Dannible & McKee, LLP

Certified Public Accountants and Consultants

Delivering **Confidence**

Leveraging Key Ratios in A/E Firms

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Charla A. Roth, CPA

Charla A. Roth, CPA, is a partner at Dannible & McKee, LLP and a principal at Dannible/McKee and Associates, Ltd and has over 23 years of experience providing audit, accounting and consulting services for a variety of clients. She specializes in working with architectural and engineering firms and has extensive experience performing Federal Acquisition Regulation (FAR) overhead audits. In addition, she has managed the contract audit services with the New York State Department of Transportation from 2011 to the present. Charla also has proficient knowledge in numerous accounting software packages including Ajera, Deltek Vision, QuickBooks and more.

Academic and Professional Credentials

- Certified Public Accountant in New York State (CPA)
- Bachelor's of Science, Accounting, State University of New York at Oswego, 2002
- Master's of Accounting, State University of New York at Oswego, 2003

Professional Affiliations and Memberships

- American Institute of Certified Public Accountants (AICPA)
- New York State Society of Certified Public Accountants (NYSSCPA)
- Accounting & Financial Women's Alliance (AFWA) - Past-President and Treasurer

About Dannible & McKee, LLP

- Dannible & McKee, LLP is a full-service CPA firm that delivers superior outcomes through a combination of technical knowledge, deep understanding of individual client's business and a commitment to personal, responsive service.
- Our clientele consists of companies across New York State and the United States and represents a diversity of business enterprises.
- Dannible & McKee is headquartered in Syracuse, NY and has additional offices in Binghamton, NY, Schenectady, NY, Auburn, NY and Tampa, FL.
- Specialize in working with Engineering and Architectural firms of all sizes and specialties.
- Provide assurance, accounting, tax, forensic, valuation and advisory services, along with FAR overhead rate audits and consulting.

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DM Consulting Group

DM Consulting Group (previously known as Dannible/McKee and Associates, Ltd) has gained national recognition as one of the leading consulting firms to the A/E industry. For over 40 years, our consultants have worked with A/E firms throughout the country in determining the fair market value of their firm, developing creative strategies for ownership transfer and establishing buy/sell agreements among the owners to ensure success in the ownership transition process.

CONSULTING GROUP

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Ratio Analysis and Benchmarking

- Financial statements can be analyzed using key financial ratios
- Financial ratios are a numeric calculation involving the comparison of meaningful amounts from the financial statements
- Ratios are not ends in themselves, but provide insights into the operation of a firm
- They serve as “benchmarks” against which the firm can evaluate itself and are only useful when:
  - Compared with the same ratios, for the same firm, from previous periods
  - Compared with some predetermined standard
  - Compared with the same ratios for other firms in the same industry
  - Compared with average ratios for the industry within which the firm operates

Ratio Categories

- Financial analysts group ratios into categories, which tell us about different facets of a firm's finances and operations
- Following is an overview of some of the ratio categories along with formulas for key ratios
- In additional to general ratios applicable to most companies, there are a number of specific ratios that apply to A/E firms

Industry Comparison

- In an industry comparison, we look at the firm's performance in relationship to other A/E firms
- By comparing the firm to others, any differences in their operating efficiency will show up
- Once a problem is identified, the firm can take action to correct the problem
- Excellent data is available for the A/E industry
- Industry comparison <u>must</u> be part of your firm's financial analysis

Industry Comparison

- Sources of industry data
  - PSMJ Annual Survey & Report on Financial Performance in Design Firms
  - Risk Management Association (RMA) industry statistics
  - Zweig White & Associates Valuation Survey of A/E FirmsFilings for publicly traded firms
- Selecting industry data
  - Identify comparable industry using SIC or NAICS code or description for RMA or other general industry data
  - Obtain data for firms of a similar size or type
  - Verify that guideline firms are truly comparable

Liquidity Ratios

- Liquidity ratios provide an indication of a firm's short-term financial situation or solvency
- These ratios provide an indication of a firm's ability to meet its obligations which will come due within the next 12 months
- Key ratios for the design industry include the Current Ratio, Working Capital, Accounts Receivable Turnover Ratio, Average Work-in-Process

