

Estimated Normal Useful Life Study

**ASA – MACHINERY & TECHNICAL SPECIALTIES
COMMITTEE**

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Disclaimer: The opinions of NUL reflected in these tables are not intended to be precise. The user is cautioned to review the reasonableness and applicability of any definition, formula, or calculation and to utilize them in an appropriate manner in the valuation process. Deviation from the provided NULs may be appropriate based on the atmosphere in which the subject asset is utilized, the maintenance it has received during its life, and its reasonably anticipated future use. As always, ethics, appraisal judgment, and generally accepted valuation theory must guide the reader in the use of this data. The four ASA Principles of Valuation courses will demonstrate proper use of the methods to apply depreciation to an asset to arrive at value.

The assignment of various asset classes to various industry sectors was based solely on the judgment of the ASA – Machinery & Technical Specialties (MTS) Committee. The NULs were based upon the understanding that the manufacturers' suggested maintenance practices and usage were employed during the period of use of the subject assets. We assume no responsibility for errors, omissions, or differences of opinion.

Introduction

The ASA – Machinery & Technical Specialties (MTS) Committee has recognized that, with the rapid technological changes that continue to take place across many industries, there is a need to review and update the Normal Useful Life Study published in 2010. Accordingly, we have developed an updated study of normal useful lives (“NULs”) for various types of assets that equipment appraisers may come across as part of their work. The purpose of this study is to assist appraisers in estimating NULs for assets most commonly appraised and provide further commentary to help appraisers reach informed conclusions.

In this update, members of the MTS Committee have used the original study as a starting point, enhancing and modernizing the guidance based on changes that have taken place since it was published and incorporating input received from industry experts regarding any update to NUL ranges.

Additional guiding principles have included the following:

- Where possible, references to obsolete asset types which are no longer in operation due to changes in technology or use of modern materials were removed. Moreover, new industries that are key contributors to global economies (e.g., renewable energy, and data centers) have been added.
- The format has been refreshed, with a focus on presenting NUL guidance in a format that is concise and easier to navigate. Similar assets that would fall within the same category or typically be classified in a similar manner by appraisers have been grouped together to make the study easier to update going forward.
- Along with NUL guidance, the study includes specific factors by industry for the appraiser's consideration when developing NUL estimates. The purpose is to highlight industry-specific factors which regularly impact NUL, such as regulatory changes, technological obsolescence, the impact of significant rebuilds, and so on.
- For readers to have an appreciation of the content within the guide, it is recommended that the ASA Valuing Machinery and Equipment – The Fundamentals of Appraising Machinery and Technical Assets textbook be used as a pre-reading to become familiar with terminology used in the guide.

Normal Useful Life (NUL) is separate from economic and accounting life. It is defined as follows for the purpose of this document:

“The physical life, usually estimated in terms of years, that a new property will actually be used before it is retired from service. A property’s normal useful life relates to how long similar properties actually tend to be used, as opposed to the more theoretical economic life calculation of how long a property can profitably be used.” - (ASA, Valuing Machinery and Equipment – The Fundamentals of Appraising Machinery and Technical Assets, Fourth Edition)

NUL is to be a consideration of the life period at which point an asset would be retired or at which point significant investment (rebuilds or replacing major components beyond normal maintenance) would be required to add life back to the asset; or at which point technological improvements are likely to make the asset functionally obsolete. It should consider average use for an industry, which may vary. Once capital expenditures / improvements are made to an asset, the NUL is being extended and not representative of the original asset (it does not have an infinite initial NUL). On the other extreme, this does not consider negligence where no regular maintenance is performed.

Understanding and Using the Normal Useful Life Tables

The NUL tables have been arranged in alphabetical order by sector. The tables feature a reasonable range of NULs within the assets classes under each sector. Minimum and maximum lives are indicated for each asset class within each sector and the individual asset types that would be included within a particular asset class are listed.

In developing the various NUL tables, the Committee recognized that certain categories may be more specific and others more general. It is not possible to cover each and every item, nor all brands or categories of asset; the closest match may be used when an exact match is not available. In some cases, there may be a variation of NUL within the same category. Some examples of why this variation would occur are as follows:

1. A machine may have more damage due to abnormal use, less preventable maintenance than expected, adaptations, or the like, creating a different effective age than is reflected by the tables. Thus, in order to use the tables properly, a well estimated effective age is an absolute necessity.
2. A machine may be much older than the average estimated NUL provided in the tables and, therefore, would have a different effective age. This is usually the result of overhauls, low usage, or exceptional maintenance, in which case both curable physical and functional factors could allow for a lower effective age. In many such cases, the machine would still have the same NUL but would have a lower effective age.

The NUL tables are intended to be used as a starting point; additional adjustments may be required to establish value. Note that value does not always reduce or increase in a linear fashion with age.

Age/Life Formula

A useful tool in the derivation of physical depreciation or total depreciation and obsolescence is the age/life formula. An opinion of physical depreciation can be derived using the NUL of an asset in conjunction with the effective age of an asset in the age/life formula. This is represented mathematically by the following accepted formula:

Age/Life Formulae

Physical Depreciation = Effective Age ÷ NUL

Remaining Useful Life = NUL - Effective Age

When the effective age is divided by the NUL, the result is an analytical or objective calculation of depreciation. Effective age is the apparent age of a property in comparison with a new property of like kind; that is, the age indicated by the actual condition of a property. In estimating effective age, the appraiser considers the effect of overhauls, rebuilds, and above-average or below-average maintenance may have had on the property's current condition. If a property has received regular overhauls, its effective age will normally be less – often significantly less – than its chronological age. Effective age is often the more appropriate numerator in the age/life ratio than is the chronological age. The effective age can also be estimated based on the weighted average age of the trended historical cost.

Consider the following example. The effective age of an asset is 10 years and its NUL is 40 years; using the age/life formula, physical depreciation would be estimated as follows:

Physical Depreciation Estimate

Physical Depreciation = Effective Age ÷ NUL

= 10 years ÷ 40 years = 25%

For a comprehensive explanation of the age/life technique, see American Society of Appraisers' *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Fourth Edition* (pages 48-60).

Conclusion

The opinions of NUL reflected in these tables are not intended to be precise. The user is cautioned to review the reasonableness and applicability of any definition, formula, or calculation and to utilize them in an appropriate manner in the valuation process. Deviation from the provided NULs may be appropriate based on the atmosphere in which the subject asset is utilized, the maintenance it has received during its life, and its reasonably anticipated future use. As always, ethics, appraisal judgment, and generally accepted valuation theory must guide the reader in the use of this data. The four ASA Principles of Valuation courses will demonstrate proper use of the methods to apply depreciation to an asset to arrive at value.

The assignment of various asset classes to various industry sectors was based solely on the judgment of the MTS Committee. The NULs were based upon the understanding that the manufacturers' suggested maintenance practices and usage were employed during the period of use of the subject assets. We assume no responsibility for errors, omissions, or differences of opinion.

Definitions

Note: The terms and definitions provided below are those currently accepted by the MTS Committee of the ASA and published in the glossary of terms of American Society of Appraisers' *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Fourth Edition*.

Accelerated Depreciation – Any method of calculating depreciation that allows greater depreciation in the early years of an asset's life. Contrasted with straight-line depreciation where deductions are equal for each year of the life of the asset.

Accumulated Depreciation – The amount of an asset's cost that has been allocated as a depreciation expense, as of a given date, since it was acquired. The amount is dependent of the accounting method used.

Age/Life – An arithmetic process used to calculate an asset's expired life and/or remaining useful life; one of three methods used in measuring physical deterioration; based on comparing effective age to physical life.

Chronological Age – The number of years that have elapsed since an item or property was originally built or placed in service for the first time.

Cost to cure – Expenditure necessary to correct deterioration or depreciation.

Curable Depreciation/Obsolescence – Deterioration or depreciation that is economically feasible to remedy because the resulting increases in utility and value is greater than the expenditure or cost to cure.

Depreciation (Appraisal) – The estimated loss in value of an asset when compared with a new asset; appraisal depreciation measures value inferiority caused by a combination of physical deterioration, functional obsolescence, and economic obsolescence.

Economic Obsolescence – A form of depreciation where the loss in value or usefulness of a property is caused by factors external to the property. These may include such things as the economics of the industry; availability of financing; loss of material and/or labor sources; new legislation or ordinances; increased cost of raw material, labor, or utilities without a compensatory increase in product price; reduced demand; increased competition; inflation or high interest rates; or similar factors.

Economic Useful Life – The estimated period of time, usually stated in number of years, that a new property may be profitably used for the purpose for which it was intended. Stated another way, economic life is period of time that a new property can be used before it would benefit the owner to replace it with the most economical replacement property that could perform an equivalent service.

Effective Age – The apparent age of a property in comparison with a new property of like kind; that is, the age indicated by the actual condition of a property. In estimating effect age, the appraiser considers the effect that overhauls, rebuilds, and above-average or below-average maintenance may have had on the property's current condition.

Functional Obsolescence – A form of depreciation in which the loss in value or usefulness of a property is caused by the inefficiencies or inadequacies of the property that new technology might now allow.

Normal Useful Life (NUL) – The physical life, usually estimated in terms of years, that a new property will actually be used before it is retired from service. A property's NUL relates to how long similar properties actually tend to be used, as opposed to the more theoretical economic life calculation of how long a property can profitably be used. See also *economic useful life*.

Physical Depreciation – Loss in value or usefulness of a property due to the using up or expiration of its useful life caused by wear and tear, deterioration, exposure to various elements, physical stresses, and similar factors.

Physical Deterioration – See *physical depreciation*.

Physical Life – The estimated period of time, usually stated in number of years, that a new property will physically endure before it deteriorates or fatigues to unusable condition purely from physical causes, without considering the possibility of earlier retirement due to functional and economic obsolescence. See also *normal useful life*.

Remaining Economic Life – The estimated period of time, usually stated in number of years, during which a property of a certain effective age is expected to continue to be profitably used for the purpose for which it was intended. In a simplified analysis, it can be approximated by deducting the asset's effective age from its economic life.

Remaining Useful Life (RUL) – The estimated period, usually measured in terms of years, during which a property of a certain effective age is expected to actually be used before it is retired from service.

Disclaimer

This study seeks to provide guidance on a reasonable range for NULs. In practice, this will vary based on a variety of circumstances, including but not limited to: sub-category/niche, application, work environment, geography, maintenance, macroeconomics, and owner circumstances. This is not a one-size-fits-all manual with an absolute range. It is a normal range estimate for appraisers to consider in addition to sound appraisal judgement with consideration for subject property nuances. Further, the appraiser should consider any available secondary market data to ensure that any values estimated utilizing the cost approach are appropriate and in alignment with market benchmarks where available. Shifting industry/market dynamics can have a material impact on values. The appraiser should also consider any additional obsolescence (such as functional or economic) related factors. The normal useful life data presented is intended to be used as a reference or starting point and additional adjustments may be required to establish value.

Many factors must be considered when concluding a value for an asset. It is imperative that an appraiser use careful research, best judgment, and experience, as well as a personal inspection of the subject asset(s), as appropriate, to form an opinion of value. When forming an opinion of value, an appraiser should use the data provided within this study as a guide, making adjustments based on his/her own data and experience, as necessary.

It should be noted that the NULs provided in this study are not intended to be used for rate making purposes in a regulated utility.

The NUL ranges provided in this study are the result of qualitative research and consultation with industry experts. The reader is advised that no individual quantitative research, such as lifing studies or statistical analyses, has been performed. The opinions of NULs presented below are not intended to be precise. It should be noted, and is hereby acknowledged, that an extensive analysis focused on one classification of an item could result in differing ranges of lives, depending upon the type of item and its use. The MTS Committee assumes no responsibility for errors, omissions, or differences of opinion.

