

Generic Cost Estimating Relationships

Ship Repair & Overhaul (Government & Commercial)

Rates based upon average mid-size U.S. shipyard having mid-1990's to 20xx production facilities.

Confidential & Proprietary Data

All material costs and equipment have been escalated for the year

2020

NOTE: To change material cost estimates to another year, insert that year above



Worksheet Name
(Hyperlinked)

New Construction CER Category

Major CER Categories

Coatings: Clean & Paint
 Dock Services
 Electric
 Engineering
 Hull Item Repairs
 Inspections
 Insulation: Remove & Install
 Machinery Repairs
 Miscellaneous
 Outfit: Joinerwork, Doors, Hatches & Scuttles
 Pipe & Fittings: Renew, Install, Bend, Replace, Insulate
 Productivity
 Pumps
 Shipyard Services
 Structural
 Tank Cleaning
 Welding Services
 Valve Servicing
 Ventilation Repairs

Coatings - Paint Application	Paint
Coatings - Paint Cement Wash	Paint
Coatings - Paint Full Coat	Paint
Coatings - Paint Spot Coat	Paint
Coatings - Paint Copper Ablative	Paint
Coatings - Paint Epoxy/Vinyl	Paint
Coatings - Paint Zinc Silicate	Paint
Coatings - Paint Silicone Alkyd	Paint
Coatings - Paint Inspections & Testing	Paint
Coatings - Paint Hull Marks	Paint
Coatings - Scaffolding	Paint
Coatings - Clean w/Non-Hazardous Blast	BlastCleanCharts
Coatings - Clean w/ Hazardous Blast	BlastCleanCharts
Coatings - Clean Non-Hazardous Blast	BlastClean
Coatings - Clean w/ Hazardous Blast	BlastClean
Coatings - Clean w/ Chemical	BlastClean
Coatings - Clean w/Scrapping	BlastClean
Coatings - Clean w/Wire Brush	BlastClean
Coatings - Clean Underwater	BlastClean
Coatings - Clean Non-Skid Coatings (Ultra-High Pressure)	BlastClean
Coatings by Ship Location - Clean w/Rinse Water	BlastClean
Coatings by Ship Location - Clean w/Heavy Commercial Blast	BlastClean
Coatings by Ship Location - Clean w/Commercial Blast	BlastClean
Coatings by Ship Location - Clean w/Near White Metal Blast	BlastClean
Coatings by Ship Location - Clean w/White Metal Blast	BlastClean
Coatings by Ship Location - Clean w/Spot Blast	BlastClean
Coatings by Ship Location - Clean w/Brush-Off Grit Blast	BlastClean
Coatings - Cleaning Surface Work Breakdown	Surface Cleaning
Coatings - Preservation Water Tank	Equations - Paint
Coatings - Preservation Heavy Fuel Oil Tank	Equations - Paint

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Coatings - Preservation Diesel Fuel Tank	Equations - Paint
Coatings - Preservation Sea Chest & Strainer	Equations - Paint
Coatings - Clean w/Sand Blast	Equations - Paint
Coatings - Clean w/Sand Sweep	Equations - Paint
Coatings - Clean w/High Pressure Wash & Clean w/Scrape	Equations - Paint
Coatings - Paint/Coating	Equations - Paint
Coatings - Painting Surface Work Breakdown	Misc.Paint
Dock Services - Inspections & Surveys	Dock Services (sort)
Dock Services - Pilots	Dock Services (sort)
Dock Services - Tugs	Dock Services (sort)
Dock Services - Warfage	Dock Services (sort)
Dock Services - Dry Docking	Dock Services (sort)
Dock Services - Blocking	Dock Services (sort)
Dock Services - Haul Days	Dock Services (sort)
Dock Services - Lay Days	Dock Services (sort)
Dock Services - Mooring Fees	Dock Services (sort)
Dock Services - Divers	Dock Services (sort)
Dock Services - Temporary Services - Electrical	Dock Services (sort)
Dock Services - Temporary Services - Telephone & Internet	Dock Services (sort)
Dock Services - Temporary Services - Water	Dock Services (sort)
Dock Services - Temporary Services - Steam Systems	Dock Services (sort)
Dock Services - Temporary Services - Sewage & Garbage Disposal	Dock Services (sort)
Dock Services - Temporary Services - Compressed Air Systems	Dock Services (sort)
Dock Services - Temporary Services - Fire Protection Systems	Dock Services (sort)
Dock Services - Temporary Services - Equipment	Dock Services (sort)
Dock Services - Misc Services	Dock Services (sort)
Dock Services - Labor Rate - All Crafts/Trades	Dock Services (sort)
Dock Services - Material Markup	Dock Services (sort)
Dock Services - Related Services	Dock Services (sort)
Electric Motor Servicing & Repair -Motors	Electric Motor Graphs
Electric Motor Servicing & Repair -Motor Controllers	Electric Motor Graphs
Electric Motor Servicing & Repair -Clean & Bake	Electric Motor Tables
Electric Motor Servicing & Repair -Rewind Stator	Electric Motor Tables
Electric Motor Servicing & Repair -Rewind Rotor	Electric Motor Tables
Electric Motor Servicing & Repair -Motor Controller (AC)	Electric Motor Tables
Electric Motor Servicing & Repair -Motor Controller (DC)	Electric Motor Tables
Electric Generator -AC Generator Overhaul	Equations - Electric Motors
Electric Generator -AC Generator Overhaul	Generator Overhaul
Electric Cable - Cable Installation	Electrical Cable Graphs
Electric Cable - Cable Renewal	Electrical Cable Graphs
Electric Cable - Hangers, Markers, & Straps Renewal	Electrical Cable Graphs
Electric Cable - Hookup to Enclosures	Electric Cable Charts
Electric Cable - Hookup to Enclosures	Electric Cable Work
Electric Cable - Cable Banding	Electric Cable Work
Electric Cable - Cable ID Tags	Electric Cable Work
Electric Cable - Equipment Preparations	Electric Cable Work
Electric Cable - Cable Pulling	Electric Cable Work
Electric Cable - Cable Transits	Electric Cable Work
Electric Cable - Shooting Studs	Electric Cable Work
Electric Cable - Fume Tight	Electric Cable Work
Electric Cable - Cable Packing	Electric Cable Work
Electric Cable - Cable Renewal	Electrical Cable Tables
Electric Cable - Cable Installation	Electrical Cable Tables