Sample Balance Sheet: Accrual Basis

ABC Engineers, Inc.
Historic Accrual Basis Balance Sheet Analysis

	For the Year Ended December 31, 2024 Amount	%	2023 Amount	%	Variance Amount	%
Assets						
Current assets:						
Cash	$ 152,015	2.75%	$ 191,828	3.85%	$ (39,813)	-20.75%
Accounts receivable	2,612,528	47.33%	2,687,590	53.99%	(75,062)	-2.79%
Work-in-process	1,604,778	29.08%	926,350	18.61%	678,428	73.24%
Refundable income taxes	8,437	0.15%	4,987	0.10%	3,450	69.18%
Prepaid expenses & other assets	44,786	0.81%	59,126	1.19%	(14,340)	-24.25%
Total current assets	4,422,544	80.13%	3,869,881	77.74%	552,663	14.28%
Long-term assets:						
Fixed assets, net	970,025	17.57%	985,927	19.81%	(15,902)	-1.61%
CSV life insurance	126,785	2.30%	121,963	2.45%	4,822	3.95%
Total long-term assets	1,096,810	19.87%	1,107,890	22.26%	(11,080)	-1.00%
Total assets	$ 5,519,354	100.0%	$ 4,977,771	100.00%	$ 541,583	10.88%
Liabilities and Stockholders' Equity						
Current liabilities:						
Accounts payable	$ 726,842	13.17%	$ 731,277	14.69%	$ (4,435)	-0.61%
Accrued liabilities	220,897	4.00%	238,591	4.79%	(17,694)	-7.42%
Current portion of long-term debt	134,492	2.44%	107,572	2.16%	26,920	25.03%
Line of credit	800,000	14.49%	500,000	10.04%	300,000	60.00%
Deferred income taxes	1,017,500	18.44%	926,400	18.61%	91,100	9.83%
Total current liabilities	2,899,731	52.54%	2,503,840	50.30%	395,891	15.81%
Long-term liabilities:						
Long-term debt	385,618	6.99%	324,518	6.52%	61,100	18.83%
Deferred income taxes	60,500	1.10%	28,200	0.57%	32,300	114.54%
Deferred compensation	132,152	2.39%	126,933	2.55%	5,219	4.11%
Total liabilities	578,270	10.48%	479,651	9.64%	98,619	20.56%
Stockholders' equity:						
Common stock	50,000	0.91%	50,000	1.00%	-	0.00%
Additional paid-in-capital	250,000	4.53%	250,000	5.02%	-	0.00%
Retained earnings	1,741,353	31.55%	1,694,280	34.04%	47,073	2.78%
Total stockholders' equity	2,041,353	36.99%	1,994,280	40.06%	47,073	2.36%
Total liabilities & stockholders' equity	$ 5,519,354	100.0%	$ 4,977,771	100.01%	$ 541,583	10.88%

Balance Sheet Used In Ratio Examples

	For the Year Ended December 31,									
	20X5		20X6		20X7		20X8		20X9	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Assets										
Current assets:										
Cash	$34,049	1.24%	$68,892	2.48%	$40,329	1.37%	$66,552	2.27%	$46,078	1.44%
Money market funds	192,946	7.04%	206,677	7.43%	151,695	5.17%	106,370	3.63%	143,373	4.47%
Accounts receivable	1,371,763	50.05%	1,248,199	44.88%	1,310,035	44.61%	1,423,843	48.61%	1,768,738	55.18%
Work in process	101,035	3.69%	139,400	5.01%	168,630	5.74%	176,242	6.02%	186,125	5.81%
Allowance for bad debts	(103,110)	-3.76%	(134,982)	-4.85%	(130,475)	-4.44%	(142,167)	-4.85%	(170,683)	-5.32%
Employee receivables	98,493	3.59%	115,366	4.15%	125,059	4.26%	129,894	4.43%	125,687	3.92%
Loans receivable	15,000	0.55%	15,000	0.54%	25,000	0.85%	25,000	0.85%	25,000	0.78%
Prepaid taxes	26,178	0.96%	24,922	0.90%	18,098	0.62%	19,322	0.66%	23,721	0.74%
Prepaid insurance	52,890	1.93%	69,789	2.51%	75,845	2.58%	85,985	2.94%	129,303	4.03%
Refundable income taxes	-	0.00%	-	0.00%	-	0.00%	6,137	0.21%	8,534	0.27%
Other current assets	42,750	1.56%	42,750	1.54%	42,750	1.46%	42,750	1.46%	42,750	1.33%
Total current assets	1,831,994	66.85%	1,796,013	64.57%	1,826,966	62.22%	1,939,928	66.23%	2,328,626	72.64%
Land	5,000	0.18%	5,000	0.18%	5,000	0.17%	5,000	0.17%	5,000	0.16%
Buildings and building improvements	405,100	14.78%	405,100	14.57%	425,100	14.48%	429,100	14.65%	465,100	14.51%
Furniture and fixtures	286,046	10.44%	311,180	11.19%	402,216	13.70%	406,086	13.86%	410,789	12.82%
Equipment	229,891	8.39%	232,510	8.36%	312,041	10.63%	376,442	12.85%	408,791	12.75%
Accumulated depreciation - Bldgs. and imp.	(212,678)	-7.76%	(222,806)	-8.01%	(233,184)	-7.94%	(243,862)	-8.33%	(255,040)	-7.96%
Accumulated depreciation - furniture and fixt.	(157,159)	-5.73%	(219,395)	-7.89%	(270,443)	-9.21%	(310,768)	-10.61%	(351,950)	-10.98%
Accumulated depreciation - Equipment	(55,273)	-2.02%	(96,501)	-3.47%	(143,372)	-4.88%	(189,629)	-6.47%	(236,226)	-7.37%
Investment in joint venture	5,000	0.18%	5,000	0.18%	5,000	0.17%	5,000	0.17%	5,000	0.16%
Officers life insurance	225,041	8.21%	237,559	8.54%	254,467	8.67%	284,295	9.71%	292,771	9.13%
Loans receivable from stockholders	150,000	5.47%	300,000	10.79%	325,000	11.07%	200,000	6.83%	105,000	3.28%
Other assets	27,654	1.01%	27,654	0.99%	27,654	0.94%	27,654	0.94%	27,654	0.86%
Total assets	$2,740,616	100.00%	$2,781,314	100.00%	$2,936,445	100.00%	$2,929,246	100.00%	$3,205,515	100.00%