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Agricultural & Farming Equipment

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Agricultural & Farming Equipment	<ul style="list-style-type: none"> • Barrels • Canvas Covers • Feeders • Gill Nets • Horse Clippers • Orchard Tools 	<ul style="list-style-type: none"> • Picking Machines • Sowers • Tarpaulins • Trap Nets • Traps & Leaders 	5	10
	<ul style="list-style-type: none"> • Fertilizer Distributors • Fence Machines • Grain Sowers • Hay Baling Presses • Milking Machines 	<ul style="list-style-type: none"> • Planters / Seeders • Pulverizers • Refrigerators • Shearing Machines • Sprayers • Well Drills 	10	15
	<ul style="list-style-type: none"> • Beet Pullers • Canning Machines • Corn & Cob Crushers • Corn Cribs (Steel) • Corn Shellers • Cream or Grain Separators • Cultivators • Disk Furrow Openers • Farm Gates • Flumes • Grain Drills • Grain & Feed Grinders • Harrows 	<ul style="list-style-type: none"> • Huskers • Incubators & Brooders • Livestock Pens • Listers • Manure Spreaders • Potato Diggers • Potato Sorters • Rotary Cutters • Sleds & Sleighs • Stump Pullers & Grubbers • Subsoilers • Tillers • Hay Rakes 	15	20
	<ul style="list-style-type: none"> • Culverts (Steel or Concrete) 	<ul style="list-style-type: none"> • Fence Posts (Steel) 	30	35
Mobile & Material Handling Equipment	<ul style="list-style-type: none"> • Carts (Hand, Dump & Farm) • Mowers (Electric Trimmer, Farm, Gang, Hand, Lawn) 	<ul style="list-style-type: none"> • Saddles • Wagon Beds 	5	10
	<ul style="list-style-type: none"> • Hay & Seed Loaders • Hay Hoists & Forks 	<ul style="list-style-type: none"> • Tractors • Wagons 	10	15

	<ul style="list-style-type: none"> • Carriers (Feed & Hay) • Combines / Grain Harvesters 	<ul style="list-style-type: none"> • Headers • Hay Stackers 	15	20
Supporting Equipment	<ul style="list-style-type: none"> • Autosteering and Other Implement and Tractor Technology Platforms • Circular Saws • GPS 	<ul style="list-style-type: none"> • Laboratory Equipment • Logging Equipment 	5	10
	<ul style="list-style-type: none"> • Fumigators 	<ul style="list-style-type: none"> • Racks (Feed, Hay & Stack) 	10	15
	<ul style="list-style-type: none"> • Bucket Elevators • Cleaning & Grading Equipment • Conveyors 	<ul style="list-style-type: none"> • Iron & Steel Troughs • Scales (Portable, Truck or Wagon) • Shredders 	15	20
	<ul style="list-style-type: none"> • Boilers • Grain Tanks (Metal) • Grain Weighers & Bagging 	<ul style="list-style-type: none"> • Metal Bins • Metal Silos 	20	25
	<ul style="list-style-type: none"> • Concrete Silos • Grain Tanks (Concrete) 	<ul style="list-style-type: none"> • Water Tanks (Steel) 	40	50

Key Considerations

- Some equipment is crop specific, while other equipment is more generic or adaptable to use for different crops.

Automobile Production

Asset Classification	Assets Captured in Asset Category		NUL Low	NUL High
Primary Process Equipment	<ul style="list-style-type: none"> • Assembly Line Equipment • Blow Molding Machines • Blenders • Dryers • Feeders 	<ul style="list-style-type: none"> • Grinders • Granulators • Hoppers • Injection Molding Machines • Motor Vehicles Manufacturing Equipment 	10	15
	<ul style="list-style-type: none"> • Cutting Machines 	<ul style="list-style-type: none"> • Paint-line Equipment 	15	20
	<ul style="list-style-type: none"> • Presses (Metal Forming, Hydraulic) 		20	30
Process Support Equipment	<ul style="list-style-type: none"> • Lab & Test Equipment • Leak Testers • Milling Machines • Molds & Tools 	<ul style="list-style-type: none"> • Repair Shop Equipment • Robots • Shop Equipment • Welders 	5	10
	<ul style="list-style-type: none"> • Air Compressors • Chillers • Conveyors 	<ul style="list-style-type: none"> • Cooling Tanks • Racks • Silos 	15	20

Key Considerations

- Certain assets used in the manufacturing process such as tooling, molds and assembly line equipment may have their expected economic useful life limited based on being associated with a particular product or model with limited lifecycle.

Broadcasting Equipment

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High
Radio Broadcasting Equipment	<ul style="list-style-type: none"> Digital Audio Players and Recorders Field and Portable Microphones 	2	5
	<ul style="list-style-type: none"> Amplifiers and pre-amplifiers Audio Monitors Audio Processing Assets Audio Routers Automation Systems General Control Room Assets 	6	10
Television Broadcasting Equipment	<ul style="list-style-type: none"> Cameras and Accessories (Lenses, Mounting Heads, etc.) Digital Audio Players and Recorders Digital Video Effects Units Field Microphones Hard Disk Recorders Miniature Microphones 	4	8
	<ul style="list-style-type: none"> Audio Boards, Consoles, Mixers Audio Delay Units, Audio Effect Units Audio Monitors, Microphone Booms Character and Graphics Generating Assets Lighting – Portable & Standalone, Lighting Control Systems, Lighting Hoists 	10	15
Telecommunication Equipment	<ul style="list-style-type: none"> Batteries Licensed Microwave Radio Low-to-Medium Capacity 	5	8

	<ul style="list-style-type: none"> • Base Station Controller Hardware • Cross Connects • High Power Amplifiers • High-Capacity Licensed Microwave Radio • International Telecommunication Submarine Cables 	<ul style="list-style-type: none"> • Multiplexers • Racks • Regenerators • Satellite Earth Station Electronic Assets • Satellite Telemetry & Control Systems 	10	15
	<ul style="list-style-type: none"> • Conduits • Optical Fibre Cables 	<ul style="list-style-type: none"> • Optical Patch Panels 	25	40
General Broadcasting Equipment	<ul style="list-style-type: none"> • Equipment Shelters 	<ul style="list-style-type: none"> • Transmission Towers 	25	40

Cement Manufacturing Equipment

Asset Classification	Assets Captured in Asset Category		NUL Low	NUL High
Primary Production Equipment	<ul style="list-style-type: none"> • Bag Filters (Filtering Assets) • Classifiers • Cyclones • Fluid Bed Dryers 	<ul style="list-style-type: none"> • Hot Gas Generators • Precipitators (Filtering Assets) • Rotary Dryers • Separators 	15	20
	<ul style="list-style-type: none"> • Ball Mills • Coolers • Hammer Mills 	<ul style="list-style-type: none"> • Roller Mills • Roller Presses 	20	25
	<ul style="list-style-type: none"> • Kilns 	<ul style="list-style-type: none"> • Stacks 	25	30
Storage, Handling & Packaging Related Assets	<ul style="list-style-type: none"> • Bulk Loading Devices • Palletizers 	<ul style="list-style-type: none"> • Wrappers 	10	15
	<ul style="list-style-type: none"> • Bins • Bucket Elevators • Conveyor Systems (Various Types) • Hoppers • Pressure Vessels • Rail Unloaders 	<ul style="list-style-type: none"> • Reclaim Tunnels • Reclaimers • Stackers • Tanks • Weighbridges 	20	25
	<ul style="list-style-type: none"> • Silos (Steel, Concrete) 		30	40
Process Support Equipment	<ul style="list-style-type: none"> • Air Compressors • Blast Systems • Control Systems 	<ul style="list-style-type: none"> • Pumps • Testing Equipment 	10	15
	<ul style="list-style-type: none"> • Cranes 	<ul style="list-style-type: none"> • Hoists 	15	20

Key Considerations

- The manufacturing process on the equipment can be highly corrosive and have an impact on the increased rate of the physical deterioration. Close attention needs to be placed on the operations of the cement plant and preventive maintenance schedules as these would have a significant impact on the NUL of the equipment.

Chemical Processing

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Primary Production Equipment	<ul style="list-style-type: none"> Acid & Reaction Towers Charging Machines Chlorine Cells 	<ul style="list-style-type: none"> Columns (Ammonia, Oxygen, Others) Electrolytic Cells Hydrolyzers Recovery Units 	5	10
	<ul style="list-style-type: none"> Acetylene Generators Autoclaves Briquetting Machines Charging Machines Chlorinators Coke Quenchers Crushers (Gyratory, Jaw & Roll) Crystallizers Digesters Dissolvers Drainers 	<ul style="list-style-type: none"> Filter Presses Heat Interchargers Hydrators Liquefiers Oxygen Dryers Pre-Heating & Welding Furnaces Saturators Sheet Metal Hoppers Speed Reducers Temperature Regulators 	12	18
	<ul style="list-style-type: none"> Carbonating & Precipitating Towers Centrifugals Classifiers Cooling Towers Dryers (Rotary & Tunnel Types) Drying Pans Electrical Reactors Filter Presses Grinding Mills 	<ul style="list-style-type: none"> Kilns (Calcinating, Rotary, Vertical, Lime) Lime Feeders Oxygen Manifolds Tanks Thickeners Towers (Distillation, Purifier, Washing) Vacuum Dryers Vacuum Receivers 	15	20
	<ul style="list-style-type: none"> Holdings (Gas & Oxygen) Retorts 	<ul style="list-style-type: none"> Rotary Converters Slakers 	20	25
	Process Support Equipment	<ul style="list-style-type: none"> Charging Buckets Kettles 	<ul style="list-style-type: none"> Pans Tilting & Tumbling Barrels 	5

<ul style="list-style-type: none"> • Bag Fillers • Burners • Concentrators • Grinders • Materials Breakers • Metering Equipment • Mixers (Light) 	<ul style="list-style-type: none"> • Pots • Pre-Heaters • Pulverizers • Screens • Sifters • Testing Apparatus 	10	15
<ul style="list-style-type: none"> • Absorbers • Air Compressors • Bagging Machines • Dust Collectors • Drying Chambers • Electric Heaters • Elevators (Bucket & Belt) • Elevators (Screw Conveyors) 	<ul style="list-style-type: none"> • Evaporating Pans • Evaporators • Fans • Piping (Corrosive Matter) • Precipitators • Pumps • Purifiers • Scales • Stills 	15	20
<ul style="list-style-type: none"> • Air Washers • Belt Conveyors • Blowers • Charging Bins • Condensers • Coolers (Brine, Gas, Rotary) • Incinerators 	<ul style="list-style-type: none"> • Mixers (Heavy) • Piping (Air, Gas, Steam, Water) • Scrubbers • Separators • Storage Bins • Washers 	20	25

Key Considerations

- The nature of chemicals being handled, treated, or processed can have a significant impact on the expected economic useful life of the associated asset. In processes where corrosive chemicals are involved, the appraiser should consider the impact on expected useful life.
- Most chemical plants, and those subject to regulation and inspection, require rigorous regular maintenance schedules due to their combustibility and public danger in cases of disrepair. That is to say, for plants maintained accordingly, it is quite rare for them to have an effective age approaching their appraisal NUL, as this would suggest the plant is in disrepair to the point of being dangerous. Such plants do exist in the world at large or in certain subindustries subject to little oversight or operating outside the realm of general industry accepted safety practices.

