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COMMERCIAL NEW CONSTRUCTION PROGRAM

Bundle Report

Altoona Towers

Altoona, IA

March 27, 2014
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Prepared for

MidAmerican ENERGY

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Introduction

This document summarizes bundled strategy results based on final DOE-2.2 simulations of the bundles selected in the February 20, 2014 Strategy Results Meeting.

This Report also discusses the proposed utility incentives and the next steps in the process. For further information about the process, model assumptions, and strategy results, please refer to the Strategy Report dated February 20, 2014.

This represents the end of the design stage component of Energy Design Assistance. Following review of this Report, the Owner/Design Team will select a bundle for implementation and the Verification process will begin.

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Energy Design Assistance Process

The process follows a clear methodology of information gathering, collaboration, and analysis in an integrated setting of three formal meetings. The Owner, Project Team and The Weidt Group work together to understand how the building will use energy and where cost effective savings can be realized, through design. These are the steps, with the current stage shown in bold.

1. Introductory Meeting
   - Program overview
   - Review building design
   - Review strategies for modeling
2. Phase 1 Analysis
   - Energy modeling of the baseline and strategies
   - Cost analysis
3. Strategy Results Meeting
   - Review of individual strategy results
   - Combine strategies into bundles
4. Phase 2 Analysis
   - Bundle energy analysis
   - Further cost analysis
5. **Bundle Results Meeting -TODAY**
   - **Review bundle results**
   - **Review program incentives**
   - **Bundle selection**
   - **Introduction to verification**
6. Verification
   - Construction Documents review
   - On-site verification of strategies

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The Analysis

Changes to the Model

The following changes were made to the model as a result of discussions during the Strategy Results Meeting, as well as further discussion with the Project Team following the meeting.

- The mechanical and electrical rooms have timer control of lights.
- Common area as-designed lighting power density information provided by Jaspering Electric has been used to update strategy L03BW. This strategy has been included in all bundles.
- Lighting design strategies for the apartment units and efficiency units have been separated. L01AP and L02AP reflect the savings for the apartment units, and L01GR and L02GR reflect the savings of the efficiency units.
- The occupancy sensor control of bathroom exhaust fans has been added to the public restroom and the locker rooms.
- A mechanical system control strategy was added to control the apartment heating and cooling equipment. A sensor would be installed that would shut off heating or cooling if the patio door was open. This strategy has been added to Bundle 3.
- The washing machine strategy accounts for the savings of the 97 residential washers in apartment units and the 4 commercial washers in the common laundry room.
- An Improved Elevator strategy (MREL1) was added to all bundles to account for the use of the Gen2 elevators.
- The rate structure is applied to account for 103 individual residential meters. The 17 efficiency units in the extended stay hotel portion of the building are on the commercial house meter.

Bundle Modeling

Upon review of the results of the isolated strategy analysis, the Owner and Project Team created three bundles of strategies for final modeling. The three bundles were developed using the following the guidelines.

- Bundle 1 includes strategies that meet the minimum design standards
- Bundle 2 is the current proposed design
- Bundle 3 illustrates the maximum opportunity for savings regardless of payback

The following lists the composition of strategies in each bundle.

Bundle 1 includes a number of strategies that improve the building beyond a baseline level.

- R-20 total wall assembly (both residential and commercial walls)
- Design M1 Casement Windows: (Unit U-Factor 0.27, COG U-Factor 0.24, SHGC 0.25, Visible Transmittance 0.44)
- Design Sliding Doors: (Unit U-Factor 0.31, COG U-Factor 0.28, SHGC 0.32, Visible Transmittance 0.59)
- Stepped daylighting control of lights on each landing in the stairwells
- Occupancy sensor control of lights in circulation to ½ level (10,589 sf),
- Occupancy sensor control of lights in storage areas (249 sf), restrooms (146 sf), exercise room (2,851 sf), locker room & shower room (187 sf), community room (1,006 sf), private offices (665 sf), open office area (473 sf), laundry room (121 sf) and serving area (178 sf)
- Timer control of mechanical/electrical rooms (789 sf)

- As-designed lighting power density for all public spaces (excludes apartments/efficiency units), the public spaces have an area weighted average LPD of 0.40 W/sf – reference Appendix D for space by space lighting power density details
- As-designed heat pump (serving the Community Room and Fitness Room), 16.0 SEER and 9.0 HSPF
- Total heat recovery system (65% sensible and 65% latent effectiveness) on DOAS unit serving the Fitness Room
- 94.1% service water heating efficiency
- Low flow showerheads (1.6 gpm at 80 psi)
- Low flow kitchen and bathroom sink aerators (1.0 gpm at 60 psi)
- Improved Gen2 elevators to be installed in the buildings (one in each building)

Bundle 2 adds or modifies the following strategies, compared to Bundle 1.

- R-50 total roof assembly (both residential and commercial roof areas)
- Apartment lighting at as-designed lighting power density (0.43 W/sf)
- Efficiency Units lighting at as-designed lighting power density (0.57 W/sf)
- As-designed through the wall units (serving the Efficiency Units), 9.8 EER
- As-designed mini-split heat pumps (serving the Apartments), 12.8 EER and 3.8 COP at Full Load conditions, 20.2 SEER and 11.6 HSPF at Part Load conditions
- Proposed fan system design at 0.17 bhp/1000 cfm for heat pump systems
- Occupancy sensor control of bathroom exhaust fans in apartments, efficiency units, locker room, and restroom spaces
- Energy Star clothes washers, alt 2 (2.40 MEF – includes 97 residential washers in units and 4 commercial washers in common laundry room)
- Energy Star dishwashers, alt 2 (275 kWh/yr – includes 121 dishwashers)
- Energy Star refrigerators, alt 1 (20% better than NAECA – includes 103 at 383 kWh and 18 at 577 kWh)

Bundle 3 adds or modifies the following strategies, compared to Bundle 2.

- R-25 total wall assembly (both residential and commercial walls)
- Sensor on patio door to shut off heating and cooling when the patio door is open

Please see the previous Strategy Report (dated February 20, 2014), which provides additional information associated with each of these strategies.

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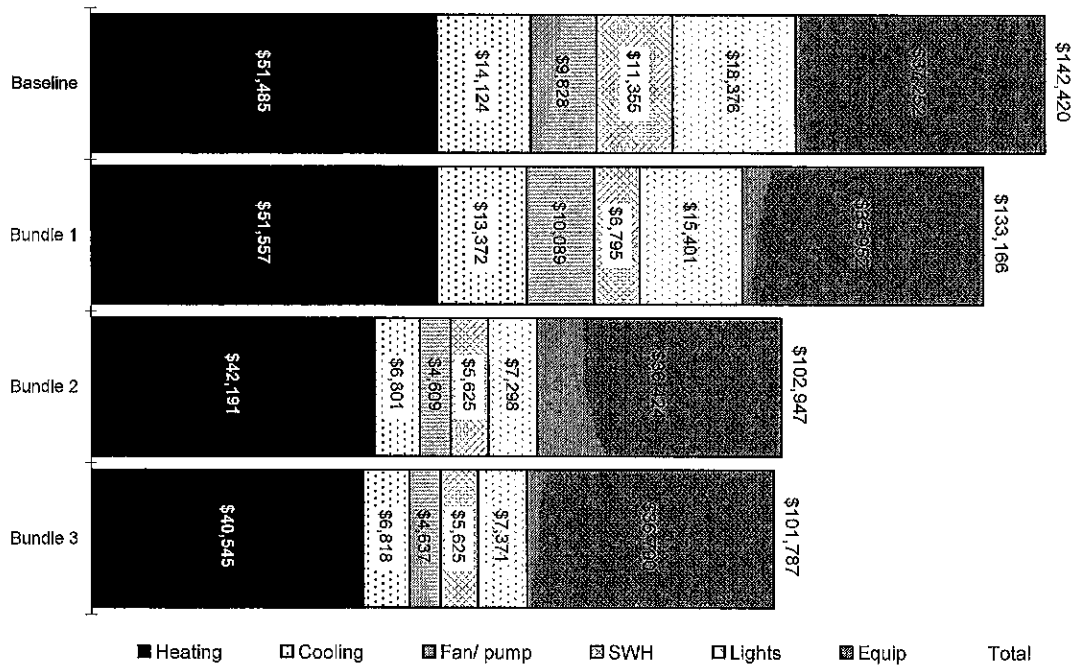
Bundle Results

The simulation results for the bundles are shown below. Figure 1 shows that the bundles are projected to save between $9,200 and $40,700 per year beyond the Baseline base energy use. The bundles show savings in most categories.

More detailed results can be found in the Appendices.

Figure 1 Annual Energy Costs for Bundles by End Use



The charts below show energy use and savings for the bundles compared with the Baseline model. Figures 2 and 3 show peak electric kW and annual electric kWh respectively. The electric consumption savings shown in Figure 3 provide the basis for the electric utility incentive. Figure 4 shows the annual natural gas use and is the basis for the gas utility incentive where applicable.

Figure 2 Annual Electrical Peak, kW

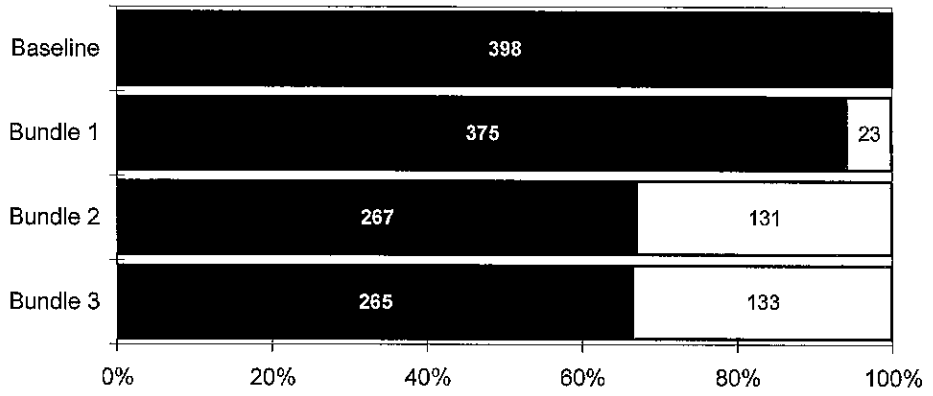


Figure 3 Annual Electric Use, kWh

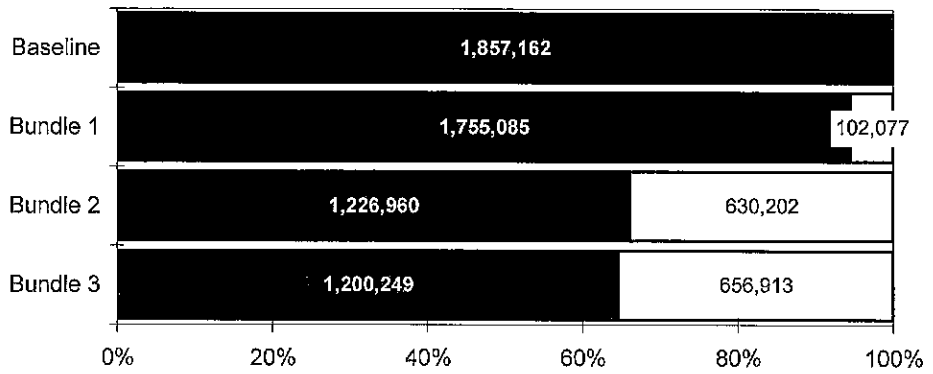
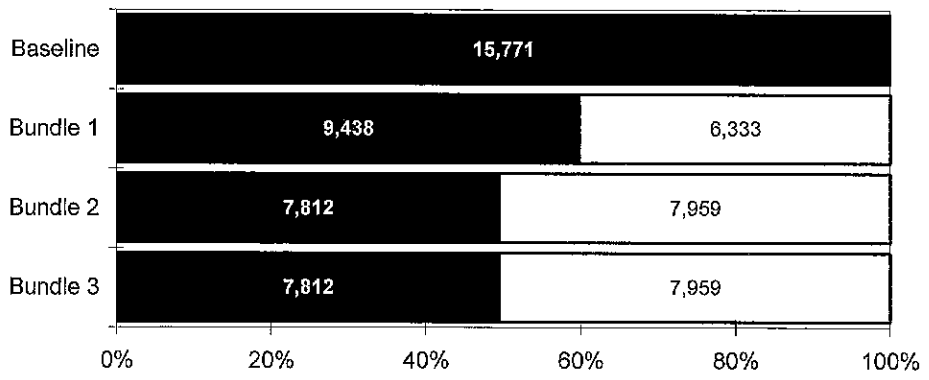


Figure 4 Annual Natural Gas Use, Therms



Bundle Composition

In order to make informed design choices based on energy use, it is important to weigh the cost of design options against the potential for energy savings. One useful gauge of first cost versus annual savings is the simple payback period, which is the ratio of first cost to annual savings. Simple payback period represents the number of years required for the energy savings to pay for the improvements.

The Project Team assembled incremental construction costs for all strategies considered in the bundle analysis. The costs and paybacks for isolated strategies are listed below.

No.	Strategy Description	Percent KWH	Percent Gas	Savings vs Baseline Energy $	Construct Cost	Payback Years	VE Bundle 1	Design Bundle 2	Max Bundle 3
1	**Envelope Insulation Strategies**								
EWN00	Baseline wall assembly: non-residential/ residential	0.0%	0.0%	$0	$0	n/a			
EWN01	R-20 wall for non-residential, R-20 wall for residential	0.2%	0.0%	$205	$4,040	19.7			
EWN02	R-25 wall for non-residential, R-25 wall for residential	1.1%	0.0%	$876	$54,536	62.3			
EWN03	R-30 wall for non-residential, R-30 wall for residential	1.7%	0.0%	$1,323	$105,033	79.4			
ERN00	Baseline roof assembly: non-residential/ residential	0.0%	0.0%	$0	$0	n/a			
ERN01	R-50 roof for non-residential, R-50 roof for residential	0.4%	0.0%	$305	$84,956	278.5			
ERN02	R-60 roof for non-residential, R-60 roof for residential	0.6%	0.0%	$451	$150,307	333.3			
1b	**Other Envelope Strategies**								
EWRF2	Reduced Infiltration	0.8%	0.0%	$586	$91,778	156.6			
EWWQ2	Window Quilts	0.2%	0.0%	$363	n/a	n/a			
2	**Glazing Strategies**								
WGA01	Baseline: Nonmetal framing	0.0%	0.0%	$0	$0	n/a			
WGB01	Design Glass: M1 Casement	0.5%	0.0%	$582	$2,619	4.5			
WGC01	Design Glass: Sliding Doors	0.2%	0.0%	$232	$4,455	19.2			
3	**Daylighting Control Strategies**								
DGA02	Exercise Stepped Daylighting	0.1%	0.0%	$79	$905	11.5			
DGA03	Exercise Dimming Daylighting	0.1%	0.0%	$113	$3,516	31.1			
DGA04	Common Room Stepped Daylighting	0.0%	0.0%	$37	$470	12.7			
DGA05	Common Room Dimming Daylighting	0.0%	0.0%	$45	$1,540	34.2			
DGA06	Stairs Stepped Daylighting	0.2%	0.0%	$124	$1,655	13.3			
DGA07	Stairs Dimming Daylighting	0.1%	0.0%	$104	$4,132	39.7			

Bundle Composition - continued

No.	Strategy Description	Percent KWH	Percent Gas	Savings vs Baseline Energy $	Construct Cost	Payback Years	VE Bundle 1	Design Bundle 2	Max Bundle 3
4	**Lighting Control Strategies**								
LCCI1	Circulation occupancy sensor control	0.7%	0.0%	$530	$1,960	3.7			
LCCI2	Circulation occupancy sensor control to 1/2 level	0.4%	0.0%	$263	$1,960	7.5			
LCST1	Storage occupancy sensor control	0.0%	0.0%	$8	$112	14.0			
LCME1	Mech/elec timer control	0.1%	0.0%	$100	$448	4.5			
LCRR1	Restroom occupancy sensor control	0.0%	0.0%	$6	$112	18.7			
LCFT1	Exercise occupancy sensor control	0.2%	0.0%	$154	$560	3.6			
LCLR1	Locker Room & Shower occupancy sensor control	0.0%	0.0%	$5	$140	28.0			
LCCM1	Community Room occupancy sensor control	0.0%	0.0%	$30	$300	10.0			
LCPO1	Private office occupancy sensor control	0.0%	0.0%	$28	$168	6.0			
LCPO3	Private office dual level occupancy sensor control	0.0%	0.0%	$33	$259	7.9			
LCPO4	Private office dual level fixture	0.0%	0.0%	$12	$215	17.9			
LCOO1	Open office occupancy sensor control	0.0%	0.0%	$27	$140	5.2			
LCLA1	Laundry occupancy sensor control	0.0%	0.0%	$7	$140	20.0			
LCSV1	Serving occupancy sensor control	0.0%	0.0%	$6	$140	23.3			
LCSW1	Stairs occupancy sensor control	0.2%	0.0%	$133	$700	5.3			
LCSW2	Stairs occupancy sensor control to 1/2 level	0.1%	0.0%	$70	$700	10.0			
5	**Lighting Design Strategies**								
L0CBW	Baseline Building Wide lighting @ 0.68 Wsf	0.0%	0.0%	$0	$0	n/a			
L01BW	Corridor and stairs at As-designed LPD, Other public spaces at 10% lower than 90.1-2007 LPD (excludes apartments/efficiency units)	1.2%	0.0%	$794	$0	imm			
L02BW	Corridor and stairs at As-designed LPD, Other public spaces at 20% lower than 90.1-2007 LPD (excludes apartments/efficiency units)	1.3%	0.0%	$881	$13,462	15.3			
L03BW	All public spaces at As-designed LPD (excludes apartments/efficiency units)	1.6%	0.0%	$1,139	$38,282	33.6			
L0CAP	Baseline Apartment lighting @ 1.54 Wsf	0.0%	0.0%	$0	$0	n/a			
L01AP	Apartment lighting alt 1, 30% lower than baseline	2.2%	0.0%	$2,542	$62,574	24.6			
L02AP	Apartment lighting alt 2, As-designed	5.4%	0.0%	$6,328	$62,574	9.9			
L03GR	Efficiency Units lighting alt 1, 30% lower than baseline	0.1%	0.0%	$167	$5,450	32.6			
L04GR	Efficiency Units lighting alt 2, As-designed	0.3%	0.0%	$344	$5,450	15.8			
7	**HVAC Efficiency Strategies**								
MPT02	As-designed through the wall units (Efficiency Apartments)	0.1%	0.0%	$86	$2,300	26.7			
MPT01	As-designed mini-split heat pumps (Apartments)	13.5%	0.0%	$13,593	$38,509	2.8			
MPT03	As-designed heat pump (Community and Fitness)	0.2%	0.0%	$175	$1,588	9.1			
8a	**Fan Strategies**								
MFD00	Baseline fan system power limitation	0.0%	0.0%	$0	$0	n/a			
MFD04	Proposed fan system design at 0.17 bhp/1000 cfm	2.8%	0.0%	$3,258	$7,275	2.2			
9	**Conditioning of Outside Air Strategies**								
MOA01	Sensor control of heating/cooling when patio door is open	0.5%	0.0%	$374	$73,255	195.9			
MOA02	OS control of bathroom exhaust fan	6.1%	0.0%	$4,260	$30,300	7.1			
MHRS1	Sensible heat recovery (Fitness)	0.6%	0.0%	$605	$4,200	6.9			
MHRT1	Total heat recovery (Fitness)	0.6%	0.0%	$625	$5,000	8.0			
12	**Service Water Heating Strategies**								
MHW01	91.7% service water heating efficiency	0.0%	13.0%	$1,444	$606	0.4			
MHW02	92.5% service water heating efficiency	0.0%	14.0%	$1,535	$1,803	1.2			
MHW03	94.1% service water heating efficiency	0.0%	17.0%	$1,942	$2,993	1.5			
13	**Appliance Efficiency Strategies**								
ACW01	Energy Star clothes washers, alt 1	1.4%	5.0%	$2,041	n/a	n/a			
ACW02	Energy Star clothes washers, alt 2	1.3%	9.0%	$2,391	$40,800	17.1			
ADW01	Energy Star dishwashers, alt 1	-0.1%	3.0%	$199	n/a	n/a			
ADW02	Energy Star dishwashers, alt 2	-0.1%	3.0%	$276	$10,285	37.3			
ARF01	Energy Star refrigerators, alt 1	0.7%	0.0%	$794	$9,600	12.1			
ARF02	Energy Star refrigerators, alt 2	1.1%	0.0%	$1,183	n/a	n/a			
AHW01	Low flow showerheads	0.0%	19.0%	$2,190	n/a	n/a			
AHW02	Low flow kitchen and bathroom sink aerators	0.0%	7.0%	$796	n/a	n/a			
MREL1	Improved Elevators	1.5%	0.0%	$1,357	n/a	n/a			

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Payback with Energy Construction Incentive

The Commercial New Construction Program promotes the implementation of cost-effective bundles of strategies by offering cash incentives to reduce the added cost of these bundles. The bundles discussed on the previous pages were selected by the designers to cover a range of scenarios so that one of these bundles would be a likely candidate for implementation in the final building.

Based on the bundled model results, the possible incentives have been calculated as shown in the following table.

Estimated Utility Incentive

	Percent kWh Saved	Modeled kWh Saved	Percent therm Saved	Modeled therm Saved	Estimated MidAmerican Energy Incentive
Bundle 1	5%	102,077	40%	6,333	$10,766
Bundle 2	34%	630,202	50%	7,959	$103,815
Bundle 3	35%	656,913	50%	7,959	$110,892

Payback Analysis

The incentives will reduce the paybacks for each of the bundles, as shown below.

Simple Payback with Incentive

	Incremental Construction Cost	Estimated MidAmerican Energy Incentive*	Adjusted Incremental Cost	Energy Savings vs Baseline	Payback w/ incentive (years)
Bundle 1	$64,851	$10,766	$54,085	$9,254	5.8
Bundle 2	$356,901	$103,815	$253,086	$39,473	6.4
Bundle 3	$480,653	$110,892	$369,761	$40,633	9.1

** MidAmerican Energy incentives cannot reduce payback below 1.0 years.*

Note: Subject to the following qualifications, the DOE2.2 computer model offers sophisticated predictions of energy savings with estimations as good as any other means available for a building that has not been built.

The strategy and bundle results compare relative differences in net energy use for design alternatives. The results are not appropriate for system design and/or equipment selection; these are responsibilities of the registered design professionals of record.

The actual energy use of this building will be different from simulated results. Building systems and other operating parameters provided by the Design Team and modeled by The Weidt Group approximate actual conditions, but differences in weather, operating parameters, occupancy level, and changes that occur through the bidding and construction process will result in annual energy costs that will be different from what is predicted here. However, when a bundle of strategies is selected relative to other alternatives, its energy (and dollar) conserving value can be expected to remain constant relative to the other alternatives, and the magnitude of the cost should be approximately as predicted.

Thus, implementation of a bundle of strategies offers the opportunity for energy savings, but the realization of those savings is the responsibility of the owner/operator of the building- not MidAmerican Energy or The Weidt Group. Savings are not guaranteed.

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Verification

This Report concludes the Energy Design Assistance process. The next stage will be Verification, a process that seeks to assure that one of the bundles is implemented and working properly.

The Weidt Group serves as a resource to verify that the accepted measures are installed. The process will be laid out in detail in the coming weeks, but it will generally include the following.

- Owner notifies The Weidt Group of the Bundle selection
- The Weidt Group sends a Bundle Requirements Document to the Project Team, tailored to the Selected Bundle strategies
- Once Construction Documents are complete, the Project Team will provide Construction Documents and Specifications (electronic format preferred) to The Weidt Group
- The Weidt Group issues a Construction Documents Review to the entire team
- Utilities notify the Owner of the estimated construction incentives based upon the Construction Documents Review

Building Under Construction

- Field verification of installed strategies by The Weidt Group, when the building is completed and occupied
- The Weidt Group completes a Field Verification Report, as to status of strategy implementation, and circulates to the entire team
- Based upon Verification Report, utilities provides accompanying incentive payment to the Owner

The Verification process is designed to assist the Owner and Project Team in knowing whether or not the strategies are working as expected. If strategies are not working, notification is given, so that corrections can be made. If some of the chosen strategies are not implemented within the Selected Bundle, MidAmerican Energy may choose to adjust the incentive amount.

See the Appendices for additional information.

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Appendix A. Project Summary

Building Summary	
Building type	Multi-family Housing
Location	Altoona, Iowa
Building area	130,800 sf
Number of stories	2 - 4 story buildings
Building structure	Wood construction with sloped roof. Using spray foam insulation with a target R-25 total wall assembly. Insulation in the attic will be installed at the bottom chord. Target R-value R-50. Considering an inch of spray foam in the roof with blown-in insulation on top to reach the R-50 target and reduce infiltration.
Building organization	2 apartment buildings. First floor of Building B will house a fitness center and extended stay efficiency units available for lease on a monthly basis. First floor of Building A will have office space and a community room.
Glazing systems	Punched vinyl windows throughout Window to floor area ratio: 7.4%; Window to wall area ratio: 16.1%
Lighting system(s)	Fluorescent lighting planned throughout with an interest in LED lighting where it makes sense.
HVAC system(s)	Ducted mini-split systems in the apartment units, efficiency units will have electric base board heat and through wall air conditioners. An air to air heat pump will be utilized in the community space and offices. An air to air heat pump with an ERV will be used in the fitness room. Central gas fired service hot water.
Areas heated	All, except circulation spaces (stairs tempered to 60 degrees)
Areas cooled	All, except circulation and stairs
Electric utility	MidAmerican Energy
Gas utility	MidAmerican Energy
Approx. construction document completion date	
Approx. construction start	
Approx. occupancy date	November, 2014
Other notes	

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Appendix B. Detailed Bundle Results

Energy Costs

	Itemized Costs						Totals per sq. ft			Totals for Building	
	Heating $/sf	Cooling $/sf	Fan/ pump $/sf	SWH $/sf	Lights $/sf	Equip $/sf	Total $/sf/yr	Annual Savings $/sf	% Savings	Energy $/yr	Annual Savings
Baseline	$.394	$.108	$.075	$.087	$.141	$.285	$1.09			$142,420	
Bundle 1	$.394	$.102	$.077	$.052	$.118	$.275	$1.02	$0.07	6.5%	$133,166	$9,254
Bundle 2	$.323	$.052	$.035	$.043	$.056	$.279	$.79	$0.30	27.7%	$102,947	$39,473
Bundle 3	$.310	$.052	$.035	$.043	$.056	$.281	$.78	$0.31	28.5%	$101,787	$40,633

Annual Energy by End Use

	Itemized KBtu/sf						Totals	
	Heat	Cool	Fan/Pump	SWH	Lights	Equip	Total kBtu/sf	Savings
Baseline	19.0	5.2	3.6	12.1	6.8	13.8	60.52	
Bundle 1	18.7	4.8	3.7	7.2	5.6	13.0	53.02	12%
Bundle 2	13.9	2.2	1.5	6.0	2.4	12.0	37.99	37%
Bundle 3	13.2	2.2	1.5	6.0	2.4	12.0	37.29	38%

Peak Conditions

	Peak Electric				Gas		Cooling				Heating		
	W/sf	kW	kW Savings	% kW Savings	Peak gas KBTU/H	% peak gas savings	Cooling sf/ton	Cooling tons	Savings	Possible % downsize	Heating KBTU/H	Savings	Possible % downsize
Baseline	3.0	398			590		897	146			2,783		
Bundle 1	2.9	375	23	6%	330	44%	954	137	9	6%	2,689	94	3%
Bundle 2	2.0	267	131	33%	310	47%	970	135	11	8%	2,496	287	10%
Bundle 3	2.0	265	133	33%	310	47%	986	133	13	9%	2,408	375	13%

Annual Energy by Fuel Source

	Annual Energy			Annual Electric			Annual Gas		
	MMBTU (incl. electric)	Savings	% Savings	kWh	Savings	% Savings	Gas MMBTU	Gas MMBTU Savings	% Gas Savings
Baseline	7,914			1,857,162			1,577.1		
Bundle 1	6,932	981	12%	1,755,085	102,077	5%	943.8	633.3	40%
Bundle 2	4,967	2,946	37%	1,226,960	630,202	34%	781.2	795.9	50%
Bundle 3	4,876	3,037	38%	1,200,249	656,913	35%	781.2	795.9	50%

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Appendix C. Detailed Strategy Results

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Energy Costs
130,751 SQ.FT.

Strategy	Itemized Costs						Totals per bldg sq. ft			Totals for Building	
	Heating $/sf	Cooling $/sf	Fan/ pump $/sf	SWH $/sf	Lights $/sf	Equip $/sf	Annual Energy $/sf	Annual Savings $/sf	% $ Savings	Energy $/yr	Annual Savings
Baseline; CODE1	$.394	$.108	$.075	$.087	$.141	$.285	$1.09			$142,420	
R-20 wall for non-residential, R-20 wall for residential; EWN01	$.392	$.108	$.075	$.087	$.141	$.285	$1.09	$0.00	0.1%	$142,215	$205
R-25 wall for non-residential, R-25 wall for residential; EWN02	$.386	$.109	$.076	$.087	$.141	$.285	$1.08	$0.01	0.6%	$141,544	$876
R-30 wall for non-residential, R-30 wall for residential; EWN03	$.381	$.110	$.076	$.087	$.141	$.285	$1.08	$0.01	0.9%	$141,097	$1,323
R-50 roof for non-residential, R-50 roof for residential; ERN01	$.391	$.108	$.075	$.087	$.141	$.285	$1.09	$0.00	0.2%	$142,115	$305
R-60 roof for non-residential, R-60 roof for residential; ERN02	$.390	$.108	$.076	$.087	$.141	$.285	$1.09	$0.00	0.3%	$141,969	$451
Design Glass: M1 Casement; WGB01	$.392	$.105	$.075	$.087	$.141	$.285	$1.08	$0.00	0.4%	$141,838	$582
Design Glass: Sliding Doors; WGC01	$.393	$.107	$.075	$.087	$.141	$.285	$1.09	$0.00	0.2%	$142,188	$232
Reduced Infiltration; EWRF2	$.388	$.109	$.076	$.087	$.141	$.285	$1.08	$0.00	0.4%	$141,834	$586
Window Quilts; EWWQ2	$.396	$.103	$.075	$.087	$.141	$.285	$1.09	$0.00	0.3%	$142,057	$363
Exercise Stepped Daylighting; DGA02	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.1%	$142,341	$79
Exercise Dimming Daylighting; DGA03	$.395	$.108	$.075	$.087	$.139	$.285	$1.09	$0.00	0.1%	$142,307	$113
Common Room Stepped Daylighting; DGA04	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.0%	$142,383	$37
Common Room Dimming Daylighting; DGA05	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.0%	$142,375	$45
Stairs Stepped Daylighting; DGA06	$.395	$.108	$.075	$.087	$.139	$.285	$1.09	$0.00	0.1%	$142,296	$124
Stairs Dimming Daylighting; DGA07	$.394	$.108	$.075	$.087	$.139	$.285	$1.09	$0.00	0.1%	$142,316	$104
Circulation occupancy sensor control; LCCI1	$.396	$.109	$.076	$.087	$.134	$.285	$1.09	$0.00	0.4%	$141,890	$530
Circulation occupancy sensor control to 1/2 level; LCCI2	$.395	$.108	$.075	$.087	$.137	$.285	$1.09	$0.00	0.2%	$142,157	$263
Storage occupancy sensor control; LCST1	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.0%	$142,412	$8
Mech/elec timer control; LCME1	$.394	$.108	$.075	$.087	$.139	$.285	$1.09	$0.00	0.1%	$142,320	$100
Restroom occupancy sensor control; LCRR1	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.0%	$142,414	$6
Exercise occupancy sensor control; LCFT1	$.395	$.108	$.075	$.087	$.138	$.285	$1.09	$0.00	0.1%	$142,266	$154
Locker Room & Shower occupancy sensor control; LCLR1	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.0%	$142,415	$5
Community Room occupancy sensor control; LCCM1	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.0%	$142,390	$30
Private office occupancy sensor control; LCPO1	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.0%	$142,392	$28
Private office dual level occupancy sensor control; LCPO3	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.0%	$142,387	$33
Private office dual level fixture; LCPO4	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.0%	$142,408	$12
Open office occupancy sensor control; LCOO1	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.0%	$142,393	$27
Laundry occupancy sensor control; LCLA1	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.0%	$142,413	$7
Serving occupancy sensor control; LCSV1	$.394	$.108	$.075	$.087	$.140	$.285	$1.09	$0.00	0.0%	$142,414	$6
Stairs occupancy sensor control; LCSW1	$.395	$.108	$.075	$.087	$.138	$.285	$1.09	$0.00	0.1%	$142,287	$133
Stairs occupancy sensor control to 1/2 level; LCSW2	$.394	$.108	$.075	$.087	$.139	$.285	$1.09	$0.00	0.0%	$142,350	$70
Corridor and stairs at As-designed LPD, Other public spaces at 10% lower than 90.1-2007 LPD (excludes apartments/efficiency units); L01BW	$.398	$.109	$.076	$.087	$.129	$.285	$1.08	$0.01	0.6%	$141,626	$794
Corridor and stairs at As-designed LPD, Other public spaces at 20% lower than 90.1-2007 LPD (excludes apartments/efficiency units); L02BW	$.399	$.109	$.076	$.087	$.128	$.285	$1.08	$0.01	0.6%	$141,539	$881
All public spaces at As-designed LPD (excludes apartments/efficiency units); L03BW	$.401	$.108	$.076	$.087	$.123	$.285	$1.08	$0.01	0.8%	$141,281	$1,139
Apartment lighting alt 1, 30% lower than baseline; L01AP	$.403	$.104	$.075	$.087	$.115	$.285	$1.07	$0.02	1.8%	$139,878	$2,542
Apartment lighting alt 2, As-designed; L02AP	$.416	$.098	$.076	$.087	$.080	$.285	$1.04	$0.05	4.4%	$136,092	$6,328
As-designed through the wall units (Efficiency Apartments); MPT02	$.394	$.107	$.075	$.087	$.141	$.285	$1.09	$0.00	0.1%	$142,334	$86
As-designed mini-split heat pumps (Apartments); MPT01	$.346	$.071	$.057	$.087	$.141	$.285	$.99	$0.10	9.5%	$128,827	$13,693
As-designed heat pump (Community and Fitness); MPT03	$.394	$.107	$.075	$.087	$.141	$.285	$1.09	$0.00	0.1%	$142,245	$175
Baseline fan system power limitation; MFD00	$.394	$.108	$.075	$.087	$.141	$.285	$1.09	$0.00	0.0%	$142,420	$0
Proposed fan system design at 0.17 bhp/1000 cfm; MFD04	$.408	$.103	$.041	$.087	$.141	$.285	$1.06	$0.02	2.3%	$139,162	$3,258
OS control of bathroom exhaust fan; MOA02	$.347	$.118	$.079	$.087	$.141	$.285	$1.06	$0.03	3.0%	$138,160	$4,260
Sensible heat recovery (Fitness); MHRS1	$.388	$.108	$.076	$.087	$.141	$.285	$1.08	$0.00	0.4%	$141,815	$605
Total heat recovery (Fitness); MHRT1	$.388	$.108	$.076	$.087	$.141	$.285	$1.08	$0.00	0.4%	$141,795	$625
91.7% service water heating efficiency; MHW01	$.394	$.108	$.075	$.076	$.141	$.285	$1.08	$0.01	1.0%	$140,976	$1,444
92.5% service water heating efficiency; MHW02	$.394	$.108	$.075	$.075	$.141	$.285	$1.08	$0.01	1.1%	$140,885	$1,535
94.1% service water heating efficiency; MHW03	$.394	$.108	$.075	$.072	$.141	$.285	$1.07	$0.01	1.4%	$140,478	$1,942
Energy Star clothes washers, alt 1; ACW01	$.398	$.107	$.075	$.083	$.141	$.270	$1.07	$0.02	1.4%	$140,379	$2,041
Energy Star clothes washers, alt 2; ACW02	$.398	$.107	$.075	$.079	$.141	$.271	$1.07	$0.02	1.7%	$140,029	$2,391
Energy Star dishwashers, alt 1; ADW01	$.393	$.108	$.075	$.084	$.141	$.286	$1.09	$0.00	0.1%	$142,221	$199
Energy Star dishwashers, alt 2; ADW02	$.393	$.108	$.075	$.084	$.141	$.286	$1.09	$0.00	0.2%	$142,144	$276
Energy Star refrigerators, alt 1; ARF01	$.396	$.107	$.075	$.087	$.141	$.277	$1.08	$0.01	0.6%	$141,626	$794
Energy Star refrigerators, alt 2; ARF02	$.398	$.107	$.075	$.087	$.141	$.273	$1.08	$0.01	0.8%	$141,237	$1,183
Low flow showerheads; AHW01	$.394	$.108	$.075	$.070	$.141	$.285	$1.07	$0.02	1.6%	$140,230	$2,190
Low flow kitchen and bathroom sink aerators; AHW02	$.394	$.108	$.075	$.081	$.141	$.285	$1.08	$0.01	0.6%	$141,624	$796
Efficiency Units lighting alt 1, 30% lower than baseline; L03GR	$.395	$.108	$.075	$.087	$.138	$.285	$1.09	$0.00	0.1%	$142,253	$167
Efficiency Units lighting alt 2, As-designed; L04GR	$.396	$.107	$.075	$.087	$.136	$.285	$1.09	$0.00	0.2%	$142,076	$344
Sensor control of heating/cooling when patio door is open; MOA01	$.390	$.109	$.075	$.087	$.141	$.285	$1.09	$0.00	0.3%	$142,046	$374
Improved Elevators; MREL1	$.396	$.109	$.076	$.087	$.141	$.271	$1.08	$0.01	1.0%	$141,063	$1,357

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Annual Energy by End Use

130,751 SQ.FT.

Strategy	Itemized KBtu/sf						Totals	
	Heat	Cool	Fan/ Pump	SWH	Lights	Equip	Total KBtu/sf	Savings
Baseline; CODE1	19.0	5.2	3.6	12.1	6.8	13.8	60.52	
R-20 wall for non-residential, R-20 wall for residential; EWN01	18.9	5.2	3.6	12.1	6.8	13.8	60.41	0.2%
R-25 wall for non-residential, R-25 wall for residential; EWN02	18.5	5.2	3.6	12.1	6.8	13.8	59.98	0.9%
R-30 wall for non-residential, R-30 wall for residential; EWN03	18.2	5.2	3.6	12.1	6.8	13.8	59.69	1.4%
R-50 roof for non-residential, R-50 roof for residential; ERN01	18.8	5.2	3.6	12.1	6.8	13.8	60.33	0.3%
R-60 roof for non-residential, R-60 roof for residential; ERN02	18.8	5.2	3.6	12.1	6.8	13.8	60.23	0.5%
Design Glass: M1 Casement; WGB01	18.9	5.1	3.6	12.1	6.8	13.8	60.27	0.4%
Design Glass: Sliding Doors; WGC01	19.0	5.1	3.6	12.1	6.8	13.8	60.42	0.2%
Reduced Infiltration; EWRF2	18.6	5.2	3.6	12.1	6.8	13.8	60.12	0.7%
Window Quilts; EWWQ2	19.2	5.0	3.6	12.1	6.8	13.8	60.45	0.1%
Exercise Stepped Daylighting; DGA02	19.1	5.2	3.6	12.1	6.8	13.8	60.49	0.1%
Exercise Dimming Daylighting; DGA03	19.1	5.2	3.6	12.1	6.7	13.8	60.46	0.1%
Common Room Stepped Daylighting; DGA04	19.0	5.2	3.6	12.1	6.8	13.8	60.51	0.0%
Common Room Dimming Daylighting; DGA05	19.0	5.2	3.6	12.1	6.8	13.8	60.50	0.0%
Stairs Stepped Daylighting; DGA06	19.1	5.2	3.6	12.1	6.7	13.8	60.45	0.1%
Stairs Dimming Daylighting; DGA07	19.1	5.2	3.6	12.1	6.7	13.8	60.46	0.1%
Circulation occupancy sensor control; LCCI1	19.0	5.2	3.6	12.1	6.4	13.8	60.17	0.6%
Circulation occupancy sensor control to 1/2 level; LCCI2	19.0	5.2	3.6	12.1	6.6	13.8	60.35	0.3%
Storage occupancy sensor control; LCST1	19.0	5.2	3.6	12.1	6.8	13.8	60.52	0.0%
Mech/elec timer control; LCME1	19.0	5.2	3.6	12.1	6.7	13.8	60.46	0.1%
Restroom occupancy sensor control; LCRR1	19.0	5.2	3.6	12.1	6.8	13.8	60.52	0.0%
Exercise occupancy sensor control; LCFT1	19.1	5.2	3.6	12.1	6.7	13.8	60.42	0.2%
Locker Room & Shower occupancy sensor control; LCLR1	19.0	5.2	3.6	12.1	6.8	13.8	60.52	0.0%
Community Room occupancy sensor control; LCCM1	19.0	5.2	3.6	12.1	6.8	13.8	60.50	0.0%
Private office occupancy sensor control; LCPO1	19.0	5.2	3.6	12.1	6.8	13.8	60.51	0.0%
Private office dual level occupancy sensor control; LCPO3	19.0	5.2	3.6	12.1	6.8	13.8	60.50	0.0%
Private office dual level fixture; LCPO4	19.0	5.2	3.6	12.1	6.8	13.8	60.52	0.0%
Open office occupancy sensor control; LCOO1	19.0	5.2	3.6	12.1	6.8	13.8	60.51	0.0%
Laundry occupancy sensor control; LCLA1	19.0	5.2	3.6	12.1	6.8	13.8	60.52	0.0%
Serving occupancy sensor control; LCSV1	19.0	5.2	3.6	12.1	6.8	13.8	60.52	0.0%
Stairs occupancy sensor control; LCSW1	19.1	5.2	3.6	12.1	6.7	13.8	60.43	0.2%
Stairs occupancy sensor control to 1/2 level; LCSW2	19.1	5.2	3.6	12.1	6.7	13.8	60.47	0.1%
Corridor and stairs at As-designed LPD, Other public spaces at 10% lower than 90.1-2007 LPD (excludes apartments/efficiency units); L01BW	19.1	5.2	3.6	12.1	6.2	13.8	59.96	0.9%
Corridor and stairs at As-designed LPD, Other public spaces at 20% lower than 90.1-2007 LPD (excludes apartments/efficiency units); L02BW	19.1	5.2	3.6	12.1	6.1	13.8	59.90	1.0%
All public spaces at As-designed LPD (excludes apartments/efficiency units); L03BW	19.2	5.2	3.6	12.1	5.9	13.8	59.73	1.3%
Apartment lighting alt 1, 30% lower than baseline; L01AP	19.4	5.0	3.6	12.1	5.6	13.8	59.46	1.8%
Apartment lighting alt 2, As-designed; L02AP	19.9	4.7	3.6	12.1	3.8	13.8	57.89	4.4%
As-designed through the wall units (Efficiency Apartments); MPT02	19.0	5.2	3.6	12.1	6.8	13.8	60.49	0.1%
As-designed mini-split heat pumps (Apartments); MPT01	15.6	3.2	2.6	12.1	6.8	13.8	53.96	10.8%
As-designed heat pump (Community and Fitness); MPT03	19.0	5.2	3.6	12.1	6.8	13.8	60.44	0.1%
Baseline fan system power limitation; MFD00	19.0	5.2	3.6	12.1	6.8	13.8	60.52	0.0%
Proposed fan system design at 0.17 bhp/1000 cfm; MFD04	19.6	4.9	2.0	12.1	6.8	13.8	59.18	2.2%
OS control of bathroom exhaust fan; MOA02	15.9	5.4	3.6	12.1	6.8	13.8	57.55	4.9%
Sensible heat recovery (Fitness); MHRS1	18.7	5.2	3.7	12.1	6.8	13.8	60.25	0.5%
Total heat recovery (Fitness); MHRT1	18.8	5.2	3.7	12.1	6.8	13.8	60.25	0.5%
91.7% service water heating efficiency; MHW01	19.0	5.2	3.6	10.5	6.8	13.8	58.99	2.5%
92.5% service water heating efficiency; MHW02	19.0	5.2	3.6	10.4	6.8	13.8	58.90	2.7%
94.1% service water heating efficiency; MHW03	19.0	5.2	3.6	10.0	6.8	13.8	58.46	3.4%
Energy Star clothes washers, alt 1; ACW01	19.2	5.1	3.6	11.5	6.8	13.0	59.28	2.1%
Energy Star clothes washers, alt 2; ACW02	19.2	5.1	3.6	11.0	6.8	13.1	58.85	2.8%
Energy Star dishwashers, alt 1; ADW01	19.0	5.2	3.6	11.7	6.8	13.8	60.23	0.5%
Energy Star dishwashers, alt 2; ADW02	19.0	5.2	3.6	11.7	6.8	13.8	60.17	0.6%
Energy Star refrigerators, alt 1; ARF01	19.1	5.2	3.6	12.1	6.8	13.4	60.17	0.6%
Energy Star refrigerators, alt 2; ARF02	19.2	5.2	3.6	12.1	6.8	13.2	60.00	0.9%
Low flow showerheads; AHW01	19.0	5.2	3.6	9.7	6.8	13.8	58.20	3.8%
Low flow kitchen and bathroom sink aerators; AHW02	19.0	5.2	3.6	11.2	6.8	13.8	59.68	1.4%
Efficiency Units lighting alt 1, 30% lower than baseline; L03GR	19.1	5.2	3.6	12.1	6.7	13.8	60.45	0.1%
Efficiency Units lighting alt 2, As-designed; L04GR	19.2	5.2	3.6	12.1	6.6	13.8	60.38	0.2%
Sensor control of heating/cooling when patio door is open; MOA01	18.8	5.2	3.6	12.1	6.8	13.8	60.27	0.4%
Improved Elevators; MREL1	19.0	5.2	3.6	12.1	6.8	13.0	59.78	1.2%

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Peak Conditions
130,751 SQ.FT.

	Peak Electric				Gas		Cooling				Heating		
	Peak W/sf	Peak kW	kW Savings	% kW Savings	Peak gas KBTU/H	% peak gas savings	Cooling s/ton	Cooling tons	Peak cooling savings	Possible cooling % downsize	Heating KBTU/H	Peak heating savings	Possible heating % downsize
Baseline; CODE1	3.0	398			590		897	146			2,783		
R-20 wall for non-residential, R-20 wall for residential; EWN01	3.0	398	0	0%	590	0%	899	145	1	1.0%	2,771	12	0.0%
R-25 wall for non-residential, R-25 wall for residential; EWN02	3.0	397	1	0%	590	0%	908	144	2	1.0%	2,735	48	2.0%
R-30 wall for non-residential, R-30 wall for residential; EWN03	3.0	396	2	1%	590	0%	915	143	3	2.0%	2,710	73	3.0%
R-50 roof for non-residential, R-50 roof for residential; ERN01	3.0	397	1	0%	590	0%	903	145	1	1.0%	2,768	15	1.0%
R-60 roof for non-residential, R-60 roof for residential; ERN02	3.0	397	1	0%	590	0%	906	144	2	1.0%	2,762	21	1.0%
Design Glass: M1 Casement; WGB01	3.0	394	4	1%	590	0%	924	141	5	3.0%	2,756	27	1.0%
Design Glass: Sliding Doors; WGC01	3.0	397	1	0%	590	0%	907	144	2	1.0%	2,772	11	0.0%
Reduced infiltration; EWRF2	3.0	396	2	1%	590	0%	906	144	2	1.0%	2,702	81	3.0%
Window Quilts; EWWQ2	3.0	393	5	1%	590	0%	928	141	5	3.0%	2,784	(1)	0.0%
Exercise Stepped Daylighting; DGA02	3.0	397	1	0%	590	0%	899	145	1	1.0%	2,783	0	0.0%
Exercise Dimming Daylighting; DGA03	3.0	397	1	0%	590	0%	899	145	1	1.0%	2,783	0	0.0%
Common Room Stepped Daylighting; DGA04	3.0	398	0	0%	590	0%	898	146	0	0.0%	2,783	0	0.0%
Common Room Dimming Daylighting; DGA05	3.0	398	0	0%	590	0%	898	146	0	0.0%	2,783	0	0.0%
Stairs Stepped Daylighting; DGA06	3.0	397	1	0%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Stairs Dimming Daylighting; DGA07	3.0	398	0	0%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Circulation occupancy sensor control; LCCI1	3.0	396	2	1%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Circulation occupancy sensor control to 1/2 level; LCCI2	3.0	397	1	0%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Storage occupancy sensor control; LCST1	3.0	398	0	0%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Mech/elec timer control; LCME1	3.0	398	0	0%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Restroom occupancy sensor control; LCRR1	3.0	398	0	0%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Exercise occupancy sensor control; LCFT1	3.0	397	1	0%	590	0%	899	145	1	1.0%	2,784	(1)	0.0%
Locker Room & Shower occupancy sensor control; LCLR1	3.0	398	0	0%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Community Room occupancy sensor control; LCCM1	3.0	398	0	0%	590	0%	898	146	0	0.0%	2,783	0	0.0%
Private office occupancy sensor control; LCPO1	3.0	398	0	0%	590	0%	898	146	0	0.0%	2,783	0	0.0%
Private office dual level occupancy sensor control; LCPO3	3.0	398	0	0%	590	0%	898	146	0	0.0%	2,783	0	0.0%
Private office dual level fixture; LCPO4	3.0	398	0	0%	590	0%	898	146	0	0.0%	2,783	0	0.0%
Open office occupancy sensor control; LCOO1	3.0	398	0	0%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Laundry occupancy sensor control; LCLA1	3.0	398	0	0%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Serving occupancy sensor control; LCSV1	3.0	398	0	0%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Stairs occupancy sensor control; LCSW1	3.0	398	0	0%	590	0%	897	146	0	0.0%	2,785	(2)	0.0%
Stairs occupancy sensor control to 1/2 level; LCSW2	3.0	398	0	0%	590	0%	897	146	0	0.0%	2,784	(1)	0.0%
Corridor and stairs at As-designed LPD, Other public spaces at 10% lower than 90.1-2007 LPD (excludes apartments/efficiency units); L01BW	3.0	395	3	1%	590	0%	898	146	0	0.0%	2,785	(2)	0.0%
Corridor and stairs at As-designed LPD, Other public spaces at 20% lower than 90.1-2007 LPD (excludes apartments/efficiency units); L02BW	3.0	395	3	1%	590	0%	899	145	1	1.0%	2,786	(3)	0.0%
All public spaces at As-designed LPD (excludes apartments/efficiency units); L03BW	3.0	393	5	1%	590	0%	901	145	1	1.0%	2,788	(5)	0.0%
Apartment lighting alt 1, 30% lower than baseline; L01AP	2.9	379	19	5%	590	0%	929	141	5	3.0%	2,800	(17)	-1.0%
Apartment lighting alt 2, As-designed; L02AP	2.7	350	48	12%	590	0%	977	134	12	8.0%	2,825	(42)	-2.0%
As-designed through the wall units (Efficiency Apartments); MPT02	3.0	397	1	0%	590	0%	897	146	0	0.0%	2,783	0	0.0%
As-designed mini-split heat pumps (Apartments); MPT01	2.6	345	53	13%	590	0%	860	152	(6)	-4.0%	2,783	0	0.0%
As-designed heat pump (Community and Fitness); MPT03	3.0	396	2	1%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Baseline fan system power limitation; MFD00	3.0	398	0	0%	590	0%	897	146	0	0.0%	2,783	0	0.0%
Proposed fan system design at 0.17 bhp/1000 cfm; MFD04	3.0	388	10	3%	590	0%	914	143	3	2.0%	2,808	(25)	-1.0%
OS control of bathroom exhaust fan; MOA02	3.0	396	2	1%	590	0%	917	143	3	2.0%	2,497	286	10.0%
Sensible heat recovery (Fitness); MHRS1	3.0	398	0	0%	590	0%	897	146	0	0.0%	2,732	51	2.0%
Total heat recovery (Fitness); MHRT1	3.0	397	1	0%	590	0%	907	144	2	1.0%	2,732	51	2.0%
91.7% service water heating efficiency; MHW01	3.0	398	0	0%	520	12%	897	146	0	0.0%	2,783	0	0.0%
92.5% service water heating efficiency; MHW02	3.0	398	0	0%	510	14%	897	146	0	0.0%	2,783	0	0.0%
94.1% service water heating efficiency; MHW03	3.0	398	0	0%	500	15%	897	146	0	0.0%	2,783	0	0.0%
Energy Star clothes washers, alt 1; ACW01	3.0	390	8	2%	580	2%	909	144	2	1.0%	2,789	(6)	0.0%
Energy Star clothes washers, alt 2; ACW02	3.0	391	7	2%	570	3%	908	144	2	1.0%	2,789	(6)	0.0%
Energy Star dishwashers, alt 1; ADW01	3.1	399	(1)	0%	590	0%	896	146	0	0.0%	2,783	0	0.0%
Energy Star dishwashers, alt 2; ADW02	3.1	399	(1)	0%	580	2%	896	146	0	0.0%	2,783	0	0.0%
Energy Star refrigerators, alt 1; ARF01	3.0	396	2	1%	590	0%	901	145	1	1.0%	2,786	(3)	0.0%
Energy Star refrigerators, alt 2; ARF02	3.0	395	3	1%	590	0%	903	145	1	1.0%	2,788	(5)	0.0%
Low flow showerheads; AHW01	3.0	398	0	0%	450	24%	897	146	0	0.0%	2,783	0	0.0%
Low flow kitchen and bathroom sink aerators; AHW02	3.0	398	0	0%	540	8%	897	146	0	0.0%	2,783	0	0.0%
Efficiency Units lighting alt 1, 30% lower than baseline; L03GR	3.0	397	1	0%	590	0%	900	145	1	1.0%	2,784	(1)	0.0%
Efficiency Units lighting alt 2, As-designed; L04GR	3.0	395	3	1%	590	0%	903	145	1	1.0%	2,785	(2)	0.0%
Sensor control of heating/cooling when patio door is open; MOA01	3.0	397	1	0%	590	0%	903	145	1	1.0%	2,731	52	2.0%
Improved Elevators; MREL1	3.0	390	8	2%	590	0%	897	146	0	0.0%	2,783	0	0.0%

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Annual Energy by Fuel Source

130,751 SQ.FT.

	Annual Energy			Annual Electric			Annual Gas		
	MMBTU (incl. electric)	MMBTU Savings	% Savings	kWh	kWh Savings	% kWh Savings	Gas MMBTU	Gas MMBTU Savings	% Gas Savings
Baseline; CODE1	7,914			1,857,162			1,577.1		
R-20 wall for non-residential, R-20 wall for residential; EWN01	7,898	15	0%	1,852,664	4,498	0%	1,577.1	0.0	0%
R-25 wall for non-residential, R-25 wall for residential; EWN02	7,842	71	1%	1,836,272	20,890	1%	1,577.1	0.0	0%
R-30 wall for non-residential, R-30 wall for residential; EWN03	7,805	109	1%	1,825,276	31,886	2%	1,577.1	0.0	0%
R-50 roof for non-residential, R-50 roof for residential; ERN01	7,888	26	0%	1,849,568	7,594	0%	1,577.1	0.0	0%
R-60 roof for non-residential, R-60 roof for residential; ERN02	7,875	38	0%	1,845,953	11,209	1%	1,577.1	0.0	0%
Design Glass: M1 Casement; WGB01	7,880	34	0%	1,847,222	9,940	1%	1,577.1	0.0	0%
Design Glass: Sliding Doors; WGC01	7,900	13	0%	1,853,305	3,857	0%	1,577.1	0.0	0%
Reduced infiltration; EWRF2	7,861	52	1%	1,841,842	15,320	1%	1,577.1	0.0	0%
Window Quilts; EWWQ2	7,904	10	0%	1,854,324	2,838	0%	1,577.1	0.0	0%
Exercise Stepped Daylighting; DGA02	7,909	5	0%	1,855,838	1,324	0%	1,577.1	0.0	0%
Exercise Dimming Daylighting; DGA03	7,906	8	0%	1,854,882	2,280	0%	1,577.1	0.0	0%
Common Room Stepped Daylighting; DGA04	7,911	2	0%	1,856,512	650	0%	1,577.1	0.0	0%
Common Room Dimming Daylighting; DGA05	7,911	3	0%	1,856,363	799	0%	1,577.1	0.0	0%
Stairs Stepped Daylighting; DGA06	7,903	10	0%	1,854,119	3,043	0%	1,577.1	0.0	0%
Stairs Dimming Daylighting; DGA07	7,905	9	0%	1,854,512	2,650	0%	1,577.1	0.0	0%
Circulation occupancy sensor control; LCCI1	7,867	47	1%	1,843,402	13,760	1%	1,577.1	0.0	0%
Circulation occupancy sensor control to 1/2 level; LCCI2	7,890	23	0%	1,850,294	6,868	0%	1,577.1	0.0	0%
Storage occupancy sensor control; LCST1	7,913	1	0%	1,856,914	248	0%	1,577.1	0.0	0%
Mech/elec timer control; LCME1	7,905	9	0%	1,854,612	2,550	0%	1,577.1	0.0	0%
Restroom occupancy sensor control; LCRR1	7,913	1	0%	1,856,929	233	0%	1,577.1	0.0	0%
Exercise occupancy sensor control; LCFT1	7,900	14	0%	1,853,110	4,052	0%	1,577.1	0.0	0%
Locker Room & Shower occupancy sensor control; LCLR1	7,913	1	0%	1,856,980	182	0%	1,577.1	0.0	0%
Community Room occupancy sensor control; LCCM1	7,911	3	0%	1,856,396	766	0%	1,577.1	0.0	0%
Private office occupancy sensor control; LCPO1	7,911	2	0%	1,856,521	641	0%	1,577.1	0.0	0%
Private office dual level occupancy sensor control; LCPO3	7,911	3	0%	1,856,399	763	0%	1,577.1	0.0	0%
Private office dual level fixture; LCPO4	7,913	1	0%	1,856,838	324	0%	1,577.1	0.0	0%
Open office occupancy sensor control; LCOO1	7,912	2	0%	1,856,573	589	0%	1,577.1	0.0	0%
Laundry occupancy sensor control; LCLA1	7,913	0	0%	1,857,019	143	0%	1,577.1	0.0	0%
Serving occupancy sensor control; LCSV1	7,913	1	0%	1,857,008	154	0%	1,577.1	0.0	0%
Stairs occupancy sensor control; LCSW1	7,901	13	0%	1,853,355	3,807	0%	1,577.1	0.0	0%
Stairs occupancy sensor control to 1/2 level; LCSW2	7,907	7	0%	1,855,234	1,928	0%	1,577.1	0.0	0%
Corridor and stairs at As-designed LPD, Other public spaces at 10% lower than 90.1-2007 LPD (excludes apartments/efficiency units); L01BW	7,840	74	1%	1,835,553	21,609	1%	1,577.1	0.0	0%
Corridor and stairs at As-designed LPD, Other public spaces at 20% lower than 90.1-2007 LPD (excludes apartments/efficiency units); L02BW	7,832	82	1%	1,833,271	23,891	1%	1,577.1	0.0	0%
All public spaces at As-designed LPD (excludes apartments/efficiency units); L03BW	7,810	104	1%	1,826,698	30,464	2%	1,577.1	0.0	0%
Apartment lighting alt 1, 30% lower than baseline; L01AP	7,775	139	2%	1,816,626	40,536	2%	1,577.1	0.0	0%
Apartment lighting alt 2, As-designed; L02AP	7,569	345	4%	1,756,066	101,096	5%	1,577.1	0.0	0%
As-designed through the wall units (Efficiency Apartments); MPT02	7,909	4	0%	1,855,925	1,237	0%	1,577.1	0.0	0%
As-designed mini-split heat pumps (Apartments); MPT01	7,055	858	11%	1,605,551	251,611	14%	1,577.1	0.0	0%
As-designed heat pump (Community and Fitness); MPT03	7,902	11	0%	1,853,833	3,329	0%	1,577.1	0.0	0%
Baseline fan system power limitation; MFD00	7,914	0	0%	1,857,162	0	0%	1,577.1	0.0	0%
Proposed fan system design at 0.17 bhp/1000 cfm; MFD04	7,738	175	2%	1,805,751	51,411	3%	1,577.1	0.0	0%
OS control of bathroom exhaust fan; MOA02	7,525	388	5%	1,743,367	113,795	6%	1,577.1	0.0	0%
Sensible heat recovery (Fitness); MHRS1	7,878	36	0%	1,846,570	10,592	1%	1,577.1	0.0	0%
Total heat recovery (Fitness); MHRT1	7,877	36	0%	1,846,567	10,595	1%	1,577.1	0.0	0%
91.7% service water heating efficiency; MHW01	7,713	201	3%	1,857,162	0	0%	1,376.5	200.6	13%
92.5% service water heating efficiency; MHW02	7,701	213	3%	1,857,162	0	0%	1,363.9	213.2	14%
94.1% service water heating efficiency; MHW03	7,644	270	3%	1,857,162	0	0%	1,307.4	269.7	17%
Energy Star clothes washers, alt 1; ACW01	7,750	163	2%	1,831,001	26,161	1%	1,502.8	74.3	5%
Energy Star clothes washers, alt 2; ACW02	7,694	219	3%	1,832,491	24,671	1%	1,442.3	134.8	9%
Energy Star dishwashers, alt 1; ADW01	7,875	39	0%	1,859,486	(2,324)	0%	1,530.4	46.7	3%
Energy Star dishwashers, alt 2; ADW02	7,867	47	1%	1,859,025	(1,863)	0%	1,523.5	53.6	3%
Energy Star refrigerators, alt 1; ARF01	7,868	46	1%	1,843,680	13,482	1%	1,577.1	0.0	0%
Energy Star refrigerators, alt 2; ARF02	7,845	69	1%	1,837,054	20,108	1%	1,577.1	0.0	0%
Low flow showerheads; AHW01	7,610	304	4%	1,857,162	0	0%	1,272.9	304.2	19%
Low flow kitchen and bathroom sink aerators; AHW02	7,803	111	1%	1,857,162	0	0%	1,466.5	110.6	7%
Efficiency Units lighting alt 1, 30% lower than baseline; L03GR	7,904	9	0%	1,854,483	2,679	0%	1,577.1	0.0	0%
Efficiency Units lighting alt 2, As-designed; L04GR	7,895	19	0%	1,851,600	5,562	0%	1,577.1	0.0	0%
Sensor control of heating/cooling when patio door is open; MOA01	7,880	34	0%	1,847,235	9,927	1%	1,577.1	0.0	0%
Improved Elevators; MREL1	7,816	97	1%	1,828,622	28,540	2%	1,577.1	0.0	0%

Appendix D. Lighting Power Density (W/sf)

Space Type	Baseline	Bundle 1	Bundle 2	Bundle 3
Apartment	1.54	1.54	0.43	0.43
Efficiency Apartment	1.54	1.54	0.57	0.57
Circulation	0.50	0.31	0.31	0.31
Storage	0.80	0.63	0.63	0.63
Mech/elec	1.50	0.63	0.63	0.63
Restroom	0.90	0.63	0.63	0.63
Exercise	0.90	0.44	0.44	0.44
Locker Room & Shower	0.60	0.44	0.44	0.44
Community Room	1.30	0.45	0.45	0.45
Computer	1.20	0.84	0.84	0.84
Private office	1.10	0.63	0.63	0.63
Open office	1.10	0.63	0.63	0.63
Laundry	0.60	0.60	0.60	0.60
Serving	1.20	0.80	0.80	0.80
Stairs	0.50	0.42	0.42	0.42
Building Average	**1.40**	**1.36**	**0.43**	**0.43**

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Appendix E. Sample Verification Plan

The following details the Verification Plan for the different strategy categories.

Architectural

- Review Construction Documents and submittals for selected energy conservation measures

Electrical

- Review Construction Documents and submittals for selected controls, fixtures, lamps, ballasts
- After construction completion, visually inspect installed controls, fixtures, lamps, and ballasts
- After construction completion, functionally test the installed controls, verify response to changes and sensitivity
- After building occupancy, datalog a sample of lighting circuits to determine performance of lighting controls

Mechanical

- Review Construction Documents and submittals for selected energy conservation measures
- After construction completion, visually inspect installed energy conservation measures

Appendix F. Key Strategy Documentation Guidelines

This Appendix lists information that should be in the Construction Documents for several key strategy types in order to ensure that those strategies will be properly implemented.

