MARTIN ENGINEERING, INC.
1985 Gilmore Trail
Fairbanks, AK 99712

907-458-7013 mei6482.com

TCI Construction Co.
3680 South Lathrop Street
Fairbanks, Alaska 99701

24 March 2026

Attn: Chris Bunch

Re: Alaska Army National Guard Readiness Center –
Structural Evaluation of Fire Damaged Concrete Walls
202 Wien Street
Fairbanks, Alaska 99701

General:

Martin Engineering, Inc. (MEI) was contacted by you, Chris Bunch of TCI Construction Co. (TCI) concerning the structural integrity of exterior concrete walls that had been damaged by a fire originating in the building's boiler room on 23 January 2026. It is MEI's understanding that a natural gas line had been broken in the boiler room and was the cause of an explosion and fire in the boiler room. The local fire department was on site when the explosion occurred, and the fire was extinguished in a short period of time.

The original building was constructed around 1961 and consists of a concrete foundation, concrete tilt-up wall panels and concrete support columns to form the exterior walls. The roof of the original 1961 structure is a steel framed roof supported on the concrete columns. For the remainder of this report the original structure will be referred to as ORG.

A wood framed addition was added to the West exterior wall of the ORG around 1989 per City of Fairbanks Building Department records. For the remainder of the report the 1989 wood framed addition will be referred to as ADD.

The ADD is constructed of a concrete foundation, wood framed walls and Glu-Laminated Beams (GLB) that are supported on the west wall concrete columns of the ORG. The GLB supports the roof of the ADD.

Located in the north end of the ADD is the boiler room. The explosion and resulting fire caused the GLB in that room and an adjacent room to burn with enough intensity to damage the exterior face of two sections of concrete wall on the west face of the ORG. These walls will be referred to as Wall 'A' and Wall 'B'. Please see the attached annotated plan view of the ORG and ADD that reference the walls and shows the areas affected by the explosion/fire.

Wall ‘A’ has an existing steel door cut in at ground level as well as windows and insulated panels located on the upper height of its wall. Wall ‘A’ is a non-load bearing wall (does not support the roof) and serves as part of the system that encloses the building from the exterior elements (curtain wall).

Wall ‘B’ is a full height wall with no door or window penetrations. Wall ‘B’ was originally a curtain wall similar to Wall ‘A’ as can be seen in the original construction plans dated 1961. Wall ‘B’ had its windows/insulated panels removed, filled in with concrete and a cast-in-place concrete shear wall, which comprises part of the main lateral resisting element (MLR) for the West wall line of the ORG, during a building addition/renovation in 1997. The MLR serves to prevent the building from collapsing in a design seismic or wind event. Wall ‘B’ does not support the roof for gravity loads.

MEI performed 5 separate site visits to ascertain the damage to both Walls ‘A’ and ‘B’ and determine what, if any, repairs needed to be performed on each wall.

On-Site Investigation:

During the first two site visits, MEI used a steel hammer to initially survey the fire damaged walls ‘A’ and ‘B’. Striking concrete with a steel hammer provides a tone that can identify whether or not concrete has sustained significant damage from a fire. MEI performed impact tests on the concrete columns that bracketed walls ‘A’ and ‘B’ as well as the walls ‘A’ and ‘B’. The results of this initial testing on the first site visit resulted in confirmation that the concrete columns had not sustained any measurable damage. However, both walls ‘A’ and ‘B’ exhibited hollow or dead tones when struck with the steel hammer indicating some degree of damage by the fire. The extent of fire damage on wall ‘A’ starts about 10 feet above ground level and extends to approximately 12 feet above finish grade. The extent of fire damage on wall ‘B’ starts about 4 feet above ground level and extends to approximately 12 feet above finish grade.

MEI returned for a third site visit with a Schmidt Hammer. The Schmidt Hammer is a rebound hammer which allows testing of in-place concrete to determine the degree of hardness of a particular section of concrete. The hardness of the concrete can be correlated to a compressive strength of the in-place concrete.