Construction Equipment & Materials

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Heavy Mobile Construction Equipment / Yellow Iron	<ul style="list-style-type: none"> • Construction Cranes • Crawler Cranes (Steam, Electric, Gas) • Drag Lines (Light & Medium) • Excavators (Cableway, Trench, Wheel or Crawler Type) • Exploration Equipment 	<ul style="list-style-type: none"> • General Purpose Dump Trucks • Graders • Loaders (Bucket, Front-End) • Pile Drivers • Right of Way Mower • Rollers (Steam, Gas) • Tractor Bulldozers • Tractors 	10	15
	<ul style="list-style-type: none"> • Shovels (Electric, Gasoline, Steam) 	<ul style="list-style-type: none"> • Trailers 	20	25
	<ul style="list-style-type: none"> • Cranes (Dock or Wharf Traveling, Tower) 	<ul style="list-style-type: none"> • Drag Lines (Heavy) 	25	30
Other Mobile Equipment & Related Assets	<ul style="list-style-type: none"> • Buckets (Concrete, Elevator, Scraper or Drag Line) • Concrete Carts • Drills (Air drifter, Electric, Hand, Jackhammer) • Drills (Rock, Traction, Tripod, Well) 	<ul style="list-style-type: none"> • Light Towers • Medium or Tractor Backfillers • Pile Hammers • Pneumatic Backfill Tampers • Reamers (Electric & Pneumatic) • Steel Carts • Wagons 	5	10

Other Construction Equipment	<ul style="list-style-type: none"> Asphalt Heaters Baggers Bridge Floats Cement Gun Machines Chipping & Caulking Tools Column Form Clamps Concrete Chutes Concrete Mixers (Truck Mounted) Cutters Finishing Machines Forms (Concrete, Steel) Grinders (Concrete Surface) Hammers (Pneumatic Riveting, Electric) 	<ul style="list-style-type: none"> Hoists (Air, Electric or Steam) Hose (Fire, Metal, Oil, Reel) Jacks (Hydraulic, Ratchet, Screw, Steamboat) Molds Mortar Boxes Pallets Pneumatic Pavement Breaker Power Transmission Chains Rock Channelers Scarifiers Steel Bin Frames Wire & Cables (Electric, Flexible Steel Armored) Wire Cables 	5	10
	<ul style="list-style-type: none"> Air Hammers Bar & Black Benders Batch Plants Blowers Building Cleaning Machines (Exterior) Concrete Mixers Cut-Off Machines Cutting Machines Electric Capstans Lifting Magnets Paint Spraying Equipment 	<ul style="list-style-type: none"> Plastic Bins Portable & Stationary Rock Crushers Revolving Sifters Scales (Platform, Portable) Steel Bins Tamping Machines Test Boring Apparatus Washers Winches (Electric & Pneumatic) 	10	15
	<ul style="list-style-type: none"> Agitators Augers Bending Machines Block Machines Brick Making Machines Bundling Machines Cement Manufacturing Equipment Continuous Calciners 	<ul style="list-style-type: none"> Drum Hoists Dryers Elevators (Bucket, Cage, Screw) Grinders (Metal Surface) Grinding Machinery Heavy Backfillers Jacks (Rail) Mud Machines Packers Screens Wire Benders 	15	20

	<ul style="list-style-type: none"> Crushers 	<ul style="list-style-type: none"> Heavy Duty Agitators (depends heavily on rebuild program and work environment) 	20	30
Process Support Equipment	<ul style="list-style-type: none"> Compressors Conveyors (Portable, Scraper) Motor & Temperature Controllers Motors (AC & DC) 	<ul style="list-style-type: none"> Pumping Units (Electric, Gas, Steam) Pumps Welding Outfits 	10	15
	<ul style="list-style-type: none"> Condensers Conveyors (Belt, Bucket, Cable, Chain) Dust Collectors Electric Generators & Motors 	<ul style="list-style-type: none"> Feed Water Heaters Feeders Furnaces (Electric, Gas or Oil) Motors (Hydraulic, Pneumatic) 	15	20
	<ul style="list-style-type: none"> Boilers Waste heat Boiler Equipment 	<ul style="list-style-type: none"> Tanks 	25	30

Key Considerations

- In relation to heavy mobile construction equipment or yellow iron, consideration should be given to factors such as current hours, expected useful life of major components in hours, key component replacement lifecycles in assessing the level of applicable physical depreciation. This is not limited to drive train, hydraulics, tracks/tires, undercarriage, and other major wear parts. Main frames of very large mining trucks, drills and shovels may have a higher normal useful life, and in those cases, the appraiser should consult with the manufacturer of the subject model. The appraiser should also consider any available secondary market data to ensure that the estimated value based on the application of the cost approach is aligned with any market benchmarks.
- For heavy mobile construction equipment, the condition the assets operate in can significantly impact expected economic useful life. Assets operating in harsher environments (Example: shot rock versus loose black dirt – steep grades versus flat terrain – sand versus coal) will experience physical deterioration at a higher rate, resulting in a lower expected economic useful life.

Data Centers

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High
Civil Works & Improvements	<ul style="list-style-type: none"> HVAC & Related Improvements 	12	25
	<ul style="list-style-type: none"> Fiber / CAT Cables Flooring Process Piping 	20	30
Fixtures & Equipment	<ul style="list-style-type: none"> Computer Software Desktop Computers Laptops UPS / PDU Batteries 	3	5
	<ul style="list-style-type: none"> Data Processing Equipment (Routers, Servers, Storage) 	5	8
	<ul style="list-style-type: none"> Cabinets Cages Other Machinery & Equipment UPS Systems Power Quality Management (PQM) Systems Product Data Management (PDM) Systems 	12	20
	<ul style="list-style-type: none"> Electrical Wiring & Switchgear Generator Materials 	15	30

Key Considerations

- If there is a separate analysis of the real estate being completed, it is particularly important to clarify delineations. Traditional “building” assets like cooling and power systems are directly related to supporting the data processing equipment. Cost wise, they are orders of magnitude higher than a traditional building supporting asset costs.
- Moore’s law has started to diminish as computing power continues to advance but not at the exponential rate it had for almost 50 years. This has caused server/computing lives to slightly lengthen (on average), with recent innovations impacting cooling and power storage equipment.
- It is important to understand the different data center markets. Hyperscale, colocation, enterprise, and telecom data centers all have different purposes and thus slightly different fit-out and asset turnover (life) considerations.

Electrical & Steam Production & Distribution

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Power Generation Equipment	<ul style="list-style-type: none"> • Alternators • Condensers (Gas, Steam) • Converters • Economizers • Engines (Diesel, Gasoline, Steam) • Exciters • Gas Producers • Gas Purifiers • Gas Scrubbers • Gas Washers 	<ul style="list-style-type: none"> • Generators • Production Plant Equipment (Combustion Turbine, Nuclear, Steam) • Starting Compensators • Steam Production Equipment • Transmission and Distribution Plant Equipment 	20	50
	<ul style="list-style-type: none"> • Gas Regenerators • Hydraulic Turbine • Steam Turbine • Transformers 	<ul style="list-style-type: none"> • Turbogenerators • Water Gas Machines • Waterwheels 	40	60
	<ul style="list-style-type: none"> • Hydro-Electric Power System 	<ul style="list-style-type: none"> • Hydraulic Power Equipment 	40	50
Other Electrical Equipment	<ul style="list-style-type: none"> • Batteries & Storage Battery Equipment 		10	20
	<ul style="list-style-type: none"> • Electrical Controllers & Machinery • Overhead Conductors & Devices 	<ul style="list-style-type: none"> • Station Type Light Arresters • Switchboards & Wiring 	15	25
Process Support Equipment	<ul style="list-style-type: none"> • Ammeters • Boilers, Under 50 HP (Water Tube, Fire Tube) • Boilers Fittings • Communication Equipment • Compressors (Portable, Stationary) • Cooling Towers • Fans & Blowers • Laboratory Equipment 	<ul style="list-style-type: none"> • Oil Filters • Pulverized Coal Fuel System • Pumps • Purification Equipment for Boiler Feed Water • Recording Gauges • Recording Meters • Regulating Meters • Service & Station Equipment • Shop Equipment 	15	25

	<ul style="list-style-type: none"> Material Handling Equipment (Conveyors, Cranes) 			
	<ul style="list-style-type: none"> Boilers Water Heaters 	<ul style="list-style-type: none"> Over 50 HP (Water Tube, Fire Tube) 	20	30
Civil Works & Pipelines	<ul style="list-style-type: none"> Benches Chimneys & Flues Flumes (Steel or Wood) 	<ul style="list-style-type: none"> Poles Steel Pipes (Under 4-inch diameter) 	30	40
	<ul style="list-style-type: none"> Cast Iron Pipes (Under 8-inch diameter) Chimneys & Flumes (Concrete) Concrete Tanks Gas Tanks Penstocks Reservoirs 	<ul style="list-style-type: none"> Steel Pipes Towers & Fixtures Underground Conduit & Infrastructure Wrought Iron or Steel Tanks Wrought Iron Pipes Wells 	40	60
	<ul style="list-style-type: none"> Cast Iron Pipes (over 8-inch diameter) 	<ul style="list-style-type: none"> Wrought Iron Pipes (over 6-inch diameter) 	70	110
	<ul style="list-style-type: none"> Civil works associated with Hydroelectric Facilities 		100	150

Key Considerations

- Consideration should be given to any factors that may limit the useful life of power generation and utilities related assets such as:
 - Offtake agreements or power purchase agreements associated with a facility.
 - Regulatory matters (such as phasing out certain technologies).
 - Economic factors such as tariffs on solar modules. Extension or expiration of the Government credits.
- Many coal-fired plants are being converted from coal to natural gas. As a result, there would be partial retirements, new assets, and assets that have been abandoned. The appraiser should perform the appropriate due diligence when determining the NUL of the assets.
- Requesting a list of past capital expenditure projects and a list of future capital expenditures projects will also alert the appraiser to changes in the effective age and NUL of the assets.

Food & Beverage Production

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Food Production & Processing Equipment	<ul style="list-style-type: none"> • Brine Systems • Churns (Barrel Type, Emulsion, Single Roll) • Condiments Manufacturing & Processing Equipment • Cookers (Cereal) • Dicing & Cubing Machines • Evaporators • Filters • Flake Ice Machines 	<ul style="list-style-type: none"> • Grain Driers • Incubators (Copper, Yeast) • Paring Machines • Presses (Grain Filter, Wet Grain) • Rounding Machines • Scalders (Fruit & Vegetable) • Scaling Machines • Viscosity Regulators 	10	15
	<ul style="list-style-type: none"> • Automatic Scales • Beaters (Heavy) • Blanchers • Blenders For Compounds • Canneries & Frozen Food Equipment • Centrifuges • Classifiers • Cleaners • Coating Machines • Commercial Nut Chopper • Cooling Equipment • Cookers • Crushers • Cutters • Feeders • Fish Scalers • Grain & Grain Mill Products Manufacturing Equipment 	<ul style="list-style-type: none"> • Granulators • Grinders • Hullers • Huskers • Molding Machines • Ovens • Peeling Machines • Percolators • Pulverizers • Refrigerating Equipment • Shakers • Shredders • Sifters • Slicers • Sorters • Standard Sterilizers • Stills • Strainers • Viscosity Machines • Wire Cut Cookie Machines 	15	20

	<ul style="list-style-type: none"> • Automatic Weighing Scales • Clarifiers • Coolers • Creamery & Dairy Equipment • Dehydrators • Gas Absorption Towers • Graders • Hot Dehairers • Incubators (Copper, Yeast) 	<ul style="list-style-type: none"> • Industrial Corers • Melting Kettles • Malt Mills • Malt Turning Machines • Mixers • Presses • Filter Presses • Refrigerating Machines • Retorts • Rice Mills • Roller Mills • Spray Cooling Systems • Vats 	20	25
	<ul style="list-style-type: none"> • Autoclaves (Large Size) • Candy & Confectionary Making Equipment 	<ul style="list-style-type: none"> • Crushers (Raw Sugar) • Food Processing Equipment 	25	30
	<ul style="list-style-type: none"> • Drum Filters 	<ul style="list-style-type: none"> • Sugar Melters 	30	40
	<ul style="list-style-type: none"> • Pulp Drying Plants 	<ul style="list-style-type: none"> • Pulp Silos 	35	45
Bakery & Confectionary Product Manufacturing Equipment	<ul style="list-style-type: none"> • Biscuit Embossing Machines 	<ul style="list-style-type: none"> • Dough Dividers 	10	15
	<ul style="list-style-type: none"> • Automatic Doughnut Machines • Bakery Equipment (General) • Cracker Cutting Machines • Cracker Peeling Machines 	<ul style="list-style-type: none"> • Depositors • Dough Ballers • Dough Sheeter • Enrobers • Pie Rolling Machines • Sheeters • Wafer Cutters 	15	20
Beverage Manufacturing & Bottling Equipment	<ul style="list-style-type: none"> • Bottle Cleaning Units • Bottling Equipment • Carbonators • Corking Machines • Decapping Machines • Fillers & Cappers (Bottle) 	<ul style="list-style-type: none"> • Forewarmers • Pasteurizers • Roasters • Roasting Machines • Yeast Culture Machines 	15	20
	<ul style="list-style-type: none"> • Brewery Equipment • Foremashers 	<ul style="list-style-type: none"> • Milk Meters 	15	25
	<ul style="list-style-type: none"> • Malting Drums 	<ul style="list-style-type: none"> • Pasteurizing & Bottling Equipment 	20	25
Packaging Equipment	<ul style="list-style-type: none"> • Bottle Cappers • Crowning Machines • Lacquering Machines 	<ul style="list-style-type: none"> • Labeling Printers • Meatpacking Equipment 	10	15

