# **GUIDE TO**

# AIA Volumetric Modular Construction Documents



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#### **PURPOSE OF THIS GUIDE**

#### This guide is written as a companion to the following AIA Contract Documents:

- Al81™-2025, Standard Form of Agreement Between Owner and Construction Manager, Volumetric Modular Construction Edition
- Al81™-2025, Exhibit A, Guaranteed Maximum Price Amendment
- Al81<sup>™</sup>-2025, Exhibit B, Insurance and Bonds
- A281™-2025, General Conditions of the Contract for Construction, Volumetric Modular Construction Edition
- B181™-2025, Standard Form of Agreement Between Owner and Architect,
   Volumetric Modular Construction Edition
- A481<sup>™</sup>-2025, Standard Form of Agreement Between Construction Manager and Modular Subcontractor, Volumetric Modular Construction Edition
- A481<sup>™</sup>-2025, Exhibit A, Construction Phase Amendment

This guide is intended to examine relationships and issues that occur on volumetric modular construction (referred to as "VMC") projects. This guide specifically focuses on projects where a construction manager as a constructor hires a modular builder as a subcontractor to perform design and construction services for volumetric modules. It also discusses certain risks that project participants may face during VMC projects. While this guide is a primer on common issues and risks associated with the VMC delivery method, it is not an exhaustive list of all aspects and considerations for project participants when performing VMC. This guide also provides instructions and commentary about the above-referenced documents.

The AIA Contract Documents listed above, and excerpts included herein, are protected by U.S. and international copyright laws.

Information in this guide is not offered, and should not be construed, as legal advice. Laws regarding the use of VMC, and therefore the applicability of information in this guide, may vary among jurisdictions. Users of this guide are encouraged to familiarize themselves with applicable laws and regulations of the governing jurisdiction(s) for the Project and to engage counsel experienced with those laws and regulations to review the contracts and assist with risk assessment.

#### The following scenarios are beyond the scope of this guide and the VMC agreements:

- 1. Temporary modules and modular construction that is of lesser complexity than VMC, such as projects that are only partially modularized (i.e., bathroom pods, prefabricated panels, and hospital headwall systems).
- 2. Pre-assembled structures such as modular classrooms and office spaces, modular and mobile homes, and other structures that fall under the Department of Housing and Urban Development's definition of "Manufactured Homes."
- 3. Projects that have advanced to a point in which the timesaving or cost-benefits of VMC are no longer achievable.

#### MODIFICATIONS TO THE VMC AGREEMENTS

AIA Contract Documents are drafted and coordinated to avoid overlaps and gaps in the rights and duties of the contracting parties. For this reason, modifications must be made carefully to standard form documents. If a provision in one contract is changed, other contractual relationships on the project may have to be modified accordingly. For example, a change in Al81-2025, Owner/Construction Manager Agreement for VMC may require a corresponding change in A481-2025, Construction Manager/Modular Subcontractor Agreement for VMC to avoid conflicting duties or gaps in coverage. Section deletions and re-numbering of sections should be avoided because they can conflict with carefully coordinated internal references and cross references to other agreements.

# HOW DOES VMC DIFFER FROM OTHER TYPES OF MODULAR CONSTRUCTION?

There are many types of "modular" projects, and volumetric is just one of them. VMC is the process of assembling fully enclosed building modules at an offsite location and later assembling those modules into one building at the Project Site.

There are several differences between VMC and other "modular" projects, such as those that incorporate modularized portions (i.e., bathroom pods, wall panels, and headwalls). Volumetric modules are different from other modules in that they are completely enclosed with all six sides accounted for: 1 floor, 4 walls, 1 ceiling. They are fully fitted units and require the services of multiple trade disciplines. VMC projects usually have one Modular Subcontractor who has a significant and substantial role throughout design and construction. The Modular Subcontractor is the party that designs and engineers the Modules. See the below chart for a summary of differences between VMC and other types of "modular" projects.

#### **Types of Modular Construction**



#### CONSIDERATIONS BEFORE CHOOSING VMC

Before committing to VMC, project participants should weigh several factors to ensure that it is the most suitable delivery method for the project. Project participants should thoroughly understand what VMC entails and gain familiarity with the process, benefits, and potential challenges, to make a well-informed decision. Here are some considerations before embarking on a VMC project:

#### Time savings ≠ direct cost savings

One of the most appealing aspects of VMC is the potential for accelerated Project schedules. However, do not assume that VMC's shorter schedules equate to a direct cost savings to the owner. While VMC can reduce costs associated with labor and project completion timelines, upfront expenses when building the modules can be significant. Additionally, there can be substantial transportation costs when moving the Modules from the Modular Facility to the Project Site. Rather than a direct cost savings, the Owner may reap savings by rapidly completing the project. This time-savings can result in a financial benefit, as the Owner can save on reduced overhead costs and often occupy the Project sooner than traditional on-site construction. This may result in financial savings due to a reduced duration of construction loans. Owners may also be able to retire long-term debts quicker and generate income from the Project sooner as compared to traditional site-built construction.

#### Level of difficulty of the building environment

VMC may reduce the impacts of constrained sites with challenging geographic or environmental conditions. VMC can address these challenges by shifting the majority of the building process to a controlled offsite facility. Modules are built under controlled conditions at the Modular Facility, which reduces the impacts of adverse weather and difficult to reach areas. The Modular Facility also employs its own workforce that performs the skilled labor required for the Project. This can reduce the impacts of limited supply of skilled labor near the Project Site. However, not all sites may be appropriate for VMC.

#### **Improved Quality Control**

VMC can be of a higher level of quality than traditional site-built construction. This is due, in part, to the uniformity of application of the Modular Subcontractor's construction services. VMC involves a standardized building process, which generally reduces the likelihood of errors and rework. Additionally, Modules are built in a controlled factory environment and are not subjected to outside weather conditions, such as extreme heat, snow, wind, or rain. Modular facilities often employ their own quality control process that is certified and approved by local jurisdictions. This is to ensure that the Modules (i) meet code requirements, (ii) are of good quality, and (iii) are safe for erection at the Project Site. To ensure quality is maintained throughout the building process, Owners may consider requiring regular inspections of the Modules by project participants, such as the Construction Manager or third-party entities.

#### **Increased Worksite Safety**

Safety is a major concern in construction, especially where Project Site conditions are hazardous. VMC can improve worksite safety by reducing the amount of work performed at the Project Site and worker's exposure to potentially hazardous conditions, such as extreme weather conditions, uneven terrain, and heavy machinery. Factory environments are more controlled than traditional construction sites, which may lead to fewer accidents and injuries when compared to traditional site-built projects.

#### **Sustainability Benefits**

VMC is often touted for its sustainability benefits, including reduced waste and energy efficiency. VMC can reduce construction waste through precise building processes and efficiently using materials. Material waste is also likely to be reduced due to recycling and repurposing unused materials for other projects. Similarly, reduced work on the Project Site can minimize environmental impacts, noise, dust, and emissions. VMC projects also may have better energy performance due to superior insulation and airtightness achieved in the Modular Facility's controlled environment. However, it is important to consider that materials are transported on at least two separate occasions on VMC projects – once from the supplier to the Modular Facility and again from the Modular Facility to the Project Site (or Staging Site). In some instances, this may reduce the sustainability benefits that VMC offers to projects. Factors such as this should be considered to fully evaluate the sustainability benefits of VMC.

#### **Financing Challenges**

There is an inherent difference between financing traditional site-built projects and the upfront capital requirements for VMC projects. Financing VMC projects can be challenging, as some lenders may not be familiar with the unique characteristics of this delivery method. For example, financial institutions may question any large upfront capital deposit to the Modular Subcontractor to facilitate the purchase of materials for the Modules. Additionally, lenders may question ownership of the Modules, or the components that make up the Modules, before they are delivered to the Project Site. These issues may increase difficulty for securing financing to pursue a VMC project.

#### **Level of Experience**

Though types of modular construction have been employed for decades in the United States, project participants may have a general lack of experience with VMC. Prior to choosing VMC, it is important to consider whether project teams and their consultants have prior experience with this delivery method. Equally as important is the level of experience of the local building department and authorities having jurisdiction involved in the permitting process of the Modules and the Project. Design and construction team members that have prior VMC experience may operate more efficiently and effectively on subsequent projects. If project teams lack this experience, there may be a learning curve to the unique methods of VMC, including its fast-pace and the substantial collaboration between project teams.

<sup>&</sup>lt;sup>1</sup> Referred to in the VMC agreements as the "Advance Payment."

#### **BACKGROUND INFORMATION ON THE VMC AGREEMENTS**

#### **Document Lineage**

The VMC agreements are built on the framework of the Construction Manager as Constructor family, including:

- Al33™-2019, Standard Form of Agreement Between Owner and Construction Manager as Constructor where the basis of payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price
- A201<sup>™</sup>-2017, General Conditions of the Contract for Construction
- Bl33™-2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Constructor Edition
- A401™-2017, Standard Form of Agreement Between Contractor and Subcontractor

The rationale for this document lineage is that VMC projects tend to be large and complex projects that involve a construction manager as constructor. Additionally, these projects require a Modular Subcontractor who performs a substantial amount of preconstruction services, including design services. AIA Contract Documents Construction Manager as Constructor family already includes terms to address preconstruction services, collaboration between project participants, and other processes that are commonly employed on VMC projects.

#### The Research and Drafting Process

The AIA Documents Committee spent substantial time researching the nuances of VMC prior to the publication of the agreements. Members attended modular-related conferences and other programming to stay apprised of emerging trends and issues in VMC. Several Documents Committee members, including Salvatore Verrastro, AIA, FCSI, CCS, CCCA, NCARB; Peter Noone, AIA; and Kevin Miller, FAIA, all of whom are members of the Documents Committee task group charged with creating these agreements<sup>2</sup>, participated in the publication of the American Institute of Architect's (AIA) and the National Institute of Building Sciences (NIBS) joint guide titled Design for Modular Construction: An Introduction for Architects.<sup>3</sup>

As a part of the research for the VMC agreements, the task group interviewed numerous industry experts about their processes and experiences on VMC projects, including individuals from (i) construction management and general contracting firms; (ii) modular subcontracting and fabrication firms; (iii) architecture firms specializing in modular construction; (iv) associations including NIBS, the Modular Building Institute (MBI), and the American Bar Association (ABA); and (v) insurance firms. Many of these industry professionals also served as liaisons to the Documents Committee. Liaisons reviewed and provided commentary on drafts of the agreements, which the task group subsequently considered and debated when revising and finalizing the VMC agreements.

<sup>&</sup>lt;sup>2</sup> In addition, the following past or present Documents Committee members participated in the publication of the AIA/NIBS guide: Lane Beougher, FAIA, FCSI, NCARB, Assoc. DBIA, LEED BD+C, GGP; Stephen Hagan, FAIA; Jim Bedrick, FAIA, LEED AP; and Richard Fetz, AIA.

<sup>&</sup>lt;sup>3</sup> Modular & off-site construction guide (aia.org)

#### WHY USE THE VMC AGREEMENTS?

VMC projects have unique processes and issues that are not addressed in detail in other agreements published by AIA Contract Documents. Though VMC parties have used other AIA Contract Documents, significant revisions were necessary to address the many nuances of this delivery method.

The VMC agreements are tailored for volumetric modular projects and are drafted to address specific issues that arise with this delivery method. These issues derive from, at least in part, the following:

- Early onboarding of the Modular Subcontractor
- Professional design services performed by the Modular Subcontractor
- The Modular Subcontractor's responsibilities regarding permitting and inspection of the Modules
- Advance Payment to the Modular Subcontractor, if agreed upon by the parties
- Transfer of risk of loss from the Modular Subcontractor to the Construction Manager
- The Construction Manager's inspection of the Modules
- Transportation, storage, and delivery of the Modules
- · Installation, assembly, and connection of the Modules
- Insurance of the Modular Subcontractor's Modular Work, including transportation of the Modules

The VMC agreements are also drafted for significant collaboration between project participants, including the Owner, Modular Subcontractor, Construction Manager, and Architect. In particular, contract provisions were specifically added to facilitate collaboration between the Architect and Modular Subcontractor during the design process.

