI)	This manual focuses on waterside heat recovery. It describes concepts and mechanical implementation, and identifies system-level characteristics for effective operation and control. Topics include: why use heat recovery?, heat-recovery chiller types, system configurations and control modes, heat rejection control, common uses of recovered heat, and analysis methods.	\$16.00

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	SYS-APM007-EN	Rooftop VAV Systems (2012)	Dual units (IP/SI)	Discusses proper design and application of packaged rooftop, variable air volume (VAV) systems. Topics include: basic system operation, benefits and drawbacks of a rooftop VAV system, in-depth coverage of the components that make up the system (packaged rooftop unit, VAV terminal units, air distribution system, hot water heating system, controls), solutions to address common design challenges (zoning, ventilation, humidity control, energy efficiency, acoustics), several system variations (cold air distribution, single-zone VAV, air-to-air energy recovery), and common unit-level and system-level control functions (including system optimization strategies).	\$16.00
246-42-1	SYS-APM008-EN	Chilled-Water VAV Systems (2012)		Discusses proper design and application of chilled-water, variable air volume (VAV) systems. Topics include: basic system operation, benefits and drawbacks of a chilled-water VAV system, in-depth coverage of the components that make up the system (VAV air-handling unit, VAV terminal units, air distribution system, chilled-water system, hot water heating system, controls), solutions to address common design challenges (zoning, ventilation, humidity control, energy efficiency, acoustics), several system variations (cold air distribution, single-zone VAV, air-to-air energy recovery, dual-duct VAV systems), and common unit-level and system-level control functions (including system optimization strategies).	\$16.00
246-42-1	SYS-APM009-EN	Central Geothermal Systems (2011)		Discusses proper design and control of central geothermal bidirectional cascade systems that use borefields. Topics include system design considerations (borefield, ground water, water temperatures, chiller/heater selection, system piping, system design options (optimum efficiency design features, supplemental heat, auxiliary energy rejection, contingency cooling, chilled-water pump control), airside considerations (heating design, economizer control, freeze protection, ASHRAE Standard 90.1 compliance), system operation and control (heating only, cooling only and simultaneous heating and cooling).	\$20.00
246-42-1	SYS-APM010-EN	Water-Source and Ground-Source Heat Pump Systems (2013)		Discusses proper design and application of water-source (WSHP) and ground-source heat pump (GSHP) systems. Topics include: basic system operation; benefits and drawbacks of a WSHP system; in-depth coverage of the components that make up the system (water-source heat pumps, water distribution system, heat rejection and heat addition, dedicated outdoor-air system); solutions to address common design challenges (thermal zoning, ventilation, humidity control, energy efficiency, acoustics); several system variations (ground-coupled, surface-water, and ground-water heat pump systems, as well as several hybrid system configurations); and common unit-level and system-level control functions (including system optimization strategies).	\$16.00
246-42-1	ISS-APM001-EN	Acoustics in Air Conditioning (2006)	Dual units (IP/SI)	Discusses the fundamentals of sound to aid in the design of quiet HVAC systems. Topics include: definitions, frequency, octave bands, sound power vs. sound pressure, sound ratings (A-weighting, B-weighting, C-weighting, noise criteria - NC, room criteria – RC, sone, phone), sound measurement methods, equipment sound rating and industry standards (ARI, AMCA, ASHRAE), source-path-receiver, sound paths, attenuation, transmission loss, regenerated noise, room effect, and fan-generated noise.	\$16.00
246-42-1	APP-APM001-EN	Refrigerating Systems and Machinery Rooms: ASHRAE Standard 15 (2012)	Dual units (IP/SI)	Details ASHRAE Standard 15-2010 as it relates to water-chiller refrigeration systems that require machinery (or mechanical or equipment) rooms. Topics include: ASHRAE Standard 34, refrigerants, refrigerant safety classifications, standards vs. guidelines, ASHRAE Standard 15, machinery room, ventilation for machinery rooms, pressure relief piping, refrigerant monitors, equipment room design specification, indirect open-spray systems, MER, SCBA, and ANSI Standards.	\$16.00

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	AM-SYS-6	Variable Air Volume Duct Design (1981)	IP Units only	Covers information pertaining to variable volume duct design with special attention given to the static regain method. Topics include: computerized duct design, round vs. rectangular ductwork, duct heat gain, fitting efficiency, duct design rules, typical duct layout errors, high-velocity duct fittings, and static pressure sensor location.	\$4.00
246-42-1	SYS-AM-7	Water Source Heat Pump System Design (1994)	IP Units only	Describes the water source heat pump system, including design, selection, installation, and controls. Topics include: components, basic operation, system design, control recommendations, typical system operation parameters, boiler, cooling tower and pump selection, piping design recommendations, water regulating valve and variable speed pumping, hybrid systems, condensate drain lines, freeze protection.	\$16.00
246-42-1	AM-SYS-9	Self- Contained/VAV System Design (1984)	IP Units only	Discusses the various aspects of self-contained/VAV system applications and to provide suggestions that will help the designer make the best possible design decisions when applying this equipment. Topics include: system components, VAV terminal unit types, equipment selection, zoning, interior vs. perimeter zones, cooling tower and condenser water pump and piping, freeze protection, system control, airside economizer, waterside economizer, building pressurization, system-level controls, and system optimization.	\$5.00
246-42-1	SYS-AM-10	Ice Storage Systems (1987)	IP Units only	Intended to aid designers in the design of ice storage systems using ethylene glycol. Topics include: types of thermal storage (chilled water, ice, eutectic salts), full storage vs. partial storage, ice storage selection and capacity, chiller selection, ice storage system design and control. NOTE: See also the "Ice Storage Systems" series of Engineered Systems Clinics (ISS-CLC-1, 2, 3, 4).	\$5.00
246-42-1	SYS-AM-13	Absorption Chiller System Design (1999)	Dual units (IP/SI)	Helps designers correctly apply absorption chillers into systems. Topics include: absorption refrigeration cycle, types of absorption chillers, gas cooling with absorption, economic analysis, chiller control, chiller plant design and control (heat recovery, thermal storage, heating applications), installation (exhaust stack, ASHRAE Standard 15, combustion air), and maintenance considerations.	\$16.00
246-42-1	SYS-AM-15	Managing Building Moisture (2010)	IP Units only	This manual helps HVAC system designers identify and quantify moisture sources in buildings. It also presents moisture-management techniques related to the building envelope, the occupied space and the mechanical-equipment room. Topics include: indoor air quality (IAQ), comfort, moisture sources, condensation, building envelope, dehumidification, equipment room moisture, ventilation air, moisture and equipment, drain pans, condensate traps, insulation, infiltration, vapor-pressure diffusion, design and control strategies, humid climates, and humidity control.	\$16.00
246-42-1	AM-CON-10	Hot Gas Bypass Control (1982)	IP Units only	Explains the hot gas bypass (HGBP) system by discussing what it is, why and when it should be used, how it is properly applied, and how to size/adjust a HGBP valve. Includes: hot gas bypass to evaporator inlet, hot gas bypass to suction line.	\$1.25
246-42-1	AM-CON-17	Building Pressurization Control (1982)	IP Units only	Reviews several key definitions and outlines these space pressure control systems: natural relief, barometric relief, constant volume return fan, constant volume exhaust fan, powered barometric relief, coordinated exhaust/supply fan control, coordinated return/supply fan control, volume reset of return fan, direct pressurization control, and sequenced control of multiple exhaust fans. Points out system performance characteristics and suggests control applications. Includes a general discussion, design considerations, system alternatives, and recommended equipment for the application.	\$5.00