Balance Sheet Used In Ratio Examples

	For the Year Ended December 31,									
	20X5		20X6		20X7		20X8		20X9	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Liabilities and Stockholders' Equity										
Current liabilities:										
Accounts payable	$63,479	2.32%	$50,810	1.83%	$203,412	6.93%	$151,249	5.16%	$227,106	7.08%
Current portion of debt	162,266	5.92%	146,770	5.28%	146,770	5.00%	146,770	5.01%	146,770	4.58%
Accrued profit sharing and bonuses	25,000	0.91%	45,000	1.62%	115,019	3.92%	178,123	6.08%	219,612	6.85%
Accrued liabilities	49,201	1.80%	53,675	1.93%	208,061	7.09%	146,147	4.99%	244,042	7.61%
Payroll taxes withhold	526	0.02%	4,735	0.17%	8,965	0.31%	49,554	1.69%	50,067	1.56%
Loans from stockholders	75,000	2.74%	150,000	5.39%	75,000	2.55%	110,000	3.76%	95,000	2.96%
Income taxes payable	19,500	0.71%	2,500	0.09%	5,018	0.17%	6,000	0.20%	25,265	0.79%
Deferred income taxes	458,500	16.73%	487,200	17.52%	405,200	13.80%	498,800	17.03%	576,800	17.99%
Total current liabilities	853,472	31.14%	940,690	33.82%	1,167,445	39.76%	1,286,643	43.92%	1,584,662	49.44%
Long-term liabilities	636,012	23.21%	489,240	17.59%	342,468	11.66%	195,696	6.68%	48,924	1.53%
Loans from stockholders	100,000	3.65%	125,000	4.49%	105,000	3.58%	95,000	3.24%	125,000	3.90%
Stockholders' equity:										
Common stock	5,000	0.18%	5,000	0.18%	5,000	0.17%	5,000	0.17%	5,000	0.16%
Retained earnings	1,146,132	41.82%	1,221,384	43.91%	1,316,532	44.83%	1,346,907	45.98%	1,441,929	44.98%
Total stockholders' equity	1,151,132	42.00%	1,226,384	44.09%	1,321,532	45.00%	1,351,907	46.15%	1,446,929	45.14%
Total liabilities & stockholders' equity	$2,740,616	100.00%	$2,781,314	100.00%	$2,936,445	100.00%	$2,929,246	100.00%	$3,205,515	100.00%

Liquidity Ratios
Current Ratio Without Deferred Taxes

$$\text{Current Ratio Without Deferred Taxes} = \frac{\text{Current Assets}}{\text{Current Liabilities - Deferred Taxes}}$$

Current Ratio Without Deferred Taxes

D.M. Associates
Current Ratio Without Deferred Taxes
Years Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Median	Upper
Current Assets	$1,831,994	$1,796,013	$1,826,966	$1,939,928	$2,328,626			
Current Liabilities	$394,972	$453,490	$762,245	$787,843	$1,007,862			
Current Ratio	4.64	3.96	2.40	2.46	2.31	N/A	2.86	N/A
Five-Year Average (20X5-20X9)	3.15							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Liquidity Ratios
Working Capital

Working Capital = Current Assets - Current Liabilities

Working Capital

D.M. Associates
Working Capital
Years Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Industry Standard* Median	Industry Standard* Upper
Current Assets	$1,831,994	$1,796,013	$1,826,966	$1,939,928	$2,328,626			
Current Liabilities	(853,472)	(940,690)	(1,167,445)	(1,286,643)	(1,584,662)			
Working Capital	$978,522	$855,323	$659,521	$653,285	$743,964	N/A	N/A	N/A

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Liquidity Ratios
Days Fees in Unbilled Work-in-Process
(Average Days of Work-in-Process)

$$\text{Days Fees in Unbilled Work-in-Process} = \frac{\text{Work-in-Process}}{\text{Daily Fees Generated}}$$

Days Fees in Unbilled Receivables (Average Work-in-Process)

D.M. Associates
Days Fees in Unbilled Receivables (Average Days of Work-in-Process)
Years Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Median	Upper
Work-in-Process	$101,035	$139,400	$168,630	$176,242	$186,125			
Daily Fees Generated	$8,069	$9,975	$11,030	$12,569	$14,345			
Average Days of Work-in-Process	12.52	13.97	15.29	14.02	12.97	6.80	18.80	29.00
Five-Year Average (20X5-20X9)	13.75							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Liquidity Ratios
Days Fees in Billed Receivables (Average Collection Period)

$$\text{Days Fees in Billed Receivables} = \frac{\text{Accounts Receivable}}{\text{Daily Fees Generated}}$$

Days Fees in Billed Receivables (Accounts Receivable Turnover)

D.M. Associates
Days Fees in Billed Receivables (Average Collection Period)
Years Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Median	Upper
Total Accounts Receivable	$1,371,763	$1,248,199	$1,310,035	$1,423,843	$1,768,738			
Daily Fees Generated	$8,069	$9,975	$11,030	$12,569	$14,345			
Average Days to Collect	170.00	125.13	118.77	113.28	123.30	48.10	67.30	83.70
Five-Year Average (20X5-20X9)	130.10							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Leverage Ratios

