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February 2, 2016 ADP #16004

[redacted]

Dear [redacted]:

Associated Design Partners, Inc. has completed an on-site visual review and follow-up engineering evaluation for the above referenced claim. You originally contacted my office requesting engineering investigation services on January 5, 2016. You contacted the insured and arranged for an initial site visit, which was conducted on January 11, 2016. My colleague, Warren Gerow, P.E. conducted a second site visit on January 15, 2016.

You requested engineering services to include the following:

- Review this fire loss to determine and report on the extent of fire related damages.
- Make recommendations regarding the extent of required demolition, repairs, and fire damage restoration work.
- Prepare fire damage and structure restoration plans that will initially be used for pricing and adjusting purposes and can then be developed into permitting and construction documents.

This letter report provides our findings with respect to usability of the still standing structure for reconstruction. In order to define the extent of fire related damages we conducted a code study and are also preparing plans defining the scope of fire damage, repairs, and restoration work.

PROPERTY DESCRIPTION

The subject property can be described as an L-shaped, three-section Murox steel warehouse style building used for truckload freight storing and hauling, truckload freight brokerage, and yard management services. The three sections of the building include a storage area (former truck loading area), an office space, and a truck repair bay. The truck repair area is approximately 80' x 30'. Contiguous to the southern wall of the truckload area is the office area, approximately 50' x 20'. Contiguous to the southern wall of the office space is the storage area, approximately 50' x 28'. The point of origin of the fire occurred in the storage area (former truck loading area) of the building.

NATURE OF CLAIM

The insured's building, located in [redacted], suffered a significant fire loss which originated inside the storage section of the building (former truck loading area). Additionally, widespread smoke and soot damage occurred and propagated throughout the building into the office and truck repair sections, both located distal to the fire origin. We have been asked to review this fire loss and make recommendations for appropriate repairs needed to restore the property to a pre-loss condition, including addressing possible code-mandated upgrades and improvements.

INVESTIGATIONS AND OBSERVATIONS

During my initial site visit I made observations, collected photographs, took measurements, and documented or noted existing conditions. In order to access the bar joists and roof structure an extension ladder was required; therefore, a follow-up site visit was conducted for a two-person field crew to access and measure the entire roof structure. Warren Gerow P.E., and Technician Tom Kostovick of Associated Design Partners Inc. together conducted a site visit, at which time they made additional observations, collected photographs, took measurements, and documented or noted existing conditions, specifically of the wall thicknesses, bar joists, roof deck profile, and overhead door framed openings. Copies of all photographs have been attached for reference to this report.

I have not provided a detailed written narrative of all my investigations and observations for this claim. A more detailed written narrative of my investigations, observations, and follow-up research can be provided upon request. The following paragraphs provide a summary of the more significant observations and findings.

1. The fire started at the westward side of the storage area of the warehouse, moving outward and completely damaging the interior and exterior of the storage warehouse (see photographs 3-11).

2. The roof structure bar joists are significantly heat damaged throughout the storage area (see photographs 40-44).
3. There is fire damage throughout the storage area steel roof (see photographs 45, 46).
4. There is heat and water damage to a significant area of the entire rubber roof membrane and insulation that justifies entire roof system replacement.
5. With the exception of smoke damage, the concrete foundation walls appear to be in good condition with no visible signs of structural damage (see photographs 3, 4).
6. There is smoke damage throughout the interior and exterior of the storage area, the office space, and the truck bay repair area.
7. The extent of this damage will be shown on our concept repair plans.

CODE CONSIDERATIONS

Per Maine State legislation the Town of [redacted] must abide by the Maine Uniform Building and Energy Code (MUBEC), which also includes the separate 2009 International Existing Building Code (IEBC) and the International Energy Conservation Code (IECC). Accordingly, within reason and at the discretion of the Code Enforcement Officer (Authority Having Jurisdiction), any building component that has been damaged will need to be restored in a code compliant manner.

Because this is an *existing building,* the code of jurisdictional applicability for this building is the 2009 (IEBC) *International Existing Building Code*. In accordance with 2009 IEBC, code upgrade requirements can be applied to entire systems and assemblies when significant portions of that subject system or assembly have been *substantially structurally damaged*, and require repair. Definitions for *rehabilitation, repairs,* and *substantial structural damage* are provided within IEBC-09 and have been considered and followed for development of our repair and restoration plans.

In accordance with Chapter 4 of IEBC-09, the *office space* and *truck repair bay* damage restoration project has been classified under section 402 as a *repair* project, and in accordance with section 402.2 the *repairs* have been designed to conform to the requirements of Chapter 5. In accordance with Chapter 4 of IEBC-09, the *storage warehouse area* damage restoration project has been classified under section 403 as an *alteration—Level 1* project, and in accordance with section 403.2 the *Level 1 alterations* have been designed to conform to the requirements of Chapter 6. Excerpts from Chapter 5 and Chapter 6 are found below.