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	ICS-AM-4	Control of Ice Storage Systems (1988)	IP Units only	Reviews ice storage controls as a part of a Trane Integrated Comfort system. Topics include: operating modes, control sequence development, demand-limiting vs. time-of-use, data gathering and monitoring and ice inventory, control of system components (chiller, pump, blending valve, bypass valve), system control and monitoring, load profiles, ice inventory, and points lists.	\$5.00
246-42-1	ED-FAN	Fans and Their Application in Air Conditioning (1982)	IP Units only	Provides a detailed overview of fan fundamentals intended to help system designers understand their performance, selection, application and control. Topics include: terminology, testing, fan performance curve, system resistance curve, fan surge, fan paralleling, types of fans (forward curved, backward inclined, radial, tubular, axial, fan laws, industry standards (AMCA), inlet and discharge conditions, transitions, drive and bearing losses, fan modulation devices (scroll volume damper, inlet and discharge dampers, inlet vanes, speed modulation, blade pitch variation), parallel and series operation, draw-thru vs. blow-thru, supply fans in systems, return fans, motors and controls, types of motor starters, power transmission, sound and vibration control, selection, specification, installation, maintenance, troubleshooting, and field measurement methods.	\$10.00

**ENGINEERS NEWSLETTER LIVE DVDS**

**Purpose:** Engineers Newsletter Live is a series of programs focused on the design and control of heating, ventilating, and air conditioning (HVAC) systems. The content of each program is objective, technical and educational in nature. The series is produced and presented by the Trane Applications Engineering team

**Audience:** The intended audience for these programs is HVAC system designers. However, depending on the topic, the program may also be of interest to others in the industry. Asterisks designate programs accredited for continuing education by American Institute of Architects (AIA) and United States Green Building Council (USGBC). Assessment is required for credit please visit [www.trane.com/continuingeducation](http://www.trane.com/continuingeducation) to submit the associated quiz for continuing education credit.

**Length/Language/Units:** Each program is 90 minutes long, in English, with I-P units displayed only.

246-42-1	APP-CMC001-EN	The Low Dollar Chiller Plant (August, 1999)	IP Units only	Gain an understanding of low-flow chiller system designs that will result in reduced capital, energy, and installed costs. Topics include: low flow, cooling tower performance, chilled-water coil performance, chiller-tower optimization, series chillers, variable-primary-flow systems.	\$30.00
246-42-1	APP-CMC002-EN	Specifying Quality Sound (March, 2000)	IP Units only	Provides an understanding of how product sound data is developed and how to performance optimize an air-handling unit. Topics include: space sound level targets (NC, RC), acoustical analysis, source-path-receiver method, ARI 260, cost effective noise control ideas (fan types, air handler casing, wall construction, return air path, silencers).	\$30.00
246-42-1	APP-CMC003-EN	Lowering Supply Air Temperatures (May, 2000)	IP Units only	This program explores the impact on system first cost and operating costs when lower air temperature principles are applied using modern-day equipment and technologies. The common concerns associated with low-temperature air systems are discussed along with strategies to address these issues. Topics include: cold air, chilled-water coil performance, fan-powered VAV boxes, vapor retarder, building pressurization, diffuser selection.	\$30.00
246-42-1	APP-CMC004-EN	Advanced System Control Strategies (June, 2000)	IP Units only	This program discusses key air-handling system control issues like building pressure control, system ventilation control, damper control, and various reset strategies. Advanced control ideas related to the impact of energy recovery within systems is also covered. All of these topics are discussed with an eye toward compliance with ASHRAE Standards 62 and 90.1, while maintaining comfort and minimizing system operating and life-cycle costs. Topics include: ventilation reset, dual versus single damper mixing boxes, fan-pressure optimization, optimized damper control, building pressurization control, control of air-to-air energy recovery (economizer, capacity modulation).	\$30.00

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	APP-CMC005-EN	Building Moisture and Humidity Management (August, 2000)	IP Units only	Provides a better understanding of the issue of building moisture control and the part-load dehumidification performance of various constant-volume system configurations. Other topics include: ASHRAE weather data, sensible- (peak dry bulb) and latent-design (peak dew point) conditions, psychrometric analysis (full load and part load), impact of total energy recovery, mixed-air bypass, return-air bypass, split dehumidification unit (SDU), supply air tempering (reheat), ASHRAE Standard 90.1.	\$30.00
246-42-1	APP-CMC006-EN	Air-to-Air Energy Recovery (October, 2000)	IP Units only	Addresses the available energy-recovery technologies; how they are applied in various systems; whether or not the investment is worth the return; and what works best and why. Topics include: sensible- versus total-energy recovery, effectiveness, balanced versus unbalanced airflows, coil loops, heat pipes, fixed-plate heat exchangers, sensible wheels (heat wheels), total-energy wheels (enthalpy wheels), psychrometric analysis (cooling and heating), equipment downsizing, frost prevention, capacity modulation, VAV systems, constant-volume systems, dedicated outdoor-air systems (cold and neutral), control modes for all these systems, ASHRAE Standard 90.1.	\$30.00
246-42-1	APP-CMC007-EN	Geothermal Heat Pump Systems (May, 2001)	IP Units only	By watching the program, viewers will understand the critical factors in the success of geothermal heat pump systems, consider the advantages and disadvantages, understand the economic considerations, and system variations. Topics include: conventional boiler-cooling tower WSHP system, geothermal heat pump system design process (site evaluation, loop sizing, life-cycle cost evaluation), types of geothermal heat exchangers (vertical, horizontal, spiral or slinky), surface water systems, ground temperatures, GLHEPRO loop design software, hybrid systems, ARI/ASHRAE/ISO Standard 13256-1, ASHRAE Standard 90.1.	\$30.00
246-42-1	APP-CMC008-EN	Dedicated Outdoor-Air Systems (September 2001)	IP Units only	By watching the program, viewers will learn when separate conditioning of ventilation air is best applied; understand the pros and cons of dedicated outdoor-air ventilation systems in comparison to other system types; and understand the code requirements. Other topics include: system configurations (neutral-to-space, cold-to-space, neutral-to-units, cold-to-units), neutral versus cold air, system design procedures, system optimization ideas, application considerations (recovered heat for reheat, after-hours humidity control, building pressurization, economizer operation, outdoor-air preconditioning with air-to-air energy recovery) and ASHRAE Standard 90.1.	\$30.00
246-42-1	APP-CMC009-EN	Split System Refrigerant Piping Design (December 2001)	IP Units only	A lower-cost and more reliable system is achieved by applying the "new rules" for sizing refrigerant lines with R-22 Trane scroll compressor split systems. The manufacturer should size the line whenever possible, but since some of the techniques presented in this program wouldn't have been considered good practice in the past, it's important to understand why. The purpose of this ENL is to learn how Trane has refocused the piping practices to achieve a less-costly and more reliable operating system; discover the traits of effective refrigerant piping; understand when to use the various line-sizing tools; and learn when and when not to use hot gas bypass.	\$30.00
246-42-1	APP-CMC012-EN	Coil Fundamentals (February, 2002)	IP Units only	This ENL reviews the basic principles of heat transfer and how they're exploited in coil technology. Topics include: how chilled-water coil selections affect the entire system, how to properly apply DX coils in cooling applications, the advantages and disadvantages of face-split, row-split, and intertwined refrigerant coil arrangements, and how to avoid freeze-ups and operational problems in steam systems	\$30.00