Occupancy Sensors

Occupancy Sensor Control Narrative	
B1	Type of occupancy sensor
B2	Location of occupancy sensor
B3	Sensitivity settings for the sensor
B4	Time out settings for the sensor
B5	Override controls an how they interact with the system and location

On-site Calibration Plan Specification	
B6	Requirement for on-site calibration by factory-authorized personnel
B7	Notification to architect, owner, commissioning agent and lighting designer, 10 days in advance of calibration
B8	Requirement for training of owner by manufacturer's authorized representative
B9	Requirement for contractor to submit calibration logs as part of construction submittals

Contractor Submittal Requirements	
B10	Product Data Sheets showing the following
	1. Occupancy sensor features
	2. Dimensions and ratings
B11	Drawings that locate the sensor and controller in each zone
	1. Specific to the project
	2. Sensor cone of vision
B12	Wiring diagrams
	1. Showing entire installation
	2. Specific to the project
	3. Overlaid on Reflected Ceiling Plans
B13	Compatibility documentation
	1. Occupancy sensor
	2. Ballast
	3. Lamp
	4. Fixture
	5. Other lighting controls
	6. Signal, control wiring, interface, input output, radio frequencies

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Daylighting Controls

Daylight Control Narrative for Each Unique Zone	
A.1	Identify the target design illuminance level within each daylight control zone
A.2	When the controls would turn off or dim the electric lights
A.3	When the controls would turn on or brighten the electric lights
A.4	What type of control algorithm is being used (open loop system or closed loop system)
A.5	Time delay and fade rate response of the daylighting system to changes in light level
A.6	Location of manual override switches
A.7	Describe how other lighting controls (i.e. manual overrides) interact with the daylight system

On-site Calibration Plan Specification	
A.8	Requirement for on-site calibration by manufacturer-authorized personnel
A.9	Notify Architect 10 days in advance of calibration site visit
A.10	Requirement for training of owner by manufacturer's authorized representative
A.11	Requirement for contractor to submit calibration logs as part of construction submittals

Contractor Submittal Requirements	
A.12	Product Data Sheets showing the following
	1. Photo sensor features
	2. Controller features
	3. Dimensions and ratings
A.13	Drawings that locate the photo sensor and controller in each zone
	1. Specific to the project
	2. Plans, interior elevations and sections of each daylighting zone that show the sensor cone of vision
A.14	Wiring diagrams
	1. Showing entire installation
	2. Specific to the project
	3. Overlaid on Reflected Ceiling Plans
A.15	Compatibility documentation
	1. Photo sensor
	2. Controller
	3. Ballast
	4. Lamp
	5. Fixture
	6. Other lighting controls
	7. Signal, control wiring, interface, input output, radio frequencies

COMMERCIAL NEW CONSTRUCTION PROGRAM

Bundle Requirements Document

Altoona Towers

Altoona, Iowa

April 24, 2014
7590.0186

Prepared for

MidAmerican ENERGY

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Summary

This document details the strategies we will be reviewing and the submittals that we will need from you to complete the process.

List of Selected Strategies

The following table lists the energy strategies in the Selected Bundle.

These are the strategies that must be implemented in the building if the Owner is to receive the full incentive from the Utility. The farthest right column lists the relative value (percentage of total savings) for each strategy. Strategies with high percentages contribute most to the savings and the incentive.

Detailed information about the strategies follows the table.

ID	Strategy Description	Portion of Total $ Savings Modeled
	Architectural	
ERN01	R-50 roof for non-residential, R-50 roof for residential	1%
WGB01	Design Glass: M1 Casement	1%
WGC01	Design Glass: Sliding Doors	1%
	Electrical	
DGA06	Stairs Stepped Daylighting	<1%
LCCI2	Circulation occupancy sensor control to 1/2 level	1%
LCST1	Storage occupancy sensor control	<1%
LCME1	Mechanical/electrical timer control	<1%
LCRR1	Restroom occupancy sensor control	<1%
LCFT1	Exercise occupancy sensor control	<1%
LCLR1	Locker Room & Shower occupancy sensor control	<1%
LCCM1	Community Room occupancy sensor control	<1%
LCPO1	Private office occupancy sensor control	<1%
LCOO1	Open office occupancy sensor control	<1%
LCLA1	Laundry occupancy sensor control	<1%
LCSV1	Serving occupancy sensor control	<1%
L03BW	All public spaces at As-designed LPD (excludes apartments/efficiency units)	3%
L02AP	Apartment lighting alt 2, As-designed	16%
L04GR	Efficiency Units lighting alt 2, As-designed	1%
	Mechanical	
MPT02	As-designed through the wall units (Efficiency Apartments)	<1%
MPT01	As-designed mini-split heat pumps (Apartments)	34%
MPT03	As-designed heat pump (Community and Fitness)	<1%
MFD04	Proposed fan system design	8%
MOA02	Occupancy sensor control of bathroom exhaust fan	11%
MHRT1	Total heat recovery (Fitness)	2%
MHW03	94.1% service water heating efficiency	5%
MREL1	Improved efficiency elevators	<1%

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ID	Strategy Description	Portion of Total $ Savings Modeled
	Appliances	
ACW02	Energy Star clothes washers, alt 2	6%
ADW02	Energy Star dishwashers, alt 2	1%
ARF01	Energy Star refrigerators, alt 1	2%
AHW01	Low flow showerheads	5%
AHW02	Low flow kitchen and bathroom sink aerators	2%
Total Savings		**100%**

Selected Strategies and Requirements

Architectural Strategies

ID	Strategy Description	Key Design Parameter		Design Specification Requirements
ERN01	R-50 roof for non-residential, R-50 roof for residential	R-50		Specify roof assembly R-value w/ detailed drawings and material properties to meet selected parameter.
WGB01	Design Glass: M1 Casement	0.24	U-factor COG	Include glazing performance characteristics in project specification or drawings that meet the selected parameters.
		0.27	U-factor Unit	
		0.25	SHGC	
		0.44	Vis Trans	
WGC01	Design Glass: Sliding Doors	0.28	U-factor COG	Include glazing performance characteristics in project specification or drawings that meet the selected parameters.
		0.31	U-factor Unit	
		0.32	SHGC	
		0.59	Vis Trans	

When available, please forward the requested architectural items below:

- As-built or most recent revision of the architectural plans.
- Glazing cutsheets showing the U-value (unit and center of glass), solar heat gain coefficient, and visible light transmittance for all insulating glazing types.
- Roof insulation cutsheets for insulation showing R-value per inch. Include a roof insulation plan and section showing the installed material types, dimensions, and layering scheme within the assembly.

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Electrical Strategies

ID	Strategy Description	Key Design Parameter		Design Specification Requirements
DGA06	Stairs Stepped Daylighting	1,700	Control Area sf	Clearly identify fixtures in daylight control zone on plans.
LCCI2	Circulation occupancy sensor control to 1/2 level	10,600	Control Area sf	Provide manual switches in addition to sensors. Coordinate placement of sensors w/ interior design features, partitions, furniture, etc. Specify required sensor features in a schedule, including time delay, sensitivity, coverage area, etc. Specify submittal requirements and control calibration plan.
LCST1	Storage occupancy sensor control	200	Control Area sf	
LCME1	Mechanical/electrical timer control	800	Control Area sf	
LCRR1	Restroom occupancy sensor control	100	Control Area sf	
LCFT1	Exercise occupancy sensor control	2,900	Control Area sf	
LCLR1	Locker Room & Shower occupancy sensor control	200	Control Area sf	
LCCM1	Community Room occupancy sensor control	1,000	Control Area sf	
LCPO1	Private office occupancy sensor control	700	Control Area sf	
LCOO1	Open office occupancy sensor control	500	Control Area sf	
LCLA1	Laundry occupancy sensor control	100	Control Area sf	
LCSV1	Serving occupancy sensor control	200	Control Area sf	
L03BW	All public spaces at As-designed LPD (excludes apartments/efficiency units)	0.40	W/sf	FOR ALL LIGHTING DESIGN OPTIONS: Meet the maximum connected lighting power density (W/sf) based on fixture watts and quantity.
L02AP	Apartment lighting alt 2, As-designed	0.43	W/sf	
L04GR	Efficiency Units lighting alt 2, As-designed	0.57	W/sf	

When available, please forward the requested electrical items below:

- As-built or most recent revision of the electrical plans and schedules.
- Cutsheets for fixtures, lamps and ballasts for each fixture type showing lamp and ballast type, lamp quantity and input wattage.
- Cutsheets for photosensors, occupancy sensors and other lighting control equipment. If available, include a sequence of operation and calibration logs for the daylight system.

For detailed information on:

- Daylighting controls, please see Appendix A – Daylighting Controls
- Lighting controls, please see Appendix B – Occupancy Sensor Controls

Space Type Lighting Power Density

Space Type	Baseline lighting power (W/sf)	Target lighting power (W/sf)
Apartment	1.54	0.43
Efficiency Apartment	1.54	0.57
Circulation	0.50	0.31
Storage	0.80	0.63
Mechanical/electrical	1.50	0.63
Restroom	0.90	0.63
Exercise	0.90	0.44
Locker Room & Shower	0.60	0.44
Community Room	1.30	0.45
Computer	1.20	0.84
Private office	1.10	0.63
Open office	1.10	0.63
Laundry	0.60	0.60
Serving	1.20	0.80
Stairs	0.50	0.42

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Mechanical Strategies

ID	Strategy Description	Key Design Parameter	Design Specification Requirements
MPT02	As-designed through the wall units (Efficiency Apartments)	9.8 EER	Specify cooling efficiency to meet selected parameter.
MPT01	As-designed mini-split heat pumps (Apartments)	20.2 SEER/ 11.6 HSPF 12.8 EER/ 3.8 COP	Specify heating and cooling efficiencies to meet selected parameters.
MPT03	As-designed heat pump (Community and Fitness)	16 SEER/ 9.0 HSPF	Specify heating and cooling efficiencies to meet selected parameters.
MFD04	Proposed fan system design	0.17 bhp/1000 cfm	Specify the fan system power to meet the selected parameter.
MOA02	Occupancy sensor control of bathroom exhaust fan	Occupancy sensor control	Specify occupancy sensor control of bathroom exhaust fans.
MHRT1	Total heat recovery (Fitness)	65% sensible 65% latent Efficiency ratio	Specify efficiency of energy recovery units to meet selected parameters. Design system to capture 90% of the exhaust air.
MHW03	94.1% service water heating efficiency	at least 94.1% Efficiency	Specify efficiency of service hot water equipment.
MREL1	Improved elevators	Gen 2 system	Specify improved efficiency, Gen2 system elevators.

When available, please forward the requested mechanical items below:

- As-built or most recent revision of the HVAC plans and schedules.
- DX cooling equipment cutsheets showing unit size and ARI-rated EER.
- Heat pump cutsheets showing quantity, manufacturer, model, and rated EER/COP and SEER/HSPF values of installed equipment.
- Mechanical controls submittal showing sequences associated with occupancy sensor control of bathroom exhaust fans
- Heat recovery cutsheets showing the sensible and latent efficiency of the installed equipment.
- Service water heater cutsheets showing rated thermal efficiency.
- Elevator cutsheets showing the rated annual energy consumption (kWh/yr).

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Appliance Strategies

ID	Strategy Description	Key Design Parameter		Design Specification Requirements
ACW02	Energy Star clothes washers, alt 2	2.40	MEF	Specify clothes washers to meet selected parameter (97 residential washers in units and 4 commercial washers in common laundry room).
ADW02	Energy Star dishwashers, alt 2	275.00	kWh/yr	Specify dishwashers to meet selected parameter (121 dishwashers).
ARF01	Energy Star refrigerators, alt 1	20% better kWh/yr than NAECA		Specify refrigerators to meet selected parameter (103 at 383 kWh and 18 at 577 kWh).
AHW01	Low flow showerheads	1.60	gpm @ 80 psi	Specify showerheads meeting required flow rates.
AHW02	Low flow kitchen and bathroom sink aerators	1.00	gpm @ 60 psi	Specify showerheads meeting required flow rates.

When available, please forward the requested appliance-based items below:

- Cutsheets showing the manufacturer, model, and quantity of ENERGY STAR® refrigerators, dishwashers, and clothes washers purchased for the project.
- Shower head submittals showing rated gallons per minute.
- Sink faucets and aerator submittals showing the rated gallons per minute.

Verification Plan

The following details the Verification Plan for the different strategy categories.

Architectural

1. Review Construction Documents for selected energy conservation measures
2. Review construction submittals for selected energy conservation measures

Electrical

1. Review Construction Documents for selected controls, fixtures, lamps, ballasts
2. Review construction submittals for selected controls, fixtures, lamps, ballasts
3. After construction completion, visually inspect installed controls, fixtures, lamps, and ballasts
4. After construction completion, functionally test the installed controls, verify response to changes and sensitivity

Mechanical

1. Review Construction Documents for selected energy conservation measures
2. Review construction submittals for selected energy conservation measures
3. After construction completion, visually inspect installed energy conservation measures

Appliance

1. Review Construction Documents for selected energy conservation measures
2. Review construction submittals for selected energy conservation measures
3. After construction completion, visually inspect installed energy conservation measures

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Results Summary

Energy Parameter	Baseline*	Bundle 2, As Modeled*
Energy Cost	$139,957	$101,922
Energy Cost Savings		$38,035
Percent Energy Cost Savings		27%
Electricity Demand	383 kW	259 kW
Electricity Demand Savings		124 kW
Percent Electricity Demand Savings		32%
Electricity Consumption	1,805,143 kWh	1,204,498 kWh
Electricity Consumption Savings		600,645 kWh
Percent Electricity Consumption Savings		33%
Natural Gas Demand	205 therms/day	102 therms/day
Natural Gas Demand Savings		103 therms/day
Percent Natural Gas Demand Savings		50%
Natural Gas Consumption	15,771 therms	7,812 therms
Natural Gas Consumption Savings		7,959 therms
Percent Natural Gas Consumption Savings		50%
Incremental First Cost		$352,861
Estimated MidAmerican Energy Electric Incentive		**$82,889**
Estimated MidAmerican Energy Gas Incentive**		**$14,326**
Estimated MidAmerican Energy Incentive***		**$97,215**

** The figures in the 'Baseline' and 'Bundle 2, As Modeled' are reprinted from the March 31, 2014 Design Assistance Bundle Meeting Minutes for this project, which were the basis for the original energy savings projections.*

*** MidAmerican Energy Company's natural gas incentives are available to customers that purchase natural gas service (commodity) from MidAmerican Energy. Customers who elect to pursue "transport only" arrangements with MidAmerican Energy (including MidAmerican Unregulated Retail Service, or URS) may or may not be eligible for energy efficiency incentives. Customers receiving monthly metered natural gas transportation service pay into the energy efficiency cost recovery fund and are eligible for natural gas incentives; customers receiving daily metered natural gas transportation services do not pay into the fund are not eligible for natural gas energy efficiency incentives.* ***Any natural gas incentives quoted should be considered preliminary and for informational purposes only until eligibility is verified; natural gas purchasing arrangements and eligibility will be determined post-construction during final verification.***

**** The MidAmerican Energy Company Commercial New Construction incentive may also not exceed 70% of the total bundled incremental strategy costs and total incentives for the project may not exceed $1 million*

Appendices

The following information is for your reference and does not impact the incentive offered for energy savings.

Past project review indicates that attention to the following items within the Construction Documents tends to result in higher achievement of energy savings when the construction project is completed.

We understand that all of this information may not be specified in the CDs; some may be the Contractor's responsibility or only appear on shop drawings.

In summary, please regard these Appendices as a guide to actions and items that may be appropriate for the technologies being implemented. They are suggested, but not required.

A – Daylighting Controls 11
B – Occupancy Sensor Controls 13
C – Building Summary Table 14

Appendix A – Daylighting Controls

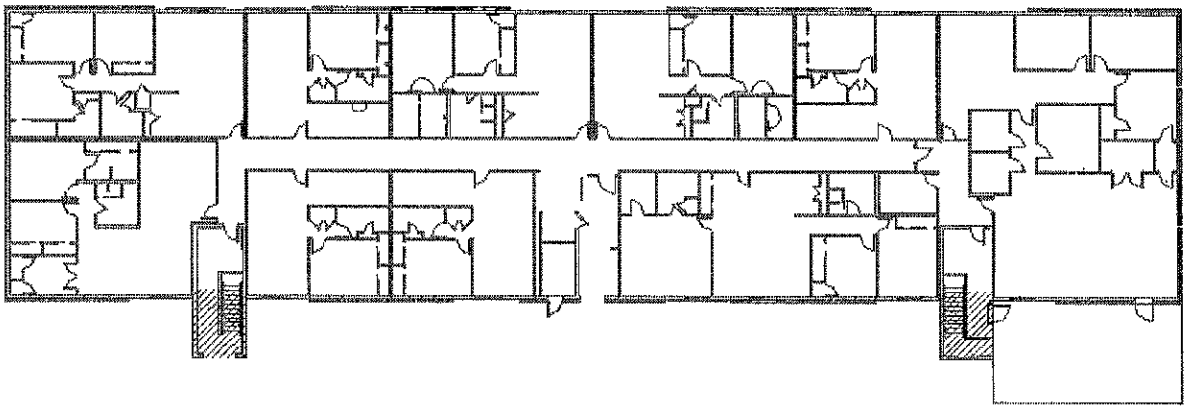
Daylight Control Narrative for Each Unique Zone	
A.1	Identify the target design illuminance level within each daylight control zone
A.2	When the controls would turn off or dim the electric lights
A.3	When the controls would turn on or brighten the electric lights
A.4	What type of control algorithm is being used (open loop system or closed loop system)
A.5	Time delay and fade rate response of the daylighting system to changes in light level
A.6	Location of manual override switches
A.7	Describe how other lighting controls (i.e. manual overrides) interact with the daylight system

On-site Calibration Plan Specification	
A.8	Requirement for on-site calibration by manufacturer-authorized personnel
A.9	Notify Architect 10 days in advance of calibration site visit
A.10	Requirement for training of owner by manufacturer's authorized representative
A.11	Requirement for contractor to submit calibration logs as part of construction submittals

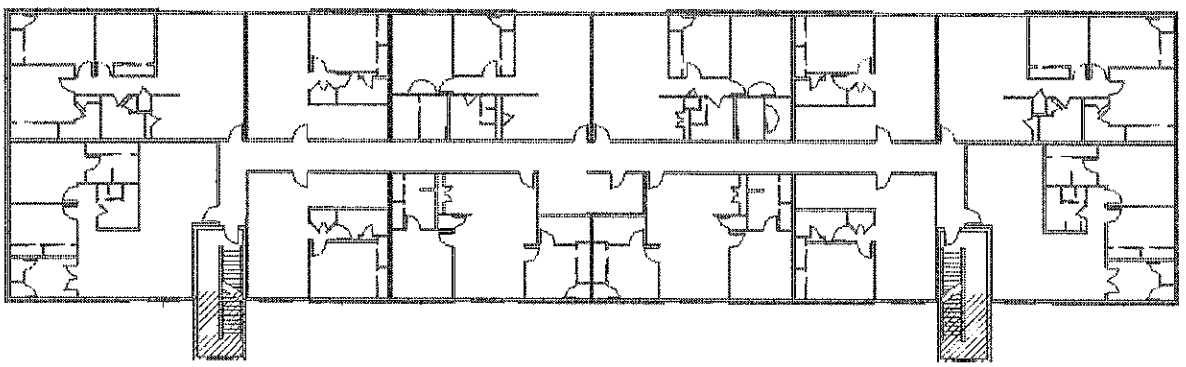
Contractor Submittal Requirements	
A.12	Product Data Sheets showing the following
	1. Photo sensor features
	2. Controller features
	3. Dimensions and ratings
A.13	Drawings that locate the photo sensor and controller in each zone
	1. Specific to the project
	2. Plans, interior elevations and sections of each daylighting zone that show the sensor cone of vision
A.14	Wiring diagrams
	1. Showing entire installation
	2. Specific to the project
	3. Overlaid on Reflected Ceiling Plans
A.15	Compatibility documentation
	1. Photo sensor
	2. Controller
	3. Ballast
	4. Lamp
	5. Fixture
	6. Other lighting controls
	7. Signal, control wiring, interface, input output, radio frequencies

Please see the following pages for expected daylighting control areas.

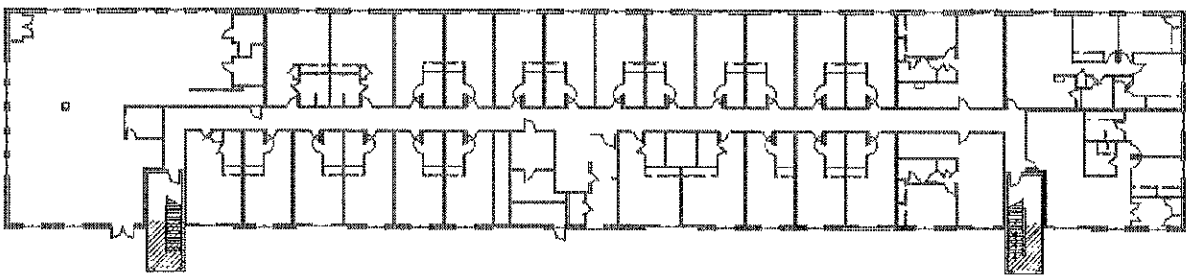
Location of Daylight Control Zones on Plan (shaded)



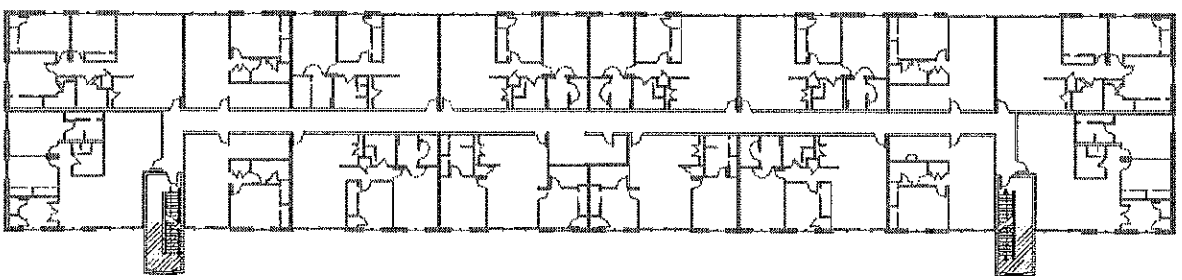
Building A – Level One Floor Plan



Building A – Level Two and Level Three Floor Plan



Building B – Level One Floor Plan



Building B – Level Two and Level Three Floor Plan

Appendix B – Occupancy Sensor Controls

Occupancy Sensor Control Narrative	
B1	Type of occupancy sensor
B2	Location of occupancy sensor
B3	Sensitivity settings for the sensor
B4	Time out settings for the sensor
B5	Override controls an how they interact with the system and location

On-site Calibration Plan Specification	
B6	Requirement for on-site calibration by factory-authorized personnel
B7	Notification to architect, owner, commissioning agent and lighting designer, 10 days in advance of calibration
B8	Requirement for training of owner by manufacturer's authorized representative
B9	Requirement for contractor to submit calibration logs as part of construction submittals

Contractor Submittal Requirements	
B10	Product Data Sheets showing the following
	1. Occupancy sensor features
	2. Dimensions and ratings
B11	Drawings that locate the sensor and controller in each zone
	1. Specific to the project
	2. Sensor cone of vision
B12	Wiring diagrams
	1. Showing entire installation
	2. Specific to the project
	3. Overlaid on Reflected Ceiling Plans
B13	Compatibility documentation
	1. Occupancy sensor
	2. Ballast
	3. Lamp
	4. Fixture
	5. Other lighting controls
	6. Signal, control wiring, interface, input output, radio frequencies

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Appendix C – Building Summary Table

Building Summary	
Building type	Multi-family Housing
Location	Altoona, Iowa
Building area	130,800 sf
Number of stories	2 - 4 story buildings
Building structure	Wood construction with sloped roof. Using spray foam insulation with a target R-25 total wall assembly. Insulation in the attic will be installed at the bottom chord. Target R-value R-50. Considering an inch of spray foam in the roof with blown-in insulation on top to reach the R-50 target and reduce infiltration.
Building organization	2 apartment buildings. First floor of Building B will house a fitness center and extended stay efficiency units available for lease on a monthly basis. First floor of Building A will have office space and a community room.
Glazing systems	Punched vinyl windows throughout
	Window to floor area ratio: 7.4%; Window to wall area ratio: 16.1%
Lighting system(s)	Fluorescent lighting planned throughout with an interest in LED lighting where it makes sense.
HVAC system(s)	Ducted mini-split systems in the apartment units, efficiency units will have electric base board heat and through wall air conditioners. An air to air heat pump will be utilized in the community space and offices. An air to air heat pump with an ERV will be used in the fitness room. Central gas fired service hot water.
Areas heated	All, except circulation spaces (stairs tempered to 60 degrees)
Areas cooled	All, except circulation and stairs
Electric utility	MidAmerican Energy
Gas utility	MidAmerican Energy
Approx. construction document completion date	April, 2014
Approx. construction start	
Approx. occupancy date	November, 2014
Other notes	

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ALTOONA TOWERS

1414 ADVENTURELAND DRIVE
ALTOONA, IOWA 50009

OWNER:

ALTOONA TOWERS LC
5901 VISTA DRIVE
WEST DES MOINES, IA 50266
(515) 226-0000

ARCHITECT:

IMPRINT ARCHITECTS
1605 N. ANKENY BLVD
ANKENY, IA 50023
(515) 965-5336

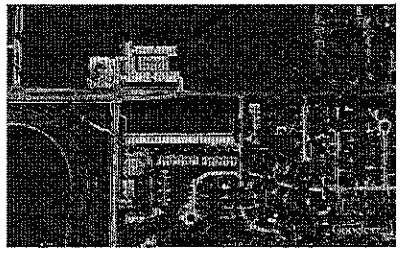
STRUCTURAL ENGINEER:

RAKER RHODES ENGINEERING
4717 GRAND AVENUE
DES MOINES, IA 50312
(515) 277-0275

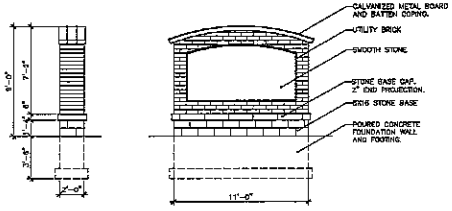
GENERAL CONTRACTOR:

ERICKSON BALMER CONSTRUCTION LLC
2453 106TH STREET
URBANDALE, IA 50322
(515) 252-1510

SITE MAP



MONUMENT SIGN



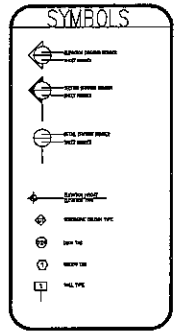
BUILDING A DRAWING LIST

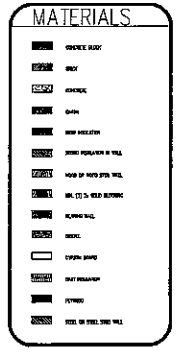
ARCHITECTURAL

A0 TITLESHEET
A00 CODE REVIEW
A101 GROUND & SECOND/THIRD FLOOR PLAN
A102 FOURTH FLOOR & ROOF PLAN
A103 ENLARGED COMMUNITY ROOM PLAN
A201 EXTERIOR ELEVATIONS
A202 EXTERIOR ELEVATIONS
A301 WALL SECTIONS
A302 WALL SECTIONS
A401 ENLARGED STAIR & ELEVATOR PLANS
A402 ENLARGED UNIT PLANS
A403 ENLARGED UNIT PLANS
A404 DOCK AND CANOPY DETAILS
A405 WALL TYPES & FLOOR/CEILING ASSEMBLIES
A406 ADA TYPE A & B PLANS & ELEVATIONS
A501 WALL SECTION DETAILS
A502 DETAILS
A601 SCHEDULES

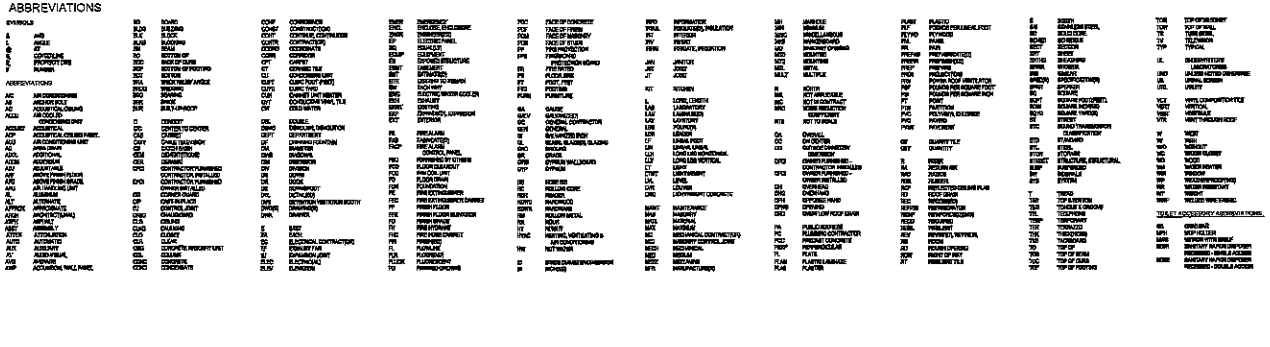
STRUCTURAL

S0.1 STRUCTURAL NOTES
S1.1 FOUNDATION PLAN
S2.1 FOUNDATION DETAILS
S3.1 FRAMING PLAN
S3.2 FRAMING PLAN
S3.3 FRAMING PLAN
S3.4 ROOF FRAMING PLAN
S4.1 FRAMING DETAILS
S4.2 FRAMING DETAILS
S5.1 BALCONY DETAILS





ABBREVIATIONS



TOILET ACCESSORY ABBREVIATIONS

I hereby certify that the portion of this technical submission identified below was prepared by me or under my direct supervision and responsible charge. I am a duly registered architect under the laws of the state of Iowa.

8-30-2014
LICENSE EXP.
Pages or sheets covered by this seal:
A-SERIES ARCHITECTURAL SHEETS
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13-103

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FAX: (515) 965-5338
www.imprint-architects.com
IOWA GROUP SEARCH

Titlesheet

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA

DATE:	ISSUED FOR:	Dr.	Ck.
10-02-13	ISSUE FOR CONSTRUCTION		
11-11-13	PLANNING REVIEWS		
11-26-13	APARTMENT UNIT LAYOUTS		
12-20-13	DOOR AND ELEVATION MARKING		
13-02-13	REISSUED FOR CONSTRUCTION		
13-21-13	VARIOUS MODIFICATIONS		

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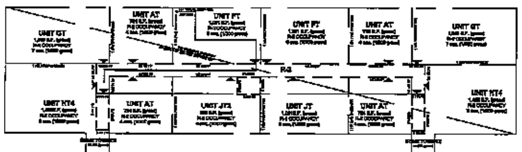
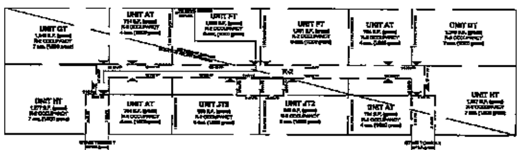
imprint ARCHITECTS

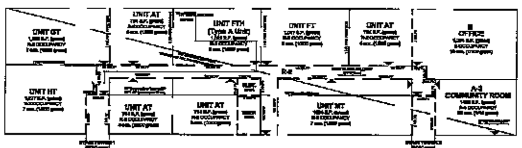
OCCUPANT LOADS



4TH FLOOR TOTAL 89



2ND & 3RD FLOORS TOTAL 87 EACH FLOOR



GROUND FLOOR TOTAL 130

SQUARE FOOTAGES

BUILDING A

GROUND FLOOR–MIXED
B – 1,064 SQ FT OFFICE
A–3 – 1,430 SQ FT COMMUNITY
R–2 – 11,406 SQ FT
13,900 SQ FT GROSS

SECOND FLOOR R–2
13,900 SQ FT GROSS

THIRD FLOOR R–2
13,900 SQ FT GROSS

FOURTH FLOOR R–2
13,900 SQ FT GROSS

55,600 SQ FEET GROSS TOTAL

BUILDING B

GROUND FLOOR–MIXED
A3 – 3,092 SQ FT GROSS HEALTH CLUB
R2 – 9,372 SQ FT GROSS CORPORATE UNITS
R2 – 3,286 SQ FT GROSS APARTMENTS
18,600 SQ FT GROSS

SECOND FLOOR R–2
18,600 SQ FT GROSS

THIRD FLOOR R–2
18,600 SQ FT GROSS

FOURTH FLOOR R–2
18,600 SQ FT GROSS

74,400 SQ FT GROSS TOTAL

CODE REVIEW - BUILDING A

CODE REVIEW ANALYSIS BASED ON 2009 INTERNATIONAL BUILDING CODE
ADDITIONAL REFERENCES TO 2009 INTERNATIONAL BUILDING CODE AS NOTED

PROJECT DESCRIPTION

ALTOONA TOWERS
1414 ADVENTURELAND DRIVE
ALTOONA, IOWA 50009
4 STORY BUILDING CONTAINING RESIDENTIAL UNITS,
RENTAL OFFICES, AND COMMUNITY CENTER.
THE STRUCTURE IS WOOD FRAMED CONSTRUCTION WITH BRICK/STONE VENEER MASONRY AND METAL SIDING FOR EXTERIOR CLADDING.

CHAPTER 3 — USE & OCCUPANCY CLASSIFICATION:

OCCUPANCY:
FIRST FLOOR:
R–2 PER SECTION 310
A–3 PER SECTION 303
B PER SECTION 304

OCCUPANCY:
2ND, 3RD & 4TH FLOOR:
R–2 PER SECTION 310

CHAPTER 4 — SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

GROUP I–1, R–1, R–2, R–3 PER SECTION 420
–WALLS SEPARATING DWELLING UNITS IN THE SAME BUILDING SHALL BE FIRE PARTITIONS PER SECTION 420.2
–FLOOR/CEILING ASSEMBLIES SEPARATING DWELLING UNITS SHALL COMPLY WITH SECTION 712 PER SECTION 420.3

CHAPTER 5 — GENERAL BUILDING HEIGHTS AND AREAS

DEFINITIONS PER SECTION 502
GRADE PLANE TO BE DETERMINED BY THE AVERAGE FINISHED GROUND LEVEL AT THE EXTERIOR WALLS MEASURED 5' AROUND THE PERIMETER.

GENERAL HEIGHT AND AREA LIMITATIONS PER SECTION 503
CONSTRUCTION TYPE V–A UNDER ALLOWABLE HEIGHT AND BUILDING AREAS PER TABLE 503

HEIGHT PER SECTION 504
ALLOWABLE BUILDING HEIGHTS ARE AS FOLLOWS PER TABLE 503:

OCCUPANCIES	ALLOWABLE HEIGHT	ACTUAL
R–2	4 STORIES OR 70' *	4 STORIES
A–3	2 STORIES OR 70' *	4 STORIES
B	3 STORIES OR 70' *	4 STORIES

* SHOWN WITH ALLOWABLE HEIGHT INCREASE DUE TO 504.2

AREA MODIFICATIONS PER SECTION 506
–ADJUSTED AREAS ARE CALCULATED AS FOLLOWS PER SECTION 506.1–506.4:

BUILDING AREAS FOR BUILDING A

FIRST FLOOR	ACTUAL NET	ACTUAL GROSS	ALLOWABLE (TABLE 503)	ADJUSTED AREA	RATIO
R–2	11,406	11,406	12,000	21,000	0.54
A–3	1,430	1,430	11,500	20,125	0.07
B	1,064	1,064	18,000	31,500	0.03
TOTAL	13,900	13,900			0.54

SECOND FLOOR	ACTUAL NET	ACTUAL GROSS	ALLOWABLE (TABLE 503)	ADJUSTED AREA	RATIO
R–2	13,900	13,900	12,000	21,000	0.66
TOTAL	13,900	13,900			0.66

THIRD FLOOR	ACTUAL NET	ACTUAL GROSS	ALLOWABLE (TABLE 503)	ADJUSTED AREA	RATIO
R–2	13,900	13,900	12,000	21,000	0.66
TOTAL	13,900	13,900			0.66

FOURTH FLOOR	ACTUAL NET	ACTUAL GROSS	ALLOWABLE (TABLE 503)	ADJUSTED AREA	RATIO
R–2	13,900	13,900	12,000	21,000	0.66
TOTAL	13,900	13,900			0.66

WALL ORIENTATION	PERIMETER	FRONTAGE W/ 20'–30' OPEN
NORTH	235	235
EAST	70	70
SOUTH	235	235
WEST	70	70
TOTAL	610	610

FLOOR RATIO CALCULATION (SEC. 506.5.2)			
FIRST FLOOR	0.54	<1	OK
SECOND FLOOR	0.66	<1	OK
THIRD FLOOR	0.66	<1	OK
FOURTH FLOOR	0.66	<1	OK
TOTAL	2.52		OK

MIXED USE AND OCCUPANCY PER SECTION 508
–NONSEPARATED OCCUPANCIES BETWEEN A–3 & B OCCUPANCIES PER SECTION 508.3
– 2HR FIRE BARRIER SEPARATION BETWEEN THE A–3/B OCCUPANCIES AND THE R OCCUPANCY PER SECTION 508.4 AND TABLE 508.4

OCCUPANCIES	REQUIRED SEPARATION	PROVIDED
A–3 & R–2	2 HOURS	YES

SPECIAL PROVISIONS PER SECTION 509
–NO NEED TO TAKE ADVANTAGE OF SPECIAL PROVISIONS PER SECTION 509.1

CHAPTER 6 — TYPES OF CONSTRUCTION

GENERAL PER SECTION 601
–FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS ARE AS FOLLOWS PER TABLE 601:

CONSTRUCTION TYPE: V–A

ELEMENT	RATING
PRIMARY STRUCTURAL FRAME	1 HOUR
BEARING WALLS EXTERIOR	1 HOUR
BEARING WALLS INTERIOR	1 HOUR
NON BEARING WALLS EXTERIOR	1 HOUR
NON BEARING WALLS INTERIOR	0 HOUR
FLOOR CONSTRUCTION	1 HOUR
ROOF CONSTRUCTION	1 HOUR

* REFERENCE 603.1 FOR EXCEPTIONS

CONSTRUCTION CLASSIFICATIONS PER SECTION 602
–FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE ARE AS FOLLOWS PER TABLE 602:

BUILDING SEPARATION		
WALL LOCATION	FIRE SEPARATION DISTANCE	RATING
NORTH	X >30	0
EAST	X >30	0
SOUTH	X >30	0
WEST	X >30	0

* TYPE V–A FOR R–2

CODE REVIEW ANALYSIS BASED ON 2009 INTERNATIONAL BUILDING CODE
ADDITIONAL REFERENCES TO 2009 INTERNATIONAL BUILDING CODE AS NOTED

CHAPTER 7 — FIRE & SMOKE PROTECTION FEATURES

–DEFINITIONS PER SECTION 702
–FIRE SEPARATION DISTANCE IS THE DISTANCE MEASURED FROM THE BUILDING FACE TO ONE OF THE FOLLOWING:
1. THE CLOSEST INTERIOR LOT LINE
2. TO THE CENTERLINE OF A STREET, AN ALLEY OR PUBLIC WAY
3. TO AN IMAGINARY LINE BETWEEN TWO BUILDINGS ON THE PROPERTY PER SECTION 702.1

EXTERIOR WALLS PER SECTION 705
–FIRE RESISTANCE RATING SHALL ONLY BE REQUIRED ON EXTERIOR WALLS FOR EXPOSURE TO THE "INSIDE" PER SEC. 705.5
–A PARAPET NEED NOT BE PROVIDED ON AN EXTERIOR WALL WHERE THE WALL IS NOT REQUIRED TO BE FIRE–RESISTANCE RATED IN ACCORDANCE WITH TABLE 602 BECAUSE OF FIRE SEPARATION DISTANCE PER SECTION 705.11, EXCEPTION 1
–MAXIMUM AREA OF EXTERIOR WALL OPENINGS PER TABLE 705.8

MAXIMUM AREA OF EXTERIOR WALL OPENINGS		
FIRE SEPARATION DISTANCE	DEGREE OF OPENING PROTECTION	ALLOWABLE AREA
NORTH–30' OR GREATER	UNPROTECTED, NONSPRINKLERED	NO LIMIT
EAST–30' OR GREATER	UNPROTECTED, NONSPRINKLERED	NO LIMIT
SOUTH–30' OR GREATER	UNPROTECTED, NONSPRINKLERED	NO LIMIT
WEST–30' OR GREATER	UNPROTECTED, NONSPRINKLERED	NO LIMIT

FIRE WALLS PER SECTION 706
NOT APPLICABLE

FIRE BARRIERS PER SECTION 707
–SHAFTS ARE PERMITTED TO TERMINATE AT A TOP ENCLOSURE PER SECTION 708.5, EXCEPTION 2

FIRE PARTITIONS PER SECTION 709
–FIRE BLOCKING OR DRAFTSTOPPING IS ONLY REQUIRED PER EVERY TWO UNITS NOT TO EXCEED 3,000 SQUARE FEET. PER SECTION 709.4 EXCEPTION 5

OPENING PROTECTIVES PER SECTION 715
–FIRE DOOR AND FIRE SHUTTER FIRE PROTECTIONS RATINGS ARE AS FOLLOWS PER TABLE 715.4:

TYPE OF ASSEMBLY	FIRE–RESISTANCE RATING	MINIMUM DOOR RATING
FIRE BARRIERS	2 HOUR	1 HOUR
FIRE PARTITIONS	1 HOUR	1/3 HOUR

CHAPTER 9 — FIRE PROTECTION SYSTEMS

SPRINKLER SYSTEM:
–R–2 OCCUPANCY NFPA 13R SYSTEM THROUGHOUT PER SECTION 903.1.2
–A–3 & B OCCUPANCY NFPA 13 SYSTEM THROUGHOUT PER SECTION 903.3.1.1

CHAPTER 10 — MEANS OF EGRESS

OCCUPANT LOAD PER SECTION 1004
– SEE DIAGRAM THIS SHEET

EGRESS WIDTH PER SECTION 1005
– CALCULATIONS BELOW PER SECTION 1005.1

BUILDING					
		STAIRWAYS (INCHES)		OTHER EGRESS COMPONENTS (INCHES)	
FLOOR	OCC. LOAD	REQ'D	PROVIDED	REQ'D	PROVIDED
FIRST FLOOR	130	0	132	26	34 X 2=68
SECOND FLOOR	87	20	48 X 2=96	13	34 X 2=68
THIRD FLOOR	87	20	48 X 2=96	13	34 X 2=68
FOURTH FLOOR	89	21	48 X 2=96	14	34 X 2=68
TOTAL	333				

ACCESSIBLE MEANS OF EGRESS PER SECTION 1007
–AREA OF REFUGE NOT REQUIRED PER SECTION 1007.3, EXCEPTION 3

EXIT AND EXIT ACCESS DOORWAYS PER SECTION 1007
– TWO EXITS ARE REQUIRED PER TABLE 1015.1
THE DISTANCE BETWEEN REQUIRED EXITS SHALL BE NOT LESS THAN ONE–THIRD OF THE LENGTH OF THE MAXIMUM DIAGONAL DIMENSION OF THE AREA SERVED PER SECTION 1015.2.1, EXCEPTION 2

EXIT ACCESS TRAVEL DISTANCE PER SECTION 1016
–TRAVEL DISTANCE LIMITATIONS SHALL BE MEASURED FROM THE MOST REMOTE POINT WITHIN A STORY TO AN EXTERIOR EXIT STAIRWAY PER SECTION 1016.1
–TOTAL DISTANCE TO BE AS FOLLOWS PER TABLE 1016.1:

OCCUPANCY	WITH SPRINKLER SYSTEM REQUIRED	PROVIDED
R–2	250 FEET	250 FEET
A–3	250 FEET	250 FEET
B	300 FEET	300 FEET

CORRIDORS PER SECTION 1018
– CORRIDOR FIRE–RESISTANCE RATING IS PERMITTED TO BE 1/2 FOR R WHEN USING A SPRINKLER SYSTEM PER TABLE 1018.1
– CORRIDOR WIDTHS ARE TO BE AS FOLLOWS PER SECTION 1018.2

CORRIDOR LOCATION	CORRIDOR WIDTH REQUIRED
OCCUPANCY > 50	44 INCHES
OCCUPANCY < 50	36 INCHES
MECHANICAL ACCESS	24 INCHES

–DEAD END CORRIDORS SHALL NOT EXCEED 50' FOR R OCCUPANCIES WHEN EQUIPPED WITH AN AUTOMATIC SPRINKLER SYSTEM PER SECTION 1018.4

NUMBER OF EXITS AND CONTINUITY PER SECTION 1021:

BUILDING			
		NUMBER OF EXITS	
LOCATION	OCCUPANT LOAD	REQ'D	PROVIDED
FIRST FLOOR	132	2	2
SECOND FLOOR	87	2	2
THIRD FLOOR	87	2	2
FOURTH FLOOR	70	2	2

VERTICAL EXIT ENCLOSURES PER SECTION 1022
–STAIR TOWERS ARE REQUIRED TO HAVE A 2 HOUR EXIT ENCLOSURE DUE TO SERVING FOUR STORIES PER SECTION 1022.1

A

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Code Review
Building A

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA 50009

DATE:	ISSUED FOR:
10-02-13	ISSUE FOR CONSTRUCTION
11-11-13	PLUMBING REVISIONS
11-18-13	APARTMENT UNIT LAYOUTS
11-20-13	DOOR AND ELEVATION MARKS
12-02-13	REISSUED FOR CONSTRUCTION
12-24-13	VARIOUS MODIFICATIONS

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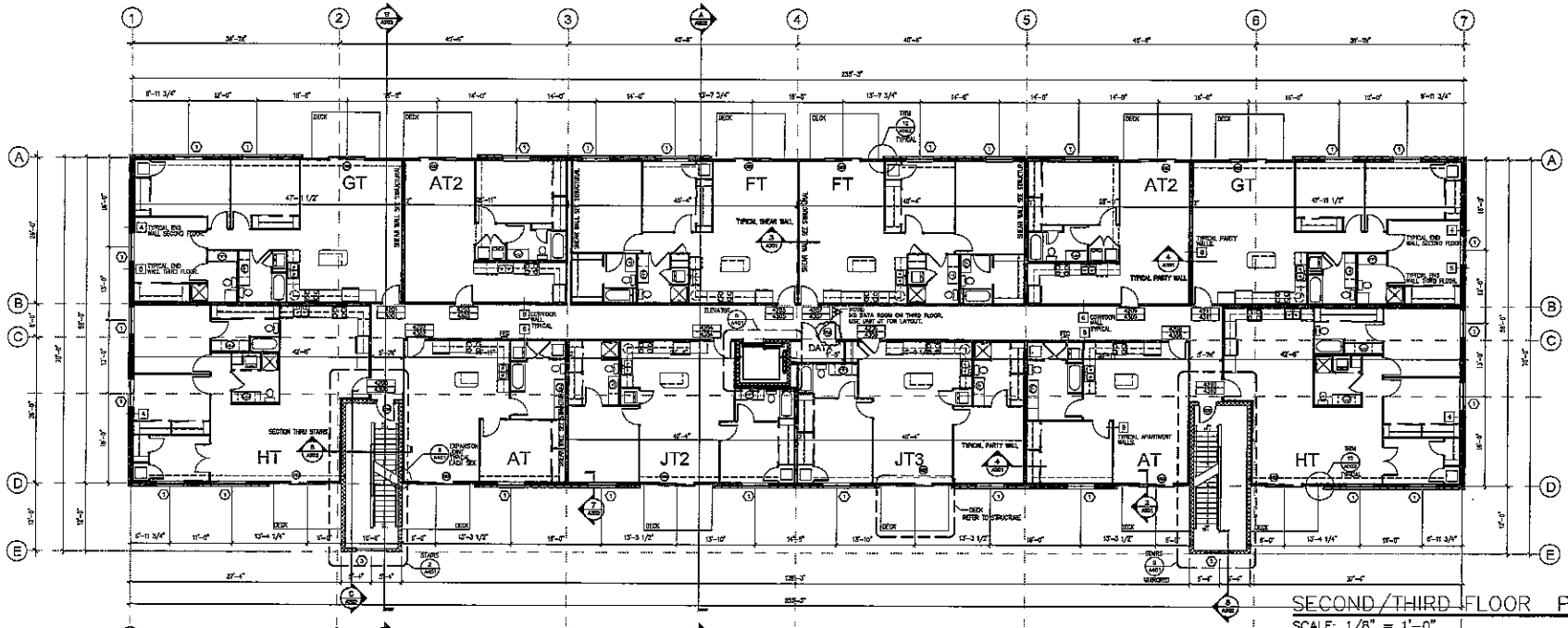
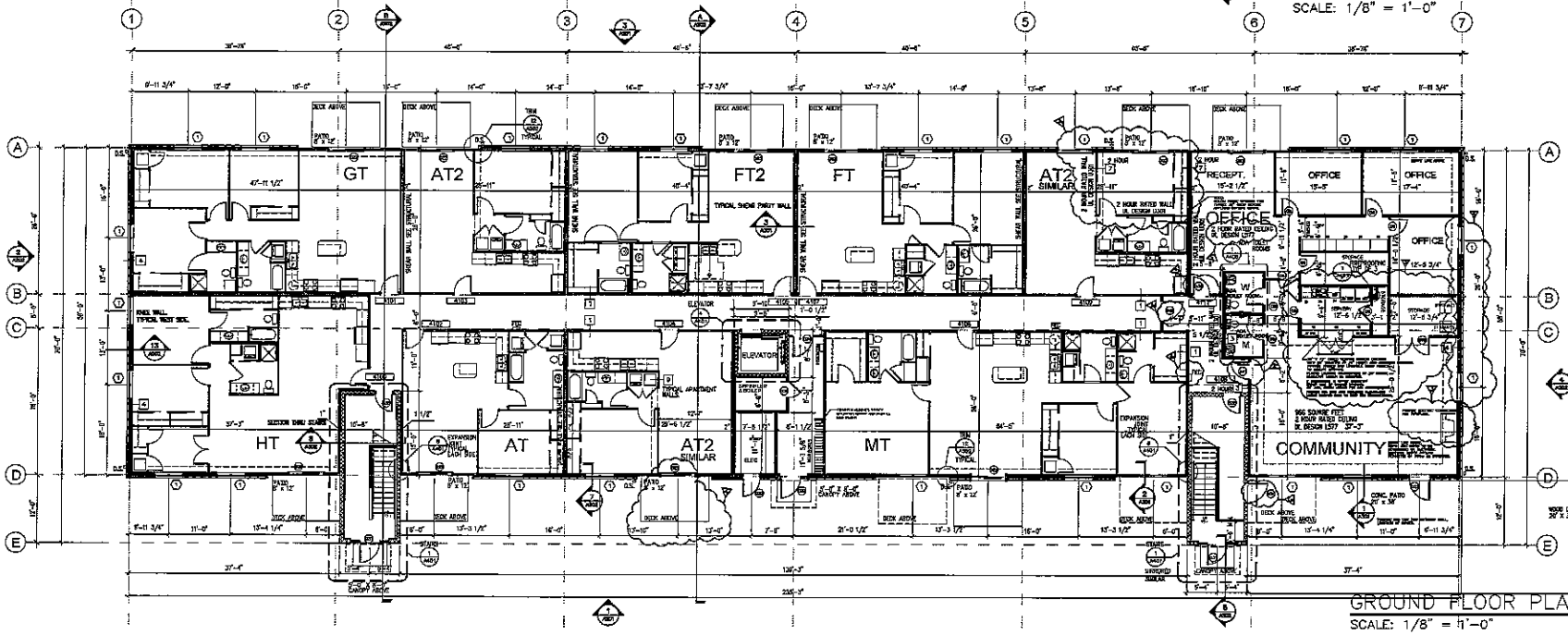


SECOND/THIRD FLOOR PLAN
SCALE: 1/8" = 1'-0"



GROUND FLOOR PLAN
SCALE: 1/8" = 1'-0"

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Ground Floor Plan
Second & Third Floor Plan
1/8"=1'-0"

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:	BY
10-30-13	ISSUE FOR CONSTRUCTION	
11-11-13	PLUMBING REDESIGN	
11-18-13	APARTMENT UNIT FAVORITES	
11-20-13	DOOR AND ELEVATOR INFORMATION	
12-02-13	RESERVED FOR CONSTRUCTION	
12-24-13	VARIOUS MODIFICATIONS	

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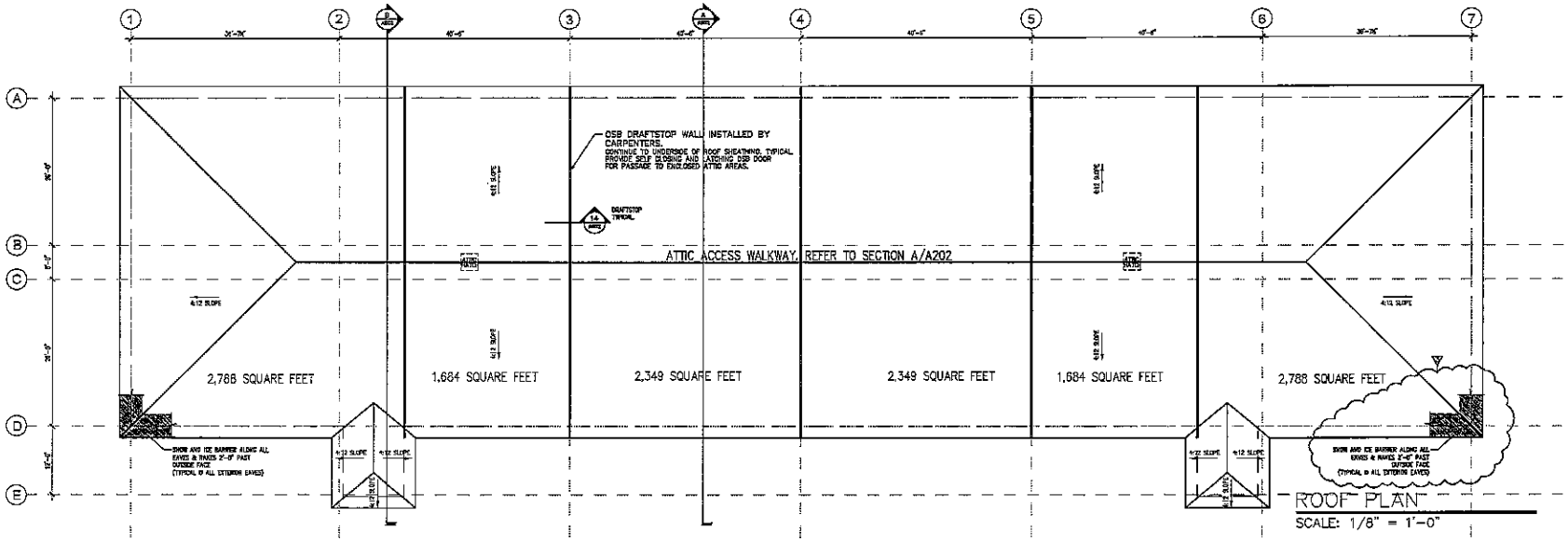
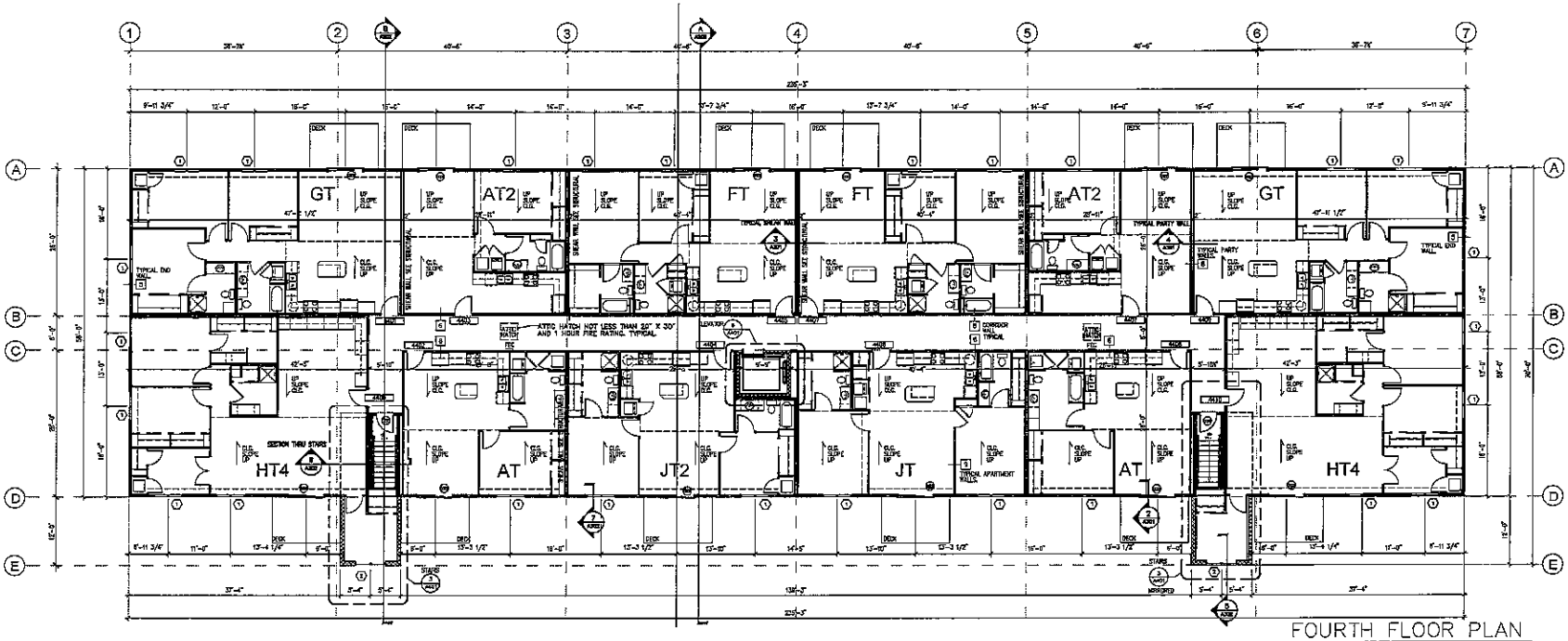


ROOF PLAN
SCALE: 1/8" = 1'-0"



FOURTH FLOOR PLAN
SCALE: 1/8" = 1'-0"

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Fourth Floor Plan
Roof Plan
1/8"=1'-0"

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:	BY
10-18-13	PERMIT CONSTRUCTION	
11-11-13	PLANNING REVISIONS	
11-14-13	APARTMENT TRIM LAYOUTS	
11-20-13	DOORS AND ELEVATION MODIFICATIONS	
12-03-13	REISSUED FOR CONSTRUCTION	
12-24-13	VARIOUS MODIFICATIONS	

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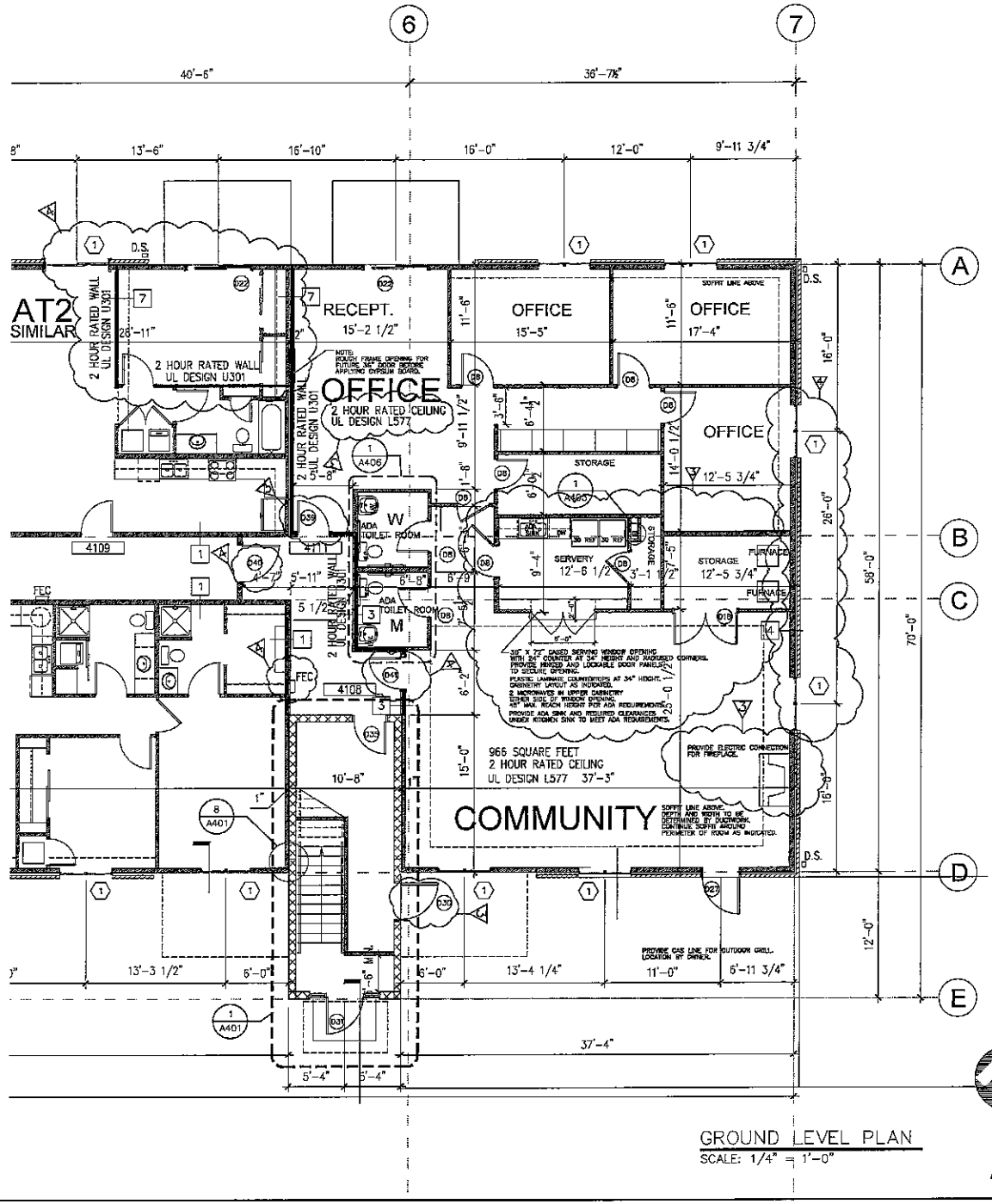

GROUND LEVEL PLAN
SCALE: 1/4" = 1'-0"

A

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Ground Level Plan
Enlarged Community Room
1/4"=1'-0"

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:	Drawn	Chk'd
10-10-13	ISSUE FOR CONSTRUCTION		
11-11-13	PLANNING REVISIONS		
11-14-13	APARTMENT UNIT LAYOUTS		
11-20-13	DOOR AND ELEVATION MARKS		
12-9-13	REISSUED FOR CONSTRUCTION		
12-24-13	VARIOUS MODIFICATIONS		