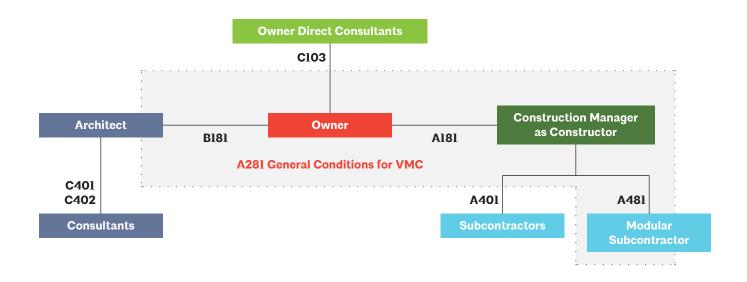
The VMC agreements consider the additional roles and responsibilities of project participants required for VMC projects, as compared to traditional site-built projects. The Owner, Architect, Construction Manager, and Modular Subcontractor each have unique obligations that are not traditionally found in AIA Contract Documents. Examples of these additional roles and responsibilities include the following:

- The Owner has an active role in approving the Design Freeze Date a date in which the project participants consider the Project's design to be finalized.
- If agreed to, the Construction Manager must pay the Advance Payment to the Modular Subcontractor.
- The Architect and Modular Subcontractor provide concurrent design services to coordinate the Project's design with the design of the Modules.
- The Modular Subcontractor is responsible for permitting a portion of the Project.
- The Architect and Modular Subcontractor may communicate directly, provided that the Construction Manager is included on such communications.
- The Owner and Architect may provide input on the Construction Manager's selection of the Modular Subcontractor.

#### **HOW ARE THE VMC AGREEMENTS STRUCTURED?**

There are several ways to structure contracts on VMC projects. Three common contractual arrangements on VMC projects include (1) Owner-Construction Manager prime contract paired with a Construction Manager-Modular Subcontractor subcontract, (2) Owner-Modular Designer or Architect-Modular Designer consultant agreement paired with a Construction Manager-Modular Builder subcontract, and (3) Owner-Modular Design Builder prime agreement. AIA Contract Documents publishes more generic documents that may be used (with modifications) for each of these scenarios; however, the VMC-specific agreements are tailored for the first scenario.

Because these new agreements are built on the framework of AIA Contract Documents Construction Manager as Constructor family, other AIA Contract Documents agreements and forms can be used in conjunction with the VMC agreements. For example, the Architect can use C401®-2017, Standard Form of Agreement Between Architect and Consultant when engaging consultants on VMC projects. Additionally, the Construction Manager can use A401®-2017, Standard Form of Agreement Between Contractor and Subcontractor when engaging subcontractors beyond the Modular Subcontractor. Additionally, the Owner can use C103®-2015, Standard Form of Agreement Between Owner and Consultant without a Predefined Scope of Consultant's Services when engaging consultants on VMC projects.



#### 1. LANGUAGE AND TERMINOLOGY

#### 1-A. New VMC Defined Terms

To facilitate the development of coordinated agreements for VMC projects, A281-2025 contains several newly defined terms. These new terms are used throughout this Guide and the VMC agreements, and are listed here for easy reference.

#### § 1.1.7 Modular Subcontractor

"Modular Subcontractor" is the Subcontractor who performs the Modular Work and is identified in the Agreement. Unless otherwise stated, the Modular Subcontractor shall be subject to the same terms and conditions as a Subcontractor as set forth in the Contract Documents.

#### § 1.1.9 Modular Work

"Modular Work" means the construction and services required to be performed by the Modular Subcontractor to fulfill its obligations under A481<sup>TM</sup>-2025, Standard Form of Agreement Between Construction Manager and Modular Subcontractor, Volumetric Modular Construction Edition, whether completed or partially completed, and includes all labor, materials, equipment, and services provided or to be provided by the Modular Subcontractor. The Modular Work is a portion of, and not in addition to, the Work for the Project.

#### § 1.1.10 Modular Facility

"Modular Facility" is a location separate from the Project Site and Staging Site where the Modular Subcontractor fabricates the Modules and performs other portions of the Modular Work. The Modular Facility is identified in Section 1.1.14 of the Agreement.

#### § 1.1.11 Staging Site

"Staging Site" is a location, separate from the Project Site and Modular Facility, that serves as an area where Modular Work or other Work may be performed, delivered, temporarily stored, inspected, or prepared for transportation to the Project Site. If a Staging Site is required for the Work, the Staging Site will be identified in Guaranteed Maximum Price Amendment.

#### § 1.1.12 Module

"Module" is a three-dimensional and volumetric portion of the Project, including components, subassemblies, and subsystems, constructed in whole or in part at the Modular Facility.

#### § 1.1.13 Module Design Parameters

"Module Design Parameters" means information prepared by the Modular Subcontractor relating to the requirements and constraints of the Modular Subcontractor for the design of the Modules.

#### § 1.1.14 Module Design Documents

"Module Design Documents" are preconstruction documents consisting of design drawings, diagrams, schedules, and other data specifically prepared for the Modules by the Modular Subcontractor to illustrate a portion or portions of the Modular Work. The Module Design Documents are not Shop Drawings.

#### § 1.1.15 Preliminary Module Design Documents

"Preliminary Module Design Documents" are Module Design Documents that include proposed plans, key details, Samples, sections and elevations, study and coordination models, model backgrounds, and digital representations of the Modules.

#### § 1.1.16 Final Module Design Documents

"Final Module Design Documents" are Module Design Documents that illustrate and describe the further development of the approved Preliminary Module Design Documents, and include information required by the Architect to complete its design for the Project. Final Module Design Documents may consist of drawings and specifications; plans; sections and elevations; fabrication details; building information model data for subassemblies and structural systems; and layouts of the building systems, to fix and describe the Modules as to structural, mechanical, electrical, and plumbing systems; drawings and specifications related to fire protection; building envelope details; and interior finishes for the Modules.

#### § 1.1.17 Pre-Design Option

"Pre-Design Option" is the Owner-approved illustration of the Project Site and building development concept prepared by the Architect in the Pre-Design Phase Services. The Pre-Design Option illustrates the scale and massing of the Project and the preliminary arrangement and relationship of the Modules to the overall Project.

#### § 1.1.18 Design Freeze Date

"Design Freeze Date" is a milestone date when the Architect, Construction Manager, and Modular Subcontractor consider the design of the Modular Work to be fixed as to major components, configuration, and size.

#### § 1.1.19 Advance Payment

"Advance Payment" is a portion of the Guaranteed Maximum Price paid as a deposit in advance of the commencement of the Construction Phase of the Modular Work. The Advance Payment is a portion of, and not in addition to, the Guaranteed Maximum Price. Unless otherwise stated, the Advance Payment shall be subject to the terms and conditions set forth in Section 9.3 below.

#### § 1.1.21 Project Site

"Project Site" is the location of the Project set forth on page 1 of these General Conditions.

#### 1-B. Cost of the Work Defined Terms

The Construction Manager's compensation in the VMC agreements is based on the "Cost of the Work." As defined by Al81-2025, the term "Cost of the Work" means "costs necessarily incurred by the Construction Manager in the proper performance of the Work" and it explicitly includes items set forth in Sections 7.1 through 7.7. In addition to the new terms in Section 1-A, new definitions were added to clarify "Guaranteed Maximum Price," "Contract Sum," "Cost of the Work," and "Construction Manager's Fee," all of which are relevant for the Construction Manager's compensation.

#### § 1.1.3 Guaranteed Maximum Price

"Guaranteed Maximum Price" is the maximum sum that the Owner is obligated to pay to the Construction Manager for the Work following execution of the Guaranteed Price Amendment, subject to additions and deductions by Modification as provided in the Contract Documents. The Guaranteed Maximum Price shall include: (a) the Cost of the Work; (b) the Construction Manager's Fee; and (c) the Construction Manager's contingency, as set forth in Agreement. The Guaranteed Maximum Price shall include all sales, consumer, use, and similar taxes for the Work provided by the Construction Manager that are legally enacted, whether or not yet effective, at the time the Guaranteed Maximum Price Amendment is executed. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Construction Manager without reimbursement by the Owner.

#### § 1.1.4 Contract Sum

"Contract Sum" is the Cost of the Work plus the Construction Manager's Fee. The Contract Sum is guaranteed by the Construction Manager not to exceed the Guaranteed Maximum Price established by the Guaranteed Maximum Price Amendment.

#### § 1.1.5 Cost of the Work

"Cost of the Work" shall mean costs necessarily incurred by the Construction Manager in the proper performance of the Work. The Cost of the Work shall include only the items set forth in the Agreement.

#### § 1.1.6 Construction Manager's Fee

"Construction Manager's Fee" shall have the same meaning as set forth in the Agreement.

#### 1-C. Defining the "Site"

Traditionally, the term "site" in construction contracts refers to the site of the Project. Similarly, the term "offsite" refers to an area separate from, and in addition to, the site of the Project. To account for the three main areas in which the Construction Manager and Modular Subcontractor perform services on VMC projects –the Project Site, Modular Facility, and Staging Site – the new agreements specify the area at issue. To reduce ambiguity, each location is specified, whenever relevant. For example, A201 references to "site" are modified in A281–2025 to reference the "Project Site." Likewise, A201 references to "offsite" are modified in A281–2025 to "Modular Facility" or "Staging Site," as appropriate.

# 2. PRE-DESIGN AND PRECONSTRUCTION SERVICES FOR THE MODULES

#### 2-A. Early Selection of the Modular Subcontractor

The VMC agreements presume that the Modular Subcontractor will be selected as early as possible on the Project. It is common for experienced Owners and Architects to have a preferred Modular Subcontractor that the Construction Manager works with during the Project. Similarly, the Construction Manager may have a preferred Modular Subcontractor the Construction Manager may propose to the Owner to perform the Modular Work.

Under the VMC agreements, the Modular Subcontractor provides design services for the Modules and consultation on issues related to the Modular Work. To optimize the benefits of VMC, the Modular Subcontractor should be identified and engaged early because the Modular Subcontractor has an integral role in the Project's design, and has responsibilities for preconstruction collaboration with the Architect and Construction Manager. Early design and preconstruction collaboration between the Architect, Construction Manager, and Modular Subcontractor can be critical to the success of the Project. Early Modular Subcontractor consultation strengthens the Project by promoting efficient designs and supporting several key success factors, such as (i) a thorough analysis of design options, (ii) assessment of material availability to avoid delays, (iii) value engineering to reduce costs, and (iv) assessment of the constructability of the Project. Additionally, the Modular Subcontractor informs the other project participants of its capabilities and limitations early in the design phase. This information is vital for the Architect's services, and helps ensure that the Architect's design can ultimately be constructed by the Modular Subcontractor at the Modular Facility. By communicating the Module Design Parameters in the Pre-Design phase, the project participants avoid a scenario where a design prepared by the Architect cannot be constructed by the Modular Subcontractor.

The VMC agreements prompt the parties to agree upon a Modular Subcontractor early in the Pre-Design Phase. Al81-2025 addresses the selection of the Modular Subcontractor.

#### A181-2025, Owner/Construction Manager Agreement for VMC

#### § 3.2.8 Pre-Design Phase Services for the Modules

**§ 3.2.8.1** The Construction Manager shall meet with the Owner and Architect to review the Architect's preliminary evaluation of the Project. If a Modular Subcontractor has not already been selected for the Project, the Owner and Construction Manager shall agree upon the Modular Subcontractor to perform the Modular Work.

It is important to note that if the Owner desires the Architect to assist with selection of the Modular Sub-contractor, this may be selected as a Supplemental Service in Bl8l-2025.

When selecting a Modular Subcontractor, it is important to confirm that the Modular Subcontractor holds the appropriate licenses for the Project. Under the new agreements, the Modular Subcontractor is required to hold the appropriate licenses in both (i) the jurisdiction where the Project is located and (ii) the jurisdiction where the Modular Facility is located. It is important for project participants to be aware that, de-

<sup>&</sup>lt;sup>4</sup> Referred to as the "Module Design Parameters" in the VMC agreements.

pending on the Project's location and the Modular Subcontractor's scope of responsibilities, the Modular Subcontractor may need to be licensed as a design professional and contractor. If the Modular Subcontractor does not hold the appropriate licenses for a portion of the Modular Work, it should subcontract the services to an appropriately licensed firm that can perform such work.

The VMC agreements contain coordinated provisions regarding the Construction Manager's and Modular Subcontractor's design and construction licensing requirements.

