



فرمول جامع برای تدوین لایحه تاخیرات (بر اساس دو قرارداد FIDIC و AIA)

بخش اول: روش سریع و ساده برای تدوین لایحه تاخیرات

ارائه دهنده:

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What we will learn?

- ☐ Introduction
- ☐ Development of the New Method
- ☐ Five Simple Steps
- ☐ Delay Claim Formulation
- ☐ Identifying Symptoms of Types of Claims
- ☐ Delay Analysis Selection Model for a Construction Project

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Delay Analysis Selection Model for a Construction Project



Delay Analysis Selection Model for a Construction Project

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Introduction

- ❑ The **decision to** use static, dynamic, additive, or subtractive delay analysis is critical because making the wrong decision may have serious undesired consequences.
- ❑ As a response to this problem, a **delay analysis selection (DAS) model** was developed that **identifies the most appropriate type** of delay analysis for a target case.
- ❑ It involves a case-base that is populated by **3,776 possible cases developed** by using combinations of **26 attributes** that were found in the literature to influence the selection of the most appropriate type of delay analysis.
- ❑ The **26 attributes** were organized in **7 categories**.

This study is the first attempt to automate the selection of the most appropriate type of delay analysis.

Introduction

- ❑ Practitioners and researchers generally **agree that no single type** of delay analysis is suitable for all delay claim situations and that **knowledge on the factors** that affect the selection of the **most appropriate** type of delay analysis is **critical** (Nelson and Livengood, 2017).

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Introduction

❑ In addition, **using a type of analysis** that does **not suit a particular delay situation** may **fail to demonstrate** the delay impacts on the completion of a project and therefore may be **rejected by courts and boards**.

❖ For example, the appeal of Contel Advanced Systems, Inc. to the **Armed Services Board of Contract Appeals (ASBCA)** used static analysis to demonstrate **consequential damages** allegedly caused by the government but was **denied because** this type of delay analysis did **not** have the capability to **demonstrate productivity loss** (ASBCA, 2003).

Introduction

- ❑ A Delay Analysis Selection (DAS) model is presented in this study.
- ❑ The model establishes an **automated process** which makes a **decision based solely** on the **information provided** about the actual conditions in a target case.
- ❑ The DAS model consists of **four basic types** of delay analysis assessed by **26 attributes** that have been identified in the literature to affect **stakeholders' preferences** for different types of delay analysis.

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Introduction

- ❑ It uses a **case-base** that includes **all possible situations** representing different combinations of attributes.
- ❑ Similarity assessment techniques are used to find a **perfect or the closest match** between a target case and the **cases in the case-base**.
- ❑ This model is expected to find the **most objective** and **effective** solution to the delay analysis selection problem.

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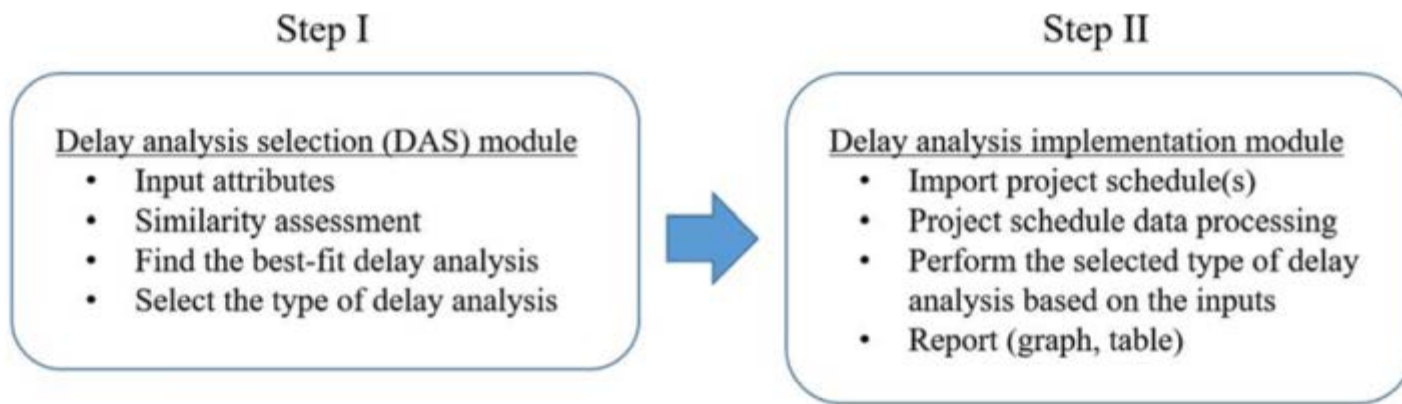


Fig. 1. Integrated Selection and Implementation of Delay Analysis

Development of the DAS Model

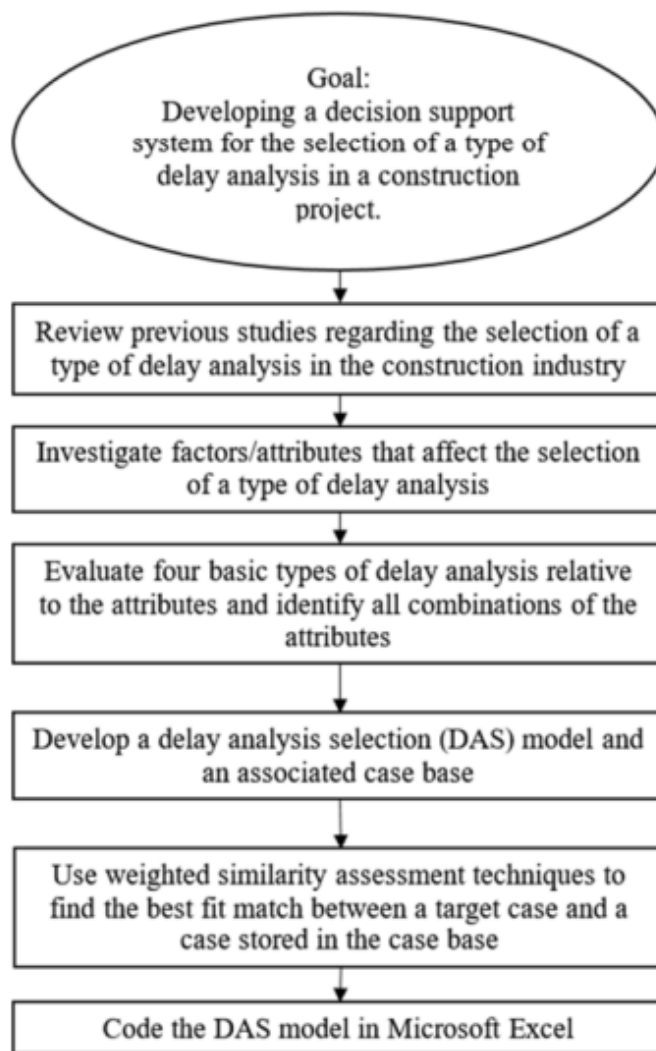


Fig. 2. DAS Model Development

Development of the DAS Model

- ☐ The process was **automated** by using **Microsoft Excel coding**.
- ☐ The DAS model was designed to allow a **delay analyst** to select the **most appropriate delay analysis** for a target case
rather than using an **arbitrarily selected type** of delay analysis or a type of delay analysis that represents the subjective preference of the analyst.
- ☐ The DAS model **streamlines** and **formalizes** the selection process and **makes it easier and faster** for delay analysts to make the most sensible decision.

Development of the DAS Model: Background on delay analysis

- ❑ According to the basic principles commonly used in delay analysis (Zafar, 1996; Bubshait and Cunningham, 1998; AACEI, 2011), **four types of delay analysis** were recognized, namely
 1. static analysis,
 2. dynamic analysis,
 3. additive analysis, and
 4. subtractive analysis.
- ❑ All four types of delay analysis can be used for **forensic** and **contemporaneous** analyses.

Development of the DAS Model: Background on delay analysis

1. Static analysis is the **observation** of the **difference** between the duration of **what has been built** against the **original duration planned** at the outset.

❑ The “as-planned vs. As-built”, “planned vs. actual”, “as-planned vs. update”, “global impact”, and “net impact” methods are performed by using static analysis.

❑ The “as-planned vs. as-built” method, **observing any variances** between the start and finish dates of the **as-built critical activities**, assessing the impact of delays on the project, and determining the causation and responsibility of delays that impact the project completion (Arditi and Pattanakitchamroon, 2006),

whereas the “global impact” and “net impact” methods observe **any variances** between the start and finish dates of the various activities in the original as-planned schedule with those of an as-built schedule and calculate the total delays as the sum of all delayed events (Zafar, 1996).

Development of the DAS Model: Background on delay analysis

2. Dynamic analysis, also known as **multiple-run analysis**, updates the schedule with delay information **observed in a window of time**.

- ❑ The window is defined either by **each individual delay event** or by **a period specified** by the analyst (e.g., a day, a week, a month, etc.).
- ❑ The “time-impact analysis” method, also termed as the “updated impact” method (Bramble and Callahan, 2004), the “contemporaneous impact” method (Callahan et al., 1992), and the “contemporaneous period analysis” and “windows analysis” methods (AACEI, 2011) track the impact of delays on project duration using either contemporaneous delay information or delay information obtained from site records at the end of the project (Baram, 1994).

Development of the DAS Model: Background on delay analysis

3. Additive analysis tracks the **changes in the durations** of the activities in the original schedule **submitted by the contractor and approved by the owner**.

- ❑ The “impacted as-planned” method, also termed as the “impacted baseline”, “plan plus delay”, and “impacted update analysis” methods (AACEI, 2011) and the “as-planned but-for” method (Braumah, 2013) use additive analysis.
- ❑ Such an additive and single run approach allows “**what-if**” **analysis** that can be performed during construction, hence helping minimize delays along the way (Schumacher, 1995).

Development of the DAS Model: Background on delay analysis

4. Subtractive analysis starts out with the **latest updated schedule** showing what has been built and works **backwards to track** the effect of delays in individual activities.
- ❑ The “collapsed as-built”, “but-for”, “modified as-built” and “as-built less delay” methods (AACEI, 2011) and the “as-built but for” method (Braimah, 2013) are performed by using subtractive analysis.

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Development of the DAS Model: Background on delay analysis

- ❑ Arditi and Pattanakitchamroon (2006) **compared four methods** that represent these four types of delay analysis using **22 attributes in four categories**, namely availability of information, timing of analysis, capabilities of the delay analysis method, and time-cost-effort.
- ❑ Three more categories were added in the DAS study, including
 1. acceptance by courts of law (Arditi and Pattanakitchamroon, 2008; AACEI, 2011; Dale and D'Onofrio, 2014; D'Onofrio, 2015),
 2. capabilities of the time management team (Baram, 2000; Braimah and Ndekugri, 2007; Perera et al., 2016; Avalon, 2017), and
 3. budget constraints (Perera et al., 2016; Avalon, 2017),to enhance the precision of the decision-making process, bringing the total number of attributes to **26**.

Development of the DAS Model: Background on delay analysis

- ❑ The choice of the type of delay analysis **depends on several factors**, some related to
1. the capabilities of the analysis,
 2. some to the information available, and
 3. some to the capabilities of the analysts and
 4. available resources.

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Development of the DAS Model: DAS model design

- ❑ As seen in Table 1, the DAS model includes four types of delay analysis that use static, additive, subtractive, and dynamic approaches.
- ❑ These four types of delay analysis were assessed by using 26 attributes that impact their selection grouped in seven categories, including
 - 1) type of schedule,
 - 2) type of information,
 - 3) timing of analysis,
 - 4) expectations from delay analysis,
 - 5) acceptance by courts of law,
 - 6) capabilities of the time management team, and
 - 7) budget constraints.
- ❑ The search space was defined by identifying **all possible scenarios** that lead to the selection of the type of delay analysis.
- ❑ Each scenario represents a combination of attributes.

Development of the DAS Model: DAS model design

Table 1. Comparison of Four Types of Delay Analysis

Categories and their constituent attributes that affect the selection of the type of delay analysis	Type of delay analysis			
	Static analysis	Dynamic analysis	Additive analysis	Subtractive analysis
Category I - Type of schedule				
1 As-planned schedule	●	●	●	○
2 As-built schedule	●	●	○	●
3 Updated schedules	○	●	○	○
4 Adjusted schedules	○	●	●	●
The number of possible combinations	4	1	4	4
Category II - Type of information				
1 Bar chart	○	-	-	-
2 Progress records	-	-	-	○
3 CPM not updated	○	-	○	-
4 CPM updated	○	○	○	○
The number of possible combinations	3	1	2	2

Note: “●” Required; “○” Available or supported; “-” Unavailable or unsupported

Development of the DAS Model: DAS model design

Table 1. Comparison of Four Types of Delay Analysis

Categories and their constituent attributes that affect the selection of the type of delay analysis		Type of delay analysis			
		Static analysis	Dynamic analysis	Additive analysis	Subtractive analysis
Category III - Timing of analysis					
1	Foresight	-	-	○	-
2	Real time	-	○	○	-
3	Hindsight, during construction	○	○	○	○
4	Hindsight, after project completion	○	○	○	○
The number of possible combinations		2	3	4	2
Category IV - Expectations from the delay analysis					
1	Float consumption	○	○	○	○
2	Time extension	○	○	○	○
3	Concurrent delay	○	○	-	-
4	Resequencing	-	○	-	○
5	Dynamic nature of CPM	-	○	-	-
6	Acceleration	○	○	-	-
The number of possible combinations		16	64	4	8

Note: “●” Required; “○” Available or supported; “-” Unavailable or unsupported

Development of the DAS Model: DAS model design

Table 1. Comparison of Four Types of Delay Analysis

Categories and their constituent attributes that affect the selection of the type of delay analysis		Type of delay analysis			
		Static analysis	Dynamic analysis	Additive analysis	Subtractive analysis
Category V - Acceptance by courts of law					
1	Limited	-	-	○	-
2	Moderate	○	-	-	-
3	Wide	-	○	-	○
The number of possible combinations		1	1	1	1
Category VI - Capabilities of the time management team					
1	Limited	○	-	○	-
2	Moderate	○	-	○	○
3	Advanced	○	○	○	○
The number of possible combinations		3	1	3	2
Category VII - Budget constraints					
1	Low	○	-	○	○
2	Significant	○	○	○	○
The number of possible combinations		2	1	2	2
Total number of possible combinations = 3,776		2,304	192	768	512

Note: “●” Required; “○” Available or supported; “-” Unavailable or unsupported

Development of the DAS Model: DAS model design

□ Category I - Type of Schedule

- ❖ An “**adjusted schedule**” reflects **logic revisions** in terms of
 1. Additions and deletions of activities and/or their relationships, and
 2. Changes in the quantities of resources compared to the baseline schedule.
- ❖ An as-planned schedule, an as-built schedule, and updated schedules are **commonly required** as part of **typical administrative** procedures, while adjusted schedules are **created specifically** for delay analysis purposes.

