Summary

This section contains definitions for the valuation of heavy industrial buildings and structures oil and gas well resource production equipment and pipelines.

Heavy Industrial Buildings and Structures

The replacement cost new, physical deterioration, functional obsolescence and closure adjustment factor for heavy industrial buildings or structures shall be determined in accordance with the valuation procedures in:

- Chapter 1– Regulated Property, Section 1.1.7 – Regulated Property, Heavy Industrial Buildings and Structures
- Chapter 3 – Heavy Industrial Improvements; and
- Marshall Valuation Service.

Oil and Gas Well Resource Production Equipment

The replacement cost new, physical deterioration, downtime allowance, and production adjustment factor for oil and gas well resource production equipment shall be determined in accordance with valuation procedures in Chapter 4 -Resource Production Equipment, Section 4.1 - Oil and Gas Well Resource Production Equipment.

Mine Resource Production Equipment

The replacement cost new, physical deterioration, downtime allowance, and downtime adjustment factor for mine resource production equipment shall be determined in accordance with the valuation procedures in Chapter 4 -Resource Production Equipment, Section 4.2 - Mine Resource Production Equipment.

Pipelines

The replacement cost new, physical deterioration, and volume adjustment factor for pipelines shall be determined in accordance with the valuation procedures in Chapter 5 - Pipelines.

Summary

This section contains the valuation procedures for determining the replacement cost new for heavy industrial buildings and structures.

Use of Rate Schedules

Where a rate schedule does not state the units of comparison, the units of comparison are dollars per square foot ($/sq.ft.).

Where a rate schedule does not contain a rate, factor or multiplier for a specific dimension or size, mathematical interpolation of the next highest and next lowest rate, factor or multiplier is used to calculate the required rate, factor or multiplier.

Where a rate schedule contains an extension rate, the extension rate is applied to all units of comparison greater than the next lowest size or dimension.

Measurement of Buildings and Structures

All building and structure measurements are imperial or metric standards. Linear measurements are determined to the nearest half foot.

The floor area of a building or structure or a section of a building or structure includes the interior partitions, elevators, stairways and exterior walls.

The floor area of a building or structure or a section of a building or structure is measured to the outside finished surface of the exterior walls, unless otherwise specified.

Unit of Comparison

The units of comparison should be imperial or their metric equivalent.

The following are the units of comparison and their application for determining the replacement cost new of buildings and structures.

Type	Units of Comparison	Abbreviation
Section Area	Square feet	sq.ft.
Unit Area	Square feet	sq.ft.
Floor Area	Square feet	sq.ft.
Surface Area	Square feet	sq.ft.
Base Area	Square feet	sq.ft.
Building Volume	Cubic feet	cu.ft.
	Bushels	bushels
Tank Volume	Gallons	gallons
	U.S. gallons	U.S. gallons
	Barrels	barrels
Bin Volume	Bushels	bushels
Elevator Volume	Bushels	bushels
Structure Volume	Pounds per hour	lb./hr.
Structure Height	Feet	ft.
Structure Length	Feet	ft.
Perimeter	Feet	ft.
Structural Unit	Unit	unit
Reservoir	Acre foot	AF
	Gallons	gallons
	U.S. Gallons	U.S. gallons

General

The replacement cost new of heavy industrial buildings or structures shall be determined by calculating the cost of construction for the calculator method, segregated method or unit-in-place cost method. The methods shall be applied in accordance with the valuation procedures in the Marshall Valuation Service, or in the case of non-standard buildings and structures in Chapter 3-Heavy Industrial Improvements, Non-standard Buildings and Structures.

Calculator Method

The calculator method for determining replacement cost new is used where a heavy industrial building or structure can be classified in accordance with the classification guidelines in the Marshall Valuation Service, Calculator Method or in the case of non-standard buildings and structures in Chapter 3-Heavy Industrial Improvements, Non-standard Buildings and Structures.

The replacement cost new using the calculator method is determined by application of the following calculation procedure:

1. Determine the occupancy code for the building or structure;
2. Determine the building attributes required to calculate the replacement cost new from the classification and calculation procedures for the specific occupancy code; and
3. Calculate the replacement cost new in accordance with the calculation procedures for the specific occupancy code.

Unit-in-place Cost Method

The unit-in-place cost method for determining replacement cost new shall be used where a specific heavy industrial building or structure attribute can not be classified in accordance with the classification guidelines for the calculator method, and can be classified in accordance with the unit-in-place classification guidelines, rate schedules, and calculation procedures in the Marshall Valuation Service, Unit-In-Place Costs, Sections 51 to 67.

Where a building or structure cannot be classified in accordance with the classification guidelines for the calculator method, the replacement cost new shall be determined by application of the following calculation procedure:

1. Determine the structural components that comprise the building or structure;
2. Determine the unit-in-place cost for each structural component;
3. Calculate the replacement cost new for each structural component by multiplying the unit-in-place cost by the number of units; and
4. Calculate the replacement cost new of the building or structure by summing the replacement cost new of the structural components.

Segregated Cost Method

The segregated cost method for determining replacement cost new shall be used where a specific heavy industrial building or structure attribute can not be classified in accordance with the classification guidelines for the calculator method, or the unit-in-place cost method, and can be classified in accordance with the segregated cost classification guidelines, rate schedules, and calculation procedures in the Marshall Valuation Service, Segregated Method.

