

## **Commencement of Works vs commencement of Works Program (FIDIC Rainbow Conditions of Contracts)**

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*Received: March 27, 2015*

*Accepted: June 6, 2015*

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### **ABSTRACT**

The important milestones in the implementation of construction project are the dates which are related to time constraint, first is the Letter of Acceptance, and then Commencement of Works and Time for Completion. Commencement of Works is contractually the Commencement Date of the Project, where all the times and activities needed to complete the Works are contractually started at this date and Time for Completion are the time needed for completing the Works or a section including any contractual extension, which is calculated from the Commencement Date. Another important things is the Works Program and time to commence the Works Program physically. There are six milestones related with Commencement of Works and commencement of the Works Program based on FIDIC Condition of Contract Rainbow Edition 1999, the latest updated edition, there are Letter of Acceptance, Signing of the Contract Agreement, Commencement Date, Notice on Commencement Date, Detailed Program submission from the Contractor, Contractor to commence the Works Program. From the analysis on the timelines related to the above milestones, the results showed that there are possibilities that commencement of the Works Program for some projects are earlier and the rest are later than the Commencement Date which is the contractual date of commencement. The first is not allowed contractually, the second means there is the consequence that contractor should adjust the program soon after the Contractor commence the Works Programed, to rectify the time loss in relation with the time for completing the Works, where they should then accelerate the progress to catch the contractual Date of Completion. This is the common problem faced by the contractor, that is why the writer try to find the way out, or at least to give the contractor early warning that approval on the Works Program does not mean that extension of time granted. Based on the result of the conducted study, it was found that in order to minimize disputes, the Date of Completion should be specified in the Contract, instead of Time for Completion, which is a time needed to complete the Works.

**KEYWORDS:** Commencement Date, commencement of the Works

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### **INTRODUCTION**

Construction project could be considered as a successfull project if the contract price and the time for completion is not differ so much from the original contracted price and original time of completion as stipulated in the contract. Commencement of Works or Commencement Date and the commencement of Works Program are two different things that can not be separated, this will involve both the action by the Contractor to carry out all the preliminaries activities to Commencement of Works, commencing the Works Program on the site and the responsibility of the Employer to make the site available, as well as the responsibility of the Engineer to the documentation and further information that the Contractor requires to commence the Works. The difference between Commencement Date and commencement of the Works Program, should be understood, otherwise it may create contractual disputes, since Commencement Date is contractual starting date of the time needed to complete the project while commencement of the Works Program is the physical commencement of Works based on the approved program.

Such milestones as mentioned above are the same for FIDIC CC for Construction [1] and for FIDIC CC for Plant Design Build [2], but there are some differences with both FIDIC CC for EPC/Turnkey Project [3] and FIDIC CC for Construction MDB Harmonised Edition [4]. Henkin [5] stated that matters connected with commencement and program and should be limited to the following:

- (a) The commencement of work and the formal Engineer's order to commence.
- (b) The handing over of the Site by the Employer and its taking over by the Contractor.
- (c) Submission by the Contractor of his program and of his method of construction and the Engineer's consent to them.

Kelleher [6] said that the most important dates should be take into consideration are Commencement Date and Completion Date, since both have the contractual meaning. In relation with the time of completion of the contracted Works, it could be set as a dates or by setting the specified number of days after Commencement Date or Commencement of Works. In order to avoid dispute, the parties should clearly define the agreed Commencement Date, interim completion milestone and contract Time of Completion. Chow [7] commencement

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of Works is date on which the construction of the works for a project begins. The date for the commencement of works is not necessarily the same as the date for the handing over of site possession. Chow also define works program as a diagram, chart or schedule depicting the sequence of activities which are to be undertaken by a contractor on a construction project and on which the commencement and completion dates are clearly posted. Most construction contracts require the contractor to furnish the works program prior to the commencement date of the works and this frequently serves as a basis for assessing culpability in relation to delay which in turn determines the contractor's entitlement for extension of time or liability of liquidated damages.

The above opinion is different with the FIDIC CC for Construction Sub-Clause 8.3 [8], where mentioned that the Program should be submitted after the contractor receive the notification of Commencement Date, which is the contractual date of the Commencement of Works. Loots [8] said that the date of commencement of the Works is usually specified in the Contract and is the date from which the contractual date for Practical Completion of the Works is computed, albeit usually implicitly. Baker [9] said that within the relevant period after the Commencement Date the Contractor must start the design (if included) and execution of the Works.

## **MATERIALS AND METHODS**

### **Clauses related to Commencement of Works and Proceed Works Program of FIDIC Conditions of Contract for Construction (1999) [1]:**

Clauses in the FIDIC Red Book related with Commencement of Works and commencement of Works Program are as follows:

#### **Sub-Clause 1.6 Contract Agreement (Red Book)**

The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless they agree otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

#### **Sub-Clause 8.1 Commencement of Works (Red Book)**

The Engineer shall give the Contractor not less than 7 days' notice of the Commencement Date. Unless otherwise stated in the Particular Conditions, the Commencement Date shall be within 42 days after the Contractor receives the Letter of Acceptance.

The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

#### **Sub-Clause 8.2 Time for Completion (Red Book)**

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

- (a) achieving the passing of the Tests on Completion, and
- (b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking over under Sub-Clause 10.1 [*Taking Over of the Works and Sections*].

#### **Sub Clause 8.3 Program (Red Book)**

The Contractor shall submit a detailed time program to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [*Commencement of Works*]. The Contractor shall also submit a revised program whenever the previous program is inconsistent with actual progress or with the Contractor's obligations. Each program shall include:

- (a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing,
- (b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [*Nominated Subcontractors*]),
- (c) the sequence and timing of inspections and tests specified in the Contract, and
- (d) a supporting report which includes: (i) a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and (ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.