#### A181-2025, Owner/Construction Manager Agreement for VMC

**§ 3.2.8.2** The Construction Manager shall be responsible for the design and engineering of the Modules. The Construction Manager shall cause such services to be performed by appropriately licensed design professionals, as required by the authorities having jurisdiction over the Project. The Construction Manager shall meet with the Owner and Architect to reach a mutual understanding about the responsibilities of the Construction Manager and Modular Subcontractor in relation to the design of the Modules and other portions of the Project. Thereafter, in accordance with Section 3.13.10.1 of AIA Document A281–2025, the Owner and Architect shall specify the performance and design criteria for the Module Design Documents.

#### A481-2025, Construction Manager/Modular Subcontractor Subcontract

- **§ 4.1 General** The Modular Subcontractor is the person or entity identified as such in this Agreement and is referred to throughout the Subcontract Documents as if singular in number. The Modular Subcontractor shall be lawfully licensed, if required, in the jurisdictions where the Modular Work is performed and the Project is located. The Modular Subcontractor shall designate in writing a representative who shall have express authority to act on the Modular Subcontractor's behalf with respect to the Project. The term "Subcontractor" or "Modular Subcontractor" means the Modular Subcontractor or the Modular Subcontractor's authorized representative.
- **§ 4.6.5** The Modular Subcontractor shall cause the professional services performed under this Section 4.6 to be provided by a properly licensed design professional, whose signature and seal shall appear on all design submissions, drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop drawings and other submittals related to the Modular Work designed by such design professional shall bear the professional's written approval when submitted to the Construction Manager. The Construction Manager shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals, provided the Construction Manager has provided to the Modular Subcontractor all performance and design criteria required by this Section 4.6.

#### § 8.2.2 Pre-Design Services for the Modules

**§ 8.2.2.1** The Modular Subcontractor shall be responsible for the design and engineering of the Modules. The Modular Subcontractor shall cause such services to be performed by appropriately licensed design professionals as required by the authorities having jurisdiction over the Project.

#### 2-B. Modular Subcontractor Prequalification

An important component for a successful VMC project is to select a qualified Modular Subcontractor. Factors to consider during the Modular Subcontractor's prequalification process include, but are not limited to, the following:

- Experience and level of complexity of past projects involving modular construction
- Module building capabilities, capacity, and current workload
- Design and engineering capabilities
- · Strength of relationships with material suppliers
- Labor availability at both the Modular Facility and Project Site
- Transportation capabilities
- Capabilities to assemble and connect the Modules at the Project Site
- Location of the Modular Facility in relation to the Project Site
- Proper licensure
- Professional liability insurance capabilities
- · Bonding capabilities
- Financial capacity and length of time Modular Subcontractor has been in practice

These factors are safeguards for the Modular Subcontractor to be the right fit for the Project's needs. Consideration of these factors may mitigate each project participant's risk on the Project, as VMC is dependent on collaboration and coordination between several entities. If the Modular Subcontractor does not possess the necessary qualifications for the Project, it can severely impact the Construction Manager's and Architect's ability to perform, and ultimately delay completion of the Project. This is because each entity's work is dependent on the Modular Subcontractor's timely performance of the Modular Work.

#### 2-C How to Use AIA Document A481™-2025, Exhibit A, Construction Phase Amendment

The VMC agreements assume a two-part process for onboarding the Modular Subcontractor. First, potential Modular Subcontractors may submit bids for the design of the Modules. When a Modular Subcontractor is selected, the Modular Subcontractor should be compensated for preconstruction services, including designing the Modules, in accordance with Article 10 of A481-2025.

#### A481-2025, Construction Manager/Modular Subcontractor Subcontract

§ 10.1 Compensation for Preconstruction Services

**§ 10.1.1** For the Modular Subcontractor's Preconstruction Services described in Section 8.2, the Construction Manager shall compensate the Modular Subcontractor as follows:

(Insert amount of, or basis for, compensation.)

#### § 10.1.2 Billing Rates for Preconstruction Services

The hourly billing rates for Preconstruction Services of the Modular Subcontractor and the Modular Subcontractor's consultants and Sub-subcontractors, if any, are set forth below.

(If applicable, attach an exhibit of hourly billing rates or insert them below.)

« »		
Individual or Position	Rate	

**§ 10.1.2.1** Hourly billing rates for Preconstruction Services include all costs to be paid or incurred by the Modular Subcontractor, as required by lawor collective bargaining agreements, for taxes, insurance, contributions, assessments and benefits, and for personnel not covered by collective bargaining agreements, customary benefits such as sickleave, medical and health benefits, holidays, vacations and pensions, and shall remain unchanged unless the parties execute a Modification.

#### § 10.1.3 Compensation for Reimbursable Expenses for Preconstruction Services

The Construction Manager shall reimburse the Modular Subcontractor for the reimbursable expenses for Preconstruction Services that are necessarily incurred by the Modular Subcontractor or the Modular Subcontractor's employees directly relating to the Preconstruction Services and specified below, plus « «percent ( « «%) of the expenses incurred. Reimbursable expenses are in addition to compensation for the Modular Subcontractor's Preconstruction Services. (List expenses to be reimbursed.)

« »

Second, the Modular Subcontractor's construction phase scope of work is defined by the terms of A481-2025 and the submission of a proposal<sup>5</sup> to the Construction Manager. This proposal includes information that is contained in AIA Document A481-2025, Exhibit A, Construction Phase Amendment. For example, the Modular Subcontractor must submit its proposed Subcontract Sum; Subcontract Time; assumptions, exclusions, and clarifications; insurance requirements; bonding requirements; and Staging Site requirements, if any. When the Construction Manager and Modular Subcontractor reach an agreement, they complete and execute the Construction Phase Amendment, which subsequently amends the underlying subcontract to include the Modular Subcontractor's complete scope of work.

#### A481-2025, Construction Manager/Modular Subcontractor Subcontract

#### § 8.2.5 Modular Subcontractor's Proposal and Assistance with the Guaranteed Maximum Price Proposal

- § 8.2.5.1 At a time to be mutually agreed upon by the Construction Manager and Modular Subcontractor, the Modular Subcontractor shall prepare and submit the Modular Subcontractor's proposal to the Construction Manager for review and acceptance (referred to as the "Proposal"). The Proposal shall include the information required by AIA Document A481™-2025, Exhibit A, Construction Phase Amendment to the extent such information is known to the Modular Subcontractor.
- § 8.2.5.2 Submission of the Proposal shall constitute a representation by the Modular Subcontractor that it has visited the Project Site and Staging Site, and become generally familiar with the conditions under which the Modular Work is to be completed.
- **§ 8.2.5.3** If the Construction Manager and Modular Subcontractor agree on the Proposal, the Construction Manager and Modular Subcontractor shall execute the Construction Phase Amendment setting forth the terms of their agreement.

<sup>&</sup>lt;sup>5</sup> Referred to as the "Proposal" in the VMC agreements.

#### 2-D. VMC Contains Elements of Both Delegated Design and Design Assist

The VMC delivery method is unique in that it is highly collaborative process between the Architect, Modular Subcontractor, Construction Manager, and Owner at the onset of the design process. The Modular Subcontractor is an integral part of the design process by providing design services from the early stages of the Project. Though the Modular Subcontractor takes part in the design process, its preconstruction services do not fit within the traditional molds of "design assist" or "delegated design." Rather, the Modular Subcontractor's services combine elements from both these forms of collaboration.

To differentiate the Modular Subcontractor's preconstruction services from traditional design assist and delegated design, it is important to establish what those terms mean. The term "design assist" is "a form of collaboration where a contractor provides information to assist a design professional's design, typically before pricing for the work has been agreed upon or before the work has been awarded." When performing traditional design assist services, contractors rely on their own expertise in evaluating and reviewing the design professional's design for the Project. In contrast, the term "delegated design" is "a form of collaboration between a design professional and a contractor where the contractor assumes responsibility for an element ... of the design. Customarily, in delegated design, the contractor's "design responsibilities are often established by performance specifications prepared by the design professional" and "occur later in the design process than [d]esign [a]ssist services." Delegated design services require the services of a licensed design professional.

On VMC projects, the Modular Subcontractor provides both design assist and delegated design services as part of its preconstruction services. First, the Modular Subcontractor performs design assist services pertaining to the development of the Modular Work to integrate it with the overall Project design. The Modular Subcontractor is required to assist, provide information and feedback, and collaborate with the Construction Manager, Architect, and Owner during the Architect's development of the Project's design.

#### A481-2025, Construction Manager/Modular Subcontractor Subcontract

§ 8.2.2.2 The Modular Subcontractor shall establish Module Design Parameters, which may include requirements for or limitations on (1) materials of the Modules, (2) overall dimensions and weight of the Modules, (3) locations and types of connections for the Modules, and (4) other design parameters that will assist the Architect in developing the Project's design that will incorporate the Modules. The Modular Subcontractor shall provide the Module Design Parameters to the Construction Manager, who shall promptly provide them to the Owner and Architect.

#### § 8.2.3 Design Services for the Modules

**§ 8.2.3.1** The Modular Subcontractor shall assist the Construction Manager with (1) collaborating with the Architect and Owner to develop the design of the Modular Work in relation to the Project's design, and (2) reviewing the Architect's Pre-Design Option and making recommendations relating to the Modular Work.

<sup>&</sup>lt;sup>6</sup> <u>Design-Collaboration-on-Construction-Projects-Part-I.pdf</u>

<sup>&</sup>lt;sup>7</sup> Id.

<sup>&</sup>lt;sup>8</sup> Id.

<sup>&</sup>lt;sup>9</sup> Id.

**§ 8.2.3.3** The Modular Subcontractor shall review the Architect's Schematic Design Documents, Design Development Documents, and Construction Documents at appropriate intervals. The Modular Subcontractor's review shall be for the limited purposes of checking for conformance of the Architect's design submissions with the Module Design Parameters and for providing consultation and coordination as required by the Preconstruction Services described in Section 8.2.

Second, the Modular Subcontractor performs delegated design as a part of its preconstruction services. Specifically, the Modular Subcontractor is responsible for the design and engineering of the Modules and ensuring that these services are performed by appropriately licensed design professionals. A481-2025 details the Modular Subcontractor's professional design services.

#### A481-2025, Construction Manager/Modular Subcontractor Subcontract

#### § 8.2.2 Pre-Design Services for the Modules

- **§ 8.2.2.1** The Modular Subcontractor shall be responsible for the design and engineering of the Modules. The Modular Subcontractor shall cause such services to be performed by appropriately licensed design professionals as required by the authorities having jurisdiction over the Project.
- § 8.2.3.2 The Modular Subcontractor's professional design services include (1) preparing a preliminary design for the Modules illustrating the scale, relationship, and integration into the Project; (2) developing details for the Modules; (3) defining the tolerances, systems connections, and quality levels for the Modules; (4) developing Module unit plans; (5) developing the structural systems for the Modules, including means and methods for transportation and lifting of the Modules; and (6) providing modular structural loads.

As part of these services, the Modular Subcontractor prepares the Module Design Documents<sup>10</sup> in coordination with the Architect's design services. The Module Design Documents are based upon the performance and design criteria provided by the Construction Manager, to the extent the Construction Manager has received this information from the Owner and Architect.

#### A481-2025, Construction Manager/Modular Subcontractor Subcontract

**§ 4.6.2** For all professional design services, or certifications by a design professional, required by the Subcontract Documents and the Module Design Documents that relate to systems, materials, or equipment, the Construction Manager will provide all performance and design criteria that such services must satisfy to the extent the Construction Manager has received such performance and design criteria from the Owner and Architect under the terms of the Prime Contract.

<sup>&</sup>lt;sup>10</sup> See a more thorough discussion of the Module Design Documents in Section 4-B.

The Modular Subcontractor's services do not neatly fall into the traditional definition of delegated design partly because of the timing in which they take place. The Modular Subcontractor's delegated design services occur during the performance of preconstruction services rather than during construction as would be the case with traditional delegated design.

The Modular Subcontractor's services also differ from traditional delegated design because the Module Design Documents are not provided to the Architect as a construction submittal. The Modular Subcontractor prepares and provides the Module Design Documents before, or concurrent with, the Architect's and other design professionals' respective portions of the Construction Documents. Consequently, the Module Design Documents are neither Shop Drawings nor construction submittals, which the Architect reviews. Rather, the Modular Subcontractor is responsible for stamping, sealing, and submitting the Module Design Documents in tandem with the Architect's drawings for permitting the Project. It is recommended that the Module Design Documents be submitted on the Modular Subcontractor's title block and sealed by its design professional.