Trended Original Cost Method

The trended original cost method for determining replacement cost new shall be used where a specific heavy industrial building or structural attribute cannot be classified in accordance with the classification guidelines for the calculator method, the unit-in-place classification schedules or the segregated cost method.

Both direct costs and indirect costs shall be included where the replacement cost new of a heavy industrial building or structure is determined by the trended original cost method.

Direct costs shall include all labour and materials; site preparation, grading and excavation for the foundation; and connection of utilities that are directly related to the building or structure.

Indirect costs related to the building or structure shall include architectural and engineering fees, permits and plans, survey fees, net sales taxes, service charges and interest on building funds during construction, building supervision and overhead costs, contractor's profit, worker's compensation and unemployment insurance costs, fire and liability insurance, temporary equipment and facilities, and security charges related to the construction of the building or structure.

Costs excluded from the determination of replacement cost new by the trended original cost method are as follows:

- land improvement costs, subdivision and development costs, studies for the project, appraisal or other consulting fees, including:
- costs related to the purchase or assembly of land and related legal fees, and
- property taxes, demolition, storm drain charges or rough site grading;
- financing discounts or bonuses, start-up costs, feasibility overhead, and fixture and equipment purchases;
- site improvement costs such as signs, landscaping, paving, walls, lighting, swimming pools or other recreational facilities;
- off site costs including roads, streets and other infrastructure, acreage and subdivision development fees, connection charges, environmental impact or other assessments;
- furnishings, fixtures or equipment not included in the general building contract;
- marketing or real estate expenses to create occupancy; and
- costs considered specialized tenant improvements.

The replacement cost new for heavy industrial buildings and structures using the trended original cost method is determined by application of the following calculation procedure:

1. Determine the original construction cost of the building or structure;
2. Determine the direct and indirect costs requiring an adjustment;
3. Determine the comparative cost factor (see Document 3.1.5) for commercial buildings required to adjust construction costs to January 1, 2011; and
4. Calculate the replacement cost new of the building or structure by adjusting the original construction cost for any direct or indirect costs requiring adjustment and multiplying the adjusted original construction cost by the comparative cost index.

Summary

This section contains the calculation procedures used to calculate the assessed value for heavy industrial buildings and structures after the Replacement Cost New (RCN) has been determined.

Heavy Industrial Buildings and Structures

The following calculation procedure shall be used for heavy industrial buildings and structures.

Description	Document No.	Page No.
(a) Replacement Cost New (RCN)	3.1.2	1-4
(b) Cost Factor	3.1.4	1-2
(c) RCN x Cost Factor = a x b		
(d) RCN Less Physical Deterioration = c x (1-(d_1 x d_2))		
d_1. Physical Deterioration	3.1.8	1-3
d_2. Condition Rating	3.1.8	4-5
(e) RCN Less Physical Deterioration, Functional Obsolescence and Closure Adjustment Factor = (d -(d x e_1)) x e_2		
e_1. Functional Obsolescence Factor	3.1.9	1-2
e_2. Closure Adjustment Factor	3.1.10	1
(f) Assessed Value = e		

Oil & Gas Well Buildings and Structures

The following calculation procedure shall be used for oil and gas well buildings on an oil or gas well site.

Description	Document No.	Page No.
(a) Replacement Cost New (RCN)	3.1.2	1-4
(b) Cost Factor	3.1.4	1-2
(c) RCN x Cost Factor = a x b		
(d) RCN Less Physical Deterioration = c x (1- d_1)		
d_1. Physical Deterioration	3.1.8	1-3
(e) RCN Less Physical Deterioration and Production Adjustment Factor = d x e_1		
e_1. Production Adjustment Factor	4.1.1	4-5
(f) Assessed Value = e		

Description

This section contains the valuation procedures for determining the cost factor for all heavy industrial buildings and structures.

Cost Factor Formula

The cost factor is calculated by the following formula:

Cost Factor = Current Cost Multiplier x Local Multipliers x Saskatchewan Cost Factor

Current Cost Multipliers

Calculator Method
When using the Marshall Valuation Service Calculator Method use the Marshall Valuation Service current cost multipliers in Section 99 (Current and Local Cost Multipliers), page 3, Current Cost Multipliers, Calculator Cost Sections, Central, dated 10/2010.

Segregated Method
When using the segregated method use the Marshall Valuation Service current cost multipliers in Section 99 (Current and Local Cost Multipliers), page 3, Current Cost Multipliers, Segregated Cost Sections, Central, dated 10/2010.

Unit-in-place Method
When using the unit-in-place method use the Marshall Valuation Service current cost multipliers in Section 99 (Current and Local Cost Multipliers), page 3, Current Cost Multipliers, Unit-In-Place Cost Sections 51-67, Central, dated 10/2010.

Local Multipliers

Apply the Marshall Valuation Service local multipliers from Section 99 (Current and Local Cost Multipliers), page 5, Local Multipliers, Canada, Saskatchewan, dated 10/2010.

Saskatchewan Cost Factor

The Saskatchewan Cost Factor is 1.05.