Unless the Engineer, within 21 days after receiving a program, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the program, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon the program when planning their activities.

The Contractor shall promptly give notice to the Engineer of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works. The Engineer may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 13.3 [*Variation Procedure*].

If, at any time, the Engineer gives notice to the Contractor that a program fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised program to the Engineer in accordance with this Sub-Clause.

FIDIC Conditions of Contract require the contractor to submit the program of works to the employer. There are non-contractual reference points except the Completion Date, for how work will be carried out or it can impose obligations to deliver the works in a certain way and by certain dates. Important things that people should understand, in case that the program of works is included in the contract documents it will become binding on the parties. There are benefits and risks associated with doing that program to be accompanied by a report. This report describes the methods that the contractor intends to adopt and details of the personnel and equipment required on site for each stage.

The status of the program under the FIDIC Conditions of Contract need to be interpreted smartly, deeper understanding on the philosophy is necessary. On one hand the employer is entitled to rely on the program when planning his activities and the contractor is expressly required to proceed in accordance with the program. A failure by the contractor to comply with this, entitles the employer to terminate the contract. On the other hand, the program is not a document that the employer, through the engineer, needs to approve, it cannot alter any of the express obligations under the contract and those obligations take priority over any statements in the program. Therefore the contractor should follow the program unless it conflicts with another term of the contract. The program in some cases listed as a part of contract document, but in other cases are not listed as a part of contract document and is therefore not considered binding on the parties. Where the program is a part of contract document, the program will be binding on the parties. Any deviation from is a breach of contract entitling the aggrieved party to compensation if they can prove they have incurred additional costs or delay. In this case the program will be used as an indicative tool for the parties, suppliers and consultants for administering the progress of the works. Employers primarily concerned with completing stages of the works by precise dates may be tempted to include the program in the list of contract documents. The advantage for the employer is that it will give him greater control over the manner and order in which the contractor will carry out the works. It will allow him to specify the works that are a priority and oblige the contractor to prioritise the same matters. The advantage for the contractor is that he will be aware of what is expected of him from the outset. The same applies to third parties, such as suppliers and consultants, who are often ignorant or left in limbo as to the timing of their own contributions to the works. Where this approach is adopted, the contract should clearly set out which part or parts of the program are binding. It could be that only the key milestone dates are binding. Conversely, it could be that all dates, the order of the works and the methods employed by the contractor are obligatory.

#### **Clauses related to Commencement of Works and Proceed Works Program of FIDIC Conditions of Contract for Plant and Design Build (1999) [2]**

Clauses in the FIDIC Yellow Book related with Commencement of Works and commencement of Works Program are as follows:

##### **Sub-Clause 1.6. Contract Agreement (Yellow Book)**

The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless they agree otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

The above Sub-Clause 1.6 Contract Agreement exactly the same between Yellow Book and Red Book

##### **Sub-Clause 8.1 Commencement of Works (Yellow Book)**

The Engineer shall give the Contractor not less than 7 days' notice of the Commencement Date. Unless otherwise stated in the Particular Conditions, the Commencement Date shall be within 42 days after the Contractor receives the Letter of Acceptance.

The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

The difference between the Red Book and the Yellow Book in Sub-Clause 8.1 **Commencement of Works**, is only in the second paragraph that is "The Contractor shall commence the execution of the Works" and "The Contractor shall commence the design and execution of the Works" respectively.

Another important difference is the Yellow Book's Clause 5 Design, which is none in the Red Book.

**Sub-Clause 8.2 Time for Completion (Yellow Book)**

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

- (a) achieving the passing of the Tests on Completion, and
- (b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of takingover under Sub-Clause 10.1 [*Taking Over of the Works and Sections*].

The above Sub-Clause 8.2 Time for Completion exactly the same between Yellow Book and Red Book.

**Sub Clause 8.3 Program (Yellow Book)**

The Contractor shall submit a detailed time program to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [*Commencement of Works*]. The Contractor shall also submit a revised program whenever the previous program is inconsistent with actual progress or with the Contractor's obligations. Each program shall include:

- (a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design, Contractor's Documents, procurement, manufacture, inspection, delivery to Site, construction, erection, testing, commissioning and trial operation,
- (b) the periods for reviews under Sub-Clause 5.2 [*Contractor's Documents*] and for any other submissions, approvals and consents specified in the Employer's Requirements,
- (c) the sequence and timing of inspections and tests specified in the Contract, and
- (d) a supporting report which includes: (i) a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and (ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.

Unless the Engineer, within 21 days after receiving a program, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the program, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon the program when planning their activities.

The Contractor shall promptly give notice to the Engineer of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works. The Engineer may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 13.3 [*Variation Procedure*].

If, at any time, the Engineer gives notice to the Contractor that a program fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised program to the Engineer in accordance with this Sub-Clause.

**Table 1**  
**The Differences on Sub-Clause 8.3 Program**  
**Red and Yellow Book vs Silver Book**

FIDIC Red and Yellow Book (1999) Sub-Clause 8.3 Program	FIDIC Yellow Book (1999) Sub-Clause 8.3 Program
(a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing,	(a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design, Contractor's Documents, procurement, manufacture, inspection, delivery to Site, construction, erection, testing, commissioning and trial operation,
(b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [ <i>Nominated Subcontractors</i> ]),	(b) the periods for reviews under Sub-Clause 5.2 [ <i>Contractor's Documents</i> ] and for any other submissions, approvals and consents specified in the Employer's Requirements,

**Clauses related to Commencement of Works and Proceed Works Program of FIDIC Conditions of Contract for Engineering Procurement and Construction / Turnkey Project (1999) [3]:**

Clauses in the FIDIC Silver Book related with Commencement of Works and commencement of Works Program are as follows