#### 2-E. Pre-Design Phase Services for the Modules

VMC projects typically include several iterations of the design of the Modules and the overall Project. To facilitate the collaborative and iterative nature of these projects, the VMC agreements feature provisions for Pre-Design Phase Services that are coordinated across all of the agreements. These coordinated sections provide guidance and appropriately allocate risk and responsibilities between the project participants. In particular, the agreements detail the concurrent activities of the Architect, Construction Manager, and Modular Subcontractor as the designs of the Modules and the overall Project emerge and develop. The exchange of information between these entities is necessary for the project participants to fully understand the capabilities of the Modular Subcontractor in relation to the Owner's criteria and the Architect's needs for the design of the Project. Moreover, coordination between the parties helps align the Modular Subcontractor's propriety capabilities with the Architect's vision for the Project.

Under the VMC agreements, the design process commences in Bl81-2025 with the Architect's Pre-Design Phase Services. The major goals of the Architect in performing the Pre-Design Phase Services are to assist the Owner with determining the extent to which VMC will be used on the Project and to develop the "Pre-Design Option," which is further addressed below. In Al81-2025 and A481-2025, Pre-Design Phase Services occur during the performance of the Construction Manager's and Modular Subcontractor's pre-construction services, respectively.

During Pre-Design, the Architect presents a preliminary evaluation of the Project to the Owner and Construction Manager. The Architect, Owner, and Construction Manager then reach a mutual understanding about the responsibilities of the Construction Manager and Modular Subcontractor concerning the design of the Modules and other portions of the Project. These responsibilities are in addition to those already specified in the agreements, namely, the responsibility to design and engineer the Modules.

<sup>&</sup>lt;sup>11</sup> See more about the permitting process on VMC projects in Section 5-C.

The VMC agreements were created to account for the complete design and construction of the Project, including the Modules. During Pre-Design, the project participants may consider completing a responsibility matrix if they desire more specificity in delegating the scopes of work for the Project. A responsibility matrix may include columns delineating the responsibilities of the Construction Manager, Modular Subcontractor, Architect, and Owner for the Project. A sample responsibility matrix can be found <a href="here">here</a> as part of the AIA/NIBS joint Design for Modular Construction: An Introduction for Architects.

After a mutual understanding is reached about each project participant's respective scope of services and work, the Architect specifies the performance and design criteria for the Construction Manager's and Modular Subcontractor's delegated design services. After the Architect provides this criteria to the Construction Manager, the Construction Manager provides it to the Modular Subcontractor, who is ultimately responsible for the design, engineering, and construction of the Modules.

Next, the project participants meet to review the requirements and limitations for the Modular Subcontractor's design and construction of the Modules (referred to as "Module Design Parameters"). The Modular Subcontractor may have a unique approach to constructing the Modules, which can influence the design of the overall Project. The agreements require the Modular Subcontractor to provide the Module Design Parameters to the Construction Manager. The Module Design Paraments may include the Modular Subcontractor's required materials for the Modules, such as lumber or steel; the overall dimensions and weight of the Modules; and the locations and types of connections.

The Architect coordinates its design services with the Module Design Parameters in preparing illustrations of the Project Site and building development concepts, together with the scale and relationship of the Modules and the Project. After the illustration is approved by the Owner, it is referred to as the "Pre-Design Option."

# Coordination and Collaboration on Volumetric Modular Construction Projects

O [OWNER], CM [CONSTRUCTION MANAGER], A [ARCHITECT], MS [MODULAR SUBCONTRACTOR]



#### 2-F. Coordination of the Architect's and Modular Subcontractor's Design Services

On VMC projects, at least two designers provide professional design services – the Architect and Modular Subcontractor. They perform separate scopes of services throughout all phases of design. The Modular Subcontractor is a specialty subcontractor who designs the Modules. The Architect is responsible for the architectural design of the overall Project, which will incorporate the Modular Subcontractor's design for the Modules. The Modular Subcontractor is typically best suited to design the Modules for a variety of reasons, including (i) to meet the appropriate codes applicable to both the Modular Facility and the Project Site, (ii) for transportation of the Modules to the Project Site, and (iii) to adhere to the requirements of the Module Design Parameters.

The VMC agreements allocate major design responsibilities between the Architect and Modular Subcontractor. Specifically, they contain coordinated language that requires the Construction Manager to be responsible for the design and engineering of the Modules. This responsibility is flowed down to the Modular Subcontractor in A481-2025. The Architect is responsible for specifying the performance and design criteria for the Module Design Documents and providing this information to the Construction Manager. In turn, the Construction Manager provides the performance and design criteria to the Modular Subcontractor. Notably, at key stages in the Project's design, the Architect is required to coordinate its design submissions with the Modular Subcontractor's Modular Design Documents. For example, the Architect must coordinate its Schematic Design Documents with the Owner-approved Preliminary Module Design Documents. Similarly, the Architect's Design Development Documents, when completed, are required to be coordinated with the Owner-approved Final Module Design Documents. These layers of coordination between the Architect and Modular Subcontractor help to align the portions of design provided by both parties.

#### A181-2025 Owner/Construction Manager Agreement for VMC

**§ 3.2.8.2** The Construction Manager shall be responsible for the design and engineering of the Modules. The Construction Manager shall cause such services to be performed by appropriately licensed design professionals, as required by the authorities having jurisdiction over the Project. The Construction Manager shall meet with the Owner and Architect to reach a mutual understanding about the responsibilities of the Construction Manager and Modular Subcontractor in relation to the design of the Modules and other portions of the Project. Thereafter, in accordance with Section 3.13.10.1 of AIA Document A281–2025, the Owner and Architect shall specify the performance and design criteria for the Module Design Documents.

#### B181-2025, Owner/Architect Agreement for VMC

**§ 3.5.5** The Architect shall meet with the Owner and Construction Manager to reach a mutual understanding about the responsibilities of the Construction Manager and Modular Subcontractor in relation to the design of the Modules and other portions of the Project. Thereafter, in accordance with Section 3.9.4.3, the Architect shall specify the performance and design criteria for the Module Design Documents. The parties agree the Construction Manager shall be responsible for the design and engineering of the Modules. The Construction Manager shall cause such services to be performed by appropriately licensed design professionals as required by the authorities having jurisdiction over the Project.

<sup>&</sup>lt;sup>12</sup> B181-2025, § 3.6.2.

<sup>&</sup>lt;sup>13</sup> B181-2025, § 3.7.2.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

#### § 4.6 Professional Services Provided by Modular Subcontractor

- § 4.6.1 The Modular Subcontractor shall not be required to provide professional services in violation of applicable law.
- **§ 4.6.2** For all professional design services, or certifications by a design professional, required by the Subcontract Documents and the Module Design Documents that relate to systems, materials, or equipment, the Construction Manager will provide all performance and design criteria that such services must satisfy to the extent the Construction Manager has received such performance and design criteria from the Owner and Architect under the terms of the Prime Contract.
- **§ 4.6.3** If professional design services or certifications by a design professional are required because of means, methods, techniques, sequences, or procedures required by the Construction Manager and related to the Modular Work of the Modular Subcontractor, the Construction Manager will provide all performance and design criteria that such services must satisfy.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

#### § 8.2.2 Pre-Design Services for the Modules

**§ 8.2.2.1** The Modular Subcontractor shall be responsible for the design and engineering of the Modules. The Modular Subcontractor shall cause such services to be performed by appropriately licensed design professionals as required by the authorities having jurisdiction over the Project.

Coordination between the Modular Subcontractor and Architect is crucial to ensure a seamless integration of the project participants' design responsibilities for the Project. They each have a responsibility to communicate with the other to properly coordinate their services. Frequent meetings and design reviews will likely take place to align the Architect's vision for the Project with the Modular Subcontractor's capabilities and design of the Modules. Accordingly, the Architect, Modular Subcontractor, and Construction Manager work closely to resolve challenges faced during the concurrent development of these designs. For example, these parties may communicate directly to address design and construction challenges, such as supply chain impacts necessitating material substitutions on the Project.

The Architect's and Modular Subcontractor's coordination responsibilities are addressed in Bl81-2025 and A481-2025.

#### B181-2025, Owner/Architect Agreement for VMC

**§ 3.1.9** The Architect shall meet and collaborate, at appropriate intervals, with the Owner, Construction Manager, and Modular Subcontractor to develop the Project design and to coordinate the Architect's services with the Modular Subcontractor's design services and other preconstruction services related to the Modular Work.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

**§ 8.2.1.4** The Modular Subcontractor shall coordinate its services with those services provided by the Architect and its consultants. The Modular Subcontractor shall be entitled to rely on the Architect's Instruments of Service, as appropriate for the phase in which they were created, to (1) communicate the scope, quality, and design intent of the Project, (2) provide the functional, aesthetic, and quality standards for the Project, and (3) integrate the Owner's program requirements into the Project's design. The Modular Subcontractor shall independently review laws, codes, and regulations applicable to the Modular Subcontractor's services. The Modular Subcontractor shall provide prompt written notice to the Construction Manager and Architect if the Modular Subcontractor becomes aware of any error, omission, or inconsistency in the Architect's Instruments of Service.

#### 2-G. Considerations for Building Information Modeling on VMC projects

VMC projects require a significant amount of communication and coordination between the Architect, Construction Manager, and Modular Subcontractor. Building information modeling (BIM) can significantly enhance collaboration between project teams by enabling them to effectively plan, design, and construct the Modules and overall building. BIM can allow project teams to identify conflicts during the development of the Project's design and avoid conflicts all together during construction. BIM allows for three-dimensional representations of the Modules and other building components during preconstruction, enabling project participants to find potential conflicts in the design.

Under the VMC agreements, the Architect, Construction Manager, and Modular Subcontractor coordinate how digital data and BIM will be used on the Project. The Construction Manager assists the Owner and Architect in establishing BIM protocols. Additionally, the Modular Subcontractor and Construction Manager must agree to BIM-sharing protocols.

#### B181-2025, Owner/Architect Agreement for VMC

- **§ 1.3** The parties shall agree upon written protocols governing the transmission and use of, and reliance on, Instruments of Service or any other information or documentation in digital form.
- **§ 1.3.1** Any use of, or reliance on, all or a portion of a building information model without agreement to written protocols governing the use of, and reliance on, the information contained in the model shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

#### A181-2025, Owner/Construction Manager Agreement for VMC

**§ 3.2.3.3** The Construction Manager shall assist the Owner and Architect in establishing written protocols for the development, use, transmission, reliance, and exchange of digital data, including building information models for the Project.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

- § 15.8 The parties shall agree upon written protocols governing the transmission and use of, and reliance on, Instruments of Service or any other information or documentation in digital form.
- **§ 15.9** Any use of, or reliance on, all or a portion of a building information model without agreement to written protocols governing the use of, and reliance on, the information contained in the model, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

When utilizing BIM on a VMC project, it is important that the project team establishes BIM protocols to establish uniformity in the transmission of data. When establishing protocols, the project team may consider several factors, including (i) the BIM software to be use; (ii) the host of the model; (iii) whether a digital execution plan is necessary; (iv) whether a digital twin is necessary; (v) each party's roles and responsibilities for BIM; and (vii) the required level of development for the Modular Subcontractor's design services, including the Module Design Documents.<sup>14</sup>

<sup>&</sup>lt;sup>14</sup> For more information on BIM, see AIA Contract Documents <u>Digital Documents Guide</u>.

#### 2-H. Considerations for the Architect's Frontloaded Services

VMC projects require the Architect to frontload the performance of many services during the Pre-Design and Design phases. Consequently, the Architect performs services that may traditionally be considered Construction Phase services during early phases of the project, such as detailed coordination with Subcontractors (including the Modular Subcontractor) and approving materials and material samples. Furthermore, BIM requirements and coordination over the level of development for BIM may be greater than what the Architect provides on traditional site-built projects. Overall, substantial time and resources are invested upfront to address critical considerations for the Project. Thus, it is important for the Owner and Architect to consider impacts to the distribution of the Architect's fee across the phases of the Project. Unlike traditional site-built projects, where the Architect's fees may be distributed more evenly across the Project's phases, front-loaded services may require higher initial fees to compensate for the increased scope of early work.

