

# *OmniClass*<sup>TM</sup>

A Strategy for Classifying the Built Environment

## **Table 21 - Elements**

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## Definitions

An *Element* is a major component, assembly, or “*construction entity part which, in itself or in combination with other parts, fulfills a predominating function of the construction entity*” (ISO 12006-2). Predominating functions include, but are not limited to, supporting, enclosing, servicing, and equipping a facility. Functional descriptions can also include a process or an activity.

A *Designed Element* is an “*Element for which the work result(s) have been defined.*” (ISO 12006-2).

## Discussion

An *Element* fulfils a characteristic predominant function, either by itself, or in combination with other elements; Table 21 is organized by elements’ implied functions. Major elements may be composed of several sub-elements. For example, a shell enclosure might be composed of superstructure, exterior closure, and roofing. Currently, elements are most often used during early project phases for identifying a project’s physical, operational, or aesthetic characteristics. Elements are considered without regard to a material or technical solution of the function. For each element, there may be several technical solutions capable of accomplishing the elemental function, and more than one may be selected for a project. These solutions are the designed elements.

The content of the OmniClass *Elements* Table extends well beyond the content of the 1998 version of the CSC/CSI *UniFormat*™ document. *UniFormat* is currently undergoing revision by CSI and CSC. When the new version becomes available, the OCCS Development Committee intends to use its applicable contents as the source for Table 21, similar to the current relationship between Table 22 and *MasterFormat*.

Many applications exist for elemental classification. OmniClass Table 21 – Elements can provide a useful way to organize and classify elements at the early stages of a project, before particular or specific materials and methods (designed elements) have been determined, and help to conceptualize

the project without restrictions imposed by any particular design solution. The Elements table can be used to organize information so that it can help stimulate project decisions, record those decisions (and subsequent changes), and used as a basis for organizing documents to form a contractual commitment between two or more parties on a project. These usually occur at an early design development stage, but may occur at any project stage or phase.

## Examples

Structural Floors, Exterior Walls, Storm Sewer Utility, Stairs, Roof Framing, Furniture and Fittings, HVAC Distribution

## Table Uses

Identifying owner criteria for project, designer aesthetic and functional criteria, and applicable code and regulatory requirements, classifying facility design data, organizing pre-design and early design descriptions, design/build proposals, preliminary project reports, preliminary specifications of facility functions, cost analysis reports, scheduling intentions, performance requirements or criteria, and preliminary drawings, relating drawings and preliminary project descriptions, electronic filing of project documents and their schematic details, and coordinating all project information with facility management and maintenance information.

## Table Users

Owners, designers, planners, project information programmers, specifiers, budget and cost estimators, schedulers, constructors, construction managers, design-builders, facility owners, facility managers, and draftspersons.

## Group 20 Table Relationships

### Table 22 - Work Results

Table 22 organizes “work results” most commonly used in outline, short form, or full-form specifications and related documents, usually produced after subjects are briefly defined and addressed in documents organized according to Table 21 - Elements. These more complete specification work result sections may individually include a variety of products or materials (classified in Table 23 - Products) used to achieve a specific work result. Work result specifications, in conjunction with working drawings and other associated documents, are usually used for bidding and contracting the complete project. Table 22 is based in part on CSC/CSI MasterFormat™, 2004 edition.

### Table 23 – Products

Table 23 classifies products intended for potential or actual use in any construction project. This table provides a location for materials, assemblies, and systems, as products without regard for their application, which is addressed in Tables 21 and 22. A single product will have a single location in this Table, whereas Table 22 - Work Results may have numerous headings that reference the same product in a number of locations, depending on its use within the facility.

## Legacy Documents

- ASTM: A variety of ASTM “format” documents addressing specific classification of subjects associated with these element tables are included.
- ISO 12006-2 – Table 4.7 Elements (by characteristic predominating function of the construction entity)
- ISO 12006-2 – Table 4.8 Designed Elements (element by type of work)
- Uniclass Table G - Elements for Buildings.
- Uniclass Table H - Elements for Civil Engineering Works.
- UniFormat™ (CSC/CSI publication 1992, 1998)
- UNIFORMAT II (ASTM E1557)

Number	Title
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## Numbers & Titles

### 21-21 00 00 Grade and Subgrade

#### 21-21 11 00 Clearing

- 21-21 11 11 Soil Stripping
- 21-21 11 12 Clearing and Grubbing
- 21-21 11 13 Shrub and Tree Removal
- 21-21 11 14 Shrub and Tree Relocation
- 21-21 11 15 Tree Trimming
- 21-21 11 16 De-Watering
  - 21-21 11 16 11 Excavation De-watering
  - 21-21 11 16 21 Site Drainage During Work

#### 21-21 31 00 Grading

- 21-21 31 11 Rough Grading
- 21-21 31 12 Contour Grading

#### 21-21 51 00 Excavation

- 21-21 51 11 Site Excavation
- 21-21 51 21 Foundation Excavation
- 21-21 51 31 Basement / Crawl Space Excavation
- 21-21 51 41 Tunneling/Burrowing