- Leverage ratios measure the extent to which a firm's operations are financed by debt capital versus equity capital
- Leverage ratios also provide an indication of a firm's vulnerability to business downturns
- Key leverage ratios for the design industry include the Debt/Equity Ratio and Bank Debt/Equity Ratio

Leverage Ratios
Debt/Equity Ratio

$$\text{Debt / Equity Ratio} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

Debt / Equity Ratio

D.M. Associates
Debt / Equity Ratio
Years Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Median	Upper
Total Debt	$1,589,484	$1,554,930	$1,614,913	$1,577,339	$1,758,586			
Total Equity	$1,151,132	$1,226,384	$1,321,532	$1,351,907	$1,446,929			
Debt / Equity	1.38	1.27	1.22	1.17	1.22	N/A	0.72	N/A
Five-Year Average (20X5-20X9)	1.25							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Leverage Ratios
Bank Debt/Equity Ratio

$$\text{Bank Debt / Equity Ratio} = \frac{\text{Total Bank Debt}}{\text{Total Equity}}$$

Bank Debt / Equity Ratio

D.M. Associates
Bank Debt / Equity Ratio
Years Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Median	Upper
Total Bank Debt	$798,278	$636,010	$489,238	$342,466	$195,694			
Total Equity	$1,151,132	$1,226,384	$1,321,532	$1,351,907	$1,446,929			
Bank Debt / Equity	0.69	0.52	0.37	0.25	0.14	N/A	0.19	N/A
Five-Year Average (20X5-20X9)	0.39							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Operating Ratios

- Operating ratios measure the firm's ability to utilize its resources to generate revenue and profit; such resources includes the firm's labor force, asset base

- Operating ratios also measure the firm's ability to control costs in performing services

- Key operating ratios for the design industry can be further categorized into Net Income Ratios, Labor Ratios, Overhead Ratios and Staff Ratios, each predicated on the key components of a properly-formatted income statement for a design firm

Sample Income Statement: A/E Format

ABC Engineers, Inc.
Income Statement - A/E Format

	For the Year Ended December 31,			
	2024		2023	
	Amount	% Net	Amount	% Net
Gross revenue	$ 9,882,468	118.59%	$ 10,856,901	134.50%
Reimbursable expenses	1,549,410	18.59%	2,785,074	34.50%
Net revenue	8,333,058	100.00%	8,071,827	100.00%
Direct labor	2,685,624	32.23%	2,731,584	33.84%
Direct expenses	178,952	2.15%	182,684	2.26%
Gross profit (margin)	5,468,482	65.62%	5,157,559	63.90%
Indirect expenses				
Indirect labor	1,696,972	20.36%	1,772,843	21.27%
Vacation, sick & holiday pay	526,847	6.32%	452,480	5.43%
Payroll taxes	486,597	5.84%	490,506	5.89%
Fringe benefits	276,580	3.32%	256,843	3.08%
Office rent expense	333,000	4.00%	333,000	4.00%
Depreciation	236,215	2.83%	234,009	2.81%
Other Operating Expenses	968,105	11.62%	984,587	11.82%
Total indirect expenses	4,524,316	54.29%	4,524,268	54.29%
Operating income	944,166	11.33%	633,291	7.85%
Other income / (expense)				
Interest income (expense)	(52,615)	-0.63%	(59,158)	-0.73%
Other income	11,252	0.14%	7,591	0.09%
Net income before discretionary items	902,803	10.83%	581,724	7.21%
Discretionary bonuses	350,000	4.20%	-	0.00%
Profit-sharing contribution	150,000	1.80%	150,000	1.86%
Pre-tax net income (loss)	402,803	4.83%	431,724	5.35%
Income tax expense	(120,000)	-1.44%	(110,000)	-1.36%
After-tax net income	$ 282,803	0.83%	$ 321,724	0.83%