#### 3.DESIGN SERVICES FOR THE MODULES

#### 3-A. Design Freeze Date

Project participants often agree to a date in which the design of the Project is considered to be "final." However, as many construction professionals know, designs often evolve throughout the process and are rarely "final" before completion of the Project. On VMC projects, the "final" design date means that changes to the Project's design cannot be made beyond that specific date without significant ramifications to the construction schedule and increasing costs. The VMC agreements refer to this date as the "Design Freeze Date." This date is crucial because it ensures that the Owner, Architect, Construction Manager, and Modular Subcontractor are aligned and have a static design once construction commences on the Modules. Moreover, this date is particularly important because the Modules are rapidly constructed by the Modular Subcontractor at the Modular Facility. If design changes are made after construction on the Modules begins, that design change may need to be incorporated in several Modules that are already constructed. The VMC agreements prompt the parties to agree on a Design Freeze Date. The specific timing of the Design Freeze Date can vary. Generally, the Design Freeze Date occurs after completion of the Design Development Phase and before commencement of the Construction Phase. The Design Freeze Date should occur before construction of the Modules begins, the timing of which depends on the complexity and scale of the Project.

In the VMC agreements, the Design Freeze Date is first coordinated between the Construction Manager, Modular Subcontractor, and Architect. This mutually agreed-upon date is then presented by the Architect to the Owner for the Owner's approval. If the Owner initiates or approves changes to the Project's design after the Design Freeze Date, the Owner is responsible for impacts to the Project's schedule and increased costs.

#### A181-2025 Owner/Construction Manager Agreement for VMC

- **§ 3.2.4.2** The Construction Manager shall coordinate with the Modular Subcontractor and Architect to establish the Design Freeze Date for the Modular Work, which shall be submitted to the Owner for approval.
- **§ 3.2.4.3** The Owner acknowledges that changes to the design of the Modular Work after the Design Freeze Date may result in significant impacts to the Project, such as extending the Project schedule, reducing the schedule efficiency benefits of the volumetric modular construction delivery method, and increasing costs for the Architect, Construction Manager, and Modular Subcontractor to redesign or reconstruct portions of the Project affected by such changes. If the Owner initiates or approves changes to the design after the Design Freeze Date, the Owner shall be responsible for the resulting impacts to the Project's cost and schedule. The Construction Manager shall be entitled to an adjustment in the Contract Time and Guaranteed Maximum Price or, if prior to execution of the Guaranteed Maximum Price Amendment, an adjustment in the Construction Manager's schedule and compensation.

#### B181-2025 Owner/Architect Agreement for VMC

**§ 3.2.2** The Owner acknowledges that changes to the design of the Modular Work after the Design Freeze Date may result in significant impacts to the Project, such as reducing the time-savings benefits of the volumetric modular construction project delivery method and increasing time and costs for the Architect, Construction Manager, and Modular Subcontractor to redesign or reconstruct portions of the Project affected by such changes. The Owner shall be responsible for such time and costs increases.

#### 3-B. Module Design Documents

In the VMC agreements, the "Module Design Documents" are preconstruction documents prepared by the Modular Subcontractor that illustrate the Modular Work, including the design of the Modules. These documents are separated into two deliverables – preliminary and final. The Preliminary Module Design Documents include information such as proposed plans, sections and elevations, study and coordination models, model backgrounds, and other digital data of the Modules. The Final Module Design Documents illustrate and describe further development of the Owner-approved preliminary set of documents and they also include information required by the Architect to complete the Project's overall design. The final set includes more detailed information about the Modules, such as fabrication details; BIM for subassemblies and structural systems; mechanical, electrical, and plumbing information; fire protection information; building envelope details; and interior finishes. The Final Module Design Documents are included as a part of the permit package.

The Module Design Documents are subject to review by the Architect and Owner. The Architect's review of the Module Design Documents is similar to the Architect's traditional review of submittals. Specifically, the Architect's review is limited to checking for conformance with the information given and the Architect's design concepts.

#### B181-2025, Owner/Architect Agreement for VMC

**§ 3.4.2** The Architect shall review the Module Design Documents as required in this Agreement. The Architect's reviews of the Module Design Documents shall be for the limited purpose of checking for conformance with information given, and the design concepts expressed, in the Pre-Design Option, Schematic Design Documents, and Design Development Documents, as appropriate, and is not for the purpose of determining the accuracy and completeness of other information, such as dimensions, quantities, and installation or performance of equipment or systems. The Architect's review shall not constitute approval of safety precautions or construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

The Modular Subcontractor provides the Module Design Documents to the Construction Manager who, in turn, provides them to the Architect. The Architect uses this information to further develop the Project's overall design. Accordingly, both the Architect and Modular Subcontractor provide concurrent and coordinated professional design services.

#### A481-2025 Construction Manager/Modular Subcontractor Agreement

#### § 8.2.4 Module Design Documents

- **§ 8.2.4.1** The Modular Subcontractor shall be responsible for developing the Module Design Documents in accordance with this Section 8.2.4 and as set forth elsewhere in the Subcontract Documents. The Module Design Documents may be developed concurrently with the Architect's development of the Instruments of Service and shall be coordinated with the Architect's design for the overall Project.
- **§ 8.2.4.2** The Modular Subcontractor shall assist the Construction Manager in preparing, and periodically updating, a schedule for preparation of the Module Design Documents.
- **§ 8.2.4.3** Based on the Architect's Pre-Design Option, the Modular Subcontractor shall prepare the Preliminary Module Design Documents. The Modular Subcontractor shall timely submit the Preliminary Module Design Documents to the Construction Manager in compliance with the Construction Manager's schedule for preparation of the Module Design Documents.

- **§ 8.2.4.4** Based on the Architect's Schematic Design Documents, the Modular Subcontractor shall prepare the Final Module Design Documents. The Modular Subcontractor shall submit the Final Module Design Documents to the Construction Manager in compliance with the Construction Manager's schedule for preparation of the Module Design Documents.
- **§ 8.2.4.5** The Final Module Design Documents shall be prepared by appropriately licensed design professionals. The design professionals' signatures and seals shall appear on all drawings, calculations, specifications, Shop Drawings, and other design submissions prepared by such professionals.

#### 3-C. Modular Subcontractor's Standard of Care for Preconstruction Services

The VMC agreements explicitly address two separate standards of care for the Modular Subcontractor's preconstruction services. First, A481-2025 provides that the Modular Subcontractor is held to a reasonable care standard when performing the traditional preconstruction services set forth in the agreement.

#### A481-2025 Construction Manager/Modular Subcontractor Agreement

§ 8.2.1 General

**§ 8.2.1.1** The Modular Subcontractor shall exercise reasonable care in performing Preconstruction Services for the Modular Work. The Owner, Architect, and Construction Manager shall be entitled to rely on, and shall not be responsible for, the accuracy, completeness, and timeliness of services and information furnished by the Modular Subcontractor. The Modular Subcontractor, however, does not warrant or guarantee estimates and schedules except as may be included as part of the Construction Phase Amendment.

Next, the Modular Subcontractor is held to an elevated standard of care when performing professional design services. Like the Architect, the Modular Subcontractor is required to perform professional design services with the professional skill and care ordinarily provided by professionals practicing in the same or similar locality under the same or similar circumstances. This is the traditional standard of care set forth in AIA Contract Documents for designers, including architects, consultants, and contractors performing delegated design services.

#### A481-2025 Construction Manager/Modular Subcontractor Agreement

**§ 8.2.1.2** The Modular Subcontractor shall perform professional design services for the Module Design Documents consistent with the professional skill and care ordinarily provided by professionals practicing in the same or similar locality under the same or similar circumstances. Services for the Module Design Documents shall be performed by the Modular Subcontractor as expeditiously as is consistent with such professional skill and care and the orderly progress of the Project.

#### 3-D. Determining the Architect of Record and Engineer of Record

On VMC projects, it is important for the parties to establish the roles and responsibilities of the architect of record and engineer of record prior to the commencement of services on the Project. On traditional site-built projects, the prime architect usually acts as the architect of record and retains the engineers of record, including the structural, mechanical, and electrical engineers. This is not the case for VMC projects. In the VMC agreements, the Modular Subcontractor is the architect of record and engineer of record for the Modules. For example, the Modular Subcontractor provides structural engineering for the Modules, but might not act as the structural engineer of record for the Project.

#### 4. THE MODULAR WORK

#### 4-A. Defining the Modular Work

As set forth in Section 1-A, the VMC agreements include the new term "Modular Work," which identifies the Modular Subcontractor's scope of work. Modular Work is defined as a subset of the Construction Manager's Work. Thus, it is a part of, and not in addition to, the Construction Manager's responsibilities and obligations on the Project. The Modular Work includes the design, engineering, construction, and transportation of the Modules. Additionally, the Modular Work includes the labor, materials, and equipment provided by the Modular Subcontractor. The Modular Work is also comprised of the Modular Subcontractor's services performed at the Modular Facility, Staging Site, and Project Site.

The meaning of Modular Work is not static prior to execution of A481–2025. This term changes depending on the selections made in the agreements. For example, Section 8.3.10.1 of A481–2025 prompts the parties to check the appropriate box to allocate responsibility for installation, assembly, and connection of the Modules at the Project Site. If the parties designate the Modular Subcontractor as the responsible party, then this scope of work becomes a part of the Modular Work. Conversely, if the parties designate the Construction Manager as the responsible party, then this scope of work remains part of the Construction Manager's Work, but not the Modular Subcontractor's Modular Work.

#### 4-B. Advance Payment for the Modular Subcontractor's Construction Services

On VMC projects, the Modular Subcontractor may request an advance payment of the subcontract funds to pay for significant upfront costs associated with constructing the Modules. Typically, substantial amounts of materials and equipment are purchased before the Modules are constructed. An advance payment can allow the Modular Subcontractor to place bulk orders of these materials and secure better pricing than if the materials were purchased in lesser quantities. Additionally, the advance payment may be required to reserve a slot in the Modular Facility's queue.

Owners and Construction Managers should consider the risks associated with advance payments. Advance payments are not the norm for subcontractors in the construction industry. Rather, contractors usually receive payment when their work is incorporated into the Project, or when materials and equipment are delivered and stored onsite.

The VMC agreements contain provisions that prompt the parties to discuss an Advance Payment to the Modular Subcontractor. If the Owner, Construction Manager, and Modular Subcontractor agree, the agreements allow for an advance of the Subcontract Sum to the Modular Subcontractor. To facilitate the Advance Payment, the Modular Subcontractor is required to provide the Construction Manager with documentation and information to support the requested Advance Payment. If the Construction Manager and Modular Subcontractor agree on the Advance Payment as part of the Modular Subcontractor's Proposal, then the parties execute the Proposal, which subsequently amends the underlying Subcontract.

<sup>&</sup>lt;sup>15</sup> Referred to as the "Advance Payment" in the VMC agreements.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

**§ 8.2.5.5** The Modular Subcontractor shall provide the Construction Manager with documentation and information to support a request for the Advance Payment, if any. The Construction Manager, Owner, and Architect shall be entitled to rely upon the adequacy and accuracy of such documents and information provided by the Modular Subcontractor.

#### A481-2025, Exhibit A, Construction Phase Amendment

§ A.1.2 Advance Payment. The amount of the Advance Payment, if any, included in the Subcontract Sum is:

« »

If an Advance Payment is agreed upon, the Construction Manager includes the requested Advance Payment sum in the Guaranteed Maximum Price Amendment, along with an itemized statement for the basis of the Advance Payment.

#### A181-2025, Owner/Construction Manager Agreement for VMC

- **§ 3.3.3** The Construction Manager shall include with the Guaranteed Maximum Price proposal a written statement of its basis, which shall include the following:
  - .1 A list of the Drawings and Specifications, including all Addenda thereto, and the Conditions of the Contract;
  - **.2** A list of the clarifications and assumptions made by the Construction Manager in the preparation of the Guaranteed Maximum Price proposal, including assumptions under Section 3.3.2;
  - **.3** A statement of the proposed Guaranteed Maximum Price, including a statement of the estimated Cost of the Work organized by trade categories or systems, including allowances; the Construction Manager's contingency set forth in Section 3.3.4; the Construction Manager's Fee; and the Advance Payment, if any;
  - .4 The anticipated date of Substantial Completion upon which the proposed Guaranteed Maximum Price is based; and
  - .5 A date by which the Owner must accept the Guaranteed Maximum Price.