506.1 General. *Structural repairs shall be in compliance with this section and section 501.2. Regardless of the extent of structural or nonstructural damage, dangerous conditions shall be eliminated. Regardless of the scope of repair, new structural members and connections used for repair or rehabilitation shall comply with the detailing provision of the International Building Code for new buildings of similar structure, purpose and location.*

DANGEROUS. *Any building, structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:*

1. The building or structure has collapsed, partially collapsed, moved off its foundation or lacks the support of ground necessary to support it.
2. There exists a significant risk of collapse, detachment or dislodgment of any portion, member, appurtenance or ornamentation of the building or structure under service loads.

506.2.2.1 Evaluation. *The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the code official. The evaluation shall establish whether the damaged building, if repaired to its pre-damaged state, would comply with the provisions of the International Building Code, except that the seismic design criteria shall be reduced IBC level seismic forces specified in Section 101.5.4.2.*

506.2.2.2 Extent of repair for compliant buildings. *If the evaluation establishes that the building in its pre-damage condition complies with the provisions of Section 506.2.2.1, the damaged elements shall be permitted to be restored to their pre-damage condition.*

506.2.2.3 Extent of repair for noncompliant buildings. *If the evaluation does not establish that the building in its pre-damage condition complies with the provision of Section 506.2.2.1, then the building shall be rehabilitated to comply with the provision of this section. The wind load for the repair and rehabilitation shall be those required by the building code in effect at the time of the original construction, unless the damage was caused by wind, in which case the wind loads shall be in accordance with the International Building Code. The seismic loads for this rehabilitation design shall be those required by the building code in effect at the time of original construction, but not less than the reduced-level seismic forces specified in Section 101.5.4.2.*

506.2.3 Substantial structural damage to gravity load-carrying components. *Gravity load-carrying components that have sustained substantial structural damage*

shall be rehabilitated to comply with the applicable provisions for dead and live loads in the International Building Code. Snow loads shall be considered if the substantial structural damage was caused by or related to snow load effects. Undamaged gravity load-carrying components that receive dead, live or snow loads from rehabilitated components shall also be rehabilitated if required to comply with the design loads of the rehabilitation design.

601.1 Scope. *Level 1 alterations as described in Section 403 shall comply with the requirements of this chapter. Level 1 alterations to historic buildings shall comply with this chapter, except as modified in Chapter 11.*

601.2 Conformance. *An existing building or portion thereof shall not be altered such that the building becomes less safe than its existing condition.*

Exception: *Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the International Building Code.*

602.1 Interior finishes. *All newly installed interior wall and ceiling finishes shall comply with Chapter 8 of the International Building Code.*

602.4 Materials and methods. *All new work shall comply with materials and methods requirements in the International Building Code, International Energy Conservation Code, International Mechanical Code, and International Plumbing Code, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the building.*

Findings from my code study are as follows:

Per my interpretation of the 2009 IEBC, the resulting claim damage to the ***storage warehouse area*** is classified as an ***Alteration—Level 1***. An Alteration—Level 1 is defined as the following:

Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures that serve the same purpose.

- With exception to smoke damage, the building's concrete foundation and floor slab were not damaged by the fire loss event. These systems only require cleaning and sealing as described herein.
- The fire completely damaged the structural frame of the storage warehouse warranting removal and replacement of the entire steel structure including

exterior bearing walls, steel siding, roof structure (bar joists), steel deck and roofing.

- It is my opinion that the affected damaged steel building structure shall be replaced with an upgraded code compliant structure in accordance with provisions defined by the 2009 IEBC. Our repair plans provide two pricing options—one to replace the existing structure with the same components and systems that pre-existed and another option to include a currently code compliant structure.

Per my interpretation of the 2009 IEBC, the resulting claim damage to the ***office space*** and ***truck repair area*** is classified as a ***repair***.

- With exception to smoke damage, the building's concrete foundation and floor slab were not damaged by the fire loss event. These systems only require cleaning and sealing as described herein.
- The exterior bearing walls, roof framing, and roof deck of the office space and truck repair areas were not structurally compromised and do not warrant replacement.
- The office space and truck repair areas were heavily smoke damaged throughout and require cleaning and sealing exposed surfaces designated to remain.
- Some components and systems may be more economical to remove and replace than to attempt cleaning. For example, some of the exterior metal siding might fall into this category; however, additional economic analysis is justified to verify the cost effectiveness of cleaning versus remove and replace.

SCOPE OF DEMOLITION AND REPAIRS

My conceptual repair scope is based upon my observations, evaluation, experience, and understanding of conditions as represented in this report. Conceptual repair plans have been prepared by Associated Design Partners, Inc. and have been attached to this report. Below is a brief outline of the demolition, reconstruction, cleaning and remediation work scopes.

