

**Annex 10.4: Determination of Fixed Capital Employed Applicable to a Contract
(2004-05-14)**

(Contracts of \$ 250,000 and more)

Examples of Calculation

Example 1 - Assumptions:

1. The period of contract performance is from April 1, 1982 to March 31, 1983.
2. The contractor's fiscal year ends on March 31.
3. The contractor accumulates costs in 5 cost centres and the amount of depreciation included in the agreed budget in the first year 1982/83 are as follows:

Repair and Overhaul	\$28,500
Material Handling	\$500
G & A	\$1,000
Engineering	\$3,000
Occupancy	\$7,000

4. The costs accumulated in the Occupancy cost centre are subsequently re-allocated to all other cost centres on the basis of area occupied which is as follows:

Repair and Overhaul	65%
Material Handling	15%
G & A	10%
Engineering	10%
	100%

5. The costs accumulated in the Engineering cost centre are subsequently re-allocated to the Repair and Overhaul cost centre.
6. The Net Book Value of Fixed Assets (excluding land and any intangible assets) appearing in the contractor's balance sheet as at March 31, 1982 is \$285,000.
7. The recovery base in each cost centre and the amounts thereof for fiscal year 1982/83 are as follows:

Repair and Overhaul — Direct Labour Costs	\$ 600,000
Material Handling — Total Material Costs	\$1,500,000
G & A — Costs of Production	\$3,500,000

8. The amounts of each recovery base allocated to this contract are:

Repair and Overhaul	\$272,700
Material Handling	\$750,000

G & A	\$1,602,900
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Example 1

Details F/Y 1982/83	Cost Centres					
	Repair Overhaul \$	Material Handling \$	G & A \$	Engineering \$	Occupancy \$	Total \$
1. Amounts for depreciation by Cost Centre.	28,500	500	1,000	3,000	7,000	40,000
2. Net Book Value of Fixed Assets as at March 31, 1982	203,063	3,562	7,125	21,375	49,875	285,000
3. Re-allocation of cost centres						
Occupancy	32,419	7,481	4,988	4,987	(49,875)	--
Engineering	26,362	--	--	(26,362)	--	--
4. Adjusted Net Book Value of Fixed Assets by cost centres.	261,844	11,043	12,113	--	--	285,000
5. Bases for recovery of overhead	Direct Labour Costs	Total Material Costs	Costs of Production			
6. Total amount of each overhead recovery base for Fiscal Year 1982/83	600,000	1,500,000	3,500,000			
7. Amount of each overhead recovery base for Fiscal Year 1982/83 allocated to this contract.	272,700	750,000	1,602,000			
8. Percentage of Line 7 to Line 6.	45.5%	50.0%	45.8%			
9. Net Book Value of Fixed Assets Applicable to the contract Line 8 x Line 4.	119,139	5,522	5,548			130,209
	FIXED CAPITAL EMPLOYED APPLICABLE TO CONTRACT					\$130,209

Example 2 - Assumptions:

1. The period of contract performance is from July 1, 1982 to December 31, 1983.
2. The contractor's fiscal year ends on December 31.
3. The contractor accumulates costs in 6 cost centres and the amounts for depreciation included in the agreed budget for each fiscal year are:

	F/Y 1982 \$	F/Y 1983 \$
Manufacturing	30,000	35,000
Engineering	6,000	5,900

Material Handling	5,000	4,500
G & A	3,500	4,000
Inspection	1,000	900
Occupancy	<u>10,000</u>	<u>9,500</u>
Total	<u><u>55,500</u></u>	<u><u>59,800</u></u>

4. The costs accumulated in the Occupancy cost centre are subsequently re-allocated to all other cost centres on the basis of area occupied which is as follows:

Manufacturing	50%
Engineering	15%
Material Handling	15%
G & A	10%
Inspection	<u>10%</u>
Total	100%