Income Statements Used In Ratio Examples

	For the Year Ended December 31,									
	20X5	% Net	20X6	% Net	20X7	% Net	20X8	% Net	20X9	% Net
Gross revenue	$2,945,147	122.71%	$3,640,777	126.09%	$4,025,925	124.64%	$4,587,740	127.44%	$5,235,849	125.79%
Outside consulting & reimbursables	545,146	22.71%	753,282	26.09%	795,925	24.64%	987,741	27.44%	1,073,349	25.79%
Net revenue	2,400,001	100.00%	2,887,495	100.00%	3,230,000	100.00%	3,599,999	100.00%	4,162,500	100.00%
Direct labor	813,559	33.90%	962,500	33.33%	1,113,793	34.48%	1,216,216	33.78%	1,378,311	33.11%
Gross profit (margin)	1,586,442	66.10%	1,924,995	66.67%	2,116,207	65.52%	2,383,783	66.22%	2,784,189	66.89%
Indirect expenses	1,408,347	58.66%	1,750,428	60.62%	1,862,649	57.67%	2,004,349	55.66%	2,306,373	55.42%
Operating income	178,095	7.44%	174,567	6.05%	253,558	7.85%	379,434	10.56%	477,816	11.47%
Other income/(expenses)										
Interest & dividend income	3,960	0.16%	3,216	0.11%	1,860	0.06%	5,478	0.15%	2,978	0.07%
Interest expense	(14,530)	-0.61%	(24,600)	-0.85%	(43,200)	-1.34%	(48,753)	-1.35%	(46,789)	-1.12%
Other Income	2,319	0.10%	31,863	1.10%	56,200	1.74%	3,400	0.09%	31,500	0.76%
Net income before discretionary items	169,844	7.09%	185,046	6.41%	268,418	8.31%	339,559	9.45%	465,505	11.18%
Discretionary bonuses	50,000	2.08%	45,000	1.56%	25,000	0.77%	200,000	5.59%	205,000	4.95%
ESOP / Profit sharing contributions	17,166	0.72%	20,598	0.71%	84,838	2.63%	86,270	2.40%	90,823	2.18%
Pretax net income (loss)	102,678	4.29%	119,448	4.14%	158,580	4.91%	53,289	1.46%	169,682	4.05%
Income tax refund (expense)	(36,964)	-1.54%	(44,196)	-1.53%	(63,432)	-1.96%	(22,914)	-0.64%	(74,660)	-1.79%
After-tax net income (loss)	$65,714	2.75%	$75,252	2.61%	$95,148	2.95%	$30,375	0.82%	$95,022	2.26%

Operating Ratios
Net Revenue per Chargeable Hour

$$\text{Net Revenue per Chargeable Hour} = \frac{\text{Net Revenue}}{\text{Total Chargeable Hours}}$$

Net Revenue per Chargeable Hour

D.M. Associates
Net Revenue per Chargeable Hour
For the Year Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Industry Standard* Median	Industry Standard* Upper
Net Revenue	$2,400,001	$2,887,495	$3,230,000	$3,599,999	$4,162,500			
Chargeable Hours	27,300	31,200	36,400	40,300	45,500			
Net Revenue per Chargeable Hour	$87.91	$92.55	$88.74	$89.33	$91.48	$125.80	$143.91	$167.27
Five-Year Average (20X5-20X9)	*$90.00*							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Operating Ratios
Direct Labor Cost per Chargeable Hour

$$\text{Direct Labor Cost per Chargeable} = \frac{\text{Direct Labor}}{\text{Total Chargeable Hours}}$$

Direct Labor Cost per Chargeable Hour

D.M. Associates
Direct Labor Cost per Chargeable Hour
For the Year Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Median	Upper
Direct Labor	$813,559	$962,500	$1,113,793	$1,216,216	$1,378,311			
Chargeable Hours	27,300	31,200	36,400	40,300	45,500			
Net Revenue per Chargeable Hour	$29.80	$30.85	$30.60	$30.18	$30.29	$38.37	$43.00	$48.58
Five-Year Average (20X5-20X9)	*$30.34*							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Operating Ratios – Labor Ratios
Net Multiplier Achieved

$$\text{Net Multiplier Achieved} = \frac{\text{Net Revenue}}{\text{Direct Labor}}$$

Net Multiplier Achieved

D.M. Associates
Net Multiplier Achieved
For the Year Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Median	Upper
Net Revenue	$2,400,001	$2,887,495	$3,230,000	$3,599,999	$4,162,500			
Direct Labor	$813,559	$962,500	$1,113,793	$1,216,216	$1,378,311			
Net Multiplier Achieved	2.95	3.00	2.90	2.96	3.02	2.98	3.26	3.67
Five-Year Average (20X5-20X9)	*2.97*							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Operating Ratios – Labor Ratios
Net Payroll Multiplier

$$\text{Net Payroll Multiplier} = \frac{\text{Net Revenue}}{\text{Total Labor (Direct + Indirect)}}$$

Net Payroll Multiplier

D.M. Associates
Net Labor Multiplier (Revenue Factor)
For the Year Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Industry Standard* Median	Industry Standard* Upper
Net Revenue	$2,400,001	$2,887,495	$3,230,000	$3,599,999	$4,162,500			
Total Labor	$1,281,195	$1,552,419	$1,780,980	$1,967,027	$2,256,489			
Net Labor Multiplier	1.87	1.86	1.81	1.83	1.84	1.72	1.90	2.19
Five-Year Average (20X5-20X9)	*1.84*							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Operating Ratios – Labor Ratios
Chargeable Ratio (Payroll Dollars)

$$\text{Chargeable Ratio} = \frac{\text{Direct Labor}}{\text{Total Labor (Direct + Indirect)}}$$

Chargeable Ratio

D.M. Associates
Chargeability Ratio
For the Year Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Median	Upper
Direct Labor	$813,559	$962,500	$1,113,793	$1,216,216	$1,378,311			
Indirect Labor	467,636	589,919	667,187	750,811	878,178			
Total Labor	$1,281,195	$1,552,419	$1,780,980	$1,967,027	$2,256,489			
Chargeability Ratio	63.50%	62.00%	62.54%	61.83%	61.08%	54.30%	58.80%	64.80%
Five-Year Average (20X5-20X9)	*62.19%*							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Operating Ratios – Overhead Ratios
Overhead Rate (Before Discretionaries)

$$\text{Overhead Rate} = \frac{\text{Total Overhead}}{\text{Total Direct Labor}}$$