Development of the DAS Model: DAS model design

❑ Category II - Type of Information

- ❖ A bar chart uses horizontal bars to represent each activity's start and finish dates.
The **length of a bar** is proportional to the **duration of an activity**.
- ❖ Progress records contain **actual data**, including
meeting logs, photographs and videos, status reports and summaries, and
change orders (Stumpf, 2000).
 - ✓ Keeping accurate, reliable, and adequate project records **allows**
tracking activities, monitoring productivity, and documenting conflicts,
disagreements, and problems in a project.

Development of the DAS Model: DAS model design

❑ Category II - Type of Information

❖ Static analysis can be used with

- 1) an as-planned bar chart and an as-built bar chart;
- 2) an as-planned CPM schedule that have never been updated and an as-built CPM schedule; and
- 3) an as-planned and an as-built CPM schedule with updates in between.

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❑ Category II - Type of Information

❖ Dynamic analysis can be used only when

an as-planned,

an as-built,

an updated, and

an adjusted CPM schedule with

updates in between are available.

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□ Category II - Type of Information

- ❖ Additive analysis can be used **regardless** of **updated information** when
an **as-planned schedule** and **adjusted schedules** are prepared in the form
of a CPM schedule, **either** with
 - 1) an as-planned schedule and adjusted schedules, or
 - 2) an as-planned schedule, adjusted schedules, and updated schedules.

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❑ Category II - Type of Information

❖ Subtractive analysis can be used with

- 1) an **as-built** and an **adjusted** schedule with **progress records**, and
- 2) an **as-built** and an **adjusted** CPM schedule with **updates** in between.

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❑ Category III - Timing of Analysis

❖ Depending on the **point in time** when the **delay occurs**, this category is composed of **four attributes**:

1. Foresight analysis,
2. Real-time analysis,
3. Hindsight analysis during construction, and
4. Hindsight analysis after completion

❖ (Arditi and Pattanakitchamroon, 2006).

Development of the DAS Model: DAS model design

❑ Category III - Timing of Analysis

- ❖ Foresight analysis is commonly considered as **simple** and **straightforward**.
 - ✓ This analysis **predicts** or **forecasts** the impacts of potential delays by
 1. **Adding** those delays to an as-planned schedule and
 2. **Performing** a “what-if” analysis.
 - ✓ However, foresight analysis is **unrealistic** in that this analysis does **not measure** the effects of delays in **actual performance**.
 - ✓ Therefore, it is **not generally favored** by courts of law.

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□ Category III - Timing of Analysis

❖ Real-time analysis determines the impacts of delays at the time those **delays occur**.

❖ For this analysis, the project schedule should be **updated contemporaneously** to identify

1. the delaying events,
2. the impacts of the delays, and
3. the plan to complete the remaining works

at the time the **delays occur**.

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❑ Category III - Timing of Analysis

- ❖ Hindsight analysis is performed **retrospectively** to evaluate the cause and effect of a delay that has occurred in the **past**.
 - ✓ Hindsight analysis has some **disadvantages** that include **difficulty** in accounting for concurrent delays.

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❑ Category III - Timing of Analysis

❑ **All types** of delay analysis discussed in **this study**, including static, additive, subtractive, and dynamic analyses use a **hindsight approach** to perform delay analysis

- 1) during the performance or
- 2) after project completion.

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❑ Category III - Timing of Analysis

- ❖ In addition to the timing mentioned above, the additive and dynamic analyses can be performed in **real time**.
- ❖ Additive analysis can also make use of a **foresight approach**.

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❑ Category IV - Expectations from the Delay Analysis

❖ Expectations from delay analysis include

1. Handling float consumption,
2. Identifying time extension,
3. Dealing with concurrent delays,
4. Resequencing project activities,
5. Manipulating the dynamic nature of CPM, and
6. Accelerating the project

(Arditi and Pattanakitchamroon, 2006; Braimah and Ndekugri, 2007; AACEI, 2011; Perera et al., 2016; Avalon, 2017).

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□ Category IV - Expectations from the Delay Analysis

- ❖ “Resequencing” means **readjusting sequences of remaining works** in a project schedule.
- ✓ **Delay analysis** that reflects the **changes** in the **work sequence** helps to complete the project earlier than originally scheduled (Koo et al., 2007).

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❑ Category IV - Expectations from the Delay Analysis

- ❖ Static analysis can handle 1) float consumption, 2) time extensions, 3) concurrent delay, and 4) acceleration issues.
- ❖ Dynamic analysis can deal with all situations mentioned in this study, namely 1) float consumption, 2) time extensions, 3) concurrent delay, 4) resequencing, 5) the dynamic nature of CPM, and 6) acceleration.
- ❖ On the other hand, the capabilities expected from additive analysis are limited to assessing only 1) float consumption and 2) time extensions.
- ❖ Subtractive analysis is capable of 1) handling the consumption of float, 2) identifying time extensions, and 3) resequencing the activities

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❑ Category V - Acceptance by Courts of Law

- ❖ The **level of acceptance** by courts of law **influences** the selection of a delay analysis (D'Onofrio, 2015).
- ❖ According to AACEI (2011), dynamic analysis is the **most preferred type** of delay analysis,
whereas static, additive, and subtractive analyses are **not favored as much**.
- ❖ In studies by Arditi and Pattanakitchamroon (2008) and Dale and D'Onofrio (2014), the preference of courts of law is ranked in **descending order** of acceptance as dynamic, subtractive, static, and additive analyses.

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❑ Category VI - Capabilities of the Time Management Team

❖ The team members' level of

- ❖ education,
- ❖ training,
- ❖ practical experience, and
- ❖ familiarity with scheduling software

may **determine** the level of expertise of the team and may affect the selection of a delay analysis.

Development of the DAS Model: DAS model design

❑ Category VI - Capabilities of the Time Management Team

- ❖ **Dynamic analysis** is powerful in that it can handle concurrent delays, resequencing, and acceleration.
- ❖ According to the Society of Construction Law (2017), **dynamic analysis** is the **preferred method** to resolve **complex delay-related disputes**.
 - ✓ However, as more features are provided by dynamic analysis, it requires an advanced level of competency and more time and effort than the other types of analysis (Braumah and Ndekugri, 2007).
- ❖ On the other hand, static and additive analyses do **not require as high a level** of competency as in the case of dynamic analysis.
- ❖ A **moderate level** of competency is enough to run subtractive analysis (Arditi and Pattanakitchamroon, 2006; Perera et al., 2016).

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❑ Category VI - Capabilities of the Time Management Team

- ❖ Therefore, static and additive analyses have **three options**, i.e., they can be performed by teams of limited, moderate, and advanced capability.
- ❖ On the other hand, subtractive analysis has **two options**, as it can be performed by teams with moderate and/ or advanced capabilities, and dynamic analysis has only **one option**, as it needs to be performed only by a team with advanced scheduling capabilities.

Development of the DAS Model: DAS model design

❑ Category VII - Budget Constraints

- ❖ The selection of a delay analysis is constrained by the budget allocated to this activity.
- ❖ According to Avalon (2017), if the **client is not willing** to spend on delay analysis, a **less expensive type** of delay analysis should be selected.
- ❖ Also, **instead** of hiring an **outside consultant**, in-house staff may need to perform **certain tasks**.

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❑ Category VII - Budget Constraints

- ❖ **Dynamic** delay analysis is most sophisticated but requires substantial time, money, and effort to perform properly.
 - ❖ However, the other types of delay analysis, including static, additive, and subtractive delay analyses require a **relatively small amount** of money and effort (Arditi and Pattanakitchamroon, 2006; Perera et al., 2016).

Development of a computerized system

- ❑ Similar to Doğan et al. (2006) system, a spreadsheet was designed in **Microsoft Excel** to perform the calculations involved in the DAS model.
- ❑ A spreadsheet is effective in **automating** the **selection process** of an appropriate delay analysis because it allows the use and synchronization of **multiple mathematical** functions, equations, and numerical calculations.
- ❑ It can easily be expanded to include more attributes, more categories, more combinations of attributes, different attribute weighing methods, and different similarity assessment methods.

Development of a computerized system

The development of the system involved a **four-step process** as described below.

1. Step 1 - Organizing and Formatting Data
2. Step 2 - Calculating Attribute Similarity and Category Similarity
3. Step 3 - Establishing Attribute and Category Weights
4. Step 4 - Calculating Weighted Case Similarities

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Development of a computerized system

Four-Step Process for the Selection of a Type of Delay Analysis in DAS:

- Target Case and Case Base,
- Attribute Similarity Matrix,
- Category Similarity Matrix,
- Result of Case Similarity Assessment

(a)

Target case	Attribute values (T_g)																											
	Category I				Category II				Category III				Category IV						Category V			Category VI			Category VII			
	T ₁₁	T ₁₂	T ₁₃	T ₁₄	T ₂₁	T ₂₂	T ₂₃	T ₂₄	T ₃₁	T ₃₂	T ₃₃	T ₃₄	T ₄₁	T ₄₂	T ₄₃	T ₄₄	T ₄₅	T ₄₆	T ₅₁	T ₅₂	T ₅₃	T ₆₁	T ₆₂	T ₆₃	T ₇₁	T ₇₂		
Case base																												
Case number (ϕ)	Attribute values (I_g)																										Output value (O)	
	Category I				Category II				Category III				Category IV						Category V			Category VI			Category VII			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	5	6	1	2	3	1	2	3	1	2		
1	I ₁₁₁	I ₁₁₂	I ₁₁₃	I ₁₁₄	I ₁₂₁	I ₁₂₂	I ₁₂₃	I ₁₂₄	I ₁₃₁	I ₁₃₂	I ₁₃₃	I ₁₃₄	I ₁₄₁	I ₁₄₂	I ₁₄₃	I ₁₄₄	I ₁₄₅	I ₁₄₆	I ₁₅₁	I ₁₅₂	I ₁₅₃	I ₁₆₁	I ₁₆₂	I ₁₆₃	I ₁₇₁	I ₁₇₂	O ₁	
2	I ₂₁₁	I ₂₁₂	I ₂₁₃	I ₂₁₄	I ₂₂₁	I ₂₂₂	I ₂₂₃	I ₂₂₄	I ₂₃₁	I ₂₃₂	I ₂₃₃	I ₂₃₄	I ₂₄₁	I ₂₄₂	I ₂₄₃	I ₂₄₄	I ₂₄₅	I ₂₄₆	I ₂₅₁	I ₂₅₂	I ₂₅₃	I ₂₆₁	I ₂₆₂	I ₂₆₃	I ₂₇₁	I ₂₇₂	O ₂	
3	I ₃₁₁	I ₃₁₂	I ₃₁₃	I ₃₁₄	I ₃₂₁	I ₃₂₂	I ₃₂₃	I ₃₂₄	I ₃₃₁	I ₃₃₂	I ₃₃₃	I ₃₃₄	I ₃₄₁	I ₃₄₂	I ₃₄₃	I ₃₄₄	I ₃₄₅	I ₃₄₆	I ₃₅₁	I ₃₅₂	I ₃₅₃	I ₃₆₁	I ₃₆₂	I ₃₆₃	I ₃₇₁	I ₃₇₂	O ₃	
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	
3,776	I _{3,776-11}	I _{3,776-12}	I _{3,776-13}	I _{3,776-14}	I _{3,776-21}	I _{3,776-22}	I _{3,776-23}	I _{3,776-24}	I _{3,776-31}	I _{3,776-32}	I _{3,776-33}	I _{3,776-34}	I _{3,776-41}	I _{3,776-42}	I _{3,776-43}	I _{3,776-44}	I _{3,776-45}	I _{3,776-46}	I _{3,776-51}	I _{3,776-52}	I _{3,776-53}	I _{3,776-61}	I _{3,776-62}	I _{3,776-63}	I _{3,776-71}	I _{3,776-72}	O _{3,776}	



Development of a computerized system

(b)