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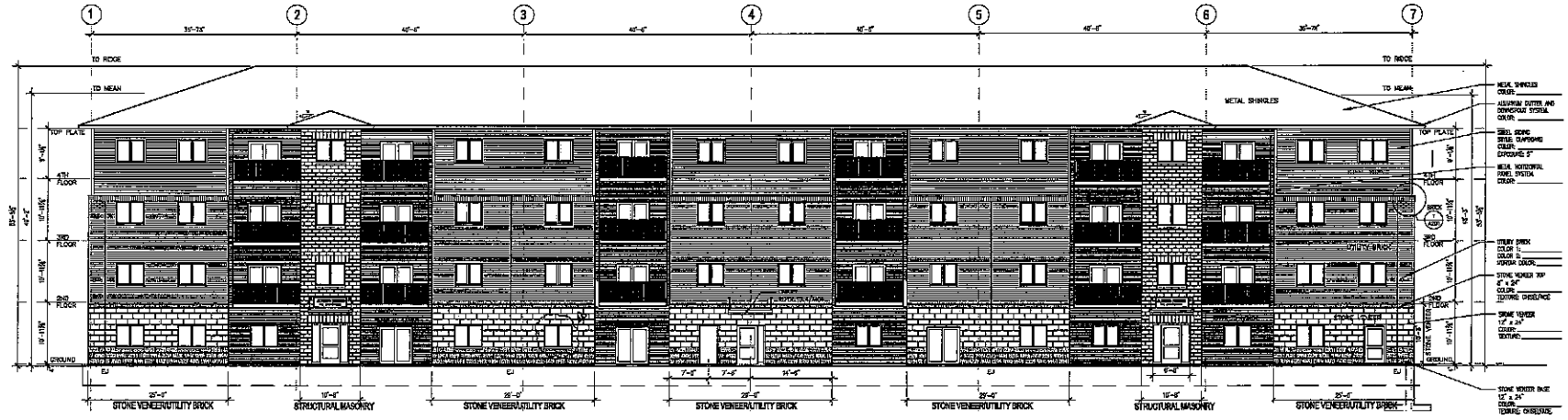
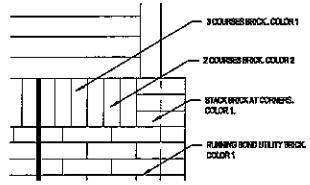
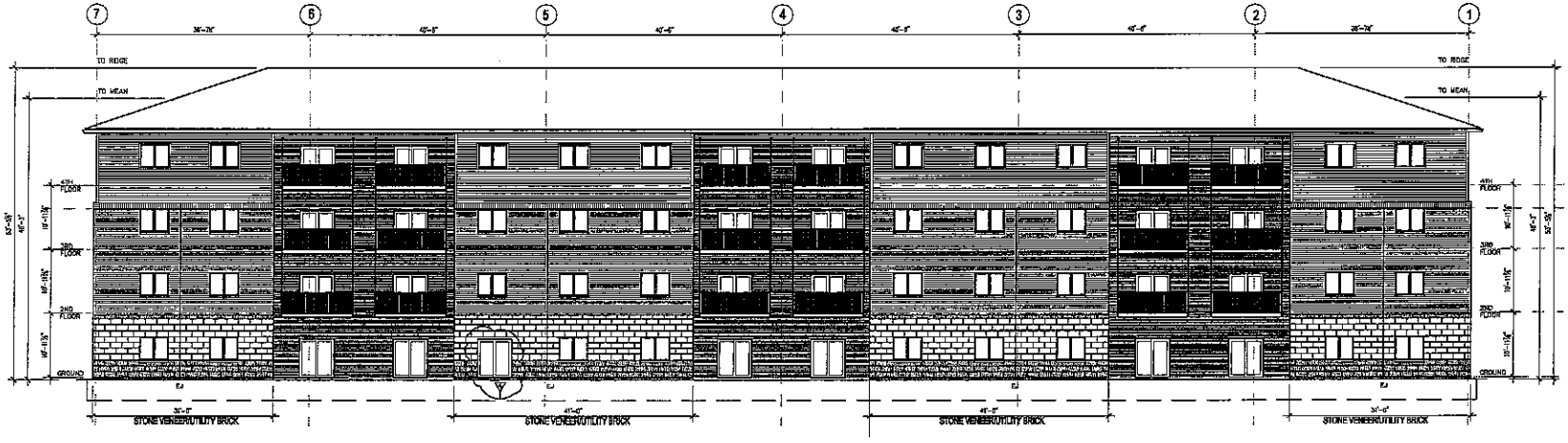


1 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



DETAIL 1–SOLDIER BRICK
SCALE: 1" = 1'-0"



3 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

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Exterior Elevations
1/8"=1'-0"

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA

DATE	ISSUED FOR:	BY
10-05-13	LIBERTY CITY CONSTRUCTION	
11-11-13	PLUMBING REVISIONS	
11-20-13	APARTMENT UNIT LAYOUTS	
12-02-13	DOOR AND ELEVATION UPDATES	
12-24-13	REISSUED FOR CONSTRUCTION	
1-3-14	VARIOUS MODIFICATIONS	

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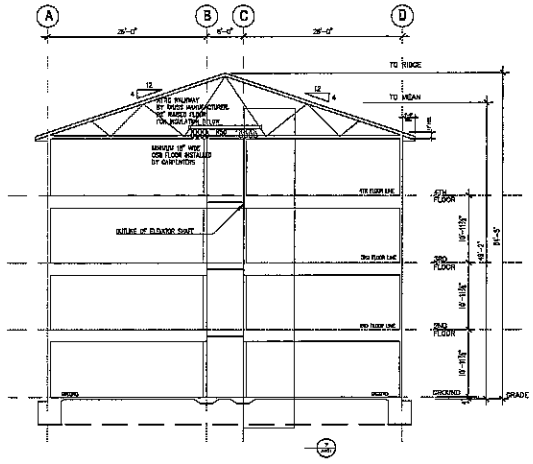
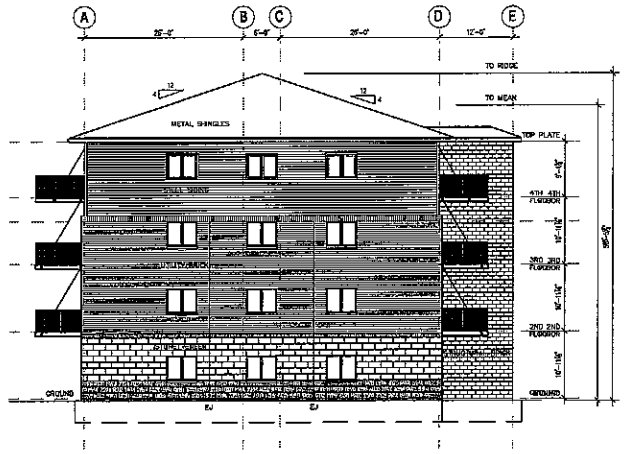


A SECTION A
SCALE: 1/8" = 1'-0"



2 WEST ELEVATION
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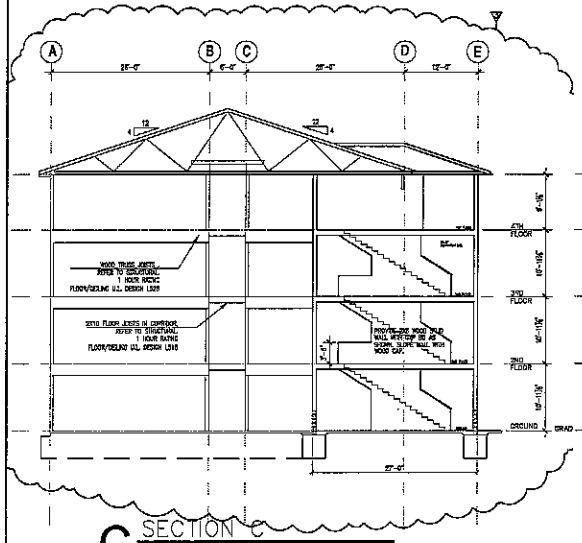
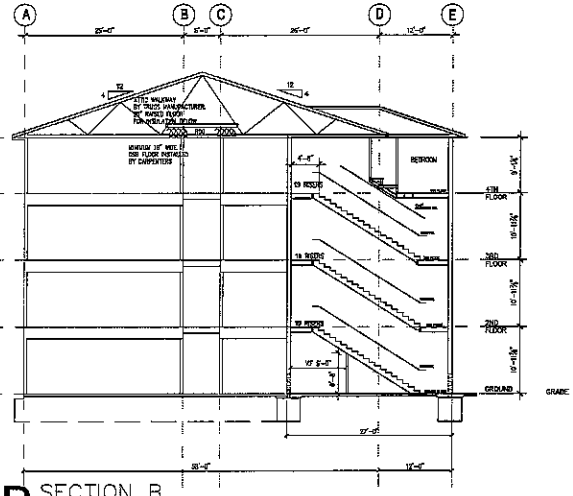
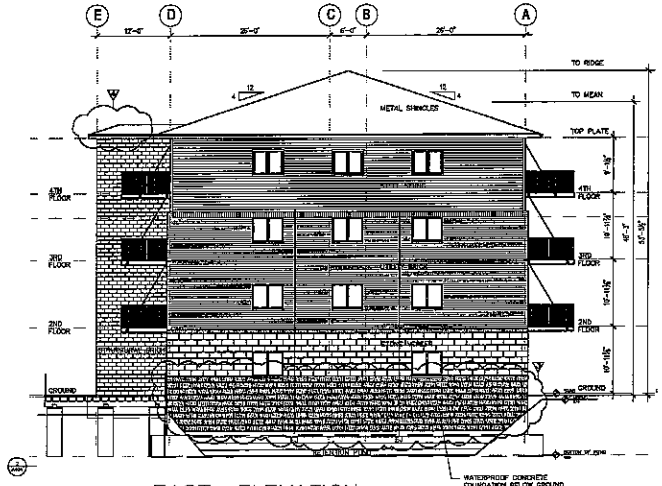


C SECTION C
SCALE: 1/8" = 1'-0"



B SECTION B
SCALE: 1/8" = 1'-0"



4 EAST ELEVATION
SCALE: 1/8" = 1'-0"

A

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Exterior Elevations
Building Sections
1/8"=1'-0"

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA

DATE	ISSUED FOR:	BY
10-09-13	ISSUE FOR CONSTRUCTION	
11-14-13	PLUMBING REVISIONS	
11-16-13	APARTMENT UNIT LAYOUTS	
12-20-13	DOOR AND ELEVATION MARKING	
12-23-13	REISSUED FOR CONSTRUCTION	
12-24-13	VARIOUS SOURCE/ANSWERS	

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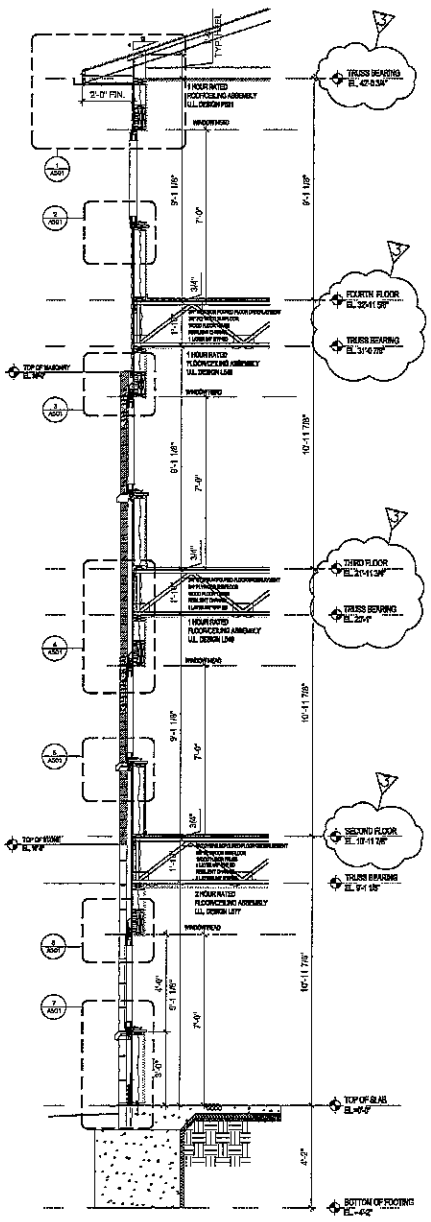
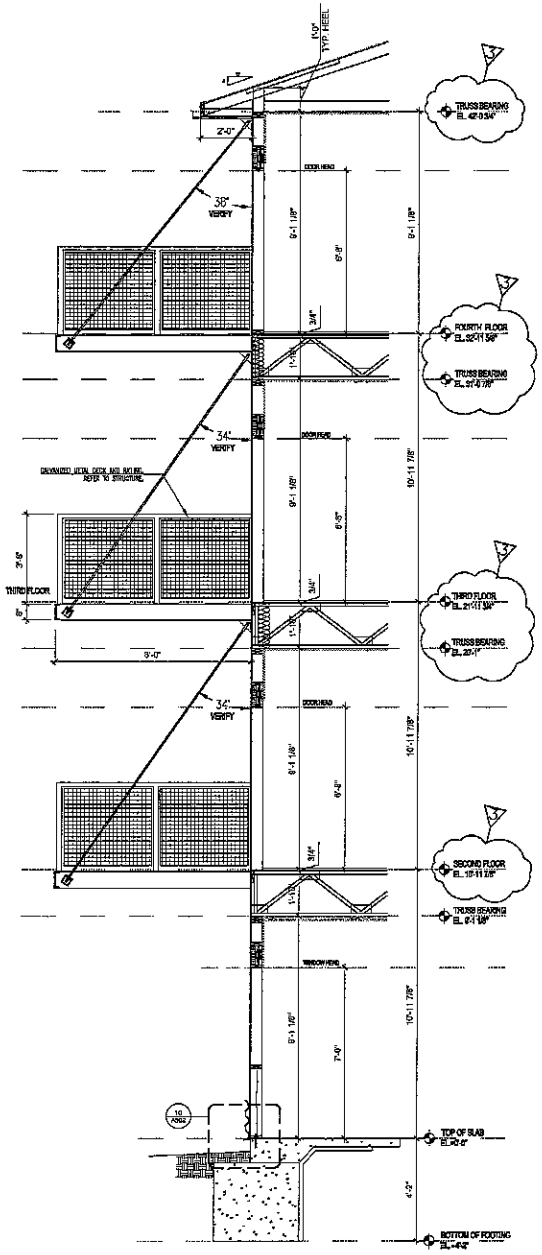
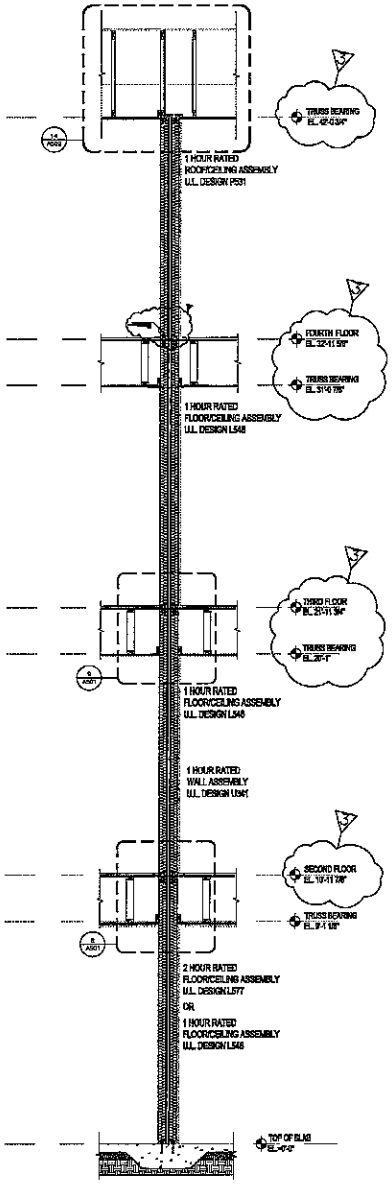


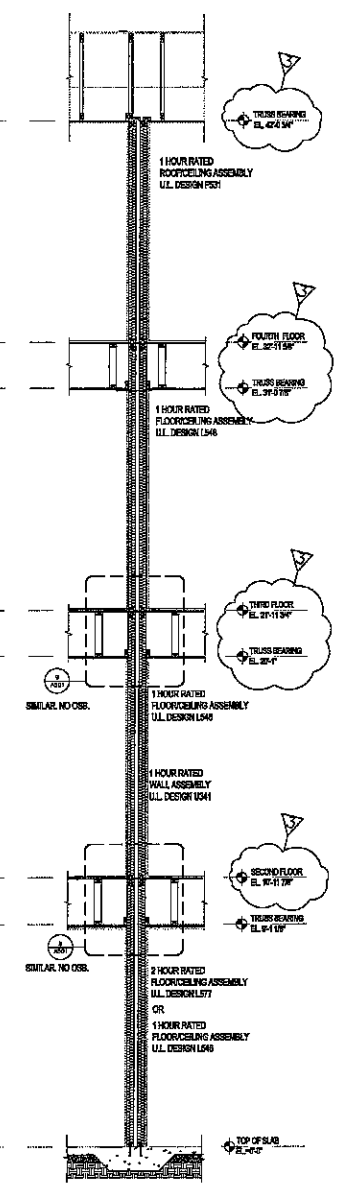
SECTION 1



SECTION 2



SECTION 3
SHEAR WALL



SECTION 4
PARTY WALL

A&B

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Wall Sections

1/2" = 1'-0"

PROJECT:
Altoona Towers
1414 7 1616 Adventureland Drive
Altoona, IA 50009

DATE	REVISED FOR:
10-10-13	ISSUED FOR CONSTRUCTION
11-11-13	PLUMBING REVISIONS
11-18-13	APARTMENT UNIT LAYOUTS
11-20-13	DOOR AND ELEVATION MARKING
12-10-13	REISSUED FOR CONSTRUCTION
12-24-13	VARIOUS MODIFICATIONS

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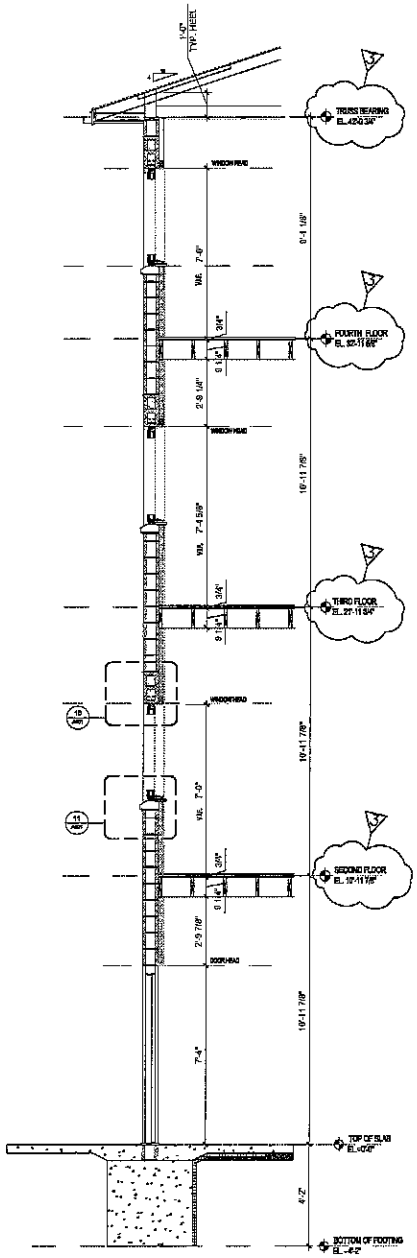
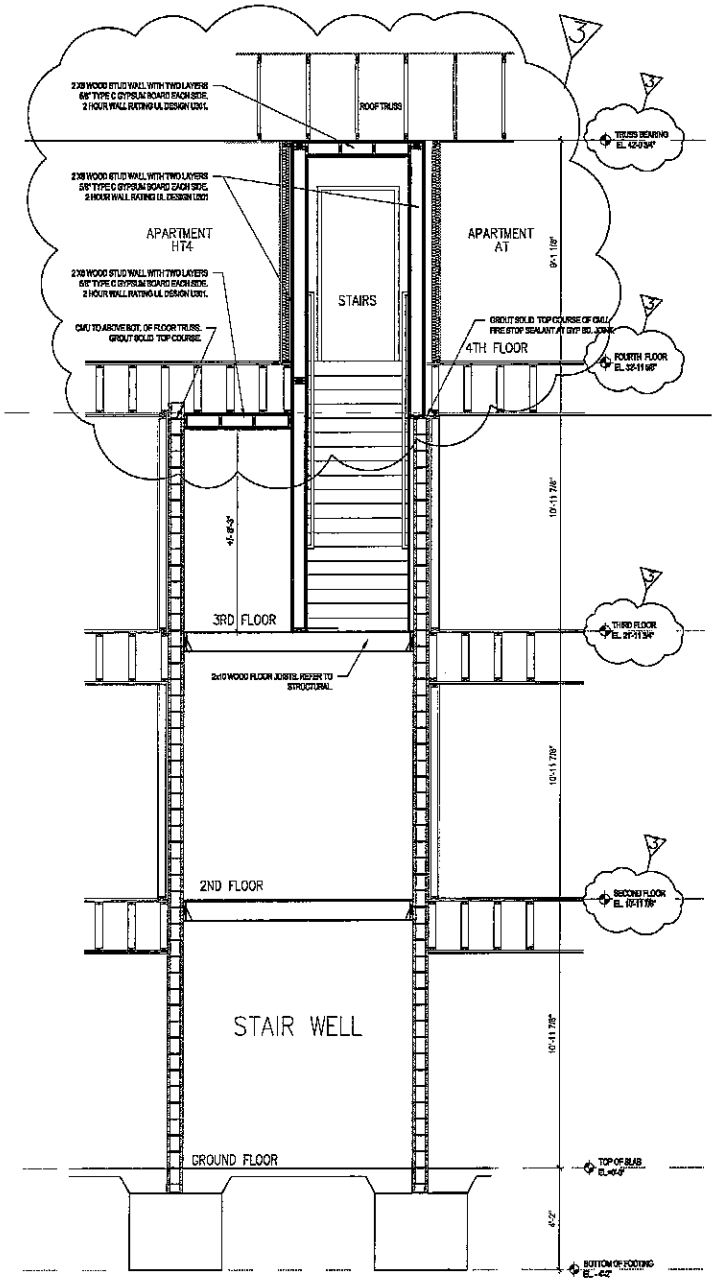
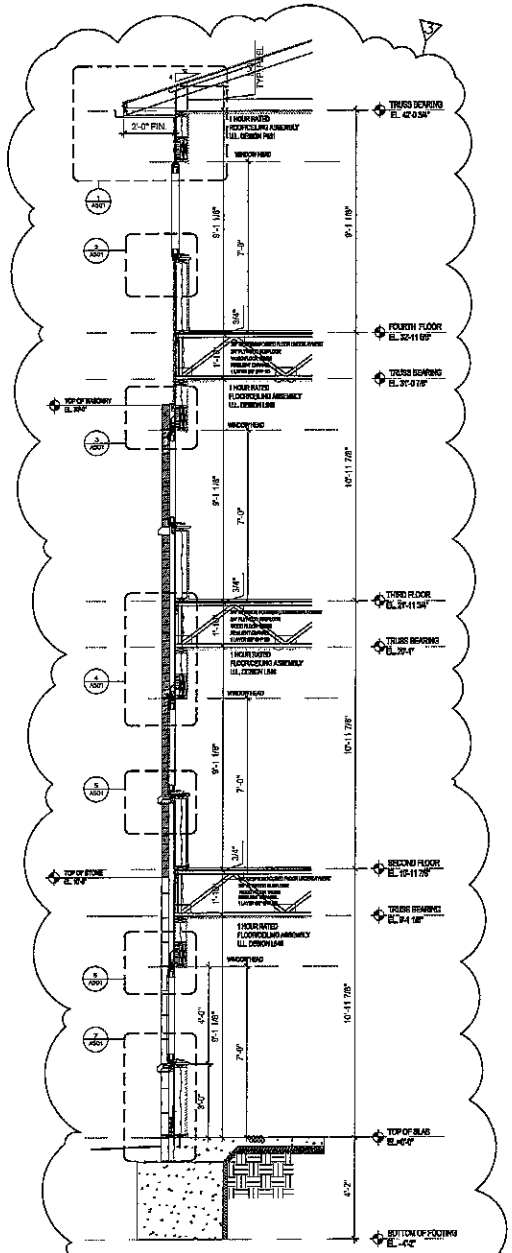


SECTION 5



SECTION 6



SECTION 7

A&B

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Wall Sections

1/2"=1'-0"

PROJECT:
Altoona Towers
1414 7 1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:	BY	2ND BY
10-30-13	ISSUE FOR CONSTRUCTION		
11-15-13	PLUMBING REVISIONS		
11-18-13	APARTMENT UNIT LAYOUTS		
11-26-13	DOOR AND ELEVATION MARKING		
12-06-13	REISSUED FOR CONSTRUCTION		
12-23-13	VARIOUS MODIFICATIONS		

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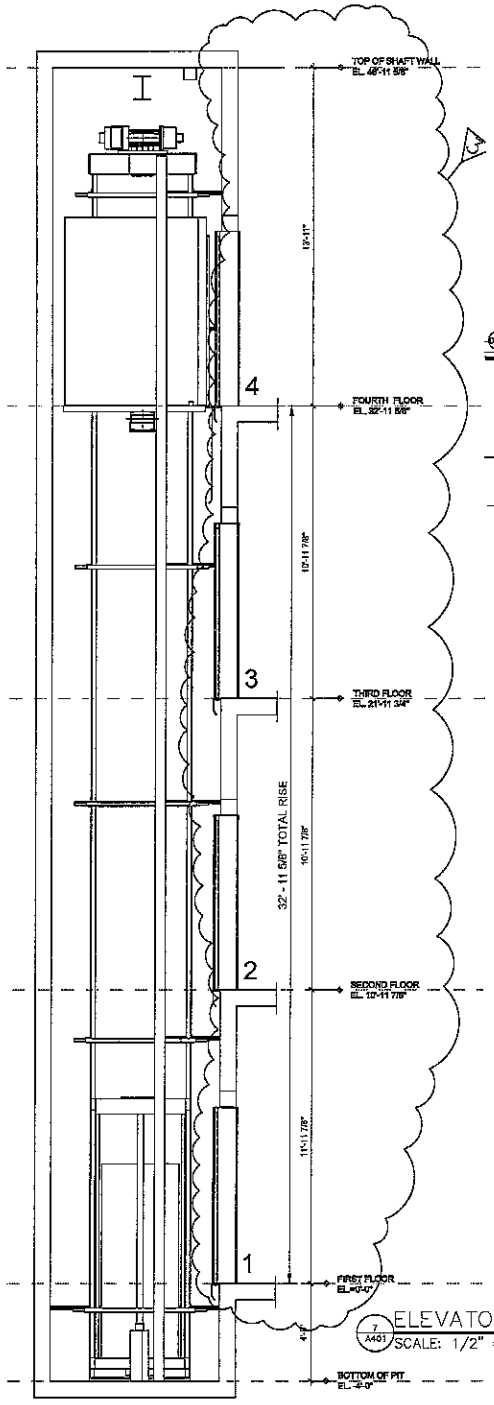
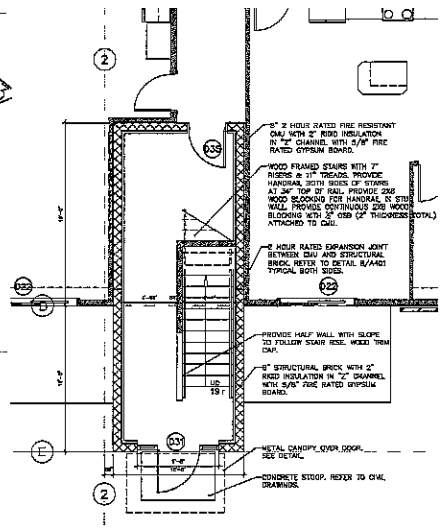
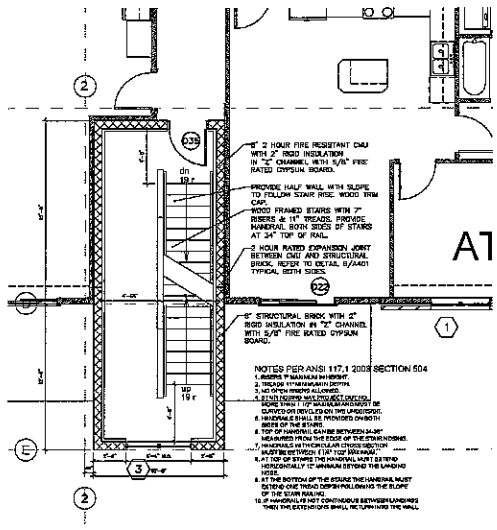


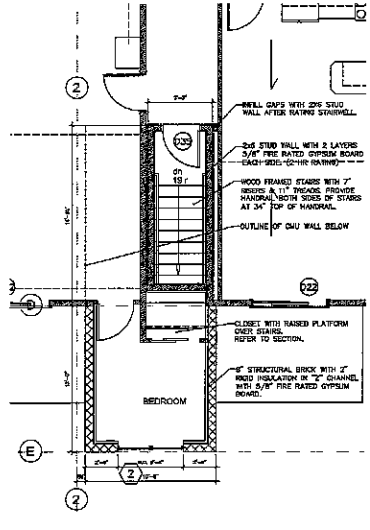
7/A401 ELEVATOR SECTION
SCALE: 1/2" = 1'-0"



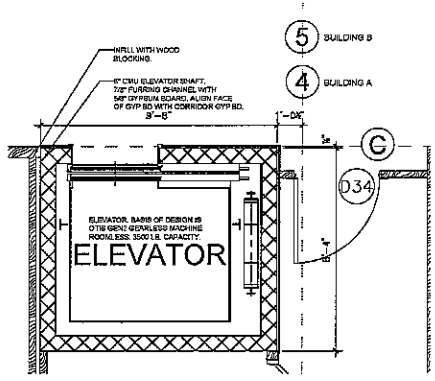
1/A401 GROUND FLOOR PLAN
SCALE: 1/4" = 1'-0"



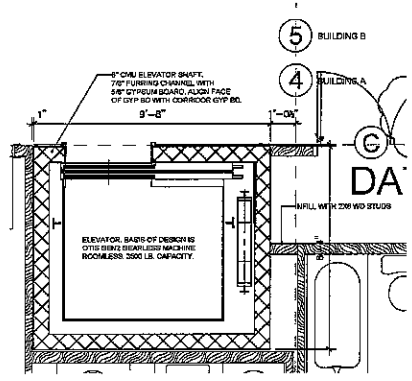
2/A401 SECOND&THIRD FLOOR PLAN
SCALE: 1/4" = 1'-0"



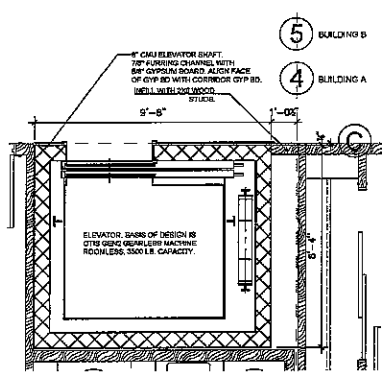
3/A401 FOURTH FLOOR PLAN
SCALE: 1/4" = 1'-0"



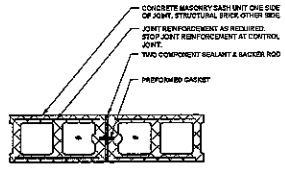
4/A401 GROUND FLOOR PLAN
SCALE: 1/2" = 1'-0"



5/A401 SECOND&THIRD FLOOR PLAN
SCALE: 1/2" = 1'-0"



6/A401 FOURTH FLOOR PLAN
SCALE: 1/2" = 1'-0"



8/A401 2 HR RATED EXPANSION JOINT
SCALE: 1 1/2" = 1'-0"

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Stair Plans Enlarged
Elevator Plans Enlarged
AS NOTED

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:
1-24-13	ISSUE FOR CONSTRUCTION
1-31-13	PLANNING REVISIONS
1-31-13	APARTMENT UNIT LAYOUTS
1-31-13	DOOR AND ELEVATION UNIFORM
12-05-13	REISSUED FOR CONSTRUCTION
12-24-13	VARIOUS MODIFICATIONS

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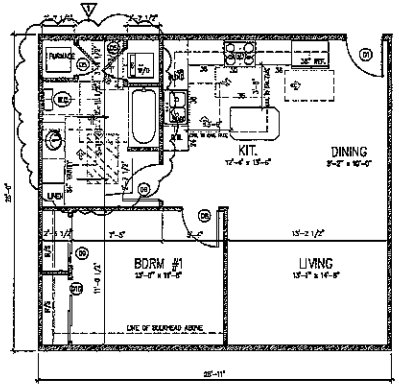
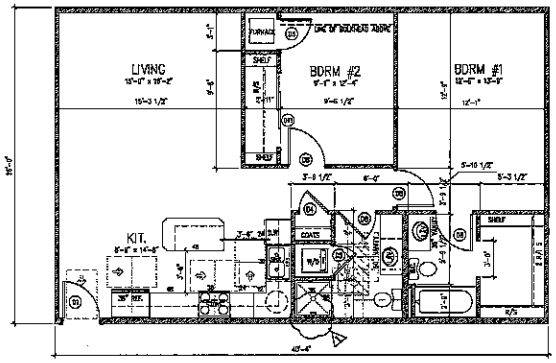


"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT AT

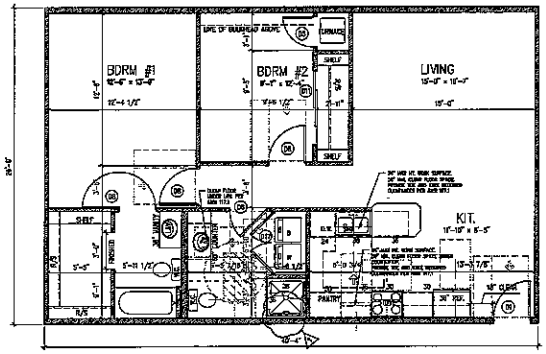
752 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT FT

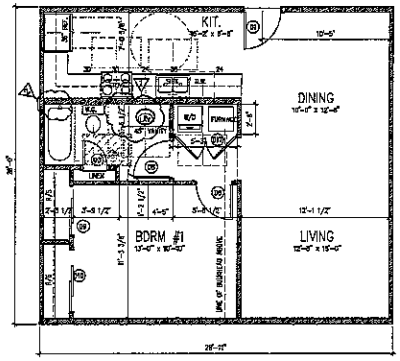
1049 sq ft gross



"A" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1003

UNIT FT2

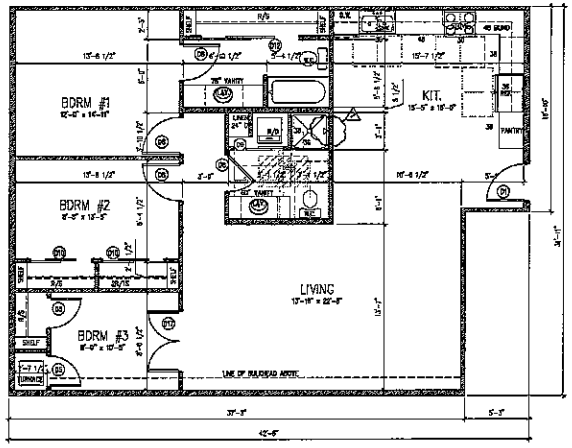
1051 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT AT2

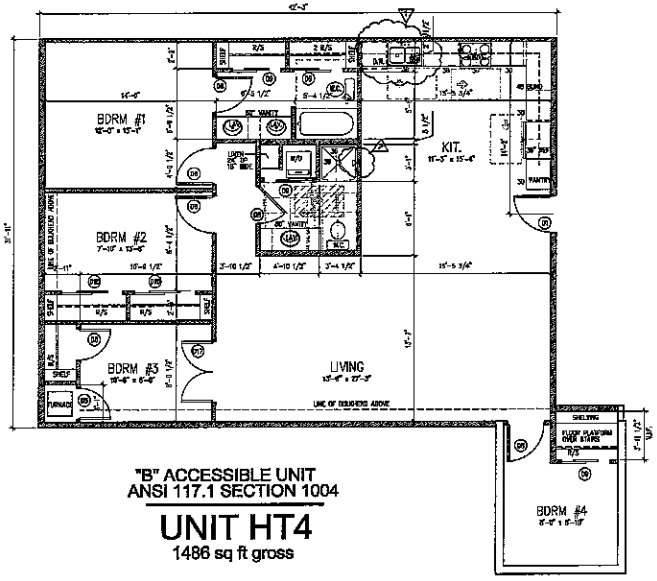
752 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT HT

1277 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT HT4

1486 sq ft gross

WALL TYPES

2 x 4 wood studs

2 x 6 wood studs

A&B

13-103

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3423 N. ANTHONY BLVD (70)
AUSTIN, TEXAS 78723
PHONE: (512) 323-5330
FAX: (866) 805-5332
MAKE YOUR MARK info@imprintarchitect.com

Enlarged Unit Plans

1/4"=1'-0"

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE:	ISSUED FOR:
10-01-13	ISSUE FOR CONSTRUCTION
11-18-13	ADDENDUM #1 - DRAWINGS
11-26-13	ADDENDUM #1 - SPECS
12-20-13	REISSUED FOR CONSTRUCTION
12-24-13	VARIOUS REVISIONS

DEC 24 2013

A402

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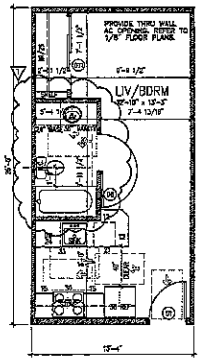
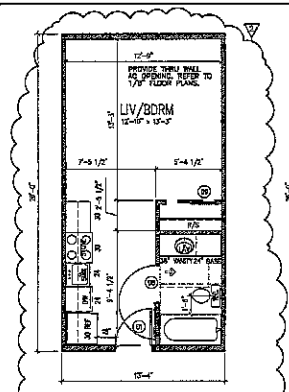


"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT ET

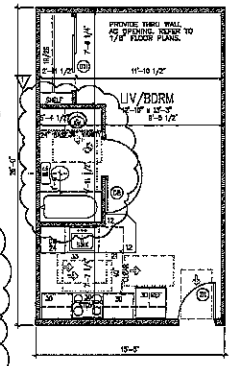
347 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT ET1

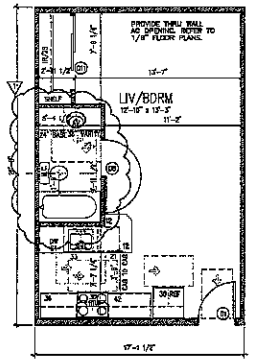
347 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT ET2

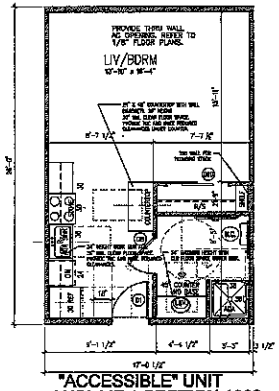
401 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT ET3

445 sq ft gross



"ACCESSIBLE" UNIT
ANSI 117.1 SECTION 1002

UNIT ET4

443 sq ft gross

NOTES:

VERIFY ALL ROUGH IN DIMENSIONS WITH ACTUAL PLUMBING FIXTURES BEFORE CONSTRUCTION OF WALLS.

PROVIDE 33" CLEARANCE WIDTH FROM ALL PROJECTIONS FOR TOILETS.

PROVIDE WD BLOCKING IN WALLS FOR FUTURE GRAB BARS AT ALL WATER CLOSETS, SHOWERS AND BATHTUBS IN ALL UNITS.

CABINETRY IS PERMITTED UNDER TYPE A & B UNIT LAVATORIES IN BATHROOMS PROVIDED THAT THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OR REPLACEMENT OF THE LAVATORY AND THAT ALL FINISHES EXTEND UNDER THE CABINET. IN TYPE B UNITS IF OPTION B IS USED THEN ONLY ONE BATHROOM IN A UNIT NEEDS TO COMPLY WITH THIS REQUIREMENT.
ANSI 117.1 2003, SECTION 1004.11.3

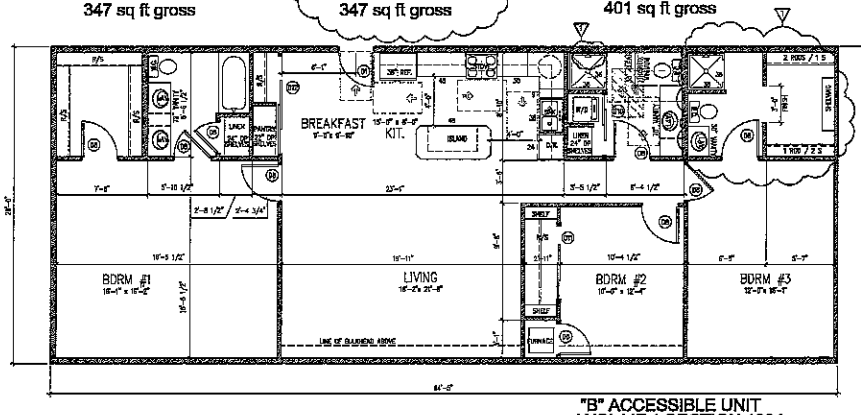
FOR TYPE A UNITS PROVIDE ONE SECTION OF COUNTER WITH A WORK SURFACE OF 30" IN WIDTH WITH A CLEAR FLOOR SPACE UNDER FOR A FORWARD APPROACH. THE WORK SURFACE SHALL BE 34" MAXIMUM IN HEIGHT ABOVE THE FLOOR. CABINETRY SHALL BE PERMITTED UNDER THE WORK SURFACE PROVIDED THAT THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OF THE WORK SURFACE AND THAT ALL FINISHES EXTEND UNDER THE CABINETRY. IF CLEAR SPACE UNDER COUNTER IS USED AS PART OF A T-SHAPED TURNING SPACE THEN A 36" WIDE CLEAR SPACE IS REQUIRED RATHER THAN 30".
ANSI 117.1 2003 SECTIONS 304.3.2 AND 1003.3.2.

FOR TYPE A UNITS THE KITCHEN SINK SHALL HAVE A 30" WIDE CLEAR FLOOR SPACE UNDER FOR A FORWARD APPROACH. THE WORK SURFACE SHALL BE 34" MAXIMUM IN HEIGHT ABOVE THE FLOOR. CABINETRY SHALL BE PERMITTED UNDER THE WORK SURFACE PROVIDED THAT THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OF THE SINK AND COUNTER AND THAT ALL FINISHES EXTEND UNDER THE CABINETRY. IF CLEAR SPACE UNDER COUNTER IS USED AS PART OF A T-SHAPED TURNING SPACE THEN A 36" WIDE CLEAR SPACE IS REQUIRED RATHER THAN 30".
ANSI 117.1 2003 SECTIONS 304.3.2 AND 1003.3.2.

WALL TYPES

2 x 4 wood studs

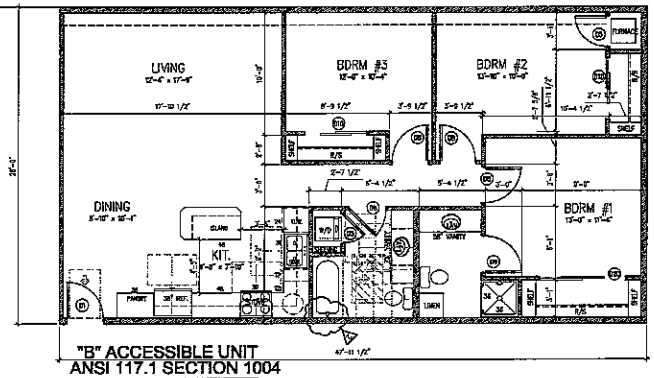
2 x 6 wood studs



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT MT

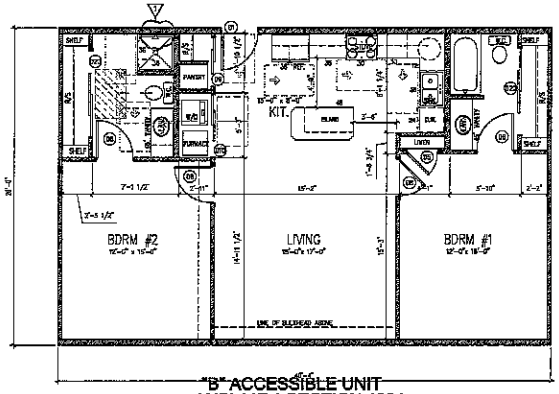
1675 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT GT

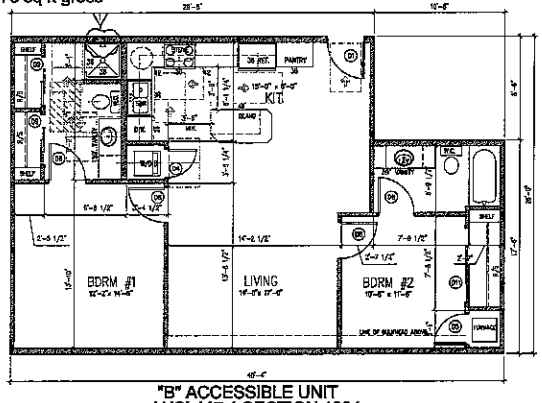
1247 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT JT

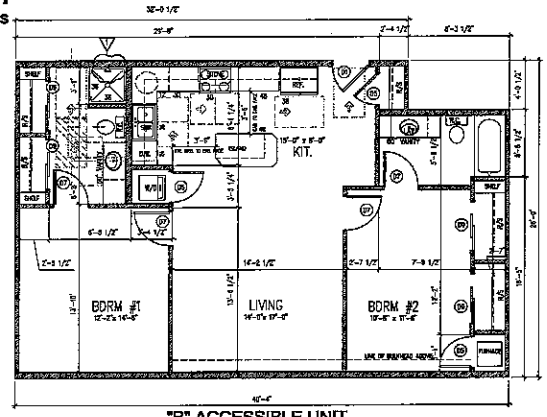
1049 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT JT2

958 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT JT3

958 sq ft gross

A&B

13-103

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Ankeny, IA 50023
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FAX: (515) 965-5338
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Enlarged Unit Plans

1/4"=1'-0"

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUE FOR
10-01-13	ISSUE FOR CONSTRUCTION
11-14-13	ADDITIONAL REVISIONS
11-18-13	ADDITIONAL REVISIONS
12-20-13	DOOR AND ELEVATOR MARKING
12-20-13	REISSUED FOR CONSTRUCTION
12-24-13	VARIOUS MODIFICATIONS

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A403

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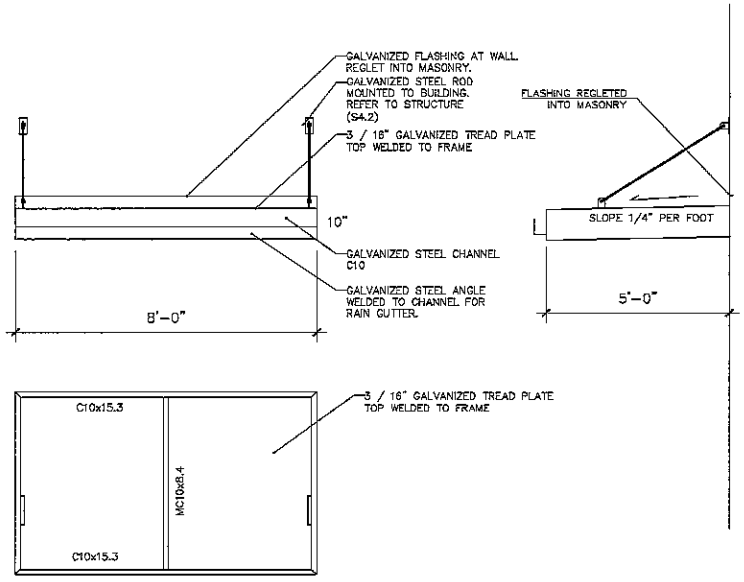
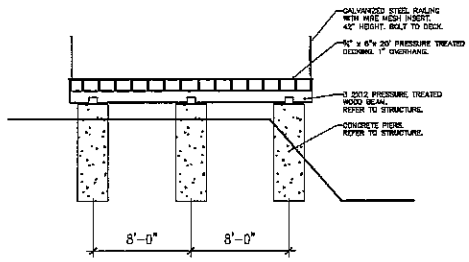
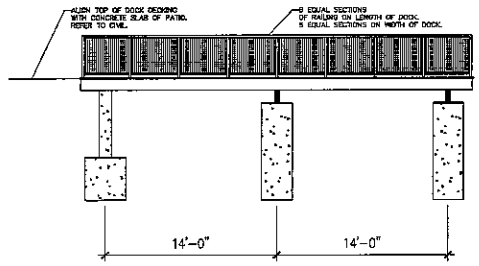


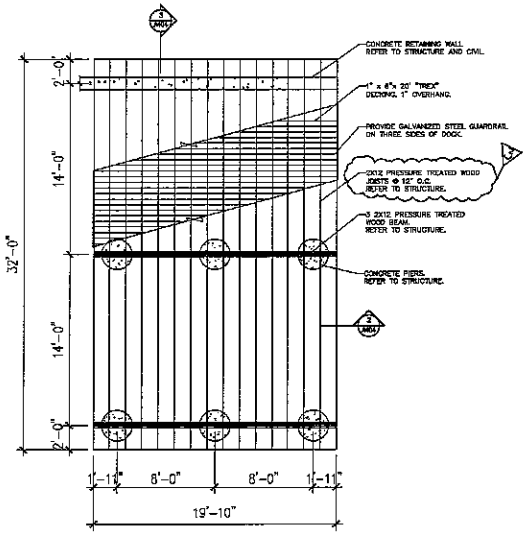
4 A404 CANOPY
SCALE: 3/4" = 1'-0"



2 A404 SECTION @ DOCK
SCALE: 1/4" = 1'-0"



3 A404 SECTION @ DOCK
SCALE: 1/4" = 1'-0"



1 A404 DOCK PLAN
SCALE: 1/4" = 1'-0"

A

13-103

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1955 N. MERLE HAY RD #130
JOHNSTON, IOWA 50023
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FAX: (515) 965-5333
E-MAIL: info@imprintarchitects.com

Dock Plan and Sections
Details
As Noted

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:	BY
10-25-13	ISSUE FOR CONSTRUCTION	
11-11-13	PLANNING REVISIONS	
11-18-13	APARTMENT UNIT LAYOUTS	
11-26-13	DOOR AND ELEVATION MARKING	
12-20-13	REISSUED FOR CONSTRUCTION	
12-24-13	VARIOUS MODIFICATIONS	

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A404

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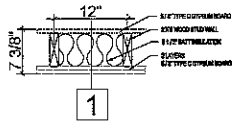
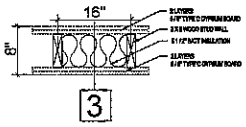
WALL TYPES



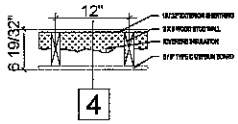
U.L. U327
1 hour

WALL TYPE 1

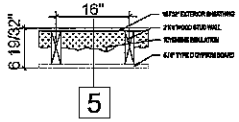


U.L. U301
2 hour

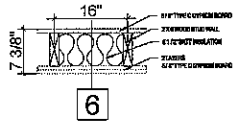
WALL TYPE 2



WALL TYPE 4

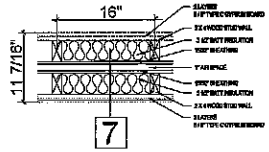


WALL TYPE 5



U.L. U327
1 hour

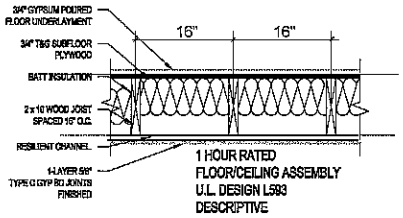
WALL TYPE 6



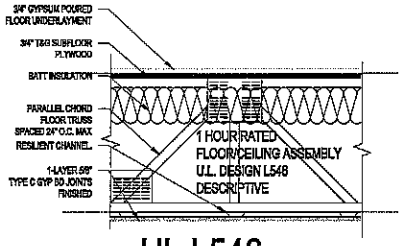
U.L. U301
2 hour

WALL TYPE 7

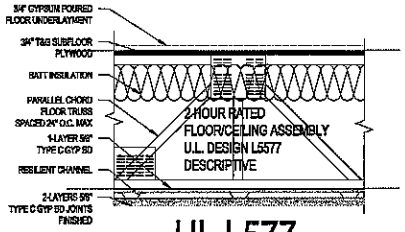
FLOOR/CEILING ASSEMBLIES



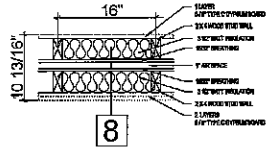
UL L593
STC 57
IIC 73 with carpet
1 hour



UL L546
STC 56-58
IIC 74 with carpet
1 hour

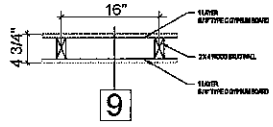


UL L577
2 hour



U.L. U327
1 hour

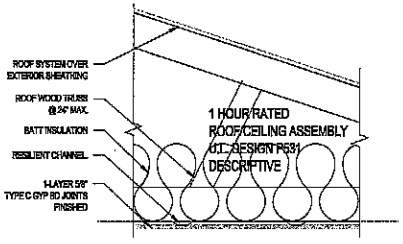
WALL TYPE 8



U.L. U327
1 hour

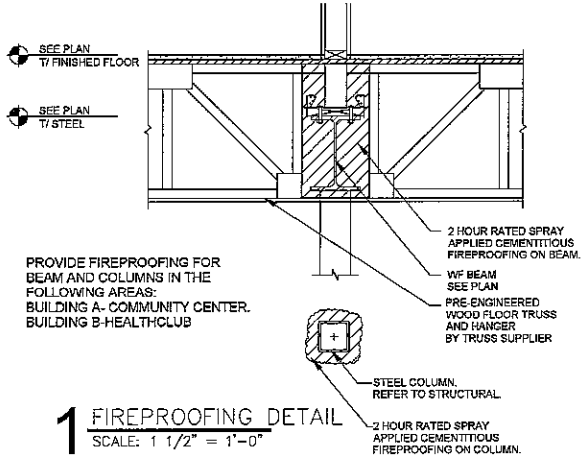
WALL TYPE 9

ROOF/CEILING ASSEMBLIES



UL P531
1 hour

FIREPROOFING



PROVIDE FIREPROOFING FOR BEAM AND COLUMNS IN THE FOLLOWING AREAS:
BUILDING A- COMMUNITY CENTER.
BUILDING B-HEALTHCLUB

1 FIREPROOFING DETAIL
SCALE: 1 1/2" = 1'-0"

A&B

13-103

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1605 N. ANKENY BLVD #30
ANKENY, IOWA 50023
PHONE: (515) 965-0339
FAX: (515) 965-0344
have your space
info@imprintarchitects.com

Wall Types
Floor/Ceiling Assemblies
1 1/2"=1'-0"

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:	BY
10-03-13	ISSUE FOR CONSTRUCTION	
11-11-13	PLUMBING REVISIONS	
11-06-13	APARTMENT UNIT LAYOUTS	
11-06-13	DOOR AND ELEVATION MARKS	
12-05-13	REISSUED FOR CONSTRUCTION	
12-24-13	MISC CLR INSPECTIONS	

DEC 24 2013

A405

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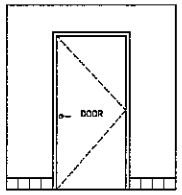
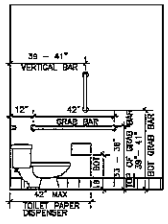
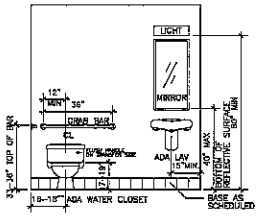
ADA 2010
SINGLE-USER TOILET ROOM



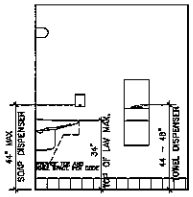
TOILET ROOM ELEVATION 1



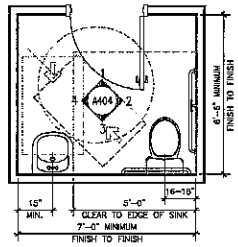
TOILET ROOM ELEVATION 2



TOILET ROOM ELEVATION 3



TOILET ROOM ELEVATION 4



TYPICAL ADA TOILET ROOM PLAN

NOTES:

VERIFY ALL ROUGH IN DIMENSIONS WITH ACTUAL PLUMBING FIXTURES BEFORE CONSTRUCTION OF WALLS.

PROVIDE 33" CLEARANCE WIDTH FROM ALL PROJECTIONS FOR TOILETS.

PROVIDE WD BLOCKING IN WALLS FOR FUTURE GRAB BARS AT ALL WATER CLOSETS, SHOWERS AND BATHTUBS IN BOTH TYPE A & B UNITS.

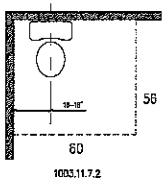
CABINETRY IS PERMITTED UNDER TYPE A UNIT AND TYPE B/B UNIT LAVATORIES IN BATHROOMS PROVIDED THAT THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OR REPLACEMENT OF THE LAVATORY AND THAT ALL FINISHES EXTEND UNDER THE CABINET.
ANSI 117.1 2003, SECTION 1003.11.5
ANSI 117.1 2003, SECTION 1004.11.3.2.1.1

FOR TYPE A UNITS PROVIDE ONE SECTION OF COUNTER WITH A WORK SURFACE OF 30" IN WIDTH WITH A CLEAR FLOOR SPACE UNDER FOR A FORWARD APPROACH. THE WORK SURFACE SHALL BE 34" MAXIMUM IN HEIGHT ABOVE THE FLOOR. CABINETRY SHALL BE PERMITTED UNDER THE WORK SURFACE PROVIDED THAT THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OF THE WORK SURFACE AND THAT ALL FINISHES EXTEND UNDER THE CABINETRY. IF CLEAR SPACE UNDER COUNTER IS USED AS PART OF A T-SHAPED TURNING SPACE THEN A 36" WIDE CLEAR SPACE IS REQUIRED RATHER THAN 30"
ANSI 117.1 2003 SECTIONS 304.3.2 AND 1003.3.2.

FOR TYPE A UNITS THE KITCHEN SINK SHALL HAVE A 30" WIDE CLEAR FLOOR SPACE UNDER FOR A FORWARD APPROACH. THE WORK SURFACE SHALL BE 34" MAXIMUM IN HEIGHT ABOVE THE FLOOR. CABINETRY SHALL BE PERMITTED UNDER THE WORK SURFACE PROVIDED THAT THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OF THE SINK AND COUNTER AND THAT ALL FINISHES EXTEND UNDER THE CABINETRY. IF CLEAR SPACE UNDER COUNTER IS USED AS PART OF A T-SHAPED TURNING SPACE THEN A 36" WIDE CLEAR SPACE IS REQUIRED RATHER THAN 30"
ANSI 117.1 2003 SECTIONS 304.3.2 AND 1003.3.2.

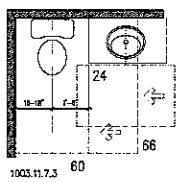
ANSI 117.1 2003
TYPE A UNIT

MINIMUM CLEARANCE
60 x 56



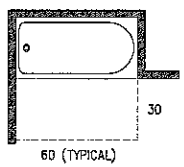
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 604.5 EXCEPTION 3.

CLEARANCE WITH LAV EXCEPTION
60 x 66



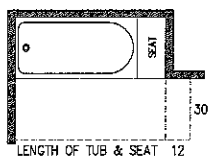
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 604.5 EXCEPTION 3.

CLEARANCE WITHOUT PERMANENT SEAT
30 x LENGTH OF TUB



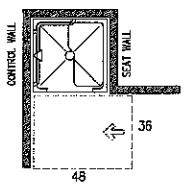
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 607.4 EXCEPTION 2.

CLEARANCE WITH PERMANENT SEAT
30 x LENGTH OF TUB + 12



BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 607.4 EXCEPTION 2.

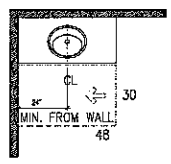
TRANSFER TYPE SHOWER
PARALLEL APPROACH
30 x 48



BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 608.3 EXCEPTION 2.
BLOCKING REQUIRED FOR FUTURE SHOWER SEAT.
SHOWER SEAT NOT REQUIRED. 608.4 EXCEPTION 2.
1/2" MAXIMUM THRESHOLD. 608.7

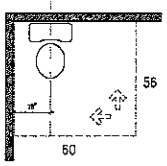
TYPE A&B UNIT

LAV CLEARANCE
30 X 48



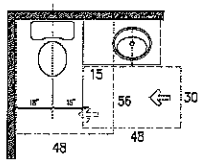
ANSI 117.1 2003
TYPE B UNIT

PARALLEL OR
FORWARD APPROACH
60 x 56



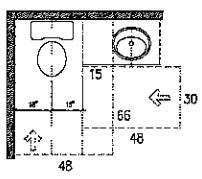
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.11.2

PARALLEL APPROACH
48 x 56



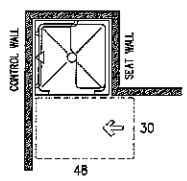
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.11.2

FORWARD APPROACH
48 x 56



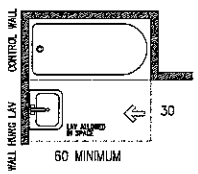
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.11.2

TRANSFER TYPE SHOWER
PARALLEL APPROACH
30 x 48



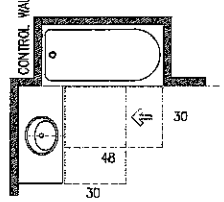
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.1.2
BLOCKING REQUIRED FOR FUTURE SHOWER SEAT.
SHOWER SEAT NOT REQUIRED. 1004.11.2
NO THRESHOLD REQUIREMENT

PARALLEL APPROACH
TYPE B OPTION A CLEARANCE
30 x 60 MINIMUM



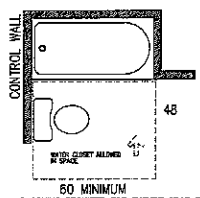
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.1.2
FIGURE 1004.11.3.1.3.1

PARALLEL APPROACH
TYPE B OPTION A CLEARANCE
30 x 48



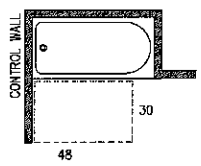
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.1.2
FIGURE 1004.11.3.1.3.1

FORWARD APPROACH
TYPE B OPTION A CLEARANCE
30 x 60 MINIMUM



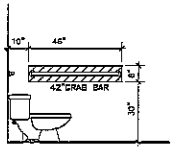
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.1.2
FIGURE 1004.11.3.1.3.2

TYPE B OPTION B CLEARANCE
30 x 48 MINIMUM

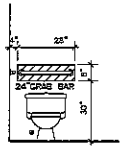


BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.1.2
FIGURE 1004.11.3.2.3.1

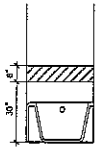
ANSI 117.1 2003
GRAB BAR REINFORCING



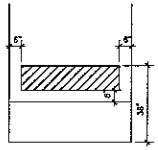
TOILET-SIDE



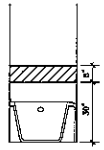
TOILET-FRONT



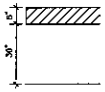
TUB-CONTROL WALL



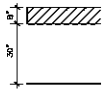
TUB-REAR WALL



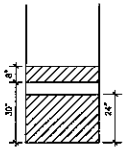
TUB-SIDE WALL



SHOWER-CONTROL WALL



SHOWER-BACK WALL



SHOWER-SIDE WALL

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Plans & Elevations
ADA, Type A & Type B Units
1/2"=1'-0"

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA

DATE	ISSUED FOR:
10-30-13	ISSUE FOR CONSTRUCTION
11-11-13	PLUMBING REVISIONS
11-18-13	APARTMENT UNIT LAYOUTS
11-26-13	DOOR AND DEPARTMENT NAMES
12-09-13	GENERAL REVISIONS
12-24-13	DRAWING MODIFICATIONS

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A406

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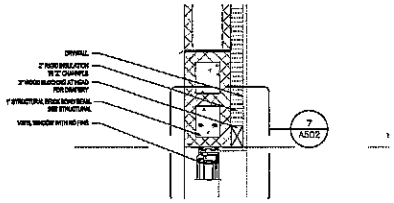
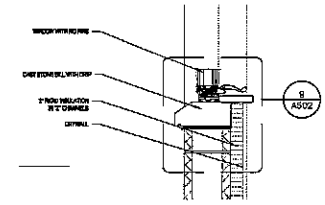
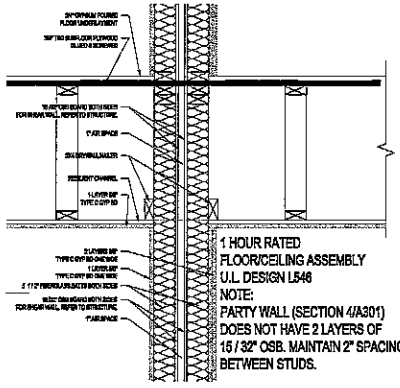


WALL DETAIL 10
SCALE: 1 1/2" = 1'-0"

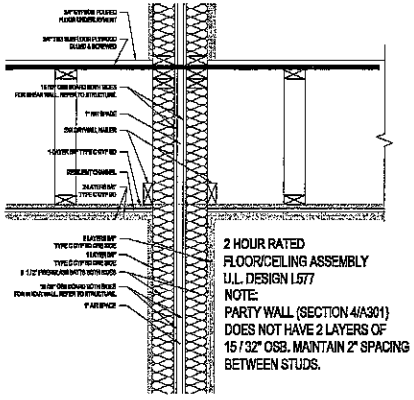


WALL DETAIL 11
SCALE: 1 1/2" = 1'-0"



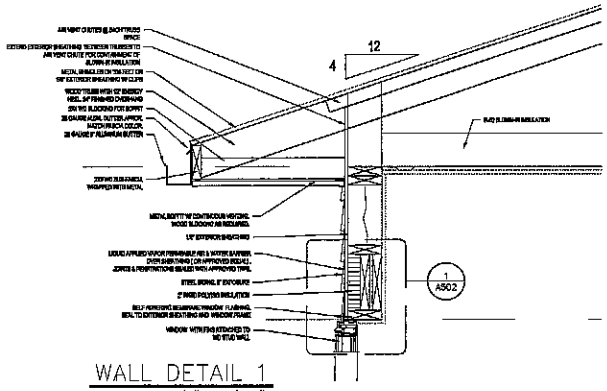
1 HOUR RATED
FLOOR/CEILING ASSEMBLY
U.L. DESIGN L546
NOTE:
PARTY WALL (SECTION 4/A301)
DOES NOT HAVE 2 LAYERS OF
15 / 32" OSB. MAINTAIN 2" SPACING
BETWEEN STUDS.