Cost Factor

The cost factor for the following occupancy groups is 1.00:

- Oil & Gas Well Tanks (S880)
- Oil & Gas Well Buildings (S881)
- Utility Tunnel (S932)
- Conveyor Gallery (S933)

Description

This section contains the valuation procedures for determining the comparative cost factor for heavy industrial buildings and structures.

Application

Where the replacement cost new for heavy industrial buildings and structures is determined by the trended original cost method, the comparative cost factor shall be applied to adjust the original construction cost to January 1, 2011.

The trended original cost method is used where a specific building or structural attribute cannot be classified in accordance with the classification guidelines for the calculator method, the unit-in-place cost method or the segregated cost method.

Comparative Cost Factor

This information is not available for viewing due to licensing with Marshall and Swift. This information is available for purchase by contacting:

Technical Standards and Policy Division
Saskatchewan Assessment Management Agency
200 – 2201 – 11th Avenue
Regina, Saskatchewan S4P 0J8

Phone: (306) 924-8000
Toll Free: 1-800-667-SAMA (7262)
Fax: (306) 924-8070

Email: info.request@sama.sk.ca
Web Site: http://www.sama.sk.ca

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Description

This section contains the valuation procedures for determining building height adjustments for various types of heavy industrial buildings.

Application

Building height adjustments that may be applied are:

- storey height;
- section height; and
- building height (total number of storeys).

Storey Height

Storey height is the vertical height of the exterior wall, which is measured as follows:

- in a flat roof one storey building, the vertical distance from the top of the floor to the top of the roof;
- in a slant roof building, the average vertical distance from the floor to the top of the roof;
- in a one storey standard gable roof building, the vertical distance from the top of the floor to the top of the exterior wall;
- in a multi-storey building, the vertical distance from the top of the floor to the top of the next floor above; and
- for non-standard or high pitched roofs, by dividing the cubic volume of the building section by the area of the building.

Where the storey height varies from the standard storey height for the building, a storey height factor shall be applied.

The standard storey height and the storey height factor are specified in the structural components and adjustments sections for the specific occupancy codes to which they apply.

Section Height

Section height is the number of storeys in a section of a building, where each storey is constructed to the same construction standard.

Building Height (Total Number of Storeys)

Building height is the total number of storeys for all portions of a building that are attached vertically, excluding below ground portions such as basements. The building height factor shall be applied to all storeys including below ground portions.

The units of measure for building height shall be the number of storeys.

This information is not available for viewing due to licensing with Marshall and Swift. This information is available for purchase by contacting:

Technical Standards and Policy Division
Saskatchewan Assessment Management Agency
200 – 2201 – 11th Avenue
Regina, Saskatchewan S4P 0J8

Phone: (306) 924-8000
Toll Free: 1-800-667-SAMA (7262)
Fax: (306) 924-8070

Email: info.request@sama.sk.ca
Web Site: http://www.sama.sk.ca

Description

This section contains the valuation procedures for determining incomplete construction adjustments for various types of heavy industrial buildings and structures.

Application

The incomplete construction adjustment shall be used to adjust the replacement cost new of buildings or structures that are under construction.

Where the base rate is adjusted for a missing building component, an incomplete construction adjustment for the missing component shall not be included in the calculation of replacement cost new.

Where a building is under construction and the base rate is not adjusted for a missing component, the incomplete construction factor shall be determined using the following formula:

$$\text{Incomplete Construction Factor} = \frac{\text{(Total Construction Cost - Costs Incurred to Date)}}{\text{Total Construction Cost}}$$

Summary

This section contains the valuation procedures for determining the amount of physical deterioration for heavy industrial buildings and structures.

Application

Physical deterioration is the loss in value from replacement cost new due to wear and tear, decay and structural defects caused by the forces of nature.

Some causes of physical deterioration are normal use, breakage, neglect, infestation of insects, dry rot, moisture, and climatic elements. The occurrence of physical deterioration is dependent on the quality of the workmanship and materials used to construct the building or structure, and the use, abuse and general maintenance of the building or structure since its construction.

Formulas, Rules and Principles

The physical deterioration and condition rating schedules account for all curable and incurable physical deterioration and normal functional obsolescence not accounted for in the replacement cost new of the building or structure.

No additional allowance shall be made for physical deterioration except as may be accounted for in the calculation of the downtime allowance and production adjustment factor for oil and gas well site buildings and structures.

Where the total percentage amount of physical deterioration is equal to or greater than the replacement cost new of the building or structure the amount of physical deterioration is 99 percent.

Physical deterioration may be determined by the age-life method or lifetime method.

Age-Life Method

The age-life method is used where the actual or effective age of the building or structure is known or can be estimated, and the condition of the building or structure can be determined or estimated.

'Actual age' is the number of years elapsed since an original structure was built.

'Effective age' is the typical age of structures equivalent to the one in question with respect to condition and utility and reflects the remaining economic life of the building or structure. Effective age can be either shorter or longer than actual age.

'Economic life', with respect to a building or structure, means the period during which a given building or structure is expected to contribute (positively) to the value of the total property. This period is typically shorter than the period during which the improvement could be left on the property, that is, its physical life. Renovation, remodelling, or rehabilitation can extend a building's physical life and can have an effect on its remaining economic life.