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	APP-CMC013-EN	Commercial Building Pressurization (April, 2002)	IP Units only	This ENL reviews the basic principles of building pressure control in commercial buildings. Topics include: why control building pressure, (impact of overly positive or overly negative building pressure, what impacts building pressure? (intermittent local exhaust fan operation, airside economizer, stack effect, wind), natural relief, barometric relief (local in the space, or central at the unit), central relief fan (control options), central return fan (control options), and pressure sensor (indoor and outdoor) location and selection.	\$30.00
246-42-1	APP-CMC014-EN	Underfloor Air Distribution (February, 2003)	IP Units only	This ENL program discusses the benefits and issues associated with underfloor air distribution (UFAD) systems and common system configurations. Topics include: potential benefits and potential problems, floor options, type of floor diffusers, types of terminal equipment, common system configurations, and control considerations (economizer, dehumidification, heating, plenum pressure control)	\$30.00
246-42-1	APP-CMC015-EN	Variable-Primary-Flow Chilled-Water Systems (May, 2003)	IP Units only	This ENL program discusses variable-primary-flow (VPF) chilled-water systems. Topics include: comparison of a primary-secondary (decoupled) system to a variable-primary-flow system, advantages of VPF systems, proper selection of chillers for VPF applications, control sequence of operation, impact of VPF on plant design (series chillers, retrofit projects, manifolded or dedicated pumps, different type and size of chillers), and ASHRAE Standard 90.1 requirements.	\$30.00
246-42-1	APP-CMC016-EN	High Performance Schools (October, 2003)	IP Units only	This program briefly reviews common attributes of High Performance School initiatives. Topics include: government initiatives, elements of High Performance School programs, indoor air quality, contaminant source control (location of outdoor air intakes), ventilation (calculating design ventilation rates, demand-controlled ventilation), building moisture control (moisture sources, methods for minimizing moisture problems), improving dehumidification performance of HVAC system (chilled-water terminal systems, single-zone DX systems, central VAV air-handling systems), acoustics in classrooms (ANSI/ASI Standard 12.60, reverberation time, absorption, background sound), lowering background sound of HVAC system (acoustical analysis, attenuation options), challenges of financing educational priorities (capital versus operating budgets, potential sources of funding, life-cycle cost analysis).	\$30.00
246-42-1	APP-CMC017-EN	HVAC and LEED (February, 2004)	IP Units only	This program provides an overview of the U.S. Green Building Council's "Leadership in Energy and Environmental Design" (LEED) Green Building Rating System, with specific focus placed on how it relates to HVAC systems.	\$30.00
246-42-1	APP-CMC018-EN	Improving Dehumidification in Restaurants and Retail Stores (May, 2004)	IP Units only	This program discusses why humidity control is important for restaurants and retail stores (dry goods and wet goods), demonstrates how the constant-volume direct expansion (DX) equipment that is commonly used in these building types may not dehumidify adequately at part load, proposes some system designs that can offer enhanced humidity control, and discusses how ventilation requirements affect system design.	\$30.00
246-42-1	APP-CMC019-EN	Small Chilled-Water Systems – Design and Application (September, 2004)	IP Units only	This program discusses which small-capacity applications favor chilled water, and explains how to simplify the design, control, and operation of small chilled-water systems. For the purpose of this program, a "small" chilled-water system is less than 120 tons in capacity, and contains one or two air-cooled chillers.	\$30.00
246-42-1	APP-CMC020-EN	Cooling Towers and Condenser-Water Systems – Design and Operation (January, 2005)	IP Units only	Proper design of a chilled water system can greatly affect its energy use and life-cycle costs. Fine-tuning the design and operation can go a long way toward minimizing energy costs—but it also requires a good understanding of how the system components affect each other. This ENL examines cooling tower–chiller interaction at various conditions, and discusses techniques to minimize initial and/or operating costs.	\$30.00

SIN	Order Number <u>[ORDER FORM on Web]</u>	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	APP-CMC022-EN	Energy Analysis – LEED™ Modeling (May, 2005)	IP Units only	Energy models are a critical requirement in the U.S. Green Building Council's LEED-NC rating system. Under Energy & Atmosphere (EA) Credit 1, a prospective LEED building can earn up to 10 points if the project team can demonstrate optimized energy performance. The greater the reduction in energy cost, the more points may be awarded. This program will discuss methods of building design and operation to reduce energy costs (including daylighting, HVAC design parameters, and control options) and how to earn EA Credit 1 points by effectively modeling energy-saving designs.	\$30.00
246-42-1	APP-CMC023-EN	ASHRAE Standard 62.1-2004: Ventilation Requirements (September, 2005)	IP Units only	In the 2004 version of ASHRAE Standard 62.1, the entire Ventilation Rate Procedure (VRP) has been revamped. This procedure is used to determine the minimum ventilation requirements for commercial, institutional, and high-rise residential buildings. The new VRP changes the requirements for breathing-zone and system-intake ventilation airflow by better accounting for the "additivity" of contaminants from different sources (people vs. building). It also details system ventilation efficiency for multiple-zone systems. This ENL takes a detailed look at the design and operation of various ventilation systems and their compliance with the new requirements.	\$30.00
246-42-1	APP-CMC024-EN	CO2-Based Demand-Controlled Ventilation (November, 2005)	IP Units only	The mobility of a building's occupants poses a ventilation challenge...to bring enough outdoor air into the building to help assure good indoor air quality without wasting energy by bringing in (and conditioning) too much. This ENL discusses the use of carbon-dioxide (CO2) sensors to vary outdoor airflow based on actual demand. It also considers the related requirements for compliance with ASHRAE Standard 62.1-2004.	\$30.00
246-42-1	APP-CMC025-EN	Variable-Speed Drives and Their Effect on HVAC System Components (February, 2006)	IP Units only	Variable-speed drives (VSDs) can save energy, but the savings may not equal "the cube of the speed" in every case. This ENL looks at how VSDs affect the performance of pumps, cooling-tower fans, air-handler fans, and chillers, and discusses the differences in VSD control in each of these applications	\$30.00
246-42-1	APP-CMC026-EN	HVAC Systems and Airside Economizers (May, 2006)	IP Units only	Airside economizers can lower annual energy costs by using outdoor air to help satisfy the building cooling load. This ENL discusses their use and control in constant- and variable-volume airside systems. It also considers the implications of the energy-use requirements in ASHRAE Standard 90.1 for airside economizing.	\$30.00
246-42-1	APP-CMC027-EN	HVAC Design for Places of Assembly (September, 2006)	IP Units only	Places of assembly such as auditoriums, gymnasiums and houses of worship create design and operational challenges for HVAC systems. Loads and ventilation requirements due to the number of people in the space are a challenge for any HVAC system. However, these issues can be overcome with proper system knowledge, design and operation.	\$30.00
246-42-1	APP-CMC028-EN	Energy-Saving Strategies for Rooftop VAV Systems* (November, 2006)	IP Units only	Rooftop variable-air-volume (VAV) systems are used to provide comfort in a wide range of building types and climates. This ENL discusses HVAC system design and operating strategies that can save energy in these systems. Topics include: high efficiency equipment, air-to-air energy recovery, relief fan vs. return fan, evaporative condensing, hot gas bypass, hot gas reheat, maintenance program, fan-powered VAV, single-zone VAV, airside economizer, fan-pressure optimization, optimum start, optimum stop, supply-air-temperature reset, ventilation optimization (demand-controlled ventilation, ventilation reset), TRACE 700.	\$30.00
246-42-1	APP-CMC029-EN	Waterside Heat Recovery (February, 2007)	IP Units only	Green building initiatives, coupled with changes in building codes and standards, have renewed interest in applications that recover condenser heat from water-cooled chillers. This ENL describes how waterside energy recovery works, what is necessary for implementation, and identifies system-level characteristics for effective operation and control	\$30.00