5. The costs accumulated in the Inspection cost centre are subsequently re-allocated to the Manufacturing cost centre.
6. The Net Book Value of Fixed Assets (excluding land and any intangible assets) appearing on the contractor's balance sheet as at December 31, 1981 is \$400,000, and estimated for the year ending December 31, 1982 is \$405,000.
7. The recovery base for overhead in each cost centre and the amount thereof for each fiscal year are as follows:

	F/Y 1982	F/Y 1983
Manufacturing - Direct Labour Costs	\$300,000	\$440,000
Engineering - Direct Labour Hours	100,000 hours	100,000 hours
Material Handling - Total Material Costs	\$700,000	\$650,000
G & A - Costs of Production	\$3,500,000	\$3,700,000

8. The amounts of each recovery base allocated to this contract in each fiscal year are:

	F/Y 1982	F/Y 1983
Manufacturing	\$65,000	\$110,000
Engineering	6,000 hours	600 hours
Material Handling	\$75,000	\$125,000
G & A	\$350,000	\$484,000

**Determination of Fixed Capital Employed Applicable to a Contract
Fiscal Year Ending December 31, 1982 (1st Year)**

Example 2 (cont'd...)

Details F/Y 1982/83	Cost Centres						
	Manufacturing \$	Engineering \$	Material Handling \$	G & A \$	Inspection \$	Occupancy \$	Total \$
1. Amounts for depreciation by Cost Centre.	30,000	6,000	5,000	3,500	1,000	10,000	55,500
2. Net Book Value of Fixed Assets as at March 31, 1981	216,218	43,244	36,036	25,225	7,207	72,070	400,000
3. Re-allocation of cost centres							
Occupancy	36,035	10,810	10,811	7,207	7,207	(72,070)	--
Inspection	14,414	--	--	--	(14,414)	--	--
4. Adjusted Net Book Value of Fixed Assets by cost centres.	266,667	54,054	46,847	32,432	--	--	400,000
5. Bases for recovery of overhead.	Direct Labour Costs	Direct Labour Hours	Total Material Costs	Cost of Production			
6. Total Amount of each overhead recovery basis for Fiscal Year 1982.	300,000	100,000 hours	700,000	3,500,000			
7. Amount of each overhead recovery base for Fiscal Year 1982 allocated to this contract	65,000	6,000 hours	75,000	350,000			
8. Percentage of Line 7 to Line 6.	21.7%	6.0%	10.7%	10.0%			
9. Net Book Value of Fixed Assets Applicable to this contract in Fiscal Year 1982. Line 8 x Line 4.	57,867	3,243	5,013	3,243			69,366
FIXED CAPITAL EMPLOYED APPLICABLE TO THIS CONTRACT							\$69,366

**Determination of Fixed Capital Employed Applicable
to a Contract Fiscal Year Ending December 31, 1983 (2nd Year)**

Example 2 (cont'd...)

Details F/Y 1983	Cost Centres						
	Manufacturing \$	Engineering \$	Material Handling \$	G & A \$	Inspection \$	Occupancy \$	Total \$
1. Amounts for depreciation by Cost Centre.	35,000	5,900	4,500	4,000	900	9,500	59,800
2. Net Book Value of Fixed Assets as at March 31, 1982	237,041	39,958	30,476	27,091	6,095	64,339	405,000
3. Re-allocation of cost centres							

Occupancy	32,169	9,651	9,651	6,434	6,434	(64,339)	
Inspection	12,529	--	--	--	(12,529)	--	--
4. Adjusted Net Book Value of Fixed Assets by cost centres.	281,739	49,609	40,127	33,525	--	--	405,000
5. Bases for recovery of overhead.	Direct Labour Costs	Direct Labour Hours	Total Material Costs	Cost of production			
6. Total Amount of each overhead recovery base for Fiscal Year 1983.	440,000	100,000 hours	650,000	3,700,000			
7. Amount of each overhead recovery base for Fiscal Year 1983 allocated to this contract.	110,000	600 hours	125,000	484,000			
8. Percentage of Line 7 to Line 6.	25.0%	0.6%	19.2%	13.1%			
9. Net Book Value of Fixed Assets Applicable to this contract in Fiscal Year 1983. Line 8 x Line 4.	70,435	298	7,704	4,392			82,829
FIXED CAPITAL EMPLOYED APPLICABLE TO THIS CONTRACT							82,829