MEI tested the outside face of the damaged walls ‘A’ and ‘B’, the inside and outside faces of the bracketing columns and the inside face of wall ‘B’. The inside face of wall ‘A’ was mostly covered by insulation and was not accessible for testing. MEI also tested wall panels on the West walls that were constructed in the same way as walls ‘A’ and ‘B’ but were not subjected to any fire damage.

The Schmidt Hammer gave an average result of 46 units when tested on non-fire damaged sections of concrete floor, and faces of the concrete columns and the inside face of the wall ‘B’. These results provide confirmation that the concrete columns that bracketed the affected walls were not significantly damaged by the fire.

The Schmidt Hammer gave an average result of 30 units when tested on non-fire damaged wall panels on the West wall. Testing of the outside face of Walls ‘A’ and ‘B’ in the fire damaged areas resulted in average result of 12 units.

MEI directed TCI to drill into a section of Wall 'B' that appeared to have sustained the most severe fire damage as indicated by the heavy charring on the exterior face of that wall. Application of a mechanical rotor hammer and drill bit cut through the first 1/2" of concrete. After passing through the initial concrete a void was discovered behind this veneer. The void was measured to be approximately 1.5 inches deep and consisted of loose rock and cement powder. The loose rock and cement powder are evidence that the temperature experienced by the concrete was sufficient to remove all of the moisture from the concrete and return it to its original elements of cement and aggregate (rock).

TCI did not encounter any reinforcing bar with this initial drilling into the fire damaged wall 'B'. TCI expanded the hole to approximately 3 inches in diameter. MEI tested the sound concrete found approximately 2" from the outside face of the concrete wall with the Schmidt Hammer and recorded an average result of approximately 42 units.

MEI directed TCI to expand the size of the test patch on Wall 'B' to a 2 foot by 2 foot area. TCI used power hand tools to remove the damaged concrete on the exterior face of Wall 'B' down to sound concrete. No reinforcing was encountered inside this 2 foot by 2 foot patch. MEI returned on-site for a fourth time and the surface of the exposed sound concrete was tested with a Schmidt Hammer and provided an average reading of 42 units. MEI can conclude from these results that the fire damage extends a maximum of 2 inches from the outside face of Wall 'B' towards the center of the original 5 inch thick concrete tilt-up wall panel. The 6 inch thick concrete shear wall remains undamaged from the fire.

During our final site visit, MEI had TCI drill several holes along the column to wall interface of wall 'A' and its adjacent column. Most of the holes that were drilled revealed a depth of approximately 1 inch of fire damaged concrete. Only about a 1 foot length of the wall (adjacent to the column) had damaged concrete that was 1 1/2" deep. MEI was able to ascertain from the drilling performed by TCI that this wall only had significant damage to the exterior face for approximately 2 feet horizontally from the 1 foot tall section of roof for a total of about 2 square feet of damaged wall adjacent to the column.

Conclusions & Recommendations:

MEI determined from our site visits that Wall 'A' has only about 3% of its total wall area affected from fire damage. MEI's concludes that Wall 'A' is not in need of any structural repair or reinforcement. From a structural perspective, Wall 'A' may be left in its As-Is condition and no structural reinforcement or improvements are needed.

A portion of the inside face of Wall ‘A’ (as well as an adjacent wall panel that was not affected by the fire) was removed during fire-fighting operations on 23 January 2026. MEI recommends that the inside wall finishes be repaired as close as practicable to match the adjacent wall finishes. The contractor who performs the repairs to the inside face of the finishes on these walls shall leave all of the existing insulation in place, replace the damaged insulation with rock wool insulaiton and only remove the plaster finish as needed to make square cuts over existing wood firring. The square cuts will facilitate installation of a Cementous coated gypsum wall board and paint to match the existing wall color as close as practicable. Before removing any of the existing plaster, the contractor shall employ a company that is certified to test for Asbestos and then sample the existing plaster for Asbestos. If Asbestos is present in the existing wall plaster, the contractor shall follow the testing company’s recommendations for removal of the plaster that contains Asbestos before implementing the remainder of the interior wall finish repair.