**Sub Clause 1.6. Contract Agreement (Silver Book)**

The Contract shall come into full force and effect on the date stated in the Contract Agreement. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

**Table 2**  
**The Differences on Sub-Clause 1.6 Contract Agreement**  
**Red and Yellow Book vs Silver Book**

<b>FIDIC Red Book and Yellow Book (1999)</b> <b>Sub-Clause 1.6 Contract Agreement</b>	<b>FIDIC Silver Book (1999)</b> <b>Sub-Clause 1.6 Contract Agreement</b>
The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless they agree otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.	The Contract shall come into full force and effect on the date stated in the Contract Agreement. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

**Sub-Clause 8.1. Commencement of Works (Silver)**

Unless otherwise stated in the Contract Agreement:

- (a) the Employer shall give the Contractor not less than 7 days' notice of the Commencement Date; and
- (b) the Commencement Date shall be within 42 days after the date on which the Contract comes into full force and effect under Sub-Clause 1.6 [*Contract Agreement*].

The Contractor shall commence the design and execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

**Table 3**  
**The Differences on Sub-Clause 8.1 Commencement of Works**  
**Red and Yellow Book vs Silver Book**

<b>FIDIC Red Book and Yellow Book (1999)</b> <b>Sub-Clause 8.1 Commencement of Works</b>	<b>FIDIC Silver Book (1999)</b> <b>Sub-Clause 8.1 Commencement of Works</b>
The Engineer shall give the Contractor not less than 7 days' notice of the Commencement Date. Unless otherwise stated in the Particular Conditions, the Commencement Date shall be within 42 days after the Contractor receives the Letter of Acceptance.	Unless otherwise stated in the Contract Agreement: (a) the Employer shall give the Contractor not less than 7 days' notice of the Commencement Date; and (b) the Commencement Date shall be within 42 days after the date on which the Contract comes into full force and effect under Sub-Clause 1.6 [ <i>Contract Agreement</i> ].
The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.	The Contractor shall commence the design and execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

**Sub-Clause 8.2 Time for Completion (Silver)**

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

- (a) achieving the passing of the Tests on Completion, and
- (b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking over under Sub-Clause 10.1 [*Taking Over of the Works and Sections*].

The above Sub-Clause 8.2 Time for Completion exactly the same among Silver Book, Yellow Book and Red Book.

**Sub-Clause 8.3 Program (Silver)**

The Contractor shall submit a time program to the Employer within 28 days after the Commencement Date. The Contractor shall also submit a revised program whenever the previous program is inconsistent with actual progress or with the Contractor's obligations. Unless otherwise stated in the Contract, each program shall include:

- (a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each major stage of the Works,
- (b) the periods for reviews under Sub-Clause 5.2 [*Contractor's Documents*],
- (c) the sequence and timing of inspections and tests specified in the Contract, and
- (d) a supporting report which includes: (i) a general description of the methods which the Contractor intends to adopt for the execution of each major stage of the Works, and (ii) the approximate number of each class of Contractor's Personnel and of each type of Contractor's Equipment for each major stage.

Unless the Employer, within 21 days after receiving a program, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall

proceed in accordance with the program, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon the program when planning their activities. The Contractor shall promptly give notice to the Employer of specific probable future events or circumstances which may adversely affect or delay the execution of the Works.

In this event, or if the Employer gives notice to the Contractor that a program fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised program to the Employer in accordance with this Sub-Clause.

**Table 4**  
**The Differences on Sub-Clause 8.1 Commencement of Works**  
**Red and Yellow Book vs Silver Book**

<b>FIDIC Red Book and Yellow Book (1999)</b> <b>Sub-Clause 8.3 Program</b>	<b>FIDIC Silver Book (1999)</b> <b>Sub-Clause 8.3 Program</b>
The Contractor shall submit a detailed time program to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [ <i>Commencement of Works</i> ].	The Contractor shall submit a time program to the Employer within 28 days after the Commencement Date.
Each program shall include: (a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing, (b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [ <i>Nominated Subcontractors</i> ]),	Unless otherwise stated in the Contract, each program shall include: (a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each major stage of the Works, (b) the periods for reviews under Sub-Clause 5.2 [ <i>Contractor's Documents</i> ],

The difference in wording, in silver book the activities which should be included in the program only written as "major stage of the Works", whilst in the Red and yellow book written in more detailed. In order to avoid misinterpretation which may cause disputes in the future, the wording "major stage of the Works" should be explained in more detail way.

#### **Clauses related to Commencement of Works and Proceed Works Program of FIDIC Conditions of Contract for Construction MDB Harmonised Edition (2006)**

Clauses in the FIDIC Pink Book related with Commencement of Works and commencement of Works Program are as follows:

##### **Sub-Clause 1.6 Contract Agreement (Pink Book)**

The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless the Particular Conditions establish otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

For Sub-Clause 1.6 Contract Agreement there is no substantial differences between New Red Book which is known also as Pink Book (MDB Harmonised edition) and the Red Book.

##### **Sub-Clause 8.1 Commencement of Works (Pink Book)**

Except otherwise specified in the Particular Conditions of Contract, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Engineer's instruction recording the agreement of both Parties on such fulfilment and instructing to commence the Work is received by the Contractor:

- (a) signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of the Country;
- (b) delivery to the Contractor of reasonable evidence of the Employer's Financial arrangements (under Sub-Clause 2.4 [*Employer's Financial Arrangement*]);
- (c) except if otherwise specified in the Contract Data, and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [*Compliance with Laws*] as required for the commencement of the Works;
- (d) receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 [*Advance Payment*] provided that the corresponding bank guarantee has been delivered by the Contractor.

If the said Engineer's instruction is not received by the Contractor within 180 days from his receipt of the Letter of Acceptance, the Contractor shall be entitled to terminate the Contract under Sub-Clause 16.2 [*Termination by Contractor*].