SIN	Order Number <a href="#">[ORDER FORM on Web]</a>	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	APP-CMC030-EN	Improving Dehumidification in HVAC Systems (September, 2007)	IP Units only	Managing humidity should be a key design consideration in any HVAC application. This ENL will discuss the challenge of dehumidifying at part load, for both chilled-water and cycling compressor systems, and describe ways to improve the dehumidification performance of commonly-used HVAC systems. Topics include: modulating chilled water coil, cycling compressors, impact of ventilation, impact of oversizing, total-energy recovery, cool-reheat (hot gas reheat, condenser water heat recovery), face-and-bypass dampers (mixed-air bypass, return-air bypass), reduce airflow (multi-speed fan, VAV, single-zone VAV), dual paths (dedicated outdoor-air system, split dehumidification unit or SDU), desiccants (CDQ), and TRACE 700 humidity modeling and reports.	\$30.00
246-42-1	APP-CMC031-EN	LEED® Case Studies (November, 2007)	IP Units only	As of the program date, the number of LEED certified buildings stands at over 800, with more than 6,500 additional buildings in the pipeline for certification. With USGBC's aggressive goal of having 100,000 certified buildings by 2010 there is no doubt this will be a major impact on the built environment. Sustainable design, construction, and operation will be increasingly requested by building owners. This ENL will provide an in-depth review of LEED certified projects in a variety of building types and geographic locations. Unlike the previous LEED-related programs, this ENL provides interviews with various project stakeholders to review LEED credits that were obtained for each project, the original design intent, challenges and lessons learned.	\$30.00
246-42-1	APP-CMC032-EN	Energy-Saving Strategies for LEED® and the Energy Policy Act* (May, 2008)	IP Units only	According to the U.S. Green Building Council (USGBC), buildings account for 36 percent of the energy used in the United States. This ENL program discusses energy-saving strategies to implement for various HVAC system types, and quantifies the impact of each toward achieving LEED points under the "Optimize Energy Performance" credit. It includes a detailed review of an energy modeling study conducted to demonstrate the potential energy cost savings (for various strategies, climate zones, and HVAC system types) for achieving LEED points and demonstrates how these same strategies can help the building owner qualify for tax deductions through the Energy Policy Act. The presentation provides design engineers with a better understanding of the "big picture" of building energy use, including the impact of the building envelope, lighting, plug loads, and processes and covers common mistakes made when modeling for LEED points.	\$30.00
246-42-1	APP-CMC033-EN	Small Chilled-Water Systems – Part II (September, 2008)	IP Units only	More than 80 percent of new buildings in the U.S. are less than 25,000 square feet and almost all buildings are less than 200,000 square feet. This program identifies challenges and opportunities for chilled-water systems in these buildings from 20 to 500 tons. In addition, many low-rise buildings seeking LEED certification have traditionally not been strong candidates for chilled-water systems. If they are 150,000 square feet or less, their baseline for achieving LEED points under EAc1 will not be a chilled-water system. However, these applications may find it easier to beat their baseline and earn more points if they consider a chilled-water system.	\$30.00

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	APP-CMC034-EN	ASHRAE Standards 62.1 and 90.1, and VAV Systems* (November, 2008)	IP Units only	Many designers want to comply with both Standard 62.1 and Standard 90.1. Requirements from both standards have been incorporated into many building codes, and the minimum requirements of both standards must be met as prerequisites to LEED certification. In attempting to comply with the ventilation requirements of Standard 62.1 AND the energy-limiting requirements of Standard 90.1, some designers have concluded that it's next to impossible to do so using traditional VAV systems. While in some specific cases these designers might be right, in most cases they are not right. In this program, the immediate past Chair of SSPC 62.1 (Dennis Stanke), the immediate past Chair of SSPC 90.1 (Mick Schwedler), and the one of the authors of the VAV-related sections in the User Manuals for both standards (Steve Taylor), discuss the potentially conflicting requirements and design choices	\$30.00
246-42-1	APP-CMC035-EN	LEED® 2009 Modeling and Energy Analysis* (March, 2009)	IP Units only	USGBC's LEED 2009 green building certification program was released in January this year. This presentation will cover the major changes in LEED 2009 and how they impact the HVAC practitioner. Chair of SSPC 90.1, Mick Schwedler, Scott Hintz of the Trane CDS support group and Chris Hsieh cover new regional credits, re-weighting of credit points, changes to the LEED AP credentialing and maintenance program, new modeling features that can help gain LEED points and much more.	\$30.00
246-42-1	APP-CMC036-EN	Ice Storage System Design and Application* (May, 2009)	IP Units only	Thermal storage, specifically ice storage, is not only an easy way to store energy but it is reemerging as a valuable energy and energy cost saving technology for building owners. This presentation provides a bit of theory and application, then demonstrates the design steps for a small ice storage system from layout to operation and control. Presenters discuss how to make it affordable, expose hidden costs that may raise ROI, and identify and address the most common stumbling blocks.	\$30.00
246-42-1	APP-CMC037-EN	Air-Handling Systems, Energy, and IAQ* (November, 2009)	IP Units only	Air-handling systems are key elements for building comfort and air quality, but they use energy. How much energy? The answer depends on system configuration and control strategies. This program presents various design and control strategies that can help reduce energy use, along with some interesting new technologies for improving indoor air quality (IAQ).	\$30.00
246-42-1	APP-CMC038-EN	Fans In Air-Handling Systems* (March 2010)	IP Units only	Fans used in air-handling systems often have significant impact on energy use and acoustics. How much of an impact depends on how a fan is selected, installed and operated. Presentation covers fan performance curves and fan laws, different fan types (fan blade shape, housed vs. plenum fans, direct-drive plenum fans, fan arrays), how a fan interacts with various types of systems, considerations when selecting a fan (efficiency, acoustics, footprint) and ASHRAE Standard 90.1 fan power limitations. The discussion will help you determine the best fan selection based on the requirements of your specific application.	\$30.00
246-42-1	APP-CMC039-EN	Central Geothermal Systems* (May 2010)	IP Units only	Most designers are familiar with heat pump systems, using small, "geothermal" heat pumps, distributed throughout the building, that are coupled with a ground source heat exchanger. Project teams are also considering central geothermal systems consisting of one or two chillers coupled with a closed, geothermal loop which exchanges heat with the earth. These systems offer premium energy efficiency, with the additional benefit of centralized maintenance, acoustic advantages, and flexibility.	\$30.00