Overhead Rate Before Discretionary Payments and Taxes

D.M. Associates
Overhead Rate Before Discretionary Payments and Taxes
For the Year Ended December 31,

	20X5	**20X6**	**20X7**	**20X8**	**20X9**	**Industry Standard*** Lower	Median	Upper
Total Indirect Overhead (Including Interest)	$1,422,877	$1,775,028	$1,905,849	$2,053,102	$2,353,162			
Direct Labor	$813,559	$962,500	$1,113,793	$1,216,216	$1,378,311			
Overhead Rate	174.90%	184.42%	171.11%	168.81%	170.73%	136.30%	164.00%	187.90%
Five-Year Average (20X5-20X9)	*173.99%*							

** 2024 PSMJ A/E Financial Performance Benchmark Report.*

Operating Ratios

Net Income Before Discretionary Items / Net Revenue

$$\text{Net Income Before Discretionary Items / Net Revenue} = \frac{\text{Net Income Before Discretionary Items and Taxes}}{\text{Net Revenue}}$$

Net Revenue & Net Income Before Discretionary Items and Taxes

D.M. Associates
Net Revenue and Net Income Before Discretionary Items and Taxes
For the Year Ended December 31,

						Industry Standard*		
	20X5	**20X6**	**20X7**	**20X8**	**20X9**	**Lower**	**Median**	**Upper**
Net Income Before Discretionary Items and Taxes	$169,844	$185,046	$268,418	$339,559	$465,505			
Net Revenue	$2,400,001	$2,887,495	$3,230,000	$3,599,999	$4,162,500			
Percentage of Net Income Before Discretionary Items to Net Revenue	7.09%	6.41%	8.31%	9.45%	11.18%	12.00%	18.30%	27.50%
Five-Year Average (20X5-20X9)	*8.49%*							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Operating Ratios – Labor Classification

- The misclassification of labor (between direct and indirect) can skew a firm's ratio analysis when compared to industry norms
  - When direct labor is classified indirect labor, the following ratios will be affected:

$$\text{Chargeable Ratio} = \frac{\text{Direct Labor}}{\text{Total Labor (Direct + Indirect)}} \downarrow$$

$$\text{Net Multiplier Achieved} = \frac{\text{Net Revenue}}{\text{Direct Labor}} \uparrow$$

$$\text{Overhead Rate} = \frac{\text{Total Overhead}}{\text{Total Direct Labor}} \uparrow$$

  - When indirect labor is classified direct labor, the following ratios will be affected:

$$\text{Chargeable Ratio} = \frac{\text{Direct Labor}}{\text{Total Labor (Direct + Indirect)}} \uparrow$$

$$\text{Net Multiplier Achieved} = \frac{\text{Net Revenue}}{\text{Direct Labor}} \downarrow$$

$$\text{Overhead Rate} = \frac{\text{Total Overhead}}{\text{Total Direct Labor}} \downarrow$$

Staff Ratios

- Staff ratios measure key financial barometers of a design firm compared to the staff employed by the firm

- For this purpose, “technical staff” include those professionals who spend more than 50% of their time on chargeable projects for the firm

- “Non-technical staff” include administrative personnel including accounting, IT, marketing, etc. who spend less than 50% of their time on chargeable projects for the firm

Staff Ratios
Net Revenue per Total Staff

$$\text{Net Revenue per Total Staff} = \frac{\text{Net Revenue}}{\text{Total Staff (FTEs)}}$$

Net Revenue per Total Staff

D.M. Associates
Net Revenue per Total Staff
Years Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Median	Upper
Net Revenue	$2,400,001	$2,887,495	$3,230,000	$3,599,999	$4,162,500			
Total Staff (FTEs)	21.00	24.00	28.00	31.00	35.00			
Net Revenue per Total Staff	$114,286	$120,312	$115,357	$116,129	$118,929	$153,854	$179,026	$207,559
Five-Year Average (20X5-20X9)	*$117,003*							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Staff Ratios
Net Revenue per Technical Staff

$$\text{Net Revenue per Technical Staff} = \frac{\text{Net Revenue}}{\text{Total Technical Staff (FTEs)}}$$

Net Revenue per Technical Staff

D.M. Associates
Net Revenue per Technical Staff
Years Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Median	Upper
Net Revenue	$2,400,001	$2,887,495	$3,230,000	$3,599,999	$4,162,500			
Total Technical Staff (FTEs)	17.00	20.00	23.00	25.00	29.00			
Net Revenue per Technical Staff	$141,177	$144,375	$140,435	$144,000	$143,534	$186,759	$220,609	$250,698
Five-Year Average (20X5-20X9)	*$142,704*							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Staff Ratios

Net Revenue per Project Manager

$$\text{Net Revenue per Project Manager} = \frac{\text{Net Revenue}}{\text{Total Project Managers (FTEs)}}$$

Net Revenue per Project Manager

D.M. Associates
Net Revenue per Project Manager
Years Ended December 31,

	20X5	20X6	20X7	20X8	20X9	Industry Standard* Lower	Industry Standard* Median	Industry Standard* Upper
Net Revenue	$2,400,001	$2,887,495	$3,230,000	$3,599,999	$4,162,500			
Total Project Managers (FTEs)	4.00	4.00	5.00	5.00	6.00			
Net Revenue per Technical Staff	$600,000	$721,874	$646,000	$720,000	$693,750	N/A	$773,079	N/A
Five-Year Average (20X5-20X9)	*$676,325*							

** 2024 PSMJ A/E Financial Performance Benchmark Survey Report.*

Targeted Financial Ratios

- Use targeted financial ratios as a means to meet your firms goals for profitability.
- For example, a firm might target the following income statement ratios:
  - Net Multiplier – 3.02
  - Chargeable or Utilization Rate – 63%
  - Overhead Rate – 155%
- Targeted financial ratios can be a useful part of your budgeting and long-term planning process.