Case number (i)	Attribute similarity scores (A_{gr}) between a target case and cases in the case base																									
	Category I				Category II				Category III				Category IV						Category V			Category VI			Category VII	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	5	6	1	2	3	1	2	3	1	2
1	A_{111}	A_{112}	A_{113}	A_{114}	A_{121}	A_{122}	A_{123}	A_{124}	A_{131}	A_{132}	A_{133}	A_{134}	A_{141}	A_{142}	A_{143}	A_{144}	A_{145}	A_{146}	A_{151}	A_{152}	A_{153}	A_{161}	A_{162}	A_{163}	A_{171}	A_{172}
2	A_{211}	A_{212}	A_{213}	A_{214}	A_{221}	A_{222}	A_{223}	A_{224}	A_{231}	A_{232}	A_{233}	A_{234}	A_{241}	A_{242}	A_{243}	A_{244}	A_{245}	A_{246}	A_{251}	A_{252}	A_{253}	A_{261}	A_{262}	A_{263}	A_{271}	A_{272}
3	A_{311}	A_{312}	A_{313}	A_{314}	A_{321}	A_{322}	A_{323}	A_{324}	A_{331}	A_{332}	A_{333}	A_{334}	A_{341}	A_{342}	A_{343}	A_{344}	A_{345}	A_{346}	A_{351}	A_{352}	A_{353}	A_{361}	A_{362}	A_{363}	A_{371}	A_{372}
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
3,776	$A_{3,776,11}$	$A_{3,776,12}$	$A_{3,776,13}$	$A_{3,776,14}$	$A_{3,776,21}$	$A_{3,776,22}$	$A_{3,776,23}$	$A_{3,776,24}$	$A_{3,776,31}$	$A_{3,776,32}$	$A_{3,776,33}$	$A_{3,776,34}$	$A_{3,776,41}$	$A_{3,776,42}$	$A_{3,776,43}$	$A_{3,776,44}$	$A_{3,776,45}$	$A_{3,776,46}$	$A_{3,776,51}$	$A_{3,776,52}$	$A_{3,776,53}$	$A_{3,776,61}$	$A_{3,776,62}$	$A_{3,776,63}$	$A_{3,776,71}$	$A_{3,776,72}$



Development of a computerized system

(c)

Case number (i)	Category similarity scores (C_{ij})						
	Category I	Category II	Category III	Category IV	Category V	Category VI	Category VII
1	C_{11}	C_{12}	C_{13}	C_{14}	C_{15}	C_{16}	C_{17}
2	C_{21}	C_{22}	C_{23}	C_{24}	C_{25}	C_{26}	C_{27}
3	C_{31}	C_{32}	C_{33}	C_{34}	C_{35}	C_{36}	C_{37}
...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...
3,776	$C_{3,776\ 1}$	$C_{3,776\ 2}$	$C_{3,776\ 3}$	$C_{3,776\ 4}$	$C_{3,776\ 5}$	$C_{3,776\ 6}$	$C_{3,776\ 7}$



Development of a computerized system

(d)

The result of weighted case similarity assessment							Case with the highest weighted case similarity score		
Case number (i)	1	2	3	...	...	3,776	Similarity score	Case number	Output value
Similarity scores (S_i)	S_1	S_2	S_3	...	...	$S_{3,776}$	S_x	x	O_x

Testing proposed DAS model in different scenarios

- ☐ In this section, the DAS model was tested in various project conditions to confirm that it achieves the expected performance.
- ☐ An **anonymous delay analyst** was asked to **complete a checklist** relative to the **attributes identified in Table 1** to provide information about **six fictitious target case scenarios**.
- ☐ The questions and the answers are presented in Table 3.

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Testing proposed DAS model in different scenarios

Table 3. Responses of Delay Analyst to Questionnaire

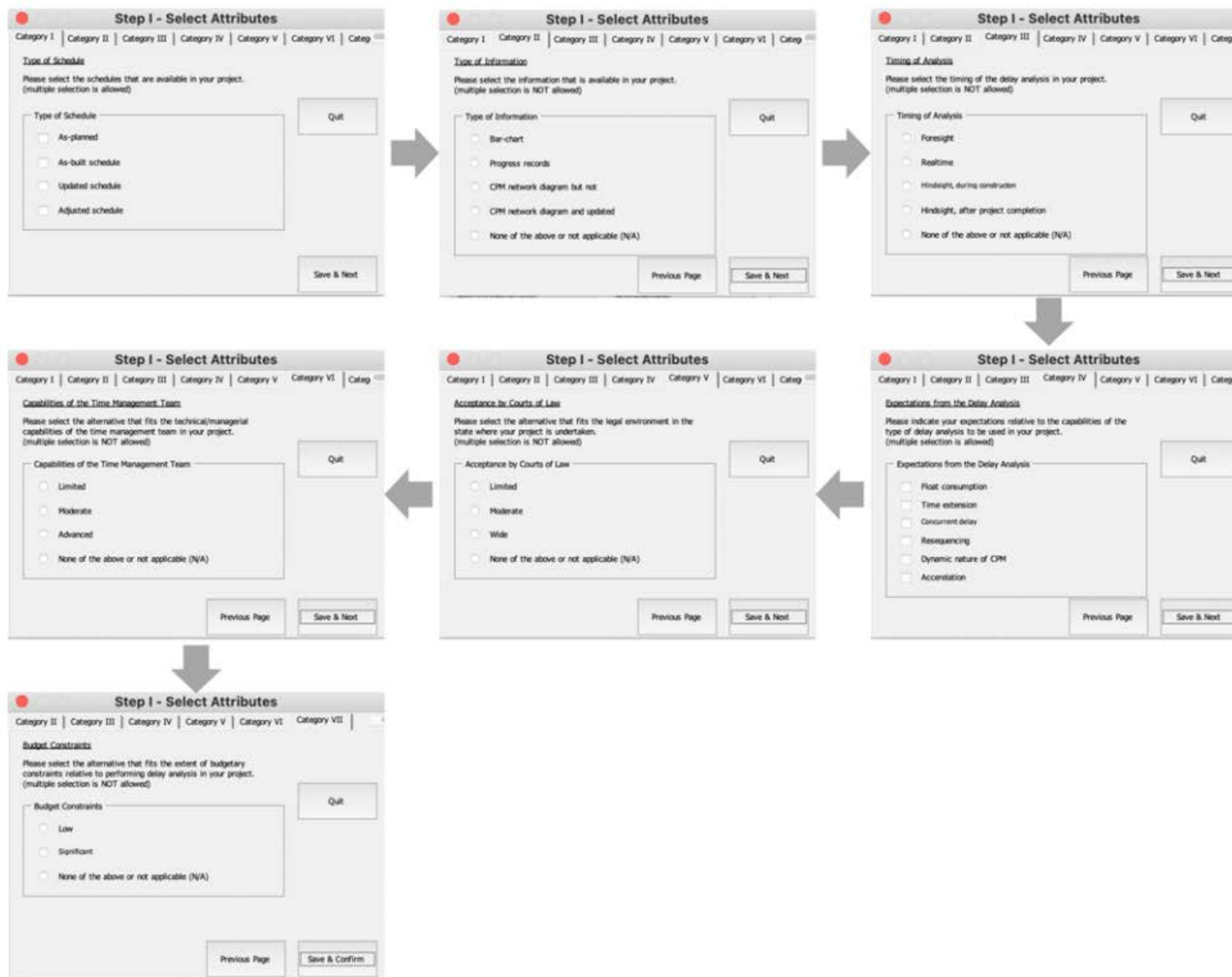
No.	Questions	Target Case Scenarios					
		1	2	3	4	5	6
Category I. Type of schedule							
1	Does your project have an as-planned schedule?	Yes	Yes	Yes	Yes	Yes	Yes
2	Does your project have an as-built schedule?	Yes	Yes	No	Yes	Yes	No
3	Does your project have updated schedules?	No	Yes	No	No	No	No
4	Does your project have adjusted schedules?	No	Yes	Yes	Yes	Yes	No
Category II. Type of information							
1	In the project schedule represented by a bar chart?	Yes	No	No	No	No	No
2	In the project schedule represented by progress records?	No	No	No	No	No	No
3	In the project schedule represented by a CPM network diagram but not updated?	No	No	Yes	No	No	No
4	In the project schedule represented by a CPM network diagram and updated through the project?	No	Yes	No	Yes	Yes	Yes
Category III. Timing of analysis							
1	Is delay analysis performed before a delay occurs (foresight analysis)?	No	No	Yes	No	No	No
2	Is delay analysis performed in real time?	No	No	No	No	No	No
3	Is delay analysis performed during construction?	No	No	No	No	No	No
4	Is delay analysis performed after project completion?	Yes	Yes	No	Yes	Yes	Yes
Category IV. Expectations from the delay analysis							
1	Does the project schedule require allocating floats?	Yes	Yes	Yes	Yes	Yes	Yes
2	Is it required to distinguish the responsibilities of the delay between project parties and to assess their impacts accordingly?	Yes	Yes	Yes	Yes	Yes	Yes
3	Are concurrent delays numerous throughout the entire project?	No	Yes	No	No	No	No
4	Is a project schedule required to reflect any changes in work sequence and readjust it for remaining works?	No	No	No	No	No	No
5	Is the critical/non-critical status of activities in the critical paths varied and required to trace their changes?	No	Yes	No	No	No	No
6	Does the project schedule require accelerating the project?	No	No	No	No	No	No
Category V. Acceptance by courts of law							
1	Is a limited level of acceptance by courts of law enough?	No	No	Yes	No	No	No
2	Is an at least moderate level of acceptance by courts of law required?	Yes	No	No	No	No	No
3	Is a wide level of acceptance by courts of law required?	No	Yes	No	Yes	Yes	Yes
Category VI. Capabilities of the time management team							
1	Are the time management team's capabilities rated as limited?	Yes	No	Yes	No	Yes	Yes
2	Are the time management team's capabilities rated as moderate?	No	No	No	Yes	No	No
3	Are the time management team's capabilities rated as advanced?	No	Yes	No	No	No	No
Category VII. Budget constraints							
1	Does the project have a low budget for the analysis?	Yes	No	Yes	Yes	Yes	Yes
2	Does the project have a significant budget for the analysis?	No	Yes	No	No	No	No

Testing proposed DAS model in different scenarios

- ☐ A macro program coded in **Visual Basic for Applications (VBA)** was developed to
 1. automate the **selection process**, as well as to
 2. facilitate a delay analyst to input the project information by using a checkbox.

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Testing proposed DAS model in different scenarios



Step I - Select Attributes

Category I | Category II | Category III | Category IV | Category V | Category VI | Categ

Type of Schedule

Please select the schedules that are available in your project.
(multiple selection is allowed)

Type of Schedule

- ☐ As-planned
- ☐ As-built schedule
- ☐ Updated schedule
- ☐ Adjusted schedule

Quit

Save & Next

Step I - Select Attributes

Category I | Category II | Category III | Category IV | Category V | Category VI | Categ

Type of Information

Please select the information that is available in your project.
(multiple selection is NOT allowed)

Type of Information

- ☐ Bar-chart
- ☐ Progress records
- ☐ CPM network diagram but not
- ☐ CPM network diagram and updated
- ☐ None of the above or not applicable (N/A)

Quit

Previous Page

Save & Next

Step I - Select Attributes

Category I | Category II | Category III | Category IV | Category V | Category VI | Categ

Timing of Analysis

Please select the timing of the delay analysis in your project.
(multiple selection is NOT allowed)

Timing of Analysis

- ☐ Foresight
- ☐ Realtime
- ☐ Hindsight, during construction
- ☐ Hindsight, after project completion
- ☐ None of the above or not applicable (N/A)

Quit

Previous Page

Save & Next

Step I - Select Attributes

Category I | Category II | Category III | Category IV | Category V | Category VI | Categ

Capabilities of the Time Management Team

Please select the alternative that fits the technical/managerial capabilities of the time management team in your project.
(multiple selection is NOT allowed)

Capabilities of the Time Management Team

- ☐ Limited
- ☐ Moderate
- ☐ Advanced
- ☐ None of the above or not applicable (N/A)

Quit

Previous Page

Save & Next

Step I - Select Attributes

Category I | Category II | Category III | Category IV | Category V | Category VI | Categ

Acceptance by Courts of Law

Please select the alternative that fits the legal environment in the state where your project is undertaken.
(multiple selection is NOT allowed)

Acceptance by Courts of Law

- ☐ Limited
- ☐ Moderate
- ☐ Wide
- ☐ None of the above or not applicable (N/A)

Quit

Previous Page

Save & Next

Step I - Select Attributes

Category I | Category II | Category III | Category IV | Category V | Category VI | Categ

Expectations from the Delay Analysis

Please indicate your expectations relative to the capabilities of the type of delay analysis to be used in your project.
(multiple selection is allowed)

Expectations from the Delay Analysis

- ☐ Float consumption
- ☐ Time extension
- ☐ Concurrent delay
- ☐ Resequencing
- ☐ Dynamic nature of CPM
- ☐ Acceleration

Quit

Previous Page

Save & Next

Step I - Select Attributes

Category II | Category III | Category IV | Category V | Category VI | Category VII

Budget Constraints

Please select the alternative that fits the extent of budgetary constraints relative to performing delay analysis in your project.
(multiple selection is NOT allowed)

Budget Constraints

- ☐ Low
- ☐ Significant
- ☐ None of the above or not applicable (N/A)

Quit

Previous Page

Save & Confirm

Fig. 4. Attributes in Seven Categories Programmed in DAS

Testing proposed DAS model in different scenarios

- ☐ As soon as the analyst clicks on the **“Confirm”** button,
the DAS program identifies the **best-fit case** that matches the target **case out of the 3,776 informed cases** stored in the case-base.
- ☐ In other words, a type of delay analysis that is the most appropriate for a target project can be selected in **under a minute**.