The amount of physical deterioration is determined by application of the following calculation procedure:

1. Determine the normal life expectancy for the class and type of building or structure;
2. Determine the effective age and the percentage amount of deterioration for the class and type of building or structure using the physical deterioration schedules;
3. Determine the condition and condition factor using the condition rating schedule; and
4. Calculate the total percentage amount of physical deterioration by multiplying the amount of physical deterioration from the physical deterioration schedule by the condition factor from the condition rating schedule.

Lifetime Method

The lifetime method is used for the following heavy industrial buildings and structures:

Non-standard heavy industrial buildings and structures:

- Saskatchewan Assessment Manual (2011 Base Year)
  - Oil & Gas Well Tanks (S880)
  - Oil & Gas Well Buildings (S881)
  - Utility Tunnel (S932)

- SAMA's 2011 Cost Guide
  - Chapter 7: Commercial Tanks and Reservoirs
  - Commercial Cylindrical Bin (S840)
  - Commercial Hopper Bin (S841)
  - Utility Bin (S842)
  - Utility Hopper Bin (S843)
  - Stacks (S852)
  - Incinerators (S853)
  - Mill Incinerator (S854)
  - Brick Incinerator (S855)
  - Towers (S860)
  - Guyed Towers (S861)

- Marshall Valuation Service
  - Farm Storage: Section 17, pages 54 to 55
  - Tanks: Section 61
  - Miscellaneous Industrial Costs: Section 62

Physical Deterioration Schedule

The amount of physical deterioration by the lifetime method for specified commercial buildings and structures is 40 percent. The condition rating is 1.0.

Use the physical deterioration schedule in the Marshall and Swift Valuation Service Section 97, Depreciation – Commercial Properties dated March 2009.

Properties built in 2011 or newer are assigned an effective age of '0'.

Condition Rating Schedule

The condition of buildings and structures is determined by taking into consideration the remaining economic life of both short-lived and long-lived items.

Short-lived items have a shorter life than the basic structure, for example roofing, interior finish, floor coverings, heating system and plumbing fixtures.

Long-lived items are in the basic structure of the building and are not usually replaced during the economic life of the building. Long-lived items include such things as the foundation, frame, floor and roof structure, piping, heat ducts, insulation and electrical wiring.

The condition factor for heavy industrial buildings and structures is determined by application of the following condition rating schedule:

Condition Rating	Description	Condition Factor
Excellent	Remodelling: Extensive remodelling has occurred in recent years. No functional inadequacies of any consequence. Long-lived items: Long-lived items have had good maintenance, remodelling, or renovation where necessary. Maintenance: Above normal regular general maintenance has occurred. All items that can normally be repaired or refinished have recently been corrected. Short-lived items: All major short-lived items are in like-new condition.	0.5
Superior	Remodelling: Some remodelling has occurred in recent years. Little evidence of functional obsolescence and a high degree of utility. Long-lived items: Long-lived items have had good maintenance, remodelling or renovation where necessary. Maintenance: Above normal regular general maintenance has occurred. Short-lived items: Most major short-lived items are in like-new condition.	0.6
Very Good	Remodelling: Some remodelling has occurred since construction of the original building. Little evidence of functional obsolescence and a high degree of utility. Long-lived items: Long-lived items have been repaired where necessary. No visible evidence of deterioration. Maintenance: Normal regular general maintenance has occurred. Many items have been overhauled and repaired as they've shown signs of wear. Short-lived items: Many of the major short-lived items are in like-new condition, while others are well maintained and some may require minor repair.	0.7
Good	Remodelling: Utility is above the standard. Long-lived items: Long-lived items have been repaired where necessary. Maintenance: Normal regular general maintenance has occurred. No obvious maintenance required. Short-lived items: A few major short-lived items are in like-new condition, while others are well maintained and some may require minor repair.	0.8

Condition Rating	Description	Condition Factor
Above Average	Remodelling: Building is substantially in its original state. Long-lived items: Most long-lived items have been repaired where necessary. Maintenance: Normal regular general maintenance has occurred. Short-lived items: A few major short-lived items are in like-new condition, while others are well maintained and some may require minor repair.	0.9
Average	Irrespective of the following description, new or recently built buildings are considered to be in average condition. Remodelling: Building is substantially in its original state. Utility is standard for properties with a similar class and usage. Long-lived items: Most long-lived items have been repaired where necessary. Maintenance: Normal regular general maintenance has occurred. May have some evidence of deferred maintenance as a few minor repairs and refinishing are needed. Short-lived items: A few major short-lived items may require repair or replacement, while others will not require replacement in the short term.	1.0
Below Average (Badly Worn)	Remodelling: Building is substantially in its original state. Inadequate building utility and services. Long-lived items: Lack of maintenance of long-lived items has resulted in structural decay and defects. Maintenance: Deferred general maintenance is apparent. Much repair is needed. Short-lived items: Some major short-lived items require repair or replacement, while others show noticeable wear.	1.15
Poor (Worn Out)	Remodelling: Building is substantially in its original state. Usually contains numerous functional inadequacies. Long-lived items: Lack of maintenance of long-lived items has resulted in structural decay and defects that cannot be economically repaired. Maintenance: General maintenance has been neglected. Short-lived items: Most short-lived items need major repairs or replacement.	1.3

Summary

This section contains the valuation procedures for determining the amount of functional obsolescence for heavy industrial buildings and structures.

