Construction Management

The Construction Management Association of Korea

[www.cmak.or.kr]

CMAK The Construction Management Association of Korea

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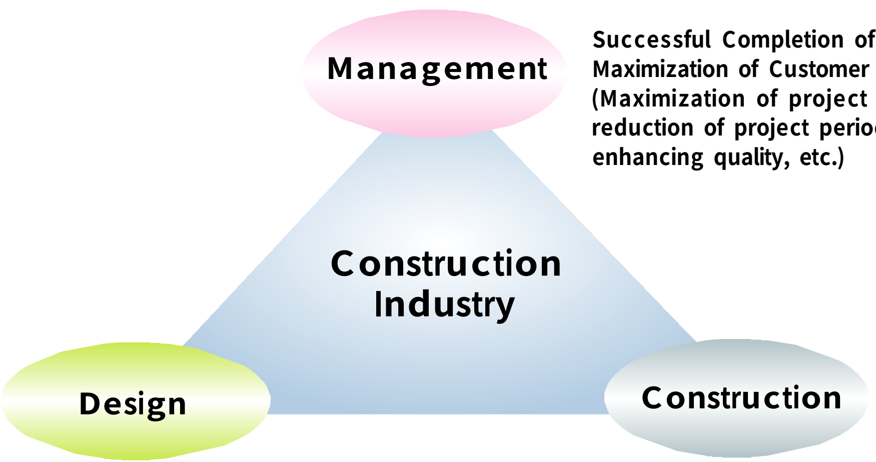
CMAK

Construction Management(CM)

1. Definition

■ CM can be defined as the comprehensive and vigorous construction managerial activities for a project from planning which is the initial phase of the project, to feasibility study, analysis, procurements, contracts, supervision, evaluations and post occupancy management.

■ It also covers the whole or a part of managerial works in engineering (designing) and construction works to attain the maximum effects of the intended project.