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Testing proposed DAS model in different scenarios

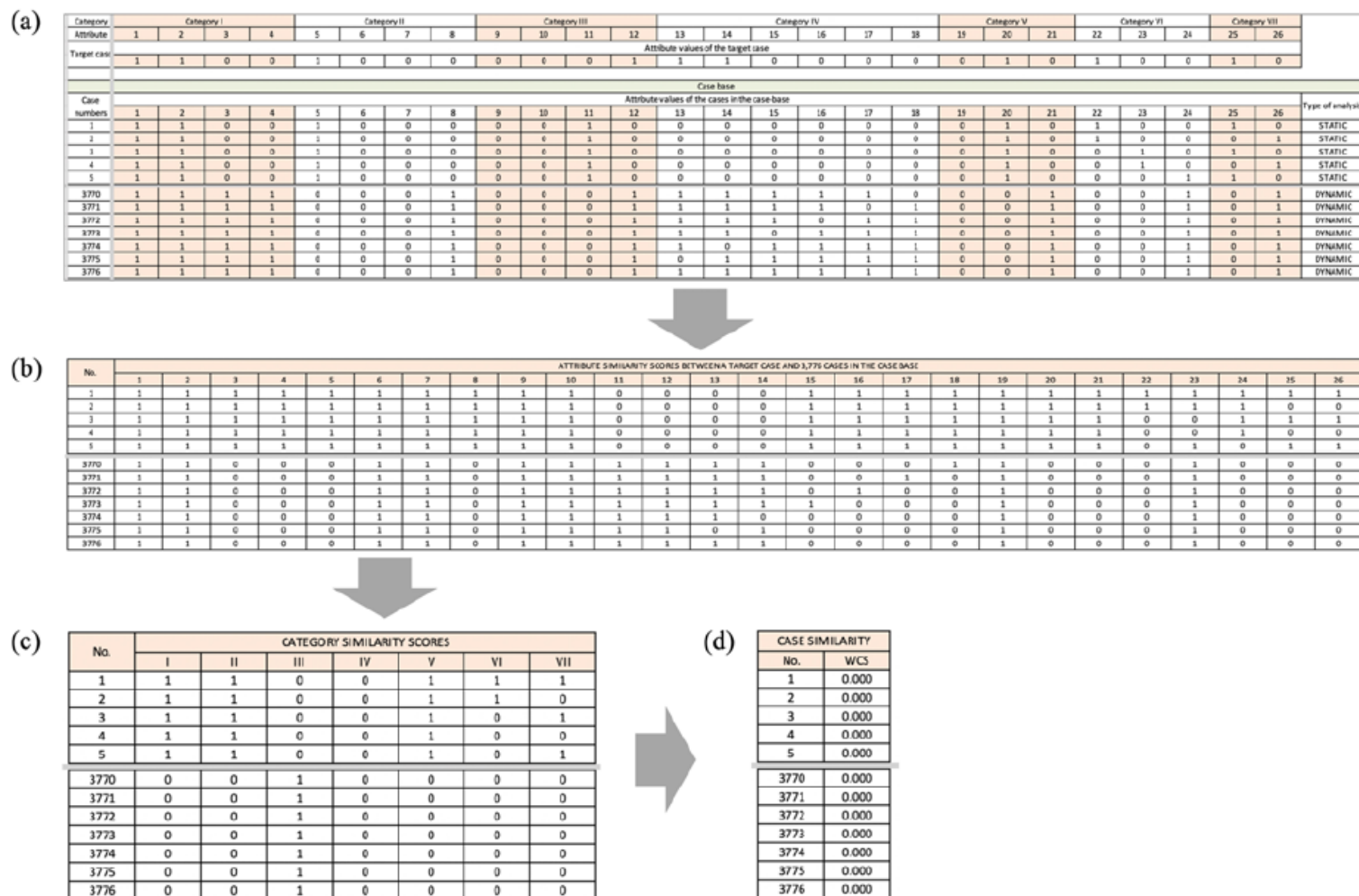
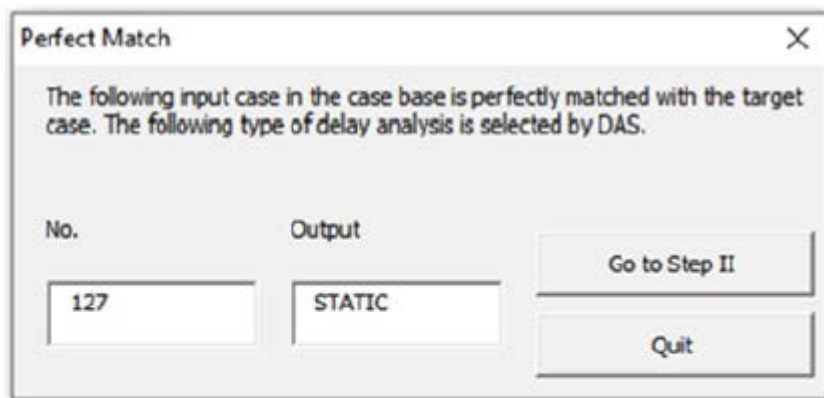
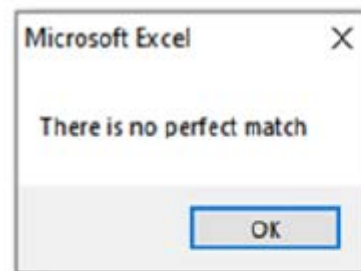
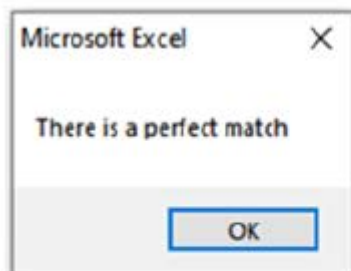


Fig. 5. The Selection Process of a Type of Delay Analysis in Target Case Scenario 1, Programmed in DAS: (a) Target Case and Case Base, (b) Attribute Similarity Matrix, (c) Category Similarity Matrix, (d) Result of Case Similarity Assessment

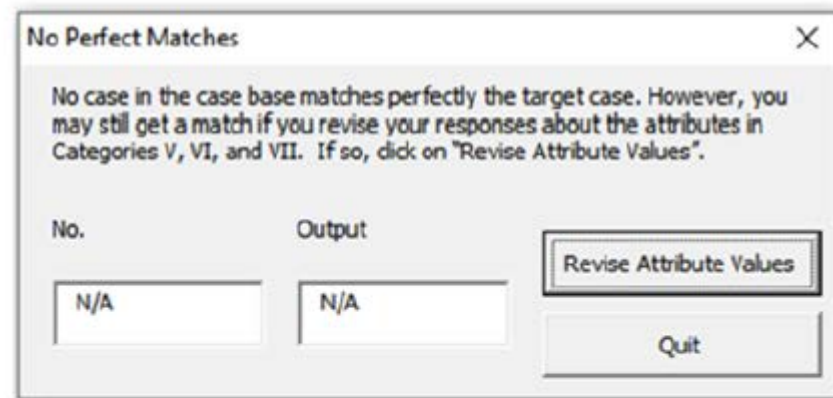
Testing proposed DAS model in different scenarios

Fig. 6. Result of the Selection Decision for Target Case Scenario 1, Using the DAS Model

Testing proposed DAS model in different scenarios



(a)



(b)

Fig. 7. Message Boxes Showing the Result of Case Similarity Assessment in DAS: (a) Perfect Match, (b) No Perfect Matches

Testing proposed DAS model in different scenarios

Table 4. DAS Model Results about the Selection of Delay Analysis for Target Case Scenarios

DAS Decisions	Target case scenarios					
	1	2	3	4	5	6
With original data	Static analysis	Dynamic analysis	Additive analysis	Subtractive analysis	N/A	N/A
With revised data in Scenarios 5 and 6	-	-	-	-	Subtractive analysis	N/A



فرمول جامع برای تدوین لایحه تاخیرات (بر اساس دو قرارداد FIDIC و AIA)

بخش دوم: نکات پیشرفته در ارتباط با تاخیرات همزمان (Concurrent Delays)

ارائه دهنده:

سید محمدرضا علوی پور

(PhD, PMP, CMIT)

CMAA Authorized Trainer

دانشگاه Illinois Tech آمریکا



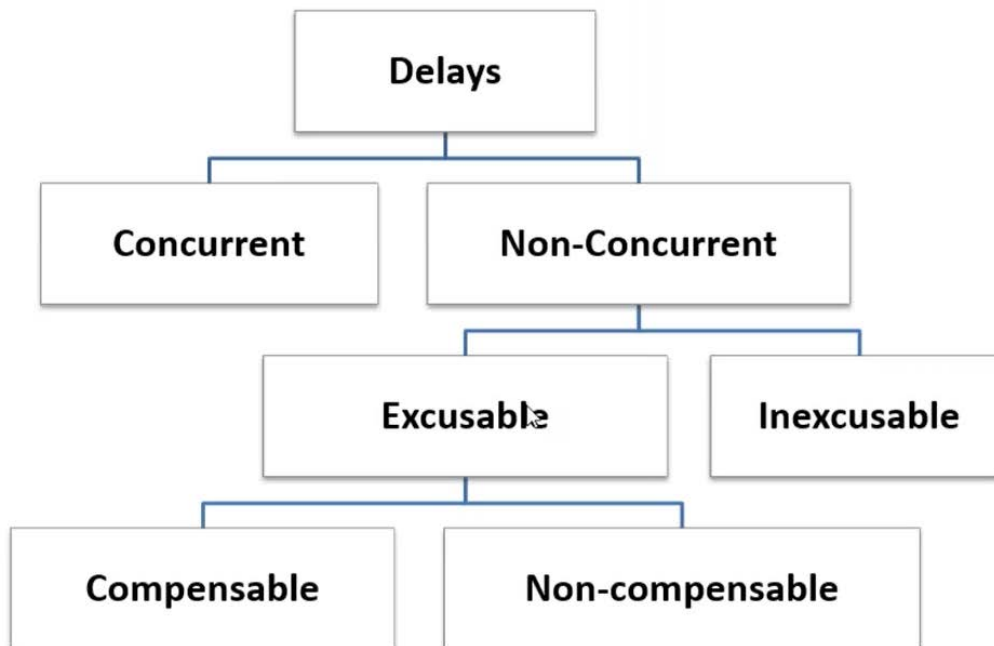
What we will learn?

- ☐ What is concurrent delay?
- ☐ The doctrine of concurrent delay
- ☐ Owner and contractor defense
- ☐ Case studies

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What is Concurrent Delay?

Delay Types



Introduction

- ❑ This section explores the issue of **how concurrent delay** is commonly **used by contractors to defend** against the imposition of **liquidated damages** when a project is **completed late**.
- ❑ Further, the section examines **two recent court decisions** which serve to **remind owners** that **legal defenses** can be employed to **overcome allegations** of concurrent delay,
if those **allegations are raised**, for the first time, at the **end of a project**
after the **owner imposes liquidate damages** due to late completion.

What is concurrent delay?

- ❑ The term “**concurrent delay**” has numerous definitions in the construction industry, in general, and in the scheduling profession, more specifically.
- ❑ **AACE’s definition** of this term, as contained in Recommended Practice **10S-90**, is **quite lengthy**, and is as follows:

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What is concurrent delay?

- (1) **Two or more delays** that take place or overlap during the **same period**,
either of which **occurring alone** would have affected
the ultimate **completion date**...

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What is concurrent delay?

(2) Concurrent delays occur when there are **two or more independent causes** of delay during the **same time period**.

- ❖ The “**same**” **time period** from which concurrency is measured, however, is **not always literally** within the **exact period of time**.
- ❖ For delays to be considered concurrent, **most courts do not require** that the **period** of concurrent delay **precisely match**.
- ❖ The **period of “concurrency”** of the delays can be **related by circumstances, even though** the circumstances may **not have occurred during exactly** the same time period.

What is concurrent delay?

(3) **True concurrent delay** is the **occurrence of two or more delay events** at the same time, one an employer risk event, the **other a contractor risk event** and the effects of which are **felt at the same time**.

- ❖ The term 'concurrent delay' is often used to describe the **situation where two or more delay events** arise at different times, but the **effects of them are felt** (in whole or in part) at the **same time...**

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What is concurrent delay?

(4) Concurrent delay occurs when **both the owner and contractor delay** the project or when **either party delays** the project during an excusable but non-compensable delay (e.g., abnormal weather).

The delays **need not occur simultaneously** but can be on **two parallel critical path** chains...

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What is concurrent delay?

(5) The condition where **another delay-activity independent** of the subject delay is **affecting the ultimate completion** of the chain of activities.

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The Doctrine of Concurrent Delay

The doctrine of concurrent delay

- ❑ One in depth article on the issue of concurrent delay **examined** the **origins of the doctrine** of concurrent delay. The authors **summarized** the **history of concurrent delay** as follows:

“...it is evident that the modern doctrine of concurrent delay is premised not on the equitable resolution of construction delays, but is instead based on past litigants’ failure or inability to effectively prove their cases and the older courts’ hostility toward liquidated damages ... Over time, these factors merged and evolved into the legal doctrine of ‘concurrent delay.’ After several years, the later courts stopped delving into the ‘real’ analyses of these early courts, and instead rotely applied these early courts’ resolutions of concurrent delay as a ‘rule’ for resolving all overlapping construction delays.”⁵

⁵ Bidgood, James K., Steven L. Reed, and James B. Taylor, Cutting the Knot on Concurrent Delay, Construction Briefings No. 2007-02, Thomson/West, February, 2008.

The doctrine of concurrent delay

- ❑ The legal concept of concurrent delay is not new.
- ❑ **Perhaps the first** case in the United States addressing the **issue of concurrent delay** is *Stewart v. Keteltas* an **1867** case in which a New York court ruled on a claim for **late completion damages** by noting that
while the **contractor completed the project late**,
some of the delay was caused by other contractors, **employed separately**
by the owner, working on the same building.

The doctrine of concurrent delay

- ❑ The **court concluded** that the owner could **not impose late completion damages** on the contractor as the **owner caused or contributed** to the delay.