#### 21-21 71 00 Backfilling

- 21-21 71 11 Fill Material
- 21-21 71 21 Stabilized Material

### 21-31 00 00 Site Finishes

#### 21-31 11 00 Contouring and Shaping

- 21-31 11 11 Landscaping
- 21-31 11 13 Embankments
  - 21-31 11 13 11 Soil Embankment
  - 21-31 11 13 21 Granular Embankment
  - 21-31 11 13 31 Armoring
  - 21-31 11 13 41 Earth Dams
- 21-31 11 15 Soil Stabilization
  - 21-31 11 15 11 Soil and Binder Mix
  - 21-31 11 15 21 Granular and Binder Mix
- 21-31 11 17 Erosion Control
  - 21-31 11 17 11 Slope Protection
  - 21-31 11 17 21 Shoreline Protection
  - 21-31 11 17 31 Scour Protection
  - 21-31 11 17 41 Water Channel Lining
  - 21-31 11 17 51 Shoreline Breakwater
- 21-31 11 19 Dredging
  - 21-31 11 19 11 Deep Water Dredging
  - 21-31 11 19 21 Water Channel Excavation
  - 21-31 11 19 31 Canal Excavation
  - 21-31 11 19 41 Wetland Mitigation
- 21-31 11 27 Land Reclamation

Number	Title
<b>21-31 31 00</b>	<b>Traffic Surfacing</b>
21-31 31 11	Vehicular Pavement
21-31 31 13	Pedestrian Pavement
<b>21-31 51 00</b>	<b>Exterior Improvements</b>
21-31 51 11	Irrigation Network
21-31 51 13	Fences and Gates
21-31 51 15	Retaining Walls
21-31 51 17	Fountains
21-31 51 19	Screening Devices
21-31 51 21	Noise Walls
21-31 51 23	Horizontal Moving Walks
<b>21-31 71 00</b>	<b>Exterior Amenities</b>
21-31 71 11	Markers and Monuments
21-31 71 12	Shelters
21-31 71 13	Signage
21-31 71 14	Paving Appurtenances
21-31 71 15	Safety Barriers
21-31 71 16	Exterior Furnishings
<b>21-31 81 00</b>	<b>Exterior Facilities (Note: Usually pre-manufactured, integrated elements for use on a site.)</b>
21-31 81 11	Pre-Engineered Structures
21-31 81 12	Indoor Systems Buildings
21-31 81 13	Special Purpose Buildings
21-31 81 14	Building Modules
21-31 81 15	Integrated Assemblies
<b>21-41 00 00</b>	<b>Structure</b>
<b>21-41 11 00</b>	<b>Substructure</b>
<b>21-41 11 11</b>	<b>Foundations</b>
21-41 11 11 11	Shallow Foundations
21-41 11 11 21	Deep Foundations
21-41 11 11 41	Raft-slab foundations
21-41 11 11 61	Excavation stabilizing
<b>21-41 11 13</b>	<b>Foundation Stabilization</b>
21-41 11 13 11	Underpinning
<b>21-41 11 15</b>	<b>Basements</b>
21-41 11 15 11	Subgrade Walls (Includes: Wall Supports)
<b>21-41 11 17</b>	<b>Floors on Grade</b>
21-41 11 17 11	Floors Slabs-On-Grade
21-41 11 17 21	Structural Floors-On-Grade
21-41 11 17 31	Pits
21-41 11 17 41	Trenches
21-41 11 17 51	Formed Drains
<b>21-41 11 19</b>	<b>Cofferdams</b>
21-41 11 19 11	Sheeting
21-41 11 19 21	Sealing
<b>21-41 11 21</b>	<b>Water Control</b>
21-41 11 21 31	Dewatering
21-41 11 21 41	Underwater Excavation
<b>21-41 11 23</b>	<b>Roadbed</b>
21-41 11 23 11	Re-conditioning
21-41 11 23 21	Subgrade modification
21-41 11 23 31	Foundation Stabilizing
21-41 11 23 41	Rock Fill and Surfacing

Number	Title
<b>21-41 11 26</b>	<b>Bridge Substructure</b>
21-41 11 26 11	Foundations
21-41 11 26 21	Piers
21-41 11 26 31	Abutments
<b>21-41 11 27</b>	<b>Tunnels</b>
21-41 11 27 11	Vehicle Tunnels
21-41 11 27 21	Pedestrian Tunnels
21-41 11 27 31	Train Tunnels
21-41 11 27 41	Utility Tunnels
21-41 11 27 51	Shafts
<b>21-41 31 00</b>	<b>Superstructure and Enclosure</b>
<b>21-41 31 11</b>	<b>Floor Construction</b>
21-41 31 11 11	Supported Basement Floors
21-41 31 11 21	Structural Floors
21-41 31 11 31	Vertical Shaft Structure
21-41 31 11 41	Balconies
21-41 31 11 51	Mezzanines
21-41 31 11 61	Ramps
<b>21-41 31 13</b>	<b>Stairs and Ladders</b>
21-41 31 13 11	Stairs
21-41 31 13 21	Landings
21-41 31 13 31	Fire Escapes
21-41 31 13 41	Ladders
<b>21-41 31 15</b>	<b>Conveying Systems</b>
21-41 31 15 11	Vertical Transportation (Includes: Elevators and Wheel-Chair Lifts)
21-41 31 15 21	Horizontal Transportation (Includes: Moving Walkways)
21-41 31 15 31	Sloped Transportation (Includes: Escalators and Wheel-Chair Lifts)
21-41 31 15 41	Materials Handling Containers
21-41 31 15 51	Turntables
21-41 31 15 61	Operable Scaffolding
<b>21-41 31 17</b>	<b>Roof Construction</b>
21-41 31 17 11	Roof Framing
21-41 31 17 21	Sloped Roof Framing
21-41 31 17 31	Vaulted Roof Framing
21-41 31 17 41	Canopy Framing
21-41 31 17 51	Fabric Roof Framing
21-41 31 17 61	Dome Framing
21-41 31 17 71	Air Supported Framing
<b>21-41 31 19</b>	<b>Bearing Wall Construction</b>
21-41 31 19 11	Tilt-up Concrete Wall Construction
21-41 31 19 21	Masonry Wall Construction
<b>21-41 31 21</b>	<b>Bridge Construction</b>
21-41 31 21 11	Beams
21-41 31 21 21	Tied Arch
21-41 31 21 31	Suspension
21-41 31 21 41	Cable Stayed
21-41 31 21 51	Trusses
21-41 31 21 61	Decks
21-41 31 21 71	Support Bearings
21-41 31 21 81	Movable Mechanism
21-41 31 21 91	Expansion Control
<b>21-41 31 23</b>	<b>Dam Construction (Includes: Embankment, Earthwork)</b>
21-41 31 23 11	Gravity Dams
21-41 31 23 21	Arch Dams
<b>21-41 31 26</b>	<b>Tank and Silo Construction</b>
21-41 31 26 11	Above-Grade Silo
21-41 31 26 21	Below-Grade Silo
21-41 31 26 31	Below-Grade Cistern/Tank
<b>21-41 31 27</b>	<b>Tower Superstructure Construction</b>
21-41 31 27 11	Framed Towers
21-41 31 27 21	Pole Towers - Cable Stayed