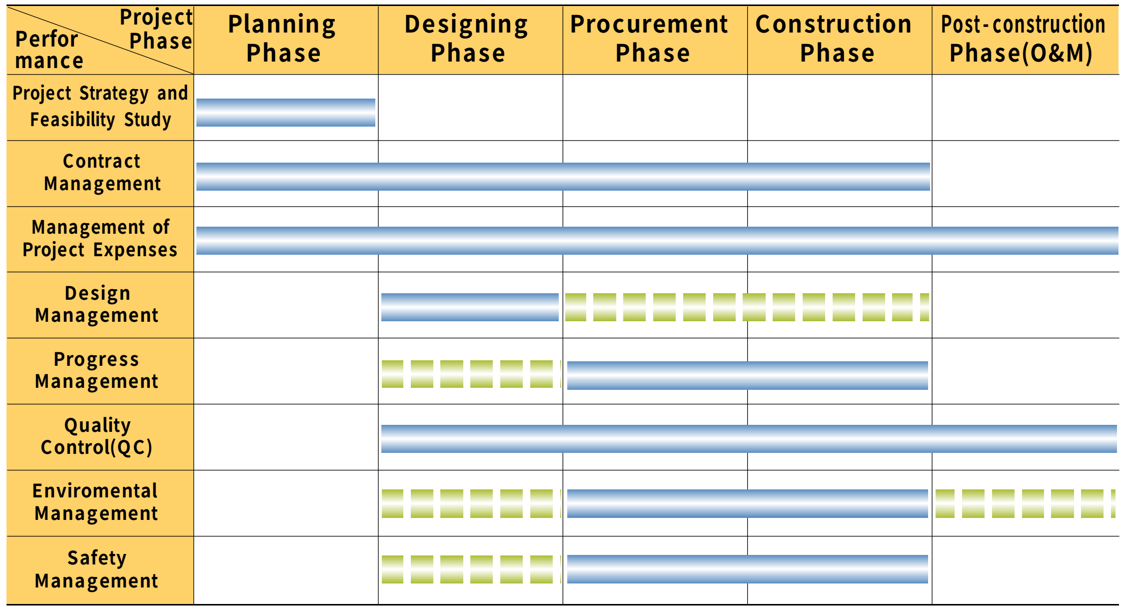
2. The Scope and Performances of CM

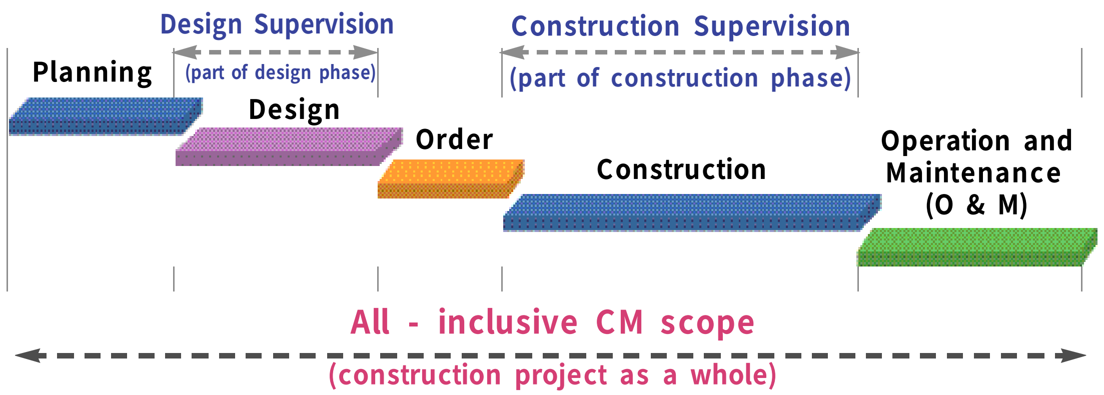
(1) The Scope of CM

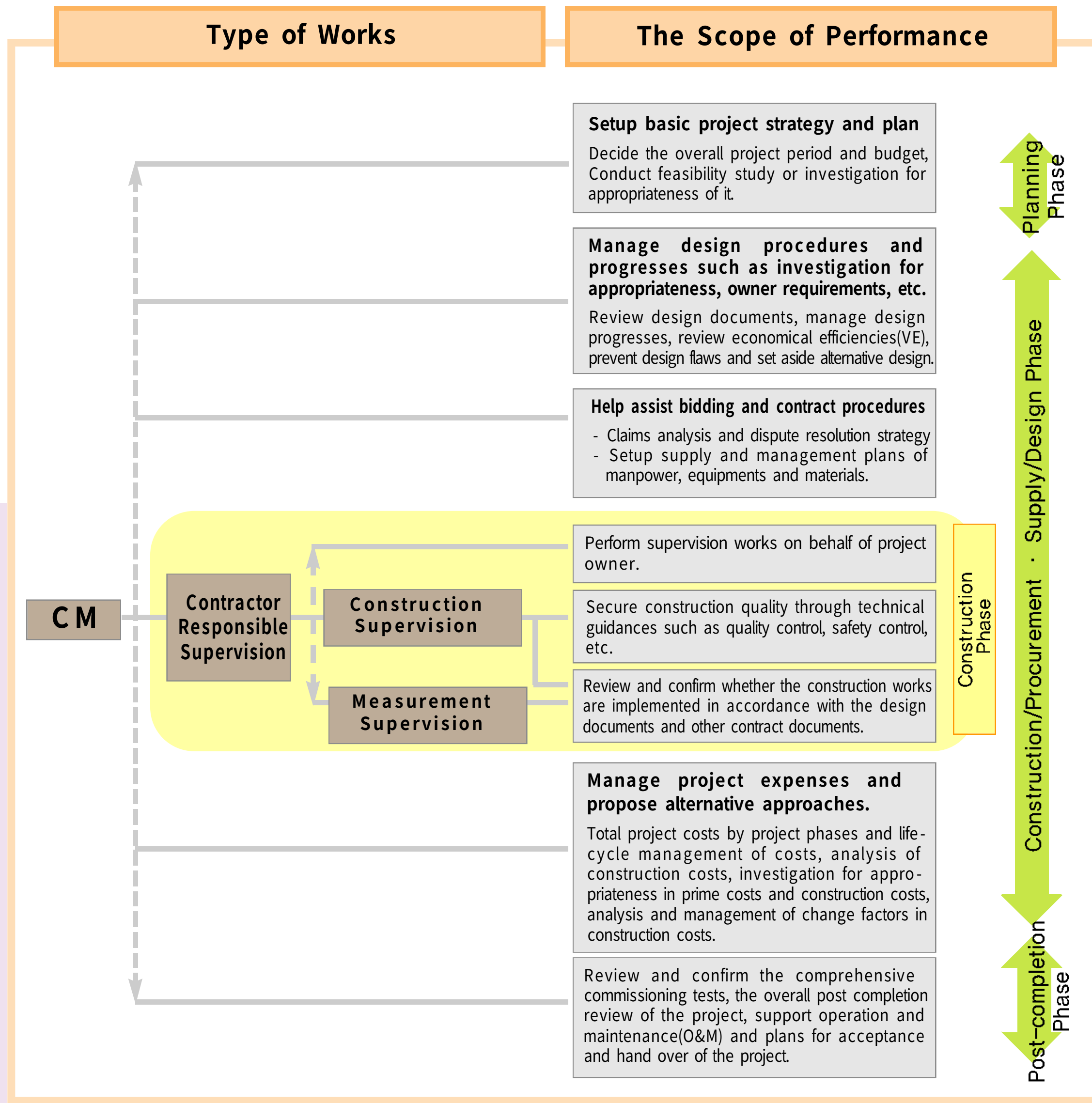
Owner CM or Agency CM

- Airport, railroad, electric railcar, subway, power plant, dam and plant projects.
- Development projects such as industrial city, innovative city, multifunctional administrative city, etc.
- Government building, cultural and art center, museum, science museum, display center, terminal, gymnasium, school, park and hospital projects.
- Express highway, river, water and sewerage, Saemangeum, 4 Big Rivers, Seoul-Incheon Canal, flood relief and environmental facilities projects.
- Development projects requiring project financing(SOC, BTL, etc.)
- Super tall building, multi-use building, office building, hotel, resort and condo.
- Urban and housing environment improvement projects such as redevelopment, reconstruction, newtown, etc.
- Design-Build(D-B) and alternative bid projects.
- Long term (or multi-year) contracted, unit price contracted, convertible lump sum contracted and the lowest big contracted projects
- Any project which requires a special management due to high degree of difficulties, lack of staff members to the owner, etc.

(2) The Performances of CM







Comparison of Performance Scheme between CM and Construction Supervision(CS)

Classification	Construction Management(CM)	Construction Supervision(CS)
Function	- The overall management of a project on behalf of project owner	- perform a part of CM works in design and construction phases, mainly focuses on QC
Performance Scheme	- Realize project success (maximization of business profits) - *CM not only supervises the project, but also performs such activities as monitoring, consulting and advising comprehensively and systematically the issues of project expenses, progresses, quality, environment, etc based on accurate future prediction and current situation.	- Conduct measurement just before commence ment of works, out come-confirm oriented performances * In other word, design and construction supervisions are outcome oriented performances to secure quality, limited control activities * CS performs legal and administrative procedures rather than the enhancement of owner satisfaction
	- preventive and post corrective function	- post corrective function

<U.S.A> : In 2009, the volume of US CM market accounts for 490.1billion dollars and increases every year

(unit : billion won)