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	APP-CMC040-EN	ASHRAE Standard 90.1-2010* (October 2010)	IP Units only	ASHRAE Standard 90.1-2010 was published in November 2010 with an aggressive goal of 30 percent energy-cost savings over the 2004 version of the standard. Trane experts on the 90.1 committee share their insights on the new requirements and implementation. This program discusses the major change with specific emphasis on mechanical-related system design, control and modeling, mechanical updates, including equipment efficiencies, design requirements for waterside, airside and ventilation, control updates for system design and operation, modeling changes for Appendix G baseline definitions and proposed buildings and summaries for lighting, envelope and other changes.	\$30.00
246-42-1	APP-CMC041-EN	Upgrading Existing Chilled-Water Systems (March 2011)	IP Units only	Existing chilled-water systems provide the capability to cool buildings efficiently. Yet there are often ways that these existing systems can be upgraded and improved to increase efficiency and better serve building occupants. In this presentation we discuss chiller retrofits and replacement; explore different design parameters (flow rates and temperatures) and the opportunities they offer existing systems; examine use of variable flow in existing systems; and consider controls to optimize and reduce system energy use	\$30.00
246-42-1	APP-CMC042-EN	High Performance VAV Systems (June 2011)	IP Units only	Variable-air-volume (VAV) systems have been used to provide comfort in a wide range of building types and climates. This ENL will discuss design and control strategies that can significantly reduce energy use and ensure proper ventilation in VAV systems. Topics include: ventilation system design and control, optimized VAV system controls, cold air distribution, other energy-saving strategies, and dehumidification enhancements.	\$30.00
246-42-1	APP-CMC043-EN	Dedicated Outdoor-Air Equipment (October 2011)	IP Units only	Previous ENLs have discussed system design and control considerations for dedicated outdoor-air systems. This ENL will shift the discussion to the various types of equipment used for dedicated OA conditioning, from packaged DX units to split DX systems to air handlers and water chillers.	\$30.00
246-42-1	APP-CMC044-EN	High-Performance Green Buildings: ASHRAE Standard 189.1-2011 (March 2012)	IP Units only	More and more building owners and municipalities want a standard for buildings which exceed minimum building codes. ASHRAE Standard 189.1-2011 Design of High-Performance Green Buildings addresses this demand. It's a mandatory-language code-intended standard with provisions related to building sites, water use, energy efficiency, general environmental impact, and indoor environmental quality. This ENL presents an overview of the standard and provides some insight regarding its potential impact on future building codes and building designs.	\$30.00
246-42-1	APP-CMC045-EN	Energy-Saving Strategies for Water-source and Ground-source Heat Pump Systems (June 2012)	IP Units only	This ENL discusses HVAC system design and control strategies that can save energy in water-source heat pump (WSHP) and ground-source heat pump (GSHP) systems. Topics include the latest technologies being used in heat pumps, design and control of the water distribution loop and dedicated outdoor-air system, ground-source systems, and a review of the requirements in ASHRAE Standard 90.1 that apply to WSHP/GSHP systems.	\$30.00
246-42-1	APP-CMC046-EN	Air-to-Air Energy Recovery (October 2012)	IP Units only	With the increased focus on reducing energy use in buildings, more projects are considering the use of air-to-air energy recovery. And energy codes are evolving to require energy recovery in more applications. This ENL will discuss the various technologies used for air-to-air energy recovery and the importance of properly controlling these devices in various systems types.	\$30.00
246-42-1	APP-CMC047-EN	ASHRAE Standard 62.1-2010 (February 2013)	IP Units only	The 2010 version of ASHRAE Standard 62.1 will likely be the basis for the next version of the International Mechanical Code, and it is expected to be a prerequisite for version 4 of the LEED Green Building Rating System. This ENL provides an update of the 2010 version of the standard, and focus on the Ventilation Rate Procedure for calculating zone and system ventilation airflows.	\$30.00

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	APP-CMC048-EN	Single-Zone VAV Systems (April 2013)	IP Units only	Recent changes to ASHRAE Standard 90.1 require single-zone VAV systems in some applications. This ENL reviews these new requirements, discusses the benefits of single-zone VAV systems (energy savings, better part-load dehumidification, and lower part-load sound levels), identifies common applications for this system, and discusses ways to address application-related challenges (air distribution, demand-controlled ventilation, and building pressure control). In addition, we review a case study of a retrofit project where a constant-volume rooftop unit was replaced with a single-zone VAV unit.	\$30.00
246-42-1	APP-CMC049-EN	All-Variable-Speed Chilled-Water Plants (October 2013)	IP Units only	Variable frequency drives (VFDs) are being used on all chilled-water system components (fans, pumps, and chillers), and for good reason. When systems are properly designed and controlled, they offer the opportunity for significant energy savings as well as improved operation. With these new opportunities come new complexities. This ENL discusses all-variable-speed chilled-water system design and control. Discussion will include individual component and system performance as well as system design options and control.	\$30.00
246-42-1	APP-CMC050-EN	LEED v4 (March 2014)	IP Units only	LEED continues to thrive with more than 1.6 million square feet of space certified every day. In this ENL, Trane applications engineers will discuss changes in the latest version of LEED and how they impact HVAC practitioners.	\$30.00
246-42-1	APP-CMC051-EN	Applying Variable Refrigerant Flow (May 2014)	IP Units only	This program discusses some of the challenges of applying a variable refrigerant flow (VRF) system, such as complying with ASHRAE Standards 15 and 90.1, meeting the ventilation requirements of ASHRAE Standard 62.1, and zoning to maximize the benefit of heat recovery. In addition, we review the current state of modeling VRF in energy simulation software.	\$30.00
246-42-1	APP-CMC052-EN	Chilled Water Terminal Systems (Oct 2014)	IP Units only	Trane applications engineers discuss system design and control strategies for various types of chilled-water terminal systems, including fan-coils, chilled beams, and radiant cooling. Topics include: types of terminal equipment, variable-speed terminal fan operation, dedicated OA system design, chilled-water system design, and complying with ASHRAE 90.1 requirements	\$30.00
246-42-1	APP-CMC053-EN	Variable-Speed Compressors On Chillers (Mar 2015)	IP Units only	Trane applications engineers discuss the operational, performance and application differences for centrifugal (dynamic compression) and helical-rotary (positive displacement) compressors. Discussion includes an overview of how variable-speed drives affect chilled-water system components, physics of centrifugal compressor chillers and screw compressor chillers, applications that benefit from each technology, importance of proper life-cycle analysis and application considerations to leave the viewer with an understanding of which technologies bring real value to different system applications.	\$30.00
246-42-1	APP-CMC054-EN	Coils Selection and Optimization (May 2015)	IP Units only	Trane engineers discuss the application, selection, and optimization of both chilled-water and hot-water coils. Topics include a discussion about the impact of both water and air velocities on coil performance, a review of example selections for chilled-water and hot-water coils to demonstrate the tradeoffs of cost, pressure drop, and capacity, and an overview of various methods to prevent water coils from freezing during cold weather.	\$30.00
246-42-1	APP-CMC055-EN	Evaluating Sound Data (May 2015)	IP Units only	Sound data is the foundation of acoustical analysis and it is often used for comparing equipment from different manufacturers. Unfortunately not all manufacturers present sound data in the same format. In this ENL, Trane Applications Engineers focus on clarifying sound data terms and weighting methods so that the differences in sound data presentation are apparent. Examples of the common mistakes made when comparing chillers, air-handlers, VAV units, and fan coils are discussed.	\$30.00

SIN	Order Number [ORDER FORM on Web]	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	APP-CMC056-EN	Chilled-Water System Design Trends (October 2015)	IP Units only	Improved technology and controls for chilled-water systems over the past several years enable these types of systems to do more and save more. This ENL reviews recent advancements in technology and trends due to these developments, system strategies that can take advantage of the latest technology and when various system strategies should be used. Consideration will be given to: variable primary, primary secondary, constant flow, series chillers, chilled water reset, pump pressure optimization, flow rates and turndown, heat exchanger types, and the components of air- and water-cooled systems.	\$30.00
<b>HVAC SYSTEM DESIGN TOOLS</b>					
246-42-1	94.24	Ductulator® (1998)	Dual units (IP/SI)	Hand held rotating calculator used for sizing supply and return duct systems using the equal friction design method. Includes scales for friction loss per unit length, air volume, air velocity, round duct diameter, and rectangular duct diameters. One side uses I-P units, the other side uses SI units. Includes a protective sleeve with ASHRAE recommended design air velocities for system components/applications.	\$10.00
246-42-1	1-43.190	Psychrometric Chart (1983) - standard altitude (29.921 in. Hg) - 11" x 17" pad of 25 sheets - Includes "coil curves"	I-P Units	Chart used for determining properties of moist air and analyzing air conditioning processes.	\$7.50
246-42-1	1-43.191	Psychrometric Chart (1983) - standard altitude (29.921 in. Hg) - (1) 11" x 17" laminated chart - Includes "coil curves"	I-P Units	Chart used for determining properties of moist air and analyzing air conditioning processes.	\$15.00
246-42-1	1-43.192	Psychrometric Chart (1983) - standard altitude (29.921 in. Hg) - 11" x 17" pad of 25 sheets - Includes "coil curves"	I-P Units	Chart used for determining properties of moist air and analyzing air conditioning processes.	\$5.00
246-42-1	1-43.195	Psychrometric Chart (1983) - high altitude (24 in. Hg) - 8.5" x 11" pad of 25 sheets - Includes "coil curves"	I-P Units	Chart used for determining properties of moist air and analyzing air conditioning processes.	\$5.00
246-42-1	1-43.196	Psychrometric Chart (1983) - standard altitude (101 kPa) - 11" x 17" pad of 25 sheets - Includes "coil curves"	SI Units	Chart used for determining properties of moist air and analyzing air conditioning processes.	\$7.50