Achieving Maximum Ratios

- It is not possible or even desirable to maximize most ratios!
- Leverage and liquidity ratios are generally maintained in ranges that make sense for the specific firm
  - Days sales in receivables
  - Current ratio
  - Debt to equity

Achieving Maximum Ratios

- There is generally a goal to increase most operating ratios
  - Multiplier
  - Utilization rate
- However, even with operating ratios there limits and potentially negative consequences if they are increased too much.
- Profitability ratios could be the only ones that you want to maximize!

Sample Balance Sheet Ratios

Sample Architects, P.C.
BALANCE SHEET RATIOS

RATIOS

	December 31, 2023	December 31, 2022	June 30, 2023	December 31, 2021	December 31, 2020	December 31, 2019
Current Ratio	1.53	1.55	1.43	1.56	1.72	1.76
Days Fees In Accounts Receivable	72.43	67.83	77.88	71.43	75.69	63.35
Days Fees In Unbilled Fees	44.49	23.38	35.86	19.67	13.71	18.30
Total Debt To Equity	170.4%	149.6%	199.6%	150.8%	131.8%	128.4%

BALANCE SHEETS

	December 31, 2023	December 31, 2022	June 30, 2023	December 31, 2021	December 31, 2020	December 31, 2019
Assets						
Cash	$ 152,015	$ 191,828	$ 98,657	$ 61,966	$ 37,380	$ 54,670
Accounts Receivable, Net	2,612,528	2,687,590	2,754,861	2,854,896	2,500,670	1,662,548
Work in Process	1,604,778	926,350	1,268,459	786,125	452,847	480,156
Refundable income taxes	8,437	4,987	8,437	8,437	12,658	2,987
Prepaid & Other Current Assets	44,786	59,126	44,786	68,952	62,594	52,847
Total Current Assets	$ 4,422,544	3,869,881	4,175,200	3,780,376	3,066,149	2,253,208
Fixed assets, net	970,025	985,927	965,847	1,003,254	865,781	774,584
Cash surrender value	126,785	121,963	126,785	126,785	121,963	115,870
	$ 5,519,354	$ 4,977,771	$ 5,267,832	$ 4,910,415	$ 3,931,930	$ 3,027,792
Liabilities & Stockholders' Equity						
Accounts payable	$ 726,842	$ 731,277	$ 836,338	$ 325,687	$ 268,753	$ 89,584
Accrued liabilities	220,897	238,591	215,985	196,758	198,553	168,548
Current portion of long-term debt	134,492	107,572	128,459	124,597	106,548	96,254
Line of credit	800,000	500,000	750,000	625,000	240,000	100,000
Deferred income taxes	1,017,500	926,400	985,600	1,156,000	965,300	826,400
Total Current Liabilities	2,899,731	2,503,840	2,916,382	2,428,042	1,779,154	1,280,786
Long-Term Debt, net	578,270	479,651	593,125	524,856	456,801	421,538
Common Stock	50,000	50,000	50,000	50,000	50,000	50,000
Additional paid-in-capital	250,000	250,000	250,000	250,000	250,000	250,000
Retained Earnings	1,741,353	1,694,280	1,458,325	1,657,517	1,395,975	1,025,468
	2,041,353	1,994,280	1,758,325	1,957,517	1,695,975	1,325,468
Total Liabilities and Stockholders' Equity	$ 5,519,354	$ 4,977,771	$ 5,267,832	$ 4,910,415	$ 3,931,930	$ 3,027,792

Sample Income Statement Ratios

Sample Architects, P.C.
INCOME STATEMENTS

RATIOS

	December 31, 2023	December 31, 2022	June 30, 2023	December 31, 2021	December 31, 2020	December 31, 2019
Net Multiplier	3.04	2.89	2.93	2.92	2.98	2.78
Net Payroll Multiplier	1.66	1.59	1.63	1.60	1.72	1.67
Utilization	54.7%	55.1%	55.5%	54.8%	57.9%	60.1%
Overhead Rate (Including Bonuses	1.89	1.73	1.88	1.91	1.83	1.73
Overhead Rate (Before Bonuses)	1.76	1.73	1.82	1.77	1.74	1.65