Number	Title
<b>21-41 51 00 Enclosure</b>	
<b>21-41 51 11 Vertical Enclosure</b>	
21-41 51 11 11	Exterior Walls
21-41 51 11 21	Parapets
21-41 51 11 31	Retaining Walls
21-41 51 11 41	Balcony Walls and Railings
<b>21-41 51 12 Moisture Proofing</b>	
21-41 51 12 11	Damp-proofing Below Grade
21-41 51 12 21	Waterproofing Below Grade
<b>21-41 51 13 Vertical Openings</b>	
21-41 51 13 11	Transparent Openings
21-41 51 13 21	Exterior Doors
21-41 51 13 91	Other Vertical Openings
<b>21-41 51 15 Horizontal / Sloped Protection</b>	
21-41 51 15 11	Steep Roofing
21-41 51 15 21	Membrane Roofing
21-41 51 15 31	Flashings
21-41 51 15 41	Waterproofing
21-41 51 15 51	Traffic Coatings
21-41 51 15 61	Drainage
21-41 51 15 71	Roof Fittings
21-41 51 15 81	Soffits
<b>21-41 51 17 Horizontal Openings</b>	
21-41 51 17 11	Transparent Openings
21-41 51 17 21	Roof Hatches and Vents
<b>21-41 51 18 Sloped Openings</b>	
21-41 51 18 11	Roof Windows
21-41 51 18 21	Inclined Roof Hatches and Vents
<b>21-41 71 00 Interior</b>	
<b>21-41 71 11 Interior Construction</b>	
21-41 71 11 11	Fire Walls
21-41 71 11 21	Shaft Walls
21-41 71 11 31	Interior Partitions
21-41 71 11 41	Other Interior Construction
<b>21-41 71 12 Openings and Doors</b>	
21-41 71 12 11	Transparent Openings
21-41 71 12 21	Interior Doors
21-41 71 12 81	Railings
<b>21-41 71 15 Interior Finishes</b>	
21-41 71 15 11	Floor Finish
21-41 71 15 31	Wall Finish
21-41 71 15 51	Ceiling Finish
21-41 71 15 11	Stair Finish
21-41 71 15 91	Tunnel and Subgrade Linings
<b>21-41 71 18 Interior Fittings</b>	
21-41 71 18 11	Storage Fittings
21-41 71 18 31	Compartments and Cubicles
<b>21-41 81 00 Signage</b>	
<b>21-41 81 11 Way-finding Signage</b>	
<b>21-41 81 21 Door Signs</b>	
<b>21-41 81 31 Wall Signs</b>	
<b>21-41 81 11 Equipment Identification</b>	
<b>21-51 00 00 Facility Services</b>	
<b>21-51 11 00 Life Safety and Facility Protection</b>	
<b>21-51 11 11 Fire and Smoke Detection and Alarm</b>	

Number	Title
21-51 11 15	Fire and Smoke Protection
21-51 11 21	Security Access
21-51 11 26	Security Monitoring and Surveillance
<b>21-51 31 00 Plumbing</b>	
21-51 31 11	Water for Single Facility (See: Infrastructure for utility distribution among multiple facilities)
21-51 31 11 11	Water Supply
21-51 31 11 14	Plumbing Fixtures
21-51 31 11 17	Domestic Water Distribution
21-51 31 14	Drainage for Single Facility (See: Infrastructure for utility distribution among multiple facilities)
21-51 31 14 11	Septic Tank and Field Drainage
21-51 31 14 14	Sanitary Waste and Vent
21-51 31 14 17	Facility Storm Water Drainage
21-51 31 14 21	Process Systems
<b>21-51 51 00 Heating, Ventilating and Air Conditioning (HVAC)</b>	
21-51 51 12	Heating
21-51 51 12 11	Heat Generation for Single Facility
21-51 51 14	Cooling
21-51 51 14 11	Cooling Generation for Single Facility
21-51 51 16	Air Distribution
21-51 51 16 11	Ventilation
21-51 51 18	HVAC Distribution
21-51 51 18 11	Heating and Cooling Distribution for Single Facility
<b>21-51 61 00 Integrated Automation</b>	
21-51 61 11	Integrated Automation Controls
21-51 61 13	Integrated Automation Monitoring
<b>21-51 71 00 Electrical</b>	
21-51 71 11	Electrical Power
21-51 71 11 11	Electric Energy Generation for Single Facility
21-51 71 11 14	Electric Service and Distribution for Single Facility
21-51 71 11 17	Electric Conversion
21-51 71 13	Electrical Distribution
21-51 71 13 11	Ground Methodology
21-51 71 13 31	Power Conditioning
21-51 71 13 51	Branch Circuitry
21-51 71 15	Lighting
21-51 71 15 11	Interior Lighting
21-51 71 15 51	Exterior Lighting
21-51 71 15 91	Emergency Lighting
21-51 71 17	Communications for Single Facility (See: Infrastructure for utility distribution among multiple facilities.)
21-51 71 17 11	Communications
21-51 71 17 31	Voice and Data
21-51 71 17 51	Sound Reinforcement
21-51 71 17 71	Audio and Video
<b>21-61 00 00 Facility Equipment and Furnishings</b>	
<b>21-61 11 00 Equipment and Furnishings</b>	
21-61 11 11	Food Service Equipment and Furnishings
21-61 11 11 11	Specialized Food Storage and Display Furniture
21-61 11 11 31	Food Service Equipment
21-61 11 11 41	Commercial Kitchen Casework
21-61 11 11 51	Restaurant Furniture
21-61 11 14	Educational, Cultural Equipment and Furnishings