The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

There is substantial differences between MDB Harmonised edition and th Red Book (1999), because in the MDB Harmonised edition, the milestones date are not defined, but there are some precedent conditions for the issuance of Commencement Date or Commencement of Works.

**Table 5**  
**The Differences on Sub-Clause 8.1 Commencement of Works**

<b>FIDIC Red Book and Yellow Book (1999)</b> <b>Sub-Clause 8.1 Commencement of Works</b>	<b>FIDIC MDB Harmonised (2006)</b> <b>Sub-Clause 8.1 Commencement of Works</b>
Sub-Clause 8.1 Commencement of Works The Engineer shall give the Contractor not less than 7 days' notice of the Commencement Date. Unless otherwise stated in the Particular Conditions, the Commencement Date shall be within 42 days after the Contractor receives the Letter of Acceptance.	Except otherwise specified in the Particular Conditions of Contract, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Engineer's instruction recording the agreement of both Parties on such fulfilment and instructing to commence the Work is received by the Contractor: (a) signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of the Country; (b) delivery to the Contractor of reasonable evidence of the Employer's Financial arrangements (under Sub-Clause 2.4 [ <i>Employer's Financial Arrangement</i> ] ); (c) except if otherwise specified in the Contract Data, and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [ <i>Compliance with Laws</i> ] as required for the commencement of the Works; (d) receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 [ <i>Advance Payment</i> ] provided that the corresponding bank guarantee has been delivered by the Contractor.  If the said Engineer's instruction is not received by the Contractor within 180 days from his receipt of the Letter of Acceptance, the Contractor shall be entitled to terminate the Contract under Sub-Clause 16.2 [ <i>Termination by Contractor</i> ].

#### **Sub-Clause 8.2 Time for Completion (Pink Book)**

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

- (a) achieving the passing of the Tests on Completion, and
- (b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking over under Sub-Clause 10.1 [Taking Over of the Works and Sections].

The above Sub-Clause 8.2 Time for Completion exactly the same between Red Book (1999) and MDB Harmonised (2006)

#### **Sub-Clause 8.3 Program (Pink Book)**

The Contractor shall submit a detailed time program to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [Commencement of Works]. The Contractor shall also submit a revised program whenever the previous program is inconsistent with actual progress or with the Contractor's obligations. Each program shall include:

- (a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing,
- (b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),
- (c) the sequence and timing of inspections and tests specified in the Contract, and
- (d) a supporting report which includes: i. a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and ii. details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.

Unless the Engineer, within 21 days after receiving a program, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall

proceed in accordance with the program, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon the program when planning their activities.

The Contractor shall promptly give notice to the Engineer of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works. The Engineer may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 13.3 [Variation Procedure].

If, at any time, the Engineer gives notice to the Contractor that a program fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised program to the Engineer in accordance with this Sub-Clause.

The above Sub-Clause 8.3 Program exactly the same between Red Book (1999) and MDB Harmonised (2006).

## RESULTS AND DISCUSSION

The program is always useful for the Employer to control the completion of the Works. Completion Date is a specific date by which or a period within which the work is to be completed. In case the Contractor fail to complete the Works as scheduled, he has to allow the employer liquidated damages as stipulate in Sub-Clause 8.7 Delay damages [1], subject to the contract provisions for extensions of time. In the absence of such a contractual provision and where no completion date is expressly agreed, the contractor would be under an obligation to complete within a "reasonable time".

In that case, the employer would be unable to recover liquidated damages if the works remained uncompleted after the elapse of a 'reasonable time' although he might, with difficulty, recover unliquidated or general damages on proof of loss, possibly subject to a ceiling on their amount equal to the failed liquidated damages clause.

The Works Program beside the advantages as a tool to control the Works, also have the disadvantages to both parties, the Employer and the Contractor, since there will be obligations to both parties to fulfill the schedule agreed. The program is not just give the contractor contractual responsibilities, but the employer will have to provides the contractor with the facilities to complete the works in accordance with the program, such as providing the contractor with site access, design documents and decisions on time to allow the contractor to commence the next phase of the works [10].

### FIDIC CC Sub-Clause 8.4 Extension of Time for Completion

The Contractor shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [*Taking Over of the Works and Sections*] is or will be delayed by any of the following causes:

- (a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [*Variation Procedure*]) or other substantial change in the quantity of an item of work included in the Contract,
- (b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,
- (c) exceptionally adverse climatic conditions,
- (d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or
- (e) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors on the Site.

If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Engineer in accordance with Sub-Clause 20.1 [*Contractor's Claims*]. When determining each extension of time under Sub-Clause 20.1, the Engineer shall review previous determinations and may increase, but shall not decrease, the total extension of time.

### FIDIC CC Sub-Clause 8.7 Delay Damages

If the Contractor fails to comply with Sub-Clause 8.2 [*Time for Completion*], the Contractor shall subject to Sub-Clause 2.5 [*Employer's Claims*] pay delay damages to the Employer for this default. These delay damages shall be the sum stated in the Appendix to Tender, which shall be paid for every day which shall elapse between the relevant Time for Completion and the date stated in the Taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Appendix to Tender.



These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [*Termination by Employer*] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.

#### FIDIC CC Sub-Clause 20.1 Contractor's Claims

If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.

**Letter of Acceptance (LA)** is the first formal letter related to the specific construction contract. **Letter of Acceptance** is a Formal acceptance of a position or award by the successful candidate using written communication [15]. The definition of Letter of Acceptance as FIDIC Conditions of Contract rainbow series are similar except for the Silver Book it is none [1],[2],[3], [4]. Sub-Clause 1.1.1.3 "Letter of Acceptance" is the letter of formal acceptance, signed by the Employer, of the Letter of Tender, including any annexed memoranda comprising agreements between and signed by both Parties. If there is no such letter of acceptance, the expression Letter of Acceptance means the Contract Agreement and the date of issuing or receiving the Letter of Acceptance means the date of signing the Contract Agreement.