The ORG was expanded in 1997 to almost double its original size. Part of the construction for the 1997 addition included improvements to the ORG West wall as well as other parts of the ORG. One of the improvements made was the addition of a 6 inch thick, full height, cast in place concrete shear wall on the inside face of Wall ‘B’. This improvement was made to improve the lateral force resistance of the ORG for design wind and seismic events.

MEI’s on-site tests show that only the original concrete tilt-up Wall ‘B’ was damaged in the fire of January 2026. The shear wall added in 1997 was not damaged by the fire. MEI states that the damage done to the original Wall ‘B’ does not affect the overall structural integrity of the capacity of the ORG to develop the original design gravity loads or lateral shear loads in the area of Wall ‘B’. No further structural reinforcement or repairs are required at this time to Wall ‘B’.

The damaged exterior face of Wall ‘B’ may be left in-place as it currently exists. MEI recommends filling in the 2 ft x 2 ft test patch with Terrafuse TF Structural Repair Concrete Mortar or an approved equal. The patch repair will need to wait until ambient exterior temperatures exceed 50 degrees Fahrenheit or the installation temperature recommended by the manufacturer of the concrete repair mortar.

It is MEI’s understanding that the next phase of this project will be to replace the fire destroyed portions of the ADD. MEI recommends that the replacement roof structure for the ADD is not directly supported on the outside face of the ORG columns. MEI recommends that the replacement roof is supported by wood framed walls that are supported by a thickened edge slab located adjacent to the existing West wall of the ORG.

Please note that this letter only addresses the two, fire damaged, tilt up concrete wall panels on the West wall of the ORG. This letter does not in any way address any other portion of any of the facilities on this property at the above-referenced address.

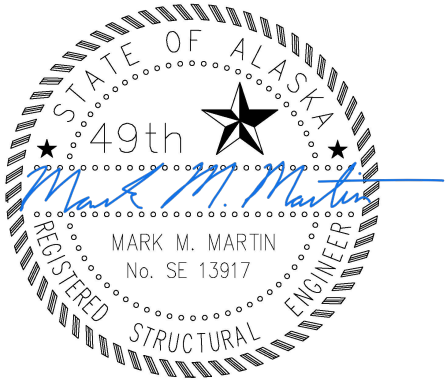
Please contact us if you require additional information concerning the structural capacity of the fire damaged concrete walls at the above referenced project location.

Respectfully Submitted,

Martin Engineering, Inc.