SIN	Order Number <u>[ORDER FORM on Web]</u>	Title (Publication Date)	IP or DUAL Units	Abstract	GSA Price
246-42-1	1-43.197	Psychrometric Chart (1983) - standard altitude (101 kPa) - (1) 11" x 17" laminated chart	SI Units	Chart used for determining properties of moist air and analyzing air conditioning processes.	\$15.00
246-42-1	OSA 214 E	Psychrometric Chart (1996) - standard altitude (101 kPa) - 8.5" x 11" pad of 25 sheets - SI units - Includes "coil curves"	SI Units	Chart used for determining properties of moist air and analyzing air conditioning processes.	\$7.50
246-42-1	1-43.198	Equilibrium Chart for Lithium Bromide Solutions (1983) - (1) 11" x 17" laminated chart	I-P Units	Chart used for determining properties of a lithium bromide solution used in the absorption refrigeration cycle.	\$15.00

NOTES:

- (1) Minimum Order Policy: Minimum order amount is \$25. Orders which do not total \$25 will be billed at \$25.
- (2) Discount to Certified Government Educational Training Facilities: Trane will discount the following products to certified Government educational training facilities: *Trane Air Conditioning Manual*, *Trane Reciprocating Refrigeration Manual*, and the Ductulator. A Customer from a certified Government educational training facility should contact Trane for information on pricing on these products.
- (3) Shipping/Delivery: Literature orders shipped within the United States are shipped FedEx Ground and are typically delivered within 3 to 6 business days (depending on the destination). A US\$10 shipping and handling fee is added to each order shipped within the United States. Literature orders shipped outside the United States are shipped DHL and are typically delivered within 4 to 7 business days (depending on the destination and local customs). A US\$30 shipping and handling fee is added to each order shipped outside of the United States.
- (4) Return Policy: All literature returns must receive prior authorization by calling 608-787-4153 or 608-787-3684. There will be a 15 percent restocking charge on all literature returned. Literature returns will only be accepted up to 90 days after the ship date.
- (5) Order Form - The Trane Educational Literature and Materials Government Order Form is available at [www.trane.com/Government/Federal/EM-GSA.pdf](http://www.trane.com/Government/Federal/EM-GSA.pdf).



**GSA Pricing of Labor Under Schedule 84 SIN 246-1000 Ancillary Services and  
SIN 246-51 Installation Involving Construction**

OPTION III YEAR 2

SIN	Reference Number	Trane Position Title	Labor Categories - Exempt/Non-Exempt under Service Contract Act	Description	Trane Option III Year 2 - GSA Price Rate /Hour with IFF - 8/28/16 to 8/27/17			
					West	Central	Northeast	Southeast
246-1000/ 246-51	S020	HVAC Field Technician	Non-Exempt	<p><b>Functional Description:</b> Responsible for retrofit and repair of environmental-comfort systems, utilizing knowledge of air conditioning theory, pipe fitting, and mechanical layouts.</p> <p><b>Minimum Experience:</b> Typically requires 5 years of related experience.</p> <p><b>Minimum Education:</b> Associate's degree or equivalent from a Technical/Trade School with a certificate in Heating, Ventilation, and Air Conditioning and five (5) years related experience; or seven (7) years related experience; or equivalent combination of education and experience.</p>	\$143.63	\$175.12	\$174.68	\$134.43
246-1000/ 246-51	S021	HVAC Field Technical – Apprentice	Non-Exempt	<p><b>Functional Description:</b> Assists HVAC Field Technicians in the installation and repair of environmental control systems, utilizing knowledge of refrigeration theory, control systems, pipe fitting, and structural layouts.</p> <p><b>Minimum Experience:</b> Typically requires 6 months of related experience.</p> <p><b>Minimum Education:</b> Associate's degree or equivalent from two-year college or technical school with a certificate in Heating, Ventilation, and Air Conditioning; or six months to one-year related experience and/or training; or equivalent combination of education and experience.</p>	\$124.72	\$150.84	\$139.00	\$123.99
246-1000/ 246-51	S022	HVAC Field Technician – Team Leader	Non-Exempt	<p><b>Functional Description:</b> Performs and directs HVAC Field Technicians who accomplish the repair/retrofit/replacement installation of environment comfort systems, utilizing knowledge of air conditioning theory, pipe fitting and mechanical layouts.</p> <p><b>Minimum Experience:</b> Typically requires 5 years of related experience.</p> <p><b>Minimum Education:</b> Associate's degree or equivalent from two-year college or technical school with a certificate in Heating, Ventilation, and Air Conditioning; and five (5) years HVAC experience, or equivalent combination of education and experience. Must have knowledge of various HVAC products, systems, electronics, and pneumatic controls.</p>	\$179.99	\$183.53	\$204.54	\$149.88
246-1000/ 246-51	S049	HVAC Field Technician – Senior	Non-Exempt	<p><b>Functional Description:</b> Applies training, knowledge and experience of HVAC systems at a Journeyman level HVAC Service Technician. Performs all work in the service and maintenance field on all major types of equipment, and is responsible for retrofit and repair of environmental-comfort systems, utilizing knowledge of air conditioning theory, pipe fitting, and mechanical layouts.</p> <p><b>Minimum Experience:</b> Typically requires 7 years of related experience.</p> <p><b>Minimum Education:</b> Associate's degree (A.A.) or equivalent from a technical / trade school with a certificate in Heating, Ventilation, and Air Conditioning and seven (7) years related experience; or ten (1) years related experience; or equivalent combination of education and experience.</p>	\$165.33	\$177.48	\$182.29	\$145.18



**GSA Pricing of Labor Under Schedule 84 SIN 246-1000 Ancillary Services and  
SIN 246-51 Installation Involving Construction**

OPTION III YEAR 2

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					West	Central	Northeast	Southeast
246-1000/ 246-51	S118	Project Administrator – Service	Non-Exempt	<p><b>Functional Description:</b> Possesses project documentation, materials, job costing, status monitoring, invoicing, and administrative closeout of a service project. This position is required to closely interact with the Project Manager and assigned project staff to ensure the timely completion of services scope of work.</p> <p><b>Minimum Experience:</b> Typically requires 6 months of related experience.</p> <p><b>Minimum Education:</b> One-year certificate from college or technical school; or six (6) months to two (2) years or related experience and/or training; or equivalent combination of education and experience. Familiarity with the operation of Energy Management Systems, HVAC Systems, and/or Temperature Controls preferred.</p>	\$120.24	\$108.28	\$113.15	\$112.01
246-1000/ 246-51	S154	Service Helper	Non-Exempt	<p><b>Functional Description:</b> Assists HVAC Field Technicians in routine maintenance and inspections on existing systems.</p> <p><b>Minimum Experience:</b> Typically requires 1 year of related experience involving building trades or operation and service to buildings or HVAC.</p> <p><b>Minimum Education:</b> High School Diploma or GED.</p>	\$122.32	\$120.41	\$126.91	\$126.04
246-1000/ 246-51	S082	Project Engineer II – Controls	Exempt	<p><b>Functional Description:</b> Performs hardware and software design activities for building automation systems. Applies engineering principles and practices for work on assigned projects. Designs cost effective control solutions to meet project requirements. Works directly on the project team to assist the Project Manager with project commissioning.</p> <p><b>Minimum Experience:</b> Typically requires 3-6 years of related experience.</p> <p><b>Minimum Education:</b> Bachelor's degree in Engineering and 3-4 years experience; or Associate's degree or equivalent from two-year college or technical school in electrical engineering and a certificate in HVAC or AAS and BAS in electrical engineering and 5-6 years related experience; or equivalent combination of education and experience.</p>	\$257.09	\$151.99	\$146.08	\$183.60
246-1000/ 246-51	S083	Project Engineer II – Energy	Exempt	<p><b>Functional Description:</b> Performs technical analysis, review, measurement, and verification of financially guaranteed projects. Provides technical analysis and review for performance monitoring or contracts, and applies engineering principles and practices on assigned projects.</p> <p><b>Minimum Experience:</b> Typically requires 3 years of related experience.</p> <p><b>Minimum Education:</b> Bachelor's degree in Engineering and three (3) years experience; or equivalent combination of education and experience. Knowledge and experience with HVAC, control, electrical systems and proficiency with energy analysis tools such as TRACE and system analyzer. Working knowledge of cost and savings studies incorporating energy conservation measures.</p>	\$260.39	\$192.56	\$223.40	\$155.02