**Contract Agreement (CA)** as Sub-Clause 1.1.1.2 "Contract Agreement" means the contract agreement (if any) referred to in Sub-Clause 1.6 [*Contract Agreement*]. **Commencement Date (CD)** as Sub-Clause 1.1.3.2 "Commencement Date" means the date notified under Sub-Clause 8.1 [*Commencement of Works*], **Notice on Commencement Date (NCD)** is explained also in Sub-Clause 8.1. **Detailed Program (DP)** is a program should be submitted by the Contractor as Sub-Clause 8.3 [Program]. In the FIDIC Conditions of Contract rainbow series, the date of contract signing is only related with the Letter of Acceptance, but have no relation with the time for completion and project's schedule.

In relation with Commencement of Works (Commencement Date) and commencement of the Works, some milestones should be given into consideration are:

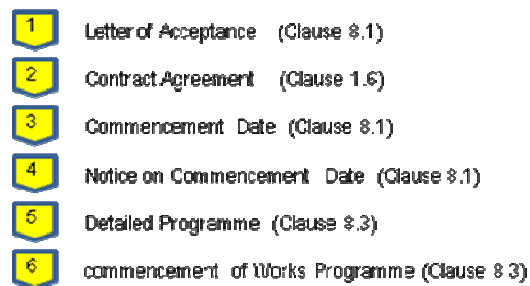


Figure 1: Milestones on Commencement of Works and commencement of Works Program

From the above six milestones, five of them i.e. 1, 2, 3, 4, 6 are the Employer duties and responsibilities, and only 5 is the Contractors'. Study will be done on the application of sub-clause 8.1 and sub-clause 8.3 which are the most important clauses in relation with the "time for completion".

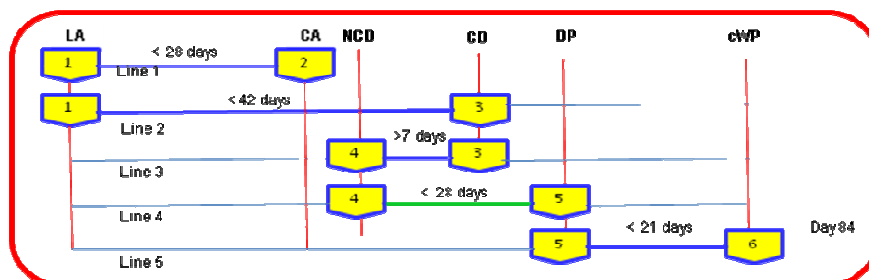


Figure 2 : Commencement of Works vs commencement of Works Program  
Maximum in time line 2,4 and 5 and minimum in time line 3  
(FIDIC Conditions of Contract for Construction 1999)

First time line LA to CA, within 28 days after the LA s the first milestone, the Employer and the Contractor should have signed the CA as the second milestone. where CA is only related to the issuance of LA and no other requirement and/or activities related.

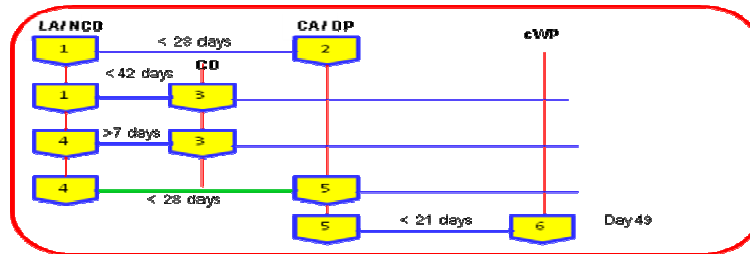
Second time line LA to CD, within 42 days after the issuance of LA, CD as the third milestone has to be fixed, it may vary from Day 7 to Day 42, it is depend on the NCD which have to be issued 7 days before the intended day of CD, so the CD is dependent to the NCD.

Third time line, related to NCD as milestone 4, it could be seen that the CD is mostly depend on the most important milestone in the third line, that is the NCD, which should be issued not less than 7 days before the fixation of the CD, which may vary from Day  $(42-7) = 35$  to Day  $(7-7) = 0$ .

Fourth time line is the Contractor's line, the contractor should submit the DP within 28 days after receiving the NCD. It is the only line which is under control of the Contractor, it is dependent to NCD, with 28 days limit to them to submit the DP as milestone 5.

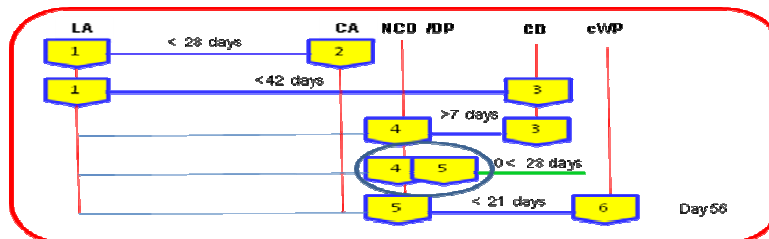
Fifth time line is the Employer's line, is the line where the Employer/Engineer giving consent to the contractor to commence the cWP as milestone 6, with 21 days time limit from the receiving date of DP. After 21 days, with or without approval, the Contractor have to commence the cWP.

Choosing the limit for every time line, with maximum in timeline 2,4,5 and the minimum in timeline 3, as the Figure 2 above, it could be found that the cWP is at  $(42-7+28+21)$  days = Day 84, which is 42 days after the CD.