- Remove entire storage area structure down to concrete deck.
- Remove and replace rubber roof membrane and insulation over entire building.
- CMU wall between the storage area and office space is to remain.

- CMU wall between the storage area and office has pre-existing cracking that requires repairs in accordance with code upgrades requirements. All CMU block shall be cleaned, sealed and repointed.
- Remove and discard all interior finishes in the building sections to remain that have been smoke stained by the fire, or water damaged and are not designated to remain for cleaning and sealing. Includes entire office section and truck repair section.
- Remove, discard, and replace all gypsum wallboard, trim, and finishes throughout the office space. (full gut).
- Remove, discard, and replace insulation throughout including rigid roof and interior wall cavity batts.
- Remove, clean, and salvage any mechanical fixtures that have been agreed to be salvaged by both parties, otherwise remove and replace.
- Reconstruct removed storage/truckload area building as shown on plans.
- Install new roof deck, insulation, and EPDM at newly constructed storage/ truckload area building.
- Install new roof insulation, and EPDM membrane roofing over office and truck repair sections.
- Soda or dry-ice blast, surface clean and disinfect, dry, and then seal the interior face of the concrete foundation walls, block walls, and floor slabs.
- Soda, sand, or dry-ice blast, surface clean, and repaint the structural steel building components not designated for removal and replacement, including; steel columns, steel bar joists, cold-formed steel wall girts and studs, and underside of metal roof deck.
- All remaining wood stud wall framing in the office area designated to remain shall be cleaned, dried, and sealed before replacing gypsum wallboard finishes trim and doors.
- Replace the entire electrical distribution system throughout the building including the service and panel.
- Repair, remove, clean and reset, or replace, plumbing systems and fixtures as necessary.
- Prime and paint interior exposed block walls and gypsum wallboard finishes.
- Provide new interior walls finishes, trim, doors, cabinets, and shelving similar to pre-existing in office area.
- Provide new lighting similar to pre-existing throughout.

- Building contents have not been addressed by this scope and are considered separate

The above outlined repairs are not intended to be fully comprehensive in detail and scope. The adjuster may have additional items and detail not specifically addressed herein. The listed items above are intended to reveal the general scope of restoration requirements for this property. Any repair work completed on this project must be completed in accordance with current codes and industry standards. This work should be completed by a reputable and well qualified contractor.

CLEANING AND SEALING

I recommend a simple ABC approach for restoration. Only qualified smoke and water damage remediation contractors should be employed who can offer an acceptable performance guarantee. The recommendations provided here are guidelines only and unless properly executed may not yield acceptable results. Accordingly, these recommendations should not be followed unless a licensed contractor assumes full responsibility for the application and performance of the end results. All cleaning should be conducted in accordance with IICRC guidelines.

- **A - Abolish:** absolutely remove and clean as much contamination as possible. Many different means of mechanical and/or chemical treatments are available, but some of the best, more effective means are to use dry ice or soda blasting on metal surfaces.
- **B - Bio-remediate:** use of a multi-purpose cleaning agent that removes remaining embedded biologic contaminates and provides disinfection and odor control.
- **C - Cover:** encapsulate and seal the cleaned surfaces so that any remaining denatured matter that may have penetrated the porous median is held inside. Use of breathable sealers is preferred so that the physical properties of the porous substrate are not significantly altered.

There are many acceptable cleaning and sealing products available. Using a product superior or equal to Benefect® Atomic™ Multipurpose Cleaner to clean interior concrete surfaces could be considered. The product literature represents that this cleaner will remove surface dirt, smoke and soot residues and surface mold, and will also assist in odor control. For sealing, I recommend using a product superior or equal to CleanSeal to create a protective barrier that is represented by the manufacturer to neutralize odors and molds and prohibit future contamination, according to product literature. Both Benefect® Atomic™ and CleanSeal are non-toxic applications that must be applied by a qualified applicator. Alternatively, use of the Fiberlock line of products may prove

effective; Fiberlock Shockwave, Shockwave RTU and Shockwave Green 24 for Bio-remediation, followed by a C-covering sealing of Fiberlock RTU 6000 or RTU 6001.

STEEL AND WOOD FRAMING MEMBERS

The following steps may be considered a reasonable course of action for cleaning and sealing the steel and wood framing designated to remain. No set law or code requirements are currently in place to govern these efforts. Other remediation professionals may offer alternative procedures for remediation. The recommendations provided here are guidelines only and unless properly executed may not yield acceptable results. Accordingly, these recommendations should not be followed unless a licensed applicator assumes full responsibility for the application and performance of the end results.

The steps below follow some of the more commonly recognized industry standards of practice.