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Electric Cable - Cable Removal	Electrical Cable Remove
Electric Cable - Cable Installation	Electrical Cable Install
Electric Cable - Wiring Installation	Electrical Cable Install
Electric Equipment Removal - Alarms	Electrical Misc. Remove
Electric Equipment Removal - Indicators	Electrical Misc. Remove
Electric Equipment Removal - Level Switches	Electrical Misc. Remove
Electric Equipment Removal - Gyro Compass	Electrical Misc. Remove
Electric Equipment Removal - Switchboards	Electrical Misc. Remove
Electric Equipment Removal - Distribution Panels	Electrical Misc. Remove
Electric Equipment Removal - Jack Boxes	Electrical Misc. Remove
Electric Equipment Removal - Power Converters	Electrical Misc. Remove
Electric Equipment Removal - Transmitters	Electrical Misc. Remove
Electric Equipment Removal - Communications Equipment	Electrical Misc. Remove
Electric Equipment Install - Audio Equipment	Electrical Misc. Install
Electric Equipment Install - Detectors	Electrical Misc. Install
Electric Equipment Install - Indicators	Electrical Misc. Install
Electric Equipment Install - Switchboards	Electrical Misc. Install
Electric Equipment Install - Distribution Panels	Electrical Misc. Install
Electric Equipment Install - Jack Boxes	Electrical Misc. Install
Electric Equipment Install - Alarms	Electrical Misc. Install
Electric Equipment Install - Communications Equipment	Electrical Misc. Install
Electric Equipment Install - Electrical Connections	Electrical Misc. Install
Electric Equipment Misc. - Compass Adjustment	Electrical Miscellaneous
Electric Equipment Misc. - Clean Switchboard	Electrical Miscellaneous
Electric Equipment Misc. - Remove & Replace Power Panel	Electrical Miscellaneous
Electric Equipment Misc. - Calibrate Non-Electric Gages	Electrical Miscellaneous
Electric Equipment Misc. - Calibrate Non-Electric Thermometers	Electrical Miscellaneous
Electric Equipment Misc. - Replace Fire Alarm Control System	Electrical Miscellaneous
Electric Equipment Misc. - Install Alarm Panel & Tank Level Indicating System	Electrical Miscellaneous
Electric Lighting Systems	Electric Lighting Systems
Engineering - Certificates	Engineering
Engineering - New Drawings	Engineering
Engineering - Revision to Existing Drawings	Engineering
Engineering - Inclining & DWT Survey	Engineering
Engineering - Electrical Load Analysis	Engineering
Engineering - Technical Services	Engineering
Engineering - Hull Fatigue Failure Tests	Engineering
Hull Item Repairs - Anchor Chains	Misc. Hull Work
Hull Item Repairs - Anodes	Misc. Hull Work
Hull Item Repairs - Tank Tests & Refurbishments	Misc. Hull Work
Hull Item Repairs - Temporary Access	Misc. Hull Work
Hull Item Repairs - Ultra-Sonic Testing	Misc. Hull Work
Hull Item Repairs - Miscellaneous	Misc. Hull Work
Hull Item Repairs - General Overhaul Exterior & Interior	Misc. Hull Work
Hull Item Repairs - Anchor & Chain Work	Equations - Hull Work
Hull Item Repairs - Rudder, Pintles, Prop & Shaft Work	Equations - Hull Work
Hull Item Repairs - Anodes	Equations - Hull Work
Hull Item Repairs - Rudder & Pintles	Rudder Work
Hull Item Repairs - Shafting	Prop-Tail Shaft Work
Hull Item Repairs - Rope Guard	Prop-Tail Shaft Work
Hull Item Repairs - Seals	Prop-Tail Shaft Work
Hull Item Repairs - Propeller	Prop-Tail Shaft Work
Hull Item Repairs - Stern Galnd	Prop-Tail Shaft Work