	<ul style="list-style-type: none"> • Box-Making Machines • Cappers • Carton Machines • Carton-Filling Machines • Carton Wrapping Machines 	<ul style="list-style-type: none"> • Casing Machines • Can Closing Machines • Filling, Weighing & Sealing Machines • Labelers • Sealers 	15	20
	<ul style="list-style-type: none"> • Bagging Machines & Automatic Weighers • Box Folding Machines 	<ul style="list-style-type: none"> • Can-Making Machines • Crimping Machines • Packing Benches 	20	25
Process Support Equipment	<ul style="list-style-type: none"> • Baking Pans 		4	6
	<ul style="list-style-type: none"> • Dies & Cutters • Pan Greasers & Cleaners 	<ul style="list-style-type: none"> • Temperature Recorders 	10	15
	<ul style="list-style-type: none"> • Air Compressors • Ammonia Compressors • Ammonia Condensers • Barrel Scrubbers • Blowers • Bucket Elevators • Compressed Ammonia Systems • Conveyors (Bucket, Chain, Belt) 	<ul style="list-style-type: none"> • Cooling Towers • Dryers • Humidifiers • Pans (Finishing, Roasting, Vacuum) • Pumps • Screens • Separators • Washers 	15	20
	<ul style="list-style-type: none"> • Air Dryers 	<ul style="list-style-type: none"> • Dust Collectors 	20	25
	<ul style="list-style-type: none"> • Ammonia Receivers 		25	30
	<ul style="list-style-type: none"> • Stainless Steel Tanks 	<ul style="list-style-type: none"> • Storage Bins (Steel) 	30	45

Key Considerations

- For bottling operations, appraisers need to pay attention to proprietary bottling, filling, capping equipment as it may be specific to a certain product. The NUL, for specialized equipment would need to be confirmed with plant engineers onsite.
- Processes that utilize abrasive materials in the production or cleaning of the equipment may suffer from accelerated physical wear and tear. Appraisers should be mindful of the chemicals utilized in the manufacturing and cleaning of the equipment and confirm if there is accelerated physical wear and tear or higher interval of preventive maintenance to combat the effects from the use of those chemicals.
- For packaging equipment, appraisers need to consider the operating conditions such as speed and the control system in place. There is typically an incentive for using packaging equipment with faster speeds and modern controls, hence, slower packaging lines tend to decrease in value at a higher rate compared with faster packaging lines.
- When looking at process tanks it is important to notate agitation and if the tank is jacketed.

- For silos, appraisers need to understand the interior conditions. If not able to inspect, questions should be asked regarding head damage or suck ins and the exterior should be checked for seepage around bottom ring.
- For stainless steel note if it is grade 316. 316 will allow for potentially longer useful life as it is less susceptible to pitting.

Gaming & Entertainment Equipment

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High
Gaming Equipment	<ul style="list-style-type: none"> Casino & Gaming Equipment Slot Machines Table Chips and Shufflers Video Gaming Machines 	4	6
Furniture & Improvements	<ul style="list-style-type: none"> Casino Furnishings 	5	10
Other Gaming Assets	<ul style="list-style-type: none"> Counterfeit Detectors Count Trolleys and Carts Currency Counting Machines Gaming Tables Sorting Machines Ticket Redemption Machines 	7	10

Key Considerations

- Consideration should be given to discussions held with personnel familiar with procurement & asset replacement policies. Certain critical assets such as slot machines, currency counters and security systems may have more formal replacement policies in place limiting economic useful life.

Glass Manufacturing

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Production Equipment	<ul style="list-style-type: none"> • Bottle Machines • Brush Machines • Charging Machines • Coal Crushers • Coaters (Sputtering Chambers, Vacuum Pumps, End Blocks, Magnet Bars) • Cullet Chutes • Cut-Off Machines • Cutting Lehrs • Edging / Rounding Machines • Emery Mills • Float Line – Cold End (Washing / Drying) • Furnace Chargers 	<ul style="list-style-type: none"> • Glass Cleaning Machines • Glass Drilling Machines • Grinding & Polishing Systems • Glass Buggles • Magnet Bars) • Pot Brush Machines • Repolishing Machines • Revolving Sand Screens • Rolling Machines • Roughing Machines • Salt Cake Crushers • Sand Blasting Equipment • Tempering Furnace Components 	10	15
	<ul style="list-style-type: none"> • Batch Tanks Pusher • Core Puller • Cullet Pits • Dressing Machines • Float Line – Cold End (Cutting, Inspection, Stackers) • Float Line – Hot End (Furnace, Refiner, Tin Bath, Pyrolytic Coater) • Gas Producers • Glass Drawing Machines 	<ul style="list-style-type: none"> • Glass Turn-Over Machine • Kilns (Burning, Floater, Rouge or Soaking) • Lehrs (Plate Glass, Pot) • Lifters (Runner, Grinder & Polisher) • Presses • Ring Rolling Machines • Seaming Equipment 	15	20
	<ul style="list-style-type: none"> • Hoppers • Insulated & Laminated Glass Manufacturing Equipment 	<ul style="list-style-type: none"> • Main Batch Plant (Flat Glass) • Tempering Main Furnace 	20	25
	<ul style="list-style-type: none"> • Float Line – Hot End (Annealing Lehr) 	<ul style="list-style-type: none"> • Pollution Control Main System & Stack 	25	35

Process Support Equipment	<ul style="list-style-type: none"> • Air Separators • Chip Boxes • Glass Cutting Saws • Laminating Lehrs • Lens Cutters • Molds 	<ul style="list-style-type: none"> • Pollution Control Booster Pumps • Pollution Control Ceramic Filters • Polisher Machines • Rubbing Beds 	5	10
	<ul style="list-style-type: none"> • Bins (Batch, Cullet, Plastic) • Cars (Batch, Dryer) • Casting Tables • Classifier • Coolers 	<ul style="list-style-type: none"> • Furnaces (Electrical, Optical, Pot) • Magnetic Separators • Sand Grading Cones • Turn Tables 	10	15
	<ul style="list-style-type: none"> • Acid Tanks • Batch Bin Hopper Scales • Carborundum Saws • Crushers (Cullet, Pot House, Swing Jaw, Metal Grinder, Sand Grinding & Polishing) • Cullet Handling • Dry Pans • Dryers 	<ul style="list-style-type: none"> • Dust Collectors • Gas Compressors • Glass Melting Tanks • Grinders • Mixers (Mud, Vertical, Smith) • Ovens (Annealing, Core, Pot, Thimble) • Racks • Stackers • Washers 	15	20
	<ul style="list-style-type: none"> • Autoclaves • Grinding Mills • Pot Tongs • Safety & Splash Guards • Tanks 	<ul style="list-style-type: none"> • Tables (Grinding & Polishing, Lehr Extension, Slip, Snapping, Transfer) • Tracks (Table Leveling, Grinding & Polishing) 	25	30
	<ul style="list-style-type: none"> • Brick Stacks 	<ul style="list-style-type: none"> • Steel Stacks (Furnace, Kiln, Lehr) 	30	40

Key Considerations

- For Float Lines, Hot (or partial) repair can extend useful life by about 8 – 10 years and cold (or full) repair can extend useful life by approximately 15 – 18 years;
- Historically, coating equipment has had significant technological changes approximately every 10 years so an appraiser should consider vintage in assessing useful life and any additional applicable obsolescence adjustments.

Grain & Grain Mill Products Manufacturing Equipment

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Milling & Manufacturing Equipment	<ul style="list-style-type: none"> CIP Systems Cleaning Equipment (Shakers & Screeners) Control Systems De-stoners Extraction & Evaporation Equipment 	<ul style="list-style-type: none"> Germination Assets Grain Screen Cleaners Hammer Mills Hullers Refrigeration Equipment Separators Sieves Sorters 	10	15
	<ul style="list-style-type: none"> Aerators Blowers Cleaners and Pre-Cleaners Clarifiers Dampeners Gravity Tables or Separators Heat Exchanger and Recovery Systems 	<ul style="list-style-type: none"> Intake Separators Length Graders Reverse Osmosis Systems Roller Mills Sifters Wastewater Treatment Assets (Aerators, Blowers, Clarifiers) 	15	20
	<ul style="list-style-type: none"> Digester or Aeration Tanks Slurry Tanks 	<ul style="list-style-type: none"> Stainless Steel Kilns Steeping Vessels (Steel) 	20	25
	<ul style="list-style-type: none"> Concrete Kilns 	<ul style="list-style-type: none"> Concrete Vessels 	35	40
Material Handling, Packaging & Other Process Support Equipment	<ul style="list-style-type: none"> Bag Fillers Cartoners Inspection Equipment 	<ul style="list-style-type: none"> Label Applicators Lab Equipment Magnets 	10	15
	<ul style="list-style-type: none"> Conveyors (Belt, Chain, Screw) Elevators 	<ul style="list-style-type: none"> Fumigation Systems Palletizers & De-palletizer 	15	20
	<ul style="list-style-type: none"> Test Mills 		20	25
	<ul style="list-style-type: none"> Silos 		30	40

Hospital Equipment & Furnishings

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Medical & Diagnostic Equipment	<ul style="list-style-type: none"> Biofeedback Machines Blood Pressure Units Blood Warmers Breathing Units Cardioscopes Colonoscopes Electrophoresis Units Electrosurgical Units Eye Surgery Equipment Heart-Lung System Hemodialysis Units 	<ul style="list-style-type: none"> Imaging Equipment Iontophoresis Units Laser Positioners Lithotripters Mammography Machines Monitors (Various Medical) Nebulizers Optical Readers Pacemakers Retractors Surgical Lasers Therapeutic Systems 	5	8
	<ul style="list-style-type: none"> Automatic Tourniquet Machine Blood Refrigerator Blood Transfusion Apparatus Bone Surgery Apparatus Bovie Units Cautery Units Chloridometers Cold Pack Units Cryoophthalmic Units Cryostats Cystic Fibrosis Equipment Cystometers Cystoscopes Defibrillators Dermatomes Diathermy Units Evoked Potential Units Fibrometers Hyfrecators Hypothermia Apparatus Immunodiffusion Equipment 	<ul style="list-style-type: none"> Incubators & Brooders Inhalators Insufflators Laparoscopes Laryngoscopes MRI Machines Nephroscopes Ophthalmoscopes Orthotron Systems Panendoscopes Photocoagulators Phototherapy Unit Plasma Freezers Pulsed Oxygen Chambers Refractometers Remote Control Receivers Respirators Resuscitators Rhinoscopes Tonometers Traction Unit Respiratory Ventilator Ultrasound Machines Vial Fillers X-Ray Machines 	8	12
	<ul style="list-style-type: none"> Capsule Machines Child Immobilizers Hyperbaric Chambers 	<ul style="list-style-type: none"> Hydrotherapy Equipment Lowerators 	12	15

Laboratory & Measurement Equipment	<ul style="list-style-type: none"> • Bronchoscopes 	<ul style="list-style-type: none"> • Coulter Counters 	5	8
	<ul style="list-style-type: none"> • Alcohol Dispensers • Arthroscopy Instruments • Audiometers • Bed Scales • Built-In Sterilizers • Clinical Scales • Diluters • Dose Calibrators • Microlens Telescopes 	<ul style="list-style-type: none"> • Oscilloscopes • Osmometers • Otopscopes • Oximeters • Sphygmomanometers • Spectrophotometers • Spirometers • Telethermometers • Victoreens Meters 	8	10
	<ul style="list-style-type: none"> • Baby Scales • Chair Scales 	<ul style="list-style-type: none"> • Sterilizers 	12	15
Medical Tools & Instruments	<ul style="list-style-type: none"> • Auto Suture Staplers • Percussors • Proctoscopes 	<ul style="list-style-type: none"> • Sigmoidoscopes • Stethoscopes • Stimulators, Nerve 	5	7
	<ul style="list-style-type: none"> • Aspirators • Muscle Stimulators 	<ul style="list-style-type: none"> • Ortho-urological Instruments • Roto-osteotome Units 	8	10
Supporting Equipment	<ul style="list-style-type: none"> • Battery Chargers • Cameras (Various Types) • Exercise Equipment (Digital) 	<ul style="list-style-type: none"> • Humidifiers • Oxygen Tanks • Projectors 	5	8
	<ul style="list-style-type: none"> • Cleaning Tanks • Intercoms • Various Medical Pumps 	<ul style="list-style-type: none"> • Water Softeners • Wheelchairs • Whirlpool Baths 	8	12
	<ul style="list-style-type: none"> • Air Compressors • Therapy Tanks • Water Purifiers 	<ul style="list-style-type: none"> • Exercise Equipment (Conventional) • Exercise Equipment (Rehabilitation) 	12	15
Furniture & Fixtures	<ul style="list-style-type: none"> • Vacuum Cleaners 	<ul style="list-style-type: none"> • Window Air Conditioners 	5	8

<ul style="list-style-type: none"> • Aerosol Tents • Anatomical Models • Bottle / Fountain Water Coolers • Bulletin Boards • Ceiling Projection Screen • Medicine Carts 	<ul style="list-style-type: none"> • Oxygen Tents • Projection Machines • Safety Cabinets • Skeletons • Various Medical Lamps • Video Projection Equipment 	8	10
<ul style="list-style-type: none"> • Basin Stands • Built-In Lockers • Intravenous Stands • Irrigating Stands 	<ul style="list-style-type: none"> • Parallel Bars • Scaffolds (All Types) • Stretchers • Therapy Mirrors 	10	15
<ul style="list-style-type: none"> • Built-in Shelving 	<ul style="list-style-type: none"> • Shoulder Wheels 	15	20
<ul style="list-style-type: none"> • Narcotic safes 	<ul style="list-style-type: none"> • Safes 	25	30

Key Considerations

- It must be noted that the lifecycle of certain medical and lab equipment can be impacted by the hours on machine as opposed to useful life in years (e.g., lasers). In these instances, the appraiser should consider the use, expected lifecycle and refurbishment lifecycles in hours.
- Calibration requirements for medical and lab instrumentation can vary and should be given consideration in assessing the expected useful life and appropriate level of physical depreciation for the asset being appraised.