Other early court cases concluded the same over many years.

⁷ See *Shook v. Dozier*, 168 F. 867 (C.C.A. 6th Cir. 1909); *Caldwell & Drake v. Schmulbach*, 175 F. 429 (C.C.N.D. W. Va. 1909); *Greenfield Tap & Die Corporation v. United States*, 68 Ct. C. 61, 1929 WL 2484 (1929); *Newport News Shipbuilding & Drydock Co. v. United States*, 79 Ct. Cl. 25, 1934 WL 2021 (1934); and *Commerce Intern. Co. v. United States*, 167 Ct. Cl. 529, 338 F.2d 81 (1964).

The doctrine of concurrent delay

❑ Courts in the United States have **never set forth** an **exact definition** of “concurrent delay”

but a **definition** can be **pieced together** from case law between 1944 and 2011, as follows:

“A concurrent delay is ... independently sufficient to cause the delay days attributed to that source of delay ... a concurrent action ‘would have independently generated the delay during the same time period...”⁸

“Concurrent delays affect the same ‘delay period’.”⁹

“...courts will deny recovery where the delays are ‘concurrent or intertwined’ and the contractor has not met its burden of separating its delays from those chargeable to the [owner].”¹⁰

⁸ *Beauchamp Constr. Co. v. United States*, 14 Cl. Ct. 430, 437 (1988).

⁹ *Tyger Constr. Co. v. United States*, 31 Fed. Cl. 177, 259 (1994).

¹⁰ *Blinderman Constr. Co. v. United States*, 695 F.2d 552, 559 (Fed. Cir. 1982).

The doctrine of concurrent delay

- ❑ Thus, AACE's definition of the term "concurrent delay" meets the **legal definition** as established by the courts over the century and a half.

۶- تاخیرات همزمان

- ۱-۶- به دو یا چند رویداد تاخیر که در یک زمان آغاز و به طور همزمان رخ می‌دهند و اثر هم‌زمانی را ایجاد می‌نمایند، تاخیرات همزمان گفته می‌شود، تاخیرات همزمان، باید شرایط زیر را دارا باشد:
- حداقل یک رویداد تاخیر متعلق به هریک از طرفین پیمان باشد؛
 - وقوع تاخیر از سوی طرفین غیر عामدانه باشد؛
 - هر یک از رویدادهای تاخیر حداقل در یک مسیر بحرانی وجود داشته باشد؛
 - رویدادهای تاخیر نباید به یکدیگر وابسته باشند.
- در صورت وقوع تأخیرات همزمان، این تاخیرات مجاز شمرده شده و صرفاً تمدید زمانی اعطا می‌گردد.
- ۲-۶- حسب مورد ممکن است، زمان اتمام رویدادهای تاخیر در تاخیرات همزمان، همزمان نباشد، در این صورت مابه‌ازای مدت مازاد تاخیر هر یک از طرفین پیمان، مطابق با ضوابط رسیدگی، مجاز یا غیرمجاز تلقی می‌گردد.
- ۳-۶- برای تجزیه و تحلیل تاخیرات همزمان، لازم است پیمانکار در خصوص تغییرات طبق بند ۸-۲ عمل نموده و سپس نتایج مورد بررسی قرار گیرد.
- ۴-۶- ضوابط اعلان و رسیدگی به تاخیرات همزمان، مطابق با مفاد پیش بینی شده در بند ۴ می‌باشد.
- ۵-۶- لازم است در لایحه تحلیل تاخیرات، تاخیرات همزمان به صورت مجزا مشخص گردد.

Owner and Contractor Defense

Why is concurrent delay important?

❑ Concurrent delay is classified as **excusable delay** that entitles the contractor to a **time extension**, at the least,

the **remission of liquidated damages** and potentially to **delay damages**,
depending upon the **situation** and the **contractual** terms and conditions.

❑ **Excusable delay** is defined as follows:

“An excusable delay is one that will serve to justify an extension of the contract performance time. It excuses the party from meeting a contractual deadline.”¹²

¹² Bramble, Barry B. and Michael T. Callahan, Construction Delay Claims, 4th Edition, Aspen Publishers, New York. 2011. §1.01[A].

Why is concurrent delay important?

- ❑ **AACE's Recommended Practice 10S-90** defines **excusable delay** in the following manner:

"Delays not attributable to [the] contractor's actions or inactions. Excusable delays when founded, entitle [a] contractor to a time extension if the completion date is affected."¹³

Why is concurrent delay important?

- ❑ Provided that it is **proven** that an **excusable** event actually delayed the end date of the project,

excusable delay is important to a contractor in that it entitles the contractor to seek and receive additional time in which to perform its work.

- ❑ Further, as the delay is excused and the contractor is held harmless for of the delay, the **owner has no right** to assess damages, liquidated or actual, for the period of the **excusable delay**.

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When do contractors typically assert concurrent delay?

❑ AACE's Recommended Practice No. 10S-90 defines "liquidated damages" as:

"An amount of money stated in the contract as being the liability of a contractor for failure to complete the work by the designated time(s). Liquidated damages ordinarily stop at the point of substantial completion of the project or beneficial occupancy of the owner..."¹⁴

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When do contractors typically assert concurrent delay?

❑ As one court recently stated:

“In the context of litigating liquidated damages assessed by the [owner] in a construction contract, the [owner] first must meet its initial burden of showing that ‘the contract performance requirements were not substantially completed by the contract completion date and that the period for which the assessment was made was proper’.”¹⁵

¹⁵ *PCL Constr. Services, Inc. v. United States*, 53 Fed. Cl. 479, 484 (2002), *aff’d*, 96 Fed. Appx. 672 (Fed. Cir. 2004).

When do contractors typically assert concurrent delay?

- ❑ A common late project completion situation follows.
 - ❖ The **project is completed beyond** the original (or adjusted) contract completion date.
 - ❖ The **owner examines** the delay period and **concludes** that the late completion is not the result of anything for which it is responsible.
 - ❖ Accordingly, the **owner either** assesses liquidated damages or announces its intent to do so.
 - ❖ At this point, the **contractor examines** the schedule to analyze the delays in an effort to avoid paying, or having the owner withhold, liquidated damages.

One mechanism utilized by contractors to avoid such damages is to assert concurrent delay (“the concurrent delay defense”).

When do contractors typically assert concurrent delay?

- ❑ **Contract language** almost always includes requirements that contractors provide **written notice** of delay within a certain period of time following a **potential delay event**.
- ❑ In the situation outlined above, the **contractor may or may not** have **filed notice** of delay for the issues that it **now raises**, at the end of the project, to **substantiate concurrent delay**.
- ❑ **Even if** notice had been **provided**
the contractor **may or may not** have **submitted** time extension request(s) **as required under the contract**.

As a result, owners are frequently caught by surprise when concurrent delay is asserted by the contractor in response to the imposition of liquidated damages.

The owner's newest defense

- ❑ A recent set of court cases, one from the **Federal Court of Appeals** for the Federal Circuit in **2010** and the other from the **Court of Appeal**, Fifth District, **California** in **2011** have **changed the ground-rules** concerning concurrent delay so frequently asserted by contractors.

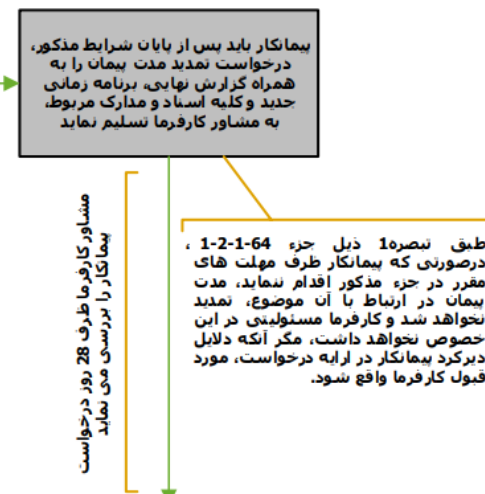
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The owner's newest defense

❑ These cases **highlight owners' defenses** against contractors' allegations of concurrent delay.

❖ In both cases, the **owners prevailed** due to the contractors' failure to comply with statutory requirements or contract terms including

1. notice,
2. change order requests,
3. time extension requests and/or claim procedures.



Cease Studies



M. Maropakis Carpentry, Inc. v. U.S.

- ❑ The Court of Appeals for the Federal Circuit issued their decision in **M. Maropakis Carpentry, Inc. v. U.S. (“Maropakis”)** in 2010.

A brief background of the case follows.

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M. Maropakis Carpentry, Inc. v. U.S.

- ☐ In **1999** the U.S. Navy (“Navy”) issued a contract to **Maropakis** to **replace windows** and the **roof on a Navy warehouse**.
- ☐ The **original** contract completion date was January 16, 2000.
- ☐ This date was **later modified** to **February 4, 2000**.
- ☐ The contract includes a **liquidated damages clause** providing that Maropakis would be liable for **\$650 per day** for each day of delay **beyond** the **revised contract completion date**.
- ☐ Maropakis did **not commence** work until after the **specified completion date** and **did not complete** their work **until May 17, 2001** – **467** days after the modified completion date.

M. Maropakis Carpentry, Inc. v. U.S.

- ❑ **After completion** of the work, **Maropakis sent a letter** to the **Navy requesting a 447 day time extension** based on five alleged but **distinct delay events**.
- ❑ **Maropakis did not certify** their claim as required by the Contract Disputes Act (“CDA”) **nor did Maropakis request a Contracting Officer’s final decision**, which is also required by the **CDA**.
- ❑ **Three months later** the Navy responded, **stating** that Maropakis had **not** “...present[ed] **sufficient justification** to warrant the time extension.”
- ❑ The **Navy rejected** the time extension, but **invited** Maropakis to **submit additional** information.



M. Maropakis Carpentry, Inc. v. U.S.

- ❑ **Ten months later** the Navy sent Maropakis **another letter** reminding them that **they still had not submitted** any additional information.
- ❑ Further, this letter **advised Maropakis** that in the **absence** of additional information, the Navy was **imposing** liquidated damages in the amount of **\$650 per day for 467** days of delay, **totaling \$303,550**.
- ❑ Approximately **one month later** Maropakis **submitted another letter** requesting a time extension for **“multiple delays”** but only discussed one delay event specifically, for a total of **107 days**.

M. Maropakis Carpentry, Inc. v. U.S.

- ❑ Finally, in **December 2002** the **Navy** issued the **Contracting Officer's final decision** concerning the assessment of **liquidated damages**.

(Later, at trial, the Navy asserted the position that the final decision in December 2002 applied only to the issue of liquidated damages, and not to Maropakis's delay claim.)

- ❑ **Nearly one year later**, in December 2003, Maropakis appealed the **Contracting Officer's final decision** to the United States Court of Federal Claims.
- ❑ The Navy responded by **counterclaiming** for the **value** of the **liquidated damages** assessed on the project.

M. Maropakis Carpentry, Inc. v. U.S.

- ❑ The **Navy** also moved to have Maropakis's delay claim **dismissed contending** that the Court of Federal Claims did not have jurisdiction over Maropakis's claim as Maropakis

"... had not submitted a 'claim' for contract modification as required under the CDA..."

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M. Maropakis Carpentry, Inc. v. U.S.

❑ The **Court** agreed with the **Navy's position**.

❖ It **dismissed** Maropakis' claim for lack of jurisdiction and

upheld the Navy's claim for liquidated damages **without ever** getting to the issue of whether the **Navy caused** any of the delays resulting in the **late completion**.

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M. Maropakis Carpentry, Inc. v. U.S.

❑ **Maropakis appealed** to the Court of Appeals for the **Federal Circuit contending**, in essence, that **their letters** to the Contracting Office constituted a **valid claim** for time extension,

sufficient to give the Court of Federal Clams **jurisdiction** over the matter.

❑ “Maropakis **also argue[d]** that **even if it was not in technical compliance** with the CDA,

the **United States had actual knowledge** of the amount and basis of Maropakis’s claim and therefore the Court of Federal Claims had **jurisdiction**.

❖ It appears that **Maropakis attempted** to create a **“constructive claim”** under the Contract Disputes Act.



M. Maropakis Carpentry, Inc. v. U.S.

- ☐ The **Court of Appeals** carefully considered
 1. The **CDA's requirements** governing the **submission of certified claims** and
 2. The **need to obtain a contracting officer's final decision** in order to appeal a **denied claim**.
- ☐ The **Court concluded** that Maropakis had
 1. **Not submitted** a **"certified claim"** to the government
 2. **Nor did** they obtain a **"final decision"** on their claim from the contracting officer.
- ☐ Accordingly, the **Court ruled** that the Court of Federal Claims **acted appropriately** in **dismissing Maropakis's claim** for lack of jurisdiction.



M. Maropakis Carpentry, Inc. v. U.S.

- ❑ The **Court of Appeals** then went on to **examine Maropakis's argument** that they should **have been allowed to raise** their delay claim as a defense against the imposition of liquidated damages as their **claim presented "factual defenses"** against the Navy's claim for liquidated damages.
- ❑ The Court analyzed this argument and **rejected it**.
- ❑ The **Court acknowledged** that the Navy's claim for liquidated damages was a **government claim** but noted that **government claims do not require certification** under the CDA.

M. Maropakis Carpentry, Inc. v. U.S.

- ☐ The **Court further acknowledged** that the Contracting Officer had, in fact, issued a **final decision** on the issue of liquidated damages when he assessed the liquidated damages.
- ☐ The Court of Appeals **concluded** that the Court of Federal Claims **was correct in stating** it had **jurisdiction** over the liquidated damages claim.

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M. Maropakis Carpentry, Inc. v. U.S.