Number	Title
21-61 11 14 11	Educational Equipment and Furnishings
21-61 11 14 21	Entertainment Equipment and Furnishings
21-61 11 14 31	Theater and Stage Equipment and Furnishings
21-61 11 14 41	Planetarium Equipment and Furnishings
21-61 11 14 51	Observatory Equipment and Furnishings
21-61 11 14 61	Ecclesiastical Equipment and Furnishings
21-61 11 14 71	Library and Archive Equipment and Furnishings
21-61 11 14 81	Exhibition Furnishings
<b>21-61 11 17</b>	<b>Sports Equipment and Furnishings</b>
21-61 11 17 11	Athletic Equipment and Furnishings
21-61 11 17 31	Recreational Equipment and Furnishings
21-61 11 17 51	Therapeutic Equipment and Furnishings
<b>21-61 11 21</b>	<b>Work Environment Equipment and Furnishings</b>
21-61 11 21 11	Laboratory Equipment and Furnishings
21-61 11 21 21	Health Care Equipment and Furnishings
21-61 11 21 31	Mortuary Equipment and Furnishings
21-61 11 21 41	Hospitality Equipment and Furnishings
21-61 11 21 51	Mercantile Equipment and Furnishings
21-61 11 21 61	Office Equipment and Furnishings
21-61 11 21 71	Detention Equipment and Furnishings
21-61 11 21 81	Security and Vault Equipment and Furnishings
<b>21-61 11 24</b>	<b>Furniture and Fittings</b>
21-61 11 24 11	Manufacturing Furniture and Fittings
21-61 11 24 31	Shop Furniture and Furnishings
<b>21-61 11 27</b>	<b>Equipment</b>
21-61 11 27 11	Vending Equipment
21-61 11 27 21	Vehicular Equipment
21-61 11 27 31	Darkroom Equipment
21-61 11 27 41	Agricultural Equipment
21-61 11 27 51	Slaughterhouse Equipment
<b>21-61 11 31</b>	<b>Residential Equipment and Furnishings</b>
21-61 11 31 11	Residential Furniture
21-61 11 31 31	Residential Specialties
21-61 11 31 41	Residential Appliances
21-61 11 31 51	Refuse Disposal Furniture
<b>21-61 11 34</b>	<b>Wardrobe and Closet Specialties</b>
21-61 11 34 11	Storage Furniture
21-61 11 34 31	Storage Shelving Units
<b>21-61 41 00</b>	<b>Differentiated Construction</b>
<b>21-61 41 41</b>	<b>Complete Room Units (Note: Combinations of Superstructure, Interiors, Facility Services, Equipment and Furnishings as one integrated element.)</b>
21-61 41 41 11	Storage Rooms
21-61 41 41 21	Special Purpose Rooms
21-61 41 41 31	Sanitary Units
21-61 41 41 41	Controlled Environment Rooms
21-61 41 41 51	Plant and Control Rooms
21-61 41 41 61	Corridor Units
<b>21-61 41 42</b>	<b>Water Containing Elements</b>
21-61 41 42 11	Swimming Pool
21-61 41 42 21	Tub
21-61 41 42 31	Water Slide
21-61 41 42 41	Aquarium
21-61 41 42 51	Ponds and Reservoir
<b>21-61 41 43</b>	<b>Snow and Ice Elements</b>
21-61 41 43 11	Ice Rinks
21-61 41 43 21	Ski Jumps
21-61 41 43 31	Snow Sled Tracks
21-61 41 43 41	Bob-Sled Runs
21-61 41 43 51	Snow Making Equipment
21-61 41 43 61	Ice Making Equipment
<b>21-61 41 44</b>	<b>Recreation Elements</b>