Formulas, Rules and Principles

Functional obsolescence is the loss in value from replacement cost new less physical deterioration due to the inability of the building or structure to adequately perform the function for which it is used.

Functional obsolescence is caused by changes in demand, design and technology that result in a loss in the utility of the building or structure.

No allowance shall be made for functional obsolescence except as may be accounted for in the calculation of functional obsolescence and the calculation of the replacement cost new less physical deterioration.

Functional obsolescence is any functional obsolescence not accounted for in the replacement cost new less physical deterioration. Where there is no functional obsolescence attributed to a building or structure the functional obsolescence factor shall be 1.0.

Functional obsolescence not accounted for in the replacement cost new less physical deterioration shall be accounted for in accordance with the replacement cost method or comparable unit method.

Replacement Cost Method

The amount of obsolescence shall be determined from the replacement cost of a substitute building or structure.

The amount of functional obsolescence shall be determined by application of the following calculation procedure:

1. Determine the replacement cost new less physical deterioration of the building or structure with the functional obsolescence;
2. Determine the replacement cost new less physical deterioration of a substitute building without the obsolescence; and
2. Calculate the functional obsolescence factor by dividing the replacement cost new less physical deterioration of the substitute building or structure by the replacement cost new less physical deterioration of the building or structure with the functional obsolescence.

Comparable Unit Method

The comparable unit method may be used where there is insufficient information to establish functional obsolescence by the replacement cost method. The amount of functional obsolescence shall be determined by comparison to other comparable buildings or structures.

The amount of functional obsolescence shall be determined by application of the following formula:

$$FUNCT_{SUB} = FUNCT_{COMP}$$

where: $FUNCT_{SUB}$ = functional obsolescence for the subject building or structure
$FUNCT_{COMP}$ = functional obsolescence for the comparable buildings and structures

Summary

This section contains the procedures for determining the closure adjustment factor for heavy industrial buildings and structures.

Description

The closure adjustment factor shall account for all of the loss in value due to a complete closure of a heavy industrial property.

Application

The closure adjustment factor for heavy industrial buildings and structures shall be determined by the schedule of rates method.

Schedule of Rates Method

1. The closure adjustment factor shall only be applied to heavy industrial buildings and structures.

2. The closure adjustment factor shall only be applied where the processes included in the "heavy industrial property" definition have been completely shut down and the entire property is no longer in operation for at least 12, 24 or 36 consecutive months in the year preceding the assessment roll year to which the assessment relates. The schedule of adjustments is as follows:

Factor	Consecutive months of closure
0.75	12
0.50	24
0.25	36

3. The closure adjustment factor shall not be applied in the following circumstances:
    - To any closed portion or unused area of an operating heavy industrial property;
    - For the reduced production output or reduced operating time of a heavy industrial property;
    - To a heavy industrial property that is under construction;
    - For closure of a heavy industrial property caused by an expansion, upgrade, renovation or a labour dispute.

4. The closure adjustment factor of 0.25 shall be applied where a heavy industrial property is permanently closed and all equipment is removed by January 1 of the assessment roll year to which the assessment relates. Prior to making this adjustment, written confirmation is required from the property owner or senior executive representing the owner indicating the property is permanently closed.

5. Properties qualifying for the closure adjustment factor which have functional obsolescence applied shall have the closure adjustment factor adjusted so the combined reduction (functional obsolescence and closure adjustment factor) does not exceed 75% of replacement cost new less depreciation (RCNLD) of the heavy industrial buildings and structures.

Summary

This section contains the rate schedules and calculation procedures for heavy industrial buildings and structures that are not to be valued using the Marshall Valuation Service.

Definition

Non-standard heavy industrial buildings and structures include the following.

- Located in this chapter:
  - Oil & Gas Well Tanks
  - Oil & Gas Well Buildings
  - Utility Tunnel
  - Conveyor Gallery
  - Industrial Pipe Rack
- Occupancy Codes located in Chapters 7, 8 and 9 of SAMA's 2011 Cost Guide.

Rates and Calculation Procedures

SAMA's 2011 Cost Guide is to be used to value the occupancy codes located at a heavy industrial property and found in Chapters 7, 8 and 9 of SAMA's 2011 Cost Guide.

Occupancy Description

Tanks may be of various construction and design depending on their particular requirement. They may be steel, either welded or bolted together, fibreglass or concrete. They may be open-topped or closed, cone-bottom or flat, and surface or buried.

Structural Components

Lap Welded Steel Stock Tanks:

Volume (barrels)	Rate ($/tank)	
	Open Top	Closed Top
≤50	11,255	13,730
70	15,190	18,180
90	18,250	21,690
100	18,840	22,235
150	24,195	27,080
200	27,720	30,715
210	31,755	33,270
250	32,940	34,610
300	33,870	35,665
400	48,035	50,575
500	45,500	47,910
750	50,680	53,315
1000	54,450	67,965
5000	346,050	364,275
10000	593,515	624,720
20000	1,059,500	1,152,510
50000	2,104,010	2,214,785
≥100000	3,907,225	4,112,870

Rates include:
- lap welded steel
- clean out door
- fittings
- installation
- standard deck
- flanges and valves
- base
- flat bottom
- 300 ft. of pipe
- foundation band

Rates do not include insulation and heater.