**GSA Pricing of Labor Under Schedule 84 SIN 246-1000 Ancillary Services and  
SIN 246-51 Installation Involving Construction**

OPTION III YEAR 2

SIN	Reference Number	Trane Position Title	Labor Categories - Exempt/Non-Exempt under Service Contract Act	Description	Trane Option III Year 2 - GSA Price Rate /Hour with IFF - 8/28/16 to 8/27/17			
					West	Central	Northeast	Southeast
246-1000/ 246-51	S084	Project Engineer II – Systems	Exempt	<p><b>Functional Description:</b> Performs complex planning, estimating and design activities for the layout of equipment, commercial and industrial facilities. Determines the scope of projects, estimates cost, designs and documents HVAC and electrical systems and procures components. Works directly on the project team to assist the Project Manager with project commissioning.</p> <p><b>Minimum Experience:</b> Typically requires 3-6 years of related experience.</p> <p><b>Minimum Education:</b> Bachelor's degree in Engineering and 3-4 years related experience; or Associate's degree (A.A.) or equivalent from two-year college or technical school in electrical engineering and a certificate in HVAC or AAS and BAS in electrical engineering and 5-6 years related experience; or equivalent combination of education and experience.</p>	\$260.39	\$159.31	\$223.40	\$155.02
246-1000/ 246-51	S085	Project Manager – Controls	Exempt	<p><b>Functional Description:</b> Manages all aspects of HVAC control projects, from beginning to end, with direct responsibility for project execution while leading a team, or teams, to accomplish specific objectives in a given time frame and with available resources. Responsible for the administration, implementation, and management of HVAC control projects. Ensures assigned projects' scope of work, schedule, and budget are achieved.</p> <p><b>Minimum Experience:</b> Typically requires 2-6 years of related experience.</p> <p><b>Minimum Education:</b> Bachelor's degree in Electrical or Mechanical Engineering or Construction Management with a minimum of two (2) years of project management, controls, HVAC or related experience, or a minimum of six (6) years of project management, controls, HVAC or related experience; or an equivalent combination of education and experience.</p>	\$208.33	\$196.08	\$178.05	\$182.59
246-1000/ 246-51	S089	Project Manager – Contracts	Exempt	<p><b>Functional Description:</b> Manages all aspects of HVAC contract projects, from beginning to end, with direct responsibility for project execution while leading a team, or teams, to accomplish specific objectives in a given time frame and with available resources. Responsible for the administration, implementation, and management of control projects. Accountable for assigned projects' scope of work, schedule, and budget.</p> <p><b>Minimum Experience:</b> Typically requires 2-6 years of related experience.</p> <p><b>Minimum Education:</b> Bachelor's degree in Electrical or Mechanical Engineering or Construction Management with a minimum of two (2) years of project management, HVAC (systems, equipment, installation or service) or related experience, or a minimum of six (6) years or project management, HVAC (systems, equipment, installation, or service) or related experience; or an equivalent combination of education and experience.</p>	\$222.56	\$166.67	\$184.53	\$183.16



**GSA Pricing of Labor Under Schedule 84 SIN 246-1000 Ancillary Services and  
SIN 246-51 Installation Involving Construction**

OPTION III YEAR 2

SIN	Reference Number	Trane Position Title	Labor Categories - Exempt/Non-Exempt under Service Contract Act	Description	Trane Option III Year 2 - GSA Price Rate /Hour with IFF - 8/28/16 to 8/27/17			
					West	Central	Northeast	Southeast
246-1000/ 246-51	S104	Project Engineer Team Leader	Exempt	<p><b>Functional Description:</b> Performs hardware and software design activities for building automation systems. Applies engineering principles and practices for work on assigned projects. Designs cost effective control solutions to meet project requirements. Works directly with the project team to assist with project commissioning. Directs and assists other project engineers on the team related to opportunities and obstacles in managing the engineering workload. Possesses a familiarity with the concepts of new construction, renovation/retrofit; performance contracting, and service project management.</p> <p><b>Minimum Experience:</b> Typically requires 2-4 years of related experience.</p> <p><b>Minimum Education:</b> Bachelor's degree in engineering and two (2) to three (3) years experience; or Associate's degree or equivalent from two-year college or technical school in electrical engineering and a certificate in HVAC or AAS and BAS in electrical engineering and three (3) to four (4) years related experience; or equivalent combination of education and experience.</p>	\$260.39	\$195.83	\$223.40	\$183.60
246-1000/ 246-51	S119	Project Administrator – Contracting	Non-Exempt	<p><b>Functional Description:</b> Responsible for project set-up, document control, data entry, billing, contract monitoring, and administrative closeout of each project. This position is required to closely interact with the Project Manager and assigned project staff to assist with the timely completion of each project.</p> <p><b>Minimum Experience:</b> Typically requires 6 months of related experience.</p> <p><b>Minimum Education:</b> One-year certificate from college or technical school; or six (6) months of related experience and/or training; or equivalent combination of education and experience. Familiarity with the operation of Energy Management Systems, HVAC Systems and/or Temperature Controls preferred.</p>	\$114.84	\$124.26	\$140.23	\$124.70
246-1000/ 246-51	S120	Computer Aided Drafter	Precedent G/E - 3- 10 Ton Packaged Heat Pump Heat/Cooling Rooftop Unit	<p><b>Functional Description:</b> Responsible for creating computer aided design (CAD) drawings using standard CAD digitizing techniques and skills. Also responsible for the system graphics required to support automation systems design.</p> <p><b>Minimum Experience:</b> Typically requires 6 months of related experience.</p> <p><b>Minimum Education:</b> Associate's degree from college or technical school in Computer-Aided Design or Drafting; or at least six (6) months related experience and/or training; or equivalent combination of education and experience. Working knowledge of AutoCAD or other computer aided design, Microsoft Office software required.</p>	\$123.24	\$85.93	\$100.05	\$83.62
246-1000/ 246-51	S121	Controls Technician	Non-Exempt	<p><b>Functional Description:</b> Performs more complex commissioning, diagnosis, and repair of environmental-control systems, utilizing knowledge of electronics, direct digital control, airflow, hydronics, refrigeration theory, and control techniques.</p> <p><b>Minimum Experience:</b> Typically requires 6 months of related experience.</p> <p><b>Minimum Education:</b> Associate's degree or equivalent from two-year college or technical school or six (6) months experience in control systems; or equivalent combination of education and experience.</p>	\$161.36	\$149.34	\$175.12	\$154.44



**GSA Pricing of Labor Under Schedule 84 SIN 246-1000 Ancillary Services and  
SIN 246-51 Installation Involving Construction**