Number	Title
21-61 41 44 11	Recreation Surfaces
21-61 41 44 21	Event Marking
21-61 41 44 31	Safety Fencing / Netting
21-61 41 44 41	Spectator Seating
<b>21-61 41 45</b>	<b>Entertainment Elements</b>
21-61 41 45 11	Amusement Rides
21-61 41 45 31	Water Spray Parks
<b>21-61 41 46</b>	<b>Storage Containers</b>
21-61 41 46 11	Elevated Tanks
21-61 41 46 61	Subgrade Tanks
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<b>21-71 00 00</b>	<b>Utilities And Infrastructure</b>
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<b>21-71 11 00</b>	<b>Roadways</b>
21-71 11 11	Right of Way (Includes: Easement)
21-71 11 12	Stabilized Road Base
21-71 11 13	Pavements
21-71 11 13 11	Soft Pavement
21-71 11 13 51	Hard Pavement
21-71 11 14	Roadside Barriers
21-71 11 14 11	Boulevard Barriers
21-71 11 15	Safety Reflectors
21-71 11 16	Light, Power, and Communication Vertical Standards
21-71 11 17	Sign Structures
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<b>21-71 21 00</b>	<b>Railways</b>
21-71 21 21	Railway Drainage
21-71 21 22	Ballast
21-71 21 23	Ties
21-71 21 24	Rails
21-71 21 24 11	Light Rail
21-71 21 24 51	Heavy Rail
21-71 21 25	Monorail
21-71 21 26	Overhead Power
21-71 21 27	Switches
21-71 21 28	Signals
21-71 21 29	Embankment
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<b>21-71 31 00</b>	<b>Airports</b>
21-71 31 31	Runways and Taxiways
21-71 31 32	Parking Apron
21-71 31 33	Passenger Loading Bridges
21-71 31 34	Baggage Handling
21-71 31 34 11	Baggage Conveyors
21-71 31 34 51	Baggage Security Scanners
21-71 31 35	Aircraft Management
21-71 31 35 11	Pavement Marking
21-71 31 35 21	Aircraft Taxi Guidance Devices
21-71 31 35 31	Aircraft Safety Barriers
21-71 31 35 41	Aircraft De-icing Equipment
21-71 31 35 51	Aircraft Re-fueling Ports and Devices
21-71 31 36	Communication Devices
21-71 31 36 11	Air Navigation Devices
21-71 31 36 56	Air Communication Devices
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<b>21-71 41 00</b>	<b>Space Travel</b>
21-71 41 41	Space Vehicle Assembly Enclosures
21-71 41 42	Space Vehicle Transfer Road
21-71 41 43	Launch Facilities

Number	Title
21-71 41 43 11	Launch Tower
21-71 41 43 31	Water Cooling Moat
21-71 41 43 51	Safety Devices
<b>21-71 41 47</b>	<b>Post-Launch Equipment</b>
21-71 41 47 11	Satellite Control Facilities
21-71 41 47 31	Telescope Enclosure Domes
21-71 41 47 51	Radio Signal Searching Device Construction (Includes: Radar Domes)
<b>21-71 51 00 Transportation</b>	
<b>21-71 51 51</b>	<b>Vehicles</b>
21-71 51 51 11	Aircraft
21-71 51 51 21	Automobiles
21-71 51 51 31	Boats/Ships
21-71 51 51 41	Buses
21-71 51 51 51	Cable Car
21-71 51 51 61	Elevated Airport Vehicles
21-71 51 51 71	Guided Transit Vehicles / Surface Shuttles
<b>21-71 51 53</b>	<b>Space Vehicles</b>
21-71 51 53 11	Spacecraft
21-71 51 53 31	Spacecraft Transfer Vehicles
21-71 51 53 51	Trains
<b>21-71 51 57</b>	<b>Funicular Elements</b>
21-71 51 57 11	Surface Tramway
21-71 51 57 21	Aerial Tramway
21-71 51 57 31	Ski Tow – Closed Cabin
21-71 51 57 41	Ski Tow - Open
21-71 51 57 51	Ski Tow Cabin
21-71 51 57 61	Operated River Crossing Raft
<b>21-71 61 00 Utilities</b>	
<b>21-71 61 61</b>	<b>Water Wells</b>
21-71 61 61 11	Excavated Wells
21-71 61 61 31	Drilled Wells
<b>21-71 61 62</b>	<b>Water Distribution</b>
21-71 61 62 11	Below Grade
21-71 61 62 51	Above Grade Viaduct
<b>21-71 61 63</b>	<b>Sanitary Sewer Utility</b>
<b>21-71 61 64</b>	<b>Storm Sewer Utility</b>
<b>21-71 61 65</b>	<b>Fuel Utility Distribution</b>
21-71 61 65 11	Tank Fuel Storage
21-71 61 65 21	Pressurized Cylinders
21-71 61 65 31	Piping
<b>21-71 61 66</b>	<b>Heating and Cooling Utility Distribution</b>
<b>21-71 61 67</b>	<b>Electrical Power Distribution</b>
<b>21-71 61 68</b>	<b>Communication Utility Distribution</b>
<b>21-71 71 00 Water-Related Construction</b>	
<b>21-71 71 71</b>	<b>Coastal Construction</b>
<b>21-71 71 72</b>	<b>Waterway Construction</b>
<b>21-71 71 73</b>	<b>Marine Construction</b>
<b>21-71 71 74</b>	<b>Underwater Construction</b>
<b>21-81 00 00 Specialty Equipment</b>	
<b>21-81 11 00 Chemical, Biological, and Metallurgical Equipment</b>	
<b>21-81 11 11</b>	<b>Chemical Conveyance Equipment</b>
21-81 11 11 11	React Pipe Conveyance Equipment
21-81 11 11 14	Distill / Separate Pipe Conveyance Equipment
21-81 11 11 17	Wash Pipe Conveyance Equipment

