

**Case 4-31** (90 minutes)

1. Step-down method:

	<i>Cafeteria</i>	<i>Custodial Services</i>	<i>Machinery Maintenance</i>	<i>Milling</i>	<i>Finishing</i>
Total costs before allocations.....	\$320,000	\$65,400	\$ 93,600	\$416,000	\$166,000
Allocations:					
Cafeteria (40/500; 60/500; 100/500; 300/500) <sup>1</sup> .....	(320,000)	25,600	38,400	64,000	192,000
Custodial Services (10,000/70,000; 40,000/70,000; 20,000/70,000) <sup>2</sup> ....		(91,000)	13,000	52,000	26,000
Machinery Maintenance (160,000/200,000; 40,000/200,000) <sup>3</sup> .....			(145,000)	<u>116,000</u>	<u>29,000</u>
Total overhead after allocations .....	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$648,000</u>	<u>\$413,000</u>

<sup>1</sup> Based on 40 + 60 + 100 + 300 = 500 employees.

<sup>2</sup> Based on 10,000 + 40,000 + 20,000 = 70,000 square feet.

<sup>3</sup> Based on 160,000 + 40,000 = 200,000 machine-hours.

$$\text{Milling predetermined overhead rate} = \frac{\$648,000}{160,000 \text{ machine-hours}} = \$4.05 \text{ per machine-hour}$$

$$\text{Finishing predetermined overhead rate} = \frac{\$413,000}{70,000 \text{ direct labor-hours}} = \$5.90 \text{ per direct labor-hour}$$

**Case 4-31** (continued)

2. Direct method:

	<i>Cafeteria</i>	<i>Custodial Services</i>	<i>Machinery Maintenance</i>	<i>Milling</i>	<i>Finishing</i>
Total costs before allocations.....	\$320,000	\$65,400	\$93,600	\$416,000	\$166,000
Allocations:					
Cafeteria (100/400; 300/400) <sup>1</sup> .....	(320,000)			80,000	240,000
Custodial Services (40,000/60,000; 20,000/60,000) <sup>2</sup> .....		(65,400)		43,600	21,800
Machinery Maintenance (160,000/200,000; 40,000/200,000) <sup>3</sup>			(93,600)	74,880	18,720
Total overhead after allocations .....	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	\$614,480	\$446,520
Divide by machine-hours.....				÷160,000	
Divide by direct labor-hours.....					÷70,000
Predetermined overhead rate .....				<u>\$ 3.84</u>	<u>\$ 6.38</u>

<sup>1</sup> Based on 100 + 300 = 400 employees.

<sup>2</sup> Based on 40,000 + 20,000 = 60,000 square feet.

<sup>3</sup> Based on 160,000 + 40,000 = 200,000 machine-hours.

$$\text{Milling predetermined overhead rate} = \frac{\$614,480}{160,000 \text{ machine-hours}} = \$3.84 \text{ per machine-hour}$$

$$\text{Finishing predetermined overhead rate} = \frac{\$446,520}{70,000 \text{ direct labor-hours}} = \$6.38 \text{ per direct labor-hour}$$