- ❑ The **Court continued** its examination of the issue of **whether** a contractor **must provide a certified delay claim** in order to defend itself against government imposed liquidated damages. Citing Sun Eagle v. U.S.¹⁹ the Court stated:

“This court holds that the plaintiff is challenging a government claim to liquidated damages and making its own contractor claim to recover amounts withheld for liquidated damages. The latter must be certified.”
(Underscoring provided.)

M. Maropakis Carpentry, Inc. v. U.S.

❑ The Court also cited Elgin Builders, Inc. v. U.S.²⁰ wherein that court stated:

“...where ... the contractor seeks to contest the assessment of liquidated damages by claiming entitlement to time extensions or other relief, the court is presented with a claim by the contractor against the government and that must first be presented to the CO.” (Underscoring provided.)



M. Maropakis Carpentry, Inc. v. U.S.

❑ The Court of Appeals concluded that:

“The statutory language of the CDA is explicit in requiring a contractor to make a valid claim to the contracting officer prior to litigating that claim... Thus, we hold that a contractor seeking an adjustment of contract terms must meet the jurisdictional requirements and procedural prerequisites of the CDA, whether asserting the claim against the government as an affirmative claim or as a defense to a government action.” (Underscoring provided)

M. Maropakis Carpentry, Inc. v. U.S.

- ☐ The Court of Appeals **never heard** or **ruled** on the Maropakis' contentions that the Navy was the **cause of at least some** of the delay.
- ☐ The **Court focused exclusively** on the **requirements** of the CDA and whether Maropakis had met those requirements.
- ☐ Based on this logic it **appears that contractors** on Federal contracts can **no longer rely upon asserting** excusable concurrent delay as a defense against government imposed liquidated damages
 - unless**
 1. they have previously **submitted a certified delay claim** to the contracting officer and
 2. the contracting **officer has issued a final decision.**



Greg Opinski Construction, Inc. v. City of Oakdale

- Approximately **sixteen months later**, an appellate court in California reviewed a case involving **similar arguments** but without the backdrop of the Federal Contract Disputes Act. The facts of the case follow.

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Greg Opinski Construction, Inc. v. City of Oakdale

- ☐ The **litigation** in **Superior Court** began when a **subcontractor** sued **Opinski** for **withholding payment**.
- ☐ In turn, **Opinski** sued the **City for breach of contract** and the **City countered** with a suit against both Opinski and its surety for breach.
- ☐ The sole issue relevant to this paper is the **City's claim** against **Opinski** for \$54,000 in liquidated damages.

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Greg Opinski Construction, Inc. v. City of Oakdale

- ❑ Paragraphs 11.2 and 12.1 of the contract provided that the **contract price** and **completion time** could **only be adjusted** by means of a **written change order signed** by the City.
- ❑ Paragraph 9.11 set forth a **process** by which the **engineer was to review** and **rule on claims** by the parties for changes in time or price.
- ❑ Claims pursuant to Articles 11 and 12 of the contract were to be **referred** to the **engineer in writing** with a **request** for a **formal written decision**.
- ❑ The **procedure required** submittal of **written notice** within **30 days of the event giving rise** to the additional cost and/or time.
- ❑ The **formal claim submission** was to be provided to the engineer **within 60 days after the event, unless** the engineer allowed additional time.
- ❑ The **contract** also provided that the **engineer was to then** issue a formal written decision within a “reasonable period of time”.

Greg Opinski Construction, Inc. v. City of Oakdale

روش اجرا و تحویل پروژه، اصول قراردادهای و ارائه پیشنهاد قیمت

خسارات

شرایط مطالبه خسارت قراردادی

در این مورد به بررسی ماده ۲۲۶ قانون مدنی می پردازیم:

"در مورد عدم ایفا تعهدات از طرف یکی از متعاملین طرف دیگری نمی تواند ادعای خسارت نماید مگر اینکه برای ایفا تعهد مدت معینی مقرر شده و مدت مزبور منقضی شده باشد و اگر برای ایفا تعهد مدتی مقرر نبوده طرف وقتی می تواند ادعای خسارت نماید که اختیار موقع انجام با او بوده و ثابت نماید که انجام تعهد را مطالبه کرده است."

باتوجه به ماده فوق الذکر موارد ذیل قابل استنباط است:

□ برای مطالبه خسارت ناشی از عدم تعهد، باید مدت تعیین شده باشد و در مدت مشخص متعهد به تعهد عمل نکرده باشد.



Greg Opinski Construction, Inc. v. City of Oakdale

- ☐ Paragraph 12.2 specified that a **time extension**
 1. Had to be based on “circumstances beyond the contractor’s control” and
 2. Would only be granted **after submission** of a claim.
- ☐ More specifically, the contract stated that:

“The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of the Contractor if a claim is made therefor as provided in paragraph 12.1.” (Underscoring provided.)



Greg Opinski Construction, Inc. v. City of Oakdale

- ❑ In the **initial litigation** **Opinski** argued that **delays caused by the City** were the reason the project was **completed late** and therefore the **City was prohibited** from **assessing** liquidated damages.
- ❑ The **City** argued, and the **Superior Court agreed**, that there was **no need for the City** to respond to **Opinski's request** for findings about the **causes of delay** to the completion of the work because Opinski:
 1. Had **not filed notices** of delay,
 2. Had **not filed delay claims** as required by Paragraph 12.1 of the contract, and
 3. Had **neither requested nor obtained** the **engineer's formal decision** in **writing** as required by Paragraph 9.11 of the contract.



Greg Opinski Construction, Inc. v. City of Oakdale

- ☐ The **Superior Court** concluded that **since Opinski** had **not followed** the contractually mandated procedure it was not necessary to review the alleged delay issues, **regardless** of **which party** was responsible for the late completion.

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Greg Opinski Construction, Inc. v. City of Oakdale

- ❑ **Opinski** appealed the Superior Court decision **arguing** that **liquidated damages** could **not be assessed** for any **portion of the project delay** brought about by the City, **even if Opinski** had **failed to follow** the procedures set forth in the contract for obtaining a time extension.
- ❑ **Opinski** also argued that **timely performance** of the work was **rendered impossible due to delays caused** by the City.
- ❑ **Opinski's arguments rested**, in large part, on a **1963 California Supreme Court decision** in the case of Peter Kiewit Sons' Co. v. Pasadena City Junior College District.
- ❑ This **argument was set aside** by the Appellate Court, **noting that the legislature amended** the provisions of California Civil Code Section 1511 in 1965 to overturn the effect of Peter Kiewit ruling.

Greg Opinski Construction, Inc. v. City of Oakdale

❑ The appellate court stated that:

“If the contractor wished to claim that it needed an extension of time because of delays caused by the City, the contractor was required to obtain a written change order by mutual consent or submit a claim in writing requesting a formal decision from the engineer. It did neither. The court was correct to rely on its failure and enforce the terms of the contract. It makes no difference whether Opinski’s timely performance was possible or impossible under the circumstances. The purpose of [these] contract provisions ... is to allocate to the contractor the risk of delay costs – even for delays beyond the contractor’s control – unless the contractor follows the required procedures for notifying the owner of its intent to claim a right to an extension.” (Underscoring provided.)

Greg Opinski Construction, Inc. v. City of Oakdale

- ❑ The **Appellate Court** finding concerning the liquidated damages withheld by the City was summarized as follows:

“[The] City was entitled to liquidated damages for [the] general contractor’s late completion under construction contract, even if the delays were caused by the City’s conduct, where the contract required any extension of time to be obtained through certain procedures, and [the] general contractor did not use such procedures.”

Greg Opinski Construction, Inc. v. City of Oakdale

- ❑ **Opinski** goes **beyond Maropakis** in that in Opinski, the **City admitted** it was the **cause of some** of the project delay but **still insisted on collecting** the full amount of liquidated damages

since Opinski had **not previously provided** notice or submitted time extension requests.

- ❑ **Unlike Maropakis** the **City simply argued** non-compliance with contract procedures without a statutory obligation like the CDA.



Greg Opinski Construction, Inc. v. City of Oakdale

- ❑ Based on the outcome of these two cases, contractors **seeking to assert a concurrent delay defense** against the imposition of liquidated damages **face an obligation** to ensure that the **terms of the contract are followed**.

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❑ Based on these two cases, contractors and owners alike should take note that the **owner's newest defenses** against concurrent delay allegations raised for the first time at the **end of the project** for the first time are to assert one or both of the following positions:

1. Failure to **comply with statutory requirements** such as the **Federal Contract Disputes Act** or a similar **State statute**; or,
2. Failure to **comply with carefully prepared** and **clearly worded** notice, change order, time extension and claim submittal requirements included in the contract.

Practical tips for owners

- ❑ If **owners want to prevent** the practice of an end of project “concurrent delay defense” they **may consider taking** the following actions.
 - ❖ **Consult with legal counsel** to determine applicable **statutory requirements** in the jurisdiction where the project is to be constructed.
 - ❖ Craft **clearly worded** change order and time extension procedures and include these procedures in the **contract documents**.
 - ❖ **Educate staff** thoroughly on these **contract procedures**.
 - ❖ **Ensure** that **all project management staff**, whether its own or that of its consultants, **adhere** to the contract management procedures.
 - ❖ **Ensure** that **no owner actions** inadvertently **waive the protections** afforded by the contract (such as **granting** time extensions in the **absence** of notices of delay or time extension requests as required by the contract).

Practical tips for contractors

- ❑ In the face of such contract language, contractors should
 - ❖ **Provide** prompt written notice to the owner whenever any potential delay event occurs **even if it is not apparent** that the event will **cause an impact** to the **critical path**.
 - ❖ **Adhere strictly** to the change order, claim submittal and time extension process set forth in the contract documents.
 - ❖ **Educate** project team thoroughly on contract procedures.
 - ❖ **Insist** that all **owner decisions** concerning time extension requests be **provided** in **writing**.
 - ❖ **Reserve all rights** to continue to **assert time extension claims** by **submitting** written objections to **owner denials** of time extension requests.



فرمول جامع برای تدوین لایحه تاخیرات (بر اساس دو قرارداد FIDIC و AIA)

بخش دوم: چهارچوب تدوین لایحه تاخیرات از منظر قرارداد A201 موسسه AIA

ارائه دهنده:

سید محمدرضا علوی پور

(PhD, PMP, CMIT)

CMAA Authorized Trainer

دانشگاه Illinois Tech آمریکا

What we will learn?

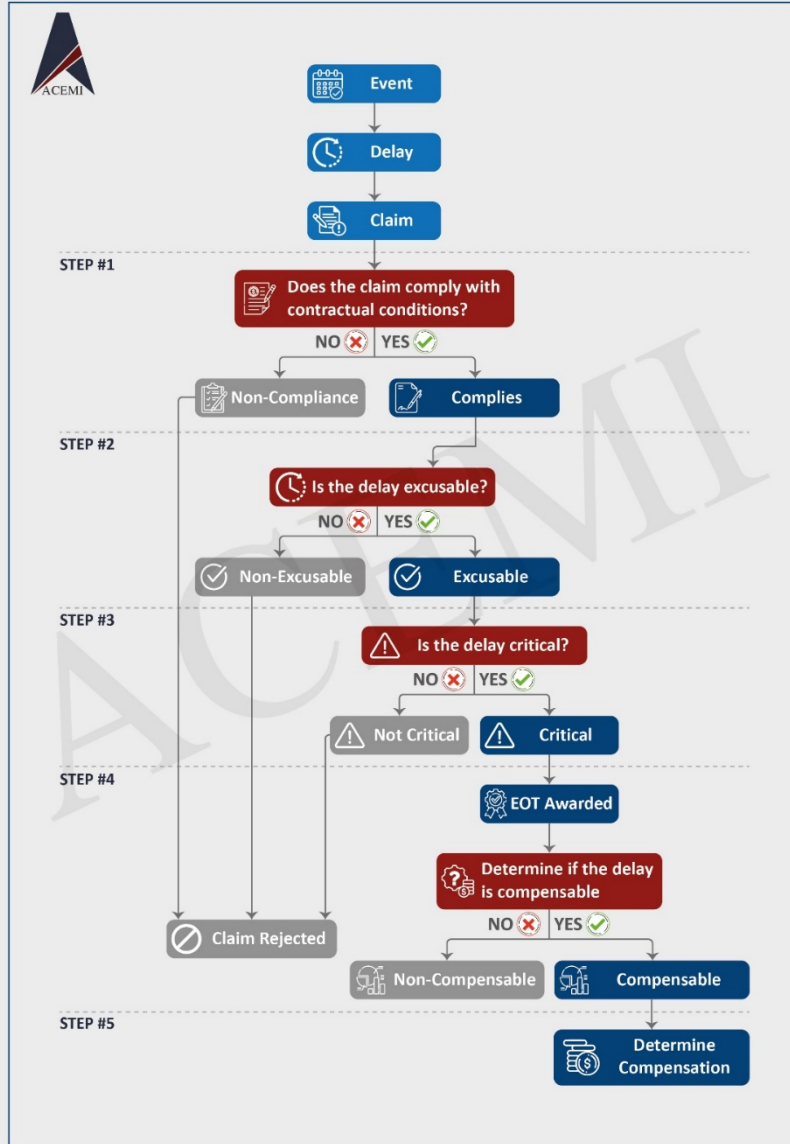
- ☐ Step 1 – Assess contractual compliance
- ☐ Step 2 – Is the delay excusable?
- ☐ Step 3 – Is the delay critical?
- ☐ Step 4 – Is the delay compensable
- ☐ Float Ownership
- ☐ Concurrency