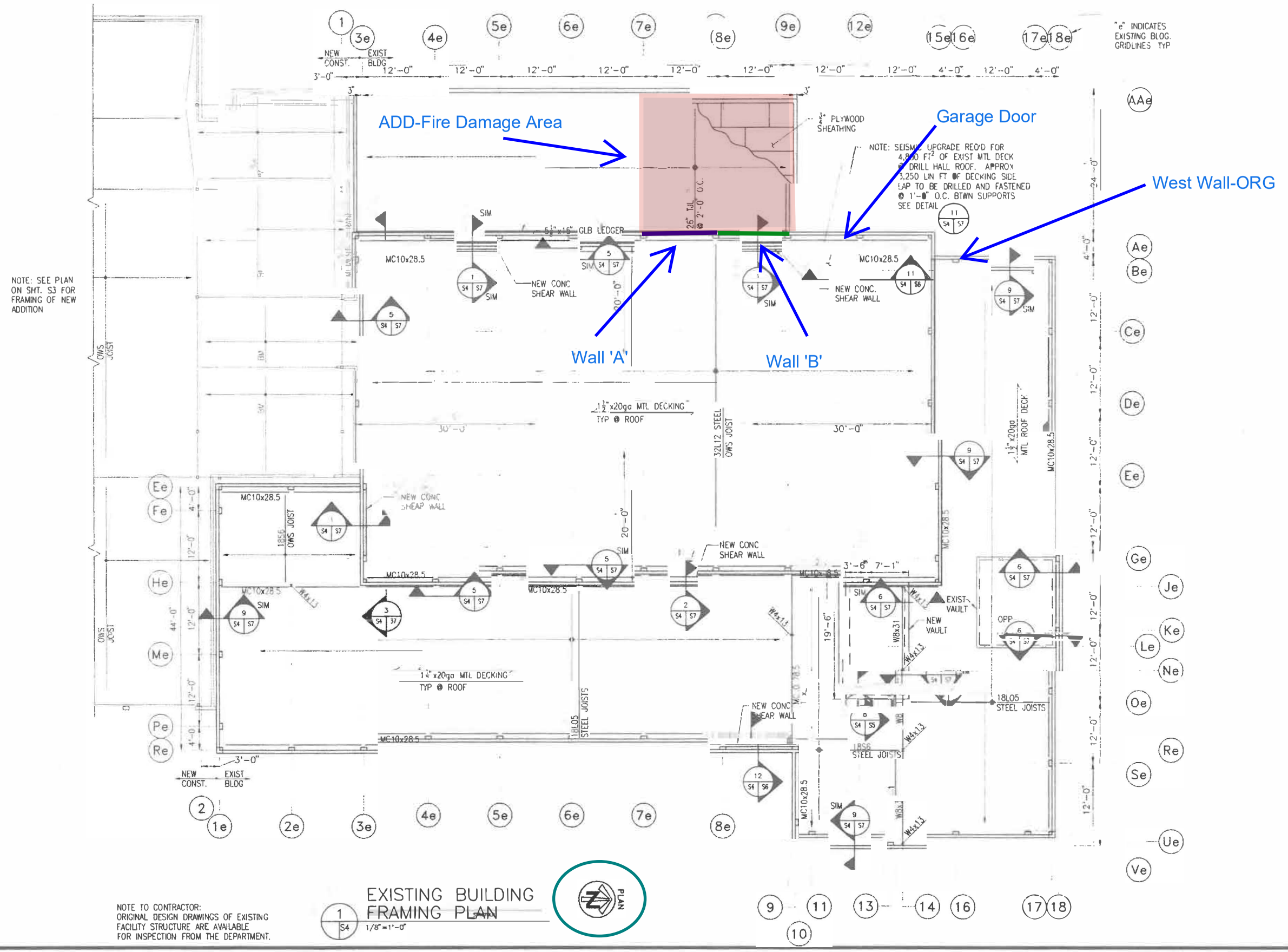
Mark M. Martin

Mark M. Martin, P.E., S.E.
President



24 March 2026

Attachments: Plan View of ORG and ADD with fire damaged areas located
Pictures of fire damaged areas and interior finishes



NOTE TO CONTRACTOR:
ORIGINAL DESIGN DRAWINGS OF EXISTING FACILITY STRUCTURE ARE AVAILABLE FOR INSPECTION FROM THE DEPARTMENT.

1 S4 EXISTING BUILDING FRAMING PLAN
1/8"=1'-0"

PLAN

Loftus Engineering Associates, Inc.
project management • structural engineering
SUBCONSULTANTS:

FAIRBANKS READINESS CENTER
DESIGN DEVELOPMENT SUBMITTAL
DMVA/FMO PROJECT No. 020022
DOT/PF PROJECT No. 65892

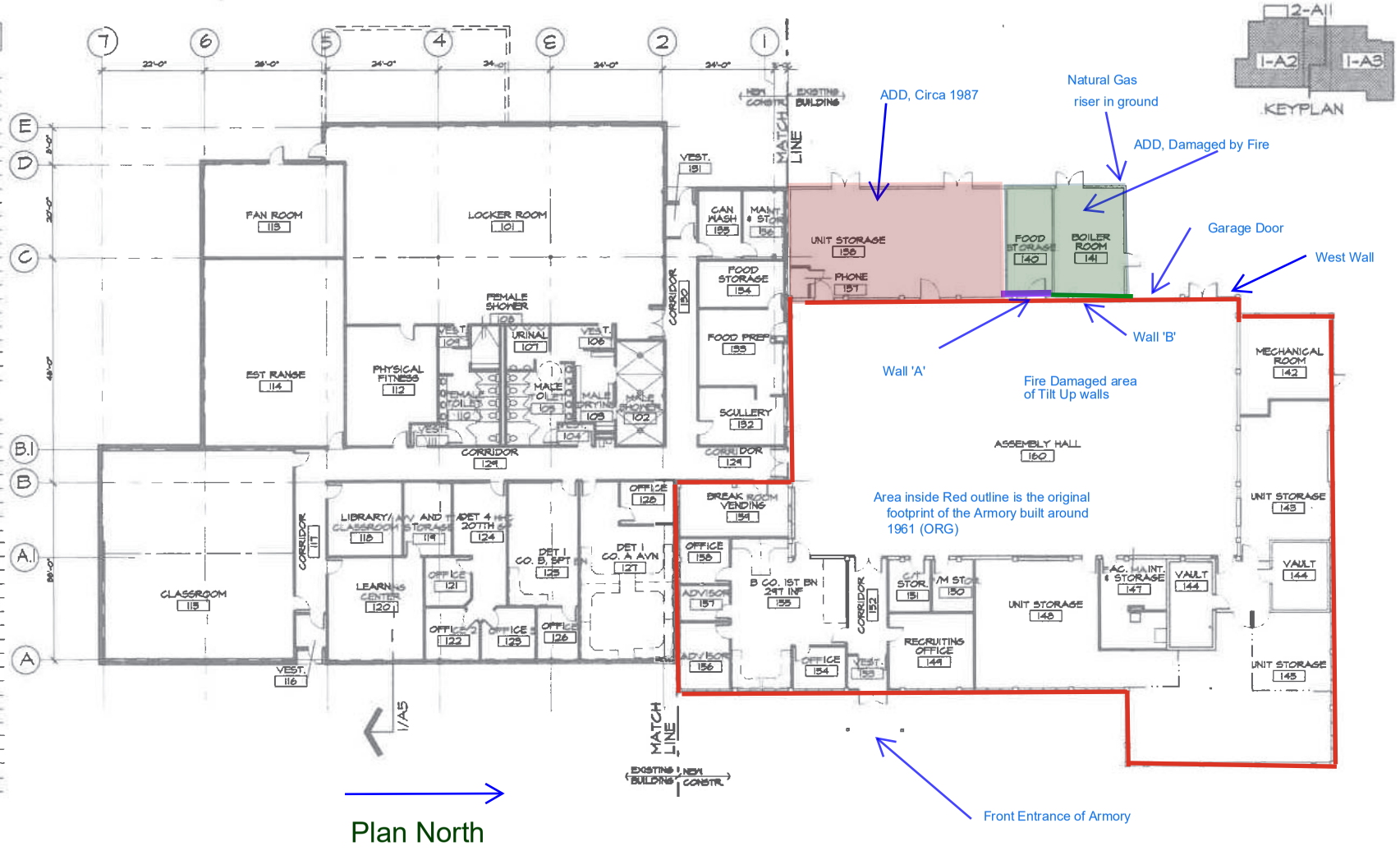
date: 1/15/97
drawn: VNG
designed: PWP
checked:
revised:

EXISTING BUILDING FRAMING PLAN

sheet no
S4

ANALYSIS

sting rea	New Area Actual	Over	Under	% Over	% Under
72	5,256		144		2.67
	1,199		1		0.08
52	1,837		33		1.76
	250				
	453	3		0.67	
41	80				
86	931		369		28.38
	213				
	312				
	182				
	224				
	200				
	75				
33	1,173		47		3.85
	816				
	357				
	100				
82	289	39		15.60	
	80				
	100				
	469	69		17.25	
62	0				
227	12,492	111	594		4.53
83	756	6		0.80	
	103				
	653				
	499		1		0.20
	399				
	100				
	622	172		38.22	
	101				
	125				
	125				
	271				
45	763	63		9.00	
	102				
	559				
	102				
	151	1		0.6	
	80				
	70				
073	4,120	120		3.00	
	1,042				
	579				
	171				
	1,290				
	170				
	868				
	2,942	285		10.71	
	753		47		5.88
301	10,756	647	48	5.89	



Test Hole – Wall ‘B’

Inside Face Wall ‘A’

Test Patch – Wall ‘B’

Wall ‘A’

Wall ‘B’ Looking North with Garage Door

Wall ‘B’ with Test Patch and Wall ‘A’

Wall ‘B’ and Wall ‘A’ Looking South