Laboratory Equipment

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Primary Laboratory Equipment	<ul style="list-style-type: none"> Digital Fluoroscopy Units Dopplers Echocardiographs Echoview Systems Electrocardiographs Electro cardio scanners Electo encephalo graphs Fiberoptic Equipment 	<ul style="list-style-type: none"> Fluoroscopes Gama Cameras Holter Equipment Image Intensifiers Intensifying Screens Isotope Equipment Lead X-Ray Gloves Linear Accelerators Microscopes Vectorcardiographs 	5	10
	<ul style="list-style-type: none"> Accelerators Amplifiers Automatic Pipettes Automatic Serigraphs Biochemical Units Bipolar Coagulators Cell Freezers Ergometers Flame Photometers Fluorimeters Gas Chromatographs Hand Dynamometers Hemoglobinometers Homogenizers Hydrocollators Isodensitometers Kymographs 	<ul style="list-style-type: none"> Lab Recorders Microgasometers Microtomes Oximeters Phonocardiographs Photometers Radiographic Duplicating Printers Refrigerated Centrigues Slide Stainers Sonic Rinsers Spectroscopes Telemetry Units Tissue Embedding Units Tissue Processors 	8	12
	<ul style="list-style-type: none"> Autoclaves Centrifuges Centrifuge Extractors Cobalt Units Drill Lens Forges 	<ul style="list-style-type: none"> Glass Cutting Boards Peening Machines Soldering Machines Turning Frames X-Ray Developing Tanks 	15	20
	<ul style="list-style-type: none"> Centering Machine Demagnetizers Forming Machines 	<ul style="list-style-type: none"> Graduating Machines Lens Blocking Machine 	25	35
Measurement Equipment	<ul style="list-style-type: none"> Colorimeters Conductivity Testers 	<ul style="list-style-type: none"> Densitometers 	5	8

	<ul style="list-style-type: none"> • Basal Metabolism Units • Blood Cell Counters • Gamma Counters • Hemophotometers • Metabolic Scales • PH Meters • Radiation Meters • Stress Testers 	<ul style="list-style-type: none"> • Thyroid Testing Machines • Various Analyzers (Blood, Gas, Oxygen, PH, etc.) • Various Balances (Analytical, Electronic, Mechanical) 	8	12
Supporting Equipment & Instruments	<ul style="list-style-type: none"> • Film Changers 	<ul style="list-style-type: none"> • Tube Testers 	5	8
	<ul style="list-style-type: none"> • Automatic Titrators • Film Driers • Film Processors • Kilns • Microscope Lamps 	<ul style="list-style-type: none"> • Rectilinear Scanners • Shaking Machines • Tube Dryers • Water Baths • Water Stills 	8	12
	<ul style="list-style-type: none"> • Annealing Kilns • Distilling Apparatus • Eye Wire Inserting Machines • Furnaces (Calcining, Electric, Glass) • Grinding Spindles • Laboratory Furnace 	<ul style="list-style-type: none"> • Lens Gauging Machines • Ovens (Baking, Drying, Electric) • Profiling Machine • Sanders • Various Lab Hoods 	15	20
	<ul style="list-style-type: none"> • Benches (Grinding, Polishing, & Saw) • Bending Machines • Cutting Off Machines • Edgers (Lens Bevel, Rimless Lens) • Engraving Machines 	<ul style="list-style-type: none"> • Glass Gauging Machines • Grinders & Buffers • Kettles (Boiling, Potash, Skimming) • Mixers • Pebble Mills • Ultex Bifocal Cutters 	25	30

Key Considerations

- Calibration requirements for medical and lab instrumentation can vary and should be given consideration in assessing the expected useful life and appropriate level of physical depreciation for the asset being appraised.

Leather Goods Production

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High
Production Equipment	<ul style="list-style-type: none"> Braiding Machines Branding Machines Cementing Machines Clicking Machines Crimping Machines Edging Machines Eyeletting Machines Finishing Machines Folding Machines Inking Machines Knurling Machines Measuring Machines Perforating Machines Pinking Machines 	10	15
	<ul style="list-style-type: none"> Punching Machines Riveting Machines Rubbing Machines Running-In Machines Setting-Out or Oiling-Off Machines Sewing Or Stitching Machines Skiving Machines Staking Machines Stamping Machines Stretching Machines Stripping Machines 		
	<ul style="list-style-type: none"> Baling Machines Bottom Fillers Brushing Machines Buffing Machines Channeling Machines Embossing Machines Fleshing Machines Leaches Leather Washing Machines Lime / Reel Tracks & Carriers 		
	<ul style="list-style-type: none"> Marking Machines Rolling Machines Sanding Machines Scouring Machines Shaving Machines Slitting Machines Softening Machines Splitting Machines Tack & Nail Machines Trimming Machines Waxers Whitening Machines 		
	<ul style="list-style-type: none"> Fleshing & Unhairing Beams 	25	30
Process Support Equipment & Tooling	<ul style="list-style-type: none"> Binding Machines Cup Machines Frames Fudging Machines Glue Cookers Heel Builders Heel Gougers 	7	10
	<ul style="list-style-type: none"> Pickle Reels Steamers Testers Turning Machines Welt Groovers & Bevelers Winders 		

<ul style="list-style-type: none">• Blowers• Drums• Dryers• Heaters• Heel Compressors• Humidifiers• Mills• Mixers	<ul style="list-style-type: none">• Mixing Churns• Ovens• Presses• Pumps• Racks• Tables• Tack Pullers• Ventilators	10	15
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Material Handling Equipment

Asset Classification	Assets Captured in Asset Category		NUL Low	NUL High
Cranes & Hoists	<ul style="list-style-type: none"> • Bridge & Cantilever Cranes • Derricks • Electric Cranes • Gantry Cranes • Jib Cranes 	<ul style="list-style-type: none"> • Monorail Cranes • Overhead Cranes • Rails • Steel Craneways 	15	25
	<ul style="list-style-type: none"> • Truck Mounted Cranes, Chain or Cable Hoists 	<ul style="list-style-type: none"> • Light or Hand Operated Cranes 	15	20
Mobile Material Handling Equipment	<ul style="list-style-type: none"> • Carts • Electric Forklifts • Electric Trucks • Gas Forklifts 	<ul style="list-style-type: none"> • Hand Trucks • Skip Hoist Cars • Transfer Cars • Warehouse Trucks 	8	15

Key Considerations

- There tends to be an active secondary market for certain mobile material handling equipment. To the extent possible, the appraiser should consider whether the estimate of depreciated replacement cost obtained using an estimate of economic useful life is aligned with market benchmarks.
- Market / economic conditions can have an impact on the secondary market. The appraiser should consider any external factors related to this industry. For example, steel tariffs, shortage of engines/motor, etc.
- Electric Material Handling Equipment generally have lower engine maintenance costs, but expensive battery replacement costs leading to lower residuals. Properly maintained lead acid batteries generally require replacement around the 5-year mark for single-shift operation, with lithium-ion batteries generally lasting 2-4 times longer but costing twice as much to replace. Battery health can materially impact values.

Metalworking & Forming Equipment

Asset Classification	Assets Captured in Asset Category		NUL Low	NUL High
Foundry & Forming Equipment	<ul style="list-style-type: none"> • Annealing Boxes • Babbiting Machines • Casting Machines • Die-Casting Machines • Forming Machines • Galvanizing Machines • Hammers (Belt, Drop or Steel Forging) • Heading & Forging Machines 	<ul style="list-style-type: none"> • Ladle or Pit Heaters • Lifting Magnets • Mandrels • Presses (Arbor, Bench, Drill, Forging & Forming, Hydraulic) • Punching Machines • Rolling Machines • Tenoning Machines • Tumbling Mills • Upsetting Machines • Winding Machines 	15	20
Stamping Equipment	<ul style="list-style-type: none"> • Automatic Die-Cutting Machines 	<ul style="list-style-type: none"> • Stamping Presses • Slotting Machines 	18	25
Fabrication Equipment	<ul style="list-style-type: none"> • Bending Machines • Boring and Turning Mills • Broaching Machines • Buffing Machines • Burring Machines • Centering Machines • Chucking Machines • Coiling Machines • Core-Making Machines • Crimping Machines • Cut-Off Machines • Cutters • Engraving Machines • Etching Machines • Filing Machines • Flange Formers 	<ul style="list-style-type: none"> • Grinders • Grooving Machines • Hobbing Machines • Honing Machines • Hydraulic Shearing Machines • Metal Bending Brakes • Metalworking Planers • Pickling Machines • Plasma Cutting Machines • Polishing Machines • Pulling Machines • Reaming Machines • Rollers • Shaping Machines • Wire Flattening Mills • Wire Straighteners • Wire Strippers 	12	18
CNC & Machining Equipment	<ul style="list-style-type: none"> • CNC Machines • Electric Discharge Machines (Wire) 	<ul style="list-style-type: none"> • Routers • Turning Centers 	8	12

Manual Machines	<ul style="list-style-type: none"> • Drills (Automatic, Bench, Electric, Horizontal, Radial) • Electric Discharge Machines (Laser) • Lathes (Automatic, Bench, Engine, Metalworking, Roll, Spinning, Turret) 	<ul style="list-style-type: none"> • Milling Machines (Automatic, Die Trimming, Horizontal, Multiple Spindle, Planer Type, Universal, Vertical, Gantry) • Profiling Machines 	12	15
Supporting Equipment	<ul style="list-style-type: none"> • Dust Collector Systems 	<ul style="list-style-type: none"> • Saws (Metalworking) 	10	15
	<ul style="list-style-type: none"> • Air & Skip Hoists • Centrifugal Dryers • Continuous Drying Machines • Flasks (Iron & Steel) • Foundry Pot Dumping Machines • Furnaces (Annealing, Carbonizing, Crucible, Electric, Forging) • Kilns (Dry & Rotary) 	<ul style="list-style-type: none"> • Metal Parts Washing Machines • Paint Spray Booths & Spraying Equipment • Plating Vats • Portable Forges • Preheating Ovens • Riveters • Sanders • Scales • Screens (Revolving or Vibrating) • Separators • Winches 	15	20
	<ul style="list-style-type: none"> • Annealing Ovens • Bucket or Chain Conveyors 	<ul style="list-style-type: none"> • Core Ovens • Foundry Kilns 	15	25

Key Considerations

- The appraiser should observe and consider actual usage, not just physical life.
- Life of dies, molds, jigs, fixtures etc. may vary wildly depending on product life as well as the die material, grade, setup, maintenance, application, and other factors.