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Hull Item Repairs - Sea Chest & Strainer	Hull Overhaul Work
Hull Item Repairs - Anchor & Chain	Hull Overhaul Work
Hull Item Repairs - Chain Locker	Hull Overhaul Work
Hull Item Repairs - Cathodic Protection	Hull Overhaul Work
Hull Item Repairs - Out Hull Clean & Paint	Hull Overhaul Work
Hull Item Repairs - Fuel Tank	Hull Overhaul Work
Hull Item Repairs - Water Tank	Hull Overhaul Work
Hull Item Repairs - Propeller	Hull Overhaul Work
Inspections - Audio Gauge - hull thickness measurements -	Inspections
Inspections - Annual Ship Inspections	Inspections
Inspections - Inspection, Bow & Stern Thruster	Inspections
Inspections - Inspection, Radiographic	Inspections
Inspections - Ultra-sonic thickness	Inspections
Inspections - Gas-Free Re-Certification	Inspections
Inspections - NDT Testing of Welds	Inspections
Inspections - Inspection, Coating Destructive	Inspections
Inspections - Inspection, Coating Non-destructive	Inspections
Inspections - Air Test	Inspections
Inspections - Marine Chemist	Inspections
Inspections - Competant Person	Inspections
Inspections - Inspection or survey – dry dock preparation	Inspections
Inspections - CDC Cruise Ship Sanitation Inspections	Inspections
Inspections - Hull Fatigue Failure Tests	Engineering
Insulation Removal - Acoustical Type Hard Faced	Hull Insulation (SORT)
Insulation Removal - Acoustical Type Soft Faced	Hull Insulation (SORT)
Insulation Removal - Non-hazardous Materials	Hull Insulation (SORT)
Insulation Removal - Reefer Type Soft Faced	Hull Insulation (SORT)
Insulation Removal - Thermal Type Hard Faced	Hull Insulation (SORT)
Insulation Removal - Asbestos & Disposal	Hull Insulation (SORT)
Insulation Removal - Fiberous Glass	InsulationTable
Insulation Removal - Calcium Silicate Piping	InsulationTable
Insulation Removal - Elastomeric	InsulationTable
Insulation Removal - Pipe Insulation, Non-Asbestos Type	InsulationTable
Insulation Removal - Sheet-Type Insulation, Non-Asbestos Type	InsulationTable
Insulation Removal - Pipe Insulation, Asbestos Type	InsulationTable
Insulation Removal - Sheet-Type Insulation, Asbestos Type	InsulationTable
Insulation Install- Acoustical Type Hard Faced	Hull Insulation (SORT)
Insulation Install- Acoustical Type Soft Faced	Hull Insulation (SORT)
Insulation Install- Non-hazardous Materials	Hull Insulation (SORT)
Insulation Install- Reefer Type Soft Faced	Hull Insulation (SORT)
Insulation Install- Thermal Type Hard Faced	Hull Insulation (SORT)
Insulation Install- Acoustical Type Hard Faced	Insulation Charts
Insulation Install- Acoustical Type Soft Faced	Insulation Charts
Insulation Install- Non-hazardous Materials	Insulation Charts
Insulation Install- Reefer Type Soft Faced	Insulation Charts
Insulation Install- Thermal Type Hard Faced	Insulation Charts
Insulation Install - Fiberous Glass	InsulationTable
Insulation Install - Calcium Silicate Piping	InsulationTable
Insulation Install - Elastomeric	InsulationTable
Insulation Install - Adhesive	InsulationTable
Stripping, Removing & Disposing Ship Systems	Outfit Removal & Disposal