INCOME STATEMENTS

	December 31, 2023	December 31, 2022	June 30, 2023	December 31, 2021	December 31, 2020	December 31, 2019
Revenues	$ 9,882,468	$ 10,856,901	$ 6,437,552	$ 14,587,216	$ 12,059,745	$ 9,578,462
Reimbursable and Direct Expense	1,728,362	2,967,758	1,056,831	3,658,475	1,846,840	1,958,745
Net Revenues	8,154,106	7,889,143	5,380,721	10,928,741	10,212,905	7,619,717
Direct Labor	2,685,624	2,731,584	1,835,548	3,743,948	3,425,684	2,745,684
Indirect Expenses and Overhead	5,024,316	4,674,268	3,408,005	7,059,877	6,208,401	4,690,847
Interest Expense	52,615	59,158	34,598	75,984	60,580	49,584
Other (income) expense	(11,252)	(7,591)	(10,847)	(16,579)	(20,159)	(8,564)
Pretax net income	$ 402,803	$ 431,724	$ 113,417	$ 65,511	$ 538,399	$ 133,602

INDIRECT EXPENSES AND OVERHEAD

	December 31, 2023		December 31, 2022		June 30, 2023	
	Amount	Percent	Amount	Percent	Amount	Percent
Indirect labor	$ 1,696,972	63.19%	$ 1,772,843	64.90%	$ 1,125,486	61.32%
Vacation, sick & holiday pay	526,847	19.62%	452,480	16.56%	348,006	18.96%
Payroll taxes	486,597	18.12%	490,506	17.96%	335,948	18.30%
Fringe benefits	276,580	10.30%	256,843	9.40%	184,597	10.06%
Office rent expense	333,000	12.40%	333,000	12.19%	222,000	12.09%
Depreciation	236,215	8.80%	234,009	8.57%	159,426	8.69%
Other Operating Expenses	968,105	36.05%	984,587	36.04%	642,840	35.02%
Discretionary bonuses	350,000	13.03%	-	0.00%	100,000	5.45%
Profit-sharing contribution	150,000	5.59%	150,000	5.49%	100,000	5.45%
	5,024,316	187.08%	4,674,268	171.12%	3,218,303	175.33%
Interest	(52,615)	-1.96%	59,158	2.17%	34,598	1.88%
Total overhead	$ 4,971,701	185.12%	$ 4,733,426	173.29%	$ 3,252,901	177.22%

Sample Industry Comparison of Ratios

Sample Architects, P.C.
PSMJ RATIOS

	Sample Architects, P.C.	Industry Standard Overall	A/E Industry	Architectural	21-50 Employees
BALANCE SHEET RATIOS					
Current Ratio	1.53	2.45	1.85	2.90	2.25
Days Fees In Accounts Receivable	72.4	68.8	64.7	63.4	67.7
Days Fees In Unbilled Fees	44.5	19.6	22.1	20.5	19.0
Total Debt To Equity	170.4%	71.2%	92.3%	53.0%	57.3%
INCOME STATEMENT RATIOS					
Net Multiplier	3.04	3.21	3.24	3.27	3.22
Net Payroll Multiplier	1.66	1.88	1.88	1.97	1.91
Utilization (Payroll Dollars)	54.7%	59.2%	58.5%	58.8%	59.9%
Overhead Rate (Including Bonuses)	189.0%	183.2%	191.4%	189.3%	182.0%

Analyze and Take Action

Effective financial analysis is a four-step process

- Prepare the proper reports.
- Distribute the reports to appropriate personnel timely.
- Perform analysis.
- Make management decisions based on the analysis.

It is critical that actual analysis is performed

- Unfortunately, many firms stop somewhere between step 1 and step 2!
- Consider how much time is spent producing financial data versus the time spent using that data.
- Make time to perform analysis!

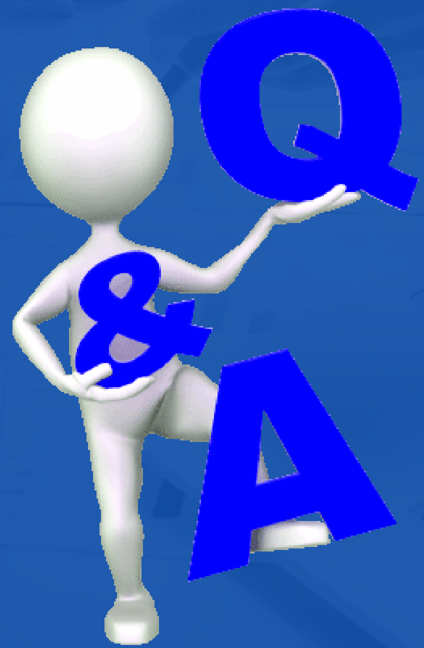
Analyze and Take Action

- Financial analysis should be documented.
  - This allows the analysis to be distributed to others in the firm.
  - In addition, such analysis will be useful to the person performing as they do there work in future periods.
  - Such analysis can take many forms and you should consider what is easiest for the person performing the analysis and those that will use it. It could be in the form of:
    - E-mails.
    - Formal memos
    - Notes in an Excel spreadsheet.
    - Explanations written in the margins of a report.
- Financial analysis is only effective if you follow through by taking action based on your analysis.

Conclusion

- Consider your overall knowledge of accounting and the financial reporting process for your firm.
- Determine if the basic financial statements are properly formatted for an engineering firm.
- Evaluate the detail reports that are being produced and whether they are being distributed to the appropriate people.
- Review the actual financial analysis that is performed and consider improving the documentation of this analysis.
- Make certain that action is taken and decisions are made based on the financial analysis that is performed.

Questions



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