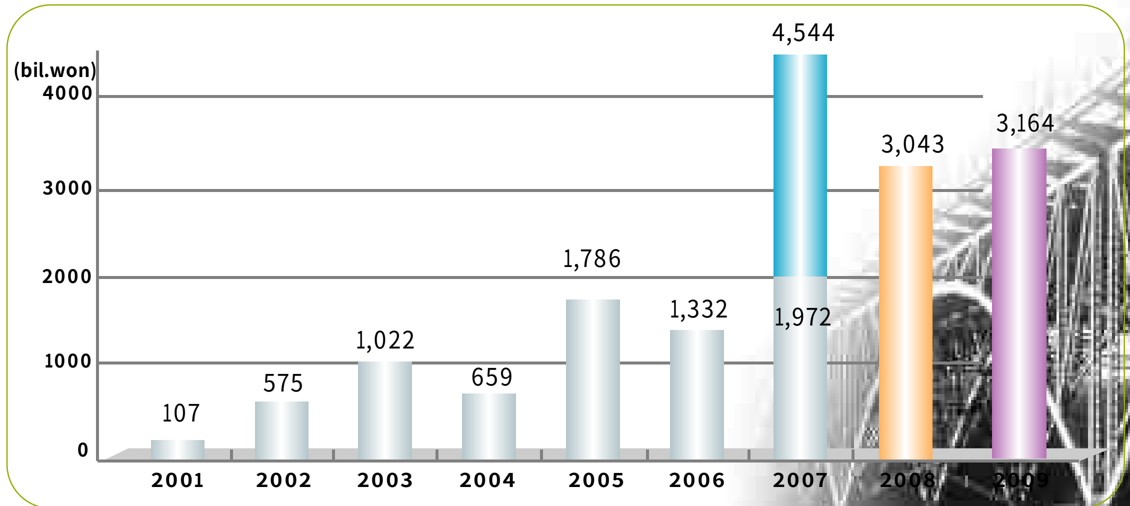
Classification	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total Construction	802.76	840.25	847.87	891.50	991.56	1,102.70	1,167.55	1,137.15	1,074.09	907.79
CM Market Volume	186.99	190.69	242.27	188.44	223.29	247.85	292.10	391.53	450.84	490.09
CM at Risk	45.74	50.69	47.27	50.94	54.29	63.10	74.10	89.78	103.34	89.34
CM for Fee	141.25 (5.65)	140.00 (5.60)	195.00 (7.80)	137.50 (5.50)	169.00 (6.76)	184.75 (7.39)	218.00 (8.72)	301.75 (12.07)	347.50 (13.90)	400.75 (16.03)
CM market share	23.29%	22.69%	28.57%	21.14%	22.52%	22.48%	25.02%	34.43%	41.97%	43.42%

Remarks
1. Source : ENR
2. CM for Fee is consulting fee base and CM at Risk accounts for project cost plus fee
3. CM for Fee is calculated 40% of the total project costs and CM at Risk reflects the real costs and expenses.

3. CM Project Status

<Domestic Market> : Total CM Works(1997~2009) : 1,655.5 billion won

- In recent years, the volume of CM market has been ranging from 300 to 500 billion won annually.