Mining and Extractive Resources: Extractive Machinery & Equipment

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Extractive Resource & Heavy Construction Mobile Equipment	<ul style="list-style-type: none"> Excavators Haul Trucks 	<ul style="list-style-type: none"> Loaders 	10	15
	<ul style="list-style-type: none"> Box Car Unloaders Hydraulic Shovels 	<ul style="list-style-type: none"> Drag-Line Excavators 	15	20
	<ul style="list-style-type: none"> Cranes Locomotives 	<ul style="list-style-type: none"> Railroad Type Cars Steel & Wood Cars 	15	25
Automobiles & Light Construction Mobile Equipment	<ul style="list-style-type: none"> Drills 	<ul style="list-style-type: none"> Tractors Wagons 	8	12
Other Mining Equipment	<ul style="list-style-type: none"> Breakers Cages Coal Cutting Machines 	<ul style="list-style-type: none"> Dumps Hoists Hoisting Skips Lime Kilns 	15	25
	<ul style="list-style-type: none"> Bins Dredges 	<ul style="list-style-type: none"> Wood Head Frame Wood Tipples 	20	30
	<ul style="list-style-type: none"> Steel Head Frame Steel Tipples 	<ul style="list-style-type: none"> Steel Tugs 	40	50
Underground Mining and Support Equipment	<ul style="list-style-type: none"> Compressors Continuous Miners Long-wall Equipment Mobile Lighting 	<ul style="list-style-type: none"> Roof Bolters Scoops Underground Mobile Loading and Haul Equipment 	7	12

Key Considerations

- For heavy mobile equipment, consideration may need to be given to the annual usage in hours, expected useful life of parent asset and components in hours, component replacement lifecycle and maintenance policies impacting condition and remaining useful lives.
- For heavy mobile equipment, consideration should be given to rebuild cycles and how significant capex extends the useful life but replaces a portion of the original asset.

Mining and Extractive Resources: Processing Machinery & Equipment

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High
Crushing & Screening Equipment	<ul style="list-style-type: none"> Crushers (Gyratory, Jaw, Rock or Stone, Roll) Screens Separators 	15	20
Mill Processing Equipment	<ul style="list-style-type: none"> Blast, Melting & Roast Furnaces Conveyors Filter Presses Flotation Machines 	15	25
	<ul style="list-style-type: none"> Agitators Ball Mills Pebble Mills 	20	30
	<ul style="list-style-type: none"> Concrete Thickeners 	40	50
Process Support Equipment	<ul style="list-style-type: none"> Centrifugal Pumps Scrapers 	10	15
	<ul style="list-style-type: none"> Blowers Classifiers Concentrating Tables 	15	20
	<ul style="list-style-type: none"> Classifier Plants Dryers Docks Lighters Roasting Scales 	20	30
	<ul style="list-style-type: none"> Copper Converters Gas or Oil Burners Ovens Shop Equipment 		
	<ul style="list-style-type: none"> Sintering Smelting Stackers / Reclaimers Steel Scows Tanks (Iron, Steel) Tramways 		

Key Considerations

- The normal useful life of certain mining and milling related assets whose use is related to the mineral property may be limited by the remaining life of mine at the time of the appraisal.
- Similar to above, the total useful life of other assets or infrastructure such as tailings storage facilities and heap leach pads may depend on total design capacity, percentage utilized and any pertinent regulatory requirements as at the appraisal date.

Office and Computer Equipment

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Office Equipment, Furniture & Fixtures	<ul style="list-style-type: none"> Calculators (Electronic) Copy Machines Electric Fans Label Makers Lamps (Desk & Floor) 	<ul style="list-style-type: none"> Paper Shredders Printers Vacuum Cleaner (Electric) Water Cooler 	5	10
	<ul style="list-style-type: none"> Mats & Carpets Partitions 	<ul style="list-style-type: none"> Sofas 	10	15
	<ul style="list-style-type: none"> Benches (Metal/Wood) Cabinets Chairs Credenzas Desks (Metal/Wood) Dressers Light Tables 	<ul style="list-style-type: none"> Lockers (Metal/Wood) Mirrors Racks & Stands Shelving (Metal) Storage Benches Tables Bookcases (Metal/Wood) 	15	20
Computer Equipment	<ul style="list-style-type: none"> Computer Peripherals Desktop Computers 	<ul style="list-style-type: none"> Laptops Software 	3	7

Key Considerations

- Enterprise Resource Planning software will typically have longer NULs ranging from 7-10 years depending on how often the system requires a significant refresh.

Oil & Gas Production & Distribution

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Exploration & Production Equipment	<ul style="list-style-type: none"> • Mud Pumps • Pulling Machines • Rig Irons • Slush Pump 	<ul style="list-style-type: none"> • Well Drilling Machines (Core, Portable, Rotary) 	10	15
	<ul style="list-style-type: none"> • Casings 	<ul style="list-style-type: none"> • Control Heads 	15	20
	<ul style="list-style-type: none"> • Toolboxes – Offshore / Onshore 		15	30
	<ul style="list-style-type: none"> • Hydraulic Power Packs • Pumping Derricks (Steel) 	<ul style="list-style-type: none"> • Pumping Jacks • Well Pumping Power Plants • Wireline Equipment 	20	30
	<ul style="list-style-type: none"> • Drilling Rigs 		25	35
Pipelines & Distribution Equipment	<ul style="list-style-type: none"> • Filling Stations Pumps and Dispensers 		10	15
	<ul style="list-style-type: none"> • Loading Racks 		20	25
	<ul style="list-style-type: none"> • Field Meters • Gas Distribution Regulators • Gas Field Regulators • Gas Meters • Gas Pipelines (Gathering Lines) • Gas Pipelines Pump Stations (Gathering Lines) • Gas Utility Distribution Facilities Equipment 	<ul style="list-style-type: none"> • Gathering & Tank Lines Delivery Facilities • Interunit Lines (Small Diameter) • Line-Pipe Fittings (Gathering Lines) • Oil Tanks (Gathering Lines) • Service Stations • Steel Pipe Mains (6 Inches & Less) 	25	35
	<ul style="list-style-type: none"> • Gas Pipelines (Trunk Lines) • Gas Pipelines Pump Stations (Trunk Lines) 	<ul style="list-style-type: none"> • Line-Pipe Fittings (Trunk Lines) • Oil Tanks (Trunk Lines) 	35	50

	<ul style="list-style-type: none"> Gas Distribution Line Pipe Steel Pipe Mains (6 Inches & More) 	<ul style="list-style-type: none"> Wrought or Cast-Iron Pipe Mains (6 Inches & Less) 	40	55
	<ul style="list-style-type: none"> Wrought or Cast-Iron Pipe Mains (6 Inches & Over) 		55	90
Refinery Process & Process Support Equipment	<ul style="list-style-type: none"> Central Control Equipment Microwave Station 	<ul style="list-style-type: none"> Safety & Environmental Equipment 	10	15
	<ul style="list-style-type: none"> Alkylation Amine System Asphalt Plant Atmospheric Crude Distillation Benzene Extraction Unit Blowdown System Catalytic Reformers Caustic Distribution System Coke Handling Coke Storage & Shipping Cokers Cooling Water Systems Cracked Gas Plants Demineralizing Plant Deparaffining Plant Flare Systems Fluid Catalytic Crackers Fuel System Gas Compression 	<ul style="list-style-type: none"> Gasoline Blending Hydrogen Plants Hydrotreater Catalytic Feed Hydrotreaters Jet Fuel Facility Nitrogen Distribution System Oil & Gas Fuel Systems Oil Lines & Connections Overhead Pipe Racks Plant Protection Saturate Gas Plant Slop Recovery & Disposal System Sludge Disposal Sour Water Strippers Steam Distribution System Steam Generation Sulfur Recovery Unit (SRU) Surface Drainage System Unsaturate Gas Plant Vacuum Crude Distillation Plant Waste Treatment/Disposal System 	25	35
	<ul style="list-style-type: none"> Loading Piers/Docks LPG Storage Facility Lube Plant Process Units 	<ul style="list-style-type: none"> Merox Units Production Storage Areas Residual Refining Equipment 	35	50

Other Plant & Processing Equipment	<ul style="list-style-type: none"> Gas Dewatering Apparatus Gas Utility Natural Gas Prod Plant Equip Natural Gas-Coal Gasification Production Equipment 	<ul style="list-style-type: none"> Substitute Natural Gas-Coal Gasification Equipment Treating Plants Vacuum Plants 	15	20
	<ul style="list-style-type: none"> Carbon-Black Plants Natural Gas Production Plant Equipment 	<ul style="list-style-type: none"> Petroleum Refining Equipment Treating Tanks 	20	30
	<ul style="list-style-type: none"> Compounding Tanks Filtering Plants Gas Reforming Equipment 	<ul style="list-style-type: none"> Purification Equipment Storage Tanks 	25	35
Process Support Equipment	<ul style="list-style-type: none"> Boiler Feed Pumps 	<ul style="list-style-type: none"> Drilling Cable Tools 	10	15
	<ul style="list-style-type: none"> Communication Equipment 	<ul style="list-style-type: none"> Pumps Separators (Oil or Gas) 	15	20
	<ul style="list-style-type: none"> Condensers Heat Exchangers 	<ul style="list-style-type: none"> Scrubbing Towers 	20	25
	<ul style="list-style-type: none"> Boiler Plant Equipment 		20	30

Key Considerations

- Appraisers must note that there is a wide range of expected economic useful life associated with pipelines and mains and consideration should be given to factors such as construction material and terrain in assessing a reasonable estimate of useful life.
- For processing equipment (such as refinery process units or midstream processing facilities), consideration should be given to turnaround history and capex spend by unit in assessing the effective age of specific process units or systems.
- Maintenance schedules for oil & gas assets are very stringent and often result in remanufacturing equipment components close to factory standards. Therefore, the appraiser must pay close attention to equipment and components that have been remanufactured.

Pharmaceutical Manufacturing Equipment

Asset Classification	Assets Captured in Asset Category		NUL Low	NUL High
Primary Production Equipment	<ul style="list-style-type: none"> • Homogenizers • Laboratory Analyzers • Label Printers 	<ul style="list-style-type: none"> • Metal Detectors • Particle Sizers 	5	7
	<ul style="list-style-type: none"> • Autoclaves • Bulk Containers • Coating Machines • Drying Ovens • Encapsulators • Fluid Bed Dryers 	<ul style="list-style-type: none"> • Granulators • Mixers • Sizing Mills • Tablet Dedusters • Tablet Presses • Vibrating Sieves 	10	15
Packaging Equipment	<ul style="list-style-type: none"> • Accumulators • Barcode & Label Readers • Blister Pack Packaging Machines • Blow-fill-seal Machines • Bottle and Vial Unscramblers • Cappers / Sealers • Cartoners 	<ul style="list-style-type: none"> • Depositors / Inserters • Flow Wrappers • Labelling Machines • Palletizers • Robotic Packaging Machines • Shrink Wrappers • Sleeveers • Tablet / Capsule Fillers 	10	15
Process Support Equipment	<ul style="list-style-type: none"> • Air Filtration Systems • Benches • Biohazard Cabinets 	<ul style="list-style-type: none"> • Water Purification Equipment • Weighing Scales 	7	10
Clean Room	<ul style="list-style-type: none"> • Advanced Filtration Systems 	<ul style="list-style-type: none"> • Closed Loop HVAC • Specialized Lighting 	15	25

Key Considerations

- Production and packaging equipment may be proprietary and designed for a specific product. Careful attention must be placed on determining the NUL of these systems as it will depend highly on preventive maintenance schedules. Capex for proprietary equipment may also be higher since spare parts are not readily available and may need to be custom manufactured.
- Because the manufacturing of pharmaceutical products is typically performed in a sanitized environment (clean rooms) the equipment does not suffer the same level of wear and tear compared to an industrial application. The appraiser will need to confirm the preventive maintenance schedules with plant engineers and confirm the expected normal useful life under normal operating conditions.