WALL DETAIL 9
SCALE: 1 1/2" = 1'-0"

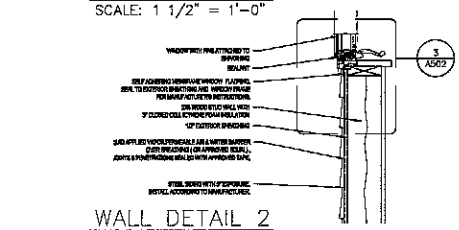


2 HOUR RATED
FLOOR/CEILING ASSEMBLY
U.L. DESIGN L577
NOTE:
PARTY WALL (SECTION 4/A301)
DOES NOT HAVE 2 LAYERS OF
15 / 32" OSB. MAINTAIN 2" SPACING
BETWEEN STUDS.

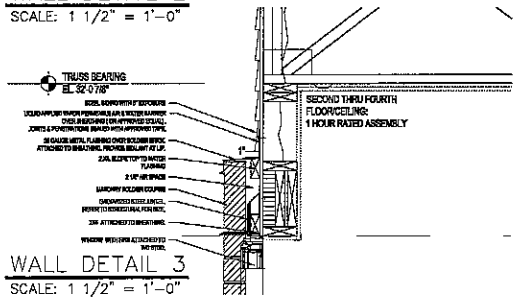
WALL DETAIL 8
SCALE: 1 1/2" = 1'-0"



WALL DETAIL 1
SCALE: 1 1/2" = 1'-0"

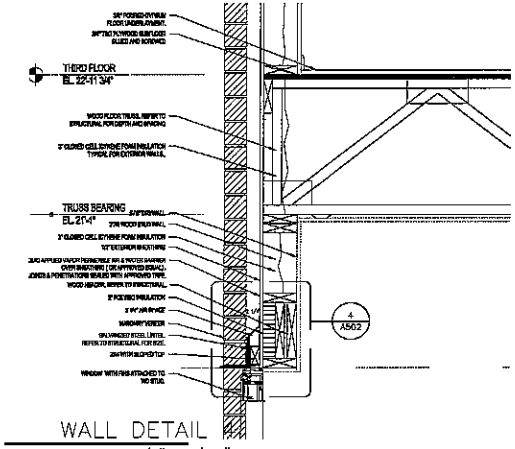


WALL DETAIL 2
SCALE: 1 1/2" = 1'-0"

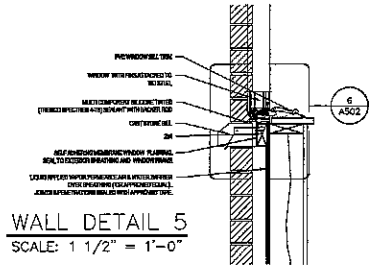


SECOND THRU FOURTH
FLOOR/CEILING:
1 HOUR RATED ASSEMBLY

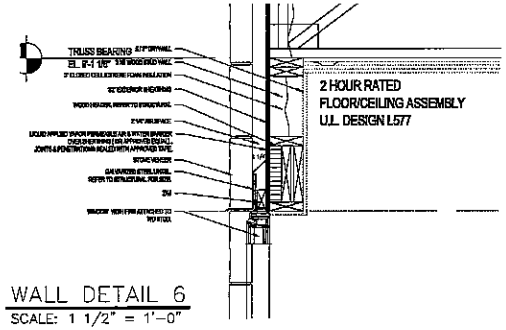
WALL DETAIL 3
SCALE: 1 1/2" = 1'-0"



WALL DETAIL
SCALE: 1 1/2" = 1'-0"

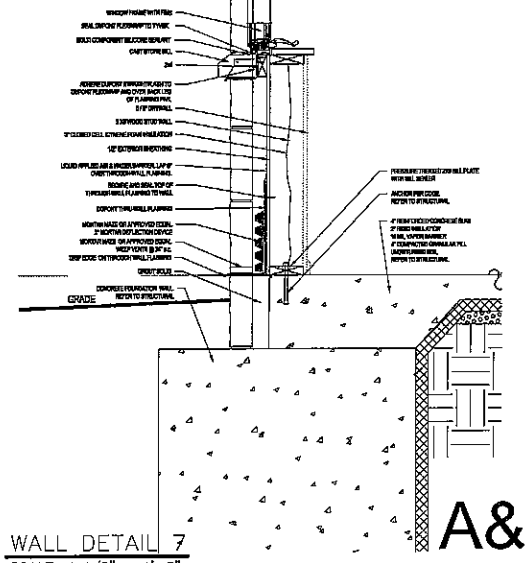


WALL DETAIL 5
SCALE: 1 1/2" = 1'-0"



2 HOUR RATED
FLOOR/CEILING ASSEMBLY
U.L. DESIGN L577

WALL DETAIL 6
SCALE: 1 1/2" = 1'-0"



WALL DETAIL 7
SCALE: 1 1/2" = 1'-0"

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Wall Section Details

1 1/2"=1'-0"

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUE FOR	BY	DATE
06-03-13	ISSUE FOR CONSTRUCTION		
11-11-13	PLUMBING REVISIONS		
11-15-13	APARTMENT UNIT LAYOUTS		
11-25-13	DOOR AND ELEVATION MARKING		
12-02-13	REISSUED FOR CONSTRUCTION		
12-24-13	MISCELLANEOUS MODIFICATIONS		

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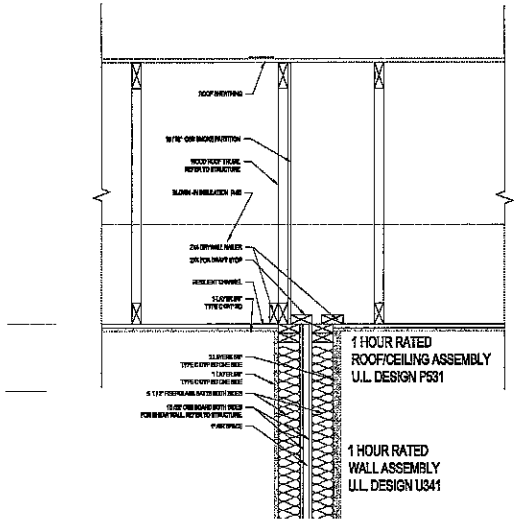
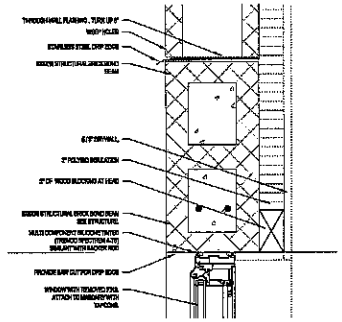
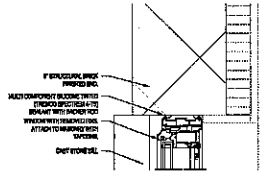


DETAIL 14– DRAFTSTOP AT ROOF
SCALE: 1 1/2" = 1'–0"

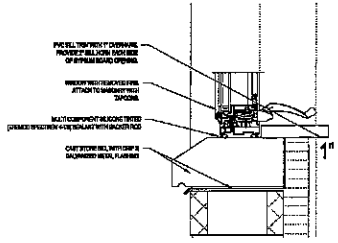
CMU



HEAD DETAIL 7
SCALE: 3" = 1'–0"

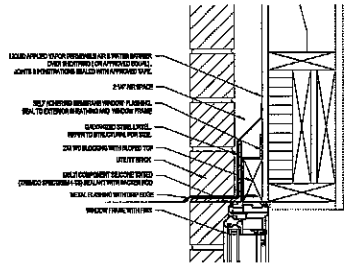


JAMB DETAIL 8
SCALE: 3" = 1'–0"

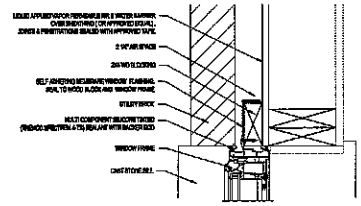


SILL DETAIL 9
SCALE: 3" = 1'–0"

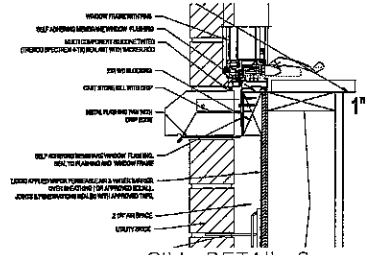
MASONRY



HEAD DETAIL 4
SCALE: 3" = 1'–0"

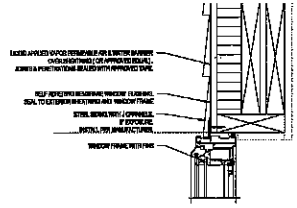


JAMB DETAIL 5
SCALE: 3" = 1'–0"

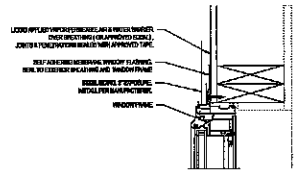


SILL DETAIL 6
SCALE: 3" = 1'–0"

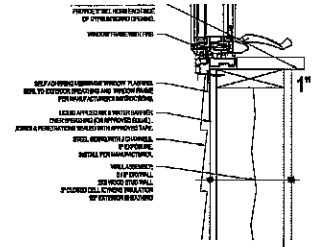
WOOD STUD



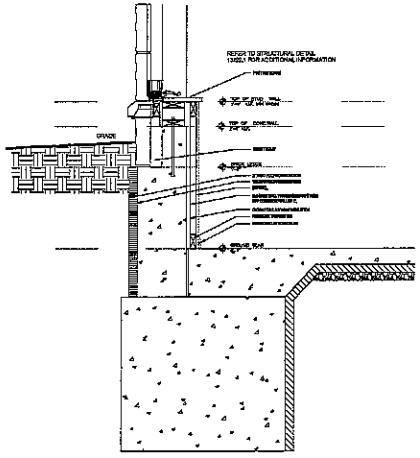
HEAD DETAIL 1
SCALE: 3" = 1'–0"



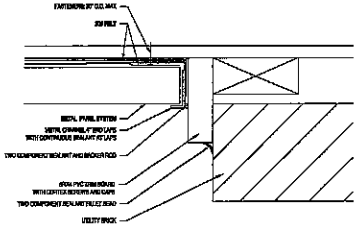
JAMB DETAIL 2
SCALE: 3" = 1'–0"



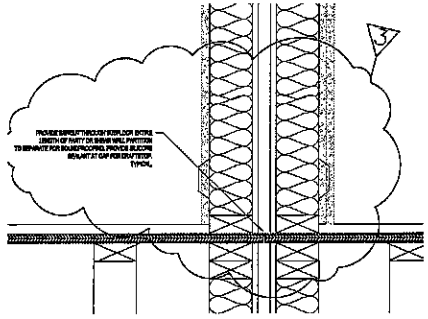
SILL DETAIL 3
SCALE: 3" = 1'–0"



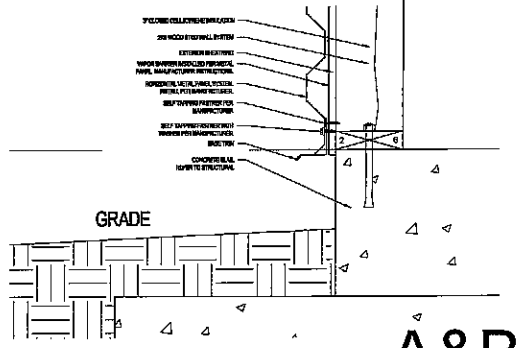
DETAIL 13–KNEE WALL SECTION
SCALE: 1" = 1'–0"



DETAIL 12 –TRIM AT MASONRY
SCALE: 6" = 1'–0"



DETAIL 11 – SAWCUT
SCALE: 3" = 1'–0"



DETAIL 10 –SILL AT DECK SLAB
SCALE: 3" = 1'–0"

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Details
3"=1'-0"

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE:	ISSUED FOR:	BY:
10-25-13	ISSUE FOR CONSTRUCTION	
11-11-13	PLUMBING REVISIONS	
11-18-13	APARTMENT UNIT LAYOUTS	
11-26-13	DOOR AND ELEVATION MARKS	
12-03-13	REISSUED FOR CONSTRUCTION	
12-24-13	VARIOUS MODIFICATIONS	

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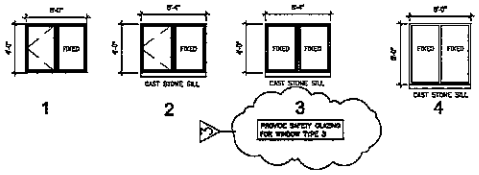
WINDOW SCHEDULE

WINDOW #	TYPE	MATL.	FRAME R.O. SIZE W	FRAME R.O. SIZE H	GLASS	LABEL	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	REMARKS	WINDOW #
1	CHR	VINYL	5'-4"	4'-0"	CLEAR	-	-	-	-	FIXED (ONE SIDE), PROVIDE TRIM	1
2	CHR	VINYL	5'-4"	4'-0"	CLEAR	-	-	-	-	FIXED (ONE SIDE), NO TRIM	2
3	CHR	VINYL	8'-4"	4'-0"	CLEAR	-	-	-	-	FIXED BOTH SIDES, NO TRIM	3
4	CHR	VINYL	8'-0"	5'-0"	TPGT	-	-	-	-	FIXED BOTH SIDES, NO TRIM	4

WINDOW TYPES



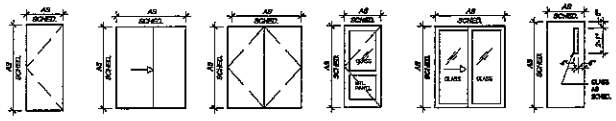
DOOR & FRAME SCHEDULE

DOOR#	DOOR TYPE	DOOR MATL.	DOOR SIZE T	DOOR SIZE W	DOOR SIZE H	DOOR GLASS	DOOR LABEL	FRAME TYPE	FRAME MATL.	FRAME GLASS	FRAME DETAILS HEAD	FRAME DETAILS JAMB	FRAME DETAILS SILL	FRAME LABEL	HDWR SET	REMARKS	DOOR#
01	A	WD	1 3/4"	3'-0"	7'-0"	-	20 MIN	1	WD	-	-	-	-	20 MIN	-	-	01
02	A	WD	1 3/4"	1'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	02
03	A	WD	1 3/4"	2'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	03
04	A	WD	1 3/4"	2'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	04
05	A	WD	1 3/4"	2'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	05
06	A	WD	1 3/4"	2'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	06
07	A	WD	1 3/4"	2'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	07
08	A	WD	1 3/4"	2'-0"	6'-0"	-	-	2	RF	-	-	-	-	-	-	-	08
09	B	WD	1 3/4"	2'-8"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	09
010	B	WD	1 3/4"	2'-8"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	010
011	B	WD	1 3/4"	6'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	011
012	B	WD	1 3/4"	6'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	012
013	B	WD	1 3/4"	2'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	013
014	C	WD	1 3/4"	2'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	014
015	C	WD	1 3/4"	1'-4"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	015
016	C	WD	1 3/4"	4'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	016
017	C	WD	1 3/4"	5'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	017
018	C	WD	1 3/4"	6'-0"	6'-0"	-	-	2	RF	-	-	-	-	-	-	PAINT	018
019	C	WD	1 3/4"	6'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	019
020	B	WD	1 3/4"	7'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	020
021	C	WD	1 3/4"	6'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	021
022	C	VINYL	1 3/4"	6'-0"	6'-0"	-	-	-	VINYL	-	-	-	-	-	-	SLIDER	022
023	B	ALUM	1 3/4"	2'-0"	6'-0"	-	-	4	ALUM	-	-	-	-	-	-		023
024	B	ALUM	1 3/4"	2'-0"	6'-0"	-	-	5	ALUM	-	-	-	-	-	-		024
025	B	ALUM	1 3/4"	3'-0"	7'-0"	-	-	4	ALUM	-	-	-	-	-	-		025
026	B	ALUM	1 3/4"	3'-0"	7'-0"	-		5	ALUM	-	-	-	-		-		026
027	B	ALUM	1 3/4"	3'-0"	6'-0"	-		4	ALUM	-	-	-	-		-		027
028	B	ALUM	1 3/4"	3'-0"	6'-0"	-		5	ALUM	-	-	-	-		-		028
029	B	ALUM	1 3/4"	3'-0"	7'-0"	-		4	ALUM	-	-	-	-		-		029
030	F	GW	1 3/4"	3'-0"	7'-0"	90 MIN		9	GW	-	-	-	-	90 MIN	-		030
031	B	ALUM	1 3/4"	3'-0"	7'-0"	-		7	ALUM	-	-	-	-		-		031
032	B	ALUM	1 3/4"	3'-0"	6'-0"	-		6	ALUM	-	-	-	-		-		032
033	A	FG	1 3/4"	3'-0"	6'-0"	-		3	WD	-	-	-	-		-		033
034	A	WD	1 3/4"	3'-0"	6'-0"	-	20 MIN	2	RF	-	-	-	-	20 MIN	-		034
035	A	WD	1 3/4"	3'-0"	7'-0"	-	20 MIN	3	RF	-	-	-	-	20 MIN	-		035
036	A	WD	1 3/4"	3'-0"	6'-0"	-	20 MIN	1	RF	-	-	-	-	20 MIN	-		036
037	B	ALUM	1 3/4"	6'-0"	7'-0"	-	-	8	ALUM	-	-	-	-		-		037
038	C	WD	1 3/4"	4'-0"	6'-0"	-	20 MIN	1	WD	-	-	-	-	20 MIN	-	PAINT	038
039	A	WD	1 3/4"	2'-0"	6'-0"		20 MIN	2	RF	-	-	-	-	20 MIN	-		039
040	F	WD	1 3/4"	3'-0"	6'-0"		20 MIN	2	RF	-	-	-	-	20 MIN	-		040
041	F	WD	1 3/4"	3'-0"	6'-0"			2	RF	-	-	-	-		-		041
042	F	WD	1 3/4"	3'-0"	6'-0"			2	RF	-	-	-	-		-		042

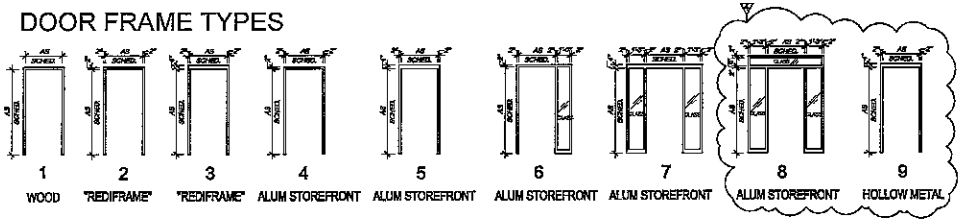
1. CORRIDOR DOORS SHALL BE FIRE RATED FOR 20 MINUTES AND PROVIDED WITH SMOKE AND DRAFT SEAL AND CLOSER.
2. DOORS FOR WASHER AND DRYER CLOSETS TO HAVE 10x10 GRILL.

WD=WOOD
RF=REDIFRAME
HM=HOLLOW METAL
GW=GLASS WALL
GALV=GALVANIZED HOLLOW METAL
ALUM=ALUMINUM
FG=FIBERGLASS
MIN=MINUTE

DOOR TYPES



DOOR FRAME TYPES



A&B

13-103

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imprint@imprintarchitects.com

Door & Frame Schedule
Window Schedule
NTS

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:
10-02-13	ISSUE FOR CONSTRUCTION
11-11-13	PLUMBING REVISIONS
11-19-13	APARTMENT UNIT LAYOUTS
11-20-13	DOOR AND ELEVATION MARKING
12-06-13	CORRECTED DOOR SCHEDULE
12-24-13	VARIOUS MODIFICATIONS

DEC 24 2013

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ALTOONA TOWERS

1414 ADVENTURELAND DRIVE
ALTOONA, IOWA 50009

OWNER:

ALTOONA TOWERS LC
5901 VISTA DRIVE
WEST DES MOINES, IA 50266
(515) 226-0000

ARCHITECT:

IMPRINT ARCHITECTS
1605 N. ANKENY BLVD
ANKENY, IA 50023
(515) 965-5336

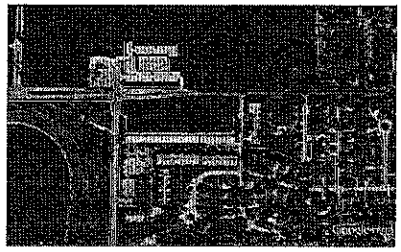
STRUCTURAL ENGINEER:

RAKER RHODES ENGINEERING
4717 GRAND AVENUE
DES MOINES, IA 50312
(515) 277-0275

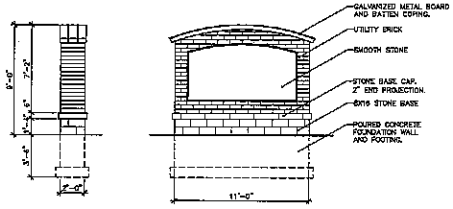
GENERAL CONTRACTOR:

ERICKSON BALMER CONSTRUCTION LLC
2453 106TH STREET
URBANDALE, IA 50322
(515) 252-1510

SITE MAP



MONUMENT SIGN



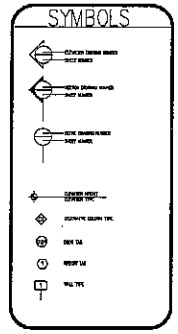
BUILDING A DRAWING LIST

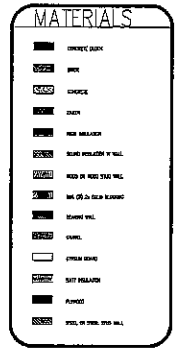
ARCHITECTURAL

A0 TITLESHEET
A00 CODE REVIEW
A101 GROUND & SECOND/THIRD FLOOR PLAN
A102 FOURTH FLOOR & ROOF PLAN
A103 ENLARGED COMMUNITY ROOM PLAN
A201 EXTERIOR ELEVATIONS
A202 EXTERIOR ELEVATIONS
A301 WALL SECTIONS
A302 WALL SECTIONS
A401 ENLARGED STAIR & ELEVATOR PLANS
A402 ENLARGED UNIT PLANS
A403 ENLARGED UNIT PLANS
A404 COOK AND CANOPY DETAILS
A405 WALL TYPES & FLOOR/CEILING ASSEMBLIES
A406 ADA, TYPE A & B PLANS & ELEVATIONS
A501 WALL SECTION DETAILS
A502 DETAILS
A601 SCHEDULES

STRUCTURAL

S0.1 STRUCTURAL NOTES
S1.1 FOUNDATION PLAN
S2.1 FOUNDATION DETAILS
S3.1 FRAMING PLAN
S3.2 FRAMING PLAN
S3.3 FRAMING PLAN
S3.4 ROOF FRAMING PLAN
S4.1 FRAMING DETAILS
S4.2 FRAMING DETAILS
S5.1 BALCONY DETAILS





ABBREVIATIONS

SYMBOLS

&	AND
∠	ANGLE
@	AT
℄	CENTERLINE
⅊	PROPERTY LINE
#	NUMBER

ABBREVIATIONS

AD	AIR DISTRIBUTION
AD	ANCHOR BOLT
AB	ACCESSIBLE (DIN.)
ACCB	AIR COOLED CONDENSING UNIT
ADJUST	ADJUSTING
ACP	ACCESSIBLE CEILING PANEL
ACU	AIR CONDITIONING UNIT
AB	ANGLE BRACE
ADD.	ADDITIONAL
ADDN	ADDITION
ADJ	ADJUSTABLE
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
ABU	AIR HANDLING UNIT
AL	ALUMINUM
ALT	ALTERNATE
APPROX.	APPROXIMATE
ARCH	ARCHITECT(URAL)
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
ATTEN	ATTENUATION
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
AV	AUDIO/VISUAL
AVG	AVERAGE
AWP	ADJUSTABLE WALL PANEL
BD	BOARD
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BO	BOTTOM OF
BOC	BACK OF CURB
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BRL	BRICK REINF. WALL
BRG	BEARING
BRK	BRICK
BUR	BUILT-UP ROOF
C	CIRCUIT
CIR	CENTER TO CENTER
CAB	CABINET
CATV	CABLE TELEVISION
CB	CATCH BASIN
CER	CERAMIC TILE
CFG	CONTINUOUS FLANGED GRATE
CFS	CONTINUOUS FLANGED STEEL
CG	CORNER GUARD
CH	CHAIRRAIL
CHR	CHROME
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONC	CONCRETE
CONF	CONFERENCE
CONST	CONSTRUCTION
CONT	CONTINUE, CONTINUOUS
CONTR	CONTRACTOR
CONTR	CONTRACTS
CORR	CORRIDOR
CPT	CARPET
CR	CORNER
CRT	CERAMIC TILE
CT	CONTROL TOWER
CTR	CENTER
CTR	CONTROL TOWER
CW	COLD WATER
DBL	DOUBLE
DEMO	DEMOLISH, DEMOLITION
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIV	DIVISION
DN	DOWN
DR	DOOR
DR	CORRIDOR
DTL	DETAILS
DWS	DETENTION WATER SYSTEM
DW	DISHWASHER
DWG	DRAWING
E	EAST
EA	EACH
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSE, ENCLOSURE
ENGR	ENGINEER
ENT	ENTRANCE
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EXPOSED STRUCTURE
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FA	FIRE ALARM
FAB	FABRICATION
FACP	FIRE ALARM CONTROL PANEL
FD	FLOOR DRAIN
FDC	FLOOR CLEANOUT
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FEC	FIBERGLASS REINFORCED CONCRETE
FF	FINISH FLOOR
FFE	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FP	FIRE PROTECTION
FL	FLOOR(ING)
FLR	FLOOR(ING)
FLUR	FLUORESCENT
FO	FIBERGLASS DRAINING
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FPC	FIRE PROTECTION
FRP	FIBERGLASS REINFORCED PLASTIC
FRP	FIBERGLASS REINFORCED PANEL
FRT	FIRE RETARDANT
FS	FLOOR SINK
FT	FOOT/FEET
FTG	FOOTING
FURN	FURNITURE
GL	GLASS
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERAL
GI	GALVANIZED IRON
GLB	GLUE LAMINATED BEAM
GLU	GLUE LAM
GLU-LAM	GLUE LAMINATED
GYP	GYPSUM
GYP BD	GYPSUM BOARD
H	HIGH
HC	HOLLOW CORE
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
HM	HOLLOW METAL
HOR	HORIZ.
HR	HOUR
HT	HEIGHT
HTG	HEATING, VENTILATING & AIR CONDITIONING
HW	HOT WATER
HWH	HOT WATER HEATER
I	BEAM DIMENSIONS/INDICATOR
INSUL	INSULATION
INT	INTERIOR
JAN	JANITOR
JOIST	JOIST
JT	JOINT
KIT	KITCHEN
L	LONG, LENGTH
LAB	LABORATORY
LAV	LAVATORY
LIB	LIBRARY
LKR	LOCKER
LT	LIGHT
LTWT	LIGHTWEIGHT
LVL	LEVEL
LVR	LOUVER
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MCO	MASONRY CONTROL JOINT
MECH	MECHANICAL
MED	MEDIUM
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTD	MOUNTED
MTL	METAL
MULL	MULLION
N	NORTH
NIC	NOT IN CONTRACT
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OPG	OPENING
OPP	OPPOSITE
OPW	OBSERVATION WINDOW
OSB	ORIENTED STRAND BOARD
OVHD	OVERHEAD
OZ	OUNCE
P	POLE
PA	PUBLIC ADDRESS
PC	PLUMBING CONTRACTOR
PCC	PRECAST CONCRETE
PERIM	PERIMETER
PL	PLATE
PLAS	PLASTIC LAMINATE
PLAST	PLASTER
PLF	POUNDS PER LINEAR FOOT
PLYWD	PLYWOOD
PNL	PANEL
PR	PAIR
PREFINISH	PREFINISHED
PREFIN	PREFINISHED
PREM	PREMIUM
PRES	PRESSURE
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PVD	PAVING
PVMNT	PAVEMENT
QT	QUART
QTY	QUANTITY
R	RISER
RAD	RADIUS
RBR	RUBBER
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REF	REFERENCE
REFR	REFRIGERATOR
REINF	REINFORCE(ING)
REQD	REQUIRED
RM	ROOM
RO	ROUGH OPENING
RW	RAIN WATER
S	SOUTH
SAN	SANITARY SEWER
SC	SOLID CORE
SCHED	SCHEDULE
SD	SOAP DISPENSER
SECT	SECTION
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SL	SLOPE
SPEC	SPECIFICATION
SPKR	SPEAKER
SQ	SQUARE
SQ FT	SQUARE FOOTAGE
SQ IN	SQUARE INCHES
SQ YD	SQUARE YARDS
ST	STREET
STD	STANDARD
STRUCT	STRUCTURE, STRUCTURAL
SV	SHEET VINYL
SYM	SYMBOL
T	TREAD
TB	TOWEL BAR
TC	TOILET COUNTER
TD	TOILET DISPENSER
TEL	TELEPHONE
TELEV	TELEVISION
TERRAZ	TERRAZZO
THRSHLD	THRESHOLD
TO	TOP OF
TOC	TOP OF CURB
TOF	TOP OF FOOTING
TOM	TOP OF MASONRY
TOW	TOP OF WALL
TS	TUBE STEEL
TSD	TOILET SEAT DISPENSER
TYP	TYPICAL
U.L.	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
UR	URINAL SCREEN
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VIF	VERIFY IN FIELD
VTR	VENT THROUGH ROOF
W	WEST
W/	WITH
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER
WP	WALK PAVEMENT
WR	WATERPROOFING
WSCT	WATER SERVICE
WT	WEIGHT
WWF	WELDED WIRE FABRIC

TOILET ACCESSORY ABBREVIATIONS

SB	SOAP BOX
BPB	BOOT BRUSH
MPB	MEDICIN BOTTLE SHELF
SDR	SANITARY DIAPER DISPOSAL RECESSED - SINGLE ACCESS
SDD	SANITARY DIAPER DISPOSAL RECESSED - DOUBLE ACCESS
TOW	TOWEL DISPENSER - RECESSED
TOS	TOWEL DISPENSER - SURFACE
TOWR	TOWEL DISPENSER/DISPOSAL - RECESSED
TOWS	TOWEL DISPENSER/DISPOSAL - SURFACE
SD	SOAP DISPENSER
SDS	SOAP DISPENSER - SURFACE
SDR	SOAP DISPENSER - RECESSED
SDH	SOAP HOLDER - SURFACE
SDHR	SOAP HOLDER - RECESSED
SDB	STAINLESS STEEL SHELVES
TB	TOILET BAR
TDR	TOILET DISPENSER - RECESSED
TDS	TOILET DISPENSER - SURFACE
TDWR	TOILET DISPENSER/DISPOSAL - RECESSED
TDWS	TOILET DISPENSER/DISPOSAL - SURFACE
SR	SOAP RECEPTACLE
SDD	SANITARY DIAPER DISPOSAL RECESSED - DOUBLE ACCESS
NDR	SANITARY DIAPER DISPOSAL RECESSED - SINGLE ACCESS

I hereby certify that the portion of this technical submission upon identified herein was prepared by me or under my direct supervision and responsible charge. I am a duly registered architect under the laws of the state of Iowa.

9-30-2014
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info@imprintarchitects.com

Titlesheet

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA

DATE	ISSUED FOR:
9-30-13	ISSUE FOR CONSTRUCTION
11-11-13	PLUMBING REVISIONS
12-12-13	ISSUED FOR CONSTRUCTION
12-26-13	DOOR AND ELEVATOR REVISIONS
1-30-14	REISSUED FOR CONSTRUCTION
9-24-14	VARIOUS BOUNDARY CHANGES

DEC 24 2013

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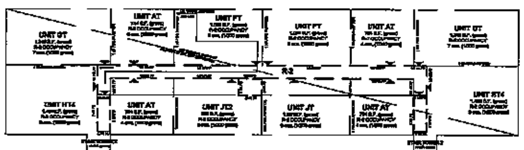
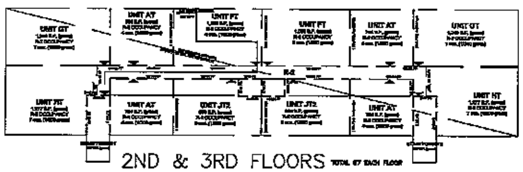
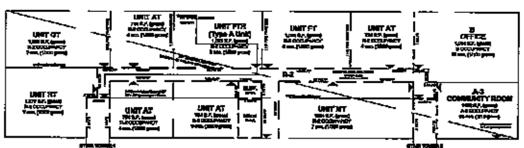
OCCUPANT LOADS



4TH FLOOR TOTAL 89



2ND & 3RD FLOORS TOTAL 87 EACH FLOOR



GROUND FLOOR TOTAL 130

SQUARE FOOTAGES

BUILDING A

GROUND FLOOR–MIXED
B – 1,064 SQ FT OFFICE
A–3 – 1,430 SQ FT COMMUNITY
R–2 – 11,406 SQ FT
13,900 SQ FT GROSS

SECOND FLOOR R–2
13,900 SQ FT GROSS

THIRD FLOOR R–2
13,900 SQ FT GROSS

FOURTH FLOOR R–2
13,900 SQ FT GROSS

55,600 SQ FEET GROSS TOTAL

BUILDING B

GROUND FLOOR–MIXED
A3 – 3,092 SQ FT GROSS HEALTH CLUB
R2 – 9,372 SQ FT GROSS CORPORATE UNITS
R2 – 3,286 SQ FT GROSS APARTMENTS
18,600 SQ FT GROSS

SECOND FLOOR R–2
18,600 SQ FT GROSS

THIRD FLOOR R–2
18,600 SQ FT GROSS

FOURTH FLOOR R–2
18,600 SQ FT GROSS

74,400 SQ FT GROSS TOTAL

CODE REVIEW - BUILDING A

CODE REVIEW ANALYSIS BASED ON 2009 INTERNATIONAL BUILDING CODE
ADDITIONAL REFERENCES TO 2009 INTERNATIONAL BUILDING CODE AS NOTED

PROJECT DESCRIPTION

ALTOONA TOWERS
1414 ADVENTURELAND DRIVE
ALTOONA, IOWA 50009
4 STORY BUILDING CONTAINING RESIDENTIAL UNITS,
RENTAL OFFICES, AND COMMUNITY CENTER.
THE STRUCTURE IS WOOD FRAMED CONSTRUCTION WITH BRICK/STONE VENEER MASONRY
AND METAL SIDING FOR EXTERIOR CLADDING.

CHAPTER 3 USE & OCCUPANCY CLASSIFICATION

OCCUPANCY:
FIRST FLOOR:
R–2 PER SECTION 310
A–3 PER SECTION 303
B PER SECTION 304

OCCUPANCY:
2ND, 3RD & 4TH FLOOR:
R–2 PER SECTION 310

CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

GROUP I–1, R–1, R–2, R–3 PER SECTION 420
–WALLS SEPARATING DWELLING UNITS IN THE SAME BUILDING SHALL BE FIRE PARTITIONS PER SECTION 420.2
–FLOOR/CEILING ASSEMBLIES SEPARATING DWELLING UNITS SHALL COMPLY WITH SECTION 712 PER SECTION 420.3

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

DEFINITIONS PER SECTION 502
GRADE PLANE TO BE DETERMINED BY THE AVERAGE FINISHED GROUND LEVEL
AT THE EXTERIOR WALLS MEASURED 6' AROUND THE PERIMETER.

GENERAL HEIGHT AND AREA LIMITATIONS PER SECTION 503
CONSTRUCTION TYPE V–A UNDER ALLOWABLE HEIGHT AND BUILDING AREAS PER TABLE 503

HEIGHT PER SECTION 504
ALLOWABLE BUILDING HEIGHTS ARE AS FOLLOWS PER TABLE 503:

OCCUPANCIES	ALLOWABLE HEIGHT	ACTUAL
R–2	4 STORIES OR 70' *	4 STORIES
A–3	2 STORIES OR 70' *	4 STORIES
B	3 STORIES OR 70' *	4 STORIES

* SHOWN WITH ALLOWABLE HEIGHT INCREASE DUE TO 504.2

AREA MODIFICATIONS PER SECTION 506
–ADJUSTED AREAS ARE CALCULATED AS FOLLOWS PER SECTION 506.1–506.4:

BUILDING AREAS FOR BUILDING A

FIRST FLOOR	ACTUAL NET	ACTUAL GROSS	ALLOWABLE (TABLE 503)	ADJUSTED AREA	RATIO
R–2	11,406	11,406	12,000	21,000	0.54
A–3	1,430	1,430	11,500	20,125	0.07
B	1,064	1,064	18,000	31,800	0.03
TOTAL	13,900	13,900			0.64

SECOND FLOOR	ACTUAL NET	ACTUAL GROSS	ALLOWABLE (TABLE 503)	ADJUSTED AREA	RATIO
R–2	13,900	13,900	12,000	21,000	0.66
TOTAL	13,900	13,900			0.66

THIRD FLOOR	ACTUAL NET	ACTUAL GROSS	ALLOWABLE (TABLE 503)	ADJUSTED AREA	RATIO
R–2	13,900	13,900	12,000	21,000	0.66
TOTAL	13,900	13,900			0.66

FOURTH FLOOR	ACTUAL NET	ACTUAL GROSS	ALLOWABLE (TABLE 503)	ADJUSTED AREA	RATIO
R–2	13,900	13,900	12,000	21,000	0.66
TOTAL	13,900	13,900			0.66

WALL ORIENTATION	PERIMETER	FRONTAGE W/ 20'–30' OPEN
NORTH	235	235
EAST	70	70
SOUTH	235	235
WEST	70	70
TOTAL	610	610

FLOOR RATIO CALCULATION (SEC. 506.4.2)

FIRST FLOOR	0.64	<1	OK
SECOND FLOOR	0.66	<1	OK
THIRD FLOOR	0.66	<1	OK
FOURTH FLOOR	0.66	<1	OK
TOTAL	2.62		OK

MIXED USE AND OCCUPANCY PER SECTION 508
–NONSEPARATED OCCUPANCIES BETWEEN A–3 & B OCCUPANCIES PER SECTION 508.3
– 2HR FIRE BARRIER SEPARATION BETWEEN THE A–3/B OCCUPANCIES AND THE R OCCUPANCY PER SECTION 508.4 AND TABLE 508.4

OCCUPANCIES	REQUIRED SEPARATION	PROVIDED
A–3 & R–2	2 HOURS	YES

SPECIAL PROVISIONS PER SECTION 509
–NO NEED TO TAKE ADVANTAGE OF SPECIAL PROVISIONS PER SECTION 509.1

CHAPTER 6 TYPES OF CONSTRUCTION

GENERAL PER SECTION 601
–FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS ARE AS FOLLOWS PER TABLE 601:

CONSTRUCTION TYPE: V–A

ELEMENT	RATING
PRIMARY STRUCTURAL FRAME	1 HOUR
BEARING WALLS EXTERIOR	1 HOUR
BEARING WALLS INTERIOR	1 HOUR
NON BEARING WALLS EXTERIOR	1 HOUR
NON BEARING WALLS INTERIOR	0 HOUR
FLOOR CONSTRUCTION	1 HOUR
ROOF CONSTRUCTION	1 HOUR

* REFERENCE 603.1 FOR EXCEPTIONS

CONSTRUCTION CLASSIFICATIONS PER SECTION 602
–FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE ARE AS FOLLOWS PER TABLE 602:

BUILDING SEPARATION		
WALL LOCATION	FIRE SEPARATION DISTANCE	RATING
NORTH	X >30	0
EAST	X >30	0
SOUTH	X >30	0
WEST	X >30	0

* TYPE V–A FOR R–2

CODE REVIEW ANALYSIS BASED ON 2009 INTERNATIONAL BUILDING CODE
ADDITIONAL REFERENCES TO 2009 INTERNATIONAL BUILDING CODE AS NOTED

CHAPTER 7 FIRE & SMOKE PROTECTION FEATURES

–DEFINITIONS PER SECTION 702
–FIRE SEPARATION DISTANCE IS THE DISTANCE MEASURED FROM THE BUILDING FACE TO ONE OF THE FOLLOWING:
1. THE CLOSEST INTERIOR LOT LINE
2. TO THE CENTERLINE OF A STREET, AN ALLEY OR PUBLIC WAY
3. TO AN IMAGINARY LINE BETWEEN TWO BUILDINGS ON THE PROPERTY PER SECTION 702.1

EXTERIOR WALLS PER SECTION 705
–FIRE RESISTANCE RATING SHALL ONLY BE REQUIRED ON EXTERIOR WALLS FOR EXPOSURE TO THE "INSIDE" PER SEC. 705.5
–A PARAPET NEED NOT BE PROVIDED ON AN EXTERIOR WALL WHERE THE WALL IS NOT REQUIRED TO BE FIRE–RESISTANCE RATED IN ACCORDANCE WITH TABLE 602 BECAUSE OF FIRE SEPARATION DISTANCE PER SECTION 705.11, EXCEPTION 1
–MAXIMUM AREA OF EXTERIOR WALL OPENINGS PER TABLE 705.8

MAXIMUM AREA OF EXTERIOR WALL OPENINGS		
FIRE SEPARATION DISTANCE	DEGREE OF OPENING PROTECTION	ALLOWABLE AREA
NORTH–30' OR GREATER	UNPROTECTED, NONSPRINKLERED	NO LIMIT
EAST–30' OR GREATER	UNPROTECTED, NONSPRINKLERED	NO LIMIT
SOUTH–30' OR GREATER	UNPROTECTED, NONSPRINKLERED	NO LIMIT
WEST–30' OR GREATER	UNPROTECTED, NONSPRINKLERED	NO LIMIT

FIRE WALLS PER SECTION 706
NOT APPLICABLE

FIRE BARRIERS PER SECTION 707
–SHAFTS ARE PERMITTED TO TERMINATE AT A TOP ENCLOSURE PER SECTION 708.5, EXCEPTION 2

FIRE PARTITIONS PER SECTION 709
–FIRE BLOCKING OR DRAFTSTOPPING IS ONLY REQUIRED PER EVERY TWO UNITS NOT TO EXCEED 3,000 SQUARE FEET, PER SECTION 709.4 EXCEPTION 5

OPENING PROTECTIVES PER SECTION 715
–FIRE DOOR AND FIRE SHUTTER FIRE PROTECTIONS RATINGS ARE AS FOLLOWS PER TABLE 715.4:

TYPE OF ASSEMBLY	FIRE–RESISTANCE RATING	MINIMUM DOOR RATING
FIRE BARRIERS	2 HOUR	1 HOUR
FIRE PARTITIONS	1 HOUR	1/3 HOUR

CHAPTER 9 FIRE PROTECTION SYSTEMS

SPRINKLER SYSTEM:
–R–2 OCCUPANCY NFPA 13R SYSTEM THROUGHOUT PER SECTION 903.1.2
–A–3 & B OCCUPANCY NFPA 13 SYSTEM THROUGHOUT PER SECTION 903.3.1.1

CHAPTER 10 MEANS OF EGRESS

OCCUPANT LOAD PER SECTION 1004
– SEE DIAGRAM THIS SHEET

EGRESS WIDTH PER SECTION 1005
– CALCULATIONS BELOW PER SECTION 1005.1

BUILDING					
		STAIRWAYS (INCHES)		OTHER EGRESS COMPONENTS (INCHES)	
FLOOR	OCC. LOAD	REQ'D	PROVIDED	REQ'D	PROVIDED
FIRST FLOOR	130	0	132	26	34 X 2=68
SECOND FLOOR	87	20	48 X 2=96	13	34 X 2=68
THIRD FLOOR	87	20	48 X 2=96	13	34 X 2=68
FOURTH FLOOR	89	21	48 X 2=96	14	34 X 2=68
TOTAL	333				

ACCESSIBLE MEANS OF EGRESS PER SECTION 1007
–AREA OF REFUGE NOT REQUIRED PER SECTION 1007.3, EXCEPTION 3

EXIT AND EXIT ACCESS DOORWAYS PER SECTION 1007
– TWO EXITS ARE REQUIRED PER TABLE 1015.1
THE DISTANCE BETWEEN REQUIRED EXITS SHALL BE NOT LESS THAN ONE–THIRD OF THE LENGTH OF THE MAXIMUM DIAGONAL DIMENSION OF THE AREA SERVED PER SECTION 1015.2.1, EXCEPTION 2

EXIT ACCESS TRAVEL DISTANCE PER SECTION 1016
–TRAVEL DISTANCE LIMITATIONS SHALL BE MEASURED FROM THE MOST REMOTE POINT WITHIN A STORY TO AN EXTERIOR EXIT STAIRWAY PER SECTION 1016.1
–TOTAL DISTANCE TO BE AS FOLLOWS PER TABLE 1016.1:

OCCUPANCY	WITH SPRINKLER SYSTEM REQUIRED	WITH SPRINKLER SYSTEM PROVIDED
R–2	250 FEET	250 FEET
A–3	250 FEET	250 FEET
B	300 FEET	300 FEET

CORRIDORS PER SECTION 1018
– CORRIDOR FIRE–RESISTANCE RATING IS PERMITTED TO BE 1/2 FOR R WHEN USING A SPRINKLER SYSTEM PER TABLE 1018.1
– CORRIDOR WIDTHS ARE TO BE AS FOLLOWS PER SECTION 1018.2

CORRIDOR LOCATION	CORRIDOR WIDTH REQUIRED
OCCUPANCY > 50	44 INCHES
OCCUPANCY < 50	36 INCHES
MECHANICAL ACCESS	24 INCHES

–DEAD END CORRIDORS SHALL NOT EXCEED 20' FOR R OCCUPANCIES WHEN EQUIPPED WITH AN AUTOMATIC SPRINKLER SYSTEM PER SECTION 1018.4

NUMBER OF EXITS AND CONTINUITY PER SECTION 1021:

BUILDING			
		NUMBER OF EXITS	
LOCATION	OCCUPANT LOAD	REQ'D	PROVIDED
FIRST FLOOR	132	2	2
SECOND FLOOR	87	2	2
THIRD FLOOR	87	2	2
FOURTH FLOOR	70	2	2

VERTICAL EXIT ENCLOSURES PER SECTION 1022
–STAIR TOWERS ARE REQUIRED TO HAVE A 2 HOUR EXIT ENCLOSURE DUE TO SERVING FOUR STORIES PER SECTION 1022.1

A

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Code Review
Building A

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR
10-02-13	ISSUE FOR CONSTRUCTION
11-11-13	PLUMBING REVISIONS
11-18-13	APARTMENT UNIT LAYOUTS
11-20-13	DOOR AND ELEVATION MARKS
12-02-13	REISSUED FOR CONSTRUCTION
12-24-13	VARIOUS MODIFICATIONS

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A00

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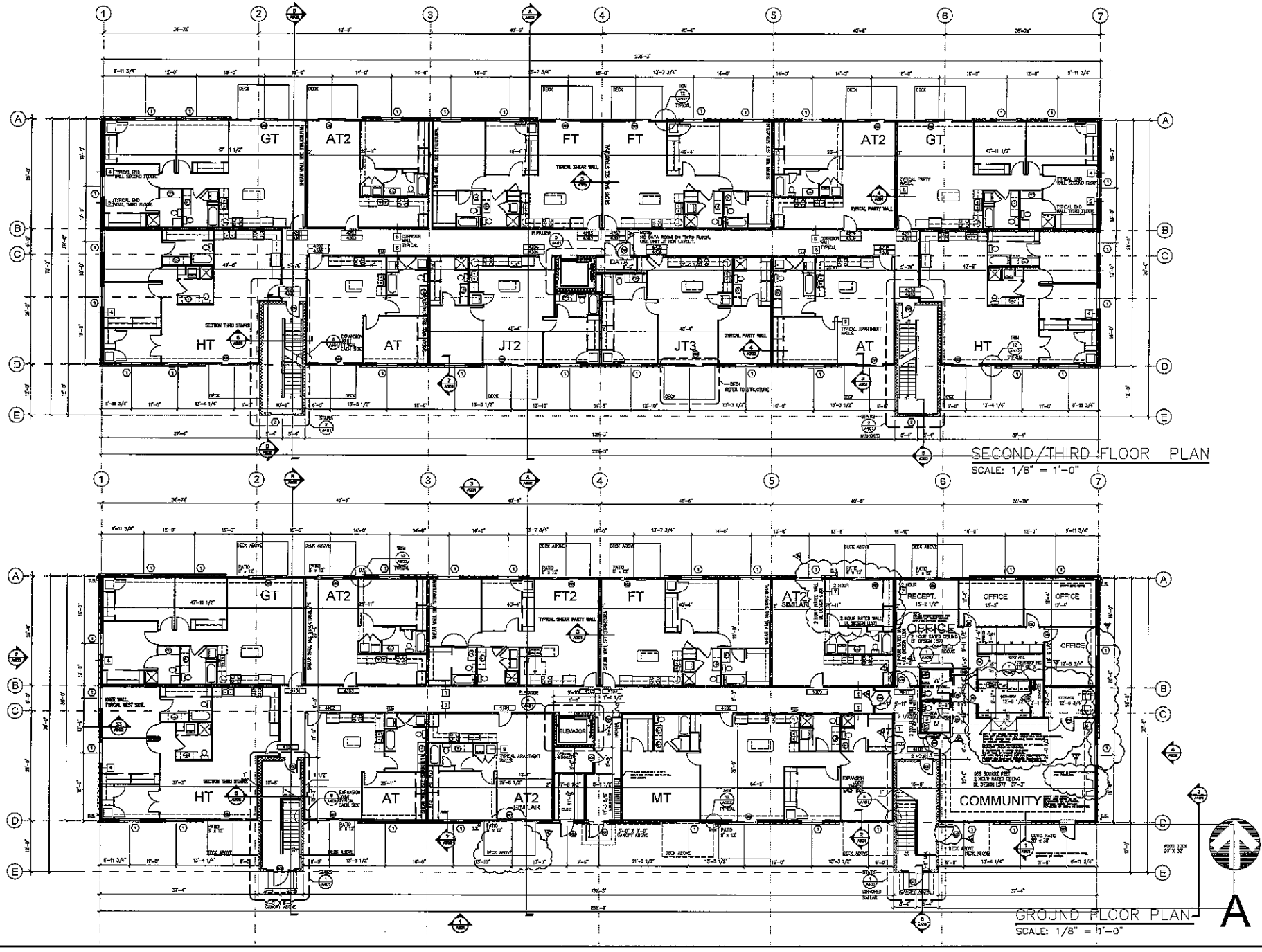

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Ground Floor Plan
Second & Third Floor Plan
1/8"=1'-0"

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:	BY	REV
10-30-13	ISSUE FOR CONSTRUCTION		
11-18-13	PLUMBING REVISIONS		
11-19-13	APARTMENT UNIT LAYOUTS		1
11-26-13	DOOR AND ELEVATION MARKING		
12-03-13	REISSUED FOR CONSTRUCTION		
12-24-13	VARIOUS MODIFICATIONS		1

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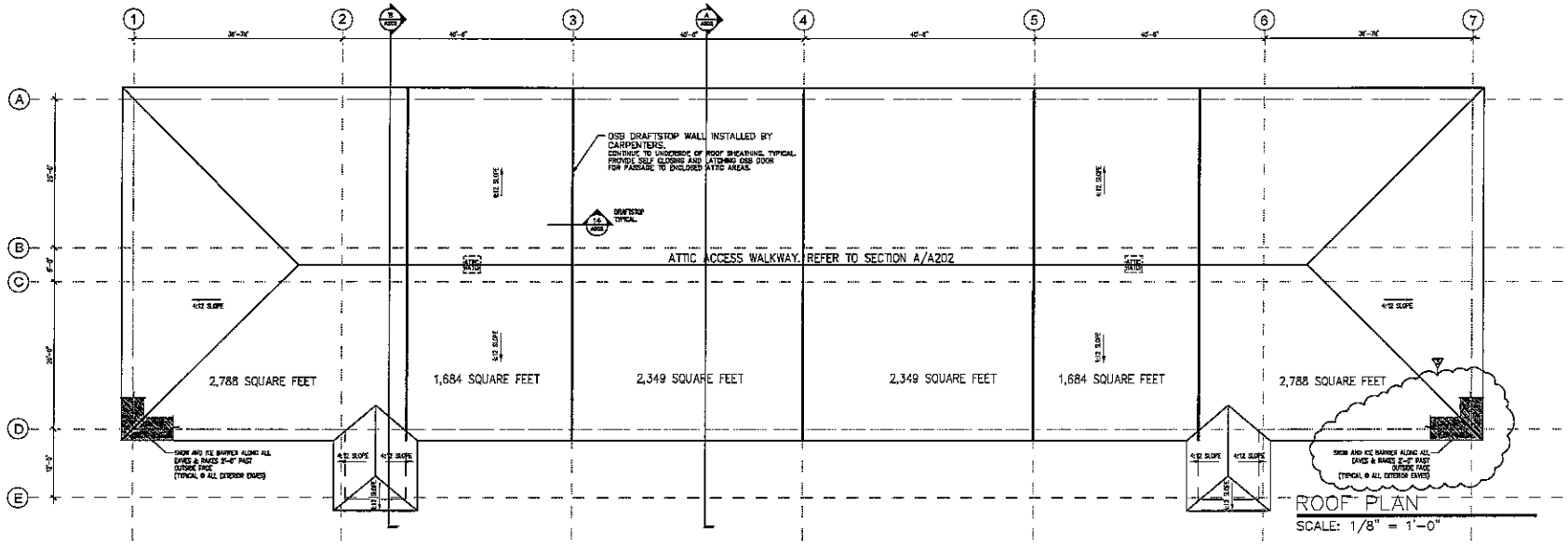
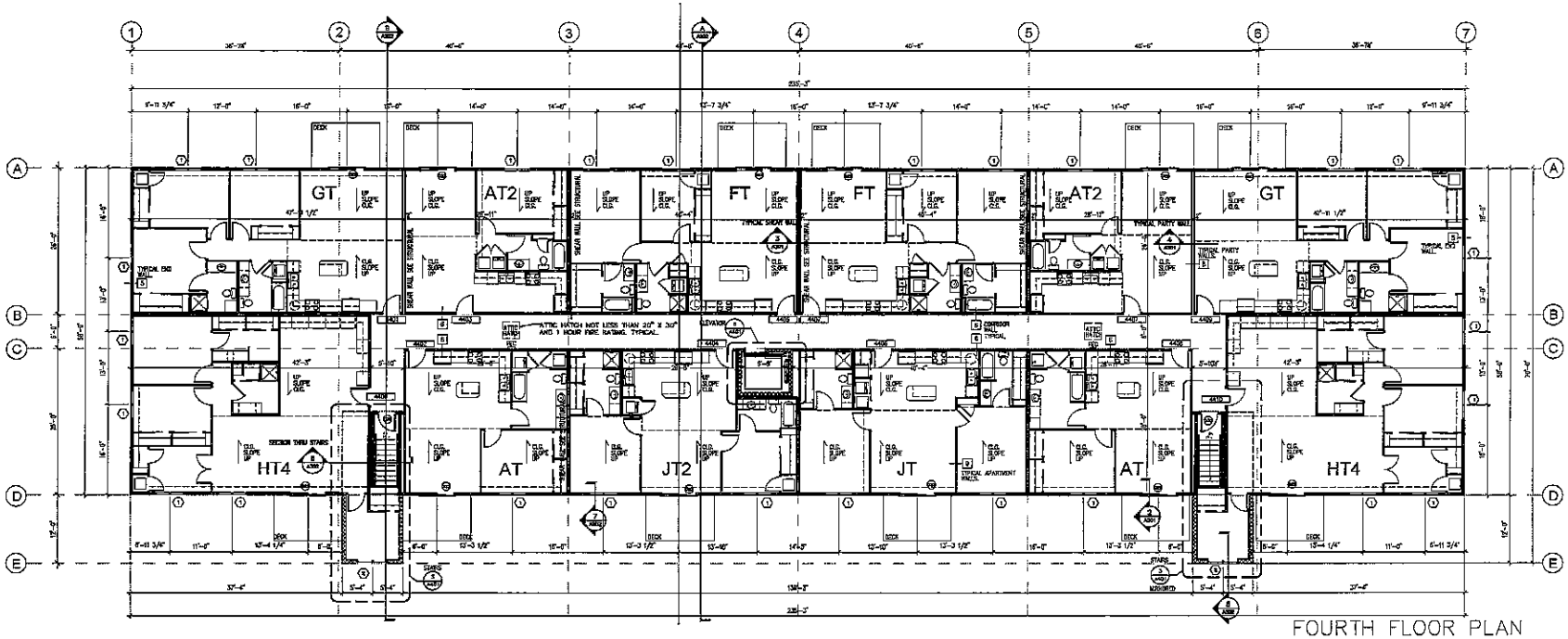


ROOF PLAN
SCALE: 1/8" = 1'-0"



FOURTH FLOOR PLAN
SCALE: 1/8" = 1'-0"

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Fourth Floor Plan
Roof Plan
1/8"=1'-0"

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:	BY	REV.
10-02-13	ISSUE FOR CONSTRUCTION		
11-11-13	PLUMBING REVISIONS		
11-15-13	APARTMENT UNIT LAYOUTS		
11-25-13	DOOR AND ELEVATOR MARKING		
12-12-13	REISSUED FOR CONSTRUCTION		
12-24-13	VARIOUS MODIFICATIONS		

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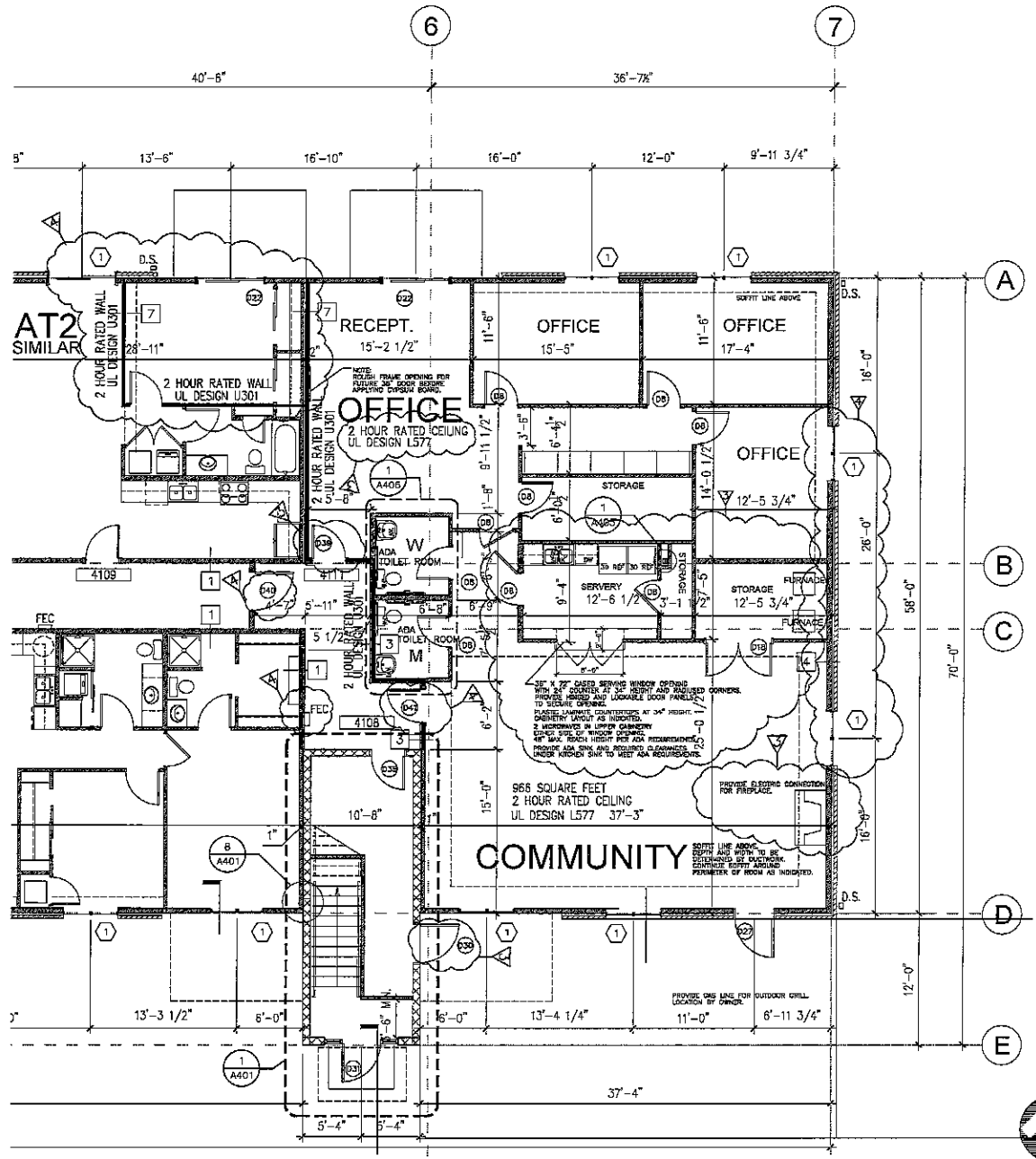

GROUND LEVEL PLAN
SCALE: 1/4" = 1'-0"

A

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Ground Level Plan
Enlarged Community Room
1/4"=1'-0"

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:
10-02-13	SCHEMATIC CONSTRUCTION
11-11-13	PLANNING REVISIONS
11-14-13	APARTMENT UNIT LAYOUTS
11-20-13	DOOR AND ELEVATION MARKS
12-06-13	REVISED FOR CONSTRUCTION
12-24-13	SUNROOM MODIFICATIONS