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Machinery Repairs - Machinery Life & Maintenance	<u>Machinery Life Expectancies</u>
Machinery Repairs - Diesel Piping Systems	<u>Machinery Charts</u>
Machinery Repairs - Diesel Engine	<u>Machinery Charts</u>
Machinery Repairs - Diesel Generator	<u>Machinery Charts</u>
Machinery Repairs - Re-furbish Electric Motor	<u>Machinery Charts</u>
Machinery Repairs - Install Electric Motor	<u>Machinery Charts</u>
Machinery Repairs - Remove Machinery Items	<u>Machinery Section (1REVISED)</u>
Machinery Repairs - Install Machinery Items	<u>Machinery Section (1REVISED)</u>
Machinery Repairs - LNG Fuel Diesel Conversions	<u>Machinery Section (sortmisc)</u>
Machinery Repairs - Service Machinery Items	<u>Machinery Section (sortmisc)</u>
Machinery Repairs - Waste Fuel Oil Recovery System	<u>Machinery Section (sortmisc)</u>
Machinery Repairs - Replace Thordon bearings w/natural rubber cutlass	<u>Machinery Section (sortmisc)</u>
Machinery Repairs - Replace main diresel engine, reduction gear & cont	<u>Machinery Section (sortmisc)</u>
Machinery Repairs - Overhaul Diesel Engine	<u>Machinery Section (1REVISED)</u>
Machinery Repairs - Overhaul Gas Turbine	<u>Machinery Section (1REVISED)</u>
Machinery Repairs - Overhaul Steam Turbine	<u>Machinery Section (1REVISED)</u>
Machinery Repairs - Replace main diresel engine, reduction gear & cont	<u>Machinery Section (1REVISED)</u>
Miscellaneous - Compare Foreign Repair Prices	<u>Compare ForeignRepairPrices</u>
Miscellaneous - Average Regional U.S. Labor Rates	<u>Forecast Wage Rates</u>
Miscellaneous - Commodity Escalation Tables	<u>Factors</u>
Miscellaneous - Using Commodity Escalation Tables	<u>Using Factors</u>
Miscellaneous - Introduction	<u>Introduction</u>
Miscellaneous - Notice	<u>Notice</u>
Miscellaneous - Notes	<u>NOTES</u>
Miscellaneous - CER Index	<u>CERINDEX</u>
Outfit Joiner Work Removal - Office Furnishings	<u>Joiner Work</u>
Outfit Joiner Work Removal - Berthing Furnishings	<u>Joiner Work</u>
Outfit Joiner Work Removal - Medicial/Hospital Furnishings	<u>Joiner Work</u>
Outfit Joiner Work Removal - Galley Equipment	<u>Joiner Work</u>
Outfit Joiner Work Removal - Laundry Equipemnt	<u>Joiner Work</u>
Outfit Joiner Work Removal - Toilet/Shower Fixtures	<u>Joiner Work</u>
Outfit Joiner Work Removal - Entertainment Equipment & Furnishings	<u>Joiner Work</u>
Outfit Joiner Work Removal - Doors	<u>Joiner Work</u>
Outfit Joiner Work Removal - Bulkheads	<u>Joiner Work</u>
Outfit Joiner Work Removal - Deck Covering	<u>Joiner Work</u>
Outfit Joiner Work Removal - Sheathing	<u>Joiner Work</u>
Outfit Joiner Work Removal - Tile	<u>Joiner Work</u>
Outfit Joiner Work Install - Office Furnishings	<u>Joiner Work</u>
Outfit Joiner Work Install - Berthing Furnishings	<u>Joiner Work</u>
Outfit Joiner Work Install - Medicial/Hospital Furnishings	<u>Joiner Work</u>
Outfit Joiner Work Install - Galley Equipment	<u>Joiner Work</u>
Outfit Joiner Work Install - Laundry Equipemnt	<u>Joiner Work</u>
Outfit Joiner Work Install - Toilet/Shower Fixtures	<u>Joiner Work</u>
Outfit Joiner Work Install - Entertainment Equipment & Furnishings	<u>Joiner Work</u>
Outfit Joiner Work Install - Doors	<u>Joiner Work</u>
Outfit Joiner Work Install - Bulkheads	<u>Joiner Work</u>
Outfit Joiner Work Install - Deck Covering	<u>Joiner Work</u>
Outfit Joiner Work Install - Sheathing	<u>Joiner Work</u>
Outfit Joiner Work Install - Tile	<u>Joiner Work</u>
Outfit Joiner Work Install - Sheet Metal, Non-Structural	<u>Sheet Metal</u>
Outfit Joiner Work Install - Aluminum Shelving	<u>Sheet Metal</u>
Outfit Joiner Work Install - Steel Shelving	<u>Sheet Metal</u>
Outfit Joiner Work Install - Aluminium Gates & Walkways	<u>Sheet Metal</u>