Number	Title
21-81 11 11 21	Absorb Pipe Conveyance Equipment
21-81 11 11 24	Evaporate Pipe Conveyance Equipment
21-81 11 11 27	Crystallize Pipe Conveyance Equipment
21-81 11 11 31	Hydro-treat Pipe Conveyance Equipment
21-81 11 11 34	Reform Pipe Conveyance Equipment
21-81 11 11 37	Crack Pipe Conveyance Equipment
21-81 11 11 41	Blend Pipe Conveyance Equipment
21-81 11 11 44	Isomerize Pipe Conveyance Equipment
21-81 11 11 47	Alkylate Pipe Conveyance Equipment
<b>21-81 11 12</b>	<b>Biological Conveyance Equipment</b>
21-81 11 12 11	Ferment Pipe Conveyance Equipment
21-81 11 12 21	Digest Pipe Conveyance Equipment
<b>21-81 11 13</b>	<b>Metallurgical Conveyance Equipment</b>
21-81 11 13 11	Smelt / Melt Conveyance Equipment
21-81 11 13 21	Refine Conveyance Equipment
21-81 11 13 31	Coke Conveyance Equipment
<b>21-81 21 00 Thermal and Combustion Equipment</b>	
21-81 21 21	Heat Exchange Equipment
21-81 21 22	Boiler and Furnace Equipment
21-81 21 23	Oven, Heater and Roaster Equipment
21-81 21 24	Kiln Equipment
21-81 21 25	Incinerate Devices
21-81 21 26	Chill/Refrigerate Equipment
21-81 21 27	Freeze Dry Equipment
21-81 21 28	Sterilize Equipment
<b>21-81 31 00 Power and Motive Equipment</b>	
21-81 31 31	Electrical Power Generation
21-81 31 31 11	Water Source Generating Equipment
21-81 31 31 21	Combustion Equipment
21-81 31 31 31	Solar Equipment
21-81 31 31 41	Wind Equipment
21-81 31 31 51	Nuclear Reactor
21-81 31 32	Air/Gas Power Generation
21-81 31 32 11	Fan/Blower Equipment
21-81 31 32 21	Exhauster Equipment
21-81 31 32 31	Vacuum Equipment
21-81 31 32 41	Compression Equipment
21-81 31 33	Fluid Power Generation
21-81 31 33 11	Gravity Equipment
21-81 31 33 21	Pump Equipment
21-81 31 34	Engines/Drivers
21-81 31 34 11	Pneumatic Motors
21-81 31 34 21	Electrical Motors
21-81 31 34 31	Turbines
<b>21-81 41 00 Process Equipment</b>	
21-81 41 41	Gas, Fume and Particulate Treatment Equipment
21-81 41 41 11	Adsorb Equipment
21-81 41 41 15	Desiccate Equipment
21-81 41 41 21	Cyclone Equipment
21-81 41 41 26	Filter Equipment
21-81 41 41 31	Condensor Equipment
21-81 41 41 35	Scrubber Equipment
21-81 41 41 41	Eject/E-duct Equipment
21-81 41 41 45	Vent Equipment
21-81 41 41 51	Stack Equipment
21-81 41 41 55	Flare Equipment
21-81 41 41 61	Flame Arrest Equipment

Number	Title
<b>21-81 41 42 Reduction Process</b>	
21-81 41 42 11	Break Equipment
21-81 41 42 16	Pulverize Equipment
21-81 41 42 21	Crush Equipment
21-81 41 42 26	Grind Equipment
21-81 41 42 31	Mill Equipment
21-81 41 42 36	Cut Equipment
21-81 41 42 41	Chip Equipment
21-81 41 42 46	Flake Equipment
21-81 41 42 51	Shred Equipment
21-81 41 42 56	Split Equipment
<b>21-81 41 43 Separation Process</b>	
21-81 41 43 11	Filter Equipment
21-81 41 43 16	Strain Equipment
21-81 41 43 21	Sieve Equipment
21-81 41 43 26	Wash Equipment
21-81 41 43 31	Centrifuge Equipment
21-81 41 43 36	Flotation Equipment
21-81 41 43 41	Sort Equipment
21-81 41 43 46	Separate Equipment
21-81 41 43 51	De-aerate/De-gas Equipment
21-81 41 43 56	Settling Equipment
<b>21-81 41 44 Mix and Blend Equipment</b>	
21-81 41 44 11	Mix Equipment
21-81 41 44 26	Stir Equipment
21-81 41 44 21	Knead Equipment
21-81 41 44 26	Agitate Equipment
21-81 41 44 31	Slake Equipment
21-81 41 44 36	Blend Equipment
21-81 41 44 41	Compound Equipment
21-81 41 44 46	Aerate Equipment
21-81 41 44 51	Inject Equipment
<b>21-81 41 45 Shaping Process Equipment</b>	
21-81 41 45 11	Pelletize Equipment
21-81 41 45 16	Spin Equipment (Includes: Fiber-Making Equipment)
21-81 41 45 21	Extrude Equipment
21-81 41 45 26	Pulltrude Equipment
21-81 41 45 31	Compact Equipment
21-81 41 45 36	Tablet Equipment
21-81 41 45 41	Roll Equipment
<b>21-81 41 46 Web Equipment</b>	
21-81 41 46 11	Conversion Equipment
21-81 41 46 11 11	Screen Equipment
21-81 41 46 11 12	Extrude Equipment
21-81 41 46 11 13	Roll Coat Equipment
21-81 41 46 11 14	Cast Equipment
21-81 41 46 21	Preparation/Treatment Equipment
21-81 41 46 21 21	Clean Equipment
21-81 41 46 21 22	Heat Treat Equipment
21-81 41 46 21 23	Sanitize/Sterilize Equipment
21-81 41 46 21 24	Neutralize Equipment
21-81 41 46 21 25	Electrostatic Equipment
21-81 41 46 21 26	Texturize Equipment
21-81 41 46 21 27	Vulcanize Equipment
21-81 41 46 21 28	Passivate Equipment
21-81 41 46 21 29	Anneal Equipment
21-81 41 46 21 31	Pickle Equipment
21-81 41 46 21 32	Cure Equipment
21-81 41 46 21 33	Temper Equipment
21-81 41 46 41	Coat/Plate Equipment
21-81 41 46 51	Dimensional Equipment
21-81 41 46 51 51	Stretch Equipment