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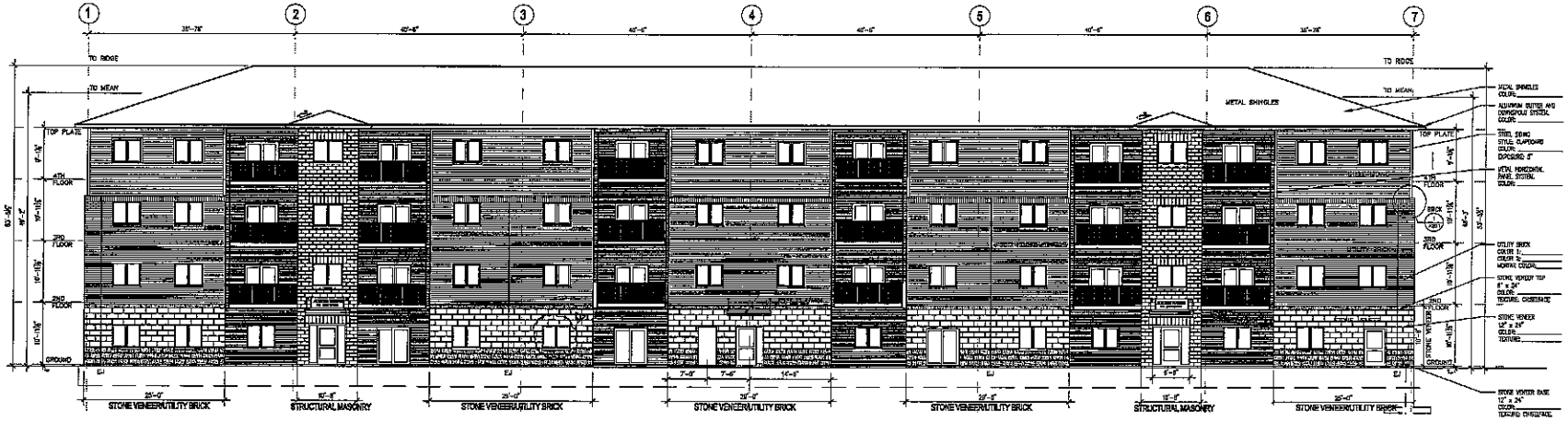
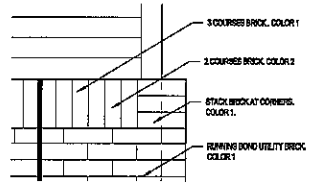
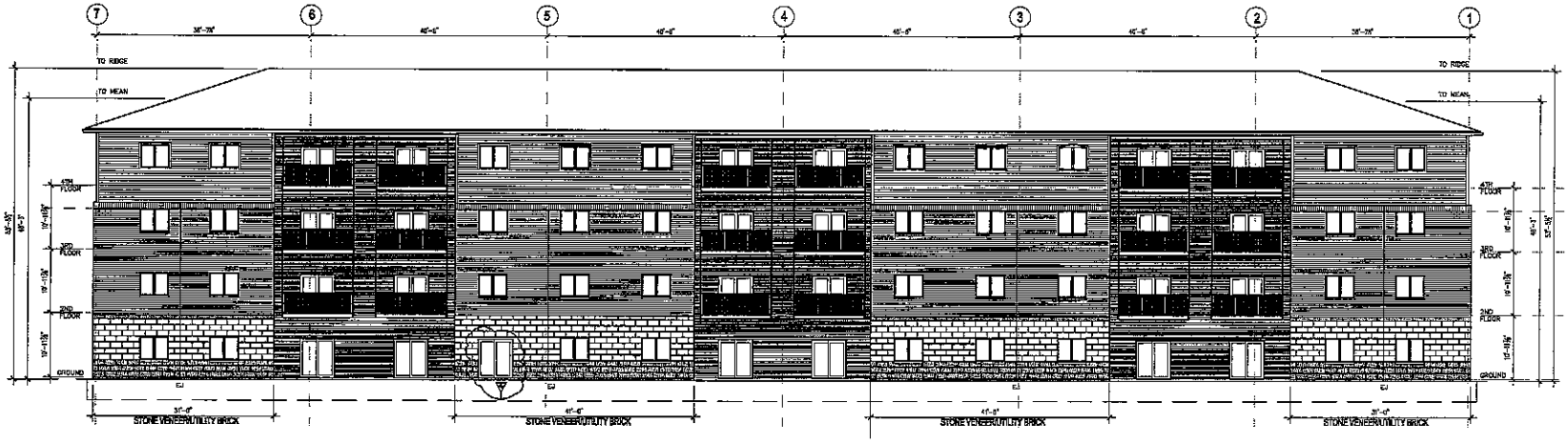


1 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



DETAIL 1–SOLDIER BRICK
SCALE: 1" = 1'-0"



3 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

A

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Exterior Elevations

1/8"=1'-0"

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA

DATE:	DESCRIPTION:	BY:	REV#:
10-02-13	ISSUE FOR CONSTRUCTION		
11-11-13	PLANNING REVISIONS		
11-18-13	APARTMENT UNIT LAYOUTS		
11-20-13	DOOR AND ELEVATION MARKS		
12-05-13	REISSUED FOR CONSTRUCTION		
12-24-13	VARIOUS MODIFICATIONS		

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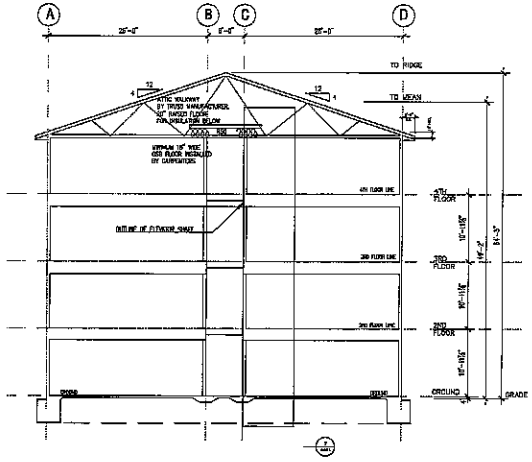
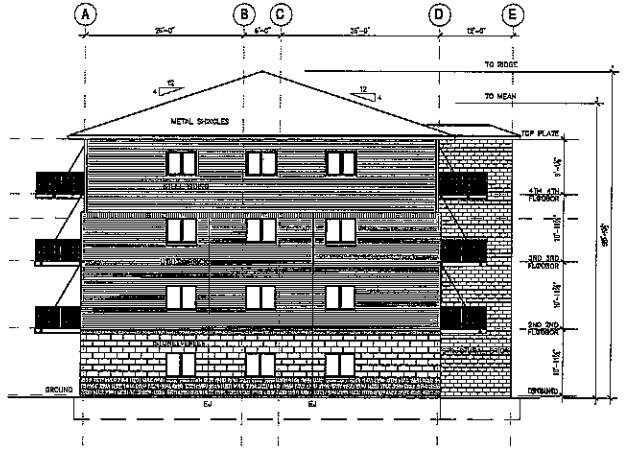
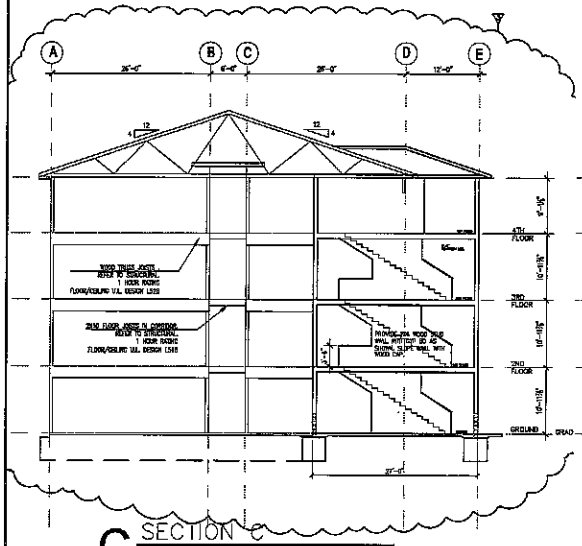


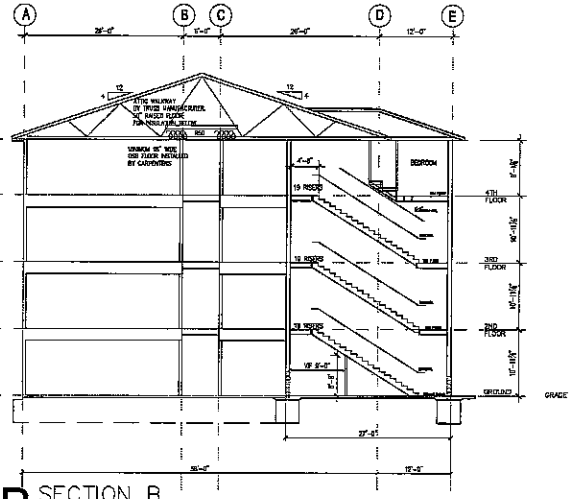
A SECTION A
SCALE: 1/8" = 1'-0"



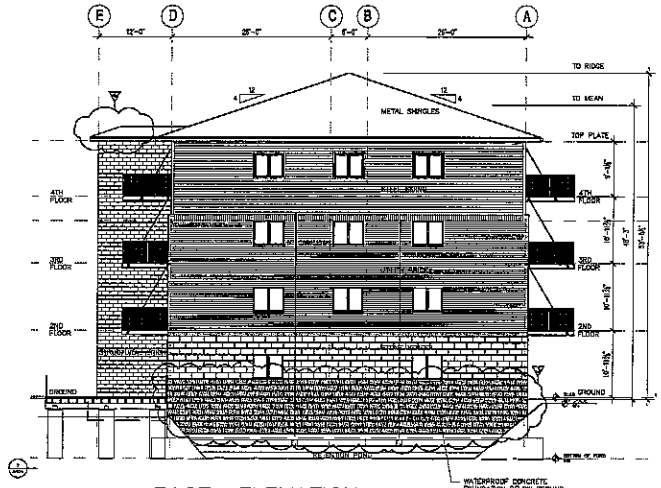
2 WEST ELEVATION
SCALE: 1/8" = 1'-0"



C SECTION C
SCALE: 1/8" = 1'-0"



B SECTION B
SCALE: 1/8" = 1'-0"



4 EAST ELEVATION
SCALE: 1/8" = 1'-0"

A

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Exterior Elevations
Building Sections
1/8"=1'-0"

PROJECT:
Altoona Towers
1414 Adventureland Drive
Altoona, IA

DATE	DESCRIPTION	DRAWN	CHK'D
10-10-13	ISSUE FOR CONSTRUCTION		
11-11-13	PLUMBING REVISIONS		
11-15-13	APARTMENT UNIT LAYOUTS		
11-20-13	DOOR AND ELEVATION VARIENCE		
12-03-13	REISSUED FOR CONSTRUCTION		
12-23-13	VARIOUS MODIFICATIONS		

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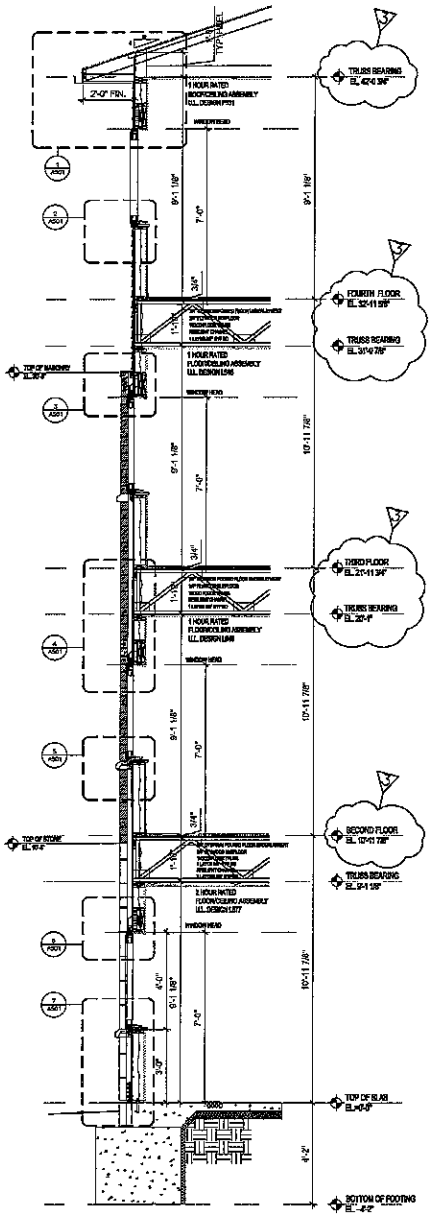
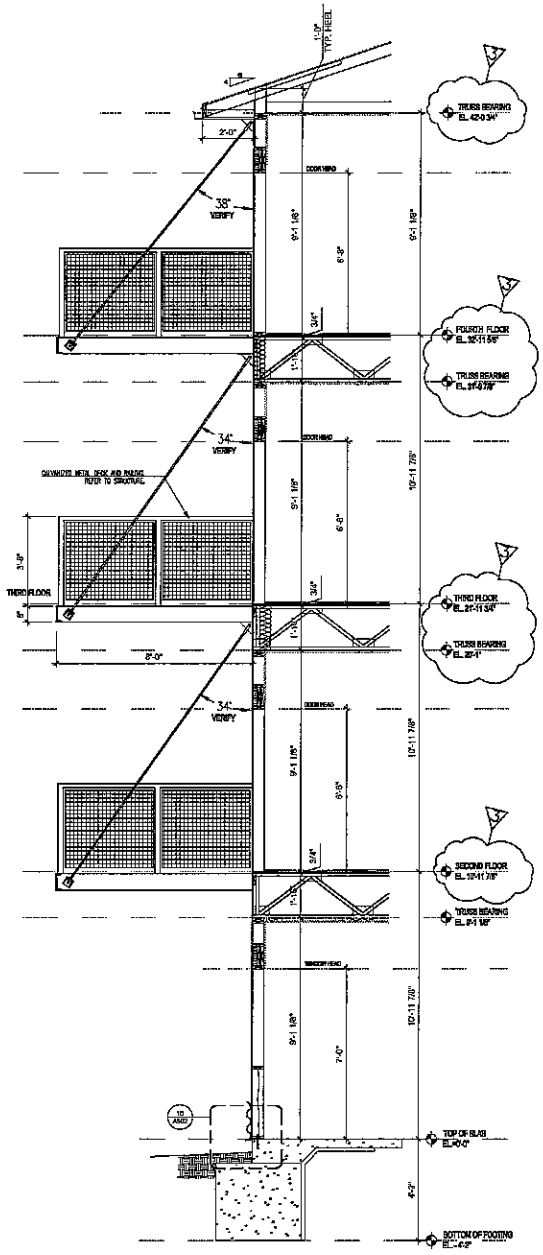
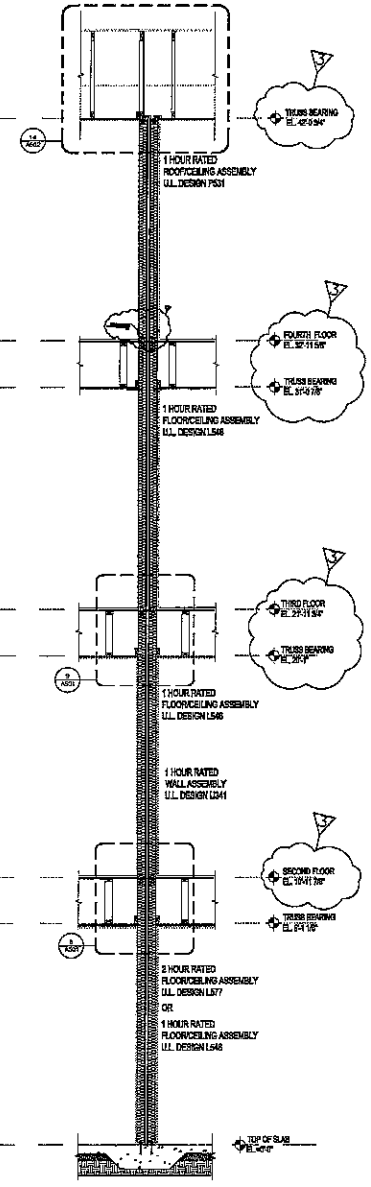


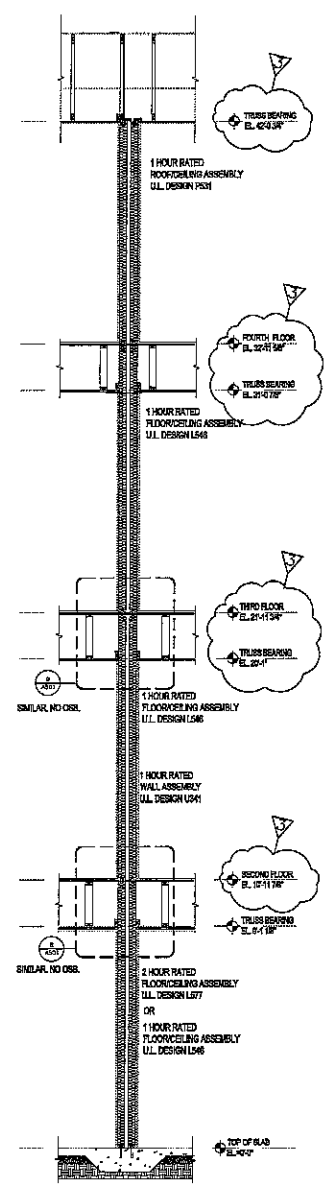
SECTION 1



SECTION 2



SECTION 3
SHEAR WALL



SECTION 4
PARTY WALL

A&B

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Wall Sections

1/2"=1'-0"

PROJECT:
Altoona Towers
1414 7 1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:	BY
11-14-13	DEVELOPMENT COMMITTEE REVIEW	
11-14-13	PERMIT REVIEW	
11-18-13	APARTMENT UNIT LAYOUTS	
11-26-13	DOOR AND ELEVATION MARKUPS	
12-20-13	REISSUED FOR CONSTRUCTION	
12-24-13	VARIOUS MODIFICATIONS	

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A301

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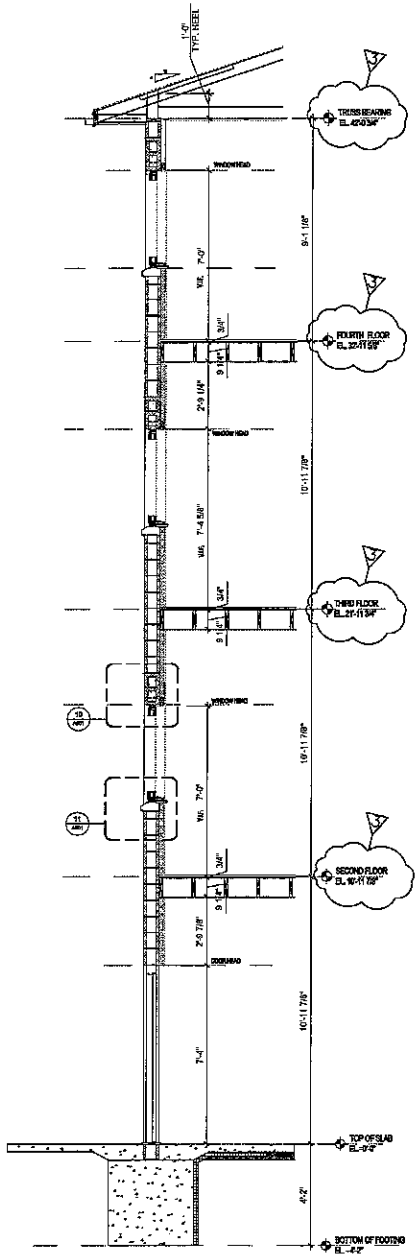
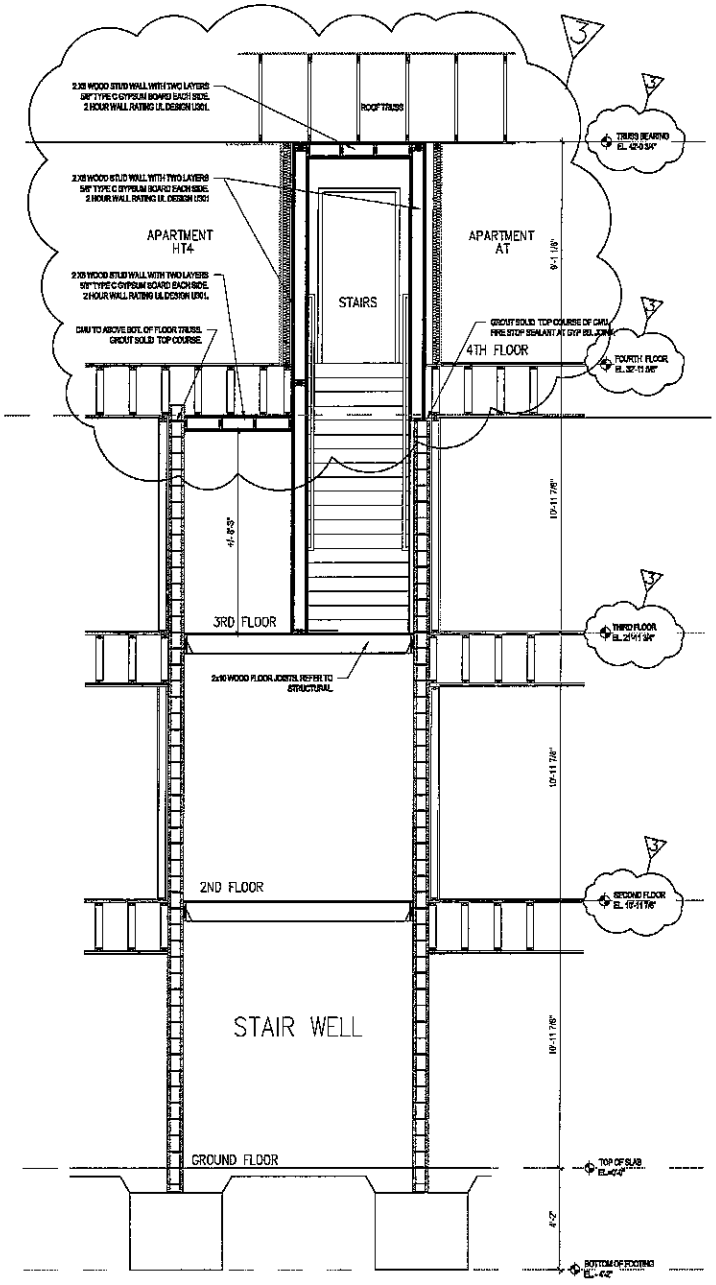
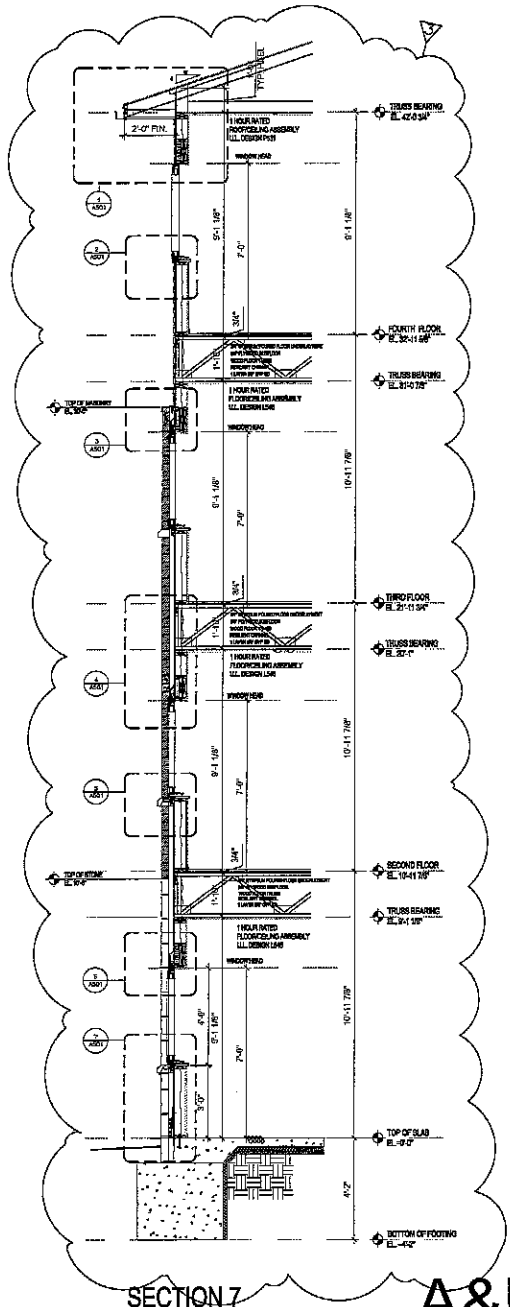


SECTION 5



SECTION 6



SECTION 7

A&B

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Wall Sections

1/2"=1'-0"

PROJECT:
Altoona Towers
1414 7 1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:	BY	REV
10-11-13	PRELIMINARY REVIEW		
11-8-13	APARTMENT LAYOUTS		
12-9-13	DOOR AND ELEVATOR MODIFICATIONS		
12-20-13	REISSUED FOR CONSTRUCTION		
12-24-13	VARIOUS MODIFICATIONS		

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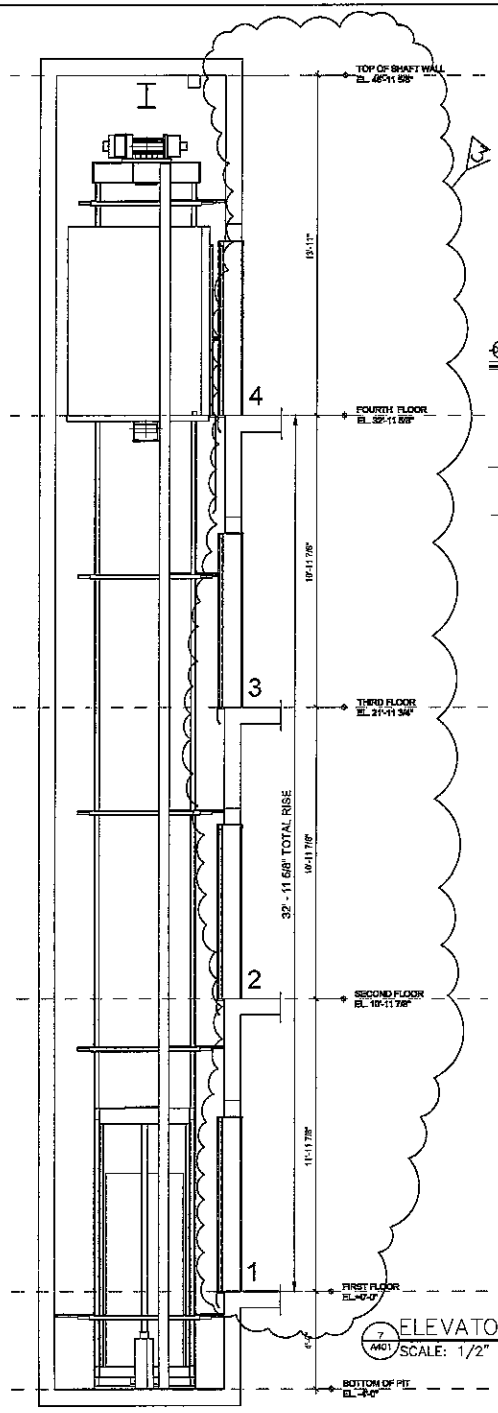
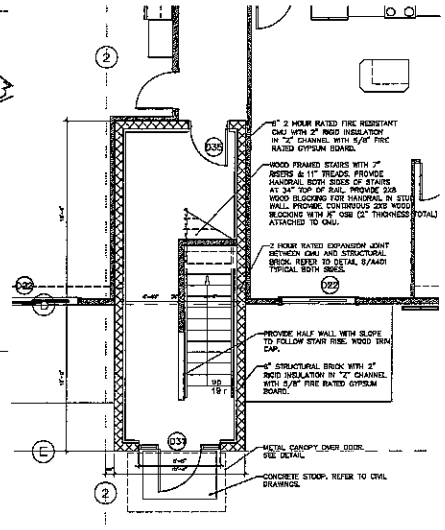
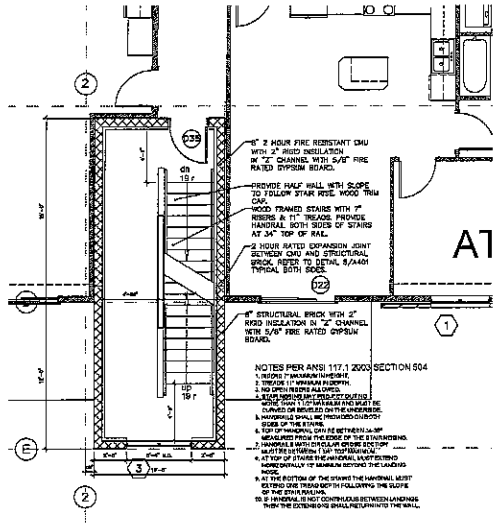


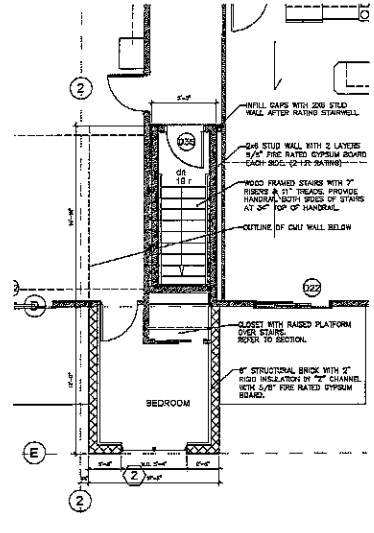
7 A401 ELEVATOR SECTION
SCALE: 1/2" = 1'-0"



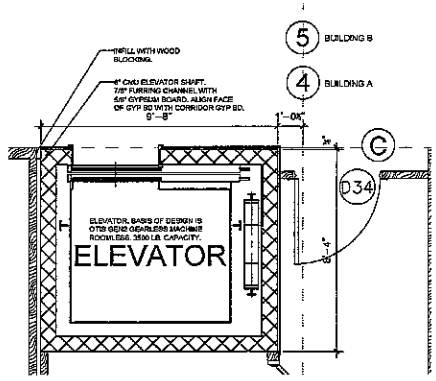
1 A401 GROUND FLOOR PLAN
SCALE: 1/4" = 1'-0"



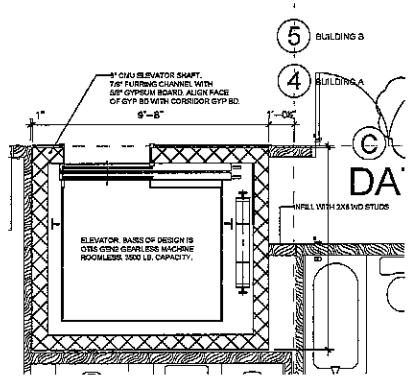
2 A401 SECOND&THIRD FLOOR PLAN
SCALE: 1/4" = 1'-0"



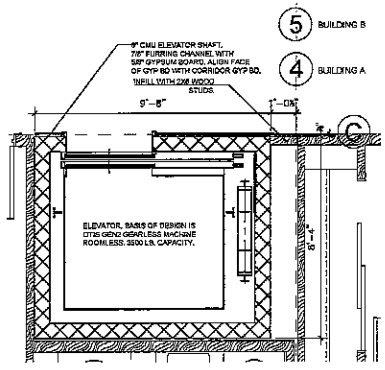
3 A401 FOURTH FLOOR PLAN
SCALE: 1/4" = 1'-0"



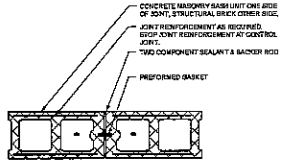
4 A401 GROUND FLOOR PLAN
SCALE: 1/2" = 1'-0"



5 A401 SECOND&THIRD FLOOR PLAN
SCALE: 1/2" = 1'-0"



6 A401 FOURTH FLOOR PLAN
SCALE: 1/2" = 1'-0"



8 A401 2 HR RATED EXPANSION JOINT
SCALE: 1 1/2" = 1'-0"

A&B

13-103

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info@imprintarchitects.com

Stair Plans Enlarged
Elevator Plans Enlarged
AS NOTED

PROJECT:
Altoona Towers
1414 & 1616 Adventure and Drive
Altoona, IA 50009

DATE	ISSUED FOR:
10-25-13	ISSUE FOR CONSTRUCTION
11-14-13	REVISED REINFORCING
12-13-13	REVISED FOR CITY COMMENTS
12-20-13	DOOR AND ELEVATOR MARKING
12-23-13	REISSUED FOR CONSTRUCTION
12-24-13	VARIOUS MODIFICATIONS

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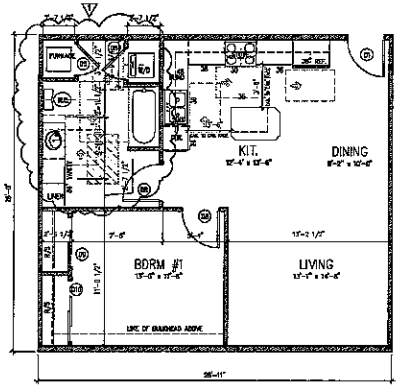
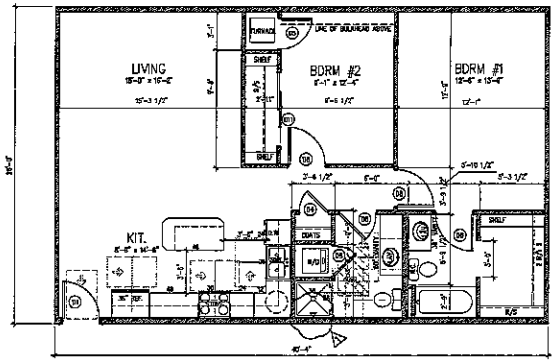


"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT AT

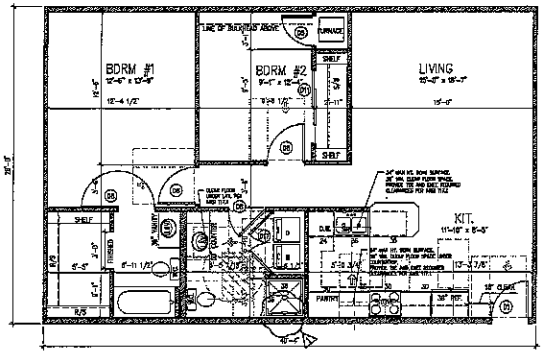
752 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT FT

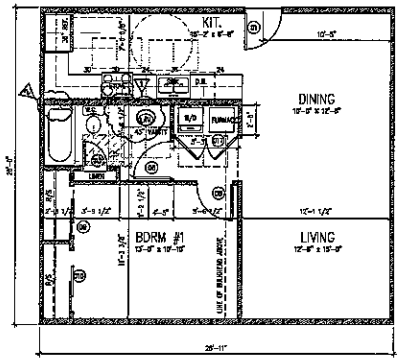
1049 sq ft gross



"A" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1003

UNIT FT2

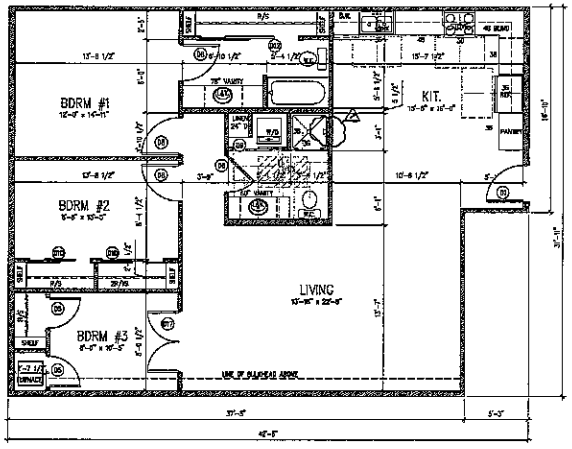
1051 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT AT2

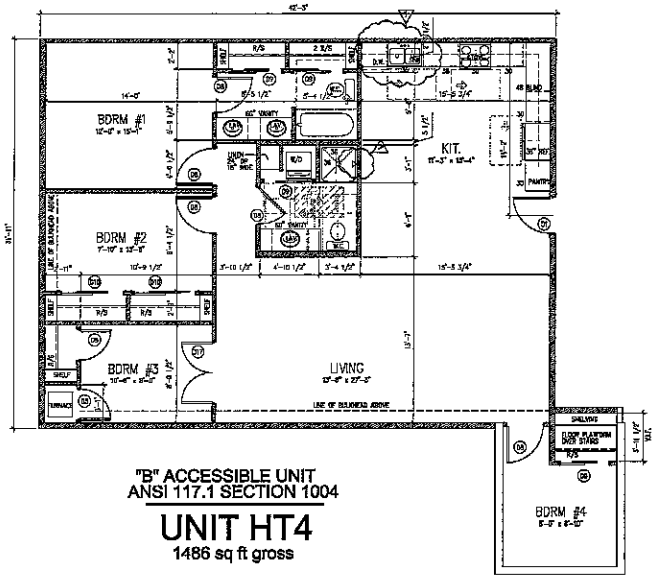
752 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT HT

1277 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT HT4

1486 sq ft gross

WALL TYPES

2 x 4 wood studs

2 x 6 wood studs

A&B

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Enlarged Unit Plans

1/4"=1'-0"

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE:	ISSUED FOR:
10-18-13	ISSUE FOR CONSTRUCTION
11-14-13	PLUMBING REVISIONS
11-26-13	FOUNDATION REVISIONS
12-05-13	ISSUED FOR COMMENTS
12-24-13	VARIOUS ADDEDCATIONS

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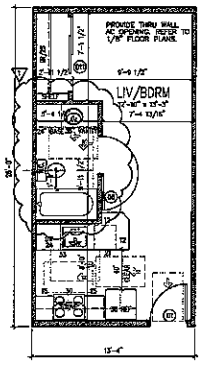
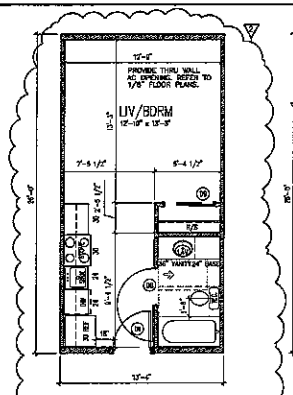


"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT ET

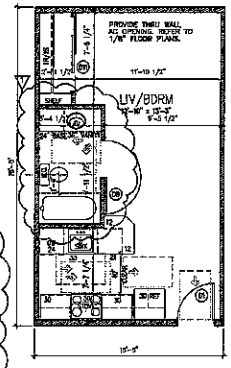
347 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT ET1

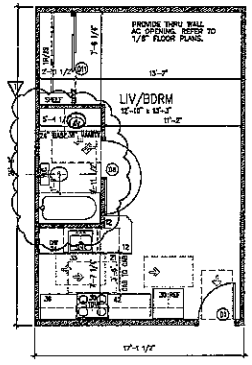
347 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT ET2

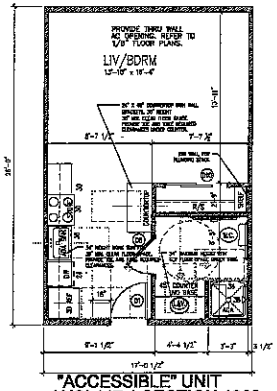
401 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT ET3

445 sq ft gross



"ACCESSIBLE" UNIT
ANSI 117.1 SECTION 1002

UNIT ET4

443 sq ft gross

NOTES:

VERIFY ALL ROUGH IN DIMENSIONS WITH ACTUAL PLUMBING FIXTURES BEFORE CONSTRUCTION OF WALLS.

PROVIDE 33" CLEARANCE WIDTH FROM ALL PROJECTIONS FOR TOILETS.

PROVIDE NO BLOCKING IN WALLS FOR FUTURE GRAB BARS AT ALL WATER CLOSETS, SHOWERS AND BATHTUBS IN ALL UNITS.

CABINETRY IS PERMITTED UNDER TYPE A & B UNIT LAVATORIES IN BATHROOMS PROVIDED THAT THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OR REPLACEMENT OF THE LAVATORY AND THAT ALL FINISHES EXTEND UNDER THE CABINET. IN TYPE B UNITS IF OPTION B IS USED THEN ONLY ONE BATHROOM IN A UNIT NEEDS TO COMPLY WITH THIS REQUIREMENT.
ANSI 117.1 2003, SECTION 1004.11.3

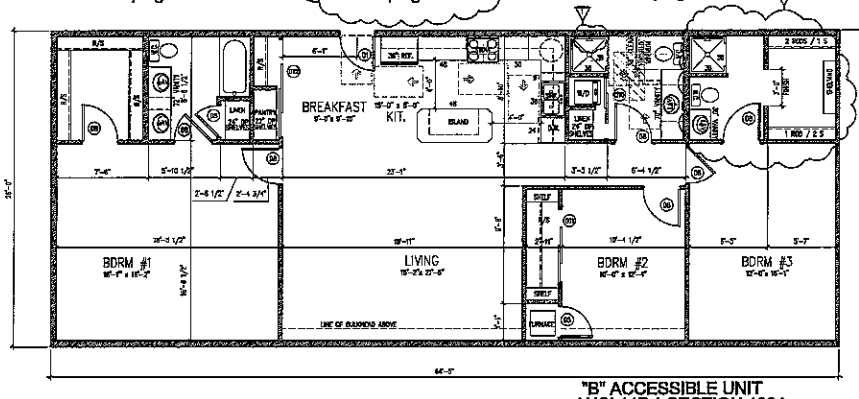
FOR TYPE A UNITS PROVIDE ONE SECTION OF COUNTER WITH A WORK SURFACE OF 30" IN WIDTH WITH A CLEAR FLOOR SPACE UNDER FOR A FORWARD APPROACH. THE WORK SURFACE SHALL BE 34" MAXIMUM IN HEIGHT ABOVE THE FLOOR. CABINETRY SHALL BE PERMITTED UNDER THE WORK SURFACE PROVIDED THAT THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OF THE WORK SURFACE AND THAT ALL FINISHES EXTEND UNDER THE CABINETRY. IF CLEAR SPACE UNDER COUNTER IS USED AS PART OF A T-SHAPED TURNING SPACE THEN A 36" WIDE CLEAR SPACE IS REQUIRED RATHER THAN 30"
ANSI 117.1 2003 SECTIONS 304.3.2 AND 1003.3.2.

FOR TYPE A UNITS THE KITCHEN SINK SHALL HAVE A 30" WIDE CLEAR FLOOR SPACE UNDER FOR A FORWARD APPROACH. THE WORK SURFACE SHALL BE 34" MAXIMUM IN HEIGHT ABOVE THE FLOOR. CABINETRY SHALL BE PERMITTED UNDER THE WORK SURFACE PROVIDED THAT THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OF THE SINK AND COUNTER AND THAT ALL FINISHES EXTEND UNDER THE CABINETRY. IF CLEAR SPACE UNDER COUNTER IS USED AS PART OF A T-SHAPED TURNING SPACE THEN A 36" WIDE CLEAR SPACE IS REQUIRED RATHER THAN 30"
ANSI 117.1 2003 SECTIONS 304.3.2 AND 1003.3.2.

WALL TYPES

2x4 wood studs

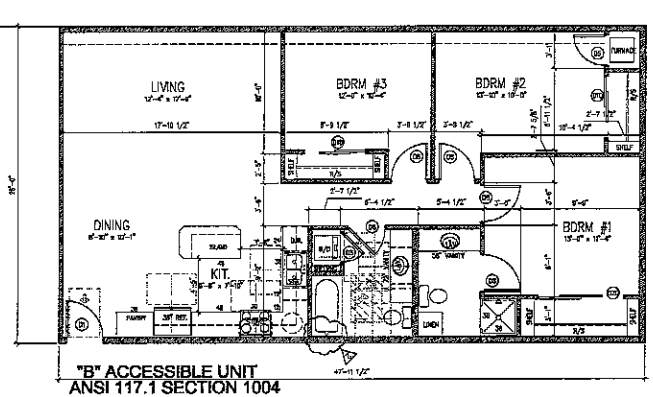
2x6 wood studs



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT MT

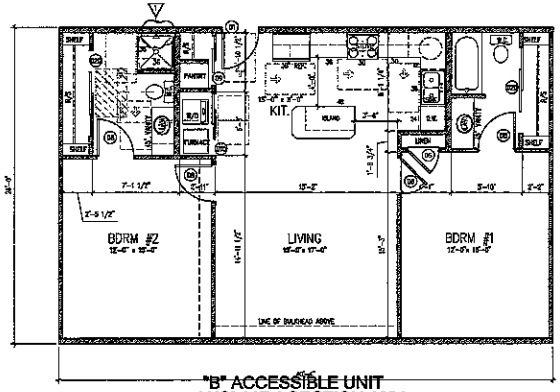
1675 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT GT

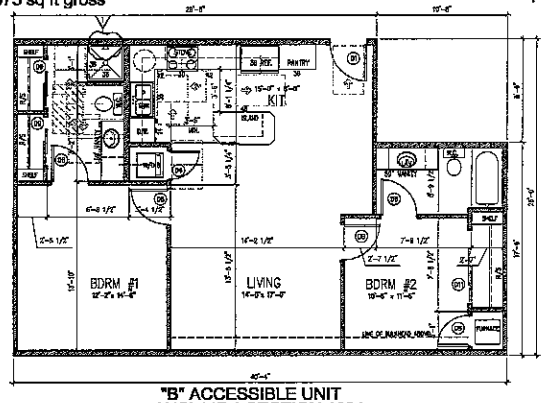
1247 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT JT

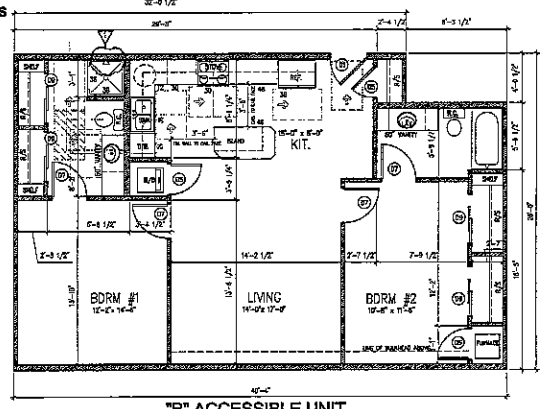
1049 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT JT2

958 sq ft gross



"B" ACCESSIBLE UNIT
ANSI 117.1 SECTION 1004

UNIT JT3

958 sq ft gross

A&B

13-103

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Enlarged Unit Plans

1/4"=1'-0"

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE:	ISSUED FOR:
10-24-13	ISSUE FOR CONSTRUCTION
11-14-13	PLUMBING REVISIONS
12-05-13	ELEVATOR REVISIONS
12-20-13	DOOR AND ELEVATION VARIENCE
12-20-13	REISSUED FOR CONSTRUCTION
12-20-13	VARIOUS MODIFICATIONS

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A403

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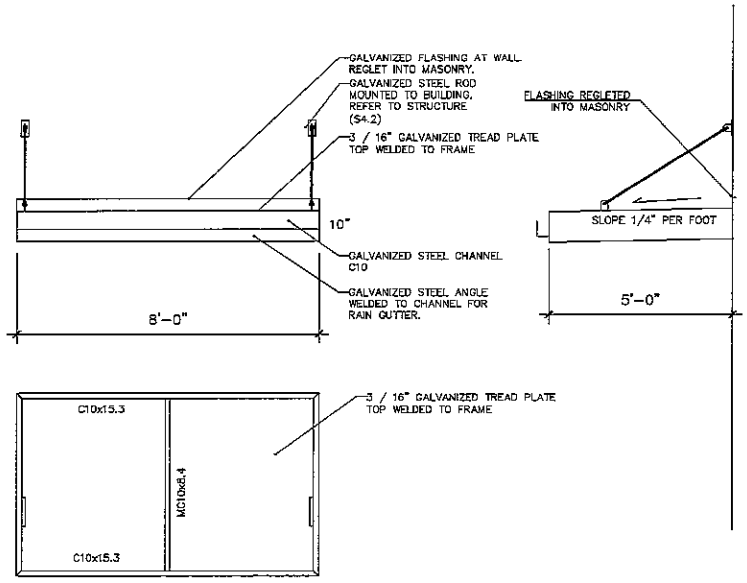
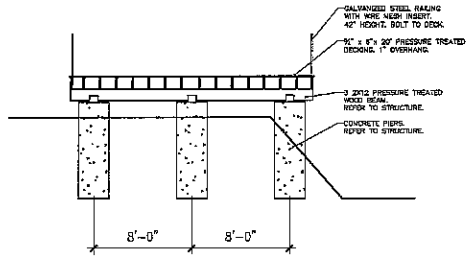
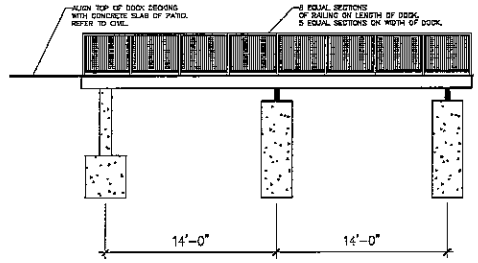


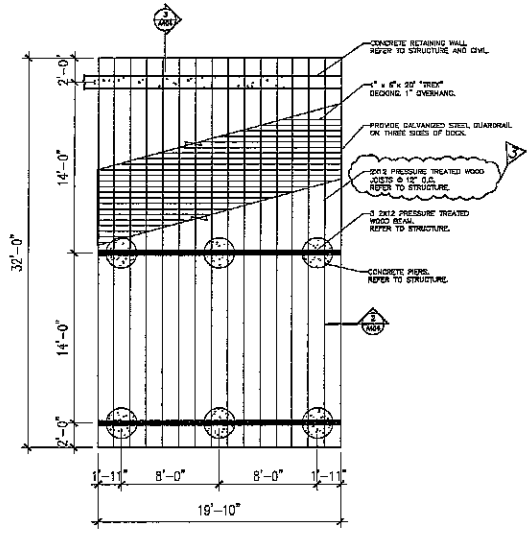
4 A404 CANOPY
SCALE: 3/4" = 1'-0"



2 A404 SECTION @ DOCK
SCALE: 1/4" = 1'-0"



3 A404 SECTION @ DOCK
SCALE: 1/4" = 1'-0"



1 A404 DOCK PLAN
SCALE: 1/4" = 1'-0"

A

13-103

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Dock Plan and Sections
Details
As Noted

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUE/REV	DRAWN BY	APP'D BY
10-25-13	ISSUE FOR CONSTRUCTION		
11-15-13	PLANNING REVISIONS		
11-18-13	APARTMENT UNIT LAYOUTS		
11-26-13	DOOR AND ELEVATION UNIFORMS		
12-20-13	REISSUED FOR CONSTRUCTION		
12-23-13	VARIOUS MODIFICATIONS		

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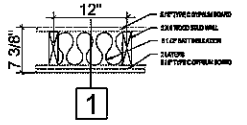
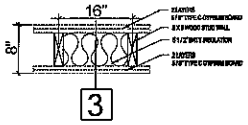
WALL TYPES



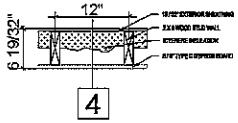
U.L. U327
1 hour

WALL TYPE 1

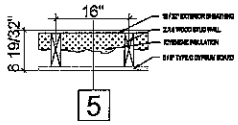


U.L. U301
2 hour

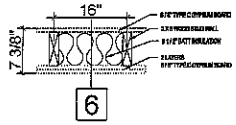
WALL TYPE 2



WALL TYPE 4

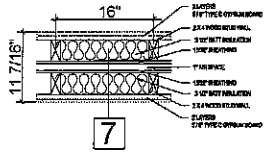


WALL TYPE 5



U.L. U327
1 hour

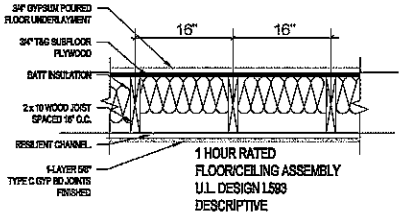
WALL TYPE 6



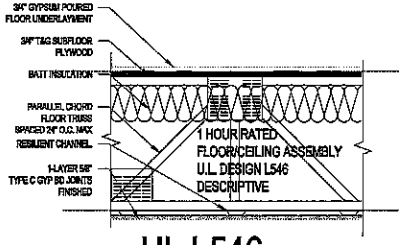
U.L. U301
2 hour

WALL TYPE 7

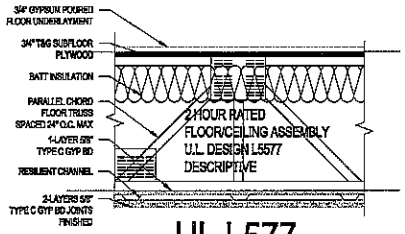
FLOOR/CEILING ASSEMBLIES



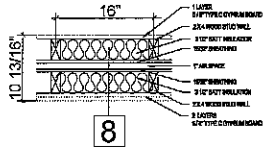
UL L593
STC 57
IIC 73 with carpet
1 hour



UL L546
STC 56-58
IIC 74 with carpet
1 hour

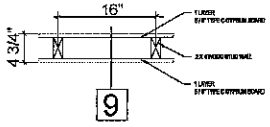


UL L577
2 hour



U.L. U327
1 hour

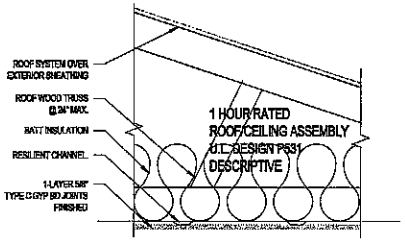
WALL TYPE 8



U.L. U327
1 hour

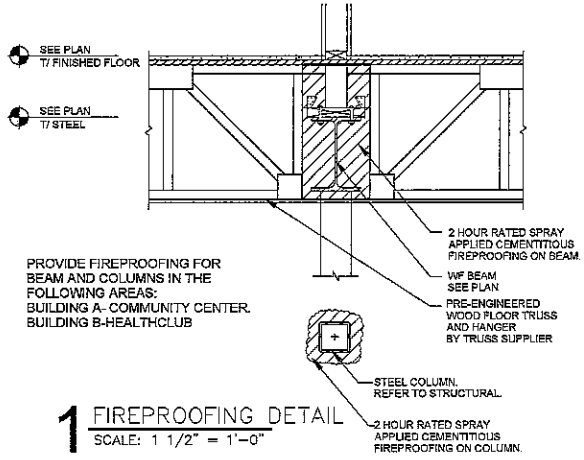
WALL TYPE 9

ROOF/CEILING ASSEMBLIES



UL P531
1 hour

FIREPROOFING



PROVIDE FIREPROOFING FOR BEAM AND COLUMNS IN THE FOLLOWING AREAS:
BUILDING A- COMMUNITY CENTER.
BUILDING B-HEALTHCLUB

1 FIREPROOFING DETAIL
SCALE: 1 1/2" = 1'-0"

A&B

13-103

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Wall Types
Floor/Ceiling Assemblies
1 1/2"=1'-0"

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE:	ISSUED FOR:
10-07-13	ISSUE FOR CONSTRUCTION
11-11-13	PLANNING REVISIONS
11-18-13	AVIARY/HEIGHT WEST LAYOUTS
11-20-13	DOOR AND ELEVATION MARKS
12-02-13	REISSUED FOR CONSTRUCTION
12-24-13	VARIOUS MODIFICATIONS

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A405

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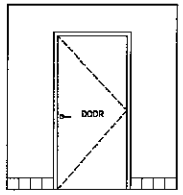
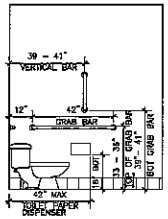
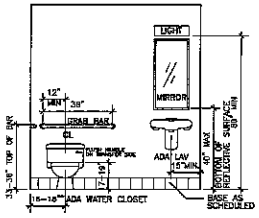
ADA 2010
SINGLE-USER TOILET ROOM



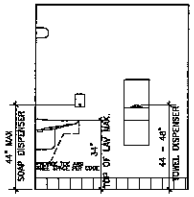
TOILET ROOM ELEVATION 1



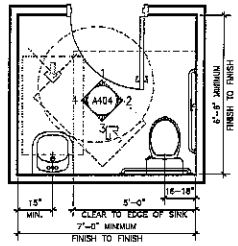
TOILET ROOM ELEVATION 2



TOILET ROOM ELEVATION 3



TOILET ROOM ELEVATION 4



TYPICAL ADA TOILET ROOM PLAN

NOTES:

VERIFY ALL ROUGH IN DIMENSIONS WITH ACTUAL PLUMBING FIXTURES BEFORE CONSTRUCTION OF WALLS.

PROVIDE 33" CLEARANCE WIDTH FROM ALL PROJECTIONS FOR TOILETS.

PROVIDE WD BLOCKING IN WALLS FOR FUTURE GRAB BARS AT ALL WATER CLOSETS, SHOWERS AND BATHTUBS IN BOTH TYPE A & B UNITS.

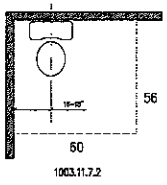
CABINETRY IS PERMITTED UNDER TYPE A UNIT AND TYPE B/B UNIT LAVATORIES IN BATHROOMS PROVIDED THAT THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OR REPLACEMENT OF THE LAVATORY AND THAT ALL FINISHES EXTEND UNDER THE CABINET.
ANSI 117.1 2003, SECTION 1003.11.6
ANSI 117.1 2003, SECTION 1004.11.3.2.1.1

FOR TYPE A UNITS PROVIDE ONE SECTION OF COUNTER WITH A WORK SURFACE OF 30" IN WIDTH WITH A CLEAR FLOOR SPACE UNDER FOR A FORWARD APPROACH. THE WORK SURFACE SHALL BE 34" MAXIMUM IN HEIGHT ABOVE THE FLOOR. CABINETRY SHALL BE PERMITTED UNDER THE WORK SURFACE PROVIDED THAT THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OF THE WORK SURFACE AND THAT ALL FINISHES EXTEND UNDER THE CABINETRY.
IF CLEAR SPACE UNDER COUNTER IS USED AS PART OF A T-SHAPED TURNING SPACE THEN A 36" WIDE CLEAR SPACE IS REQUIRED RATHER THAN 30"
ANSI 117.1 2003 SECTIONS 304.3.2 AND 1003.3.2.

FOR TYPE A UNITS THE KITCHEN SINK SHALL HAVE A 30" WIDE CLEAR FLOOR SPACE UNDER FOR A FORWARD APPROACH. THE WORK SURFACE SHALL BE 34" MAXIMUM IN HEIGHT ABOVE THE FLOOR. CABINETRY SHALL BE PERMITTED UNDER THE WORK SURFACE PROVIDED THAT THE CABINETRY CAN BE REMOVED WITHOUT REMOVAL OF THE SINK AND COUNTER AND THAT ALL FINISHES EXTEND UNDER THE CABINETRY.
IF CLEAR SPACE UNDER COUNTER IS USED AS PART OF A T-SHAPED TURNING SPACE THEN A 36" WIDE CLEAR SPACE IS REQUIRED RATHER THAN 30"
ANSI 117.1 2003 SECTIONS 304.3.2 AND 1003.3.2.

ANSI 117.1 2003
TYPE A UNIT

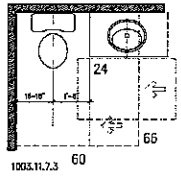
MINIMUM CLEARANCE
60 x 56



1003.11.7.2

BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 604.5 EXCEPTION 3.

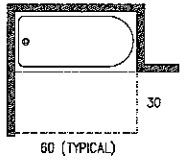
CLEARANCE WITH LAV EXCEPTION
60 x 66



1003.11.7.3

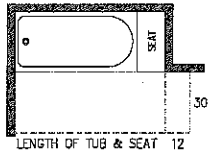
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 604.5 EXCEPTION 3.

CLEARANCE WITHOUT PERMANENT SEAT
30 x LENGTH OF TUB



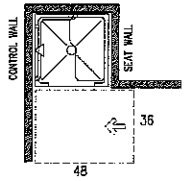
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 607.4 EXCEPTION 2.

CLEARANCE WITH PERMANENT SEAT
30 x LENGTH OF TUB + 12



BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 607.4 EXCEPTION 2.