OPTION III YEAR 2

SIN	Reference Number	Trane Position Title	Labor Categories - Exempt/Non-Exempt under Service Contract Act	Description	Trane Option III Year 2 - GSA Price Rate /Hour with IFF - 8/28/16 to 8/27/17			
					West	Central	Northeast	Southeast
246-1000/ 246-51	S152	Controls Technician – Entry Level	Non-Exempt	<p>Functional Description: Performs and assists under direction complex commissioning, diagnosis, and repair of environmental-control systems, utilizing knowledge of electronics, direct digital control, airflow, hydronics, refrigeration theory, and control techniques. Performs these tasks on simple control projects.</p> <p><b>Minimum Experience:</b> Typically requires 6 months of related experience.</p> <p><b>Minimum Education:</b> Associate's degree or equivalent from two-year college or technical school or six (6) months experience in control systems; or equivalent combination of education and experience.</p>	\$161.36	\$128.73	\$143.99	\$154.43
246-1000/ 246-51	S167	Project Engineer I – Systems	Non-Exempt	<p>Functional Description: Project development - Performs planning, estimating and design activities for the layout of equipment, commercial and industrial facilities. Assists in determining the scope of projects, estimates cost, designs and documents HVAC and electrical systems and procures components. Works directly on the project team to assist the Project Manager with project commissioning.</p> <p><b>Minimum Experience:</b> Typically requires 4-5 years of related experience.</p> <p><b>Minimum Education:</b> Associate's degree or equivalent from two-year college or technical school in electrical engineering and a certificate in HVAC or AAS and BAS in electrical engineering and 4-5 years related experience; or equivalent combination of education and experience.</p>	\$107.14	\$109.46	\$151.56	\$133.64
246-1000/ 246-51	S168	Project Engineer I – Energy	Non-Exempt	<p>Functional Description: Project development - provides technical analysis and review for performance monitoring on contracts. Applies knowledge of technology and applications on assigned projects.</p> <p><b>Minimum Experience:</b> Typically requires 5-6 years of related experience.</p> <p><b>Minimum Education:</b> Knowledge and 5-6 years experience with HVAC, control, electrical systems and proficiency with energy analysis tools such as TRACE and system analyzer. Working knowledge of cost and savings studies incorporating energy conversation measures.</p>	\$107.14	\$109.46	\$151.56	\$133.64
246-1000/ 246-51	S169	Project Engineer I – Controls	Non-Exempt	<p>Functional Description: Project development which includes applying engineering principles and practices on assigned projects. Designs cost effective control solutions to meet project requirements. Works directly on the project team to assist with project commissioning.</p> <p><b>Minimum Experience:</b> Typically requires 4-5 years of related experience.</p> <p><b>Minimum Education:</b> Associate's degree or equivalent from two-year college or technical school in electrical engineering and a certificate in HVAC or AAS and BAS in electrical engineering and 4-5 years related experience; or equivalent combination of education and experience.</p>	\$107.14	\$109.46	\$151.56	\$133.64

**NOTES ON OVERTIME:**

**Labor Categories under SIN 246-1000 Ancillary Services and SIN 246-51 Installation Involving Construction**

The rates shown above are for labor services performed during standard work hours and are the GSA ceiling rates (maximum price) for the region. These rates are adjusted to the Trane Commercial Sales Office (CSO) within the region where the work will be performed. An overtime premium is not charged for exempt overtime labor services (See Service Contract Act Exempt / Non-Exempt listing). That is not the case for non-exempt positions.



**GSA Pricing of Labor Under Schedule 84 SIN 246-1000 Ancillary Services and  
 SIN 246-51 Installation Involving Construction**

OPTION III YEAR 2

SIN	Reference Number	Trane Position Title	Labor Categories - Exempt/Non-Exempt under Service Contract Act	Description	Trane Option III Year 2 - GSA Price Rate /Hour with IFF - 8/28/16 to 8/27/17			
					West	Central	Northeast	Southeast

**Overtime Rates.** For NE labor services performed after the standard workday (typically 5:00pm), the published rates in appendices do not apply and this Standard-Time (ST) rate should be multiplied by 1.5 to obtain the Over-Time (OT) rate for applicable NE job descriptions. Saturday after noon (12pm), Sunday and holiday work is at Premium-Time (PT). It is typically double-time (standard rate is multiplied by 2.0). These premium rates are charged unless it is established up front that there will be a work week change, for example, the workweek for services will be Sunday to Thursday. This must be negotiated and agreed to by both parties up front. Also, some work on Saturdays may be considered



**GSA Hourly Billing Rates for Labor Categories Covered by the  
Davis Bacon Act  
under SIN 246-51 Installation Involving Construction**

OPTION III YEAR 2

SIN	Reference Number	Labor Category	Wage Dermination Labor Category	Trane Option III Year 2 - GSA Price Rate /Hour with IFF -8/28/16 to 8/27/17			
				West	Central	Northeast	Southeast
246-51	DB01	Acoustical Installer	Davis Bacon Act	\$90.19	\$126.84	\$117.58	\$60.90
246-51	DB02	Carpenters	Davis Bacon Act	\$87.68	\$126.84	\$117.58	\$60.90
246-51	DB03	Mason/Concrete Finisher	Davis Bacon Act	\$63.66	\$127.76	\$99.16	\$64.85
246-51	DB04	Drywall Hanger	Davis Bacon Act	\$82.76	\$126.84	\$117.58	\$54.66
246-51	DB05	Electrician	Davis Bacon Act	\$128.98	\$149.66	\$125.81	\$92.48
246-51	DB06	Floor Laying Carpet	Davis Bacon Act	\$57.46	\$114.70	\$109.65	\$54.78
246-51	DB08	Glazier	Davis Bacon Act	\$136.28	\$124.30	\$106.84	\$50.74
246-51	DB09	Ironworker – Reinforcing	Davis Bacon Act	\$85.77	\$118.04	\$128.03	\$90.90
246-51	DB10	Ironworker - Structural	Davis Bacon Act	\$85.77	\$140.90	\$128.03	\$90.90
246-51	DB11	Laborer	Davis Bacon Act	\$58.74	\$113.37	\$83.85	\$47.42
246-51	DB12	Mechanical Insulator	Davis Bacon Act	\$58.74	\$131.43	\$136.05	\$52.76
246-51	DB13	Painters	Davis Bacon Act	\$77.45	\$104.53	\$108.12	\$55.84
246-51	DB14	Plasters	Davis Bacon Act	\$77.92	\$127.76	\$99.16	\$60.90
246-51	DB15	Plasterer Tender	Davis Bacon Act	\$58.74	\$99.65	\$83.85	\$54.66
246-51	DB16	Plumbers & Pipefitters	Davis Bacon Act	\$127.53	\$166.26	\$148.72	\$98.21
246-51	DB17	Roofer	Davis Bacon Act	\$56.11	\$121.38	\$137.12	\$52.01
246-51	DB18	Sheet Metal Worker	Davis Bacon Act	\$136.28	\$155.33	\$138.82	\$69.95
246-51	DB19	Welders – Building	Davis Bacon Act	\$127.53	\$166.26	\$148.72	\$98.21

**NOTES ON OVERTIME:**

**Davis Bacon Act Labor Categories under SIN 246-51 Installation Involving Construction**

The rates shown are for labor services performed during standard work hours and are the GSA ceiling rates (maximum price) for the region. These rates are adjusted to the Trane Commercial Sales Office (CSO) within the region where the work will be performed. Since all of these labor categories are listed on the Davis-Bacon Act wage determinations, an overtime premium will be charged for these services.

**Overtime Rates.** If the labor categories listed in this price list are performed after the standard eight (8) hour workday, the rates above do not apply and this Standard-Time (ST) rate should be multiplied by 1.5 to obtain the Over-Time (OT) rate for the applicable labor category. Holiday work is at Premium-Time (PT). It is typically double-time (standard rate is multiplied by 2.0). These premium rates are charged unless it is established up front that there will be a work week change, for example, the workweek will be Sunday to Thursday. This must be negotiated and agreed to by both parties up front and must be compliant with DBA provisions.