Outfit Decking Install - Tile	Tile Decks
Outfit Decking Install - Terrazzo	Tile Decks
Outfit Decking Install - Tile Cement	Outfit
Outfit Decking Install - Underlayment	Outfit
Outfit Decking Renewal - Electric Matting	Outfit
Outfit Decking Renewal - One-Step Polymeric	Outfit
Outfit Decking Renewal - Quarry Tile	Outfit
Outfit Decking Renewal - Re-Sealing Wet Spaces	Outfit
Outfit Decking Renewal - Terrazzo	Outfit
Outfit Decking Renewal - Vinyl Tile	Outfit
Outfit Decking Renewal - Dix-O-Tex	Outfit
Outfit Decking Renewal - Rubber Matting	Outfit
Outfit Decking Renewal - Vinyl Cove Base Molding	Outfit
Outfit Doors Install - WTD, QAWTD & WEATD	Outfit
Outfit Doors Install - Automatic Opening - PVAG Compliance	Outfit
Outfit Doors Install - Elevator - PVAG Compliance	Outfit
Outfit Doors Install - Fire - PVAG Compliance	Outfit
Outfit Doors Install - Replace Thresholds - PVAG Compliance	Outfit
Outfit Hatches Install - Hatches	Outfit
Outfit Scuttles Install - Scuttles	Outfit
Outfit Upgrades - PVAG Compliance: Drinking Fountain	Outfit
Outfit Upgrades - PVAG Compliance: Enlarged & Modified Toilet /Lavato	Outfit
Outfit Upgrades - PVAG Compliance: Add Wheelchair Space	Outfit
Outfit Upgrades - PVAG Compliance: Accessible Life Jacket Locker	Outfit
Outfit Upgrades - PVAG Compliance: Snack Bar Counter Mods	Outfit
Outfit Upgrades - PVAG Compliance: Add auto-sprinkler system	Outfit
Outfit Upgrades - PVAG Compliance: Add Assistive Listening System	Outfit
Outfit Renewal - Self-Unloading Machinery	Outfit
Outfit Removal - Sheathing	Outfit
Outfit Install -Sheathing	Outfit
Outfit Replace - Habitability Overhaul	Outfit
Outfit Replace - Commissary Equipment	Outfit
Pipe - Install Black Steel	Pipe Work - ALL
Pipe - Install ExHvy Black Steel	Pipe Work - ALL
Pipe - Install Standard Galvanized	Pipe Work - ALL
Pipe - Install ExHvy Galvanized	Pipe Work - ALL
Pipe - Install Pipe & fittings	Charts Pipe, Fits & Hangers
Pipe - Average Pipe Weld	Charts Pipe, Fits & Hangers
Pipe - Install Hanger	Charts Pipe, Fits & Hangers
Pipe - Weld Pipe Fittings	Charts Pipe, Fits & Hangers
Pipe - Renew Schedule 40 Galvanized	Renew Pipe Work Sch 40GALV
Pipe - Renew Schedule 80 Galvanized	Renew Pipe Work Sch 80GALV
Pipe - Renew Schedule 40 Black Steel	Renew Black Pipe Sch 40
Pipe - Renew Schedule 80 Black Steel	Renew Black Pipe Sch 80
Pipe - Renew Schedule 40 Galvanized	Pipe Work
Pipe - Renew Schedule 80 Galvanized	Pipe Work
Pipe - Renew Schedule 40 Seamless Steel	Pipe Work
Pipe - Renew Schedule 80 Seamless Steel	Pipe Work
Pipe - Renew Schedule 40 Galvanized	Equations - Pipe
Pipe - Renew Schedule 80 Galvanized	Equations - Pipe