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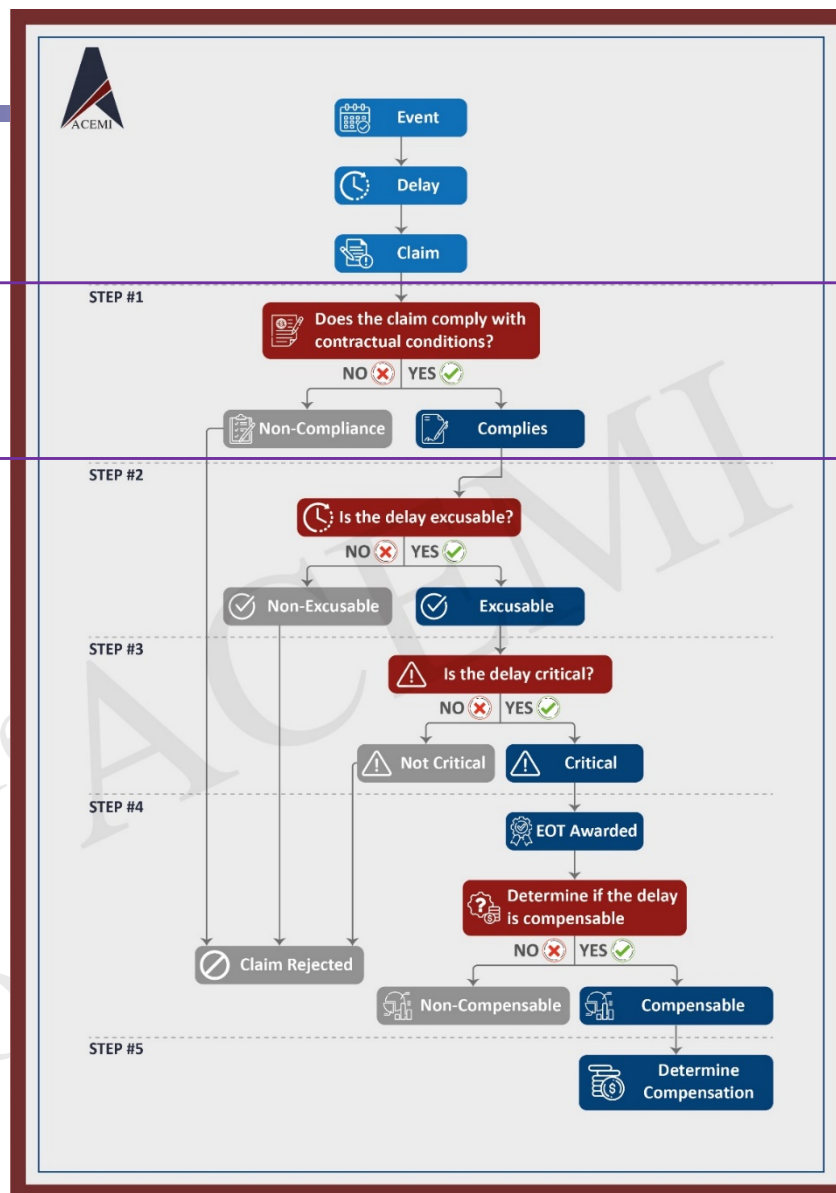
Introduction

Introduction

- ❑ The construction contract documentation produced by the American Institute of Architects (AIA) has been **widely utilized in the construction industry** for a very long time.
 - ❖ The **first** set of general conditions of contract was **published in 1911**.
- ❑ The AIA A201 General Conditions of Contract for Construction is **one of the most popular owner/contractor form** contracts utilized for **design-bid-build construction** projects today.
- ❑ This Section applies the **principles** of the **universal decision support framework** to provide guidance for **managing delay claims** when the AIA A201 (2017) General Conditions of Contract is being utilized.



Step 1 – Assess contractual compliance



Step 1 – Assess contractual compliance

- ☐ The AIA A201 (2017) procedure for delay claims is **not as intense** and **prescriptive** as some of the **other form contracts**.
- ☐ The **right to claim** for delays is established in clause 8.3.1. and the delay claim process is described in clause 15.1.6.

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Notification

Did the contractor comply with the notice requirement (15.1.3)?

15.1.3.1. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim whichever is later



Test compliance

1. determine the date of event- date of condition giving rise to the claim
2. determine the date when contractor submitted the notification
3. Establish whether it was within 21 days

NO ☒ YES ☒

The contractor has the opportunity to submit a claim



Was the claim for adverse weather?

NO ☒ YES ☒

Did the claim comply with the claim content requirements?

1. Did the claim include an estimate of cost? (15.1.6)
2. Did the claim show the probable effect on the progress of the work? (15.1.6)

NO ☒ YES ☒

Request outstanding
Content information

Did the contractor provide the outstanding content information within 10 days? (15.2.4)

NO ☒ YES ☒

Did the contractor advise when the outstanding content information will be issued?

NO ☒ YES ☒

Did the contractor provide the information by the issue date? (15.2.4)

NO ☒ YES ☒

Is the information submitted sufficient to assess the delay?

NO ☒ YES ☒

Claim rejected

Determine whether the delay is excusable

Did the contractor comply with the claim content requirements?

1. Did the claim include an estimate of cost? (15.1.6)
2. Did the claim show the probable effect on the progress of the work? (15.1.6)
3. Did the claim provide data to substantiate the weather conditions were abnormal? (15.1.6)
4. Did the claim provide information on whether it could not be reasonably anticipated?

NO ☒ YES ☒

Request outstanding
Content information

Did the contractor provide the outstanding content information within 10 days? (15.2.4)

NO ☒ YES ☒

Did the contractor advise when the outstanding content information will be issued?

NO ☒ YES ☒

Did the contractor provide the information by the issue date? (15.2.4)

NO ☒ YES ☒

Is the information submitted sufficient to assess the delay?

NO ☒ YES ☒

Claim rejected

Determine whether the delay is excusable

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Step 1.1 – Did the contractor comply with the notice requirement?

- ❑ One of the **initial requirements** to start the claim process is for the contractor to **issue a notice of claim**.
- ❑ According to **clause 15.1.3**, the **notice of claim** should be provided within 21 days
 1. After the **occurrence** of the **event giving rise** to the claim or
 2. After the **contractor first recognizes** the condition giving rise to the claim.
- ❑ The **clause is silent** on the consequence should the **21 day requirement not be met**.
 - ❖ It **appears** that the **courts** have chosen to **enforce the 21 day notice period** strictly and **non-compliance** to this provision would result in the **contractor forfeiting** the entitlement to claim.

Step 1.1 – Did the contractor comply with the notice requirement?

- ❑ An **important change** to the way **notices should be submitted** was incorporated in the **2017 update** of the A201 with the introduction of clause 1.6.2, which **only allows** for notices to be delivered by certified or registered mail, or by courier providing proof of delivery.
- ❖ **Before 2017** the A201 was **silent** on how notices should be issued.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

Step 1.1 – Did the contractor comply with the notice requirement?

- ☐ **Prior to the introduction** of clause 1.6.2 the courts were reluctant to **enforce** the 21 day notice requirement in **cases where the owner** was **aware** of the delay **but the contractor did not issue** a notice of delay.
- ☐ With the introduction of clause 1.6.2, it is likely that this **leniency** would be a **thing of the past**.

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Step 1.1 – Did the contractor comply with the notice requirement?

- ☐ The **first step** in the decision tree would be to **determine whether** the contractor **complied** with the 21 day notice period.
- ☐ This can be done by **determining**
 1. the commencement date of the delay event or,
 2. if applicable, the date when the contractor recognizes (became aware of) the condition giving rise to the claim
- ☐ The **later of these two dates** should be utilized **when determining** whether the contractor **complied** with the 21 day notice period.
- ☐ Given the change in the way notifications should be issued and the court rulings on the notification requirement, it is **safe to assume** that the **owner can reject** the claim if **notice was not provided** within the 21 days.
- ☐ If the notice **requirement was adhered** to the next step will be to assess the **contractual requirements** of the claim.

Notification

Did the contractor comply with the notice requirement (15.1.3)?

15.1.3.1. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim whichever is later



Test compliance

1. determine the date of event- date of condition giving rise to the claim
2. determine the date when contractor submitted the notification
3. Establish whether it was within 21 days

NO ☒ YES ☒

The contractor has the opportunity to submit a claim



Was the claim for adverse weather?

NO ☒ YES ☒

Did the claim comply with the claim content requirements?

1. Did the claim include an estimate of cost? (15.1.6)
2. Did the claim show the probable effect on the progress of the work? (15.1.6)

NO ☒ YES ☒

Request outstanding Content information

Did the contractor provide the outstanding content information within 10 days? (15.2.4)

NO ☒ YES ☒

Did the contractor advise when the outstanding content information will be issued?

NO ☒ YES ☒

Did the contractor provide the information by the issue date? (15.2.4)

NO ☒ YES ☒

Is the information submitted sufficient to assess the delay?

NO ☒ YES ☒

Claim rejected

Determine whether the delay is excusable

Did the contractor comply with the claim content requirements?

1. Did the claim include an estimate of cost? (15.1.6)
2. Did the claim show the probable effect on the progress of the work? (15.1.6)
3. Did the claim provide data to substantiate the weather conditions were abnormal? (15.1.6)
4. Did the claim provide information on whether it could not be reasonably anticipated?

NO ☒ YES ☒

Request outstanding Content information

Did the contractor provide the outstanding content information within 10 days? (15.2.4)

NO ☒ YES ☒

Did the contractor advise when the outstanding content information will be issued?

NO ☒ YES ☒

Did the contractor provide the information by the issue date? (15.2.4)

NO ☒ YES ☒

Is the information submitted sufficient to assess the delay?

NO ☒ YES ☒

Claim rejected

Determine whether the delay is excusable

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Step 1.2 – Was the claim for adverse weather?

- ❑ Claims for **adverse weather conditions** have some **additional requirements**.
- ❖ For this reason, the decision tree poses the question of **whether the claim was for adverse weather**.

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Step 1.2 – Was the claim for adverse weather?

❑ Step 1.2a – Did the claim comply with the content requirements?

❖ If the claim was not for adverse weather it should be tested against the following **two requirements** set out in **clause 15.1.6**:

1. Did the claim include an **estimate of cost**? (15.1.6)
2. Did the claim show the **probable effect** on the **progress of the work**? (15.1.6)

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Step 1.2 – Was the claim for adverse weather?

❑ Step 1.2b – Did the claim comply with the weather-related content requirements?

❖ If the claim is for **adverse weather** clause 15.1.6.2 sets out that content information to address the **following additional requirements** should be provided:

1. **Information** to substantiate that the **weather conditions were abnormal** for the period of time.
2. **Information** to confirm that the **adverse weather could not have** been reasonably **anticipated**.

❑ It should be **verified** whether the **contractor complied** with the **content requirements** of the claim.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

Step 1.2 – Was the claim for adverse weather?

❑ Step 1.2a(ii) and 1.2b(ii) – The claim complies with the content requirements

- ❖ If the claim **submitted** contains **all the content requirements** requested by the contract the claim is compliant and the **next step** will be to **determine** whether the delay **event is excusable**.

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Step 1.2 – Was the claim for adverse weather?

❑ Step 1.2a(i) and 1.2b(i) – Request outstanding information

❖ If **all** the required information was **not submitted**

the information should be **requested** from the contractor.

✓ **Clause 15.2.4** makes provision for the contractor to:

1. **Submit** the information within **10 days**
2. **Provide** a **date when** the information can be **made available**
3. **Advise** the **initial decision maker** that the information will **not be provided**

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

Step 1.2 – Was the claim for adverse weather?

- ❑ The decision tree **asks the question** of whether the **information** was submitted **within the 10 days**.
- ❖ **If not**, the **next question** is whether the contractor **provided a date** when the information **will be provided**.
 - ✓ If this is the case the **next step** will be to determine whether the information was **provided** by the **promised issue date**.

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Step 1.2 – Was the claim for adverse weather?

☐ If the **information** was **not provided**,

it should be determined **whether** the **limited information** provided is **sufficient** to **assess** the claim.

❖ If the **information** is **insufficient**, the claim can be **rejected** due to a **lack of substantiating information**.