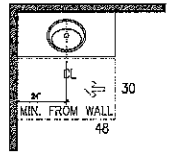
TRANSFER TYPE SHOWER
PARALLEL APPROACH
30 x 48



BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 608.3 EXCEPTION 2.
BLOCKING REQUIRED FOR FUTURE SHOWER SEAT.
SHOWER SEAT NOT REQUIRED. 608.4 EXCEPTION 2.
1/2" MAXIMUM THRESHOLD. 608.7

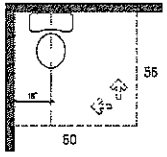
TYPE A&B UNIT

LAV CLEARANCE
30 X 48



ANSI 117.1 2003
TYPE B UNIT

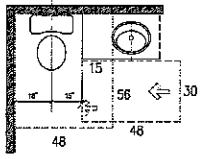
PARALLEL OR
FORWARD APPROACH
60 x 56



1004.11.3.1.2.3

BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.11.2

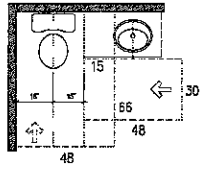
PARALLEL APPROACH
48 x 56



1004.11.3.1.2.1

BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.11.2

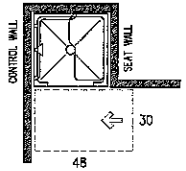
FORWARD APPROACH
48 x 66



1004.11.3.1.2.2

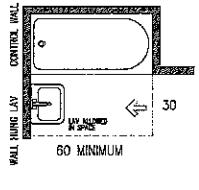
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.11.2

TRANSFER TYPE SHOWER
PARALLEL APPROACH
30 x 48



BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.1.2
BLOCKING REQUIRED FOR FUTURE SHOWER SEAT.
SHOWER SEAT NOT REQUIRED. 1004.11.2
NO THRESHOLD REQUIREMENT

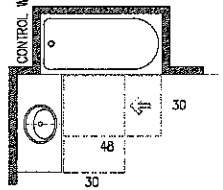
PARALLEL APPROACH
TYPE B OPTION A CLEARANCE
30 x 60 MINIMUM



BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.1.2

FIGURE 1004.11.3.1.3.1

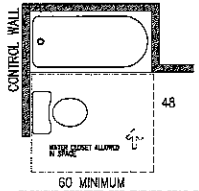
PARALLEL APPROACH
TYPE B OPTION A CLEARANCE
30 x 48



BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.1.2

FIGURE 1004.11.3.1.3.1

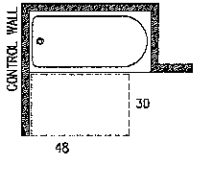
FORWARD APPROACH
TYPE B OPTION A CLEARANCE
30 x 60 MINIMUM



BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.1.2

FIGURE 1004.11.3.1.3.2

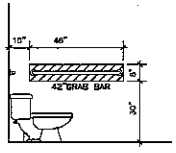
TYPE B OPTION B CLEARANCE
30 x 48 MINIMUM



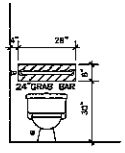
BLOCKING REQUIRED FOR FUTURE GRAB BARS
GRAB BARS NOT REQUIRED. 1004.1.2

FIGURE 1004.11.3.2.3.1

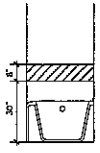
ANSI 117.1 2003
GRAB BAR REINFORCING



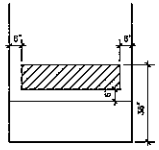
TOILET-SIDE



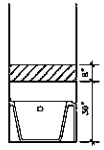
TOILET-FRONT



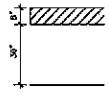
TUB-CONTROL WALL



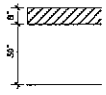
TUB-REAR WALL



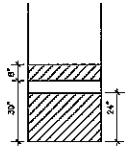
TUB-SIDE WALL



SHOWER-CONTROL WALL



SHOWER-BACK WALL



SHOWER-SIDE WALL

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Plans & Elevations
ADA, Type A & Type B Units
1/2"=1'-0"

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA

DATE	ISSUED FOR:	BY	REV
10-04-13	ISSUE FOR CONSTRUCTION		
11-11-13	PLUMBING REVISIONS		
11-26-13	APARTMENT UNIT LAYOUTS		
11-26-13	DOOR AND ELEVATION MARKING		
12-06-13	REISSUED FOR CONSTRUCTION		
12-24-13	VARIOUS MINOR CHANGES		

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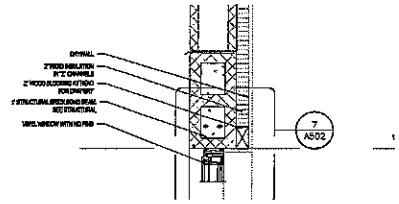
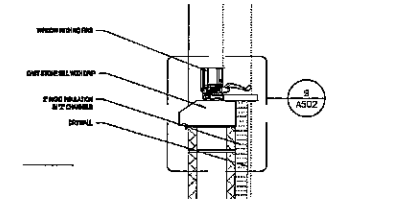
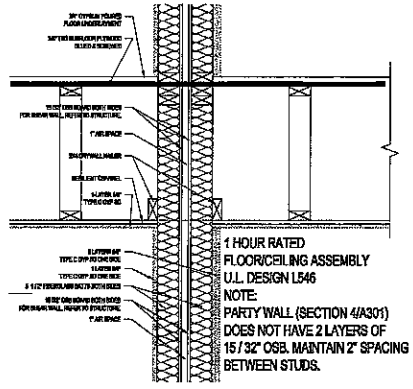


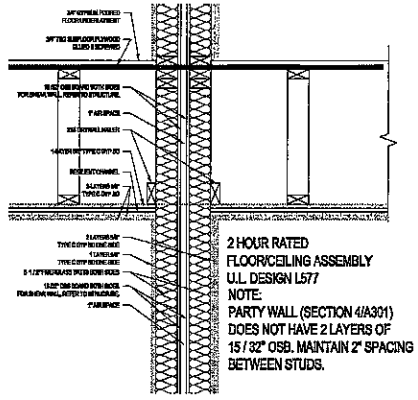
WALL DETAIL 10
SCALE: 1 1/2" = 1'-0"



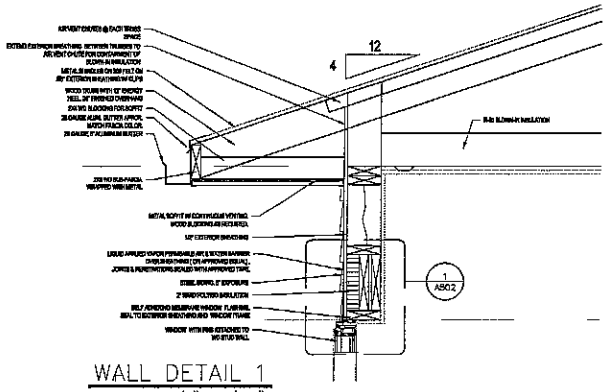
WALL DETAIL 11
SCALE: 1 1/2" = 1'-0"



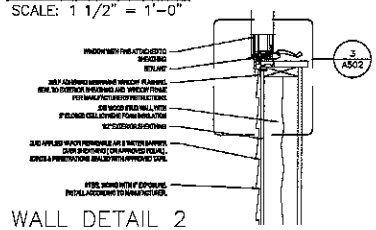
WALL DETAIL 9
SCALE: 1 1/2" = 1'-0"



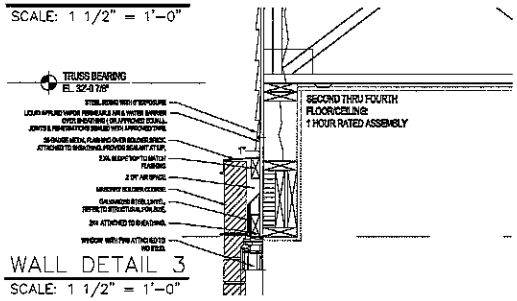
WALL DETAIL 8
SCALE: 1 1/2" = 1'-0"



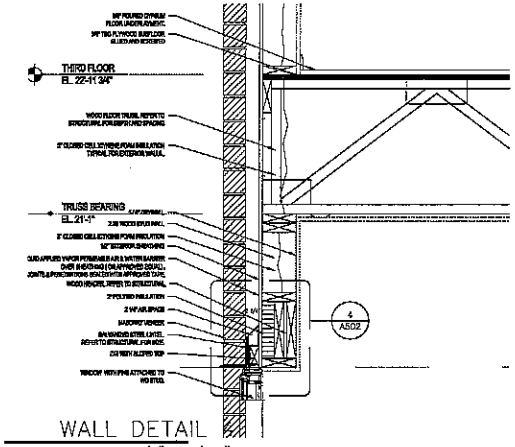
WALL DETAIL 1
SCALE: 1 1/2" = 1'-0"



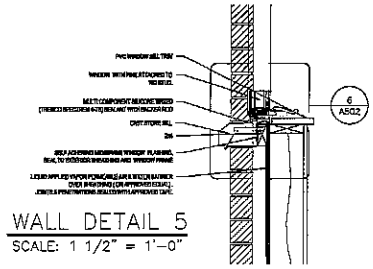
WALL DETAIL 2
SCALE: 1 1/2" = 1'-0"



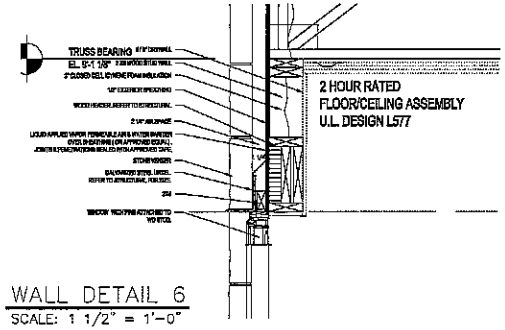
WALL DETAIL 3
SCALE: 1 1/2" = 1'-0"



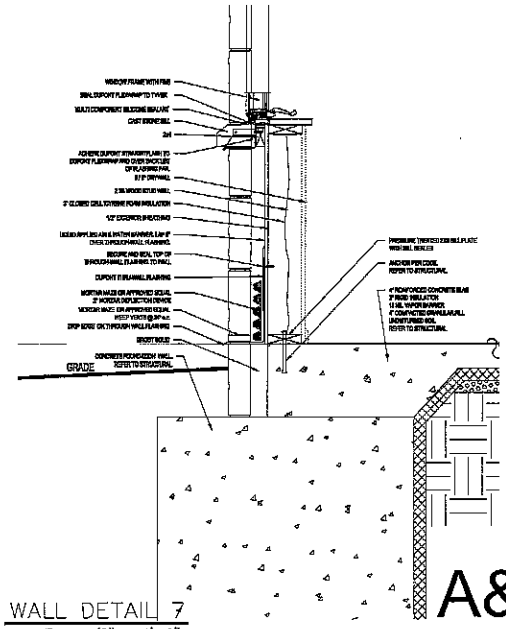
WALL DETAIL
SCALE: 1 1/2" = 1'-0"



WALL DETAIL 5
SCALE: 1 1/2" = 1'-0"



WALL DETAIL 6
SCALE: 1 1/2" = 1'-0"



WALL DETAIL 7
SCALE: 1 1/2" = 1'-0"

A&B

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Wall Section Details
1 1/2"=1'-0"

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE:	ISSUED FOR:	1ST	2ND
09-02-13	ISSUE FOR CONSTRUCTION		
11-11-13	PLUMBING REVISIONS		
11-18-13	APARTMENT UNIT LAYOUTS	V	
11-20-13	DOOR AND ELEVATION MARKS		
12-02-13	REISSUED FOR CONSTRUCTION		
12-24-13	VARIOUS MODIFICATIONS		

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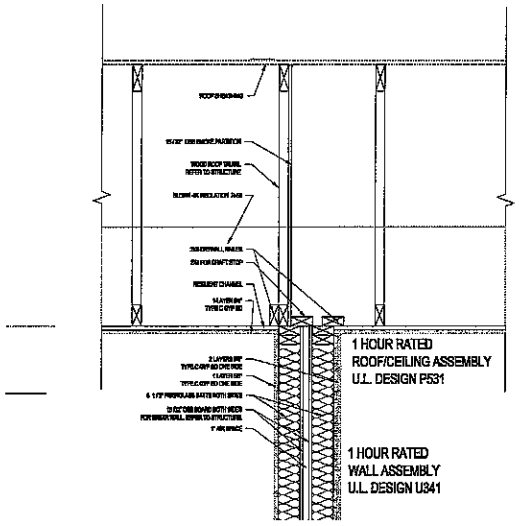
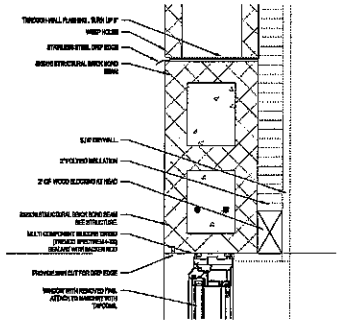
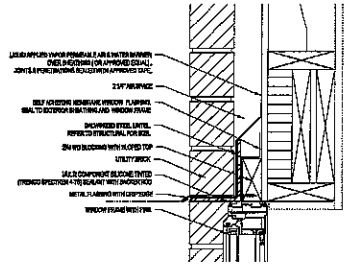


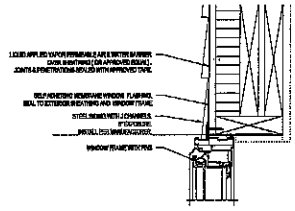
DETAIL 14– DRAFTSTOP AT ROOF
SCALE: 1 1/2" = 1'–0"



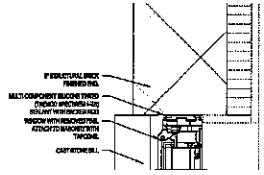
HEAD DETAIL 7
SCALE: 3" = 1'–0"



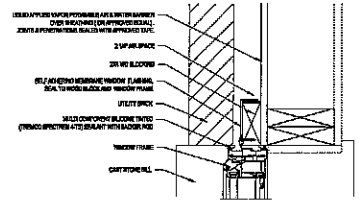
HEAD DETAIL 4
SCALE: 3" = 1'–0"



HEAD DETAIL 1
SCALE: 3" = 1'–0"



JAMB DETAIL 8
SCALE: 3" = 1'–0"



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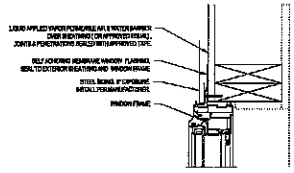

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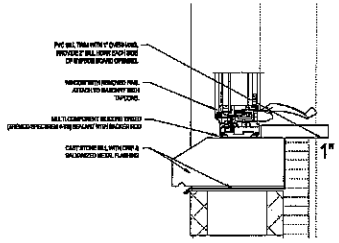
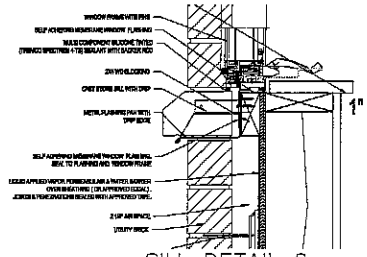
SCALE: 3" = 1'–0"



SILL DETAIL 9
SCALE: 3" = 1'–0"



SILL DETAIL 6
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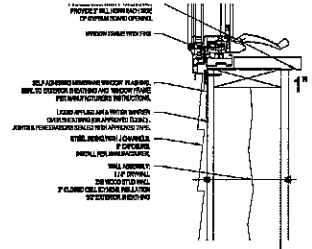
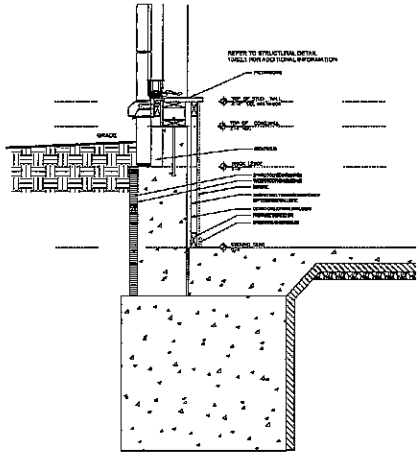
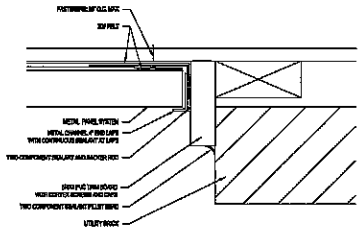


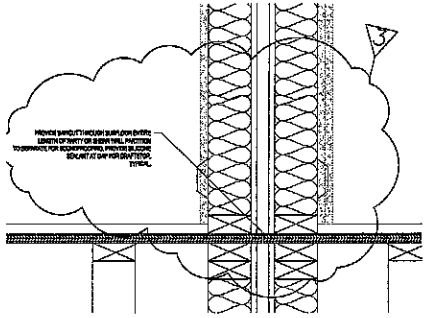
SILL DETAIL 3
SCALE: 3" = 1'–0"



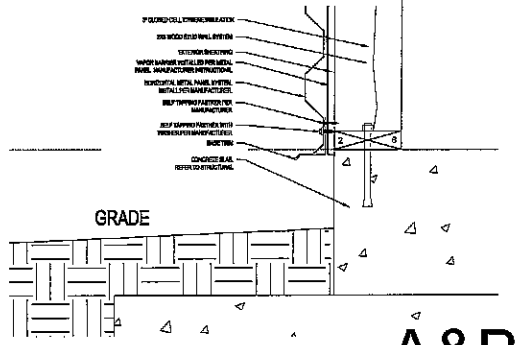
DETAIL 13–KNEE WALL SECTION
SCALE: 1" = 1'–0"



DETAIL 12 –TRIM AT MASONRY
SCALE: 6" = 1'–0"



DETAIL 11 – SAWCUT
SCALE: 3" = 1'–0"



DETAIL 10 –SILL AT DECK SLAB
SCALE: 3" = 1'–0"

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13-103

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Details
3"=1'-0"

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE:	ISSUED FOR:	BY:
10-20-13	ISSUE FOR CONSTRUCTION	
11-01-13	PLUMBING REVISIONS	
11-20-13	APARTMENT UNIT LAYOUTS	
12-20-13	DOOR AND ELEVATION MARKING	
12-24-13	REISSUED FOR CONSTRUCTION	
12-24-13	VARIOUS REVISIONS	

DEC 24 2013

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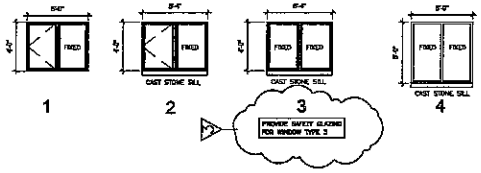
WINDOW SCHEDULE

WINDOW #	TYPE	MAT'L	FRAME R.O. SIZE W	FRAME R.O. SIZE H	GLASS	LABEL	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	REMARKS	WINDOW #
1	DH3	VINYL	3'-0"	4'-0"	CLEAR	-	-	-	-	FIXED-Unit side, PROVIDE Fins	1
2	DH3	VINYL	3'-0"	4'-0"	CLEAR	-	-	-	-	FIXED-Unit side, NO Fins	2
3	DH3	VINYL	3'-0"	4'-0"	CLEAR	-	-	-	-	FIXED-BOTH SIDES, NO FINS	3
4	DH3	VINYL	3'-0"	3'-0"	TINT	-	-	-	-	FIXED-BOTH SIDES, NO FINS	4

WINDOW TYPES



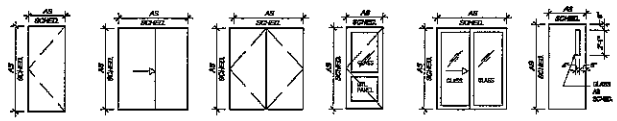
DOOR & FRAME SCHEDULE

DOOR #	TYPE	MAT'L	SIZE T	SIZE W	SIZE H	GLASS	LABEL	TYPE	MAT'L	GLASS	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	LABEL	HDWR SET	REMARKS	DOOR #
101	A	WD	1 3/4"	3'-0"	7'-0"	-	20 MIN	1	WD	-	-	-	-	20 MIN	-	-	101
102	A	WD	1 3/4"	3'-0"	7'-0"	-	-	1	WD	-	-	-	-	-	-	-	102
103	A	WD	1 3/4"	3'-0"	7'-0"	-	-	1	WD	-	-	-	-	-	-	-	103
104	A	WD	1 3/4"	2'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	104
105	A	WD	1 3/4"	2'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	105
106	A	WD	1 3/4"	2'-0"	7'-0"	-	-	1	WD	-	-	-	-	-	-	-	106
107	A	WD	1 3/4"	2'-0"	7'-0"	-	-	1	WD	-	-	-	-	-	-	-	107
108	A	WD	1 3/4"	2'-0"	7'-0"	-	-	2	RF	-	-	-	-	-	-	-	108
109	B	WD	1 3/4"	4'-0"	7'-0"	-	-	1	WD	-	-	-	-	-	-	-	109
310	B	WD	1 3/4"	3'-0"	7'-0"	-	-	1	WD	-	-	-	-	-	-	-	310
311	B	WD	1 3/4"	3'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	311
312	B	WD	1 3/4"	3'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	-	312
313	B	WD	1 3/4"	10'-0"	4'-0"	-	-	1	WD	-	-	-	-	-	-	-	313
314	C	WD	1 3/4"	3'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	314
315	C	WD	1 3/4"	4'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	315
316	C	WD	1 3/4"	4'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	316
317	C	WD	1 3/4"	3'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	317
318	C	WD	1 3/4"	6'-0"	6'-0"	-	-	2	RF	-	-	-	-	-	-	PAINT	318
319	C	WD	1 3/4"	6'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	319
320	B	WD	1 3/4"	7'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	320
321	C	WD	1 3/4"	6'-0"	6'-0"	-	-	1	WD	-	-	-	-	-	-	PAINT	321
322	C	VINYL	1 3/4"	6'-0"	6'-0"	-	-	-	VINYL	-	-	-	-	-	-	SLIDER	322
323	B	ALUM	1 3/4"	3'-0"	6'-0"	-	-	4	ALUM	-	-	-	-	-	-	-	323
324	B	ALUM	1 3/4"	3'-0"	6'-0"	-	-	5	ALUM	-	-	-	-	-	-	-	324
325	B	ALUM	1 3/4"	3'-0"	7'-0"	-	-	4	ALUM	-	-	-	-	-	-	-	325
326	B	ALUM	1 3/4"	3'-0"	7'-0"	-		5	ALUM	-	-	-	-		-		326
327	B	ALUM	1 3/4"	3'-0"	6'-10"	-		4	ALUM	-	-	-	-		-		327
328	B	ALUM	1 3/4"	3'-0"	6'-0"	-		5	ALUM	-	-	-	-		-		328
329	B	ALUM	1 3/4"	3'-0"	7'-0"	-		4	ALUM	-	-	-	-		-		329
330	F	GW	1 3/4"	3'-0"	7'-2"	90 MIN		9	GW	-	-	-	-	90 MIN	-		330
331	D	ALUM	1 3/4"	3'-0"	7'-2"	-		7	ALUM	-	-	-	-		-		331
332	B	ALUM	1 3/4"	3'-0"	6'-11"	-		6	ALUM	-	-	-	-		-		332
333	A	FG	1 3/4"	3'-0"	6'-0"	-		1	WD	-	-	-	-		-		333
334	A	WD	1 3/4"	3'-0"	6'-0"	-	20 MIN	2	RF	-	-	-	-	20 MIN	-		334
335	A	WD	1 3/4"	3'-0"	7'-0"	-	20 MIN	3	RF	-	-	-	-	20 MIN	-		335
336	A	WD	1 3/4"	3'-0"	7'-0"	-	20 MIN	2	RF	-	-	-	-	20 MIN	-		336
337	B	ALUM	1 3/4"	3'-0"	7'-0"	-		8	ALUM	-	-	-	-		-		337
338	E	WD	1 3/4"	3'-0"	7'-0"	-	20 MIN	1	WD	-	-	-	-	20 MIN	-	PAINT	338
339	A	WD	1 3/4"	3'-0"	7'-0"	-	20 MIN	2	RF	-	-	-	-	20 MIN	-		339
340	F	WD	1 3/4"	3'-0"	6'-10"	-	20 MIN	2	RF	-	-	-	-	20 MIN	-		340
341	F	WD	1 3/4"	3'-0"	6'-10"			2	RF	-	-	-	-		-		341
342	F	WD	1 3/4"	3'-0"	6'-10"			2	RF	-	-	-	-		-		342

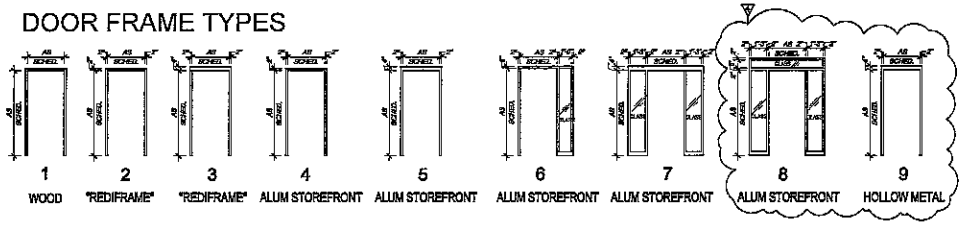
1. CORRIDOR DOORS SHALL BE FIRE RATED FOR 20 MINUTES AND PROVIDED WITH SMOKE AND DRAFT SEAL AND CLOSER.
2. DOORS FOR WASHER AND DRYER CLOSETS TO HAVE 10x12 GRILL.

WD=WOOD
RF=REDIFRAME
HM=HOLLOW METAL
GW=GALVANIZED HOLLOW METAL
ALUM=ALUMINUM
FG=FIBERGLASS
VINYL=VINYLIZE

DOOR TYPES



DOOR FRAME TYPES



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Door & Frame Schedule
Window Schedule
NTS

PROJECT:
Altoona Towers
1414 & 1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUE/FOR:
10-02-13	REQU FOR CONSTRUCTION
11-18-13	PLANNING REVISIONS
12-04-13	REVISED PER CITY COMMENTS
12-20-13	DOOR AND ELEVATION AMENDS
12-20-13	REISSUED FOR CONSTRUCTION
12-26-13	VARIOUS MODIFICATIONS

DEC 24 2013

A601

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WOOD FASTENER SCHEDULE

NUMBER OR SPACING OF FASTENERS REQUIRED PER CONNECTION

CONNECTION/LOCATION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	5	5	5	N/A	6	6	N/A	N/A
[illegible]	3	4	4	4	5	4	4	N/A	N/A
[illegible]	5	5	5	4	3	4	4	N/A	N/A
[illegible]	3	3	3	4	3	4	4	N/A	N/A
[illegible]	N/A	N/A	N/A	N/A	2	3	3	3	4
[illegible]	8" o.c.	6" o.c.	6" o.c.	6" o.c.	6" o.c.	6" o.c.	4" o.c.	3" o.c.	3" o.c.
[illegible]	24" o.c.	24" o.c.	24" o.c.	24" o.c.	16" o.c.	16" o.c.	16" o.c.	N/A	N/A
[illegible]	3	4	5	5	6	6	6	6	N/A
[illegible]	3	4	4	4	6	4	4	N/A	N/A
[illegible]	3	4	4	4	6	4	4	N/A	N/A
[illegible]	3	3	4	4	6	4	4	N/A	N/A
[illegible]	3	3	4	4	5	4	4	N/A	N/A
[illegible]	3	3	3	3	3	4	4	N/A	N/A
[illegible]	3	3	3	3	3	4	4	5	5
[illegible]	3	3	3	3	N/A	4	4	N/A	N/A
[illegible]	3	3	3	3	3	4	4	N/A	N/A
[illegible]	3	3	3	3	3	4	4	N/A	N/A
[illegible]	3	4	4	4	4	4	4	5	5
[illegible]	2	3	3	3	4	3	3	N/A	N/A
[illegible]	3	3	3	3	3	3	3	3	4
[illegible]	16" o.c.	8" o.c.	8" o.c.	8" o.c.	6" o.c.	8" o.c.	8" o.c.	N/A	N/A
[illegible]	2	3	3	4	N/A	4	4	N/A	N/A
[illegible]	16" o.c.	16" o.c.	12" o.c.	12" o.c.	8" o.c.	12" o.c.	12" o.c.	N/A	N/A
[illegible]	12" o.c.	12" o.c.	8" o.c.	8" o.c.	6" o.c.	8" o.c.	8" o.c.	N/A	N/A
[illegible]	24" o.c.	16" o.c.	16" o.c.	16" o.c.	8" o.c.	12" o.c.	12" o.c.	N/A	N/A

DOUBLE ANGLE

RRE13020

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Des Moines, Iowa www.rakerrhodes.com

STRUCTURAL NOTES

As indicated

PROJECT:

Altoona Towers-Bldg. A

1414 Adventureland Drive

Altoona, IA

DATE:	ISSUED FOR:	DRAWN BY	CHK'D BY
[illegible]	Issued for Foundation Bid/Permit	TO	JR
[illegible]	Issued for Framing Bid/Permit	TC	JR

09/04/2013

S0.1

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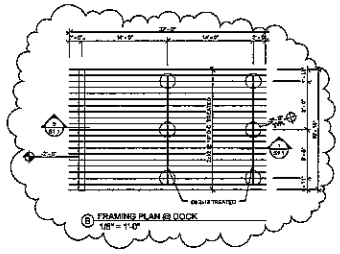
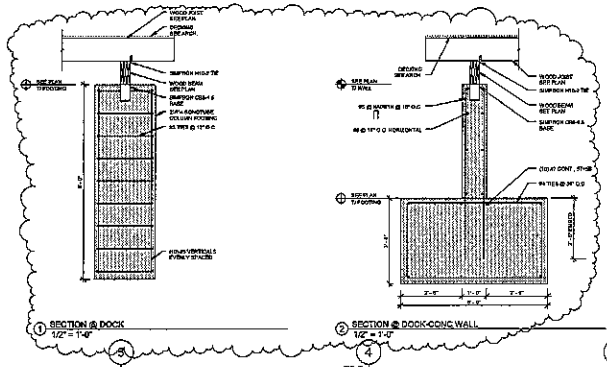


FRAMING PLAN @ DOCK
1/8" = 1'-0"

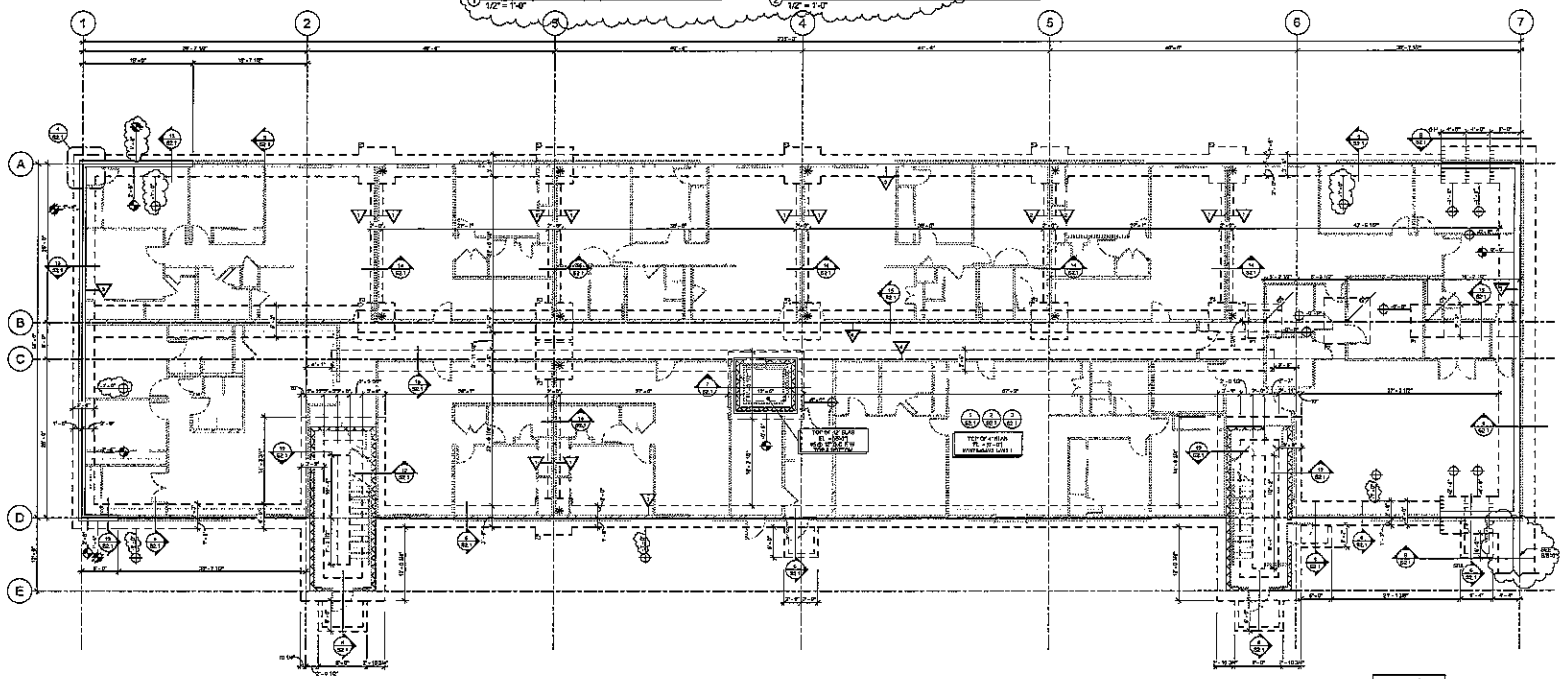


SECTION @ DOCK
1/2" = 1'-0"

SECTION @ DOCK-CONC WALL
1/2" = 1'-0"

COLUMN SCHEDULE		
ROOF LEVEL (ELEVATION VARIES)		
TYPE	C1	-
SCT	HSS4x4x3/8	-
PRIGNUT	STEEL TUBE	-
COLUMN BASE	SEE S1.002.1	-

FOOTING SCHEDULE			
MARK	DIMENSIONS	REINFORCEMENT	NOTES
F1	8'-0" x 8'-0" x 12"	(3)#6 E/W BOTTOM	
F2	7'-0" x 7'-0" x 14"	(7)#6 E/W BOTTOM	
F3	10'-0" x 10'-0" x 12"	(5)#6 E/W TOP AND BOTTOM	



FOUNDATION PLAN
1/8" = 1'-0"

GENERAL NOTES
1. TO WALL STRUCT.
2. TO FOOTING
3. TO TRUSS BEARING
4. TO BRICK LEDGE

RRE13020

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RAKER RHODES Engineering
Des Moines, Iowa www.raderrhodes.com

FOUNDATION PLAN
As Indicated

PROJECT:
Altoona Towers-Bldg. A
1414 Adventureland Drive
Altoona, IA

DATE:	ISSUED FOR:	DRAWN BY	CHK'D BY
06/04/2013	Issued for review/permit/bid	RD	AR
08/09/2013	Issued for Existing Site/Revised	RD	AR

Sept. 4, 2013

S1.1

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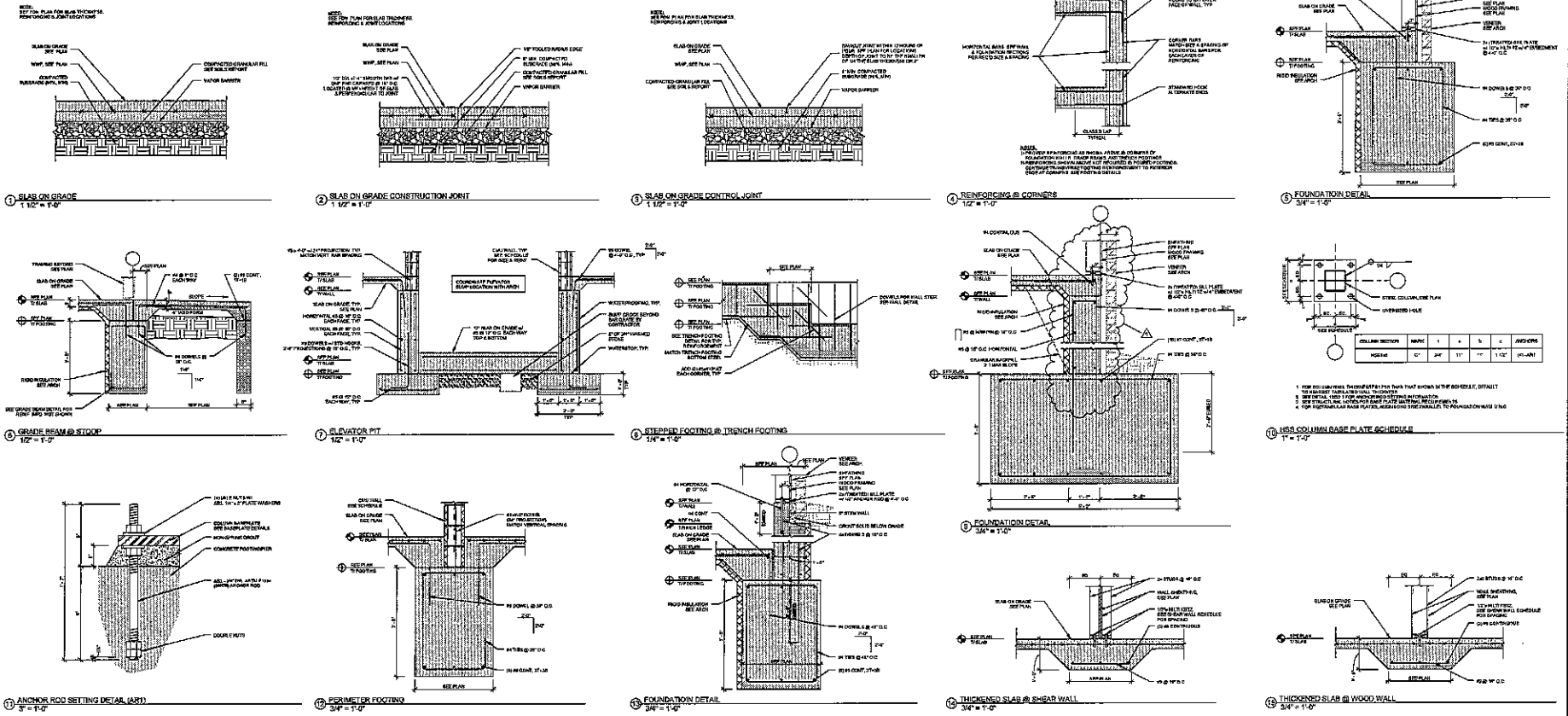

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RAKER RHODES Engineering
Des Moines, Iowa www.rakerrhodes.com

FOUNDATION DETAILS
As Indicated

PROJECT:
Altoona Towers-Bldg. A
1414 Adventureland Drive
Altoona, IA

DATE	ISSUED FOR:	DRWN	CHKD	JOB
09/04/2013	Issued for Permitting (Addendum)	TC	JR	1516

09/04/2013

S2.1

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LINTEL SCHEDULE

MARK	SIZE	GEOMETRY	NOTES
L1	[illegible] LVL, 8" MIN. BEARING	BRICK / STEEL ANGLE	SEE BELOW
L2	7 COURSE BOND BEAM [illegible] CONT., 8" MIN. BEARING EACH END		
L3	CMU (2) - L [illegible] LVL, 8" MIN. BEARING	8" CMU / DOUBLE ANGLE	

NOTE:
1. LOOSE LINTELS SUPPORTING BRICK VENEER SHALL BEAR A MINIMUM OF 8" ON EACH SIDE OF OPENING
2. EXTERIOR LINTELS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION, SEE STRUCTURAL NOTES

SINGLE ANGLE

WOOD HEADER SCHEDULE

MARK	SIZE	COMMENTS
H1	[illegible] PLYWOOD [illegible] + 2" RIGID INSULATION AT EXTERIOR SIDE w/ (2) FULL HEIGHT KING STUDS & (1) JAMB STUD EACH SIDE	SEE [illegible]
H2	[illegible] LVL w/ 2" RIGID INSULATION AT EXTERIOR SIDE w/ (2) FULL HEIGHT KING STUDS & (1) JAMB STUD EACH SIDE	SEE [illegible]
H3	(2) [illegible] LVL w/ (2) FULL HEIGHT KING STUDS & (1) JAMB STUD EACH SIDE	SEE [illegible]

CMU WALL SCHEDULE

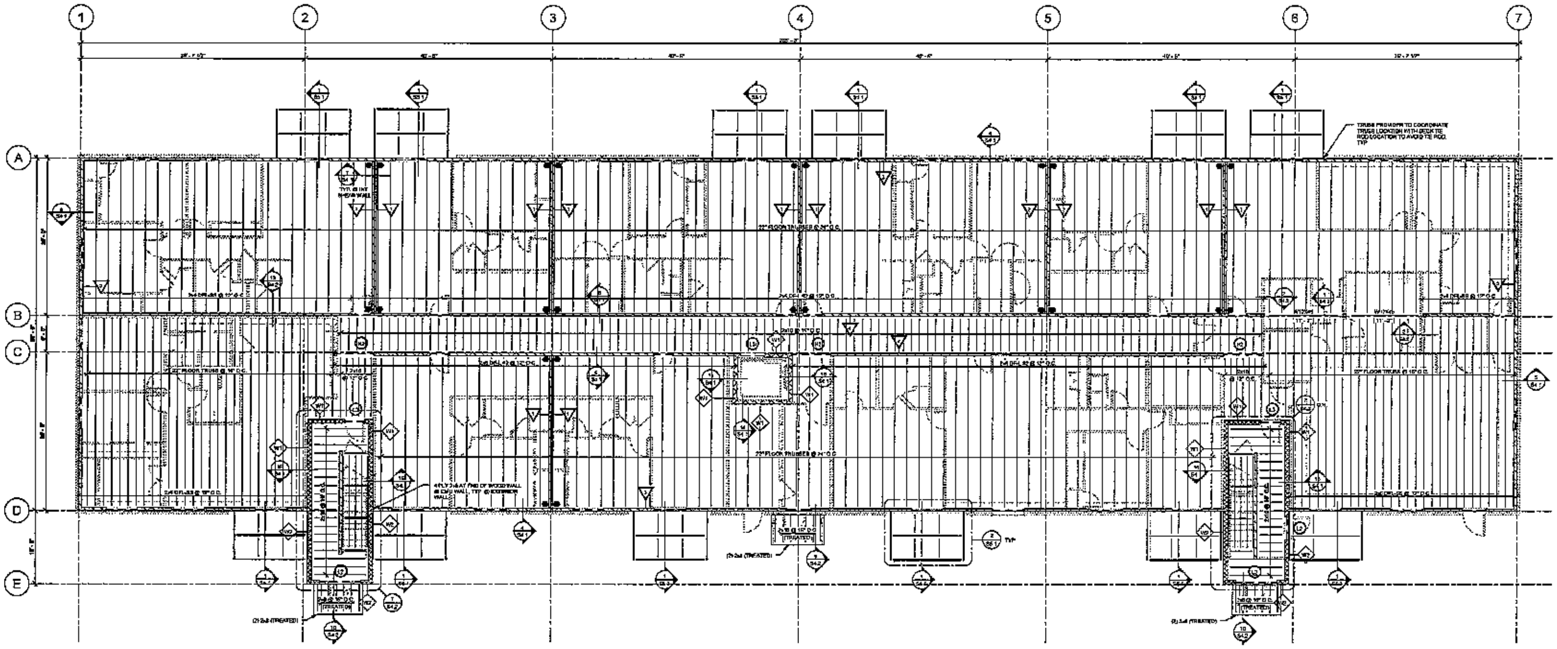
MARK	NOMINAL WALL SIZE	VERT. REINFORCEMENT	HORIZ. REINFORCEMENT	NOTES
W1	8"	#5 @ 32" O.C.	LADDER TYPE @ 16" O.C.	
W2	4"	#5 @ 32" O.C.	LADDER TYPE @ 16" O.C.	STRUCTURAL BRICK

NOTE: 1) SEE STRUCTURAL NOTES FOR NON-LOAD BEARING MASONRY WALL REINFORCEMENT

WOOD SHEAR WALL SCHEDULE

MARKS	1	2	3	4 CORRIDOR
STUD SIZE AND SPACING	2x6 DFL#2 @ 16" O.C.	2x4 DFL#2 @ 16" O.C.	SEE PLAN	2x4 DFL#2 @ 16" O.C.
SHEATHING TYPE	15/32" OSB - 2 SIDE	15/32" OSB - 1 SIDE	15/32" OSB - 1 SIDE	GYP. BOTH SIDES
BLOCKED OR UNBLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED
[illegible] NAILS AT ALL PANEL EDGES, TOP AND BOTTOM PLATES & BLOCKING, U.N.O. [illegible] NAILS @ 12" O.C. MAX. IN THE FIELD. ALL PANEL EDGES TO BE BLOCKED WITH 2x OR WIDER FRAMING, U.N.O. NAILS SHALL BE [illegible] FROM PANEL EDGE	10d @ 4" O.C. EDGES	10d @ 3" O.C. EDGES	10d @ 6" O.C. EDGES	No. 6 SCREWS @ 6" O.C. EDGES / No. 6 SCREWS @ 12" O.C. FIELD
SILL PLATE CONNECTION @ FOUNDATION	[illegible] HILTI KB-TZ w/ 4" EMBED (MIN.) @ 48" O.C.	[illegible] HILTI KB-TZ w/ 4" EMBED (MIN.) @ 32" O.C.	[illegible] HILTI KB-TZ w/ 4" EMBED (MIN.) @ 48" O.C.	[illegible] HILTI KB-TZ w/ 4" EMBED (MIN.) @ 48" O.C.
HOLD DOWN (LOCATIONS SHOWN AS ✱ ON PLAN) 3-PLY STUD REQUIRED @ EACH HOLD DOWN LOCATION. SUPPLIED BY SIMPSON (OR APPROVED EQUAL). HILTI HIT-RE 500-SD ADHESIVE w/ THREADED HAS ROD. SEE [illegible]	SIMPSON [illegible] w/ [illegible] THREADED HAS ROD ([illegible] MIN. EMBEDMENT)	SIMPSON [illegible] w/ [illegible] THREADED HAS ROD ([illegible] MIN. EMBEDMENT)	N/A	N/A
HOLD DOWN (LOCATIONS SHOWN AS ● ON PLAN) HOLD DOWNS @ EA. END BETWEEN FLOORS. ALIGN STRAPS WITH FOUNDATION HOLD DOWNS. SEE [illegible]	SIMPSON [illegible] w/ [illegible] THREADED ROD	SIMPSON [illegible] w/ [illegible] THREADED ROD	N/A	N/A

NOTES:
1) SEE ARCH. DRAWINGS FOR NON-STRUCTURAL COMPONENTS (I.E. GYP. BOARD, RESILIENT CHANNELS, ETC.)
2) SEE DETAIL [illegible] FOR TYPICAL BUILT-UP 2x FRAMING SCHEME
3) SEE DETAIL [illegible] FOR TYPICAL WOOD SHEAR WALL ASSEMBLY



A SECOND FLOOR FRAMING PLAN
1/8" = 1'-0"

PROJECT:	Altoona Towers-Bldg. A
	1414 Adventureland Drive
	Altoona, IA
FRAMING PLAN	As Indicated
RAKER RHODES Engineering	Des Moines, Iowa www.rakerrhodes.com
imprint ARCHITECTS	leave your mark
DATE:	Oct. 2, 2013
SHEET	S3.1
PROJECT NO.	RRE13020

DATE	ISSUED FOR	DRAWN BY	CHECKED BY
09/04/2013	Issued for Foundation Bid/Permit	TG	JR
10/02/2013	Issued for Framing Bid/Permit	TG	JR

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THIRD FLOOR FRAMING PLAN
1/8" = 1'-0"

DATE:	ISSUED FOR:	DRAWN BY	CHK'D BY
09/04/2013	Issued for Foundation Bid/Permit	TC	JR
10/02/2013	Issued for Framing Bid/Permit	TC	JR

PROJECT:

Altoona Towers-Bldg. A

1414 Adventureland Drive
Altoona, IA

FRAMING PLAN

1/8" = 1'-0"

RAKER RHODES Engineering
Des Moines, Iowa www.rakerrhodes.com

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ANKENY, IOWA 50023
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FAX: (515) 963-5305
info@imprintarchitects.com

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S3.2

Oct. 2, 2013

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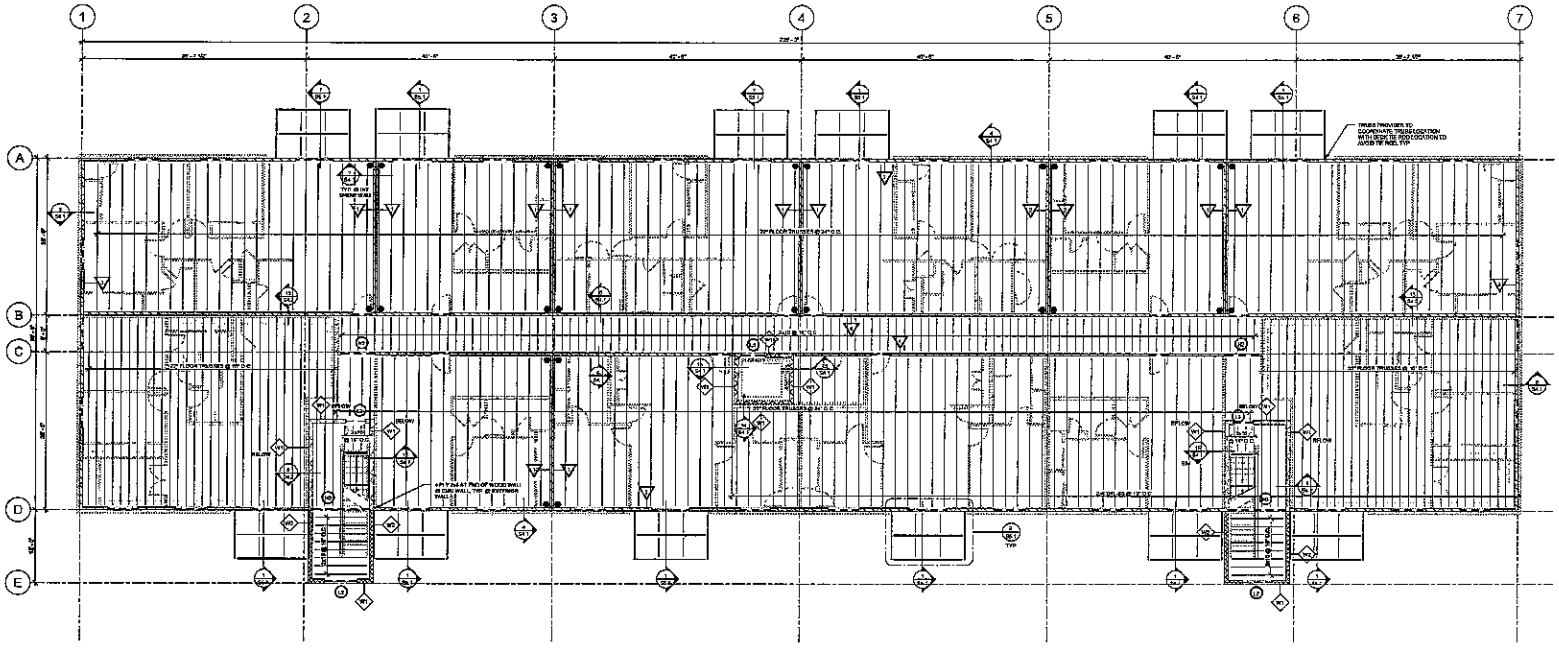

FOURTH FLOOR FRAMING PLAN
1/8" = 1'-0"

1) FOURTH LEVEL FINISHED FLOOR ELEVATION = 23'-11 1/8"
2) TYPICAL FLOOR DIAPHRAGM: 2x4 ATA, RATED DIAPHRAGM W/ 7/8 OSB, U.N.O
3) PROVIDE 30" DEPOSIT-OUTS OVER STRUCTURE
4) SEE SCHEDULE ON S0.1 FOR UNIQUE FASTENER REQUIREMENTS
5) USE FRAMER HT FOR OPENINGS IN FITTING BALL & CORNER CONNECTS, TYP, U.N.O
6) SEE COOP LAYOUT FOR OPENINGS OVER EXTERIOR OVERHANG, U.N.O
8) SEE TRUSS SHEAR WALL COORDINATION SHEET S0.1 FOR WALL TYPES & HOLDDOWN REQUIREMENTS
7) TYPICAL EXTERIOR WALL SIDE & SPACING = 2x6 @ 24" AS 16" O.C. U.N.O.

RRE13020

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HIGGINS, OWA 50023
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info@imprintarchitects.com

RAKER RHODES Engineering
Des Moines, Iowa www.rakerrhodes.com

FRAMING PLAN
1/8" = 1'-0"

PROJECT:
Altoona Towers-Bldg. A
1414 Adventureland Drive
Altoona, IA

DATE	ISSUED FOR:	BY	CHK	APP
08/30/2013	Issued for Preliminary Review	TD	JR	JR
09/09/2013	Issued for Permit Set/Permit	TD	JR	JR

Oct. 2, 2013

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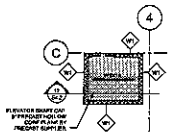
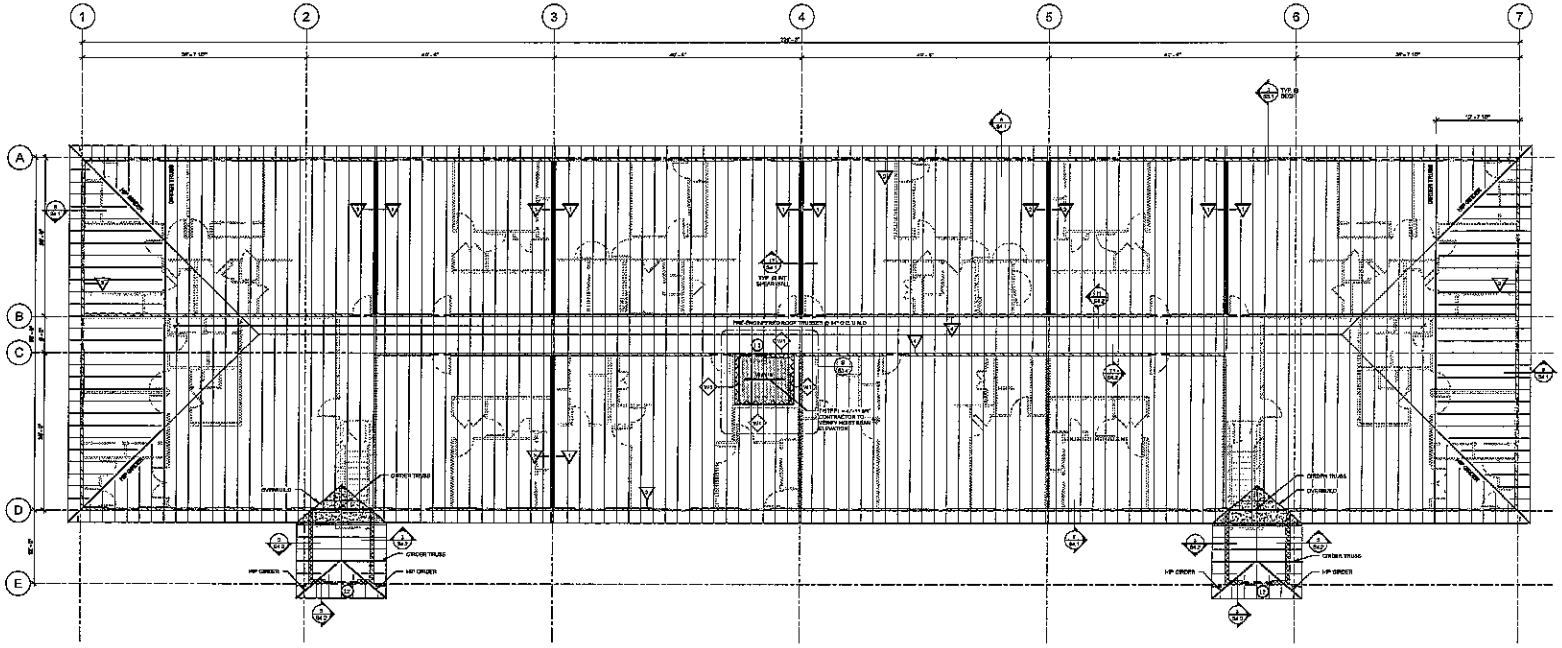


B PARTIAL ROOF FRAMING PLAN
1/8" = 1'-0"



A ROOF FRAMING PLAN
1/8" = 1'-0"

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JUNCTION, IOWA 50503
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FAX: (515) 955-5139
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ROOF FRAMING PLAN
1/8" = 1'-0"

PROJECT:
Altoona Towers-Bldg. A
1414 Adventureland Drive
Altoona, IA

DATE:	ISSUED FOR:	BY:	CHK'D:
09/09/2013	Issued for Foundation Qu/Permit	TC	JK
10/02/2013	Issued for Framing Qu/Permit	TC	JK

Oct. 2, 2013

S3.4

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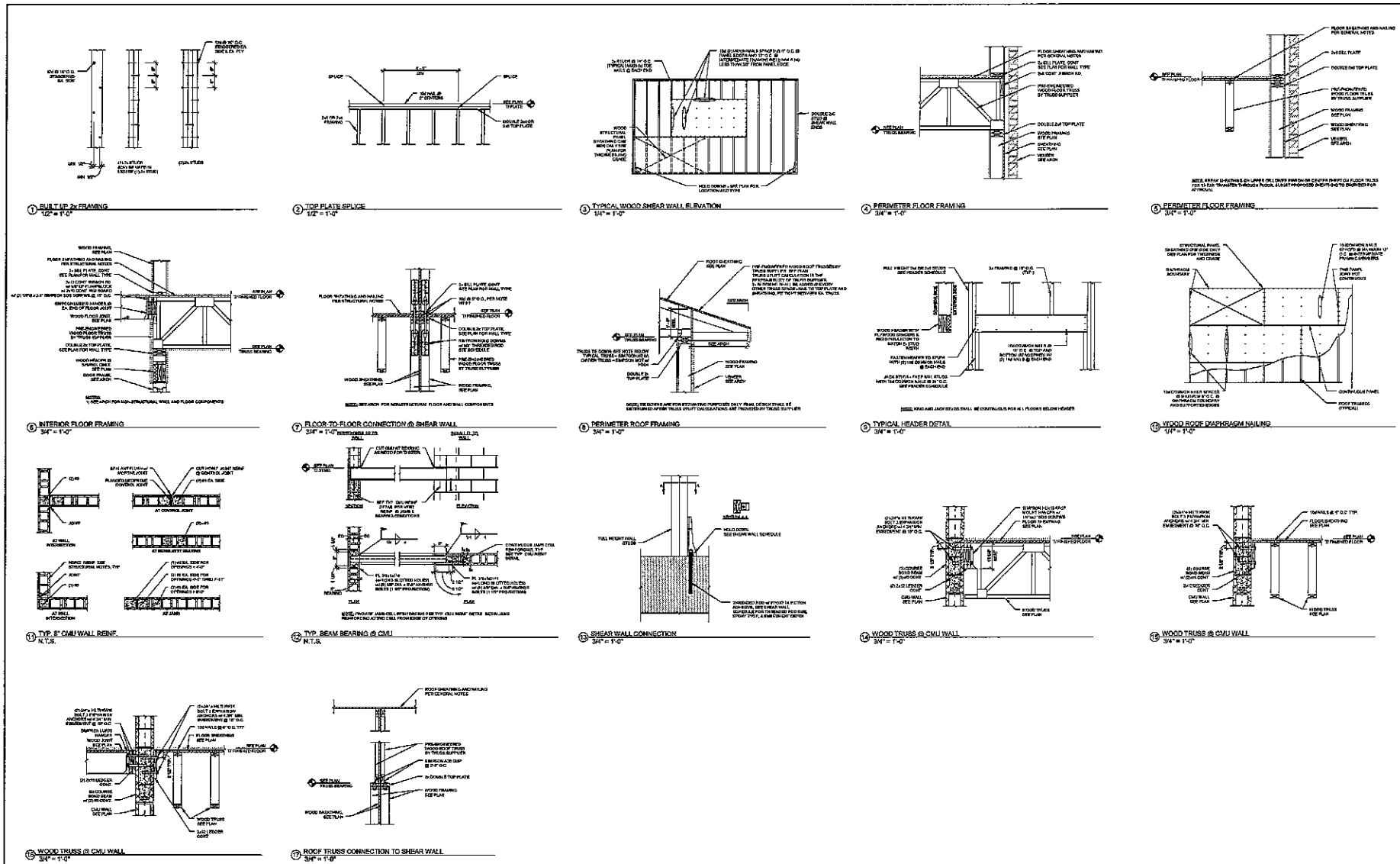

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Imprint@imprintarch.com

RAKER RHODES Engineering
Des Moines, Iowa
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FRAMING DETAILS
As Indicated

PROJECT:
Altoona Towers-Bldg. A
1414 Adventureland Drive
Altoona, IA

DATE:	ISSUED FOR:	Dwn	Chk
09/04/2013	Issued for Foundation Bid Pkg	KG	JR
09/06/2013	Issued for Framing Bid Pkg	KG	JR

Oct. 2, 2013

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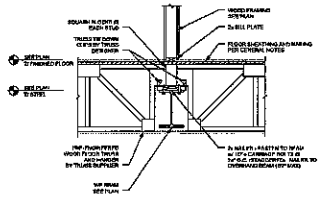
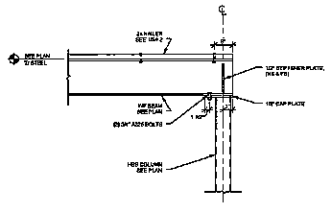
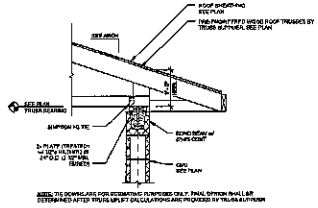


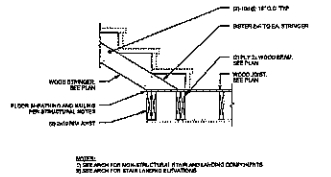
1 TYP. INTERIOR WALL @ STEEL BEAM
3/4" = 1'-0"



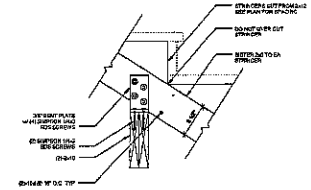
2 BEAM TO COLUMN DETAIL
3/4" = 1'-0"



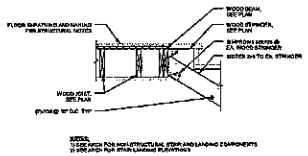
3 PERIMETER ROOF FRAMING-CMU
3/4" = 1'-0"



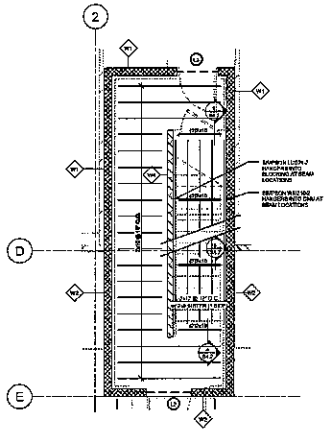
4 TYP. STAIR FRAMING @ BOTTOM OF STAIR STRINGER
3/4" = 1'-0"



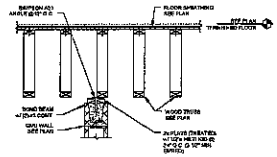
5 W-STAIR STRINGER @ WOOD BEAM
1 1/2" = 1'-0"



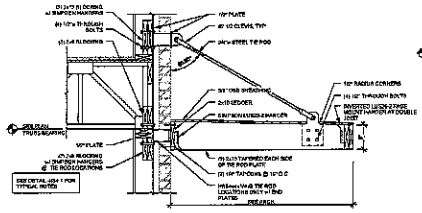
6 TYP. STAIR FRAMING @ TOP OF STAIR STRINGER
3/4" = 1'-0"



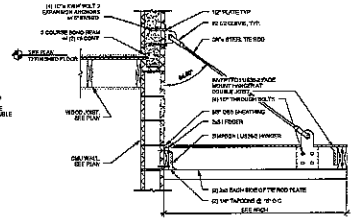
7 PARTIAL FRAMING PLAN @ STAIRS
1/4" = 1'-0"



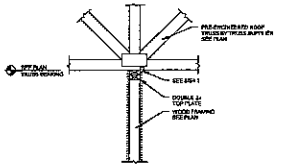
8 WOOD TRUSS @ CMU WALL-4TH FLOOR
3/4" = 1'-0"



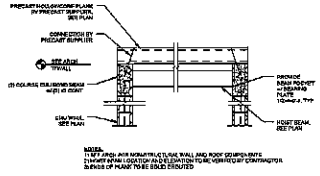
9 CANOPY @ EXTERIOR WALL
3/4" = 1'-0"



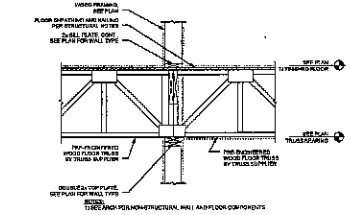
10 CANOPY @ EXTERIOR WALL
3/4" = 1'-0"



13 INTERIOR ROOF FRAMING
3/4" = 1'-0"



12 ELEVATOR SHAFT CAP
1/2" = 1'-0"



13 INTERIOR FLOOR FRAMING
3/4" = 1'-0"

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RAKER RHODES Engineering
Des Moines, Iowa www.raterrhodes.com

FRAMING DETAILS

As Indicated

PROJECT:
Altoona Towers-Bldg. A
1414 Adventureland Drive
Altoona, IA

DATE:	ISSUED FOR:	DRWN	CHK'D	REV.
02/15/2013	Issued for Foundation/Site Permit	TC	MS	
10/02/2013	Issued for Framing & Permit	TC	MS	

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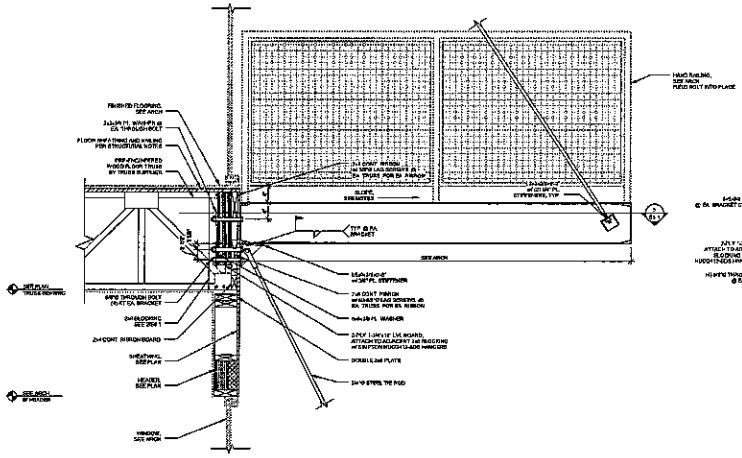
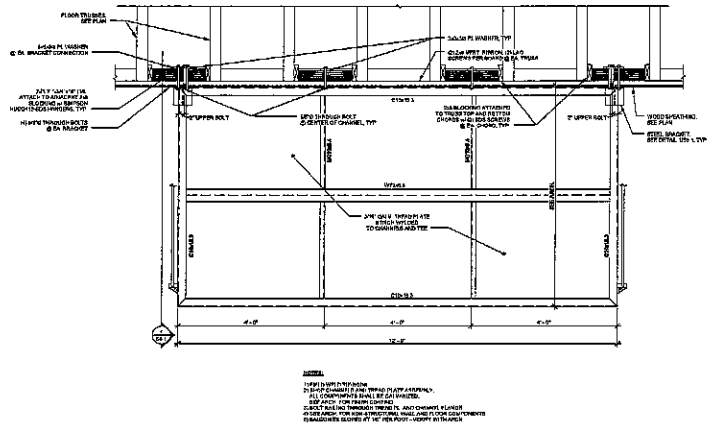
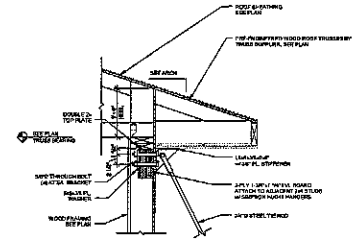


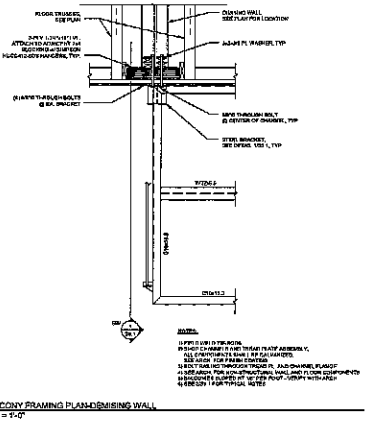
1 BALCONY FRAMING CONNECTION
1" = 1'-0"



2 BALCONY FRAMING PLAN
3/4" = 1'-0"



3 BALCONY FRAMING CONNECTION @ ROOF
1" = 1'-0"



4 BALCONY FRAMING PLAN-DEMISING WALL
3/4" = 1'-0"

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BALCONY DETAILS
As Indicated

PROJECT:
Altoona Towers-Bldg. A
1414 Adventureland Drive
Altoona, IA

DATE	ISSUED FOR:	BY	CHK	APP
02/04/2013	Issued for Foundation Bid Permit	KC	RR	JR
10/02/2013	Issued for Permit/Bid Permit	KC	RR	JR

Oct. 2, 2013

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GENERAL PARAMETERS

GP1 STRUCTURAL DRAWINGS ARE A PORTION OF THE CONTRACT DOCUMENTS AND ARE INTENDED TO BE USED WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS FROM THESE DRAWINGS INTO THEIR SHOP DRAWINGS AND WORK.

GP2 VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO FABRICATION OF ANY ITEMS.

GP3 DRAWINGS SHALL BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL OPENINGS, ELECTRICAL COMPONENTS, FLOOR DEPRESSIONS, ETC. NOT SHOWN ON DRAWINGS. COORDINATE LOCATION, SIZE AND REINFORCEMENT OF ALL OPENINGS WITH RESPECTIVE TRADES BEFORE FABRICATION. REPORT ANY DISCREPANCIES AND/OR INTERFERENCE PROBLEMS TO THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD.

GP4 THESE GENERAL NOTES SUPPLEMENT THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE PROVIDED, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.