Summary

Fixed Capital Employed Applicable to this Contract - F/Y 1982	\$69,366
Fixed Capital Employed Applicable to this Contract - F/Y 1983	<u>\$82,829</u>
Total	<u><u>\$152,195</u></u>

Example 3 - Assumptions:

- Contract is for Repair and Overhaul in Plant and by Mobile Repair Party (MRP)
- Bases of Payment are:

Repair and Overhaul in Plan	— Fixed Time Rate
Mobile Repair Party	— Fixed Time Rate
Company Furnished Materials	— Actual Costs plus Mark Up
Accountable Advances (AA)	
Spares Embodied	— Mark Up only

- Contract Period is 12 months.
- Total Negotiated Contract Costs are:

Company Furnished Materials		\$300,000
AA Spares Embodied		(450,000)
In-Plant Repair and Overhaul:		
Direct Labour	30,000 hours @ \$ 9 per h	270,000

Overhead	30,000 hours @ \$18 per h	540,000
Mobile Repair Party		
Direct Labour	300 hours @ \$ 9 per h	2,700
Overhead	300 hours @ \$ 9 per h	2,700
Material Handling		
On Company Furnished Materials	\$300,000 @ 5%	15,000
On AA Spares Embodied	\$450,000 @ 5%	22,500
G & A		
On Company Furnished Materials	\$300,000 @ 10%	30,000
On AA Spares Embodied	\$450,000 @ 10%	45,000
On In-Plant Repair and Overhaul	\$810,000 @ 10%	81,000
On MRP	\$5,400 @ 10%	540
On Material Handling Costs	\$37,500 @ 10%	3,750
Total Contract Costs		<u>\$1,313,190</u>

Examples of Profit Calculations

5. Summary of Contract Costs			\$	\$
a) Company Furnished Materials				
Laid Down Costs			300,000	
Plus 5% Material Handling			<u>15,000</u>	
			315,000	
Plus 10% G & A			<u>31,500</u>	346,500
b) Accountable Advance Spares Embodied:				
Laid Down Costs			(450,000)	
Plus 5% Material Handling			<u>22,500</u>	
			472,500	
Plus 10% G & A			<u>47,250</u>	69,750
c) Repair and Overhaul:				
Labour 30,000 hours	@ \$27.00 per h		810,000	
Plus 10% G & A	<u>2.70</u>		<u>81,000</u>	891,000
Costing Rate	29.70			
d) Mobile Repaid Party:				
Labour 300 hours	@ \$18.00 per h		5,400	
Plus 10% G & A	<u>1.80</u>		<u>540</u>	5,940
Costing Rate	19.80		Total	<u><u>1,313,190</u></u>
Company Furnished Materials				300,000

Cost and Profit

Direct Labour		272,700
Plant Overhead		542,700
Material Handling Overhead		<u>37,500</u>
		1,152,900
G & A		<u>160,290</u>
	Total	<u><u>1,313,190</u></u>

6. Fixed Capital Employed applicable to the contract is \$130,209 (see Example 1 in this Annex) broken down as follows:

Company Furnished Materials	\$346,500	27.8%	\$36,198
Repair and Overhaul	891,000	71.7%	93,360
Mobile Repair Party	<u>5,940</u>	<u>0.5%</u>	651
	Total	<u><u>100.0%</u></u>	<u><u>\$130,209</u></u>

7. Latest Bond Rate published by the Director, Acquisition Program Integrity Secretariat (APIS), is 10%.

8. Working Capital Employed applicable to the contract is \$290,376 (see Example 1 in [Annex 10.2.1](#)), broken down as follows:

Company Furnished Materials	\$346,500	27.8%	\$80,724
Repair and Overhaul	891,000	71.7%	208,200
Mobile Repair Party	<u>5,940</u>	<u>0.5%</u>	<u>1,452</u>
	Total	<u><u>100.0%</u></u>	<u><u>\$290,376</u></u>

9. Latest Chartered Bank Prime Rate published by the Director, APIS, is 11%.

10. The contractor has been performing this or similar Repair and Overhaul work for a number of years, and the contract price was negotiated and agreed to prior to work commencing. As a result, the rate for contractual risk on the fixed time rate work is assessed at 3%.

Profit on Company Furnished Materials

Profit Factor	Measurement Base			
	Details	Amount \$	Profit Rate %	Profit Amount \$
Return on Capital Employed	Fixed Capital Employed	36,198	1.7 x 10%	6,154
	Working Capital Employed Applicable to Contract	<u>80,724</u>	11	<u>8,880</u>
	Total	116,922		15,034
General Business Risk	Direct Materials	300,000	1.5	4,500
	Material Handling Overhead	15,000	4	600
	G & A	<u>31,500</u>	4	<u>1,260</u>

Cost and Profit

	Total Costs	346,500		6,360
Contractual Risk	Cost Reimbursable - No Ceiling	300,00	0	--
	Material Handling Overhead and G & A - Fixed Rates	46,500	3	1,395
	Total Costs	346,500		1,395
Total Profit = 6.6% of Total Costs				<u>\$22,834</u>
Mark Up for Company Furnished Materials				
Laid Down Cost				\$100.00
Material Handling @ 5%				<u>5.00</u>
				105.00
G & A @ 10%				<u>10.50</u>
				115.50
Profit @ 6.6%				<u>7.62</u>
Mark Up 23.12%				\$123.12

Profit on Accountable Advance Spares Embodied

Factor de Profit	Measurement Base			
	Details	Amount \$	Profit Rate %	Profit \$
Return on Capital Employed	N/A	--	--	--
General Business Risk	General AA Spares	450,000	2	9,000
	Material Handling Overhead	22,500	4	900
	G & A	<u>47,250</u>	4	<u>1,890</u>
	Total Costs	519,750		11,790
Contractual Risk	Cost Reimbursable - No Ceiling Risk Price Basis of Payment	519,750	0	--
Total Profit = 2.3 % Total Costs				<u>\$11,790</u>
Mark Up for AA Spares Embodied				
Laid Down Costs				\$100.00
Material Handling @ 5%				<u>5.00</u>
				105.00
G & A @ 10%				<u>10.50</u>
				115.50
Profit @ 2.3%				<u>2.66</u>
Mark Up 18.25%				\$118.16

Profit on Repair and Overhaul

Profit Factor	Measurement Base			
	Details	Amount \$	Profit Rate %	Profit Amount \$
Return on Capital Employed	Fixed Capital Employed Applicable to Contract	93,360	1.7 x 10%	15,871
	Working Capital Employed Applicable to Contract	<u>208,200</u>	11	<u>22,902</u>
	Total Capital Employed	301,560		38,773
General Business Risk	Direct Labour	270,000	4	10,800
	Plan Overhead	540,000	4	21,600
	G & A	<u>81,500</u>	4	<u>3,240</u>
	Total Costs	891,000		35,640
Contractual Risk	Fixed Time Rate Basis of Payment	891,000	3	26,730
Total Profit = 11.4 % of Total Costs				<u><u>\$101,143</u></u>
Fixed Time Rate for Repair and Overhaul				
Direct Labour		\$9.00 per hour		
Plant Overhead		<u>18.00</u> per hour		
		27.00 per hour		
G & A @ 10%		<u>2.70</u> per hour		
		29.70 per hour		
Profit @ 11.4%		<u>3.39</u> per hour		
Selling Price		\$33.09 per hour		