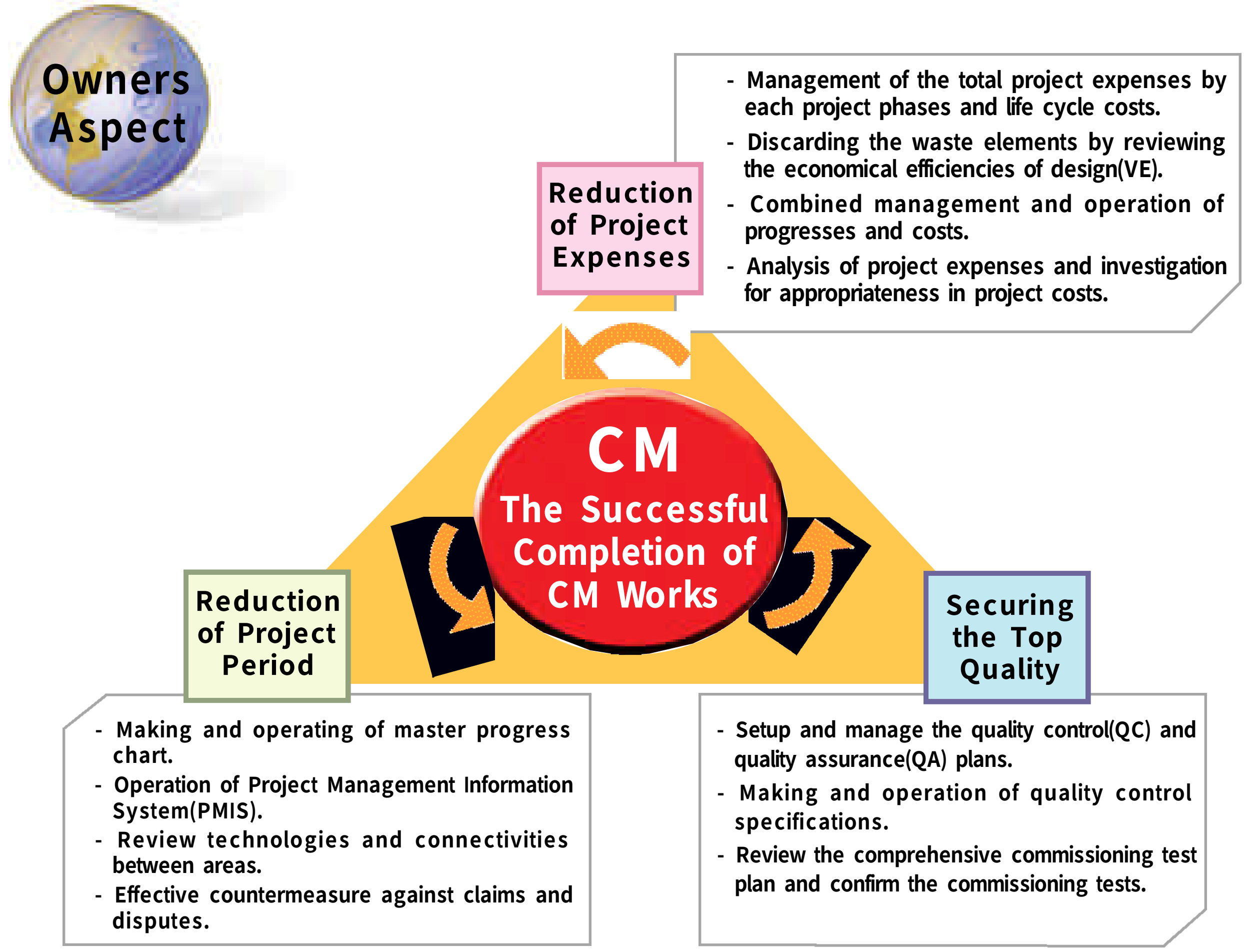
※ Public(51%), Private(49%),
Building construction(84%)
Civil works and others(16%)

※1. Source : CM Capacity Evaluation Data from Ministry of Land, Transport and Maritime Affairs.
2. In 2007, CM works increased due to the inclusion of U.S Armed Forces to Korea's military base relocation project(amount : 257.2 bil.won)

※ Market Share

(unit : billion won)

The total construction market volume in 2009(excluding building and civil works)	70,831	Estimated 13.96%
The volume of CM market (When CM fees are calculated 3.2% of total construction costs.)	9,888	