GP5 THE BUILDING IS NOT STRUCTURALLY STABLE UNTIL ALL CONNECTIONS, FRAMING, SHEAR WALLS, BRACING, AND EXTERIOR WALLS ARE COMPLETE AND HAVE ACHIEVED FULL DESIGN STRENGTH. CONTRACTOR IS SOLELY RESPONSIBLE TO MAINTAIN STRUCTURAL STABILITY DURING ERECTION AND CONSTRUCTION. TEMPORARY BRACING SYSTEMS ARE NOT TO BE REMOVED UNTIL STRUCTURAL WORK IS COMPLETE.

GP6 CONTRACTOR'S CONSTRUCTION AND/OR ERECTION PROCEDURES SHALL RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.

DESIGN PARAMETERS

DP1 THE STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE IBC INTERNATIONAL BUILDING CODE, 2006 EDITION.

WOOD FASTENER SCHEDULE

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.

JOHN RHODES, P.E.

PROJECT:

Altoona Towers-Bldg. B

1616 Adventureland Drive

Altoona, IA

STRUCTURAL NOTES

As Indicated

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Sept. 4, 2013

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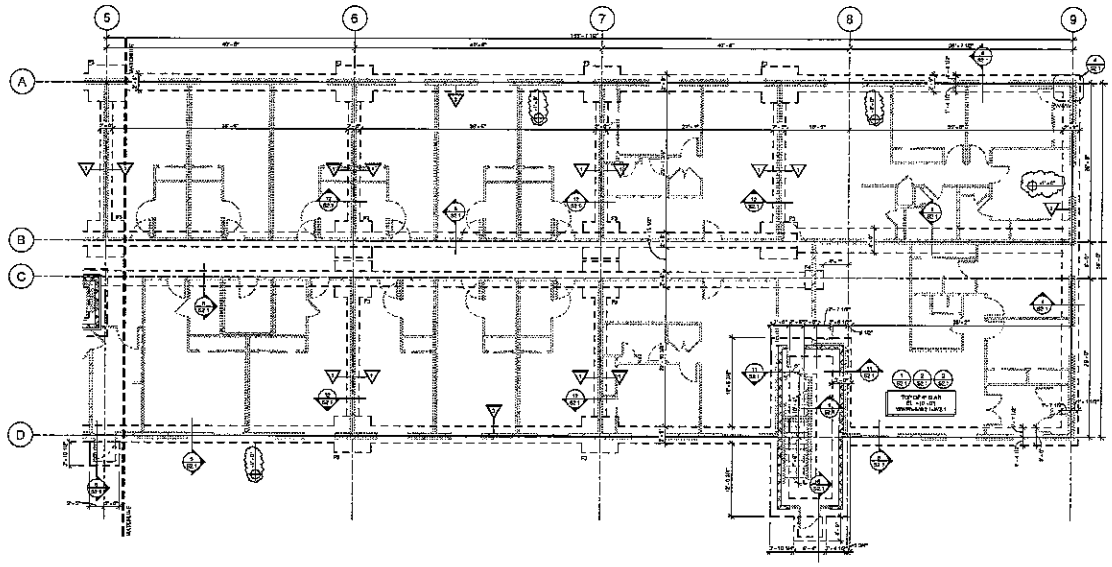
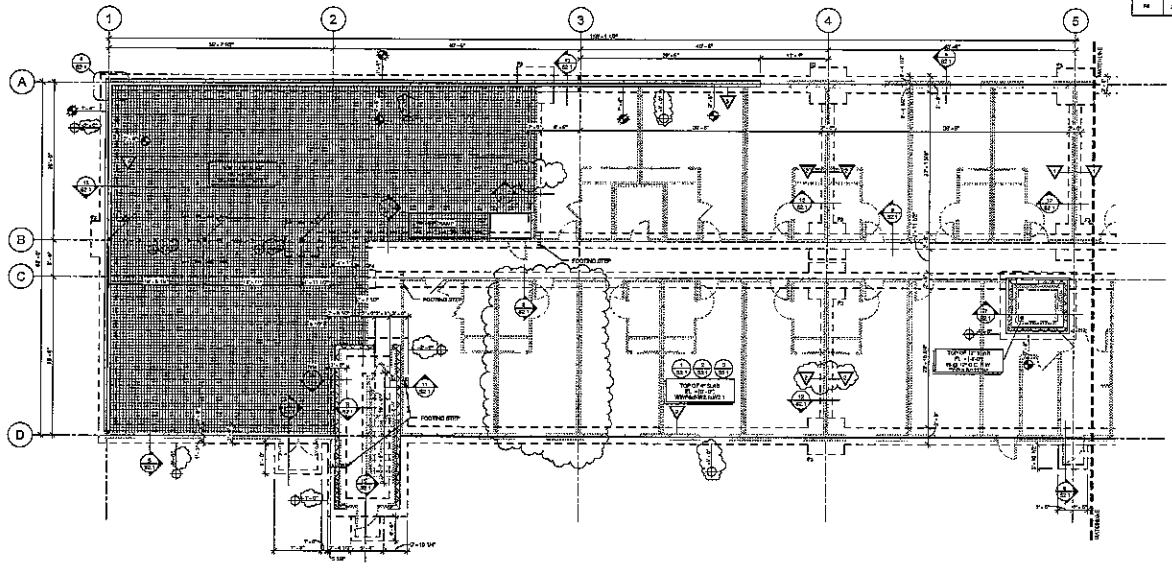


FOUNDATION PLAN-EAST
1/8" = 1'-0"



FOUNDATION PLAN-WEST
1/8" = 1'-0"

FOOTING SCHEDULE			
MARK	DIMENSIONS	REINFORCEMENT	NOTES
F1	[illegible]	[illegible] BOTTOM	
F2	[illegible]	[illegible] BOTTOM	
F3	[illegible]	[illegible] TOP AND BOTTOM	
F4	[illegible]	[illegible] BOTTOM	

COLUMN SCHEDULE		
ROOF LEVEL (ELEVATION VARIES)		
TYPE	C1	C2
SIZE	[illegible]	[illegible]
PRODUCT	STEEL TUBE	STEEL TUBE
COLUMN BASE	SEE 1/S2.1	SEE 1/S2.1

SYMBOLS KEY
- STAIR/LV STEEL
- TF FOOTING
- CJ JOINT SCORING
- SB SHOW LEGEND
- SLEV STEP
- SLAB CHANGE

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Des Moines, Iowa www.rakerrhodes.com

FOUNDATION PLANS
As Indicated

PROJECT:
Altoona Towers-Bldg. B
1616 Adventureland Drive
Altoona, IA

DATE:	ISSUED FOR:	BY	CK	APP.
02/04/2013	Issued for Foundation Bid Phase	TC		
04/02/2013	Issued for Planning Submittal	TC		

Sept. 4, 2013

S1.1

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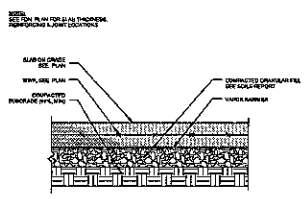
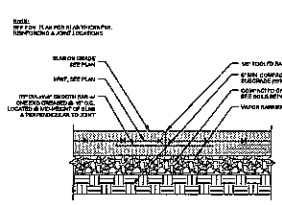
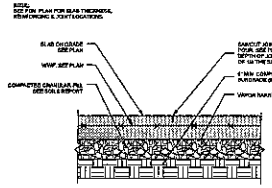


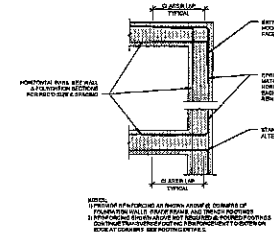
① SLAB ON GRADE
1 1/2" = 1'-0"



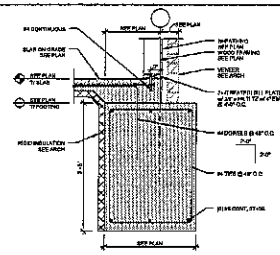
② SLAB ON GRADE CONSTRUCTION JOINT
1 1/2" = 1'-0"



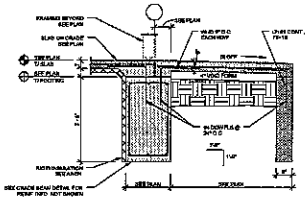
③ SLAB ON GRADE CONTROL JOINT
1 1/2" = 1'-0"



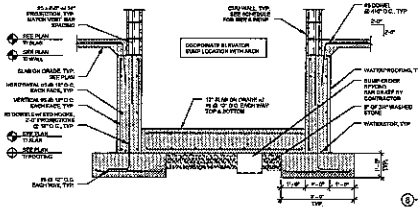
④ REINFORCING @ CORNERS
1/2" = 1'-0"



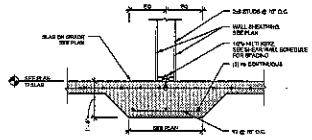
⑤ FOUNDATION DETAIL
3/4" = 1'-0"



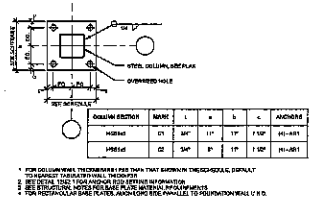
⑥ GRADE BEAM @ STOOP
1/2" = 1'-0"



⑦ ELEVATOR PIT
1/2" = 1'-0"

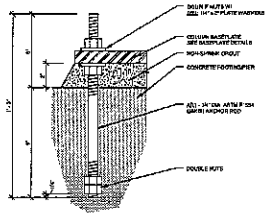


⑧ THICKENED SLAB @ WOOD WALLS
3/4" = 1'-0"

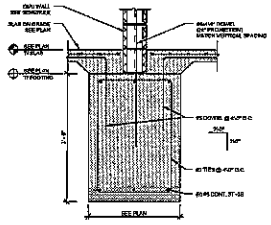


COLUMN SECTION	MARK	L	w	b	c	ANCHORS
HSS6x6	C1	14"	11"	11"	1 1/2"	(4)-#8
HSS6x6	C2	14"	8"	11"	1 1/2"	(4)-#8

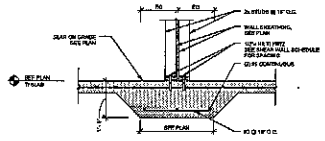
⑨ HSS COLUMN BASE PLATE SCHEDULE
1" = 1'-0"



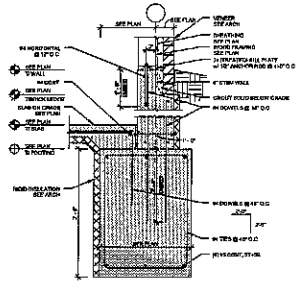
⑩ ANCHOR ROD SETTING DETAIL (AR1)
3" = 1'-0"



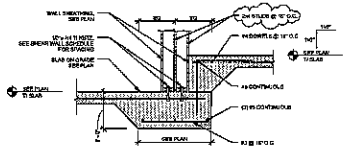
⑪ PERIMETER FOOTING
3/4" = 1'-0"



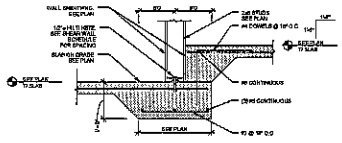
⑫ THICKENED SLAB @ SHEAR WALLS
3/4" = 1'-0"



⑬ FOUNDATION DETAIL
3/4" = 1'-0"



⑭ THICKENED SLAB @ SHEAR WALLS
3/4" = 1'-0"



⑮ THICKENED SLAB @ WOOD WALLS
3/4" = 1'-0"

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BAKER RHODES Structural Engineering
Dave Mathews, Iowa www.rhodesbaker.com

FOUNDATION DETAILS

As indicated

PROJECT:
Altoona Towers-Bldg. B
1616 Adventureland Drive
Altoona, IA

DATE:	ISSUED FOR:	BY:	CHK'D:	APP'D:
09/03/2013	Issued for Foundation Bid/Permit	TC		
09/03/2013	Issued for Framing Bid/Permit	TC		

Sept. 4, 2013

S2.1

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WOOD SHEAR WALL SCHEDULE

MARK				COMMENTS
STUD SIZE AND SPACING	2x4@SPL-42 @ 16" O.C.	2x4@SPL-42 @ 16" O.C.	SEE PLAN	2x6 DFL-42 @ 16" O.C.
SHEATHING TYPE	15/32" CDX – 1 SIDE	15/32" CDX – 1 SIDES	15/32" CDX – 1 SIDES	OVY. BOTH SIDES
BLOCKED OR UNBLOCKED	BLOCKED	BLOCKED	BLOCKED	BLOCKED
10d NAILS AT ALL PANEL EDGES, TOP AND BOTTOM PLATES & IN CORNERS, U.N.O. 10d NAILS @ 12" O.C. NAIL IN THE FIELD (ALL PANEL EDGES TO BE BLOCKED WITH 2x OR WIDER FRAMING, U.N.O.) NAILS SHALL BE 3/8" FROM PANEL EDGE	10d @ 6" O.C. EDGES	10d @ 3" O.C. EDGES	10d @ 6" O.C. EDGES 10d @ 4" O.C. EDGES @ SSW	No. 8 SCREWS @ 6" O.C. EDGES No. 8 SCREWS @ 12" O.C. FIELD
SILL PLATE CONNECTION TO FOUNDATION	1/2"ø HILTI HRT2 w/ 4" EMBED (MIN.) @ 18" O.C.	1/2"ø HILTI HRT2 w/ 4" EMBED (MIN.) @ 32" O.C.	1/2"ø HILTI HRT2 w/ 4" EMBED (MIN.) @ 48" O.C.	1/2"ø HILTI HRT2 w/ 4" EMBED (MIN.) @ 48" O.C.
HOLD DOWN: LOCATIONS SHOWN AS ⊕ ON PLAN (HD) STUD REQUIRED @ EACH HOLDOWN LOCATION BETWEEN 1ST STORY (OR APPROVED EQUAL) SEE DETAIL 1/S3.1 NON-SEQUENCED w/ THREADED RODS SEE DETAIL 1	SIMPSON HDU-SDS2.5 w/ 5/8"Ø THREADED RODS (10" MIN. EMBEDMENT)	SIMPSON HDU-SDS2.5 w/ 5/8"Ø THREADED RODS (10" MIN. EMBEDMENT)	N/A	N/A
HOLD DOWN: LOCATIONS SHOWN AS ⊕ ON PLAN HOLD DOWNS @ EX. END POSTS IN FLOORS SCHEDULED WITH FOUNDATION HOLD DOWNS SEE DETAIL 1	SIMPSON HDU-SDS2.5 w/ 5/8"Ø THREADED ROD	SIMPSON HDU-SDS2.5 w/ 5/8"Ø THREADED ROD	N/A	N/A

NOTES:
1) SEE SHEAR DIMENSIONS FOR NON-STRUCTURAL CONFIGURATIONS (I.E. DROP BOARDS, REDUCED CHANNELS, ETC.)
2) SEE DETAIL 1/S3.1 FOR TYPICAL BLOCKING FOR 2x FRAMING SCHEME
3) SEE DETAIL 2/S3.1 TYPICAL WOOD SHEAR WALL ASSEMBLY

CMU WALL SCHEDULE

MARK	NOMINAL WALL SIZE	VERT. REINFORCEMENT	HORZ. REINFORCEMENT	NOTES
CW1	8"	#5 @ 32" O.C.	LADDER TYPE @ 16" O.C.	
CW2	8"	#5 @ 32" O.C.	LADDER TYPE @ 16" O.C.	STRUCTURAL BRICK

NOTE: 1) SEE STRUCTURAL NOTES FOR NONLOAD BEARING MASONRY WALL REINFORCEMENT

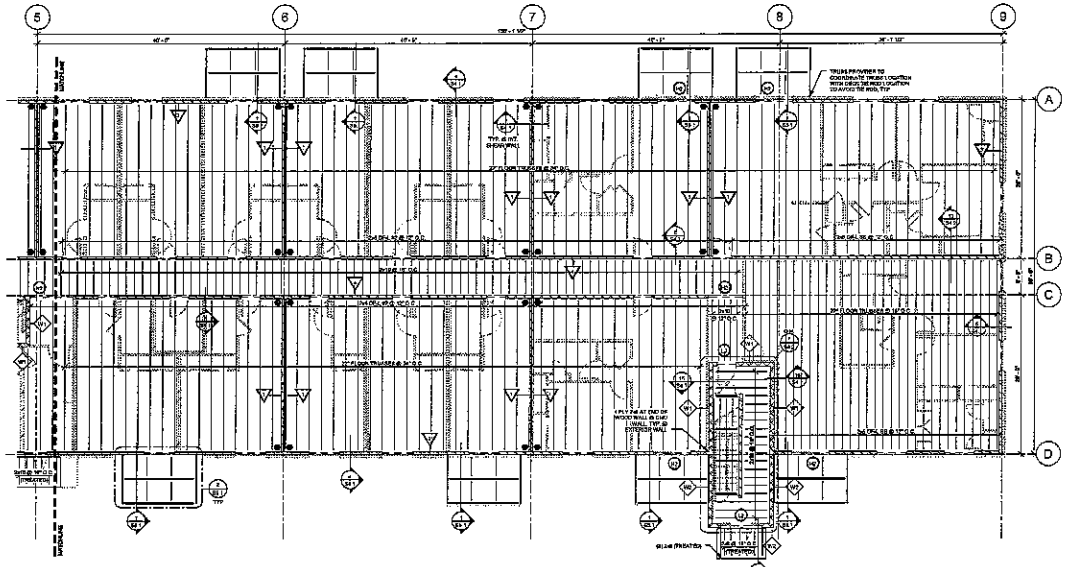
WOOD HEADER SCHEDULE

MARK	SIZE	COMMENTS
WH1	(2) PLY 2x10 w/ (1) 3/4" (TWISTED) SPACER, 2" RIGID INSULATION AT EXTERIOR SIDE w/ (4) FULL HEIGHT KING STUDS & (1) JACK STUD EACH SIDE	SEE 6/S4.1
WH2	(2) 1 3/4"x9 1/4" LVL w/ 2" RIGID INSULATION AT EXTERIOR SIDE w/ (3) FULL HEIGHT KING STUDS, & (1) JACK STUD EACH SIDE	SEE 6/S4.1
WH3	(3) 1 3/4"x9 1/4" LVL w/ (1) FULL HEIGHT KING STUDS & (1) JACK STUD EACH SIDE	SEE 6/S4.1

LINTEL SCHEDULE

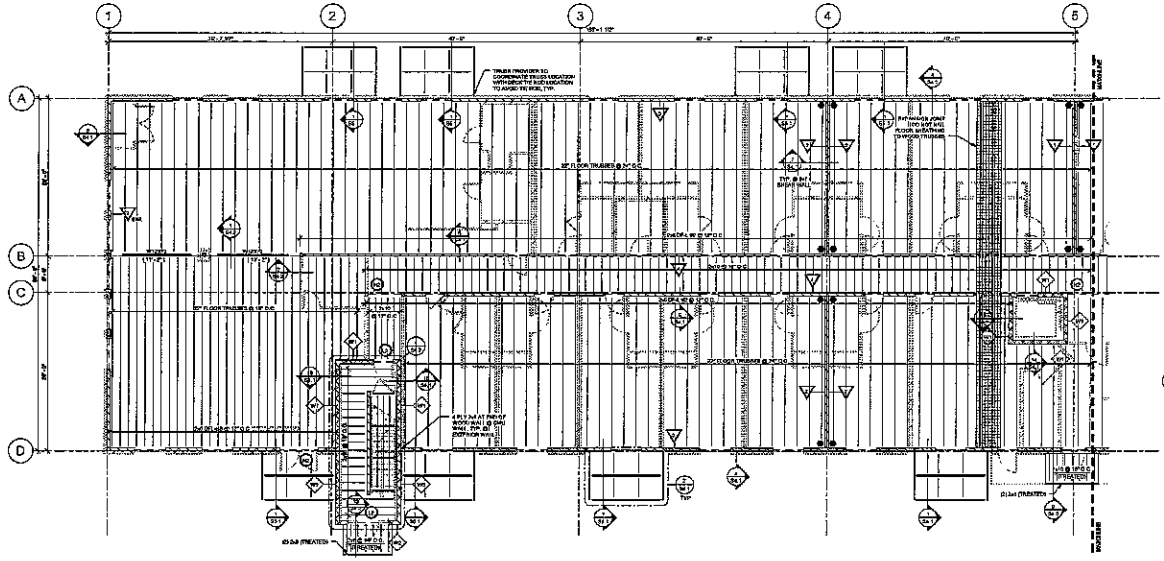
MARK	SIZE	GEOMETRY	NOTES
L1	L3x4x1/8 (L4V), 8" MIN. BEARING	BRICK / STEEL ANGLE	SEE BELOW
L2	1 COURSE BOND BRICK (3x8x8 CONT.), 8" MIN. BEARING EACH END		
L3	(2x) (2) L3x3 1/2x3/8 (L3V), 8" MIN. BEARING	8" CMU / DOUBLE ANGLE	

NOTES:
1. LOWER LINTEL IN DOPPELWANDE BRICK VENEER WALL SHALL HAVE A MINIMUM OF 2" ON EACH SIDE OF TOP PLIES
2. EXTERIOR LINTEL & WALL SHALL BE NOT BE CAULKED AFTER FABRICATION. SEE STRUCTURAL NOTES.



B SECOND FLOOR FRAMING PLAN-EAST
1/8" = 1'-0"

1) SECOND LEVEL FRAMING PLAN-EAST ELEVATION = 10'-11 1/8"
2) TYPICAL FLOOR SHEATHING: 3/4" APA RATED SHEATHING (TAB) w/ 10d @ 6" O.C. NAILING
3) PROVIDE 3/4" DIFFERENTIAL CURB OVER SHEATHING
4) SEE SUBSTRATE CHART FOR MINIMUM FASTENER REQUIREMENTS
5) USE 2x6 DFL SB FOR MINIMUM FASTENER EDGE & EXTERIOR WALL & CORRIDOR OPENINGS, TYP. U.N.O.
USE 2x6 DFL SB FOR EXTERIOR WALL & CORRIDOR OPENINGS, U.N.O.
6) TYPICAL EXTERIOR WALL BRACE SPACING = 3/4" OFFSET @ 10'-0" O.C., U.N.O.



A SECOND FLOOR FRAMING PLAN-WEST
1/8" = 1'-0"

1) SECOND LEVEL FRAMING PLAN-WEST ELEVATION = 10'-11 1/8"
2) TYPICAL FLOOR SHEATHING: 3/4" APA RATED OSB (TAB) w/ 10d @ 6" O.C. NAILING
3) PROVIDE 3/4" DIFFERENTIAL CURB OVER SHEATHING
4) SEE SUBSTRATE CHART FOR MINIMUM FASTENER REQUIREMENTS
5) USE 2x6 DFL SB FOR MINIMUM FASTENER EDGE & EXTERIOR WALL & CORRIDOR OPENINGS, TYP. U.N.O.
USE 2x6 DFL SB FOR EXTERIOR WALL & CORRIDOR OPENINGS, U.N.O.
6) TYPICAL EXTERIOR WALL BRACE SPACING = 3/4" OFFSET @ 10'-0" O.C., U.N.O.

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RAKER RHODES Engineering
Des Moines, Iowa www.rakerrhodes.com

FRAMING PLANS
As Indicated

PROJECT:
Altoona Towers-Bldg. B
1616 Adventureland Drive
Altoona, IA

DATE:	ISSUED FOR:	BY:	APP.
09/04/2013	Permit for Foundation Buildings	TC	AR
10/02/2013	Permit for Framing Buildings	TC	AR

Oct. 2, 2013

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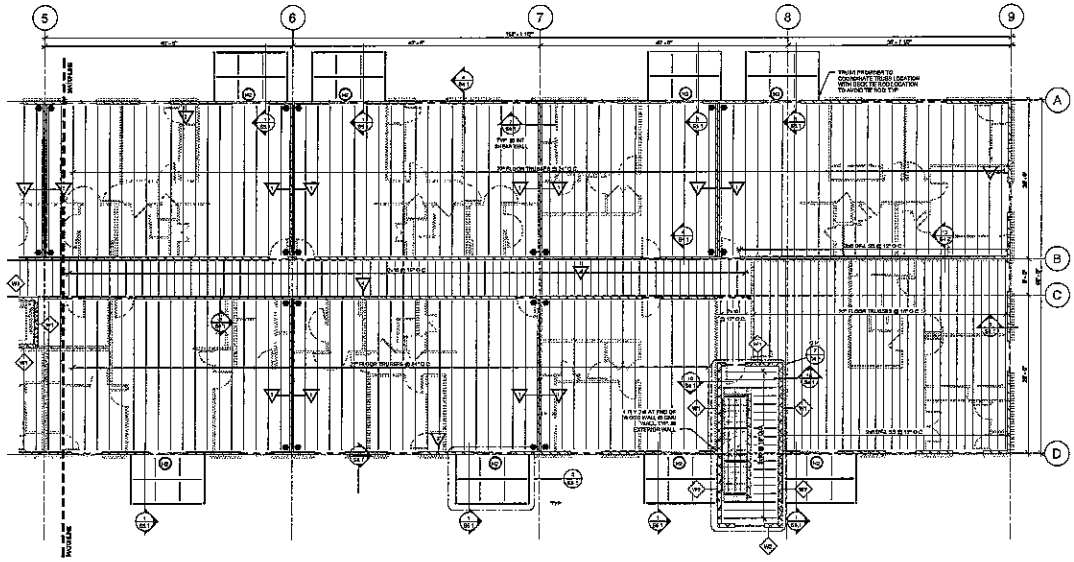
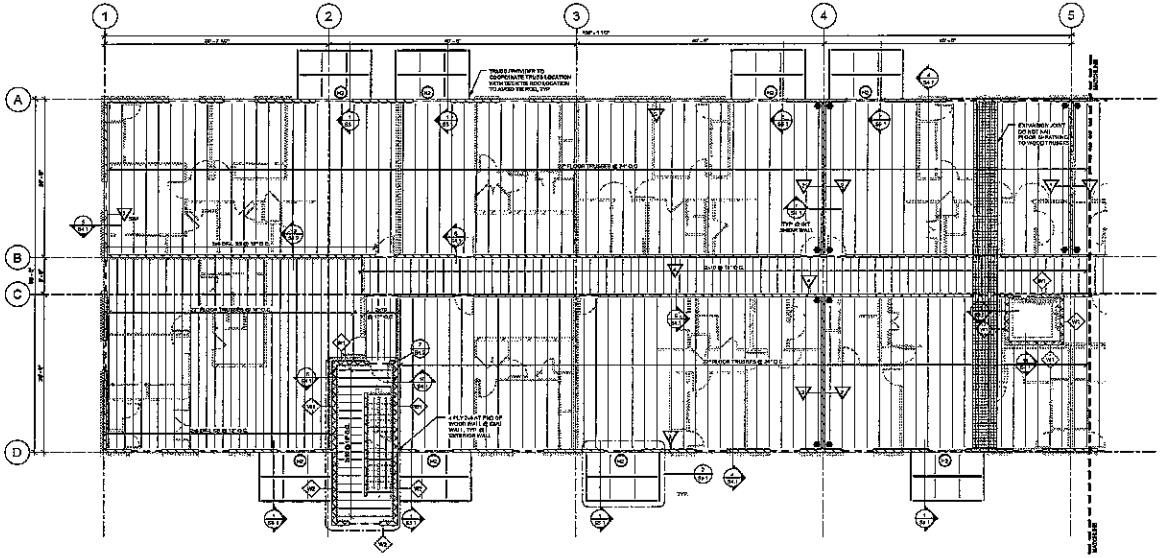


THIRD FLOOR FRAMING PLAN-EAST
1/8" = 1'-0"



THIRD FLOOR FRAMING PLAN-WEST
1/8" = 1'-0"

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FRAMING PLANS
1/8" = 1'-0"

PROJECT:
Altoona Towers-Bldg. B
1616 Adventureland Drive
Altoona, IA

DATE:	ISSUED FOR:	BY:	CHK'D	APR
09/04/2013	Issued for Review Set	TD		
10/02/2013	Issued for Permit Set/Revised			

Oct. 2, 2013

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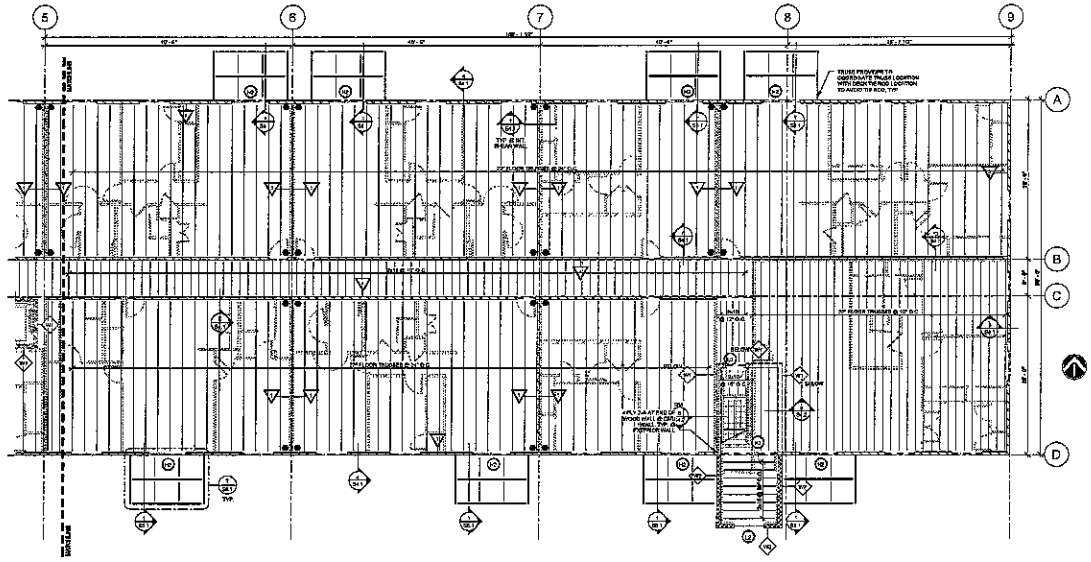
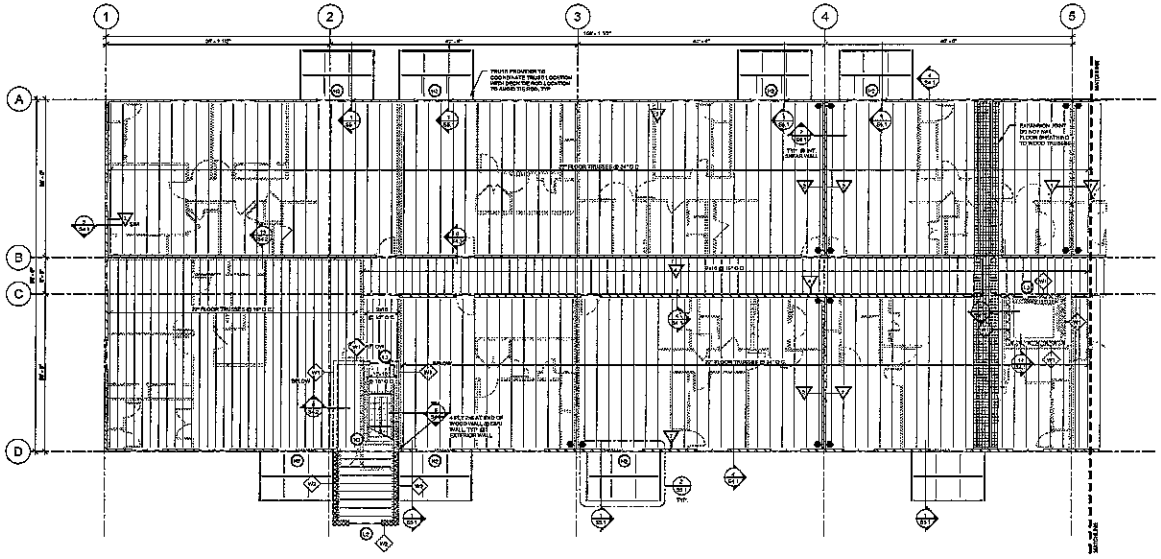


B FOURTH FLOOR FRAMING PLAN-EAST
1/8" = 1'-0"



A FOURTH FLOOR FRAMING PLAN-WEST
1/8" = 1'-0"

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Des Moines, Iowa www.rakerrhodes.com

FRAMING PLANS
1/8" = 1'-0"

PROJECT:
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1616 Adventureland Drive
Altoona, IA

DATE:	ISSUED FOR:	BY	CHK'D	APP'D
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10/02/2013	Issued for Framing Dwg/Permit			

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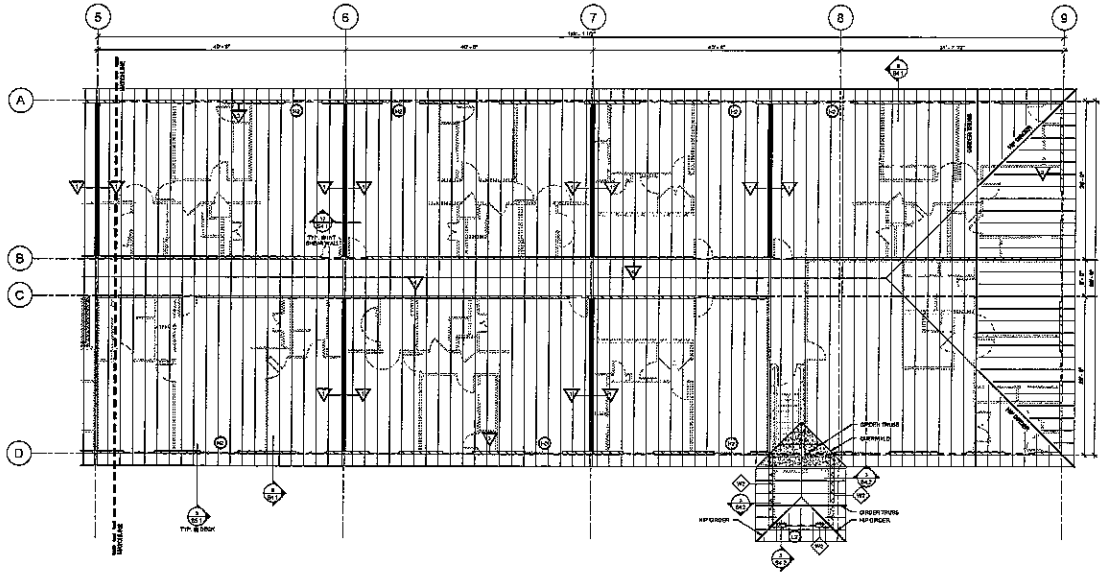
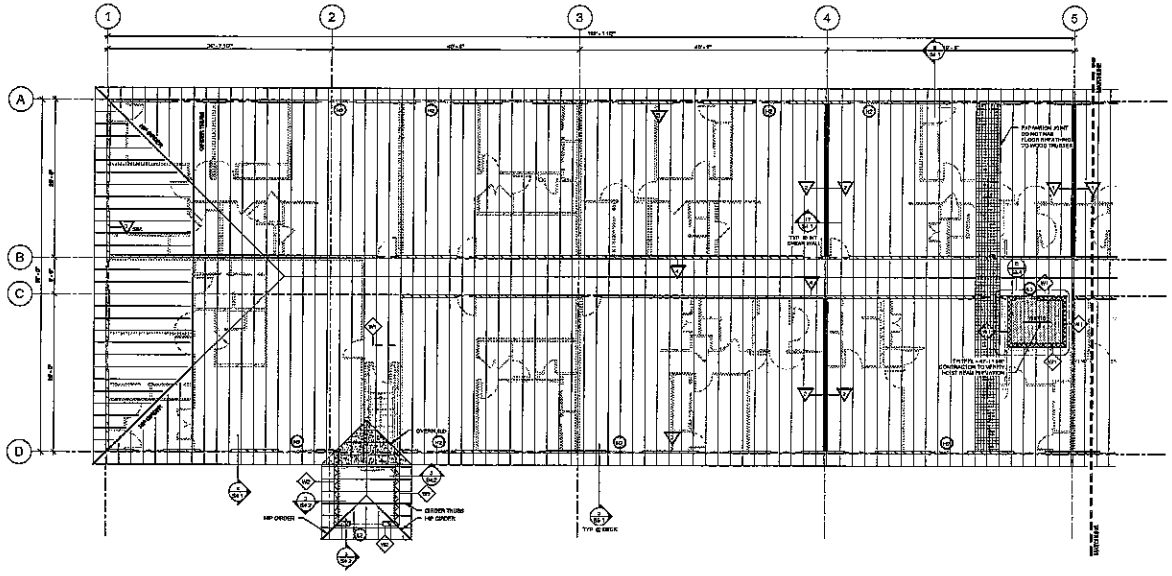
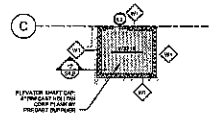


B ROOF FRAMING PLAN-EAST
1/8" = 1'-0"



A ROOF FRAMING PLAN-WEST
1/8" = 1'-0"



C PARTIAL ROOF FRAMING PLAN
1/8" = 1'-0"

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ROOF FRAMING PLAN
1/8" = 1'-0"

PROJECT:
Altoona Towers-Bldg. B
1616 Adventureland Drive
Altoona, IA

DATE:	ISSUED FOR:	BY:
09/14/2013	Issued for Foundation Bid Pkg.	RD
10/02/2013	Issued for Framing Bid Pkg.	RD

Oct. 2, 2013

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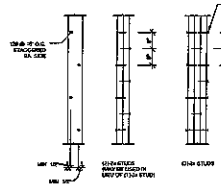
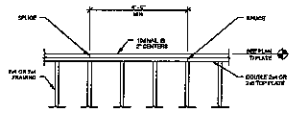
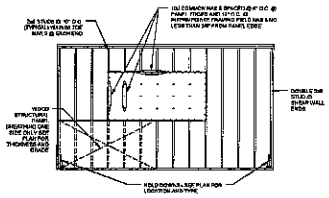


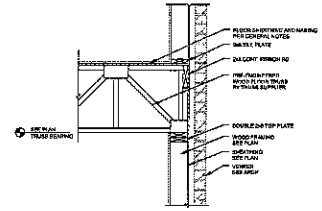
① BUILT UP 2x FRAMING
1/2" = 1'-0"



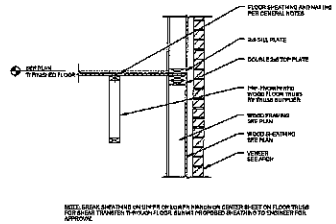
② TOP PLATE SPLICE
1/2" = 1'-0"



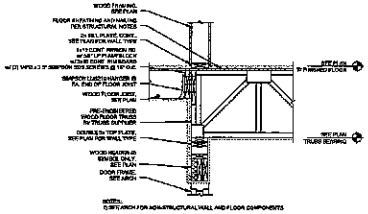
③ TYPICAL WOOD SHEAR WALL ELEVATION
1/4" = 1'-0"



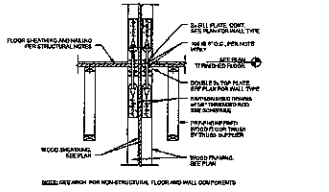
④ PERIMETER FLOOR FRAMING
3/4" = 1'-0"



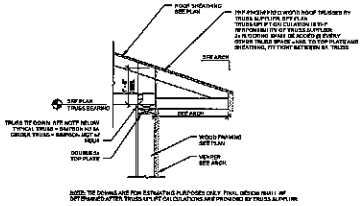
⑤ PERIMETER FLOOR FRAMING
3/4" = 1'-0"



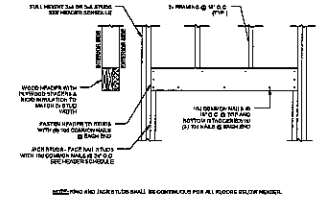
⑥ INTERIOR FLOOR FRAMING
3/4" = 1'-0"



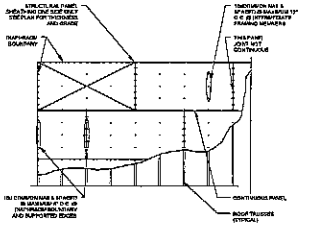
⑦ FLOOR-TO-FLOOR CONNECTION @ SHEAR WALL
3/4" = 1'-0"



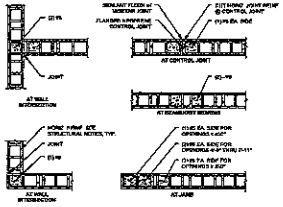
⑧ PERIMETER ROOF FRAMING
3/4" = 1'-0"



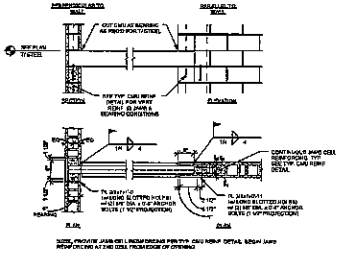
⑨ TYPICAL HEADER DETAIL
3/4" = 1'-0"



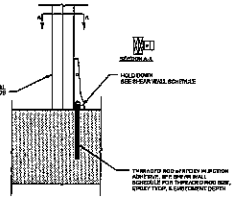
⑩ WOOD ROOF DIAPHRAGM NAILING
1/4" = 1'-0"



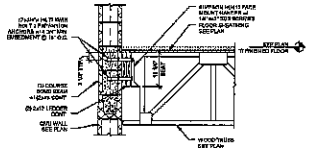
⑪ TYP. 8" CMU WALL REINF.
N.T.S.



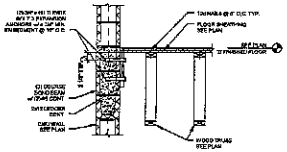
⑫ TYP. BEAM BEARING @ CMU
N.T.S.



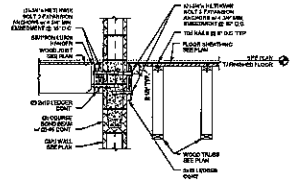
⑬ SHEAR WALL CONNECTION
3/4" = 1'-0"



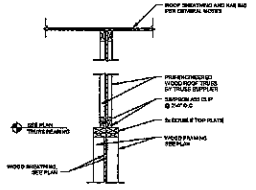
⑭ WOOD TRUSS @ CMU WALL
3/4" = 1'-0"



⑮ WOOD TRUSS @ CMU WALL
3/4" = 1'-0"



⑯ WOOD TRUSS @ CMU WALL
3/4" = 1'-0"



⑰ ROOF TRUSS CONNECTION TO SHEAR WALL
3/4" = 1'-0"

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ANDERSON, INDIANA 46011
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RAKER RHODES Engineering, Inc.
Dan Mariner, PMP
www.rakerrhodes.com

FRAMING DETAILS
As Indicated

PROJECT:
Altoona Towers-Bldg. B
1616 Adventureland Drive
Altoona, IA

DATE:	ISSUED FOR:	BY	CHK'D	APP'D
09/14/2012	Issued for Foundation Bid Permit	TC	AR	
10/02/2013	Issued for Framing Bid Permit	TC	AR	

Oct. 2, 2013

S4.1

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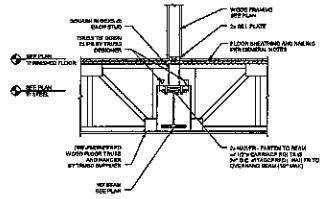
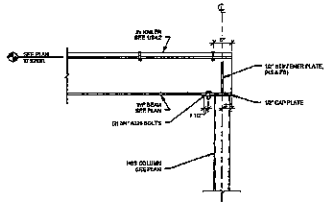
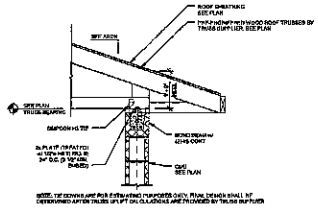


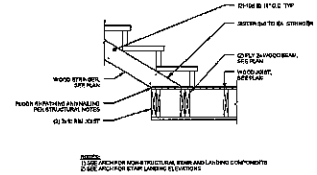
1 TYP. INTERIOR HEADER @ WALL JOG
3/4" = 1'-0"



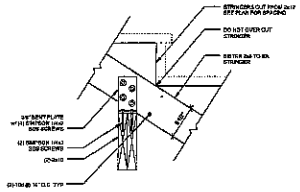
2 BEAM TO COLUMN DETAIL
3/4" = 1'-0"



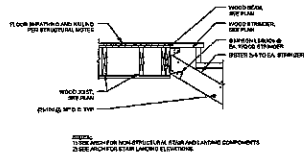
3 PERIMETER ROOF FRAMING-CMU
3/4" = 1'-0"



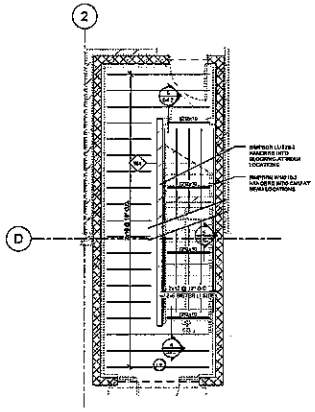
4 TYP. STAIR FRAMING @ BOTTOM OF STAIR STRINGER
3/4" = 1'-0"



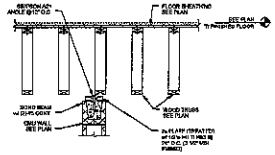
5 STAIR STRINGER @ WOOD BEAM
1 1/2" = 1'-0"



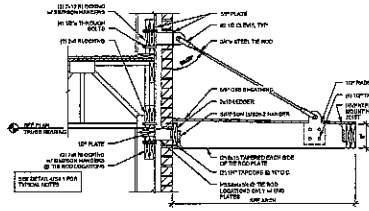
6 TYP. STAIR FRAMING @ TOP OF STAIR STRINGER
3/4" = 1'-0"



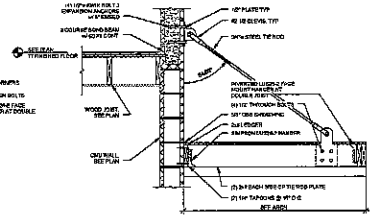
7 PARTIAL FRAMING PLAN @ STAIRS
1/4" = 1'-0"



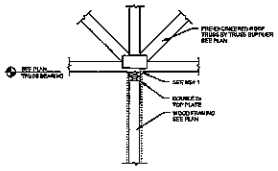
8 WOOD TRUSS @ CMU WALL-4TH FLOOR
3/4" = 1'-0"



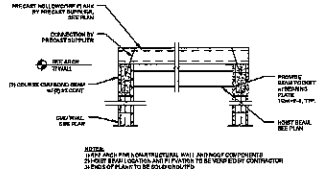
9 CANOPY @ EXTERIOR WALL
3/4" = 1'-0"



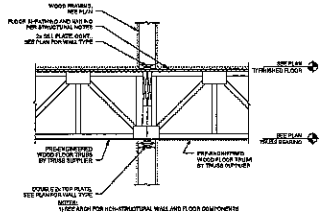
10 CANOPY @ EXTERIOR WALL
3/4" = 1'-0"



11 INTERIOR ROOF FRAMING
3/4" = 1'-0"



12 ELEVATOR SHAFT CAP
1/2" = 1'-0"



13 INTERIOR FLOOR FRAMING
3/4" = 1'-0"

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info@imprintinc.com

RAKER RHODES Engineering
Des Moines, Iowa www.rakerrhodes.com

FRAMING DETAILS
As Indicated

PROJECT:
Altoona Towers-Bldg. B
1616 Adventureland Drive
Altoona, IA

DATE	ISSUED FOR:	BY	CHK'D	BY	CHK'D
09/04/2013	Issued for Foundation Staff Review	TC	JB	JK	
10/02/2013	Issued for Permitting Submittal	TC	JB	JK	

Oct. 2, 2013

S4.2

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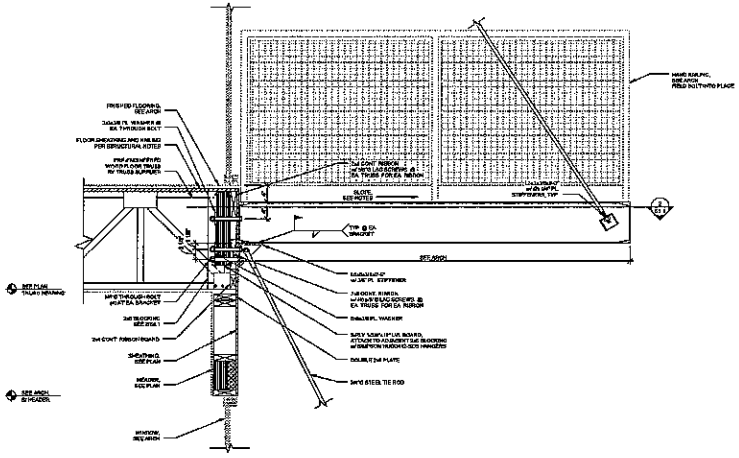
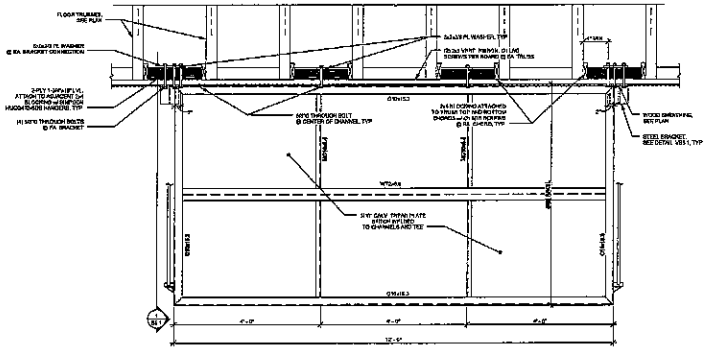
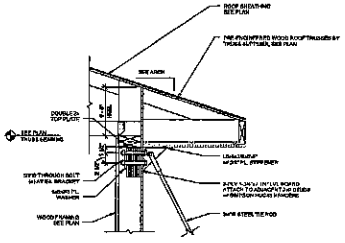


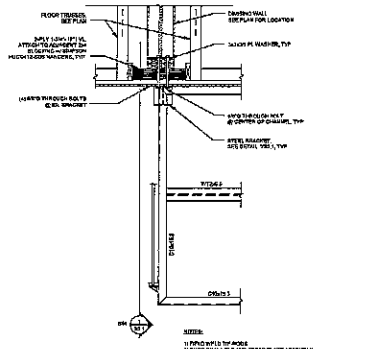
1 BALCONY FRAMING CONNECTION
1" = 1'-0"



2 BALCONY FRAMING PLAN
3/4" = 1'-0"



3 BALCONY FRAMING CONNECTION @ ROOF
1" = 1'-0"



4 BALCONY FRAMING PLAN-DEMISING WALL
3/4" = 1'-0"

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1601 E. ANDERSON BLVD.
ANDERSON, CARLSBAD
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info@imprintarchitects.com

RRE RAKER RHODES Engineering
Des Moines, Iowa www.raker-rhodes.com

BALCONY DETAILS
As Indicated

PROJECT:
Altoona Towers-Bldg. B
1616 Adventureland Drive
Altoona, IA

DATE	ISSUED FOR:	BY	CK
09/04/2013	Issued for Foundation Bid Permit	RD	JR
09/20/2013	Issued for Framing Bid Permit	RD	JR

Oct. 2, 2013

S5.1

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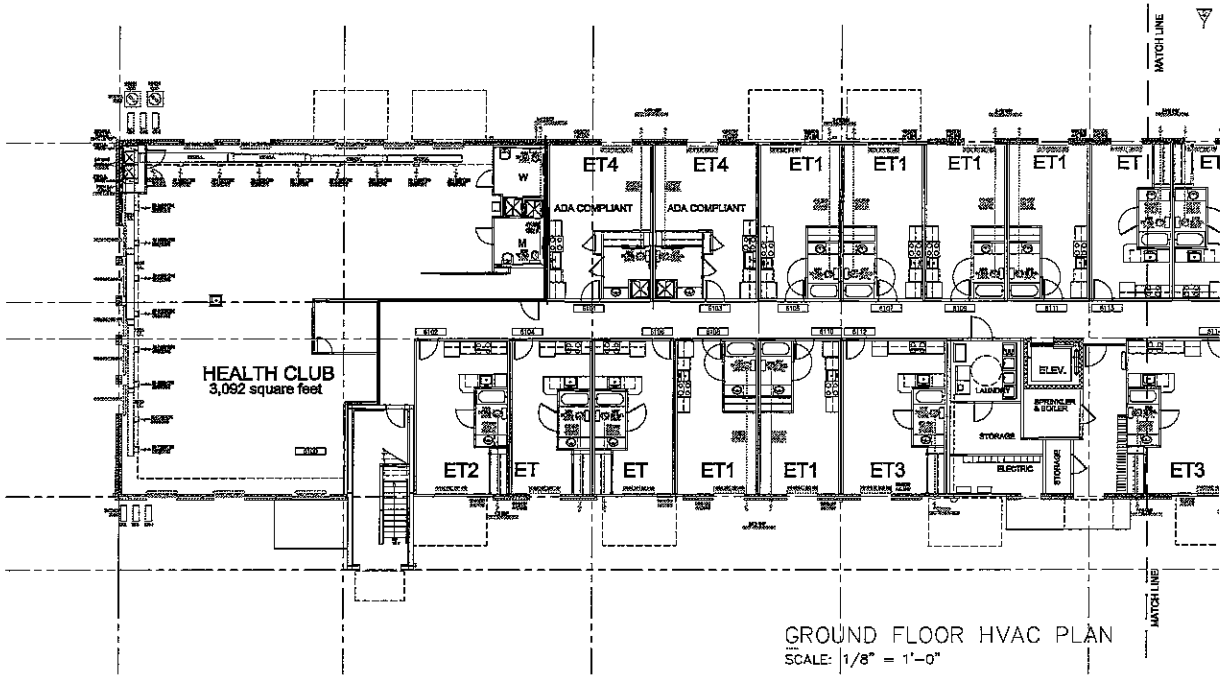
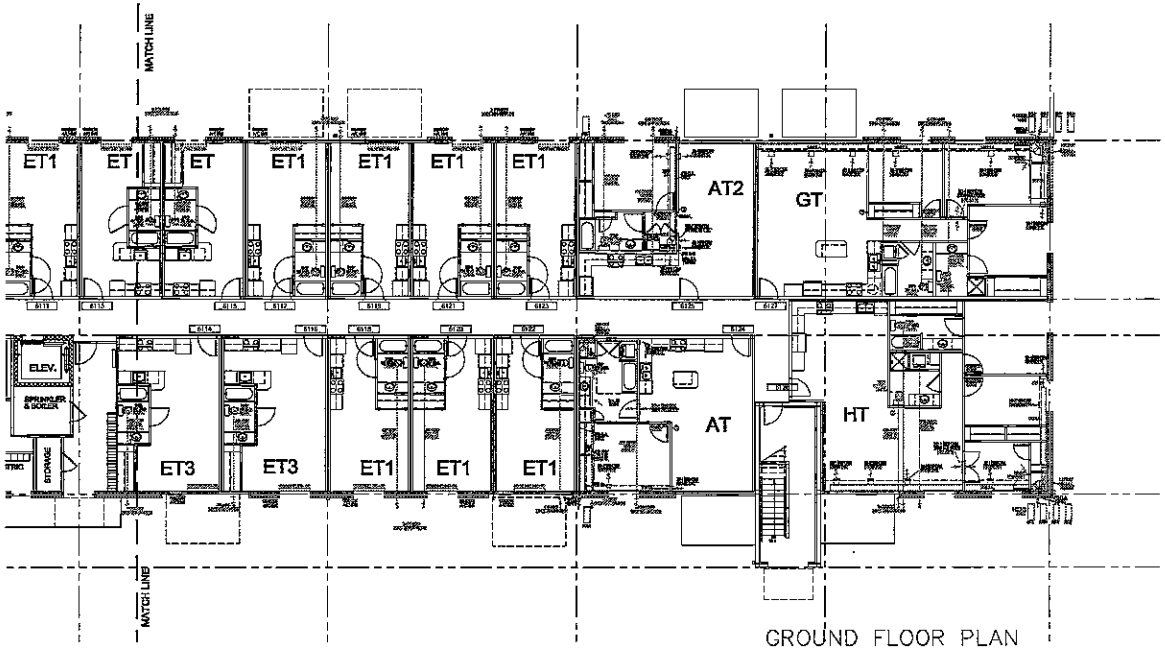


GROUND FLOOR HVAC PLAN
SCALE: 1/8" = 1'-0"



GROUND FLOOR PLAN
SCALE: 1/8" = 1'-0"

BELL BROTHERS
2822 6th Avenue
Des Moines, IA 50314
PHONE: 515-244-8911
FAX: 515-244-8944
BELL BROTHERS HEATING AND AIR CONDITIONING, INC.

CURRIE ENGINEERING ASSOCIATES, PLLC
12365 NW Bragg Drive
Polk City, IA 50226
PHONE: 515-984-7727
FAX: 515-984-7728
CEA

GENERAL HVAC NOTES:

1. ALL INSTALLATIONS SHALL CONFORM TO ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND ORDINANCES INCLUDING, BUT NOT LIMITED TO, THE PROVISIONS OF 2009 IBC, 2009 IMC, 2009 UPC (AMENDED TO ALLOW THE USE OF IBC TABLE 2902.1, OR 2009 IPC TABLE 403.1 FOR FIXTURE COUNTS ONLY), 2011 NEC, 2009 ADAAG, 2009 IECC, AND 2009 IFC.
2. CONTRACTORS SHALL INSTALL NEW MATERIALS. INSTALLATIONS SHALL MAINTAIN ADEQUATE CLEARANCES AND ACCESS FOR SERVICE TO ALL INSTALLED EQUIPMENT.
3. RECTANGULAR SUPPLY AND RETURN DUCTS ARE TO BE INSULATED WITH 1/2"-3# DUCT LINER. SIZES SHOWN ARE METAL SIZES AND HAVE BEEN OVERSIZED FOR LINER.
4. CONTRACTOR TO VERIFY THAT RREF EXHAUST DUCT AND DRYER VENT TERMINATIONS ARE THE CODE REQUIRED DISTANCES FROM FRESH AIR INTAKES AND OPERABLE WINDOWS AND DOORS.
5. WHERE UNDERCUT DOORS ARE SHOWN, DOORS SHALL BE UNDERCUT BY 1-1/2".
6. 1BR UNITS RECEIVE 3/4T DUCTED MINI-SPLIT AIR HANDLERS EQUAL TO A FUJITSU 9RLFCD, A TUTCO 26" X 6" 2KW MODEL DHC-2KW-26X6 ELECTRIC DUCT HEATER, AND A UTD-ECS5A AUXILIARY HTR CONNECTOR.
7. 2BR UNITS RECEIVE 1T DUCTED MINI-SPLIT AIR HANDLERS EQUAL TO A FUJITSU 12RLFCD, A TUTCO 26" X 6" 2KW MODEL DHC-2KW-26X6 ELECTRIC DUCT HEATER, AND A UTD-ECS5A AUXILIARY HTR CONNECTOR.
8. 3BR UNITS RECEIVE 1.5T DUCTED MINI-SPLIT AIR HANDLERS EQUAL TO A FUJITSU 18RLFCD, A TUTCO 34" X 6" 3KW MODEL DHC-3KW-34X6 ELECTRIC DUCT HEATER, AND A UTD-ECS5A AUXILIARY HTR CONNECTOR.
9. HEALTH CLUB RECEIVES 2-4T HEAT PUMP AIR HANDLERS EQUAL TO A 4EVB-HW R410 (TXV FIRST CO 2-STAGE), AND A CARRIER 24ABC645A003 4T A/C UNIT.

B

13-103

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1915 N. ANDERY BLVD #203
AMES, IOWA 50010
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FAX: (515) 955-5331
E-MAIL: imprint@imprint-rc.com

Ground Floor HVAC Plan

1/8"=1'-0"

PROJECT:
Altoona Towers
1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:
10-25-13	SERVICE/CONSTRUCTION
11-11-13	APARTMENT UNIT LAYOUTS

NOV 11 2013

HB101

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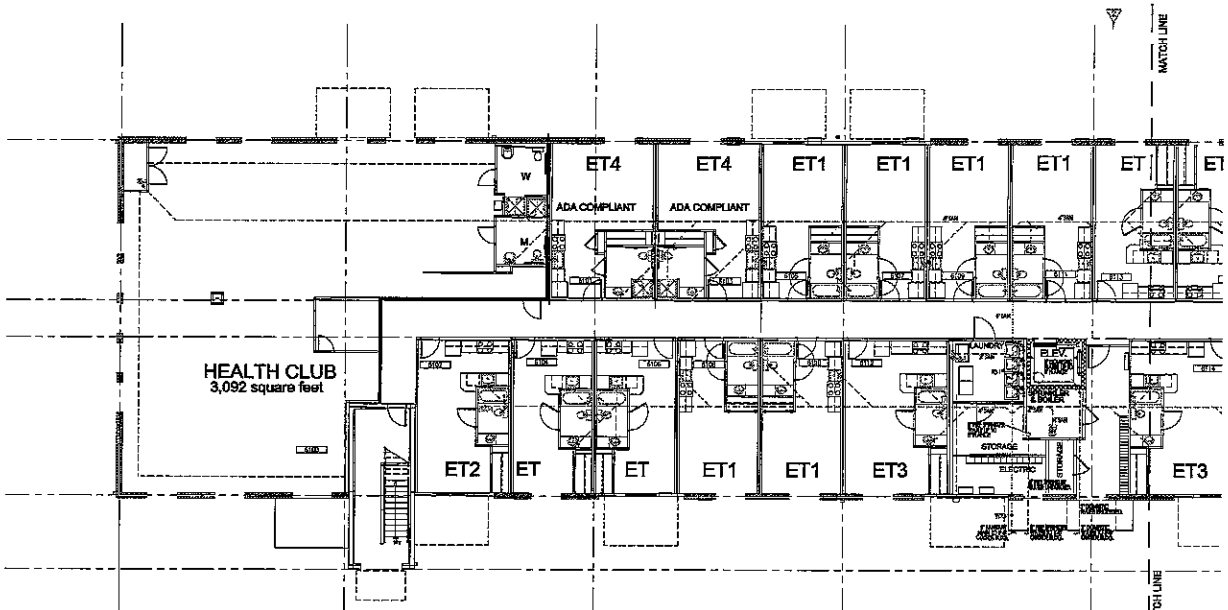
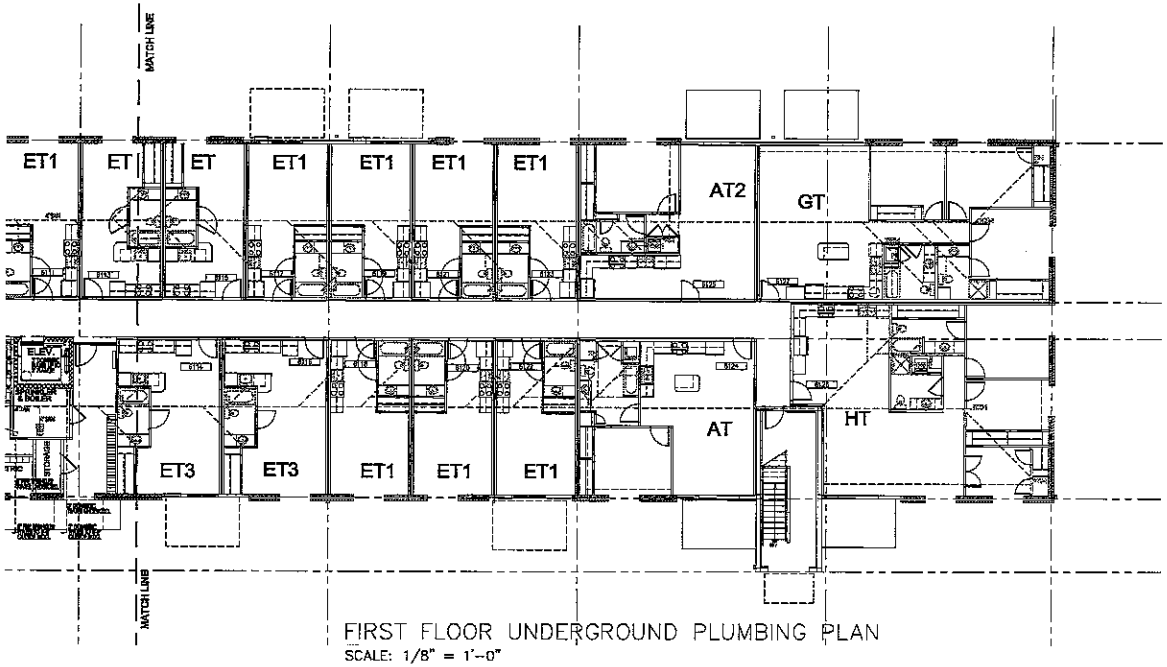


FIRST FLOOR UNDERGROUND PLUMBING PLAN
SCALE: 1/8" = 1'-0"



FIRST FLOOR UNDERGROUND PLUMBING PLAN
SCALE: 1/8" = 1'-0"

TORSTENSEN PLUMBING INC.
33052 Dix Avenue
Waukee, IA 50263
PHONE: 515-987-1911
FAX: 515-987-1913
TPI PLUMBING CONTRACTORS

CURRIE ENGINEERING ASSOCIATES, PLC
12365 NW Bugg Drive
Polk City, IA 50226
PHONE: 515-984-7727
FAX: 515-984-7728
CEA

GENERAL PLUMBING NOTES:

1. ALL INSTALLATIONS SHALL CONFORM TO ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND ORDINANCES INCLUDING, BUT NOT LIMITED TO, THE PROVISIONS OF 2009 IBC, 2009 IMC, 2009 UPC (AMENDED TO ALLOW THE USE OF IBC TABLE 2902.1, OR 2009 IPC TABLE 403.1 FOR FIXTURE COUNTS ONLY), 2011 NEC, 2009 ADAAG, 2009 IECC, AND 2009 IFC.
2. CONTRACTORS SHALL INSTALL NEW MATERIALS. INSTALLATIONS SHALL MAINTAIN ADEQUATE CLEARANCES AND ACCESS FOR SERVICE TO ALL INSTALLED EQUIPMENT.
3. NOT ALL PIPING AND ACCESSORIES HAVE BEEN SHOWN. CONTRACTOR SHALL INSTALL SUPPLIES AND STOPS PER APPLICABLE CODES AND PER GOOD PLUMBING PRACTICE.
4. WATER PIPING SIZES SHOWN ON PLANS ARE APPROXIMATE. ACTUAL PIPING SHALL BE SIZED PER APPLICABLE PLUMBING CODE.
5. NOT ALL PLUMBING VENT PIPING HAS BEEN SHOWN. CONTRACTOR SHALL INSTALL PLUMBING VENT PIPING PER APPLICABLE CODES AND PER GOOD PLUMBING PRACTICE.
6. NOT ALL CLEANOUTS HAVE BEEN SHOWN. CONTRACTORS SHALL INSTALL CLEANOUTS PER APPLICABLE CODES AND AS NEEDED FOR PROPER SERVICE. CLEANOUTS SHALL ALSO BE INSTALLED AT ALL CHANGES OF DIRECTION.
7. NOT ALL ABOVE-FLOOR WASTE PIPING HAS BEEN SHOWN. CONTRACTOR SHALL INSTALL WASTE PIPING PER APPLICABLE CODE, AND AS NEEDED FOR PROPER SERVICE. EXACT ROUTING CAN BE DETERMINED BY THE CONTRACTOR, IN CONJUNCTION WITH THE GENERAL CONTRACTOR AND WITH OTHER TRADES.
8. ALL WATER SUPPLY AND DISTRIBUTION SYSTEMS SHALL HAVE A CROSS CONNECTION CONTROL USING BACKFLOW PREVENTION DEVICES AS APPLICABLE AND REQUIRED BY PROVISIONS OF THE UNIFORM PLUMBING CODE, CHAPTER 6.
9. PLUMBING CONTRACTOR TO COORDINATE CONDENSATE DRAIN PIPING WITH GENERAL AND HVAC CONTRACTORS.
10. WATER PIPING MAY BE PEX TUBING.
11. ALL UNDERGROUND SANITARY PIPING MAY BE PVC UNLESS PROJECT IS A LUST SITE, IN WHICH CASE IT MUST BE CAST IRON .
12. CONTRACTOR TO FURNISH AND INSTALL A SINGLE WATER METER FOR THE ENTIRE BUILDING.
13. ANY PLUMBING PIPING IN AN EXTERIOR WALL MUST BE ON THE WARM SIDE OF THE INSULATION – NO EXCEPTIONS.