Profit on Mobile Repair Party

Profit Factor	Measurement Base			
	Details	Amount \$	Profit Rate %	Profit Amount \$
Return on Capital Employed	Fixed Capital Employed Applicable to Contract	651	1.7 x 10%	111
	Working Capital Employed Applicable to Contract	<u>1,452</u>	11	<u>160</u>
	Total Capital Employed	2,103		271
General Business Risk	Direct Labour	2,700	4	108
	Plan Overhead	2,700	4	108
	G & A	<u>540</u>	4	<u>22</u>
	Total Costs	5,940		238

Contractual Risks	Fixed Time Rate Basis of Payment	5,940	3	178
Total Profit = 11.6 % of Total Costs				<u>\$687</u>
Fixed Time Rate for Mobile Repair Party				
Direct Labour				\$9.00 per hour
Plant Overhead				<u>9.00</u> per hour
				18.00 per hour
G & A @ 10%				<u>1.80</u> per hour
Costing Rate				19.80 per hour
Profit @ 11.6%				<u>2.30</u> per hour
Selling Price				\$22.10 per hour

Profit Summary

	Company Furnished Material \$	AA Spares Embodied \$	Repair and Overhaul \$	Mobile Repair Party \$	Total \$
Total Costs	346,500	69,750	891,000	5,940	1,313,190
Return on Capital Employed % of Total Costs	15,034 4.3%	-- --	38,773 4.4%	271 4.6%	54,078 4.1%
General Business Risk % of Total Costs	6,360 1.8%	11,790 16.6%	35,640 4.0%	238 4.0%	54,028 4.1%
Contractual Risk % of Total Costs	1,395 0.4%	-- --	26,730 3.0%	178 3.0%	28,303 2.2%
Total/All Factors % of Total Costs	22,789 6.6%	11,790 16.6%	101,143 11.4%	687 11.6%	136,409 10.4%

Example 4 - Assumptions:

- The contract is for the design, manufacture and supply of 24 widgets.
- The basis of payment is a firm unit price per widget.
- The contract performance period is 18 months.
- Total negotiated Contract Costs are:

Direct Materials	\$200,000
Subcontracts	40,000
Direct Labour	254,000
Overhead	340,000
G & A Overhead	116,000
Royalties	<u>10,000</u>
Total	\$960,000

5. Fixed Capital Employed applicable to the contract is \$152,195 (see Example 2 in this Annex).
6. The latest Bond Rate published by the Director, Acquisition Program Integrity Secretariat (APIS), is 10%.
7. Working Capital Employed applicable to the contract is \$298,667 (see Example 2 in [Annex 10.2.1](#)).
8. The latest Chartered Bank Prime Rate published by the Director, APIS, is 11%.
9. The widgets are of a completely new design, as requested by the government, and the contractor is assuming maximum risk in agreeing to a firm price. However, the price was only reached 3 months after the commencement of work. Therefore, the rate of profit for contractual risk was assessed at 6.5%.
10. The G & A overhead contains an amount of \$20,000 for allowable Research and General Development.

Profit Factor	Measurement Base			
	Details	Amount \$	Profit Rate %	Profit Amount \$
Return on Capital Employed	Fixed Capital Employed Applicable to Contract	152,195	1.7 x 10%	25,873
	Working Capital Employed Applicable to Contract	298,667	11	32,852
	Total Capital Employed	450,862		58,726
General Business Risk	Direct Materials	200,000	1.5	3,000
	Subcontracts	40,000	2	800
	Direct Labour	254,000	4	10,160
	Overhead	456,000	4	18,240
	Other Allowable Costs (Royalties)	10,000	--	--
	Total Allowable Costs	960,000		32,200
Contractual Risk	Total Allowable Costs less Royalties	950,000	6.5	61,750
Total Profit = 15.9% of Total Costs				<u>\$152,676</u>
Total Cost				\$960,000
Profit				<u>152,676</u>
Total				\$1,112,676
				= \$ 46,361.50 per widget