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Pipe - Renew Schedule 40 Seamless Steel	Equations - Pipe
Pipe - Renew Schedule 80 Seamless Steel	Equations - Pipe
Pipe - Renew Firemain & Bilge System	Pipe Work - ALL
Pipe - Renew Engine Room Fire Suppression System	Pipe Work - ALL
Pipe - Renew Gray Water System	Pipe Work - ALL
Pipe - Renew Reverse Osmosis System	Pipe Work - ALL
Pipe - Renew Potable Water System	Pipe Work - ALL
Pipe - Renew Flange, Slip-On Steel	Pipe Fittings Work
Pipe - Renew Flange, Slip-On Galvanized	Pipe Fittings Work
Pipe - Renew Flange Gasket	Pipe Fittings Work
Pipe - Renew Flex Hose	Pipe Fittings Work
Pipe - Replacement Average Fitting	Pipe Fitting Replacement
Pipe - Replacement Elbows & Fittings - Steel	Pipe Fitting Replacement
Pipe - Replacement Dresser Coupling	Pipe Fitting Replacement
Pipe - Replacement Average Fitting	Pipe Fittings Charts - inch
Pipe - Replacement Elbows & Fittings - Steel	Pipe Fittings Charts - inch
Pipe - Replacement Dresser Coupling	Pipe Fittings Charts - inch
Pipe - Replacement Average Fitting	Pipe Fittings Charts -metric
Pipe - Replacement Elbows & Fittings - Steel	Pipe Fittings Charts -metric
Pipe - Replacement Dresser Coupling	Pipe Fittings Charts -metric
Pipe Bends - Copper	Pipe Bends
Pipe Bends - Copper Nickel	Pipe Bends
Pipe Bends - Stainless Steel	Pipe Bends
Pipe Bends - Steel	Pipe Bends
Pipe Bends - Galvanized	Pipe Bends
Pipe Material - Black Steel Schedule 40	Pipe Material Cost
Pipe Material - Black Steel Schedule 80	Pipe Material Cost
Pipe Material - Galvanized Steel Schedule 40	Pipe Material Cost
Pipe Material - Galvanized Steel Schedule 80	Pipe Material Cost
Pipe Material - Black Steel Schedule 40	Pipe \$Material
Pipe Material - Black Steel Schedule 80	Pipe \$Material
Pipe Material - Galvanized Steel Schedule 40	Pipe \$Material
Pipe Material - Galvanized Steel Schedule 80	Pipe \$Material
Pipe Material - Black Steel Schedule 40	Pipe \$Material Charts
Pipe Material - Black Steel Schedule 80	Pipe \$Material Charts
Pipe Material - Galvanized Steel Schedule 40	Pipe \$Material Charts
Pipe Material - Galvanized Steel Schedule 80	Pipe \$Material Charts
Pipe Insulation Remove - Asbestos	Pipe Insulation
Pipe Insulation Install - High Temperature	Pipe Insulation
Pipe Insulation Remove - Non-Asbestos High Temperature	Pipe Insulation
Pipe Insulation Install - Low Temperature	Pipe Insulation
Pipe Insulation Remove - Non-Asbestos Low Temperature	Pipe Insulation
Pipe Insulation Install - Very Low (Refrigerant) Temperature	Pipe Insulation
Pipe Insulation Remove - Non-Asbestos Very Low (Refrigerant) Temperature	Pipe Insulation
Pipe Insulation Remove - Asbestos	Pipe Insulation Charts-Metric
Pipe Insulation Install - High Temperature	Pipe Insulation Charts-Metric
Pipe Insulation Remove - Non-Asbestos High Temperature	Pipe Insulation Charts-Metric
Pipe Insulation Install - Low Temperature	Pipe Insulation Charts-Metric
Pipe Insulation Remove - Non-Asbestos Low Temperature	Pipe Insulation Charts-Metric
Pipe Insulation Install - Very Low (Refrigerant) Temperature	Pipe Insulation Charts-Metric
Pipe Insulation Remove - Non-Asbestos Very Low (Refrigerant) Temperature	Pipe Insulation Charts-Metric
Pipe Insulation Remove - Asbestos	Pipe Insulation Charts-US UNits
Pipe Insulation Install - High Temperature	Pipe Insulation Charts-US UNits
Pipe Insulation Remove - Non-Asbestos High Temperature	Pipe Insulation Charts-US UNits
Pipe Insulation Install - Low Temperature	Pipe Insulation Charts-US UNits