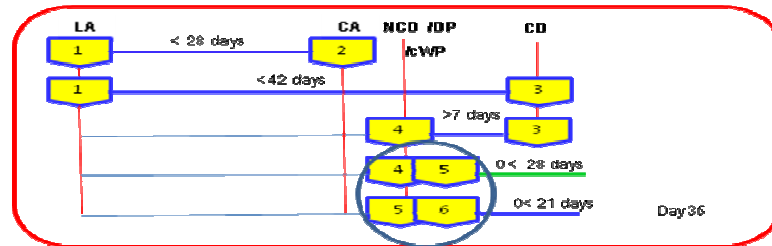
**Figure 3: Commencement of Works vs commencement of Works Program**  
Minimum in time line 2, 3 and maximum in time line 4,5  
(FIDIC Conditions of Contract for Construction 1999)

By moving milestone 4, NCD from Day  $(42-7)$  to Day  $(7-7)$ , the third time line from milestone 5 DP to milestone 6 cWP may gradually shortened, so the cWP will be shortened from Day 84 to Day 49 as it could be seen at Figure 3, and fall after the CD. With the maximum time from NCD to DP is 28 days and the maximum time from DP to cWP is 21 days, the time for starting the activity of cWP will be 49 days in total. In this position, contractually the contractor commence the WP  $(49-7) = 42$  days after the CD, which is mean that the contractor should accelerate the works with their own resources to reach the project completion as scheduled.



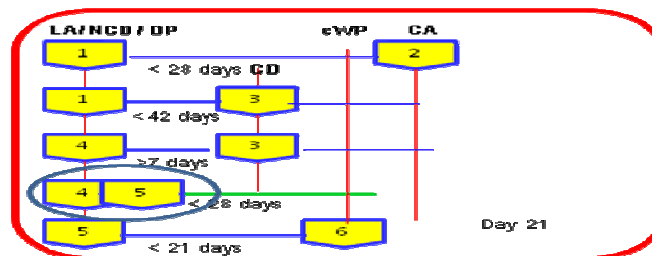
**Figure 4: Commencement of Works vs commencement of Works Program**  
Maximum time line 2,5 and minimum line 3,4  
(FIDIC Conditions of Contract for Construction 1999)

As Figure 4, second timeline is maximum, third timeline is minimum, the Contractor may expedite the activity in the fourth timeline by submitting immediately the detailed program, from 28 days to 0 day, so milestone 5 DP will be in the same date with milestone 4 NCD (extremely direct after the NCD), but they can not control the fifth line, since 21 days from DP to PWP is depend on the Employer/Engineer action. In this combination the PWP will be 56 days and the cWP is  $(35+21)$  days = 56 days after the CD.



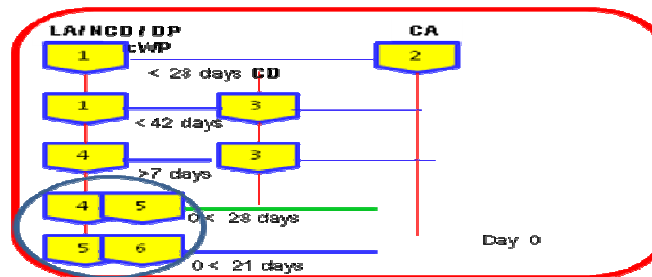
**Figure 5: Commencement of Works vs commencement of Works Program**  
**Maximum line 2 and minimum line 3,4,5**  
**(FIDIC Conditions of Contract for Construction 1999)**

Another option is as Figure 5 . where the Employer take a quick action to approve the DP, with the reason that the program already submitted as a proposal during tender, so they already familiar with the program, so in the extreme case the DP to PWP become 0 day. In this case the PWP become Day 35, and before the CD which is 42 days. It is unacceptable, because the contractual Commencement of Works should be the CD.



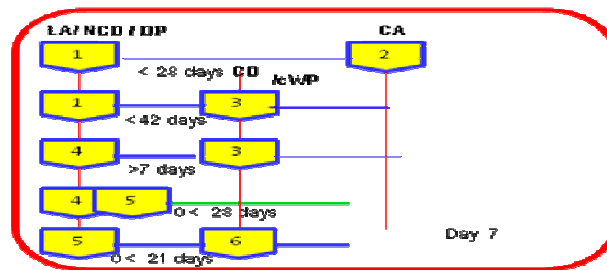
**Figure 6: Commencement of Works vs commencement of Works Program**  
**Minimum line 2, 3 4 and maximum line 5**  
**(FIDIC Conditions of Contract for Construction 1999)**

As in Figure 6, minimum days in second and third timeline by the Employer, considering that the conditions to Commence the Works, such as the possession of site and other obstacle could also be passed. Fourth timeline by the Contractor is also minimum, with the reason that the program already submitted as a proposal during tender. Fifth timeline is maximum. In this option, the cWP will be Day 21, the cWP will be 14 days after CD.



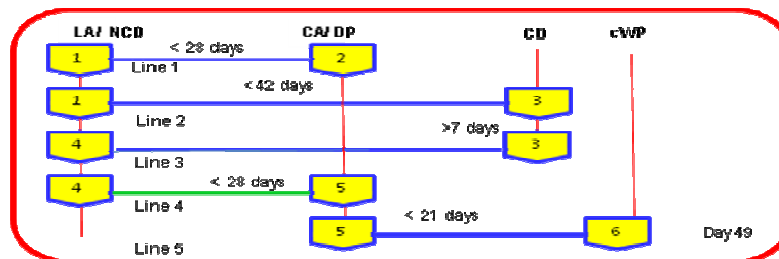
**Figure 7: Commencement of Works vs commencement of Works Program**  
**Minimum line 2, 3 4 and 5**  
**(FIDIC Conditions of Contract for Construction 1999)**

Considering all timelines are minimum, as in Figure 7, in case that the Employer/Engineer could give the consent to the contractor to proceed the cWP in the early stage at Day 0 in the same day with DP, Fifth line is the Employer's line, where they have to expedite their action on giving approval or no objection letter to the contractor on the detailed program, so the contractor may proceed with the works program. It is unacceptable, because the contractual Commencement of Works should be the CD.