Number	Title
21-81 41 46 51 52	Tent Equipment
21-81 41 46 51 53	Roll Equipment
21-81 41 46 51 54	Calendar Equipment
21-81 41 46 61	Dry Process Equipment
21-81 41 46 71	Finish and Trim Equipment
21-81 41 46 71 71	Wind/unwind Equipment
21-81 41 46 71 72	Slit Equipment
21-81 41 46 71 73	Chop Equipment
21-81 41 46 71 74	Cut Equipment
21-81 41 46 71 75	Perforate Equipment
21-81 41 46 71 76	Spool Equipment
<b>21-81 51 00 Fluid Treatment Equipment</b>	
<b>21-81 51 51 Potable Water Treatment Equipment (See: Infrastructure for utility distribution.)</b>	
21-81 51 51 11	Potable Water Treatment Equipment
21-81 51 51 16	Potable Water Pump Equipment
21-81 51 51 21	Potable Water Mixer and Flocculator Equipment
21-81 51 51 26	Potable Water Clarifying Equipment
21-81 51 51 31	Potable Water Filtering Equipment
21-81 51 51 36	Potable Water Aeration Equipment
21-81 51 51 41	Potable Water Chemical Feed Equipment
21-81 51 51 46	Water Softening Equipment
21-81 51 51 51	Potable Water Disinfectant Feed Equipment
21-81 51 51 56	Potable Water Fluoridation Equipment
21-81 51 51 61	Potable Water Taste and Odor Equipment
<b>21-81 51 52 Wastewater Treatment Equipment</b>	
21-81 51 52 11	Wastewater Pump Station Equipment
21-81 51 52 16	Wastewater Sewer Piping Equipment
21-81 51 52 21	Wastewater Tank Equipment
21-81 51 52 26	Wastewater Screening Equipment
21-81 51 52 31	Wastewater Chemical Addition Equipment
21-81 51 52 36	Wastewater Comminutors Equipment
21-81 51 52 41	Wastewater Aeration and Flocculation Equipment
21-81 51 52 46	Wastewater Flow Equalization Equipment
21-81 51 52 51	Wastewater Flow Splinter Unit Equipment
21-81 51 52 56	Wastewater Disinfection Equipment
21-81 51 52 61	Wastewater Sludge Removal Equipment
<b>21-81 51 53 Storm Water Treatment Equipment</b>	
21-81 51 53 11	Storm Water Swale Equipment
21-81 51 53 16	Storm Water Inlet Equipment
21-81 51 53 21	Storm Water Culvert Equipment
21-81 51 53 26	Storm Water Headwall Equipment
21-81 51 53 31	Storm Water Outlet Protection Equipment
21-81 51 53 36	Storm Water Infiltration Equipment
21-81 51 53 41	Above-Ground Storm Water Storage Equipment
21-81 51 53 46	Underground Storm Water Storage Equipment
<b>21-81 51 54 Fluid Waste Treatment Equipment (See: Infrastructure for utilities distribution.)</b>	
21-81 51 54 11	Fluid Treatment Equipment
21-81 51 54 14	Filter Underdrains and Media Equipment
21-81 51 54 17	Fluid Waste Digester Covers and Appurtenances
21-81 51 54 21	Fluid Waste Oxygenation Equipment
21-81 51 54 24	Sludge Conditioning Equipment
21-81 51 54 27	Fluid Waste Treatment Equipment
21-81 51 54 31	Fluid Waste Pump Equipment
21-81 51 54 34	Grit Collection Equipment
21-81 51 54 37	Fluid Waste Screen and Grind Equipment
21-81 51 54 41	Sedimentation Tank Equipment
21-81 51 54 44	Fluid Waste Scum Removal Equipment
21-81 51 54 47	Fluid Waste Chemical Equipment
21-81 51 54 51	Sludge Handling and Treatment Equipment
21-81 51 54 54	Filter Press Equipment
21-81 51 54 57	Trickling Filter Equipment