#### A181-2025, Exhibit A, Guaranteed Maximum Price Amendment

**§ A.1.1.2** Itemized Statement of the Guaranteed Maximum Price. Provided below is an itemized statement of the Guaranteed Maximum Price organized by trade categories, including allowances; the Construction Manager's contingency; alternates; the Construction Manager's Fee; the Advance Payment, if any; and other items that comprise the Guaranteed Maximum Price as defined in Section 3.3.1 of the Agreement.

(Provide itemized statement below or reference an attachment.)

«»

§ A.1.1.3 Advance Payment. The amount of the Advance Payment, if any, included in the Guaranteed Maximum Price is:

« »

If the Construction Manager and Owner agree to the Advance Payment as part of the Guaranteed Maximum Price Amendment, the underlying Al81-2025 agreement is amended to include an Advance Payment. Article 9 of A281-2025 contains the majority of terms and conditions that apply to the Advance Payment, and further clarifies that the Advance Payment is subject to other progress payment provisions in the Contract Documents. This Article sets forth how the Advance Payment is to be made from the Owner to the Construction Manager and ultimately, to the Modular Subcontractor.

#### A281-2025, General Conditions for VMC

#### § 9.3 Advance Payment

- **§ 9.3.1** If agreed upon in the Guaranteed Maximum Price Amendment, the Owner shall pay the Construction Manager the Advance Payment in accordance with this Section 9.3 and other progress payments provisions in the Contract Documents. The Owner shall pay to the Construction Manager the Advance Payment in current funds in accordance with the Guaranteed Maximum Price Amendment.
- **§ 9.3.3** The Construction Manager shall pay the Advance Payment, or any portion thereof, to the Modular Subcontractor no later than seven days after receipt of the Advance Payment.

Article 9 also provides that the Owner and Architect may rely upon the information provided by the Construction Manager, including information from the Modular Subcontractor, to substantiate entitlement to the Advance Payment.

#### A281-2025, General Conditions for VMC

**§ 9.3.2** The Owner and Architect shall be entitled to rely upon the adequacy and accuracy of the information provided by the Construction Manager to substantiate entitlement to the Advance Payment as may be required pursuant to the Guaranteed Maximum Price Amendment.

Section 9.3.5 also provides guardrails for the Advance Payment by restricting its use for the construction portion of the Modular Work. The Advance Payment cannot be used for the Modular Subcontractor's or Construction Manager's other projects, the Modular Subcontractor's professional design services, or other elements that are unrelated to construction of the Modules. This Section also conditions the Advance Payment on the same requirements as Section 9.4.2.1, which pertains to payment for Modular Work that is completed, but not yet delivered to the Project Site.

#### A281-2025, General Conditions for VMC

- **§ 9.3.4** The Construction Manager may only use funds from the Advance Payment to pay for construction of the Modular Work, including but not limited to the purchase and storage of materials and equipment for the Modules or construction services performed on the Modules. Money used from the Advance Payment shall be conditioned upon the same requirements as in Section 9.4.2.1.
- **§ 9.4.2.1** Payments may be made for (1) completed portions of the Modular Work stored at the Modular Facility or Staging Site, and (2) other materials and equipment suitably stored at the Modular Facility or Staging Site for subsequent incorporation into the Project. Payments under this Section 9.4.2.1 may include the costs of applicable insurance and storage, and shall be conditioned upon
  - .1 compliance by the Construction Manager with procedures satisfactory to the Owner to establish the Owner's title to the construction portion of the Modular Work, materials, and equipment located at the Modular Facility or Staging Site and to otherwise protect the Owner's interest therein;
  - .2 submission of a certificate evidencing that insurance required by the Contract Documents for completed portions of the Modular Work, or other materials and equipment, suitably stored at the Modular Facility or Staging Site is currently in effect and will remain in force until delivery to the Project Site;
  - .3 procurement by the Construction Manager of the bonds set forth in AIA Document Al81™-2025, Exhibit B, Insurance and Bonds; and
  - .4 any other terms and conditions set forth in the Contract Documents.

To protect the Owner, and to add accountability for the Construction Manager and the Modular Subcontractor, Article 9 of A481-2025 requires the Construction Manager and Modular Subcontractor to keep detailed records of costs and expenses charged against the Advance Payment. The Construction Manager must include the remaining amount of, and the funds drawn down from, the Advance Payment on every payment application until the Advance Payment is fully exhausted. Article 9 also requires the Construction Manager to warrant that title to Modular Work paid for by the Advance Payment will pass to the Owner at the time the Advance Payment funds are used.

#### A281-2025, General Conditions for VMC

- **§ 9.3.5** The Construction Manager shall keep full and detailed records of costs and expenses charged against the Advance Payment. The Construction Manager shall account for Modifications resulting in adjustments to the Advance Payment, the use of Advance Payment funds, and shall identify the amount remaining of the Advance Payment, on every Application for Payment until the Advance Payment is fully exhausted.
- **5 9.3.6** The Construction Manager warrants that title to the Modular Work covered by the Advance Payment will pass to the Owner at the time the Advance Payment funds are expended for the construction portion of the Modular Work. The Construction Manager further warrants that upon submission of an Application for Payment, the Modular Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Construction Manager's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Construction Manager, Modular Subcontractor, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Modular Work.

Article 9 makes clear that the Advance Payment must be fully exhausted before further payment is to be made to the Construction Manager for the Modular Work. When the Advance Payment is fully exhausted, the Construction Manager and Modular Subcontractor must provide the Owner with a final accounting of all costs and expenses.

#### A281-2025, General Conditions for VMC

**§ 9.3.7** Unless otherwise agreed upon by the Owner and Construction Manager, the Advance Payment shall be fully exhausted before any remaining balance of the Guaranteed Maximum Price becomes due to the Construction Manager for the Modular Work. Upon exhaustion of the Advance Payment, the Construction Manager and Modular Subcontractor will provide the Owner with a final accounting of all costs and expenses charged against the Advance Payment.

Article 9 sets forth that the Advance Payment does not constitute acceptance of the Modular Work that is not in accordance with the Contract Documents. This protection applies to both the Owner and the Construction Manager. Neither the Modular Subcontractor nor the Construction Manager may claim that the Modular Work that was paid for by the Advance Payment was "accepted" simply because payment was received for such Modular Work.

#### A281-2025, General Conditions for VMC

**§ 9.3.8** The Advance Payment shall not constitute acceptance of Modular Work that is not in accordance with the requirements of the Contract Documents.

Finally, as a protection to the Owner for advancing funds for Work not yet completed, Article 9 provides that, if the Owner-Construction Manager Agreement is terminated in accordance with Article 14, then the Construction Manager must immediately return the remaining balance of the Advance Payment to the Owner. No portion of the Advance Payment may be withheld by the Construction Manager in the event of a dispute. This Section applies to A481-2025 as well.

#### A281-2025, General Conditions for VMC

**§ 9.3.9** If the Agreement is terminated in accordance with Article 14, the Construction Manager shall immediately return to the Owner the remaining balance of the Advance Payment. The Advance Payment shall not be withheld to impose a penalty or to offset amounts in dispute between the Owner and Construction Manager.

After the Modular Subcontractor receives the Advance Payment, it must promptly pay each Sub-subcontractor or supplier any amount owed in accordance with the respective contract.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

**§ 11.2.3** Upon receipt of the Advance Payment, the Modular Subcontractor shall promptly pay each consultant, Sub-subcontractor, and supplier any amount owed in accordance with the terms of the applicable contracts and purchase orders.

#### 4-C. Effectuating the Advance Payment

In practice, there are a variety of avenues to effectuate an advance payment to a contractor or a construction manager. This Section 4-C discusses one of those potential avenues. Users should make their own determination as to whether or not this method is sufficient for their contract requirements.

Under the new VMC agreements, if an Advance Payment is agreed upon, the parties may use AIA Contract Documents G702°GMP-2021, Application and Certificate for Payment for Cost of the Work Projects with a Guaranteed Maximum Price and G703°CW-2021, Continuation Sheet for Cost of the Work Projects . In G703CW-2021, users may add a separate line item for the Advance Payment and such amount can be included in the "Materials Presently Stored" column. When a draw is made against the Advance Payment, the "Materials Presently Stored" column should be reduced accordingly. Simultaneously, users should add a line item for each draw against the Advance Payment that is made to the Construction Manager and Modular Subcontractor, and the sum of the draw should be reflected in the "Materials Presently Stored" column. For example, if a \$250,000 draw is made against a \$1,000,000 Advance Payment, then the Advance Payment should be reduced to \$750,000 and a new line item of \$250,000, which represents this draw, should be added in G703CW-2021.

For payment applications submitted prior to the exhaustion of the Advance Payment, G702GMP-2021 should reflect a zero balance for "Current Payment Due." This is because the Advance Payment has not yet been exhausted. Under the terms of A281-2025, neither the Construction Manager nor Modular Subcontractor is entitled to additional funds for the Modular Work until the Advance Payment has been fully exhausted.

Project participants should be aware that the Advance Payment will be paid to the Modular Subcontractor prior to the performance of the Modular Work. Accordingly, the Architect should consider omitting "onsite observations and" under "Architect's Certificate for Payment" in G702GMP-2021. This is because the Architect may not have observed the Modular Work for which the Advance Payment will cover.

It is important to note that neither G702GMP-202l nor G703CW-202l were originally drafted with the intent to effectuate an advance payment to a contractor. Rather, these forms are modified versions of G702®-1992, Application and Certificate for Payment and G703®-1992, Continuation Sheet that are specifically tailored for Cost of the Work projects. As such, the static language of these forms may not fully align with the Owner and Construction Manager's intent of making the Advance Payment to the Modular Subcontractor. To create a clear record, it is important for project participants to specify their intent in the space provided on each form when submitting an Application and Certificate for Payment for the Advance Payment.

#### 4-D. Permitting VMC Projects

The permitting process on VMC projects is not universal. At the time of this publication, several states have enacted legislation regulating offsite construction, including VMC projects. For these states, the requirements and regulations vary. Certain states allow third-party agencies to conduct plan review and Modular Facility inspections, whereas other states only allow state officials to perform such tasks. Additionally, some offsite construction programs only regulate residential projects, while others regulate non-residential projects. In states that have not enacted regulations of this nature, the local authority having jurisdiction (AHJ) is typically responsible for applying existing building codes to the Modules. Despite the varying procedures for permitting VMC projects, one consistent aspect is that the Project must meet all applicable codes where it is located, regardless of the location of the Modular Facility.

There are a growing number of reciprocity agreements between states for projects that utilize VMC and other types of modular construction. Under these agreements, Modules bearing a state's seal can signify that they meet another state's certification process. Reciprocity agreements eliminate the need for further inspection of a Module after delivery to the Project Site to ensure it meets the receiving-state's requirements.

Under the VMC agreements, the Modular Subcontractor is responsible for obtaining governmental approvals for the Modular Work. Section 8.3.3 of A481-2025 states that the Modular Subcontractor is responsible for securing and paying for permit fees, licenses, and inspections by government agencies pertaining to the Modular Work.

# A481-2025, Construction Manager/Modular Subcontractor Agreement § 8.3.3 Permits, Fees, Notices, and Compliance with Laws

**§ 8.3.3.1** The Modular Subcontractor shall give notices and comply with applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on performance of the Modular Work. The Modular Subcontractor shall secure and pay for permits, fees, licenses, and inspections by governmental or independent agencies necessary for proper execution and completion of the Modular Work, wherever performed, the furnishing of which is required of the Construction Manager by the Prime Contract.

- **§ 8.3.3.2** The Modular Subcontractor shall provide all necessary documentation to the authorities having jurisdiction over the Modular Work, which may include the Module Design Documents, plans, specifications, typical system packages, calculations, test results, evaluation reports, compliance control and quality assurance programs, and information related to Construction Manager's Work that directly interfaces with the Modules.
- **§ 8.3.3.3** If required by the authorities having jurisdiction over the Project, the Modular Subcontractor shall submit the Final Module Design Documents, and other necessary documentation, bearing the signature and seal of a registered design professional.
- § 8.3.3.4 The Modular Subcontractor shall comply with Federal, state, and local tax laws; social security acts; unemployment compensation acts; and workers' compensation acts, insofar as applicable to the performance of this Subcontract.