Plastics Production

Asset Classification	Assets Captured in Asset Category		NUL Low	NUL High
Plastic Products Manufacturing Equipment	<ul style="list-style-type: none"> Injection Molding Machines 	<ul style="list-style-type: none"> Other Plastic Product Manufacturing Ancillary Equipment (Chillers, Robots, Grinders, Blenders etc.) 	10	15
	<ul style="list-style-type: none"> Blow Molding Machines 	<ul style="list-style-type: none"> Extrusion Machines (Blown Film, Cast Film, Sheet, Pipe and Profile) 	15	25
Recycling Manufacturing Equipment	<ul style="list-style-type: none"> Optical Sorters Shredders 	<ul style="list-style-type: none"> Wash Lines 	8	12
	<ul style="list-style-type: none"> Catalyzers (Extrusion based) 	<ul style="list-style-type: none"> Re-Pelletizers 	15	25
Molds and Automations	<ul style="list-style-type: none"> Garbage Cans Nursery Pots Robot tooling for the same 	<ul style="list-style-type: none"> Proprietary molds for long-lived products (Totes, Garbage Cans, Nursery Pots etc.) Totes 	5	10

Key Considerations

- The economic useful life associated with tooling & dies commonly used with plastics products manufacturing equipment such as molding, and extrusion machines may vary from the actual production equipment. Consideration should be given to utilization, associated product lifecycle and condition in appropriately assessing the economic useful life of these assets.
- There tends to be an active secondary market for certain plastic products manufacturing equipment. To the extent possible, the appraiser should consider whether the estimate of depreciated replacement cost obtained using an estimate of economic useful life is aligned with market benchmarks.

Printing & Publishing

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High
Primary Process Equipment	<ul style="list-style-type: none"> Developing Equipment Plate Making Equipment 	10	15
	<ul style="list-style-type: none"> Addressing & Mailing Machines Binder Machines Envelope Machinery Finishing Cylinders Flexographic Rotary Folders Rolling Machines Saddle Stitchers 	15	25
	<ul style="list-style-type: none"> Envelope Machinery Rolling Machines Presses (Printing, Flexograph, Gravure, Offset, Screen Printing, Publishing) 	20	30
	<ul style="list-style-type: none"> Commercial 3D Printing* 	3	7
Process Support Equipment	<ul style="list-style-type: none"> Aluminum Zinc Plates (Mostly Single Use Only) 	1	2
	<ul style="list-style-type: none"> Belt Conveyors Casting Boxes Casting Molds Platform Scales Stacking Machines 	5	10
	<ul style="list-style-type: none"> Hydraulic Elevators Paper Balers 	15	20
	<ul style="list-style-type: none"> Corrugators Paper Cutters 	20	25

Key Considerations

- For newer technology printing & publishing equipment, consideration should be given to changes in technology due to software upgrades etc. that may result in expected estimates of economic useful lives lower than the ranges suggested above. This is especially true when considering digital equipment which will have a much lower useful life.
- While appraisers must always be aware of the possibility of economic obsolescence, this can be especially true in the printing industry where traditionally long-lived assets exist in a business sector that has ceded significant market share and revenues to digital media.
- In relation to 3D Printing related assets, the appraiser should consider the following:
 - This is a rapidly evolving industry subject to continual change.

- Review nuances between various technologies: Fused Deposition Modeling (FDM), Stereolithography (SLA), Selective Laser Sintering (SLS), Metal FDM, Selective Laser Melting (SLM) And Direct Metal Laser Sintering (DMLS).
- There will be variability depending on manufacturer/vendor, parts availability, and vendor resale policy.
- If looking to sell on secondary market and there is no pre-existing, signed subsequent user agreement in place from the vendor, a resale can be impossible (e.g. commercial HP 3D printers almost never change hands).
- If the asset is not operated by a reputable company with parts on hand, newer machines can be rendered useless from small part failures. On the other hand, some 20-year-old SLA equipment is still in use, but its value is tied to first owner and these assets would have minimal to no value to a third party.
- 3D lasers are one of the largest maintenance wear items. Hours may serve as a gauge for expected life, it will ultimately depend on how efficiently and precisely the laser continues to operate.
- Older stereolithography lasers can be self-serviced/replaced while many newer generation machines require OEM servicing.

Railroad Equipment

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High
Fleet Related Assets	<ul style="list-style-type: none"> • Diesel Locomotives • Passenger Train Cars 	25	35
	<ul style="list-style-type: none"> • Rail Cars (Hopper, Tank, Box, Flat, Gondola) 	30	40
	<ul style="list-style-type: none"> • Sulfur Tank Cars (Or Other Corrosive Materials) 	20	25
Track Property	<ul style="list-style-type: none"> • Ballast • Rail 	30	50
Other Railroad Equipment	<ul style="list-style-type: none"> • Communications Equipment • Fueling Equipment • Railroad Car & Transportation Manufacturing Equipment 	15	25
	<ul style="list-style-type: none"> • Railroad Electric Generation & Power Plant Equipment • Shop Machinery • Signals & Interlockers 		

Key Considerations

- In relation to locomotives, consideration should be given to significant overhaul spend in estimating the assigned economic useful life / effective age of the assets.
- For the valuation of rail cars, consideration should be given to any guidance provided by the AAR (The Association of American Railroads) in relation to economic useful lives and any regulatory factors that may impact total economic useful life of certain railcar types. The interchange rules are complicated and allow for a freight car use in the railroad interchange system up to 50 years. Appraisers however should consider shorter lives based on the commodities the cars carry.
- In estimating the economic useful life of track property related assets, the appraiser should consider factors such as material that could impact expected economic useful life (e.g., wooden, steel, or concrete ties would have different expected NUL).

Refrigeration – Walk-in and Cold Storage

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High
Refrigeration Equipment	<ul style="list-style-type: none"> Rubber Hose Sucking Devices 	5	7
	<ul style="list-style-type: none"> Air Laterals Centrifugal Fans Coils Frames & Ice Can Covers Pipe Covering Siphoning Units 	10	15
	<ul style="list-style-type: none"> Air & Ammonia Headers Ammonia Accumulators Benching Machines Brass Railings Brine Connections Brine Cooling Systems Can Dumps Can Fillers Cold Storage & Ice-Making Equipment Heating Systems Piping (Ammonia, Water) Purge Drums Sand Filters Spray Cooling Pond Systems 	15	25
Process Support Equipment	<ul style="list-style-type: none"> Agitators Air Compressors Air Receivers Ammonia Receivers Condensers Conveyors Cooling Towers Dehumidifiers Electrical Wiring Pumps Refrigeration Compressors Tanks Thermometers 	15	20

Key Considerations

- Appraisers should consider coolant products (glycol, ammonia, freon) used in the refrigeration system. Freon is still in use in legacy plants but grades of certain freon are no longer in production.
- Consideration should be given to hours of usage for compressors.

Restaurant & Bar Equipment

Asset Classification	Assets Captured in Asset Category		NUL Low	NUL High
Furniture & Fixtures	<ul style="list-style-type: none"> Chairs Floor Coverings (Carpets, Safety Mats) 	<ul style="list-style-type: none"> Menu Boards Tables 	5	8
	<ul style="list-style-type: none"> Bars & Service Counters 	<ul style="list-style-type: none"> Prep Benches 	10	15
Kitchen Equipment	<ul style="list-style-type: none"> Cookware (Pots, Pans, etc.) 	<ul style="list-style-type: none"> Small Appliances (Blenders, Food Processors, Grills, Toasters) 	3	6
	<ul style="list-style-type: none"> Audio Visual Equipment (including Televisions, Entertainment Systems, etc.) 	<ul style="list-style-type: none"> Coffee Making Machines Dishwashers 	5	8
	<ul style="list-style-type: none"> Burners Commercial Cooking Appliances 	<ul style="list-style-type: none"> Hot Food Display Equipment Ice Making Machines 	8	10
	<ul style="list-style-type: none"> Beer & Beverage Dispensing Systems 	<ul style="list-style-type: none"> Refrigeration Equipment (incl. chillers, refrigeration cabinets, freezers) 	10	15

Key Considerations

- For furniture & fixtures and leasehold improvements in the restaurant and retail space, the appraiser should give thought and consideration to how Management might view the lifecycle of these assets and how often they might retrofit or renovate their space. This in turn will provide insight into the expected useful life for these assets.

Retail Store Equipment

Asset Classification	Assets Captured in Asset Category		NUL Low	NUL High
General Retail Equipment	<ul style="list-style-type: none"> Ladders Walkie Talkies 	<ul style="list-style-type: none"> Tag Deactivators and Detachers 	3	5
	<ul style="list-style-type: none"> Counters (Check-out and Service Counters) Cupboards Mannequins Audio Equipment (Public Address Assets) Racks 	<ul style="list-style-type: none"> Scales Shelving Showcases Trolleys – Customer Shopping and Stock UPS system 	7	12
	<ul style="list-style-type: none"> Automatic Sliding Door Systems (Motors, Sensors, Controls) 	<ul style="list-style-type: none"> Box Taping Machines Carton Sealers Pallet Wrappers 	10	15

Key Considerations

- The useful life of some fixtures and improvements associated with retail stores may be tied to how often layouts are refreshed for the particular store or store types. Hence, the appraiser should consider the refreshed or rebuild lifecycle and its impact on assigned normal useful life for the subject assets.

Rubber Production

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High
Rubber Production Equipment	<ul style="list-style-type: none"> • Autoclaves • Covering Machines • Deflating Machines (Inner Tube) • Dipping Machines • Flipping Machines • Folding Machines • Heater Cars • Pulverizers • Refiners (Roll-Type) • Roll-Type Refiners • Sealing Machines • Separators • Sifters • Skiving Machines • Stands • Strainers • Trucks • Tumbling Barrels 	10	15
Rubber Production Equipment	<ul style="list-style-type: none"> • Braiding Machines • Brushing Machines • Buffing Machines • Cementing Machines • Cleaning Machines • Clicking Machines • Cloth Cutting Machines (Electric) • Cold Presses • Disintegrators • Drums • Dryers • Dusting Machines • Eyeletting Machines • Fabric Ironers • Furnaces • Incinerators • Inserting Machines • Inspecting Machines • Insulating Machines • Ovens • Pigment Grinders • Reclaimed Rubber Devulcanizers • Reeling Machines • Rubber Crackers • Rubber Hogs • Sewing Machines • Sheeters • Slitting Machines • Stretching Machines • Stripping Machines • Tire Building Machines • Treading Machines • Trimming Machines • Varnishing Machines • Vulcanizers • Washers • Winding Machines 	15	20
Rubber Production Equipment	<ul style="list-style-type: none"> ▪ Calendars ▪ Cement Tanks ▪ Cutting Machines ▪ Hydraulic Presses ▪ Mixing Mills ▪ Mixers ▪ Tube Machines 	20	30
Process Support Equipment	<ul style="list-style-type: none"> ▪ Belt Conveyors ▪ Labeling Machines ▪ Rerolling Tables ▪ Wrapping Machines 	15	20

Solar Panels

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High
Modules	<ul style="list-style-type: none"> ▪ Modules 	30	50
Inverters	<ul style="list-style-type: none"> ▪ Inverters 	10	15
Balance of System	<ul style="list-style-type: none"> ▪ Cabling ▪ Monitoring Equipment ▪ Racking ▪ Security Equipment 	30	50

Key Considerations

- If the expected useful life of the solar generation facility is associated with an existing contract (eg. power purchase agreement), consideration should be given to the remaining life of the contract potentially limiting the remaining life of the facility and associated fixed assets.