Number	Title
21-81 51 54 61	Fluid Waste Compressor Equipment
21-81 51 54 64	Fluid Waste Aeration Equipment
21-81 51 54 67	Sludge Digestion Equipment
21-81 51 54 71	Digester Mixing Equipment
<b>21-81 61 00 Measurement and Control Equipment</b>	
<b>21-81 61 61 Structural Measurement and Control Equipment</b>	
21-81 61 61 11	Movement Measurement and Control Equipment
21-81 61 61 21	Seismic Measurement and Control Equipment
<b>21-81 61 62 Facility Services Measurement and Control Equipment</b>	
21-81 61 62 11	Water and Drainage Measurement and Control Equipment
21-81 61 62 21	HVAC Measurement and Control Equipment
21-81 61 62 31	Electrical Measurement and Control Equipment
21-81 61 62 41	Lighting Measurement and Control Equipment
21-81 61 62 51	Communications Measurement and Control Equipment
<b>21-81 61 63 Transportation Measurement and Control Equipment</b>	
21-81 61 63 11	Conveying Monitoring and Control Equipment
21-81 61 63 31	Railway Monitoring and Control Equipment
21-81 61 63 31	Aircraft Monitoring and Control Equipment
21-81 61 63 41	Spacecraft Monitoring and Control Equipment
21-81 61 63 51	Satellite Monitoring and Control Equipment
<b>21-81 61 64 Infrastructure Measurement and Control Equipment</b>	
21-81 61 64 11	Utilities Monitoring and Control Equipment
21-81 61 64 41	Traffic Monitoring and Control Equipment
21-81 61 64 31	Marine Monitoring and Control Equipment
<b>21-81 61 65 Process Measurement and Control Equipment</b>	
21-81 61 65 11	Chemical Process Monitoring and Control Equipment
21-81 61 65 16	Biological Process Monitoring and Control Equipment
21-81 61 65 21	Metallurgical Process Monitoring and Control Equipment
21-81 61 65 26	Thermal and Combustion Processes Monitoring and Control Equipment
21-81 61 65 31	Power and Motive Processes Monitoring and Control Equipment
21-81 61 65 36	Gas Processing and Treatment Monitoring and Control Equipment
21-81 61 65 41	Fume Processing and Treatment Monitoring and Control Equipment
21-81 61 65 46	Particulate Processing and Treatment Monitoring and Control Equipment
21-81 61 65 51	Physical Processes Monitoring and Control Equipment
21-81 61 65 56	Web Processes Monitoring and Control Equipment
21-81 61 65 61	Manufacturing and Assembly Monitoring and Control Equipment
21-81 61 65 66	Material Inspection Monitoring and Control Equipment
21-81 61 65 71	Material Handling Monitoring and Control Equipment
21-81 61 65 76	Material Storage Monitoring and Control Equipment
21-81 61 65 81	Fluid Treatment Monitoring and Control Equipment
<b>21-81 61 66 Integrated Measurement and Control Equipment</b>	
21-81 61 66 11	Measurement and Control Instruments
21-81 61 66 21	Recording Instruments
21-81 61 66 31	Facility Monitoring and Control Equipment (Note: For multiple functional elements for single facility.)
21-81 61 66 41	Infrastructure Monitoring and Control Equipment (Note: For multiple functional elements among facilities.)
<b>21-81 71 00 Manufacturing and Assembly Equipment</b>	
<b>21-81 71 71 Machining Equipment</b>	
21-81 71 71 11	Lathe Equipment
21-81 71 71 21	Planing or Shaving Equipment
21-81 71 71 31	Drilling Equipment
21-81 71 71 41	Sawing or Cutting Equipment
21-81 71 71 51	Grinding Equipment
21-81 71 71 61	Milling Equipment
21-81 71 71 71	Machining Center Equipment
<b>21-81 71 72 Forming Equipment (Note: From liquid/gas/plasma to solid or plastic, or to form plastic materials.)</b>	
21-81 71 72 11	Pressing Equipment (Includes: Stamping, Bending, Crimping)
21-81 71 72 21	Molding Equipment

Number	Title
21-81 71 72 31	Injection Equipment
21-81 71 72 41	Crystallizing Equipment
21-81 71 72 99	Other Forming Equipment
<b>21-81 71 73</b>	<b>Fabrication Equipment</b>
21-81 71 73 11	Welding Equipment
21-81 71 73 16	Joining Equipment
21-81 71 73 21	Fusing Equipment
21-81 71 73 26	Adhering Equipment
21-81 71 73 31	Stitching Equipment
21-81 71 73 36	Composite Fabrication Equipment (Note: Fiber or resin fabrication.)
21-81 71 73 41	Laminating Equipment
21-81 71 73 46	Etching Equipment
21-81 71 73 51	Photo-Fabricating Equipment
<b>21-81 71 74</b>	<b>Assembly Equipment</b>
21-81 71 74 11	Manual Assembly Equipment
21-81 71 74 21	Automated Assembly Equipment
<b>21-81 71 75</b>	<b>Treatment Equipment</b>
21-81 71 75 11	Cleaning Equipment
21-81 71 75 56	Heat Treating Equipment
21-81 71 75 21	Sanitizing/Sterilizing Equipment
21-81 71 75 26	Neutralizing Equipment
21-81 71 75 31	Electrostatic Equipment
21-81 71 75 36	Texturing Equipment
21-81 71 75 41	Vulcanizing Equipment
21-81 71 75 46	Passivating Equipment
21-81 71 75 51	Annealing Equipment
21-81 71 75 56	Pickling Equipment
<b>21-81 71 76</b>	<b>Coating and Plating Equipment</b>
21-81 71 76 11	Galvanizing Equipment (Note: Zinc Coating)
21-81 71 76 21	Copper Plating Equipment
21-81 71 76 31	Chrome Plating Equipment
21-81 71 76 41	Terne Coating Equipment
<b>21-81 71 77</b>	<b>Packaging Equipment</b>
21-81 71 77 11	Capping Equipment
21-81 71 77 16	Box Making Equipment
21-81 71 77 21	Folding/Pressing/Creasing Equipment
21-81 71 77 26	Package Filling Equipment
21-81 71 77 31	Laminating Equipment
21-81 71 77 36	Sealing Equipment
21-81 71 77 41	Sewing Equipment
21-81 71 77 46	Wrapping Equipment
21-81 71 77 51	Bundling Equipment
21-81 71 77 56	Labeling Equipment
21-81 71 77 61	Printing/Stamping Equipment
<b>21-81 81 00</b>	<b>Material Inspection, Handling and Storage Equipment</b>
<b>21-81 81 81</b>	<b>Storage Equipment</b>
21-81 81 81 11	Storage Bin
21-81 81 81 21	Storage Silo
21-81 81 81 31	Storage Hopper
21-81 81 81 41	Storage Tank
21-81 81 81 51	Storage Stack
21-81 81 81 61	Storage Palette
21-81 81 81 71	Storage Rack
<b>21-81 81 82</b>	<b>Measuring Equipment</b>
21-81 81 82 11	Metering Equipment
21-81 81 82 21	Weighing Equipment
<b>21-81 81 83</b>	<b>Handling Equipment</b>
21-81 81 83 11	Up-Ending Equipment
21-81 81 83 21	Load / Unload Equipment
21-81 81 83 31	Lifting Equipment
21-81 81 83 41	Shelving Equipment

Number	Title
21-81 81 83 51	Retrieving Equipment
21-81 81 83 61	Dispensing Equipment
21-81 81 83 71	Transferring or Conveying Equipment

**End of Table 21**