Under these sections, the Modular Subcontractor must provide the necessary information to the AHJ over the Modular Work, which may include the jurisdictions of the Project Site and Modular Facility. This information may include the Module Design Documents, plans and specifications for the Modules, and details for work performed at the Project Site that directly interfaces with the Modules. If required by the AHJ over the Project, the Modular Subcontractor must submit plans for the Modules that are properly sealed by a licensed design professional. Subsequently, the state (or a third-party agency) typically reviews design plans sealed by the design professional showing that the structures and systems are engineered to meet code and if so, issue a permit for the Final Module Design Documents.

The remainder of the permitting process is nearly identical to traditional site-built projects. The Owner submits a package for the site-built portions of the Project to the local AHJ for review. That local submission typically includes the state-approved Final Module Design Documents. The local submission identifies elements of the Modular Work to indicate that they are beyond the purview of the local AHJ.

#### 4-E. Modular Facility and Modular Work inspection by the AHJ

Inspections performed by the authorities having jurisdiction (AHJ) over the Modular Work may be conducted at the Modular Facility, Project Site, or both. To begin, the Modular Subcontractor may be required to submit a quality assurance program plan to the AHJ over the Modular Facility. This plan may consist of inspection and testing procedures, acceptance/rejection criteria, and frequency of inspections. After approval of the plan, inspections of the Modules at the Modular Facility may occur. The Modules may be inspected for compliance with the plan and the Final Module Design Documents. As the Modules are constructed, a label or other insignia may be issued to signify compliance with the applicable codes.

To account for this process, the VMC agreements require the Modular Subcontractor to arrange and allow for access to the Modular Work at the Modular Facility by the AHJ.

A481-2025, Construction Manager/Modular Subcontractor Agreement

§ 8.3.4 Inspections of the Modular Work at the Modular Facility

**§ 8.3.4.1** The Modular Subcontractor shall arrange and allow for reasonable access to the construction portion of the Modular Work at the Modular Facility by governmental or authorized independent agencies.

<sup>&</sup>lt;sup>16</sup> These plans are referred to as the "Final Module Design Documents" in the VMC agreements.

The Modular Subcontractor must give advance notice to the Construction Manager and Architect about inspections or testing of the Modular Work at the Modular Facility. This requirement enables the Construction Manager and Architect to attend such inspection or testing of the Modules.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

§ 8.3.4.2 The Modular Subcontractor shall notify the Construction Manager and Architect in writing about inspections or testing of the Modular Work at the Modular Facility at least « » days prior to the scheduled inspection or test. The Modular Subcontractor shall immediately inform the Construction Manager and Architect of any changes in the scheduled inspection or test.

After delivery of the Modules to either the Staging Site or Project Site, they may be inspected by the AHJ over the Project Site. As explained in Section 4–D, if the Modules bear the insignia of a state that has reciprocity with the receiving-state, they may not be inspected a second time.

#### 4-F. Visits to the Modular Facility by the Construction Manager and Architect

The VMC agreements contain traditional language regarding accessing the Work. The Construction Manager is required to provide the Owner and Architect with access to the Work, wherever located. This obligation is flowed down to subcontractors, including the Modular Subcontractor. In the VMC agreements, the Modular Subcontractor is required to provide the Construction Manager, Owner, and Architect, with access to the Modular Work, regardless of whether the Modular Work is located at the Modular Facility, Project Site, or Staging Site, to the extent that it remains under the Modular Subcontractor's control.

#### A281-2025, General Conditions for VMC

§ 3.17 Access to Work

**§ 3.17.1** The Construction Manager shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

It may be prudent for the Construction Manager to inspect the Modules for incorrect work and other issues at the Modular Facility, prior to shipment to the Project Site or Staging Site. The impacts of incorrect work on the Modules can be exacerbated after shipment. It is easier, and usually less costly, to remedy errors and perform rework on the Modules at the Modular Facility, rather than after shipment to the Project Site or Staging Site.

For similar reasons, the Owner may request the Architect to periodically evaluate the Modules prior to shipment from the Modular Facility. If the Owner desires for the Architect to evaluate the Modular Work at a location other than the Project Site, including the Staging Site and Modular Facility, this service may be selected as a Supplemental Service in Bl81–2025. In the event the Owner and Architect agree for the Architect to evaluate the Modular Work at the Modular Facility or Staging Site as a Supplemental Service, the parties may rely upon Section 4.2.2 of A281–2025, which limits the parameters of the Architect's visits to the Modular Facility and Staging Site to be consistent with the traditional standards of A201. In other words, the Architect's evaluations of the Modular Work at the Modular Facility or Staging Site should be performed to the same standard as the Architect's visits to the Project site.

#### A281-2025, General Conditions for VMC

**§ 4.2.2** The Architect will visit the Project Site and, if the Owner and Architect agree in writing, the Staging Site or Modular Facility, at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Construction Manager's rights and responsibilities under the Contract Documents.

#### 4-G. Transportation, Storage, and Delivery of Modules to the Project Site

Under the VMC agreements, the Modular Subcontractor is responsible for shipping, storing, and related services for proper transportation of the Modules to the Project Site or Staging Site. Similarly, the Modular Subcontractor must also obtain proper permits and licenses, and pay associated fees, for transporting the Modules.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

- § 8.3.7 Transportation, Storage, and Delivery of the Modules
- **§ 8.3.7.1** The Modular Subcontractor shall be responsible for shipment, storage, and related services for proper transportation of the Modules to the Project Site or Staging Site.
- **§ 8.3.7.2** The Modular Subcontractor shall secure and pay for permits, fees, licenses, and inspections by government or independent agencies, necessary for transportation of the Modules.

It is important for the Construction Manager and Modular Subcontractor to coordinate the delivery of the Modules. A481-2025 requires the parties to coordinate the date, time, and location for delivery.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

**§ 8.3.7.3** The Modular Subcontractor shall deliver the Modules to either the Project Site or Staging Site in accordance with the Project schedule. The parties shall coordinate and agree, in writing, as to the date, time, and location for delivery of the Modules.

Shipment of the Modules from the Modular Facility is a pivotal point on VMC projects. This is because there is rarely time in the Project's schedule for the Modules to be shipped back to the Modular Facility for rework. As such, under the VMC agreements, the Modular Subcontractors must not release the Modules for transportation until it receives confirmation from the Construction Manager that the Project is prepared to receive the Modules. To signify the importance of this aspect of the Project, under A481-2025, shipment of the Modules is a representation from the Modular Subcontractor that the Modules comply with the Subcontract Documents and the Final Module Design Documents. Simultaneously, the Construction Manager's confirmation that the Project is prepared for the Modules is a representation that the Construction Manager's Work that interfaces with the Modules complies with the Subcontract Documents.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

**§ 8.3.7.4** The Modular Subcontractor shall not release the Modules for transportation until the Construction Manager confirms, in writing, that the Project is prepared to receive the Modules. The Modular Subcontractor's release of the Modules for transportation constitutes a representation that the Modules comply with the Subcontract Documents and the Final Module Design Documents. The Construction Manager's written confirmation that the Project is prepared to receive the Modules represents that the Work that interfaces with the Modules complies with the requirements of the Subcontract Documents.

A481-2025 requires the Modular Subcontractor to notify the Construction Manager of deliveries of the Modules. This is especially important where Modules are shipped at different intervals to the Project Site or Staging Site. The parties are prompted to agree on a notification period in which the Modular Subcontractor must inform the Construction Manager of Module deliveries.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

**§ 8.3.7.5** The Modular Subcontractor shall notify the Construction Manager in writing about deliveries of the Modules to the Project Site or Staging Site at least « » days prior to the scheduled deliveries. Notification shall include dates and times of the deliveries of the Modules. The Modular Subcontractor shall immediately inform the Construction Manager of any changes in the scheduled deliveries.

A481-2025 also requires the Modular Subcontractor to furnish information related to the shipment of the Modules to the Construction Manager for informational purposes only. This may include shipping instructions and a logistics plan, and known conditions along the delivery route that may impact the Project schedule.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

**§ 8.3.7.6** For informational purposes only, the Modular Subcontractor shall furnish to the Construction Manager data related to the shipment, transportation, and delivery of the Modules, such as a logistics plan illustrating routes, regulatory or environmental restrictions, and other known conditions.

The Modular Subcontractor is responsible for the Modules while in transit, storage, and during delivery until the Construction Manager accepts the Modular Work in accordance with Section 8.3.11.1 of A481-2025. As part of this, the Modular Subcontractor is responsible for damage to the Modules and for providing reasonable protection to prevent damage to surrounding property while the Modules are in transit.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

- **§ 8.3.7.7** The Modular Subcontractor shall remain responsible for the Modules while in transit, storage, and during delivery, until the Modules are accepted by the Construction Manager in accordance with Section 8.3.11.1. If the Modules, or any portion of the Modular Work, is damaged while in transit, storage, or during delivery, the Modular Subcontractor shall be responsible for any such loss or damage.
- **§ 8.3.7.8** While the Modules are in transit, the Modular Subcontractor shall provide reasonable protection to prevent damage, injury, or loss to surrounding property, such as trees, shrubs, lawns, walks, pavements, roadways, and structures.

It is important to note that, under the VMC agreements, the Architect has no responsibility to review or provide input about transportation, storage, and delivery of the Modules. This responsibility is included in the Construction Manager's construction means and methods for the Work. The Architect should avoid involvement in the decisions related to transportation, storage, and delivery of the Modules.

The VMC agreements also require the Modular Subcontractor to maintain insurance coverage for the Modules during transportation to the Project Site or Staging Site. This obligation is first set forth in Al81-2025 and flowed down to the Modular Subcontractor in A481-2025.

### A181-2025, Owner/Construction Manager Agreement for VMC, Exhibit B § B.3.2.14 Insurance for Modules while in Transit

The Construction Manager shall require the Modular Subcontractor to procure and maintain insurance coverage for the Modules while in transit to the Project Site or Staging Site. This insurance shall include (1) insurance covering all risks of physical loss or damage to the Modules during transit, including loading and unloading, until the Modules are accepted by the Construction Manager in accordance with AIA Document A481™-2025, Standard Form of Agreement Between Construction Manager and Modular Subcontractor, Volumetric Modular Construction Edition with coverage limits equal to the full replacement value of the Modules and (2) liability insurance covering any third-party claims arising from the transportation of the Modules, including property damage and bodily injury.

# A481-2025, Construction Manager/Modular Subcontractor Agreement, Exhibit A § A.4.3 Insurance for Modules During Transportation

The Modular Subcontractor shall purchase and maintain insurance coverages for the Modules during transportation to the Project Site or Staging Site. These coverages shall include (1) insurance covering all risks of physical loss or damage to the Modules during transportation, including loading and unloading, until the Modules are accepted by the Construction Manager in accordance with AIA Document A481-2025 with coverage limits equal to the full replacement value of the Modules, and (2) liability insurance covering any third-party claims arising from the transportation of the Modules, including property damage and bodily injury.

#### 4-H. Installation, Assembly, and Connection of the Modules

On VMC projects, there is no clear consensus as to whether the Construction Manager or Modular Subcontractor regularly performs the installation, assembly, and connection of the Modules. Because this portion of the Work may be performed by either the Construction Manager or Modular Subcontractor, A481-2025 prompts the parties to select who will perform this scope. If the parties select the Modular Subcontractor, then installation, assembly, and connection of the Modules is included in the Modular Work. If the parties do not specify a party in Section 8.3.10.1 of A481-2025, the default party is the Construction Manager. A481-2025 specifies that installation, assembly, and connection of the Modules includes "labor, materials, equipment, supervision, offloading, craning, setting of the Modules on the Project, and any additional responsibilities" that the parties may describe in Section 8.3.10.3.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

#### § 8.3.10 Installation, Assembly, and Connection of the Modules at the Project Site

§ 8.3.10.1 The following party shall be responsible for installation, assembly, and connection of the Modules at the Project Site in accordance with the Subcontract Documents and Final Module Design Documents: (Check the appropriate box.)

[] Construction Manager [] Modular Subcontractor

If the Construction Manager and Modular Subcontractor do not designate a party in this Section, or do not subsequently agree in writing, the Construction Manager shall be responsible for installation, assembly, and connection of the Modules at the Project Site.