4. The Effects of CM

- Formulating basic concept, supporting to setup project plan, conducting feasibility study and review makes project facilitation and prevent project implementation flaws.
- Consistent implementation of the project, prediction of various issues and problems and preparation of countermeasures for these problems and issues, efficient implementation of the project by provision of swift and appropriate information to the owner.
- Improvement of project quality and reduction of costs through effective management by specialized manpower.
- Minimizing waste factors by preventing project from frequent contract and design changes.
- Prevention of claims (or disputes) and effective countermeasures for them.
- Pursuit of effective project implementation by establishing the cooperative net works among the project stakeholders.
- Approximately 10 to 30% reduction of project costs and period although there are some differences between projects.
- Reduction of owner's burden of manpower possession for the project implementation.

the specialized and efficient construcrtion management system - cm

Socio-Economic Aspect

Should CM be developed as one of three(3) axes of construction industry(management, design and construction), this will certainly bring forth not only the reduction of project period and costs, but the improvement of project quality.

① Promotion of construction consulting industry and income distribution will take place by creating a new area of business

② Creation of new jobs and expansion of things to do will be realized

- By adopting certified construction manager (CMr)system, out of the high/special class CMrs(160,000persons), unemployed CMrs(approx 40%) will have the jobs in each specialized fields (approx. 20,000 persons) and work as free lancers.

※ Currently, there are about 12,000 privately certified CMrs. However, they have not been well utilized yet.

- Stabilized expansion of works or creation of jobs will be possible for those government granted certificate holders like lawyer, certified public accountant, licensed tax accountant and property appraiser, and for financial and administrative specialists.

※ Comparison of Major Roles between Construction Management(CM) and Construction Supervision(CS)

Classification	Performance Scheme	CM	CS
1. Planning Management	- Support and review of basic concept and project plans.	○	
	- Investigation for appropriateness in feasibility studies.	○	
	- Establish project management information system(PMIS)	○	
	- Establish and implementation of various project number, and document/data classification systems.	○	
	- Support of acquiring government permits and licenses, and of civil petitions and affairs.	○	△
2. Design Management	- Drawing up the criteria for design and specification.	○	
	- Review of technical aspects and connectivities between areas.	○	
	- Review of design documents and constructibility.	○	○
	- Review of economical efficiencies of design(VE).	○	
3. Management of Project Expenses	- Review of total project expenses, and analysis and management of life-cycle costs(LCC).	○	
	- Analysis of increase/decrease of project expenses and review of total investment costs.	○	
4. Contract Management	- Bidding and evaluation, and management of claims and disputes.	○	
	- Management of subcontracts	○	○
	- Management of contract documents and procedures.	○	
5.Progress Management	- Operation of combined management system for project progress and costs.	○	
	- Draw up the master progress chart	○	
	- Progress management by project stages and maintaining the planned progresses.	○	
6. Quality Control	- Establish and manage the guideline for quality	○	○
	- Review of the plans for quality control(QC) and quality assurance(QA).	○	
	- Draw up the specifications for QC.	○	
	- Review and confirm the inspection outcomes of QC and quality tests.	○	
7. Management of Materials and Manpower	- Procurement management, management of out-sourced manufactures.	○	
	- Investigation for appropriateness of required materials and structural standards	○	○
	- Management of material and manpower input plans	○	
8. Project Information Management	- Accumulate project management information and operate the management system.	○	
	- Operation and maintenance of information management system.	○	
	- Store, search and retrieve data, and document control.	○	
9. Financial Management	- Finance plan and loan management.	○	
	- Management of invested money(benefit/cost analysis)	○	
10. Management of Project Execution	- Review of execution plans and management of project progresses	○	○
	- Review of construction and as-built drawings and confirmation of project execution facts.	○	○
	- Inspection of interim and final project completions.	○	○
	- Conduct change orders, quality/safety/environment controls and measurements/inspection.	○	○
	- Management of profession interfaces by type of works.	○	
	- Establish recovery measures for the delayed progresses.	○	
11. Post-Completion Management	- Review of comprehensive commissioning plans and confirmation of commissioning(test runs).	○	
	- Support to select companies for operation and maintenance of facilities.- Review of acceptance/handover plans for the facilities and support the related works.	○