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Pipe Insulation Remove - Non-Asbestos Low Temperature	Pipe Insulation Charts-US UNits
Pipe Insulation Install - Very Low (Refrigerant) Temperature	Pipe Insulation Charts-US UNits
Pipe Insulation Remove - Non-Asbestos Very Low (Refrigerant) Temper:	Pipe Insulation Charts-US UNits
Pipe Insulation Install - High Temperature	Pipe Insulation Tables
Pipe Insulation Remove - Non-Asbestos High Temperature	Pipe Insulation Tables
Pipe Insulation Install - Low Temperature	Pipe Insulation Tables
Pipe Insulation Remove - Non-Asbestos Low Temperature	Pipe Insulation Tables
Productivity - Areas of the Ship	Productivity
Productivity - Height of Work	Productivity
Productivity - Stage of Construction	Productivity
Productivity - For Different Types of Metals	Productivity
Productivity - Pipe Location	Pipe Location
Pumps - Replace Miscellaneous Pumps	Pipe Work - ALL
Shipyards Services - General Support Services	Shipyards Services
Shipyards Services - Monthly Services	Shipyards Services
Shipyards Services - Allocation to Production Hours	Shipyards Services
Shipyards Services - Non-Recurring Other	Shipyards Services
Shipyards Services - Miscellaneous	Shipyards Services
Structural Work - Plate Renewal - Mild Steel	Plate Renewal Charts
Structural Work - Plate Renewal - Aluminum	Plate Renewal Charts
Structural Work - Plate Renewal - Stainless Steel	Plate Renewal Charts
Structural Work - Plate Renewal - HY-80	Plate Renewal Charts
Structural Work - Plate Renewal - Mild Steel	Plate Renewal Tables
Structural Work - Plate Renewal - Aluminum	Plate Renewal Tables
Structural Work - Plate Renewal - Stainless Steel	Plate Renewal Tables
Structural Work - Plate Renewal - HY-80	Plate Renewal Tables
Structural Work - Types of Steel Assemblies	Steel Assemblies
Structural Work - Mild Steel - Cut & Fit	More Steel Charts
Structural Work - Mild Steel - Plate Burning	More Steel Charts
Structural Work - Mild Steel - Plate Fairing	Structures - Mild Steel (Sort)
Structural Work - Mild Steel - Plate Doubling	Structures - Mild Steel (Sort)
Structural Work - Mild Steel - Steel Fabrication	Structures - Mild Steel (Sort)
Structural Work - Mild Steel - Renewals	Structures - Mild Steel (Sort)
Structural Work - Mild Steel - Cutting Only	Structures - Mild Steel (Sort)
Structural Work - Mild Steel - Plate Cut & Fit	Structures - Mild Steel (Sort)
Structural Work - Mild Steel - Steel Fab & Install On-Board	Structures - Mild Steel (Sort)
Structural Work - Mild Steel - Hatch Cover Repairs	Structures - Mild Steel (Sort)
Structural Work - Mild Steel - Miscellaneous	Structures - Mild Steel (Sort)
Structural Work - Mild Steel - General Steel Repairs	Structures - Mild Steel (Sort)
Structural Work - HS Steel - Plate Fairing	Structures - HS Steel
Structural Work - HS Steel - Plate Doubling	Structures - HS Steel
Structural Work - HS Steel - Steel Fabrication	Structures - HS Steel
Structural Work - HS Steel - Renewals	Structures - HS Steel
Structural Work - HS Steel - Cutting Only	Structures - HS Steel
Structural Work - HS Steel - Plate Cut & Fit	Structures - HS Steel
Structural Work - HS Steel - Steel Fab & Install On-Board	Structures - HS Steel
Structural Work - HS Steel - Hatch Cover Repairs	Structures - HS Steel
Structural Work - HS Steel - Miscellaneous	Structures - HS Steel
Structural Work - HS Steel - General Steel Repairs	Structures - HS Steel
Structural Work - Aluminum - Plate Fairing	Structures - Aluminum
Structural Work - Aluminum - Plate Doubling	Structures - Aluminum