**§ 8.3.10.2** Installation, assembly, and connection of the Modules shall include labor, materials, equipment, supervision, offloading, craning, lifting, setting of the Modules on the Project, and any additional responsibilities described in Section 8.3.10.3.

**§ 8.3.10.3** The party identified in Section 8.3.10.1 shall also be responsible for the following: (Describe and detail additional responsibilities, if any, for the party identified in Section 8.3.10.1.)

« »

#### 4-I. Transferring the Risk of Loss of the Modules

The transfer of risk of loss is a critical aspect of a VMC project's overall risk management and success. This represents the point in which the responsibility for the Modules shifts from the Modular Subcontractor to the Construction Manager. When this risk transfers, the Construction Manager becomes responsible for the Modules and any damage that occurs thereafter. The risk of loss does not transfer at the same moment in time on every project, and rather, it depends on allocation of scope between the Modular Subcontractor and Construction Manager.

Section 8.3.ll of A481-2025 defines the transfer of risk of loss. The Modular Subcontractor notifies the Construction Manager that the Modular Work, or a portion that the Construction Manager will accept separately (such as a limited number of Modules), is complete. The Construction Manager then performs an inspection to either accept or reject the Modular Work. If the Construction Manager rejects the Modular Work, then the Modular Subcontractor must correct it and bears responsibility for associated costs. If requested by the Construction Manager, the Modular Subcontractor must provide a remediation schedule of the rejected Modular Work. Once the Construction Manager accepts the Modular Work, the Construction Manager becomes responsible for it. The transfer of the risk of loss does not impact the Modular Subcontractor's obligations to construct the Modular Work in accordance with the Subcontract Documents and Final Module Design Documents. The Construction Manager's acceptance of the Modular Work is also not a waiver of the Construction Manager's claims for latent defects in the Modular Work.

Finally, parties should be aware that the transfer of risk from the Modular Subcontractor to the Construction Manager has insurance implications. Depending on the Modular Subcontractor's scope of work, it may need comprehensive insurance coverage to cover the Modules at different stages of the Project. By appropriately assigning responsibility, the parties can reduce costs or unnecessary duplication of insurance coverages. To account for this, A481-2025 specifies that the duty to maintain property insurance for the Modules passes to the Construction Manager upon acceptance.

### A481-2025, Construction Manager/Modular Subcontractor Agreement § 8.3.11 Acceptance and Risk of Loss

- **§ 8.3.11.1** When the Modular Subcontractor considers the Modular Work, or a portion thereof that the Construction Manager agrees to accept separately, to be complete, the Modular Subcontractor shall notify the Construction Manager. The Modular Subcontractor shall allow the Construction Manager a reasonable amount of time to inspect the Modular Work to determine, based on conformance with the Subcontract Documents and Final Module Design Documents, if it is accepted or rejected. The Construction Manager shall accept or reject, in writing, the Modular Work, or a designated portion thereof.
- **§ 8.3.11.2** The Modular Subcontractor shall promptly correct Modular Work rejected by the Construction Manager, or otherwise failing to conform to the Subcontract Documents or the Final Module Design Documents. The costs and time associated with correcting any rejected Modular Work, such as additional testing, inspections, uncovering, and replacement of the Modular Work, shall not result in a change in the Subcontract Sum or Subcontract Time, unless otherwise permitted in the Subcontract Documents. At the Construction Manager's request, the Modular Subcontractor shall provide a schedule detailing remediation of the rejected Modular Work. When the Modular Subcontractor considers the remedied Modular Work to be complete, the parties shall follow the procedures set forth in Section 8.3.11.1. If the Modular Subcontractor disagrees with the Construction Manager's rejection of the Modular Work, the Modular Subcontractor may make a Claim.
- **§ 8.3.11.3** The Modular Subcontractor shall be responsible for removing portions of the Modular Work that are not in accordance with the requirements of the Subcontract Documents or the Final Module Design Documents, and are neither corrected by the Modular Subcontractor nor accepted by the Construction Manager.
- **§ 8.3.11.4** When the Construction Manager accepts the Modular Work, or a designated portion thereof, in accordance with Section 8.3.11.1, the risk of loss with respect to such Modular Work shall transfer to the Construction Manager. At that time, the Construction Manager shall be solely responsible for the protection of the Modular Work, or the designated portion thereof, and if the Modular Work is damaged thereafter, the Construction Manager shall be responsible for such loss or damage. This Section shall have no effect on the Modular Subcontractor's obligations to complete the Modular Work in accordance with the Subcontract Documents and Final Module Design Documents.
- **§ 8.3.11.4.1** The duty to maintain property insurance for the Modular Work shall pass to the Construction Manager upon acceptance in accordance with Section 8.3.11.
- **§ 8.3.11.5** The risk of loss of the Modular Work shall remain with the Modular Subcontractor until acceptance by the Construction Manager in accordance with Section 8.3.11.
- **§ 8.3.11.6** The Construction Manager's acceptance of the Modular Work in accordance with Section 8.3.11 shall not be construed as a waiver of claims for latent defects in the Modular Work.

#### 4-J. Bonding the Modular Work

On construction projects, payment and performance bonds are some of the strongest protections for the owner and contractors against subcontractor defaults. If a subcontractor defaults or declares insolvency, these bonds provide financial recourse and assurances of proper performance. Under the VMC agreements, the Modular Subcontractor is required to provide bonds for the Modular Work. The types and penal sum of each bond is to be agreed upon by the parties in A481-2025, Exhibit A, Construction Phase Amendment.

#### A481-2025, Construction Manager/Modular Subcontractor Agreement

#### § 12.2.1 Insurance and Bond Obligations

§ 12.2.1.1 After execution of the Construction Phase Amendment, the Construction Manager and Modular Subcontractor shall purchase and maintain the insurance and bonds set forth in the Construction Phase Amendment, and elsewhere in the Subcontract Documents.

#### A481-2025, Exhibit A, Construction Phase Amendment

#### § A.4.6 Bonds

The Modular Subcontractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows: (Specify type and penal sum of bonds.)

Туре	Penal Sum (\$0.00)	
Payment Bond		
Performance Bond		

Payment and Performance Bonds shall be AIA Document A312<sup>™</sup>, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312<sup>™</sup>, current as of the date of this Agreement.

Payment and performance bonds are required under the VMC agreements because the Modular Subcontractor performs a significant scope of work and often performs most of the construction. Accordingly, the Project can be substantially impacted if the Modular Subcontractor defaults. Timeliness of performance is also crucial, as many benefits of VMC depend on an accelerated timeline. Payment and performance bonds may alleviate impacts to the Project in the event the Modular Subcontractor defaults on the Project. Those bonds may facilitate completion of the Modular Work and payment of the Modular Subcontractor's Sub-subcontractors and vendors. However, even if the Modular Work is bonded, it can be difficult for the Project to be timely completed in the event of the Modular Subcontractor's default. Because the Modular Subcontractor performs a highly specialized scope of work, it can be challenging to find a replacement subcontractor who is able to complete the Modular Work within the Project's schedule.

In addition to payment and performance bonds, the parties may consider requiring the Modular Subcontractor to procure a warranty bond. A warranty bond provides additional coverage to the Construction Manager and Owner in the event the Modular Subcontractor is unable to fulfill its warranty obligations under the Subcontract.

It can be difficult for the Modular Subcontractor to procure bonds or otherwise "get bonded." At the time of this publication, many companies in the VMC sector are in their initial stages of operations and, consequently, lack sufficient experience or working capital from the surety's perspective. If the Modular Subcontractor cannot get bonded, the parties may consider having the Construction Manager procure subguard insurance, which is a type of insurance policy designed to protect upstream contractors against the financial risks associated with the default of their subcontractors.

#### 4-K. Governing Law of A481-2025 (Does the UCC Apply?)

Generally, construction contracts are interpreted under common law<sup>17</sup> and relevant statutes without reference to the Uniform Commercial Code (UCC). This is because, though many contractors provide both services (labor) and goods (materials), the majority of jurisdictions have ruled that the nature of construction involves services, rather than the sale of goods. "Services" generally involve "the purchase of labor and the 'knowledge, skill, and ability' of the contracting party."<sup>18</sup>

By contrast, when a transaction involves the sale of goods, the UCC, as adopted by each state, governs the transaction. Article 2 of the UCC is a set of uniform rules that apply to transactions involving the sale of goods. The UCC can be thought of as a "gap-filler." It is a comprehensive set of laws designed to standardize and regulate transactions in the sale of goods. If required terms are absent or inconsistent in a contract for goods, then the parties can look to the UCC for clarification. For example, if the parties dispute issues such as (i) when the contract was formed, (ii) what constitutes proper performance, or (iii) the duration of a seller's warranty, the UCC may shed light on these issues.

Parties should know if and when the UCC applies. Depending on which law applies, there may be significant differences between the responsibilities of the parties, available remedies, and notice periods to preserve each party's rights. Additionally, parties may be subject to different statutes of limitations, or be entitled to raise certain defenses to claims.

The majority of AIA Contract Documents are drafted to be interpreted without application of the UCC. The VMC agreements are no exception to this practice. A481-2025 contains explicit provisions stating that it is intended to be interpreted under the common and statutory laws of the place where the Project is located, and expressly disclaiming the Uniform Commercial Code. Users of these agreements should exercise caution when considering modifying or deleting Section 15.1 of A481-2025.

# A481-2025, Construction Manager/Modular Subcontractor Agreement § 15.1 Governing Law

The parties agree that the purpose of this Subcontract is predominantly for the provision of services and not for the sale of goods. It is the parties' intent that this Subcontract be governed by the common and statutory laws of the Project Site, and not by the Uniform Commercial Code, as adopted.

<sup>&</sup>lt;sup>17</sup> Common law is the body of law based upon judicial decisions, as opposed to statutory law, where legal rules evolve through court decisions.

<sup>&</sup>lt;sup>18</sup> R. Power Biofuels, LLC v. Chemex LLC, 91 UCC Rep.Serv.2d 167 (2016).

Section 15.1 is included because certain modular construction cases have resulted in the court deeming the underlying contract one predominantly for the purpose of selling goods, in contrast to providing a service. In these cases, many courts applied the "predominant purpose test" (also referred to as the "predominant factor test"). This test is for determining whether the contract's purpose, "is the rendition of services with goods incidentally involved (e.g., contract with artist for painting) or is a transaction of sale, with labor incidentally involved (e.g., installation of a water heater in a bathroom)."<sup>19</sup> If the predominant purpose of the transaction is provision of a service, with goods incidentally involved, common law applies. If the transaction is found to be one involving the sale of goods, with services incidentally involved, then the UCC applies.

Courts consider a variety of factors when applying the predominant purpose test. These factors vary by jurisdiction. Typically, courts first determine whether the subject of the contract meets the UCC's definition of a "good." Courts may consider other factors, such as (i) the terminology of the contract; (ii) the relative cost of materials in comparison to the cost of services; (iii) the nature of the Modular Subcontractor's business; and (iv) the reasons for the parties' contract.

In consideration of these factors, A481-2025 contains express terms to facilitate an interpretation under common law. For terminology, A481-2025 expressly refers to the modular builder as the "Modular Subcontractor," the manufacturing plant as the "Modular Facility," and the agreement as the "Subcontract." Additionally, A481-2025 contains express provisions articulating the Modular Subcontractor's services, including (i) the responsibility to design and engineer the Modules, (ii) assisting the Construction Manager with collaborating with the Owner and Architect to develop the design of the Modular Work in relation to the Project's design, (iii) reviewing the Architect's Pre-Design option and making recommendations relating to the Modular Work, (iv) reviewing the Architect's Schematic Design Documents, Design Development Documents, and Construction Documents to provide consultation and to coordinate with the Architect's services, (v) developing the Preliminary and Final Modular Design Documents, and (vi) furnishing labor and materials to build the Modules. A481-2025 also distinguishes the Modular Subcontractor's compensation for preconstruction and construction services. These provisions are included in A481-2025 with the intent for the subcontract to be interpreted under common law.

If the A481-2025 is subject to common law, the parties may reasonably predict their available legal remedies and exposure to risk, as with traditional construction projects. It is important to note, however, that courts interpret these matters on a case-by-case basis, so the particular facts and circumstances of the matter may be the court's primary consideration in the event of a dispute.

<sup>&</sup>lt;sup>19</sup> Bonebrake v. Cox, 499 F.2d 951, 960 (8th Cir. 1974).