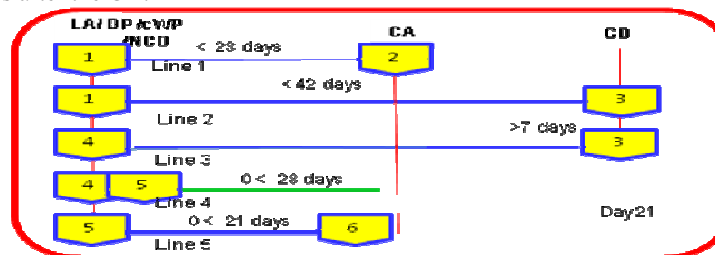
**Figure 8: Commencement of Works vs commencement of Works Program**  
**Minimum line 2, 3 4 and adjusted line 5**  
**(FIDIC Conditions of Contract for Construction 1999)**

The condition as Figure 8, is the fastest way to have the cWP earlier, by reducing the fourth timeline, and put the position of cWP at Day 7, the same day with the fastest CD also at Day 7. This conditions not only beneficial to the contractor, because there will be no lost of time which will need the acceleration with their own cost, but also for the employer, because the contractor will not suffer the delay to start and the employer will not be burdened by many claim letter by the contractor in order to free from the delay damages in relation with the delay to physically start the program. The above Figure 8 is the most ideal condition providing that the land required by the Contractor to commence the Works is available on time.



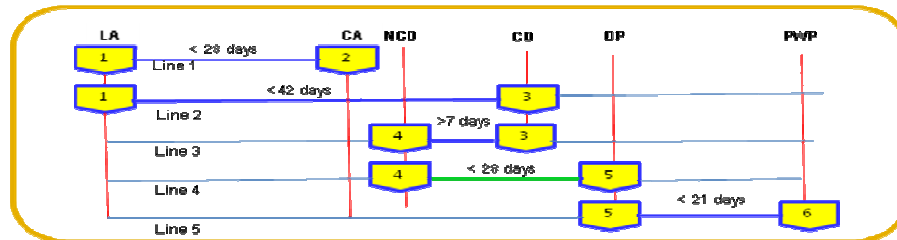
**Figure 9: Commencement of Works vs commencement of Works Program**  
**Maximum line 2, 3 4 and 5**  
**(FIDIC Conditions of Contract for Construction 1999)**

Combination of activities are as Figure 9, where issuance of NCD is in the same date with LA, but the CD still at 42 days after the LA as the maximum of the time line 2 which also fulfill the limit of issuance of ND it is more than 7 days before the CD. Considering the time line 4 and time line 5 are maximum, the cWP will be at Day 49. This cWP is 7 days after the CD. This condition is the most reasonable, since time line 4 and time line 5 which need the physical action, are maximum. The cWP is in the position 7 days after the CD.



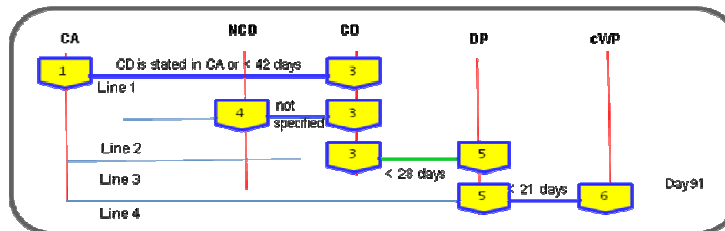
**Figure 10: Commencement of Works vs commencement of Works Program**  
**Minimum line 2, 3 4 and 5**  
**(FIDIC Conditions of Contract for Construction 1999)**

In Figure 10, where the issuance of NCD is in the same date with LA, but the CD still at 42 days after the LA, as the maximum of the time line 2, which also fulfill the limit of issuance of NCD it is more than 7 days before the CD. Considering the time line 4 is 0 days providing that the contractor have prepared the program during the tender and time line 5 are maximum, the PWP will be at Day 21, which is before the CD.



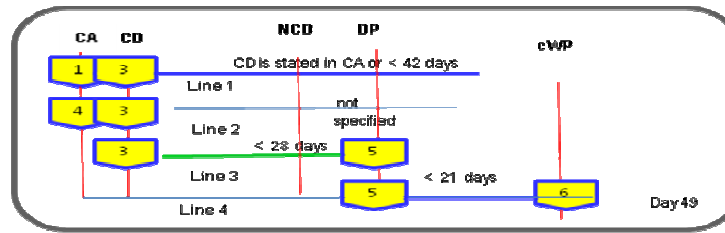
**Figure 11: Commencement of Works vs commencement of Works Program (FIDIC Conditions of Contract for Plant Design Build 1999)**

Figure 11 is similar with Figure 2 of Red Book, where all timeline taken are maximum for timeline 2,4 and 5 and minimum in the timeline 3. So the cWP will be Day 84. In all cases the requirement of Yellow Book are the same with the Red Book.