Steel Mill Production

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High
Primary Steelmaking and Steel Mill Equipment	<ul style="list-style-type: none"> Annealing Boxes & Rolls Benches (Chipping, Coke, Finishing) 	5	7
	<ul style="list-style-type: none"> Cinder Ladles Guides (Coke, Roll) Ingot Molds Stools 		
	<ul style="list-style-type: none"> Ammonia Concentrators Blast Equipment (Sand & Shot) Buckstaves Ovens Burning Equipment (Gas, Tar Or Oil) Calcining Plants Coke Ovens Die Casting Machines 	15	20
	<ul style="list-style-type: none"> Drying Equipment (Ladle, Gas or Oil) Electric Weld Tube Mills Gasometers Grab Buckets Inspection Tables Pickling Equipment Portable Forges Stationary & Swing Frame Grinders 		
<ul style="list-style-type: none"> Annealing Furnaces Car Haulage Systems Centrifugal Drying Machines Charging Machines Cold Drawing Equipment Conveying & Coal-Handling Equipment Conveying Systems (Sand Handling) Electrode Regulators Furnaces (Blast, Continuous Heating) Hammers (Drop, Pneumatic, Steam) Ladle Cranes 	20	25	
<ul style="list-style-type: none"> Lap & Butt Weld Pipe Mills Lifting Magnets Mills (Ball, Boring, Sand) Ovens & Stacks (Annealing, Core, Or Mold, Drying) Ovens (By-Product, Coke) Quenching Equipment Sand Dryers Screens (Bar, Coke) Sintering Plants Steel Ladles Stationary Forges Tumbling Barrels 			
<ul style="list-style-type: none"> Beds (Cooling & Hot) Blast Furnace Plants Blooming Mills By-Product Coke Plants Cars (Coke Oven, Ingot Mold, Ladle, etc.) Car Dumpers Casting Pits (Concrete, Brick & Steel) Concrete Platforms Cupolas Furnace Electric Arc Furnaces 	25	30	
<ul style="list-style-type: none"> Mixers (Hot Metal, Lime, Mold Wash, Sand) Open Hearth Furnace Plants Ore Bridges Pig Casting Machines Pickling Machines (Electric, Steam) Plate Mills Pusher Tracks Pushers & Levelers (Coke Plant) Rail Loaders 			

	<ul style="list-style-type: none"> • Floor Plates (Cast Iron, Water Cooled) • Gas Holders • Gas Producers • Hot Metal Ladles • Hydraulic Intensifiers • Ingot Strippers 	<ul style="list-style-type: none"> • Skip Bridges • Soaking Pits • Steel Converters • Strip Mills • Structural Mills • Tables (Run-Out, Tilting, Transfer) • Wire Rod Mills 		
	<ul style="list-style-type: none"> • Coal, Coke & Ash Handling Equipment 	<ul style="list-style-type: none"> • Coke Ovens 	35	45
Other Finishing Equipment	<ul style="list-style-type: none"> • Jolt Machines • Molding Machines • Polishing Machines (Wire) 	<ul style="list-style-type: none"> • Twisting Machines • Wire Spooling Machines • Wire Straighteners 	15	20
	<ul style="list-style-type: none"> • Metal Planers • Pipe Cutting & Threading Machines • Presses (Drill, Hydraulic) • Punching Machines 	<ul style="list-style-type: none"> • Shears (Electric, Hydraulic, Rotary, Steam) • Stretching Machines • Wire Drawing Frames 	20	25
	<ul style="list-style-type: none"> • Testing Machines 	<ul style="list-style-type: none"> • Wire Fence Machines 	25	35
Process Support Equipment	<ul style="list-style-type: none"> • Bucket Elevators 	<ul style="list-style-type: none"> • Welding Equipment 	15	20
	<ul style="list-style-type: none"> • Exhaust Systems 		20	25
	<ul style="list-style-type: none"> • Automatic Scales • Bins & Hoppers (Concrete, Steel) • Blowers 	<ul style="list-style-type: none"> • Dust Collectors • Gas Scrubber • Hydraulic Accumulators • Tanks (Steel) 	25	30

Key Considerations

- Certain furnaces require the internal walls to be replaced periodically, hence an appraiser should consider componentizing these and depreciating accordingly.

Textile and Clothing Manufacturing

Asset Classification	Assets Captured in Asset Category		NUL Low	NUL High
Primary Production Equipment	<ul style="list-style-type: none"> Bale Breaker Beamers Boot & Shoe-making Machinery Carding Machines Cutting Tables Gas Producer Plant Hat Manufacturing Plant & Machinery Knitting Machines Lapping and Mending Frames Lapping Trolleys 	<ul style="list-style-type: none"> Offline Mending Tables Pre-Coat Assets Re-wind Machines Sample Binding Machines Sample Cutting Assets Sewing Machines Stamping Pressings Stretchers Weaving Machinery Wet Process Plant Wool Dumping Machinery 	10	15
	<ul style="list-style-type: none"> Accumulators Creels J Bins Latex Application Assets 	<ul style="list-style-type: none"> Roll-up Machines Shearers Tufter Woolen Manufacturers' Machinery 	15	20
Process Support Equipment	<ul style="list-style-type: none"> Dryers – Used in Scouring Dust Extraction Plant 	<ul style="list-style-type: none"> Scour Machine Ovens 	15	20

Vehicles and Transportation Equipment

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High	
Vehicles & Transportation Equipment	<ul style="list-style-type: none"> Automobiles Taxicabs 	<ul style="list-style-type: none"> Tractor Units (Over-The-Road) 	3	5
	<ul style="list-style-type: none"> Buses (Industrial Use) General Purpose Trucks Tractors (Gasoline) 	<ul style="list-style-type: none"> Motor Transport & Transport Equipment (Passenger & Freight) Trucks (Outside Use - Heavy, Medium, Light) 	5	10
	<ul style="list-style-type: none"> Buses (Long Distance, Mass Transit, School, Trolley, Urban) Containers (Intermodal) Motorcycles 	<ul style="list-style-type: none"> Tractor (Diesel Trucking) Trailers (Trucking & Trailer Mounted Containers) Trucks (Inside Use – Heavy) 	10	15
Marine Transportation Assets	<ul style="list-style-type: none"> Bulk Carriers Tankers 	<ul style="list-style-type: none"> Worldwide Saltwater Ocean Service Container Ships 	20	25

Key Considerations

- For vehicles and transportation related assets, where applicable the appraiser should consider current mileage/hours vs total expected mileage/hours if that is deemed to be a better indicator of physical depreciation as opposed to age and useful life in years.
- For marine transportation related assets, variations to the NUL range are generally forced by the current economics of the particular niche of the industry. When a sector is in a multi-year slump, it is common to see ships scrapped at around year 15 as the economics, including cost to cure economic and technological obsolescence don't justify going to the year 20 inspection phase. When a market is strong, vessels have been kept running to year 30 or 35 as long as the high income justifies the cost and risk to keep it operating. As soon as the market eases, these ships are typically scrapped.

Wastewater Treatment

Asset Classification	Assets Captured in Asset Category		NUL Low	NUL High
Wastewater Treatment Equipment	<ul style="list-style-type: none"> • Aeration Blowers • Centrifuges • Chemical Feed Systems • Chlorination Systems • Clarifiers • Degriters • Dewatering Belt Presses 	<ul style="list-style-type: none"> • Digester Covers • Grit Screens • Incinerators • Polymer Feed Systems • Solids Grinder Comminutors • Trickling Filter • Ultraviolet Disinfection System 	20	25
Process Support Equipment	<ul style="list-style-type: none"> • Lab Equipment • Lift Stations 	<ul style="list-style-type: none"> • Pumps (Centrifugal, Plunger, Progressive Cavity, Proportioning) 	15	20

Key Considerations

- Many infrastructure components such as clarifiers, digesters, aerations ponds, drying beds may last much longer than 25 years. The appraiser should confirm these lives while onsite and through third party engineers.
- Pumps and motor may have an accelerated depreciation rate depending on the geographical location of the assets. Pumps and motors close to saltwater will experience a high than normal rate of physical deterioration.

Wind Turbines

Asset Classification	Assets Captured in Asset Category	NUL Low	NUL High
Tower & Foundations	<ul style="list-style-type: none"> • Foundation • Tower 	35	50
Turbine	<ul style="list-style-type: none"> • Blade • Clutch • Generator • Hub 	20	30
	<ul style="list-style-type: none"> • Gearbox • Rotor Shaft • Spinner & Small Parts • Yaw Drive with Tower Head Bearing 	10	15
Balance of Plant	<ul style="list-style-type: none"> • Site Improvements 	35	50
	<ul style="list-style-type: none"> • Electrical Equipment (incl. Generators, Inverters, Transformers, Switchgear, Cabling) 	20	30
	<ul style="list-style-type: none"> • Large Transformers 	30	40
Balance of Plant	<ul style="list-style-type: none"> • Control System 	10	20

Key Considerations

- If the expected useful life of the wind turbine and generation facility is associated with an existing contract (eg. power purchase agreement), consideration should be given to the remaining life of the contract potentially limiting the remaining life of the turbines and associated fixed assets.
- Note that the high end of useful lives listed for tower & foundation related assets and longer economic useful lives than the range listed above may be attainable due to partial or full repowering.

Woodworking, Pulp & Paper Products

Asset Classification	Assets Captured in Asset Category		NUL Low	NUL High
Sawmill Machinery & Equipment	<ul style="list-style-type: none"> Balers Beating Stock Engines Bucket Elevators Burners Chop Saws Circular Mills (Portable) Crushers Drum-Debarkers Evaporators 	<ul style="list-style-type: none"> Felt Whippers Log Loaders Lumber Carriers Screens Shredders Slashers Thrashers Trimmers Wood Stackers 	15	20
	<ul style="list-style-type: none"> Bandmills Bending Machines Box Trimmers Chippers Chucking Machines Circular Mills (Stationary) Cleating Machines Clippers Creosoting Plants Cylinder Machines Deckers Diffusers Dovetailing Machines Dry Kilns Edger Banders Filling Machines 	<ul style="list-style-type: none"> Log Feeders Lumber Mills Lumber Planers Lumber Remanufacturing Plants Other Sawmill Machinery & Equipment Paper Trimmers Presses Scoring Machines Setting-up Forms Shapers Slitters Wood Splitters 	20	30
	<ul style="list-style-type: none"> Coating Machines Cutters Digestors Drainers 	<ul style="list-style-type: none"> Drying Machines Dusters Sling Sorters Wet Stock Chests 	25	30
	<ul style="list-style-type: none"> Chip Screens 	<ul style="list-style-type: none"> Sulphur Melters 	10	15
Paper & Pulp Manufacturing Equipment	<ul style="list-style-type: none"> Bleach Plant Equipment (Bleach Thickener, Screens, Filters, Washers) Combining & Backing Machines 	<ul style="list-style-type: none"> Converted Paper & Paperboard Manufacturing Equipment Creasing & Slotting Machines Hydro Pulpers 	15	20

	<ul style="list-style-type: none"> • Acid Towers • Converting Mill Equipment • Creosoting Plants • Fiber Recycling • Jordans • Jointers • Kilns • Knotters • Lathes • Layboys 	<ul style="list-style-type: none"> • Paper Machine Hoods • Paper Mill Equipment • Printing & Slotting Machines • Printing Presses • Rewinders • Thickeners 	20	30
	<ul style="list-style-type: none"> • Beaters (Rag Stock, Wood Pulp) • Blow Pits • Coating Machines • Cutters • Digestors 	<ul style="list-style-type: none"> • Drainers • Drying Machines • Dusters • Kollergangs • Sling Sorters 	25	30
	<ul style="list-style-type: none"> • Paper Mill Equipment 		30	40
Woodworking Equipment	<ul style="list-style-type: none"> • Basket Machinery • Dado Machines • Dowel Machines • Platers • Routers 	<ul style="list-style-type: none"> • Saw Filing Machinery • Surfacers • Tapering Machine • Tubing Machine 	15	20
	<ul style="list-style-type: none"> • Boring Machines • Bowing Machines • Crate Machines • Dovetailing Machines • Flooring Machines • Hand Saw Stretcher • Mill Machines • Mitering Machines • Molders • Mortisers • Reamers • Rifflers (Wood) 	<ul style="list-style-type: none"> • Sanders • Saw Frames • Tapering Machine • Tenoning Machine • Tongue & Groove Machines • Turners • Veneer Equipment • Wet Machines • Winders • Wood Bleachers • Woodwork Planers 	15	25
Process Support Equipment	<ul style="list-style-type: none"> • Acid Pumps • Bark Pumps 	<ul style="list-style-type: none"> • Linings 	5	8
	<ul style="list-style-type: none"> • Fire-Protection Equipment • Furnaces (Rotary, Blast) 	<ul style="list-style-type: none"> • Process Control System 	10	15

	<ul style="list-style-type: none"> • Anaerobic Systems • Blowers • Boilers • Calendars • Causticizing Tanks • Clarifiers • Coolers • Conveyors • Cookers • Dust Collectors • Effluent Discharge Water Systems • Environmental Systems • Generators • Grinders • Heaters • Hoop Coilers • Hogs 	<ul style="list-style-type: none"> • Leaching Tanks • Mixing Tanks • Nailing Machines • Pans • Pumps (Centrifugal, Plunger, Pressure, Vacuum) • Reactors • Shop Machinery • Steam System • Stitching Machines • Storage Tanks • Turbines • Water Supply & Treatment 	15	25
	<ul style="list-style-type: none"> • Concrete Bins • Concrete Tanks 	<ul style="list-style-type: none"> • Steel Bins 	25	35
Mobile Equipment	<ul style="list-style-type: none"> • Camp Cars • Electric Trucks • Hand Trucks • Heavy Trucks 	<ul style="list-style-type: none"> • Knuckle Booms • Log Cars • Log/Wood Loading • Lumber Buggies 	8	12