Galvanized and Bolted Painted Stock Tanks:

Volume (barrels)	Rate ($/tank)					
	Galvanized			Bolted Painted		
	Open Top	Cone Deck & Bottom	Flat Bottom	Open Top	Cone Deck & Bottom	Flat Bottom
≤100	15,840	16,995	17,560	14,580	17,900	15,770
200	20,480	24,715	25,610	18,840	25,885	22,925
250	21,845	32,290	30,280	20,500	28,640	26,910
500L (low)	29,062	43,985	41,640	25,205	37,615	35,655
500H (high)	37,790	40,070	39,465	32,670	34,580	34,320
750	41,720	49,745	43,985	35,425	49,720	46,056
1,000L (low)	49,405	72,295	59,205	43,745	61,355	51,945
1,000H (high)	48,685	51,910	51,795	38,825	43,745	43,715
1,500	67,285	77,485	73,085	55,050	67,045	62,200
2,000	85,500	96,460	91,075	68,185	82,982	76,855
≥5,000	147,775	166,730	157,255	136,645	165,850	153,720

Rates include:
- thief hatch and vacuum valve
- 20 in. dome with cover
- tank flanges and valves
- base
- flush type extended clean out door
- inside ladder
- foundation bands
- installation

Open Top Plastic Stock Tanks:

Volume (barrels)	Rate ($/tank)
≤100	16,005
200	19,955
250	23,750
500L (low)	36,030
500H (high)	29,585
750	34,880
1,000L (low)	47,960
1,000H (high)	45,580
1,500	62,030
2,000	74,315
≥5,000	148,630

Rates include:
- thief hatch and vacuum valve
- 20 in. dome with cover
- tank flanges and valves
- base
- flush type extended clean out door
- inside ladder
- foundation bands
- installation

In-Ground Steel, Fibreglass or Concrete Tanks:

Volume (barrels)	Rate ($/tank)	
	Closed Top	Open Top
≤50	14,300	11,415
100	21,170	17,179
200	29,705	25,715
300	40,010	32,585
400	46,885	38,305
500	52,095	42,875
750	72,600	59,635
1,000	93,770	77,246
1,500	153,845	125,800
2,000	170,360	140,325
≥3,000	229,880	188,645
Rates include: - pipes - valves - fittings - installation		

Chemical Storage Tanks:

Volume (gallons)	Rate ($/tank)
≤65	1,280
100	1,485
150	1,715
200	2,015
250	2,405
500	3,200
1,000	5,855
2,000	9,260
≥3,000	11,985
Rates include: - tank - valves - fittings - stand - pipes - installation	

Fibreglass Vertical Closed Top Tanks:

Volume (barrels)	Volume (cu.m.)	Height (ft.) x Width (ft.)	Rate ($/tank)
≤90	14.3	8.0 x 10	19,080
100	15.9	8.5 x 10	20,075
140	22.3	10.0 x 10	22,465
150	23.9	10.5 x 10	22,965
200	31.8	11.0 x 11	25,974
210	33.4	11.5 x 11	27,340
300	47.7	11.5 x 16	33,940
400	63.6	11.5 x 21	41,310
500	79.5	11.5 x 27	55,175
750	119.2	15.5 x 22	80,835
≥1,000	158.9	15.5 x 30	93,614

Fibreglass Horizontal Tanks:

Volume (barrels)	Volume (cu.m.)	Rate ($/tank)
≤100	15.9	33,600
150	23.9	46,070
≥200	31.8	54,255

Fibreglass Open Top Tanks:

Volume (barrels)	Volume (cu.m.)	Rate ($/tank)
≤90	14.3	17,970
100	15.9	18,245
140	22.3	19,790
≥ 210	33.4	25,680

Open Top Plastic Pop Tanks:

BBL	Cost
40	2,675
120	7,150

Includes: -Tank
-Freight
-Installation

Propane Vessels (Gas Bullets):

Volume	Rate ($/tank)
≤500	11,220
1,000	14,865
2,000	25,500
6,500	62,450
9,000	75,120
12,000	92,315
15,000	108,605
20,000	135,760
30,000	190,060
45,000	271,965
60,000	352,280
≥90,000	517,455
Values include: - painted tank - saddles - concrete piers - installation USWG = U.S. water gallons	

Insulation and Lining:

Volume (barrels)	Rate ($/tank)		
	Urethane	Fibreglass c/w Metal Wrap	Epoxy
≤50	954	3,475	6,700
65	1,015	4,475	8,315
90	1,415	5,440	10,945
100	1,415	5,950	11,830
165	1,916	8,915	17,500
200	2,255	10,400	11,460
210	2,390	10,880	21,465
240	2,820	12,390	24,470
300	3,755	14,885	30,850
400	4,260	17,360	34,145
500	4,740	19,360	38,030
750	6,650	26,785	53,430
1,000	7,070	29,275	58,385
1,500	9,475	40,685	80,530
2,000	10,405	43,630	86,260
3,000	14,200	58,530	115,535
4,000	16,560	69,920	138,265
5,000	19,440	81,345	161,050
≥10,000	31,315	86,785	172,445

Stairways, Walkways and Stiles:

Description	Rate ($/unit)
Stairways	3,181
Walkways	5,916
Stiles	3,242

Tank Gauges:

Description		Rate ($/unit)
Electronic	- Gauge Head Assembly (dial type)	7,900
	- Hi-low transmitter	2,475
Floating	- Gauge Board Assembly (target type)	5,625
	- Hi-low float assembly	1,300
Liquid Level Seal (sour gas application)		2,800

Tank Heaters:

Description	Rate ($/unit)
U-Fire Tubes 6"	20,350
U-Fire Tubes 10"	23,480
Straight Fire Tube or Electric	13,225
Rates include: - stack - flame arrestor - burner - installation	

Calculation Procedure

Description	Document No.	Page No.
(a) Base Rate	3.2.2	1-6
(b) Additional Features = (b_1 + b_2 + b_3 + b_4)	3.2.2	5
b_1. Insulation and Lining	3.2.2	6
b_2. Stairways, Walkways and Stiles	3.2.2	6
b_3. Tank Gauges	3.2.2	6
b_4. Tank Heaters	3.2.2	6
(c) Replacement Cost New = a + b		

Description

Oil and Gas Well buildings are metal and wood sheds used to house or shelter the fixtures, machinery, tools and other appliances, and field offices.

Structural Components

Wood Sheds:

Area (sq.ft.)	Rate ($/sq.ft.)					
	Frame	Lining & Insulation	Floor	Heating	Electrical	Total
≤ 50	105.45	19.70	12.10	12.00	26.00	175.25
100	97.85	16.50	12.10	11.80	25.75	164.00
200	89.75	14.50	12.10	14.10	24.90	155.35
300	78.55	12.35	12.10	18.00	24.30	145.30
400	68.50	10.65	12.10	17.90	23.70	132.85
500	62.00	9.65	12.10	16.50	22.75	123.00
600	59.15	9.15	12.10	14.50	22.00	116.90
700	58.20	8.90	12.10	13.40	21.30	113.90
800	57.50	8.75	12.10	12.50	20.50	111.35
900	56.70	8.60	12.10	11.50	19.65	108.55
1,000	56.10	8.45	12.10	10.25	18.75	105.65
1,100	55.30	8.40	12.10	9.20	18.00	103.00
1,200	55.05	8.30	12.10	8.50	17.00	100.95
1,300	54.70	8.25	12.10	8.00	16.50	99.55
1,400	54.25	8.15	12.10	7.50	15.65	97.65
1,500	53.85	8.10	12.10	7.30	14.60	95.95
1,600	53.85	8.05	12.10	7.00	14.20	95.20
1,700	53.85	8.05	12.10	6.50	13.38	93.88
1,800	53.45	8.05	12.10	6.30	12.75	92.65
1,900	53.25	8.05	12.10	6.20	11.90	91.50
2,000	53.10	8.00	12.10	6.00	11.30	90.50
2,100	53.00	8.00	12.10	5.90	10.80	89.80
2,200	52.75	7.90	12.10	5.50	10.10	88.35
2,300	52.45	7.85	12.10	5.40	9.50	87.30
2,400	52.00	7.85	12.10	5.30	8.75	86.00
2,500	51.90	7.80	12.10	5.20	8.10	85.10
2,600	51.50	7.80	12.10	5.10	7.40	83.90
2,700	51.40	7.75	12.10	5.00	6.80	83.05
2,800	51.30	7.70	12.10	4.90	6.20	82.20
2,900	51.20	7.65	12.10	4.80	5.55	81.30
3,000	51.15	7.60	12.10	4.70	4.85	80.40
3,100	51.10	7.55	12.10	4.60	4.10	79.45
3,200	50.75	7.50	12.10	4.60	3.90	78.85
>3,200	46.80	6.95	12.10	2.20	3.40	71.45

Rates include:
- walls and roof with 2"x4" studs at 16" o.c.
- good siding and asphalt shingles
- 2 standard walk-in doors with panic hardware
- plywood or equivalent sheathing
- adequate electrical service
- 2 standard windows

Metal Shed:

Area (sq.ft.)	Rate ($/sq.ft.)						
	Frame	Steel Frame	Lining & Insulation	Floor	Heating	Electrical	Total
≤100	41.50	10.50	13.45	8.00	6.70	14.25	94.40
500	36.25	10.50	12.45	8.00	5.40	12.55	85.15
700	29.25	10.50	12.40	8.00	3.50	11.70	75.35
1,000	27.90	10.40	11.00	8.00	2.70	10.50	70.50
1,300	24.85	10.30	10.45	8.00	2.00	9.40	65.00
≥1,800	23.40	11.70	9.70	8.00	1.60	8.00	62.40

Field Office:

Area (sq.ft.)	Rate ($/sq.ft.)	Area (sq.ft.)	Rate ($/sq.ft.)
≤100	142.00	500	95.50
150	120.00	550	92.75
200	109.00	600	90.50
250	104.00	700	87.00
300	100.00	800	84.00
350	99.30	1,000	78.50
400	99.00	1,200	74.00
450	97.50	> 4,000	66.00
Rates include: Standard mobile unit with blocking and adequate electrical and heating. Typical brand names are Atco and Prebilt.			