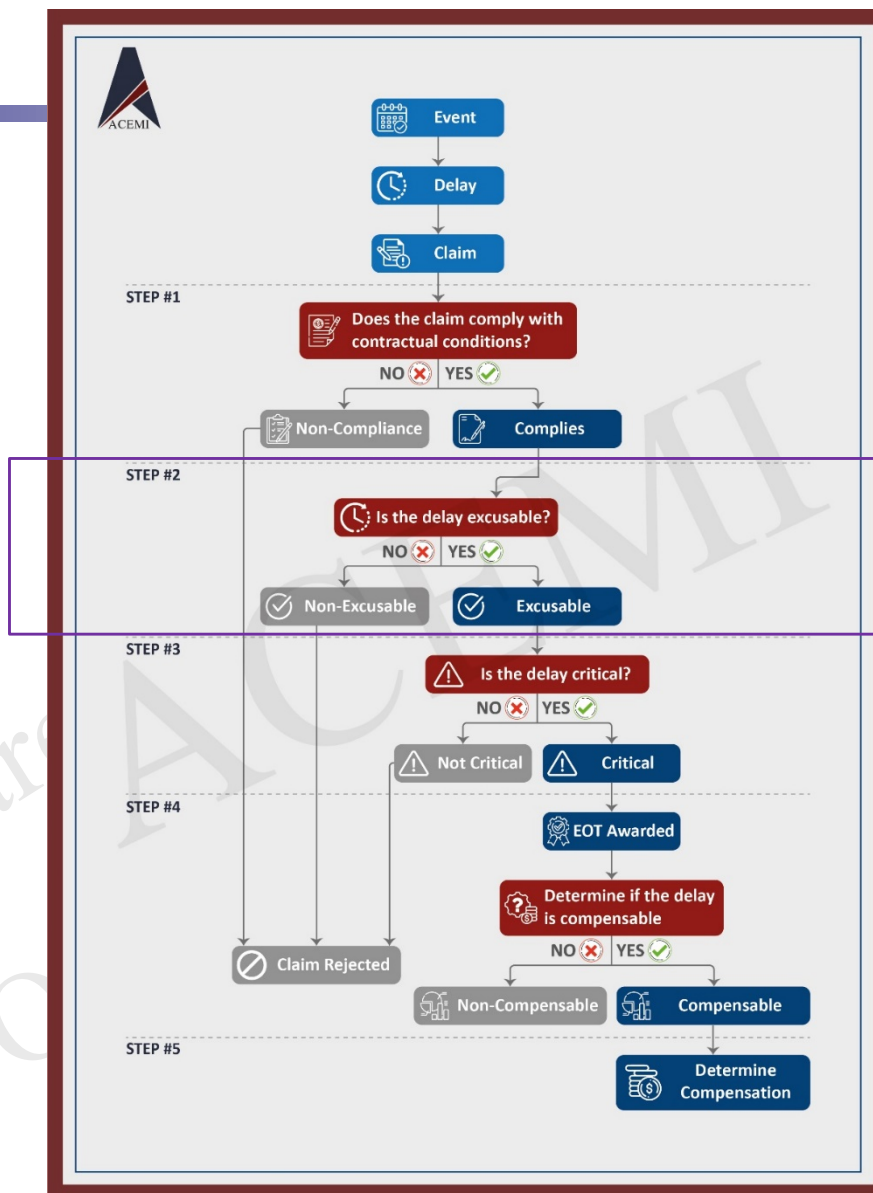
☐ When the **information** is **provided**

❖ a quick verification will then take place to ensure the information is indeed **sufficient to assess the delay**.

✓ If the information is **not sufficient to assess** the delay the claim can be **rejected**

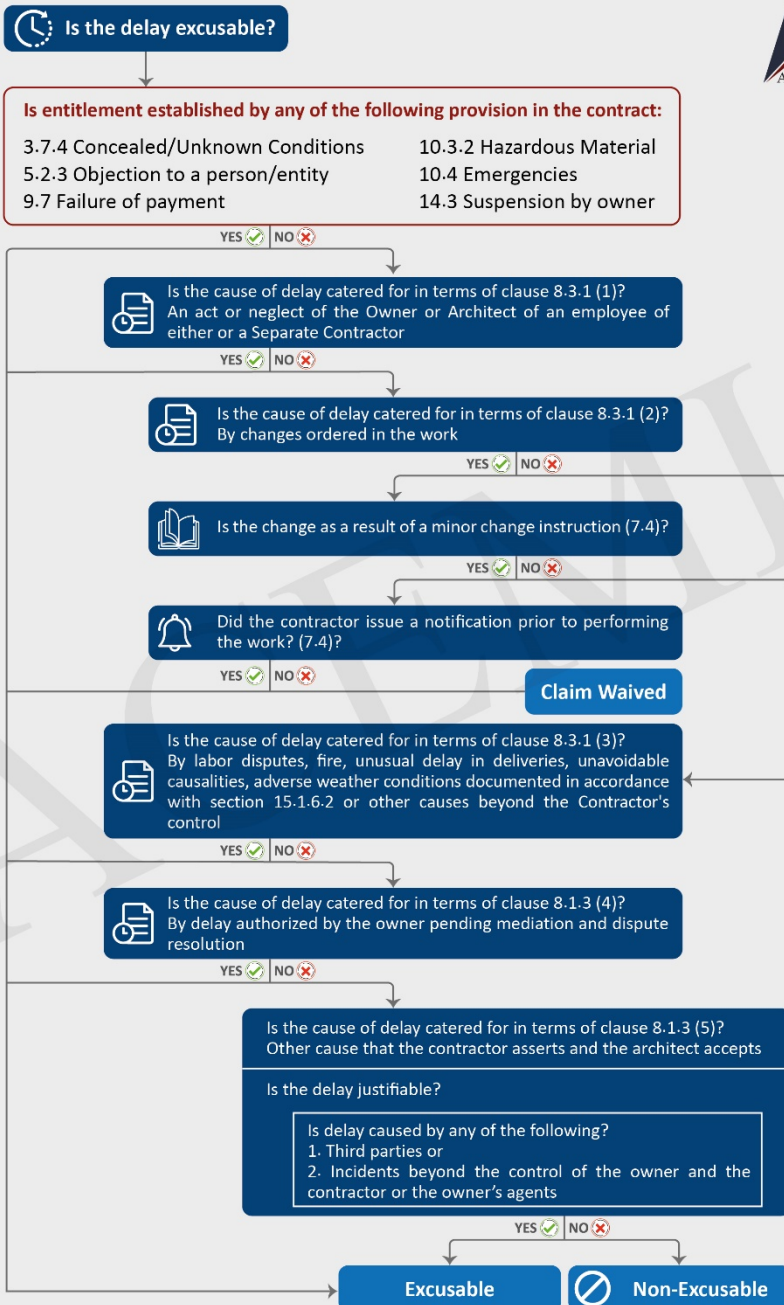
but if it is **found that all the requirements** were met the next step will be to **ascertain whether** the delay is excusable.

Step 2 – Is the delay excusable?



Introduction

- ❑ The term **excusable delay** is **not utilized** in the AIA A 201 (2017)
but a **number of contractual clauses** provide for **possible scenarios** that
would trigger the **right to claim** for additional time.
- ❑ The **bulk of the possible delay events** are described in **clause 8.3.1**.
- ❑ In addition, **several other clauses** dealing with specific events also provide for the
contractor to **claim for additional time**.



Step 2.1 – Is entitlement established by any of the provisions in the contract?

- ❑ The starting point of the decision tree is to **determine whether** the delay event is **described in any of these clauses:**

<i>Nr</i>	<i>Clauses</i>
3.7.4	Concealed /Unknown Conditions
5.2.3	Objection to a person/entity
9.7	Failure of payment
10.3.2	Hazardous material
10.4	Emergencies
14.3	Suspension by owner

- ❑ If the **delay event is mentioned** in any of the above contractual provisions, it is **deemed to be excusable.**

Step 2.1 – Is entitlement established by any of the provisions in the contract?

§5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

Step 2.1 – Is entitlement established by any of the provisions in the contract?

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

Read it yourself!

Step 2.1 – Is entitlement established by any of the provisions in the contract?

§ 10.4 Emergencies

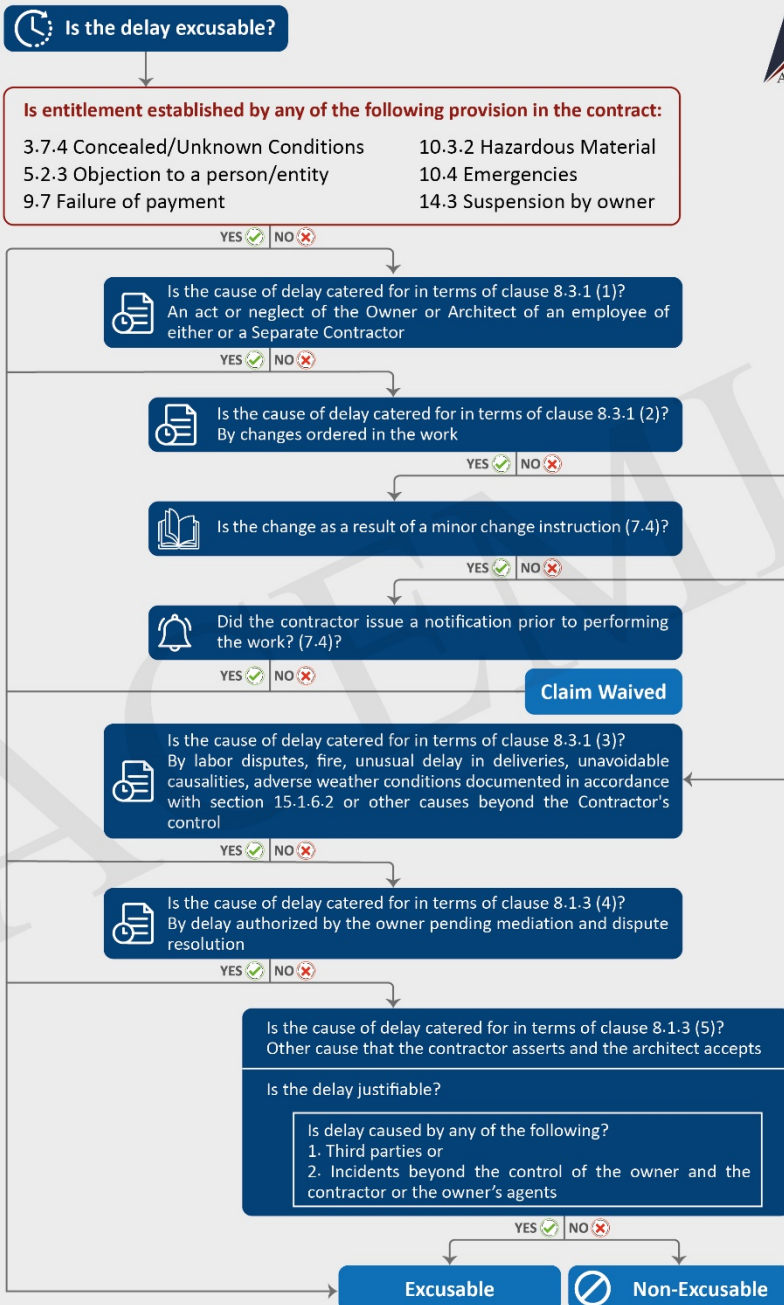
In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

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Step 2.2 – Is the cause of delay catered for in terms of clause 8.3.1 (1)?

- ☐ Should this **not be the case**, the **second question** of this decision tree is to **determine whether** a delay was caused as a result of an **act or neglect of** (clause 8.3.1.(1)):
 - ❖ the owner or architect
 - ❖ an employee of either
 - ❖ a separate contractor
- ☐ Both an **action taken**, or the **failure to act** by any of the above-mentioned persons that **caused a delay** will constitute an **excusable delay**.

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Step 2.3 – Is the cause of delay catered for in terms of clause 8.3.1 (2)?

☐ If the **delay is not caused** by what is described in **clause 8.3.1 (1)**

the **next decision** that will have to be considered is:

whether the delay in question is catered for in **terms of clause 8.3.1.(2)?**

☐ This clause makes reference to **changes ordered** in the work.

☐ Article 7 of the AIA A201 deals with **changes in the work**.

☐ **Three possibilities** exist to facilitate a change in work:

1. change orders,
2. change directive and
3. minor changes.

Step 2.3 – Is the cause of delay catered for in terms of clause 8.3.1 (2)?

- ❑ In the case of a **change order**, any addition of **contract time** is **agreed** with the contractor.
- ❑ A **change directive** is utilized when there are **no agreement of the terms** (cost and additional time) of a change in work.
 - ❖ If the **contractor agreed** to the terms of a change order a **claim** for additional time will **not be required** as any additional time would have been **included in the change order**.
- ❑ **Minor changes** can be affected by **written instruction** by the architect.
 - ❖ If the **contractor** is of the **view** that the **minor change will impact** the contract time a **notification** should be **issued prior** to the execution of the work.

Step 2.3 – Is the cause of delay catered for in terms of clause 8.3.1 (2)?

- ❑ Should the **contractor execute** the change **without issuing a notification** the **contractor waives any adjustment** to the contract time (clause 7.4).
 - ❖ If the **contractor commenced** with the work **without required notification** the **claim is forfeited** and should **not be further considered**.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

Step 2.4 – Is the cause of delay catered for in terms of clause 8.3.1 (3)?

❑ If the **delay is not as a result of changes ordered** in the work it should be **determined whether the delay was caused** by the following causes mentioned in clause 8.3.1.(3):

- ❖ labor disputes
- ❖ fire
- ❖ unusual delay in deliveries
- ❖ unavoidable casualties
- ❖ adverse weather conditions documented in accordance with section 15.1.6.2
- ❖ other causes beyond the Contractor's control

❑ If the **delay is as a result** of any of these **possible events** the delay is **deemed excusable**.

Step 2.5 – Is the cause of delay catered for in terms of clause 8.3.1 (4)?

☐ Should the cause of delay **not be recorded in clause 8.3.1 (3)**

it should be considered **whether the delay is authorized** by the owner
pending mediation and dispute resolution (clause 8.3.1 (4)).

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Step 2.6 – Is the cause of delay catered for in terms of clause 8.3.1 (5)?

- ☐ If the **cause of delay cannot** be **attributable** to the events listed in clause 8.3.1.(1) - 8.3.1.(4)
the **contract allows** in clause 8.3.1 (5) for **any other possible cause** of delay
the **architect determines** as excusable.
- ☐ It is **advisable** that the **cause of delay** should be **tested making use** of the **generally accepted definition** of excusable delays:

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Step 2.6 – Is the cause of delay catered for in terms of clause 8.3.1 (5)?

☐ Is the delay caused by:

- ❖ third parties; or
- ❖ incidents beyond the control of the owner and the contractor or the owner's agents.

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Step 2.6 – Is the cause of delay catered for in terms of clause 8.3.1 (5)?

☐ If the **cause** of the delay **passes this test**,

it can be **accepted as excusable**

but if the **delay is not attributable** to third parties or incidents beyond the control of the owner and the contractor or anyone the owner is responsible for it

can be classified as **non-excusable**, and the claim will not be considered.

Step 3 – Is the delay critical?

موسسه مهندسی و مدیریت ساخت علوی پور (ACEMI)

دفتر آموزش



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