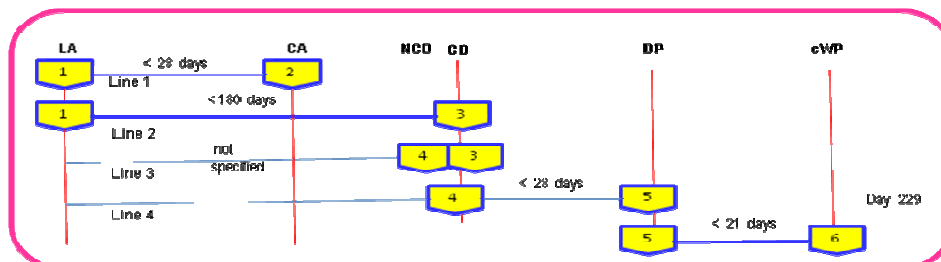
**Figure 12: Commencement of Works vs commencement of Works Program (FIDIC Conditions of Contract for EPC/Turnkey Project 1999)**

As Figure 12 every activities contractually started after the Contract agreement, since there is no Letter of acceptance issued in this Silver Book. CD usually stated in the CA with the maximum 42 days after the CA. The time between NCD and CD is not specified. So if the actions taken are maximum days required, the cWP will be Day 91.



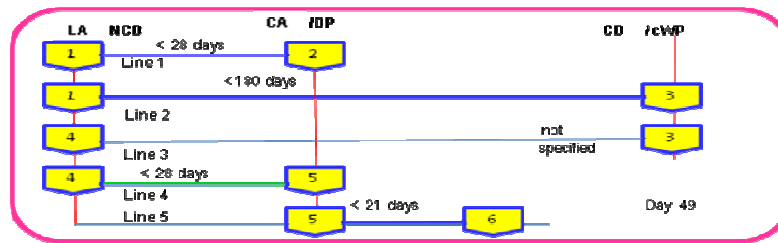
**Figure 13: Commencement of Works vs commencement of Works Program (FIDIC Conditions of Contract for EPC/Turnkey Project 1999)**

Since the time required between NCD and CD is not specified in the Silver Book, there is possibility that CA and CD issued in the same time, and the cWP will be Day 49



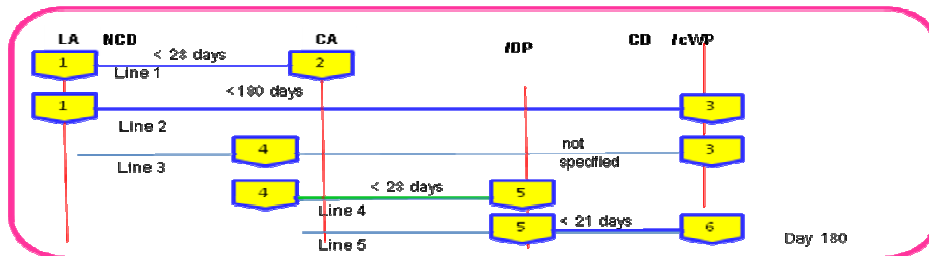
**Figure 14: Commencement of Works vs commencement of Works Program (FIDIC Conditions of Contract for Construction MDB Harmonised (2006))**

In the MDB the time limit for the issuance of CD is 180 days, after the Employer can fulfill the precedent conditions, incase that the Commencement Date can not be issued, the Contractor have right to terminate the contract. The longest cWP will be Day 229 as Figure 14.



**Figure 15: Commencement of Works vs commencement of Works Program (FIDIC Conditions of Contract for Construction MDB Harmonised (2006))**

Since the NCD is not specified, the NCD and the requirement of NCD is  $> 7$  days, then it could be interpreted that the NCD could be issued in the same date with LA, with the timeline  $2 < 180$  days before CD.



**Figure 16: Commencement of Works vs commencement of Works Program (FIDIC Conditions of Contract for Construction MDB Harmonised (2006))**

Figure 16 showed the most reasonable option for the MDB, that is the NCD issued in  $(28+21)$  days before limit of CD that is Day 131.

From the above study on FIDIC Conditions of Contract (Rainbow Edition), some important notes could be made:

- The signing of Contract Agreement is only related to Letter of Acceptance, but independent to other contractual milestones [1],[2],[3],[4].
- The Contractor obligation is to complete the Works within Time for Completion, which is calculated from the Commencement Date to Date of Completion [11] [12],[13].
- In FIDIC CC, all activities related more to “received of Notice on Commencement Date”, rather than to “Commencement of Works or Commencement Date” itself. From the above simulation it could be found that the most important milestone related to the physical start of the Works is the date when the contractor receive the Notice on Commencement Date [1],[2],[3],[4].
- Submission of Detailed Works Program from the contractor for having acknowledgement from the Employer, contractually could only be done after the contractor received the notification of Commencement Date [1],[2],[3],[4],[14].
- From the simulation above, it could be found there are possibilities that the commencement of Works Program will fall before, after or in the same time with Commencement Date.

## CONCLUSION

The contractual Time for Completion target of the Date of Completion is started from the Commencement Date. In practice, it will be better for the parties if the Date of Completion was specified instead of only the period of time for completion, in order to minimize the dispute which may occurred.

Works Program is usually treated as live document that are continuously updated in response to events occurring on-site or elsewhere on the project. Amending a contractually binding program will be an additional administrative burden and could further delay the progress of the works during the construction period. It should be understood that the approved and/or acknowledged Works Program will be used as the basic of cost calculation and as the Base Date in case there are claims on additional cost, even without extension of time.

The reasonable and contractually sound commencement of Works Program is one fall after the Commencement Date, with the consequence that the Date of Completion of the Works Program will fall after the contractual Date of Completion, surely in order to avoid the liquidated damages, the Contractor have to revise the Works Program just after he receive the comment or after 21 days after submission of Detailed Works Program in order to match the contractual Date of Completion.

Incorporating the Works Program into the Contract has advantage to the Employer, since the Contractor is bound to carry out the Works in accordance with that program, which had been evaluated during the tender in relation to the possession of site for construction being done by the Employer. Beside the advantage, it has also disadvantage for the Employer since in case that the employer wishes to change the program with some reason, it may be exposed to a claim from the Contractor for extension of time and/or additional cost.

5. For the Contractor, incorporating the Works Program into the Contract will reduce considerably the flexibility to change the program without contractual impact.

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