1. Cleaning and sealing wood and steel framing and building components of smoke and soot shall be conducted in accordance with IICRC S520.
2. Remove all soot and water contaminated insulation and finishes from the interior to expose the underlying steel and wood framed structure.
3. After columns and roof framing designated to remain are exposed from the interior, dry ice, sand, or baking soda blast or use other acceptable cleaning methods on the framing members to remove surface soot and smoke particles.
4. Multiple passes and re-cleaning attempts may be required to adequately remove contaminants.
5. For wood framing, after clean and dry, heavy-vac (discharge to exterior) then HEPA-Vac surfaces. Use bio-remediation cleaning agent to denature any remaining microbial growth (usually caused by fire suppression water).
6. For wood framing, post-treat seal with sealing agent such as Fiberlock RECON Smoke Odor Sealer.
7. If additional steel framing located beyond the areas already designated on the plan as significantly fire damaged, structurally compromised, and/or too contaminated to economically clean and reuse, then remove and replace. Engineer to field determine after fully exposed.

(Depending upon the option for remedial improvements selected some minor variation to the smoke cleaning and sealing as listed above may be justified).

CONCRETE FOUNDATION WALLS, BLOCK WALLS, AND FLOOR SLAB

In addition to light sand or soda blast, I recommend using a product superior or equal to Benefect® Atomic™ Multipurpose Cleaner to clean all interior concrete surfaces. The product literature represents that this cleaner will remove surface dirt, smoke and soot residues and surface mold, and will also assist in odor control. Once the cleaning has been completed, all exposed surfaces need to be dried and sealed to reduce odors and off gassing. I recommend using a product superior or equal to CleanSeal to seal surfaces. Alternatively, use of Fiberlock Shockwave followed by sealing with Fiberlock IAQ 6000 or 6001 might be considered.

CONCLUSIONS

My conclusions are based upon my observations, code study, evaluation, experience, and understanding of conditions as represented in this report. My conclusions are provided with reasonable engineering certainty.

The storage/truck load section of this building suffered substantial structural damage due to the fire loss event that justifies complete demolition and reconstruction above the foundation. The entire building foundation and slab are salvageable. Other portions of this building suffered less than substantial structural damage due to the fire loss event and can be cleaned and salvaged. Building elements designated to remain that have sustained smoke and water damage need to be cleaned and sealed as described above.

Smoke and water damaged finishes throughout the building should be removed in order to clean and seal the underlying framing to remain. Conceptual plans and specifications are being prepared for remediation and reconstruction of this fire damaged building and will be submitted following issue of this report.

The above scope of work is intended to provide a general understanding as to the magnitude of demolition and reconstruction of the subject property. Recommendations for improvements, repairs, and remediation provided in this report are issued for pricing only, are provided in a conceptual sense, and lack the required level of detail typically included on construction documents that would be needed to ensure successful performance. The above written scope should not be considered a complete scope or substitute for stamped construction documents intended for use in permitting and reconstruction.

Any plans to be issued are intended to be initially used for cost estimating and adjusting purposes, and are not intended to be used for construction or permitting until issued for such purpose. Stamped construction documents intended for use in reconstruction can

be provided upon request that include additional detail, if the building is to be salvaged and restored.

LIMITATIONS

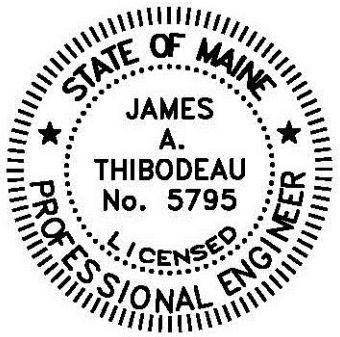
Recommendations for improvements, repairs, and remediation provided in this report are given in a conceptual sense, and lack the required level of detail needed to ensure successful performance. Accordingly, the owner is required to commission professional assistance from Associated Design Partners, Inc. or another qualified design professional for design and oversight of any such improvements, repairs, or remediation efforts. Failure, on behalf of the owner, to hire Associated Design Partners, Inc. or another qualified professional for services to fully design and oversee implementation of any recommended improvements, repairs and/or remediation work, may result in unacceptable performance or failure of the final system/s due to a lack of sufficient detail. In no way should the conceptual recommendations within this report be followed or utilized unless a registered professional engineer is hired to provide the necessary specifications, details and direction. Furthermore, the owner or other users of the information provided herein, by use or implementation of any of this information, without further direction and development from Associated Design Partners, Inc., agree to indemnify and hold harmless, Associated Design Partners, Inc. from any and all claims.

This letter report should be understood in the context provided. It is based upon visual observations, and understanding of conditions as represented. If varied or unforeseen conditions are disclosed, Associated Design Partners Inc. reserves the right, without prejudice, to reconsider and alter our conclusions and findings.

Your questions and comments regarding this report are welcome.

Sincerely,

James A. Thibodeau, P.E., S.E., DFE
President
Associated Design Partners Inc.



Attachments: Photographs