Miscellaneous Buildings:

Description	Units of Comparison	Rate ($/sq.ft.)
Fibreglass wellhead shelters	Floor area	97.00
Pump shacks	Floor area	102.00
Utilodor insulated pipe enclosure	Surface area	8.25

Adjustments

Storey Height:

Height (ft.)	Factor
8	0.92
10	1.00
12	1.08
14	1.16
16	1.24
18	1.32
20	1.40
≥ 22	1.48

Doors:

Description	Rate ($/unit)
Walk-in Door	1,640
Overhead Door	2,210
Window	880
Plumbing (3 fixtures)	3,365

Calculation Procedure

Description	Document No.	Page No.
(a) Base Rate = (a_1 + a_2 + a_3 + a_4 + a_5 + a_6)		
a_1. Frame Rate	3.2.3	1-2
a_2. Steel Frame Rate	3.2.3	1-2
a_3. Insulation and Lining Rate	3.2.3	1-2
a_4. Floor Rate	3.2.3	1-2
a_5. Heating Rate	3.2.3	1-2
a_6. Electrical Rate	3.2.3	1-2
(b) Section Area		
(c) Value Subtotal = a x b		
(d) Storey Height Factor	3.2.3	3
(e) Additional Features = ($\pm e_1$)		
e_1. Door Adjustment	3.2.3	3
(f) Replacement Cost New = (c x d) ± e		

Occupancy Description

Utility tunnels carry utilities between buildings. The rates vary depending on wall thickness.

The rates include reinforced concrete walls roof and floor.

Structural Components

Utility Tunnel:

Class	Description	Rate ($/cu. ft.)
A	7" - 10" concrete wall	20.31
B	5" - 7" concrete wall	16.93
C	3" - 5" concrete wall	13.54

Electrical and Mechanical Installations

Description	Rate ($/cu.ft.)
Electrical	3.16
Heating	2.19
Sprinkler	2.76

Calculation Procedure

Description	Document No.	Page No.
(a) Structure Rate = (a_1 + a_2 + a_3 + a_4)		
a_1. Base Rate	3.2.4	1
a_2. Electrical Rate	3.2.4	1
a_3. Heating Rate	3.2.4	1
a_4. Sprinkler Rate	3.2.4	1
(b) Building Volume		
(c) Value Subtotal = a x b		
(d) Incomplete Construction Factor	3.1.7	1
(e) Replacement Cost New = c- (c x d)		

Occupancy Description

A conveyor gallery is a structure primarily found in processing operations used for enclosing conveyor belting that inter-connects various buildings.

Rates are based on completely installed units including typical wall, roof, floor, and support structure where designated by type.

Structural Components

Conveyor Gallery:

Type	Class	Life Expectancy (Years)	Rate ($/cu. ft.)
Elevated (ELEV)	A	40	16.04
Elevated (ELEV)	B	35	13.48
Elevated (ELEV)	C	35	10.31
Surface (SURF)	A	40	13.75
Surface (SURF)	B	35	10.89
Surface (SURF)	C	35	8.60
Suspended (SUSP)	A	40	13.75
Suspended (SUSP)	B	35	10.89
Suspended (SUSP)	C	35	8.60

Electrical and Mechanical Installations

Description	Rate ($/cu.ft.)
Electrical	3.16
Heating	2.19
Sprinkler	2.76

Calculation Procedure

Description	Document No.	Page No.
(a) Structure Rate = (a_1 + a_2 + a_3 + a_4)		
a_1. Base Rate	3.2.5	1
a_2. Electrical Rate	3.2.5	1
a_3. Heating Rate	3.2.5	1
a_4. Sprinkler Rate	3.2.5	1
(b) Building Volume		
(c) Value Subtotal = a x b		
(d) Incomplete Construction Factor	3.1.7	1
(e) Replacement Cost New = c- (c x d)		

Elevated

Occupancy Description

Pipe racks are supporting structures for overhead piping and wiring.

Structural Components

Frame:

Type	Class	Description	Life Expectancy	Base Sq. Ft. Rate ($)
5	AA-Excellent	Heavy steel frame	45	15.15
	A-Good	Good steel frame	40	11.52
	B-Average	Average structural steel frame	35	8.69
	C-Low Cost	Light structural steel frame or post	35	6.56

Adjustments

Standard Storey Height: 8 feet.
Incomplete Construction: See Doc. No. 3.1.7

Storey Height

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Technical Standards and Policy Division
Saskatchewan Assessment Management Agency
200 – 2201 – 11th Avenue
Regina, Saskatchewan S4P 0J8

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Toll Free: 1-800-667-SAMA (7262)
Fax: (306) 924-8070

Email: info.request@sama.sk.ca
Web Site: http://www.sama.sk.ca

Calculation Procedure

Description	Document No.	Page No.
(a) Structure Rate = (a_1)		
a_1. Base Square Foot Rate	3.2.6	1
(b) Section Area		
(c) Adjusted Building Height Factor = c_1 x c_2 x c_3		
c_1. Storey Height Factor	3.2.6	1
c_2. Total Number of Storeys Factor	3.1.6	2
c_3. Number of Storeys	3.1.6	1
(d) Value Subtotal = a x b x c		
(e) Incomplete Construction Factor	3.1.7	1
(f) Replacement Cost New = d – (d x e)		