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Structural Work - Aluminum - Steel Fabrication	Structures - Aluminum
Structural Work - Aluminum - Renewals	Structures - Aluminum
Structural Work - Aluminum - Cutting Only	Structures - Aluminum
Structural Work - Aluminum - Plate Cut & Fit	Structures - Aluminum
Structural Work - Aluminum - Steel Fab & Install On-Board	Structures - Aluminum
Structural Work - Aluminum - Hatch Cover Repairs	Structures - Aluminum
Structural Work - Aluminum - Miscellaneous	Structures - Aluminum
Structural Work - Aluminum - General Steel Repairs	Structures - Aluminum
Structural Materials Prices - Mild Steel	Metal Prices
Structural Materials Prices - HS Steel	Metal Prices
Structural Materials Prices - Aluminum	Metal Prices
Structural Materials Prices - Titanium	Metal Prices
Structural Materials Prices - Stainless Steel	Metal Prices
Structural Materials Prices - Steel Shapes	Metal Prices
Structural Materials Prices - Mild Steel (A, B, C, CS, D, E)	Steel Plate Prices
Structural Materials Prices - HTS (AH)	Steel Plate Prices
Structural Materials Prices - HY-80	Steel Plate Prices
Structural Materials Prices - HSLA-80	Steel Plate Prices
Structural Materials Prices - HY-100	Steel Plate Prices
Structural Materials Prices - HSLA-100	Steel Plate Prices
Structural Materials Prices - Titanium (CP Ti 50A & Ti 130) Plate	Steel Plate Prices
Structural Materials Prices - Aluminum (5xxx)	Aluminum Plate Prices
Structural Materials Prices - Aluminum (2xxx & 7xxx)	Aluminum Plate Prices
Structural Materials Prices - Stainless 304 & 316	Stainless Plate Prices
Structural Materials Prices - Titanium (CP Ti 50A & Ti 130) Plate	Titanium Plate Prices
Structural Materials Prices - Titanium 6-4 Plate	Titanium Plate Prices
Structural Materials Prices - Aluminium 5083-H116	Metals - Material Prices
Structural Materials Prices - Stainless 304 & 316	Metals - Material Prices
Structural Materials Prices - HY80	Metals - Material Prices
Structural Materials Prices - HS Steel	Metals - Material Prices
Structural Materials Prices - Mild Steel	Metals - Material Prices
Structural Materials Prices - Ballast Material	Ballast Material
Tank Cleaning - Remove & Dispose Bilge Water	Tank Cleaning
Tank Cleaning - Remove & Dispose Fuel Oil	Tank Cleaning
Tank Cleaning - Remove & Dispose Oil Below Low Suction Level	Tank Cleaning
Tank Cleaning - Remove & Dispose Cleaning Slops	Tank Cleaning
Tank Cleaning - Install & Remove Oil Containment Boom	Tank Cleaning
Tank Cleaning - Fuel Tank to Safe Hot Work Condition	Tank Cleaning
Tank Cleaning - Bilge Clean & Wipe Down	Tank Cleaning
Tank Cleaning - Gas Free Certificates	Tank Cleaning
Tank Cleaning - Bilge Water Treatment (BWT) - Install System On-Board	Tank Cleaning
Tank Cleaning - Bilge Water Treatment (BWT) - Shore-Based Cleaning	Tank Cleaning
Welding Services - Bead-on-plate welding (lettering, numbering, stripe or	Equations-Welding
Welding Services - Burning, scarfing & flame cutting	Equations-Welding
Welding Services - Grinding or chiseling	Equations-Welding
Welding Services - NDT Testing of Welds	Equations-Welding
Welding Services - Welding - Bevel "V"	Equations-Welding
Welding Services - Welding - Fillet	Equations-Welding
Welding Services - Welding repairs: cracks (drill out & weld)	Equations-Welding
Welding Services - Welding repairs: overlay welding	Equations-Welding
Welding Services - Welding repairs: stud renewal (burn off only)	Equations-Welding
Welding Services - Welding repairs: stud renewal (burn off & weld)	Welding, Grinding, Burning
Welding Services - Welding rod, gas & flux	Welding, Grinding, Burning

2020 - NO LINKS - Generic Repairs CERs

Welding Services - Bead-on-plate welding (lettering, numbering, stripe or	Welding, Grinding, Burning
Welding Services - Bottom butt welding	Welding, Grinding, Burning
Welding Services - Bottom welding	Welding, Grinding, Burning
Welding Services - Burning, scarfing & flame cutting	Welding, Grinding, Burning
Welding Services - Butt welding	Welding, Grinding, Burning
Welding Services - Miscellaneous plate burning	Welding, Grinding, Burning
Welding Services - NDT Testing of Welds	Welding, Grinding, Burning
Welding Services - Simple bevel weld	Welding, Grinding, Burning
Welding Services - Simple fillet weld	Welding, Grinding, Burning
Welding Services - Single V-butt weld	Welding, Grinding, Burning
Welding Services - Welding per pass (average)	Welding, Grinding, Burning
Welding Services - Welding repairs: cracks (drill out & weld)	Welding, Grinding, Burning
Welding Services - Clad weld, grind smooth & two coatings	Welding, Grinding, Burning
Welding Services - Grinding or chiseling	Welding, Grinding, Burning
Welding Services - Manual Fillet Welding	Welding Rate Charts
Welding Services - Manual Bevel Welding	Welding Rate Charts
Welding Services - Manual Fillet Welding	WeldingTables
Welding Services - Manual Bevel Welding	WeldingTables
Valve Servicing - Globe Steam	Valve Inspection
Valve Servicing - Globe Water	Valve Inspection
Valve Servicing - Gate Water	Valve Inspection
Valve Servicing - Butterfly	Valve Inspection
Valve Servicing - Re-Furbishing Globe	Equations - Valves
Valve Servicing - Re-Furbishing Gate	Equations - Valves
Valve Servicing - Re-Furbishing Butterfly	Equations - Valves
Valve Servicing - Globe Sea Valve	Valve Work
Valve Servicing - Gate Sea Valve	Valve Work
Valve Servicing - Butterfly Sea Valve	Valve Work
Valve Servicing - Steam Valve	Valve Work
Valve Servicing - Globe Sea Valve	Valve Work Charts
Valve Servicing - Gate Sea Valve	Valve Work Charts
Valve Servicing - Butterfly Sea Valve	Valve Work Charts
Valve Servicing - Steam Valve	Valve Work Charts
Valve Servicing - Gate In-Line Disc	Inline Disc Gate Valve Work
Ventilation Repairs - Replace Engine Room Ventilation System	Misc. Hull Work
Ventilation Repairs - Replace HVAC System	Misc. Hull Work