B

13-103

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DES MOINES, IOWA 50322
PHONE: (515) 285-5330
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info@imprintarchitects.com

1st Floor Underground Pbg Plan
1/8"=1'-0"

PROJECT:
Altoona Towers
1616 Adventureland Drive
Altoona, IA 50009

DATE:	ISSUED FOR:	DRWN	REVIEW
10-25-13	ISSUE FOR CONSTRUCTION		
11-11-13	ADVENTURE UNIT LAYOUTS		

NOV 11 2013

PB100

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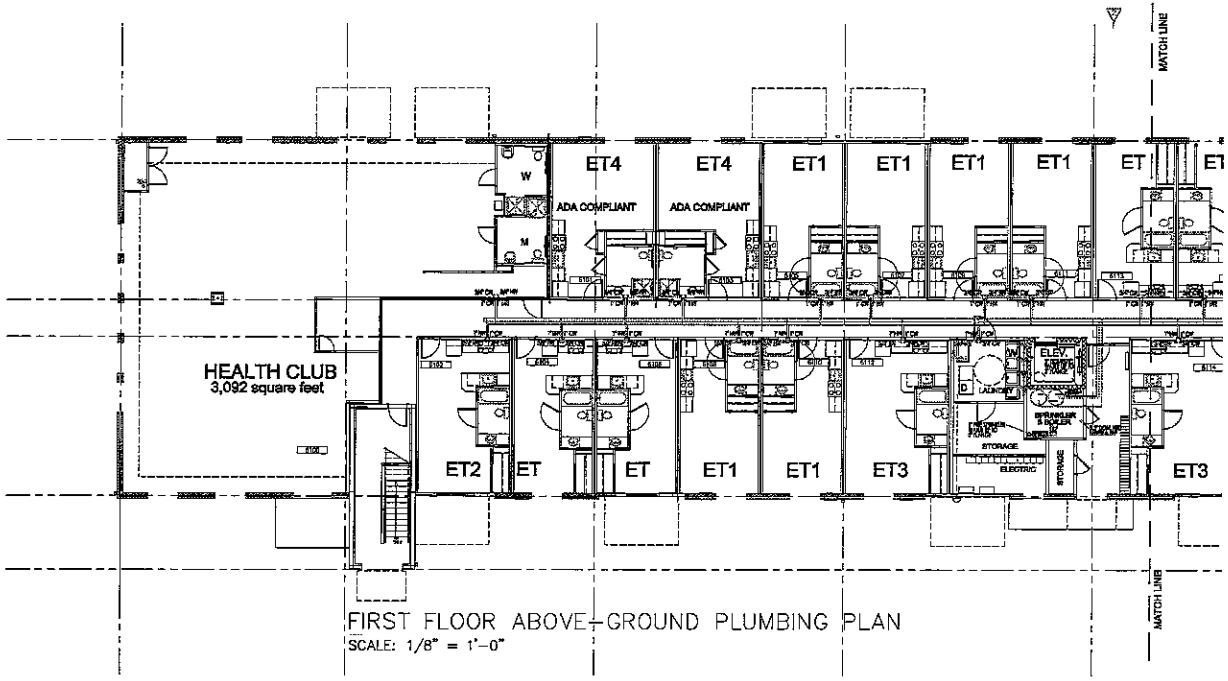
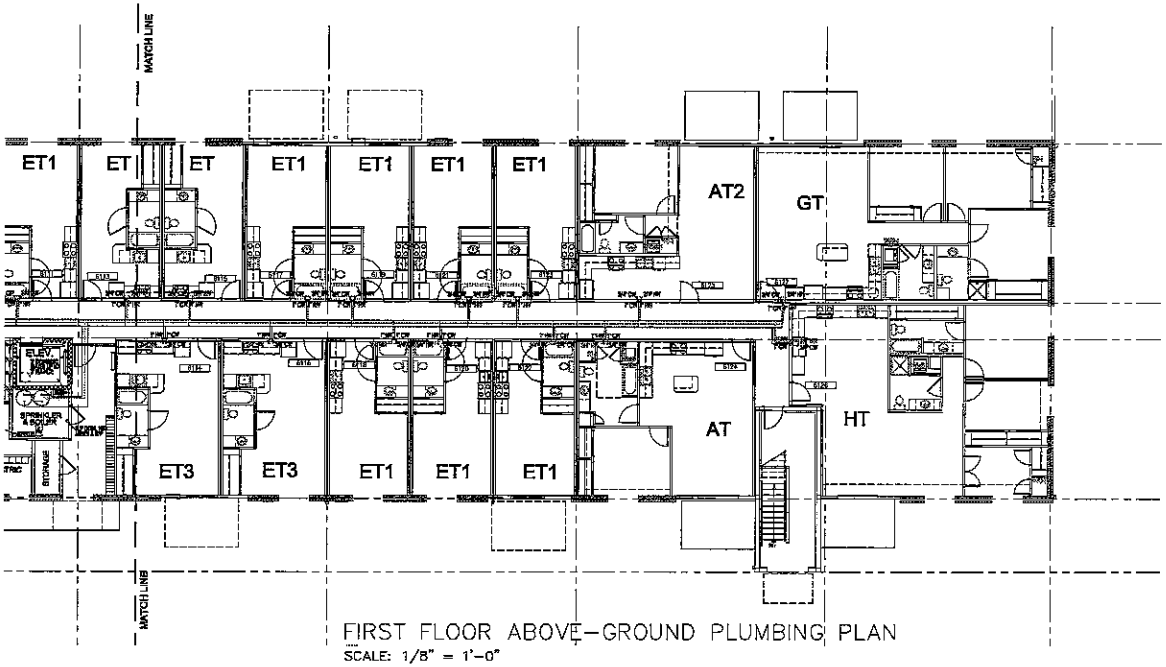


FIRST FLOOR ABOVE-GROUND PLUMBING PLAN
SCALE: 1/8" = 1'-0"



FIRST FLOOR ABOVE-GROUND PLUMBING PLAN
SCALE: 1/8" = 1'-0"

TORSTENSEN PLUMBING INC.
33082 Ute Avenue
Waukee, IA 50263
PHONE: 515-987-1911
FAX: 515-987-1913
TPI PLUMBING CONTRACTORS

CURRIE ENGINEERING ASSOCIATES, PLC
12565 NW Hogg Drive
Polk City, IA 50226
PHONE: 515-984-7727
FAX: 515-984-7728
CEA

GENERAL PLUMBING NOTES:

1. ALL INSTALLATIONS SHALL CONFORM TO ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND ORDINANCES INCLUDING, BUT NOT LIMITED TO, THE PROVISIONS OF 2006 IBC, 2009 IMC, 2000 UPC (AMENDED TO ALLOW THE USE OF IBC TABLE 2902.1, OR 2009 IPC TABLE 403.1 FOR FIXTURE COUNTS ONLY), 2011 NEC, 2009 ADAAG, 2009 IECC, AND 2009 IFC.
2. CONTRACTORS SHALL INSTALL NEW MATERIALS. INSTALLATIONS SHALL MAINTAIN ADEQUATE CLEARANCES AND ACCESS FOR SERVICE TO ALL INSTALLED EQUIPMENT.
3. NOT ALL PIPING AND ACCESSORIES HAVE BEEN SHOWN. CONTRACTOR SHALL INSTALL SUPPLIES AND STOPS PER APPLICABLE CODES AND PER GOOD PLUMBING PRACTICE.
4. WATER PIPING SIZES SHOWN ON PLANS ARE APPROXIMATE. ACTUAL PIPING SHALL BE SIZED PER APPLICABLE PLUMBING CODE.
5. NOT ALL PLUMBING VENT PIPING HAS BEEN SHOWN. CONTRACTOR SHALL INSTALL PLUMBING VENT PIPING PER APPLICABLE CODES AND PER GOOD PLUMBING PRACTICE.
6. NOT ALL CLEANOUTS HAVE BEEN SHOWN. CONTRACTORS SHALL INSTALL CLEANOUTS PER APPLICABLE CODES AND AS NEEDED FOR PROPER SERVICE. CLEANOUTS SHALL ALSO BE INSTALLED AT ALL CHANGES OF DIRECTION.
7. NOT ALL ABOVE-FLOOR WASTE PIPING HAS BEEN SHOWN. CONTRACTOR SHALL INSTALL WASTE PIPING PER APPLICABLE CODE, AND AS NEEDED FOR PROPER SERVICE. EXACT ROUTING CAN BE DETERMINED BY THE CONTRACTOR, IN CONJUNCTION WITH THE GENERAL CONTRACTOR AND WITH OTHER TRADES.
8. ALL WATER SUPPLY AND DISTRIBUTION SYSTEMS SHALL HAVE A CROSS CONNECTION CONTROL USING BACKFLOW PREVENTION DEVICES AS APPLICABLE AND REQUIRED BY PROVISIONS OF THE UNIFORM PLUMBING CODE, CHAPTER 6.
9. PLUMBING CONTRACTOR TO COORDINATE CONDENSATE DRAIN PIPING WITH GENERAL AND HVAC CONTRACTORS.
10. WATER PIPING MAY BE PEX TUBING.
11. ALL UNDERGROUND SANITARY PIPING MAY BE PVC UNLESS PROJECT IS A LUST SITE, IN WHICH CASE IT MUST BE CAST IRON .
12. CONTRACTOR TO FURNISH AND INSTALL A SINGLE WATER METER FOR THE ENTIRE BUILDING.
13. ANY PLUMBING PIPING IN AN EXTERIOR WALL MUST BE ON THE WARM SIDE OF THE INSULATION – NO EXCEPTIONS.

B

13-103

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1601 N. ANKENY BLVD. (P.O. BOX 1)
ANKENY, IOWA, 50023
PHONE: (515) 965-5329
(515) 965-5329
FAX:
bbecker@imprintdesign.com

1st Floor Above-Grd Pbg Plan

1/8"=1'-0"

PROJECT:
Altoona Towers
1616 Adventureland Drive
Altoona, IA 50009

DATE:	ISSUE FOR:	1st	2nd
10-03-13	ISSUE FOR CONSTRUCTION		
11-11-13	APARTMENT UNIT LAYOUTS		

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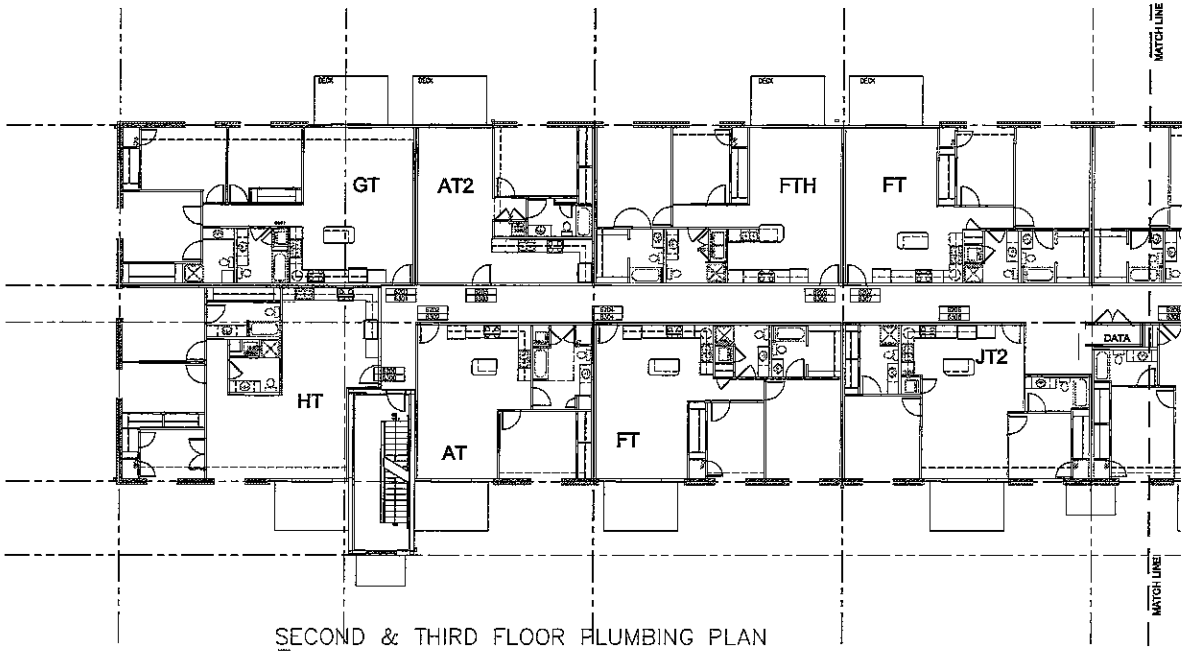
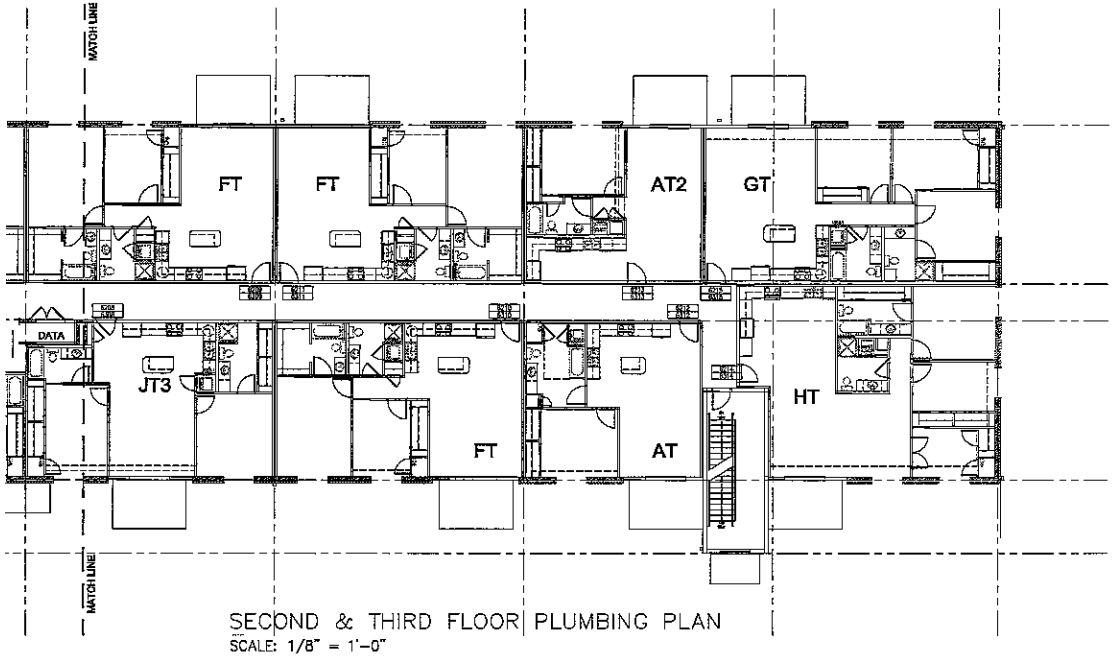


SECOND & THIRD FLOOR PLUMBING PLAN
SCALE: 1/8" = 1'-0"



SECOND & THIRD FLOOR PLUMBING PLAN
SCALE: 1/8" = 1'-0"

TORSTENSEN PLUMBING INC.
33082 Ute Avenue
Waukee, IA 50263
PHONE: 515-987-1911
FAX: 515-987-1913
TPI PLUMBING CONTRACTORS

CURRIE ENGINEERING ASSOCIATES, PLC
12365 NW Bugg Drive
Polk City, IA 50226
PHONE: 515-984-7727
FAX: 515-984-7728
CEA

GENERAL PLUMBING NOTES:

1. ALL INSTALLATIONS SHALL CONFORM TO ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND ORDINANCES INCLUDING, BUT NOT LIMITED TO, THE PROVISIONS OF 2009 IBC, 2009 IMC, 2009 UPC (AMENDED TO ALLOW THE USE OF IBC TABLE 2902.1, OR 2009 IPC TABLE 403.1 FOR FIXTURE COUNTS ONLY), 2011 NEC, 2009 ADAAG, 2009 IECC, AND 2009 IFC.
2. CONTRACTORS SHALL INSTALL NEW MATERIALS. INSTALLATIONS SHALL MAINTAIN ADEQUATE CLEARANCES AND ACCESS FOR SERVICE TO ALL INSTALLED EQUIPMENT.
3. NOT ALL PIPING AND ACCESSORIES HAVE BEEN SHOWN. CONTRACTOR SHALL INSTALL SUPPLIES AND STOPS PER APPLICABLE CODES AND PER GOOD PLUMBING PRACTICE.
4. WATER PIPING SIZES SHOWN ON PLANS ARE APPROXIMATE. ACTUAL PIPING SHALL BE SIZED PER APPLICABLE PLUMBING CODE.
5. NOT ALL PLUMBING VENT PIPING HAS BEEN SHOWN. CONTRACTOR SHALL INSTALL PLUMBING VENT PIPING PER APPLICABLE CODES AND PER GOOD PLUMBING PRACTICE.
6. NOT ALL CLEANOUTS HAVE BEEN SHOWN. CONTRACTORS SHALL INSTALL CLEANOUTS PER APPLICABLE CODES AND AS NEEDED FOR PROPER SERVICE. CLEANOUTS SHALL ALSO BE INSTALLED AT ALL CHANGES OF DIRECTION.
7. NOT ALL ABOVE-FLOOR WASTE PIPING HAS BEEN SHOWN. CONTRACTOR SHALL INSTALL WASTE PIPING PER APPLICABLE CODE AND AS NEEDED FOR PROPER SERVICE. EXACT ROUTING CAN BE DETERMINED BY THE CONTRACTOR, IN CONJUNCTION WITH THE GENERAL CONTRACTOR AND WITH OTHER TRADES.
8. ALL WATER SUPPLY AND DISTRIBUTION SYSTEMS SHALL HAVE A CROSS CONNECTION CONTROL USING BACKFLOW PREVENTION DEVICES AS APPLICABLE AND REQUIRED BY PROVISIONS OF THE UNIFORM PLUMBING CODE, CHAPTER 6.
9. PLUMBING CONTRACTOR TO COORDINATE CONDENSATE DRAIN PIPING WITH GENERAL AND HVAC CONTRACTORS.
10. WATER PIPING MAY BE PEX TUBING.
11. ALL UNDERGROUND SANITARY PIPING MAY BE PVC UNLESS PROJECT IS A LUST SITE, IN WHICH CASE IT MUST BE CAST IRON.
12. CONTRACTOR TO FURNISH AND INSTALL A SINGLE WATER METER FOR THE ENTIRE BUILDING.
13. ANY PLUMBING PIPING IN AN EXTERIOR WALL MUST BE ON THE WARM SIDE OF THE INSULATION – NO EXCEPTIONS.

B

13-103

imprint RC C2
1405 S. LINDER AVE. STE 100
AMES, IOWA 50010
PHONE: (515) 233-2338
FAX: (515) 598-3338
info@imprintarchitects.com

Second & Third Floor Plbg Plans

1/8"=1'-0"

PROJECT:
Altoona Towers
1616 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:	REV.	BY
11-20-13	ISSUE FOR CONSTRUCTION		

NOV 20, 2013

PB102

imprint RC C2

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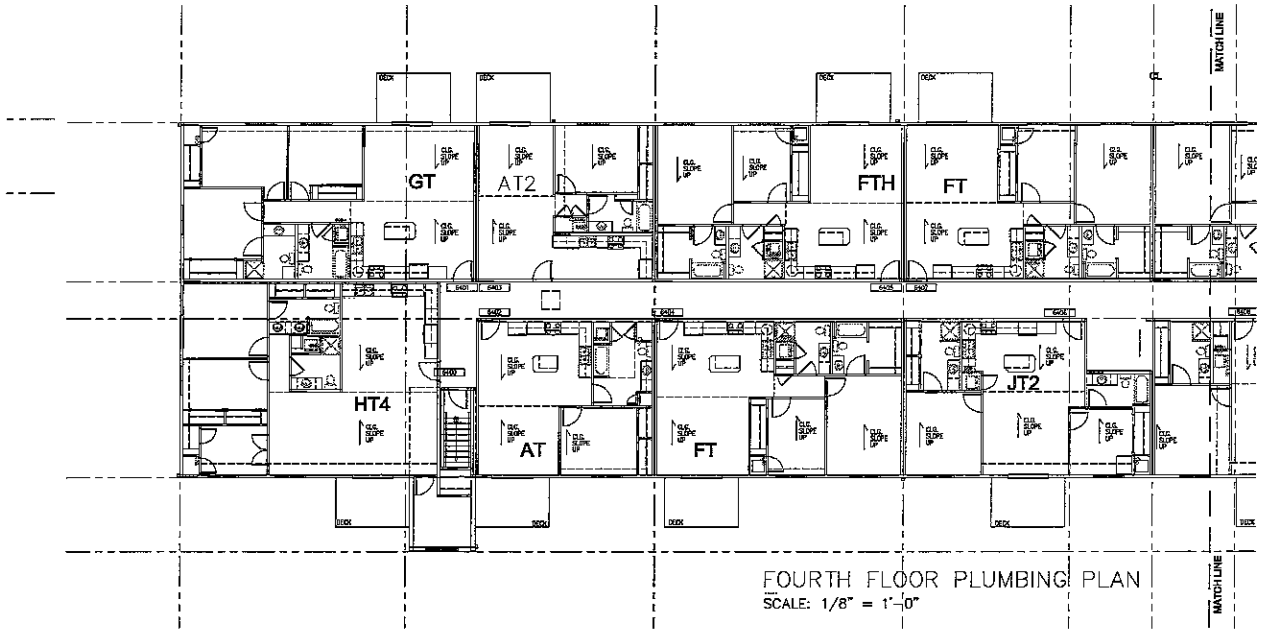
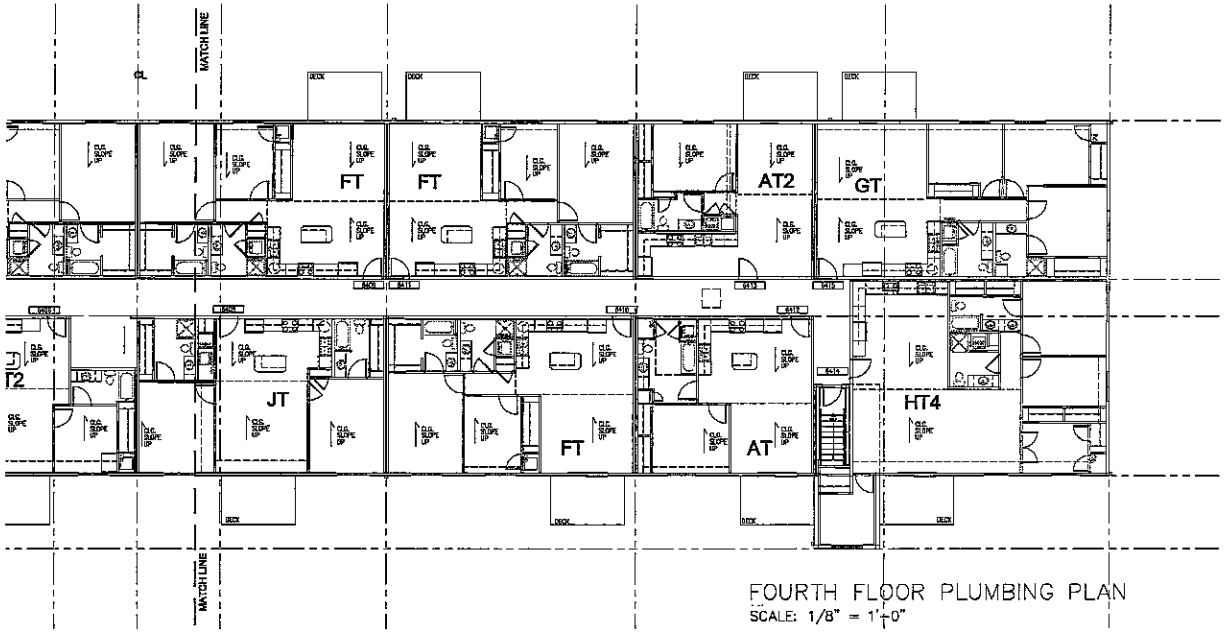


FOURTH FLOOR PLUMBING PLAN
SCALE: 1/8" = 1'-0"



FOURTH FLOOR PLUMBING PLAN
SCALE: 1/8" = 1'-0"

TORSTENSEN PLUMBING INC.
33082 Ute Avenue
Windsor, IA 50263
PHONE: 515-987-1911
FAX: 515-987-1913
TPI
PLUMBING CONTRACTORS

CURRIE ENGINEERING ASSOCIATES, PLC
12365 NW Bugg Drive
Polk City, IA 50226
PHONE: 515-984-7727
FAX: 515-984-7728
CEA

GENERAL PLUMBING NOTES:

1. ALL INSTALLATIONS SHALL CONFORM TO ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND ORDINANCES INCLUDING, BUT NOT LIMITED TO, THE PROVISIONS OF 2009 IBC, 2009 IMC, 2009 UPC (AMENDED TO ALLOW THE USE OF IBC TABLE 2902.1, OR 2009 IPC TABLE 403.1 FOR FIXTURE COUNTS ONLY), 2011 NEC, 2009 ADAAG, 2009 IECC, AND 2009 IFC.
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13. ANY PLUMBING PIPING IN AN EXTERIOR WALL MUST BE ON THE WARM SIDE OF THE INSUBATION – NO EXCEPTIONS.

B

imprint RC
1605 S. MERLE HAY RD.
AMES, IOWA 50010
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Fourth Floor Plumbing Plan

1/8"=1'-0"

PROJECT:
Altoona Towers
1615 Adventureland Drive
Altoona, IA 50009

DATE	ISSUED FOR:	BY
11-20-13	BIDDING FOR CONSTRUCTION	

Nov. 20, 2013

PB103

imprint RC

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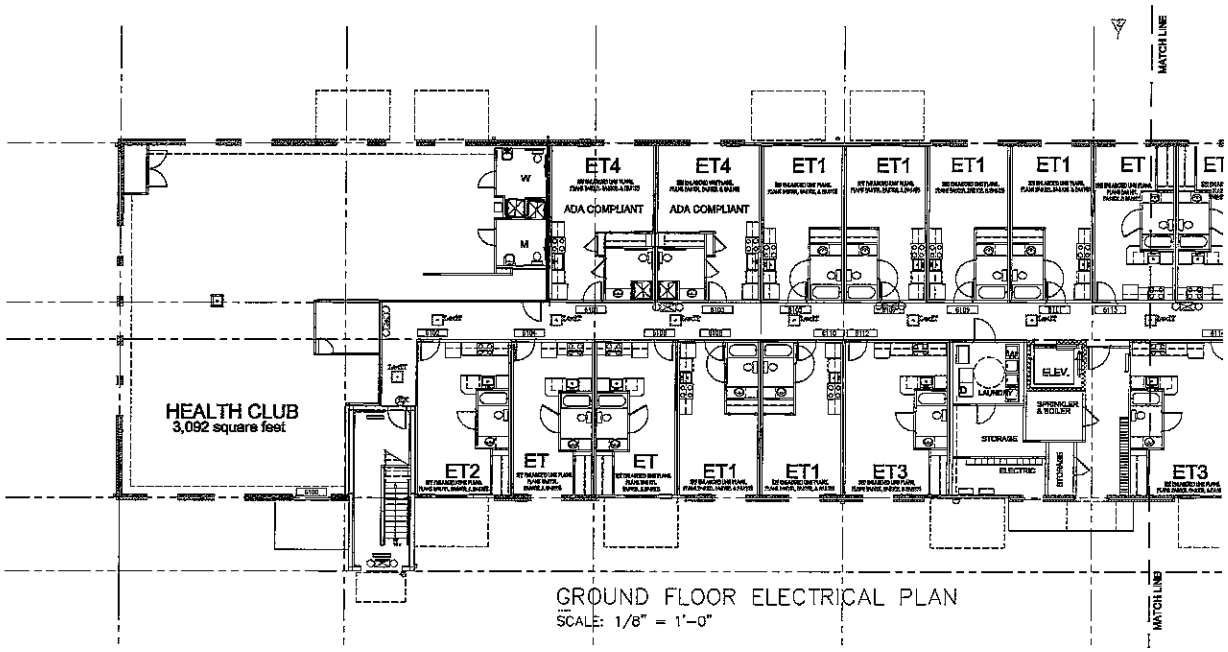
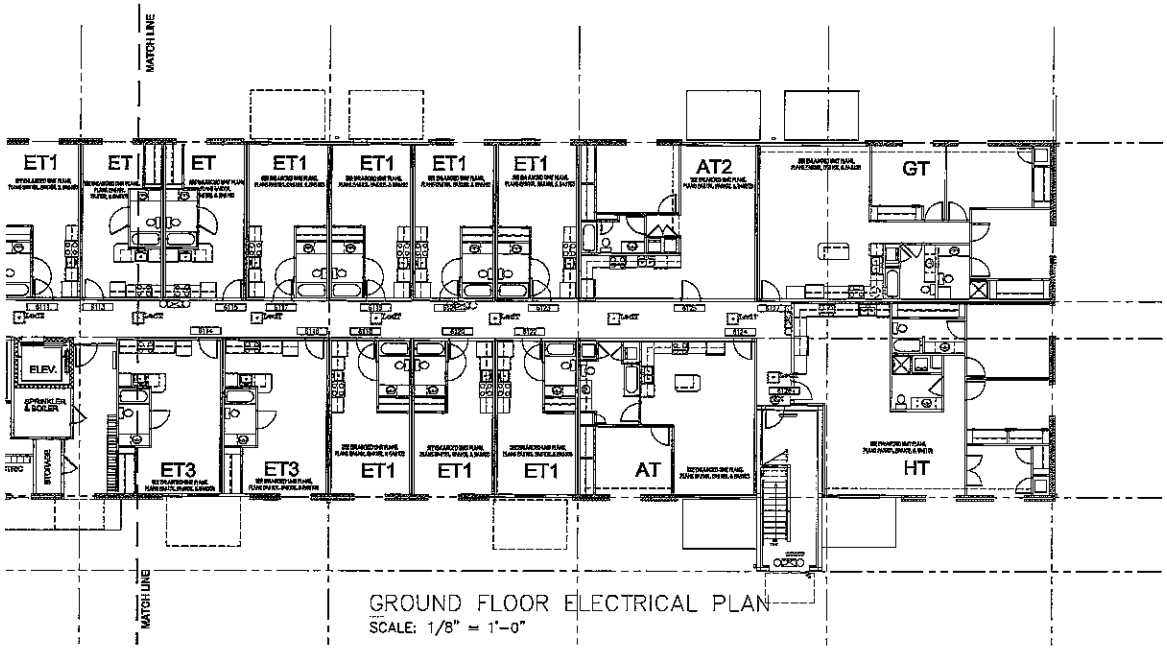


GROUND FLOOR ELECTRICAL PLAN
SCALE: 1/8" = 1'-0"



GROUND FLOOR ELECTRICAL PLAN
SCALE: 1/8" = 1'-0"

JASPERING ELECTRIC
2716 SE 5th, Suite 2
Ames, IA 50010
PHONE: 515-232-4276
FAX: 515-663-8890
CELL: 515-203-6966

CURRIE ENGINEERING ASSOCIATES, PLC
12363 NW Hogg Drive
Polk City, IA 50226
PHONE: 515-984-7727
FAX: 515-984-7728
CEA

GENERAL ELECTRICAL NOTES:

1. ALL INSTALLATIONS SHALL CONFORM TO ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND ORDINANCES INCLUDING, BUT NOT LIMITED TO, THE PROVISIONS OF 2009 IBC, 2009 IMC, 2009 UPC (AMENDED TO ALLOW THE USE OF IBC TABLE 2902.1, OR 2009 IPC TABLE 403.1 FOR FIXTURE COUNTS ONLY), 2011 NEC, 2009 ADAAG, 2009 IECC, AND 2009 IFC.
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3. CONTRACTORS SHALL FURNISH AND INSTALL A COMPLETE FIRE ALARM SYSTEM, AS REQUIRED BY NFPA 72 AND ANY OTHER APPLICABLE CODE, ORDINANCE, OR STATUTE. CONTRACTOR SHALL PAY PARTICULAR ATTENTION TO ADA AG 4.28.3, WHICH REFERS TO VISUAL ALARM STROBES, STROBE INTENSITY, AND STROBE PLACEMENT REQUIREMENTS. FIRE ALARM SYSTEM PLANS SHOWING LOCATIONS OF THESE VISUAL ALARMS WILL BE REQUIRED, AS WILL SUBMISSION OF THE FIRE ALARM SYSTEM PLAN TO THE STATE FIRE MARSHALL.
4. A CITY OF ALTOONA ELECTRICAL PERMIT IS REQUIRED FOR THIS PROJECT.
5. PROVIDE EMERGENCY EGRESS LIGHT FIXTURES AT EXTERIOR DOOR LANDINGS PER IBC 1008.3.

B

13-103

imprint RC CS
1505 N. WRIGHT BLVD. #200
ANKENY, IOWA 50023
PHONE: (515) 965-3330
FAX: (515) 965-3332
bldgdesign@imprintarchitects.com

Ground Floor Electrical Plan

1/8"=1'-0"

PROJECT:
Altoona Towers
1616 Adventureland Drive
Altoona, IA 50009

DATE:	ISSUED FOR:
10-03-13	SHOP DWG. CORRECTIONS
11-20-13	APARTMENT UNIT LAYOUTS

Nov. 20, 2013

EB101

imprint RC CS

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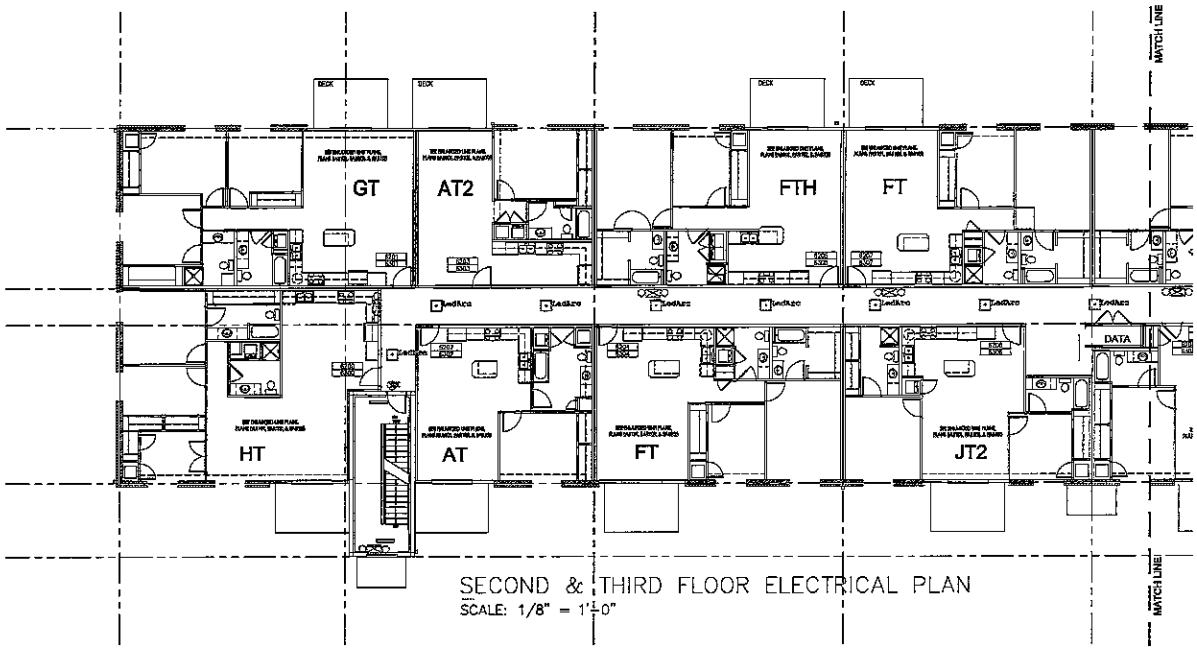
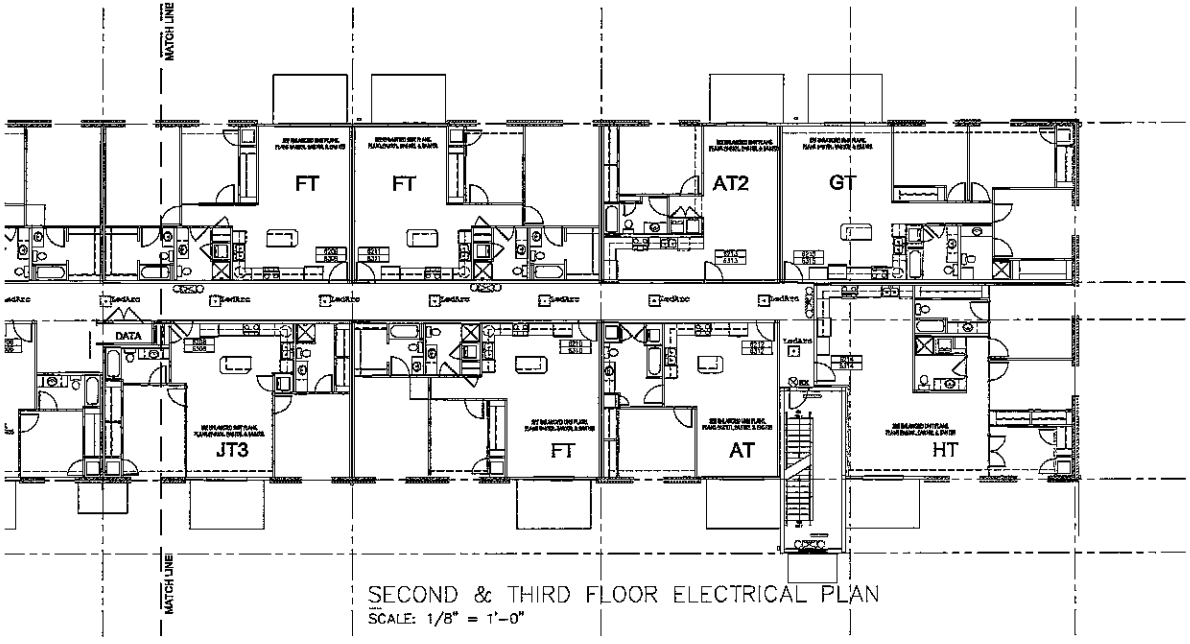


SECOND & THIRD FLOOR ELECTRICAL PLAN
SCALE: 1/8" = 1'-0"



SECOND & THIRD FLOOR ELECTRICAL PLAN
SCALE: 1/8" = 1'-0"

JASPERING ELECTRIC
2716 8th St., Suite 2
Ames, IA 50010
PHONE: 515-232-4276
FAX: 515-663-8890
CELL: 515-213-6966

CURRIE ENGINEERING ASSOCIATES, PLC
12365 NW Bugg Drive
Polk City, IA 50226
PHONE: 515-984-7727
FAX: 515-984-7728
CEA

GENERAL ELECTRICAL NOTES:

1 ALL INSTALLATIONS SHALL CONFORM TO ALL APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND ORDINANCES INCLUDING, BUT NOT LIMITED TO, THE PROVISIONS OF 2009 IBC, 2009 IMC, 2009 UPC (AMENDED TO ALLOW THE USE OF IBC TABLE 2902.1, OR 2009 IPC TABLE 403.1 FOR FIXTURE COUNTS ONLY), 2011 NEC, 2009 ADAAG, 2009 IECC, AND 2009 IFC.

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4 A CITY OF ALTOONA ELECTRICAL PERMIT IS REQUIRED FOR THIS PROJECT.

5 PROVIDE EMERGENCY EGRESS LIGHT FIXTURES AT EXTERIOR DOOR LANDINGS PER IBC 1006.3.

B

13-103

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Second & Third Floor Elec. Plan

1/8"=1'-0"

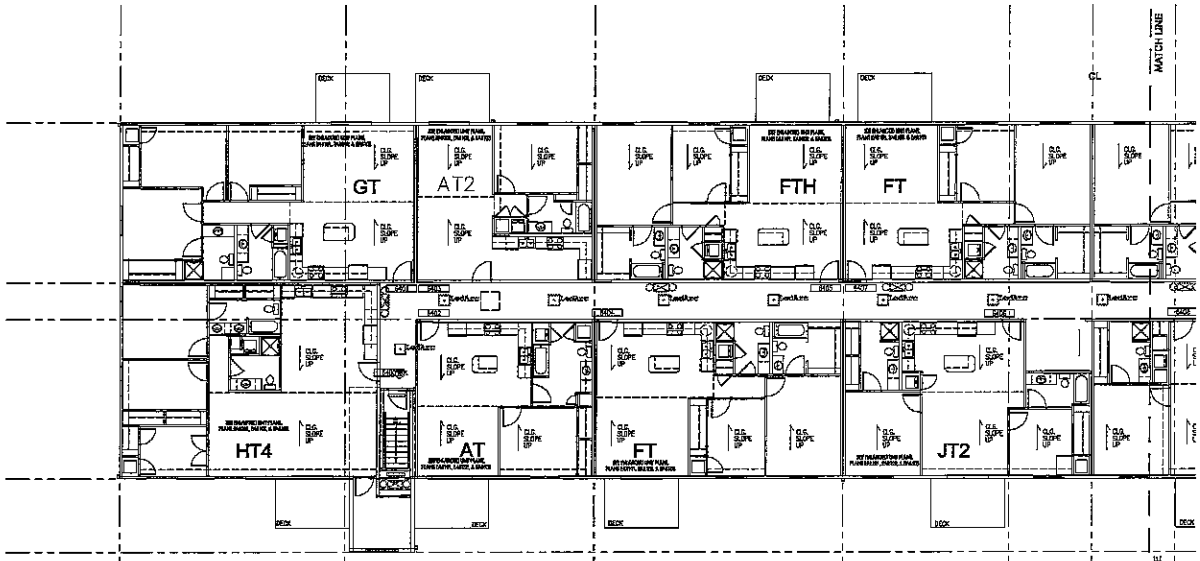
PROJECT:
Altoona Towers
1616 Adventureland Drive
Altoona, IA 50009

DATE	DESCRIPTION
11-20-13	PERMIT/CONSTRUCTION

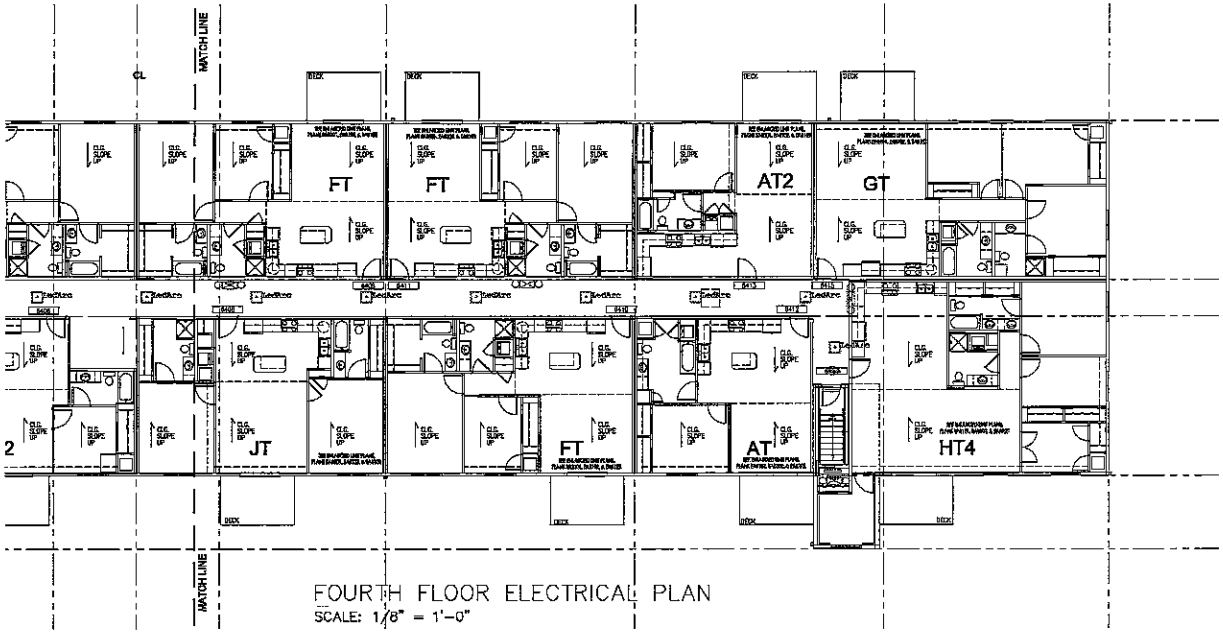
Nov. 20, 2013

EB102

imprint RC CS



FOURTH FLOOR ELECTRICAL PLAN
SCALE: 1/8" = 1'-0"



FOURTH FLOOR ELECTRICAL PLAN
SCALE: 1/8" = 1'-0"

JASPERING ELECTRIC
2716 SE 5th, Suite 2
Ames, IA 50010
PHONE: 515-232-4276
FAX: 515-863-8890
CELL: 515-203-6966

CURRIE ENGINEERING ASSOCIATES, PLC
12365 NW Hugg Drive
Polk City, IA 50226
PHONE: 515-984-7727
FAX: 515-984-7728
CEA

GENERAL ELECTRICAL NOTES:

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4. A CITY OF ALTOONA ELECTRICAL PERMIT IS REQUIRED FOR THIS PROJECT.
5. PROVIDE EMERGENCY EGRESS LIGHT FIXTURES AT EXTERIOR DOOR LANDINGS PER IBC 1006.3.

B

13-103

imprint RC CS
1000 N. VARSITY CLAY JUNI
BOULDER, IOWA 50023
PHONE: (515) 985-3338
FAX: (515) 985-3339
info@imprintarchitects.com

Fourth Floor Electrical Plan

1/8"=1'-0"

PROJECT:
Altoona Towers
1616 Adventureland Drive
Altoona, IA 50009

DATE:	ISSUED FOR:
11-06-13	PERMIT FOR CONSTRUCTION

Nov. 20, 2013

EB103

imprint RC CS

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Electrical symbols

$	Single pole Switch
$	Switched Outlet
$	Four-way switch
$	Three way switch
△	Communication
FL	Fan Light Combo
S	Smoke detector
	Vanity Light
	Cieling Fan
	Duplex Outlet
	Range Outlet
	Special Outlet
	Pendant Light
	Hallway Light
	Kitchen Light

Power Systems

Electrical

E00 Site Plan
E01 Electrical Schedule Building A
E02 Electrical Schedule Building B
E1 Ground 2nd 3rd Floor
E1.2 Fourth Floor Roof
E1.3 Ground 2nd 3rd Floor (B)
E1.4 Fourth Floor Roof (B)
E2 Units: 1A, 1A2, 1A3, JT3
E2.1 Units: 1HS, 1HS4BDRM, 1J, 1JE
E2.2 Units: Efficiency a, b, c, d, f, Manager
E3.1 Unit Panel Shedules
E3.2 Panel Schedules
E3.3 Electrical One-Line Power
E3.4 Electrical One-Line
E3.5 Electrical Details
E4.1 Luminaire Schedule and Details

General Notes

No.	Revision/Issue	Date

Firm Name and Address

Jaspering Electric

2716 SE 5th Suite 2
Ames IA 50010

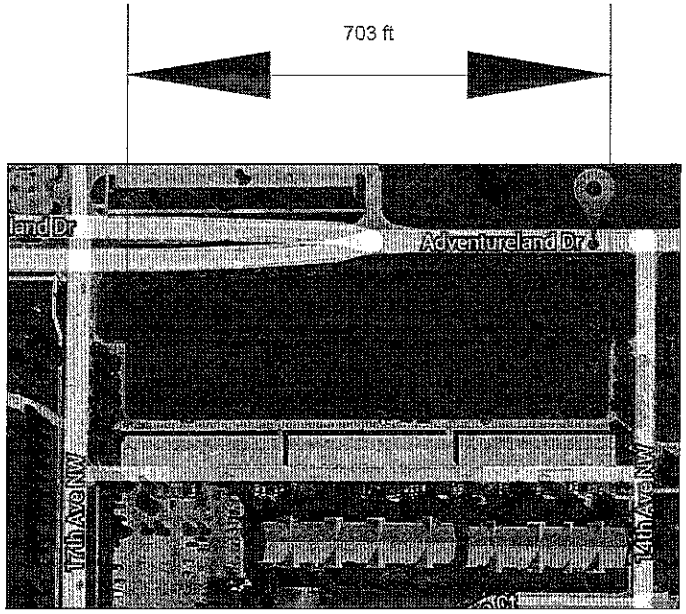
Project Name and Address

Altoona Towers

Building A
Electrical Symbols

Project
Date
Scale
Sheet

E.0



Electrical Site Plan

Scale 1/16" = 5'

General Notes

No.	Revision/Issue	Date

Firm Name and Address

Jaspering Electric

2716 SE 5th Suite 2
Ames IA 50010

Project Name and Address

Altoona Towers
1414 Adventureland Drive

Electrical
Site Plan

Project

Date

Scale

Sheet

E00

Electrical Schedule for Building A

General Notes

No.	Revision/Issue	Date

Firm Name and Address

Jaspering Electric

2716 SE 5th Suite 2
Ames IA 50010

Project Name and Address

Altoona Towers

Building A

Project	Sheet
Date	E0.1
Scale	

Electrical Schedules for Building B

General Notes

No.	Revision/Issue	Date

Firm Name and Address

Jaspering Electric

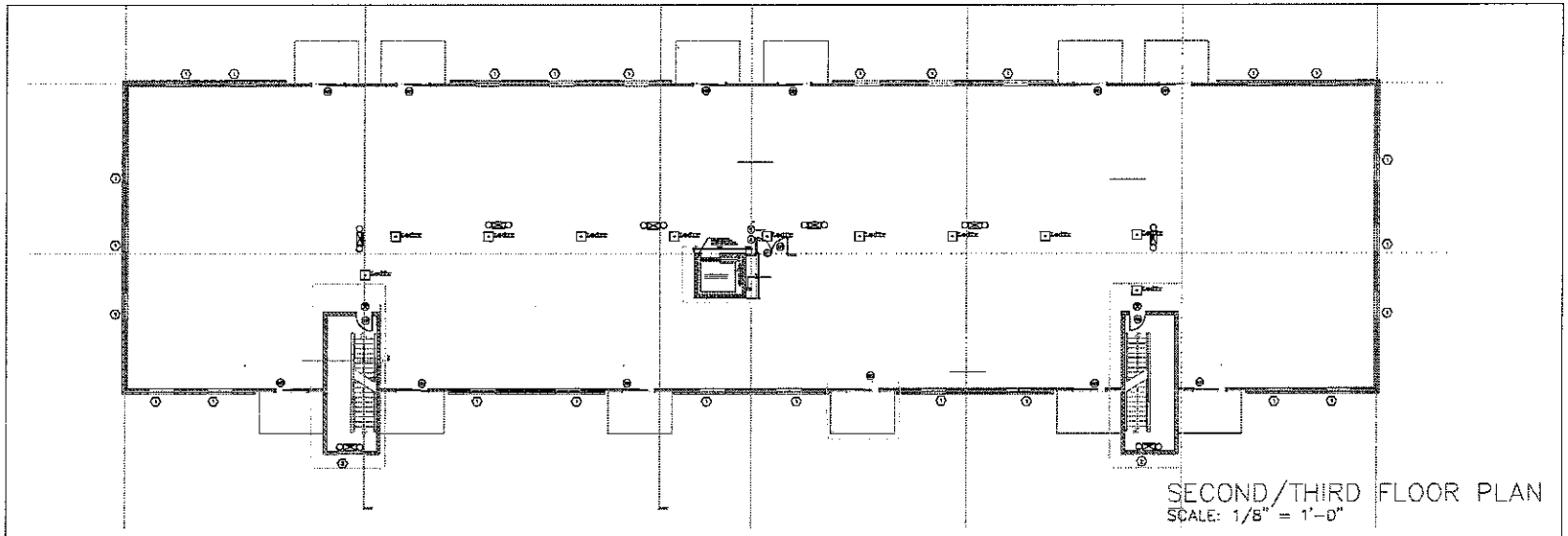
2716 SE 5th Suite 2
Ames IA 50010

Project Name and Address

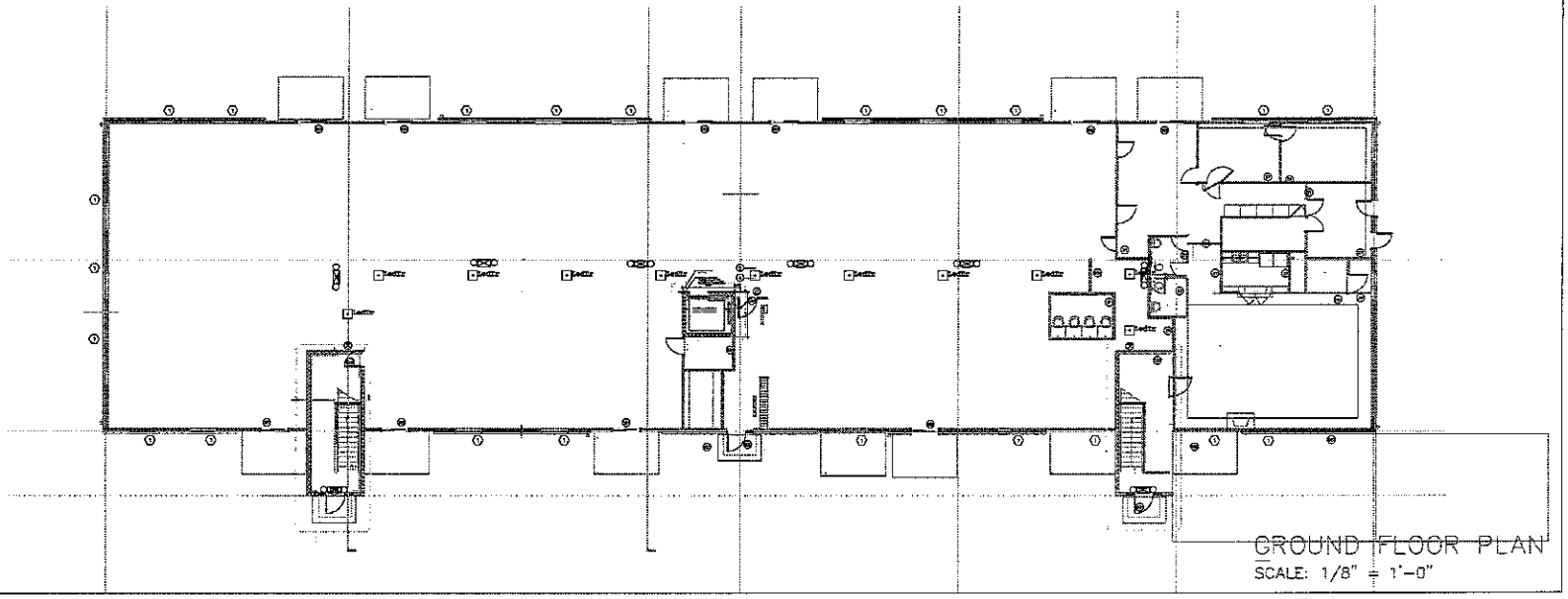
Altoona Towers

Building B

Project	Sheet
Date	E0.2
Scale	



SECOND/THIRD FLOOR PLAN
SCALE: 1/8" = 1'-0"



GROUND FLOOR PLAN
SCALE: 1/8" = 1'-0"

General Notes

No.	Revision/Issue	Date

Firm Name and Address

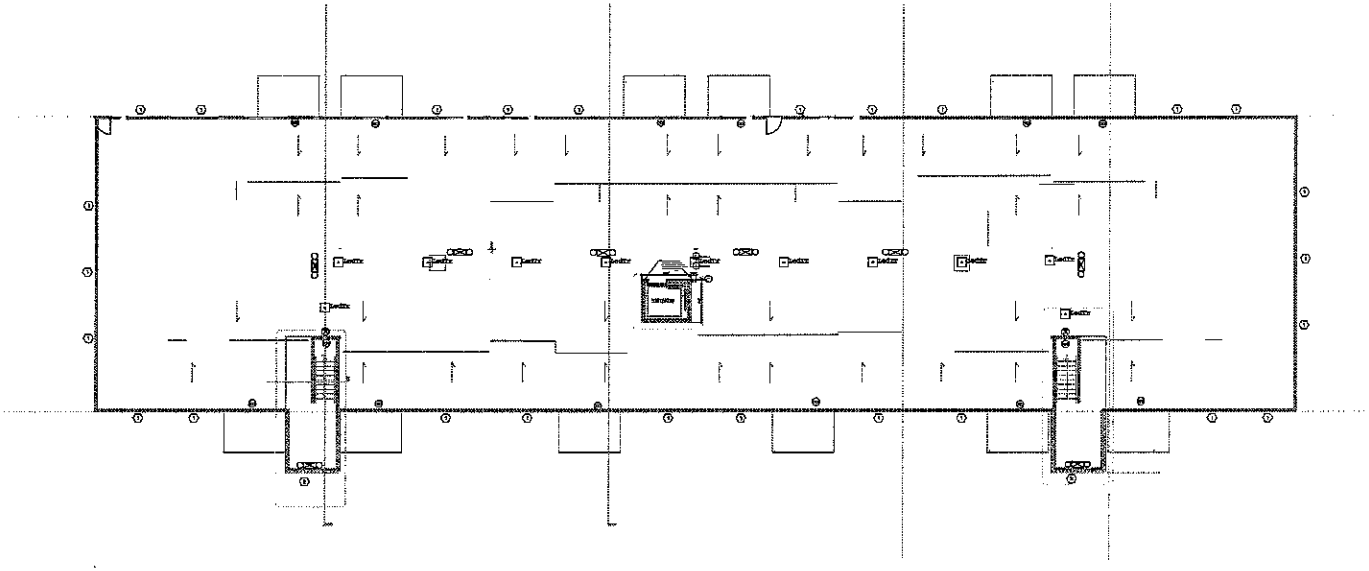
Jaspering Electric

2716 SE 5th Suite 2
Ames IA 50010

Project Name and Address

Altoona towers

Project	Sheet
Date	E1.1
Scale	



4th FLOOR PLAN
SCALE: 1/8" = 1'-0"

General Notes

No.	Revision/Issue	Date

Firm Name and Address

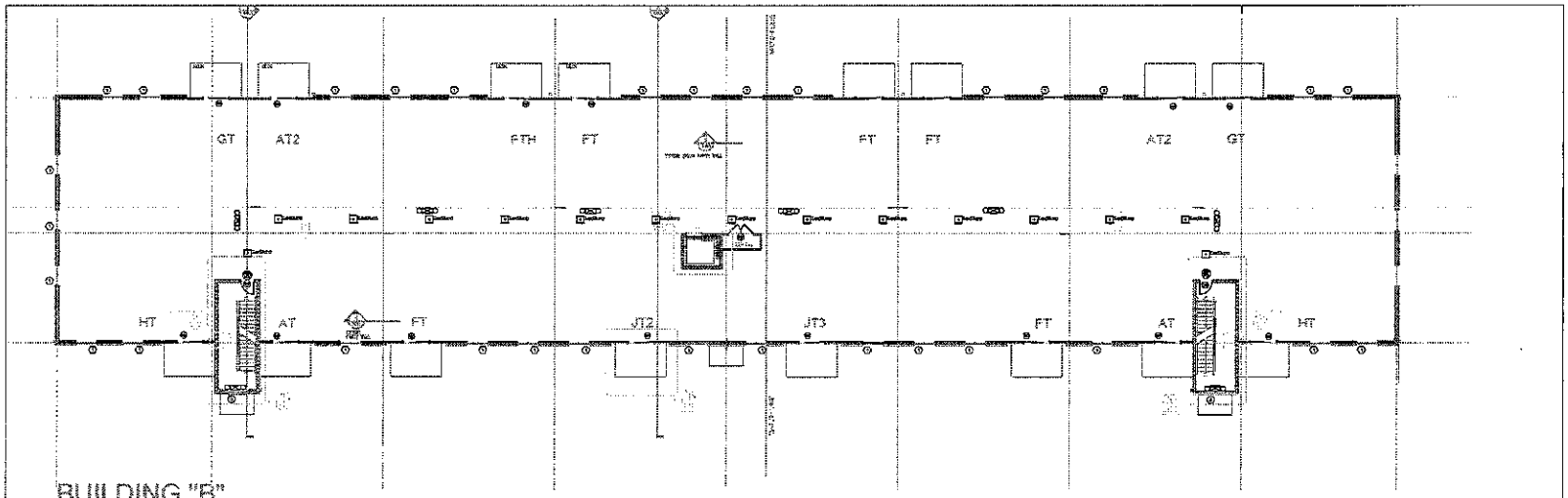
Jaspering Electric

2716 SE 5th Suite 2
Ames IA 50010

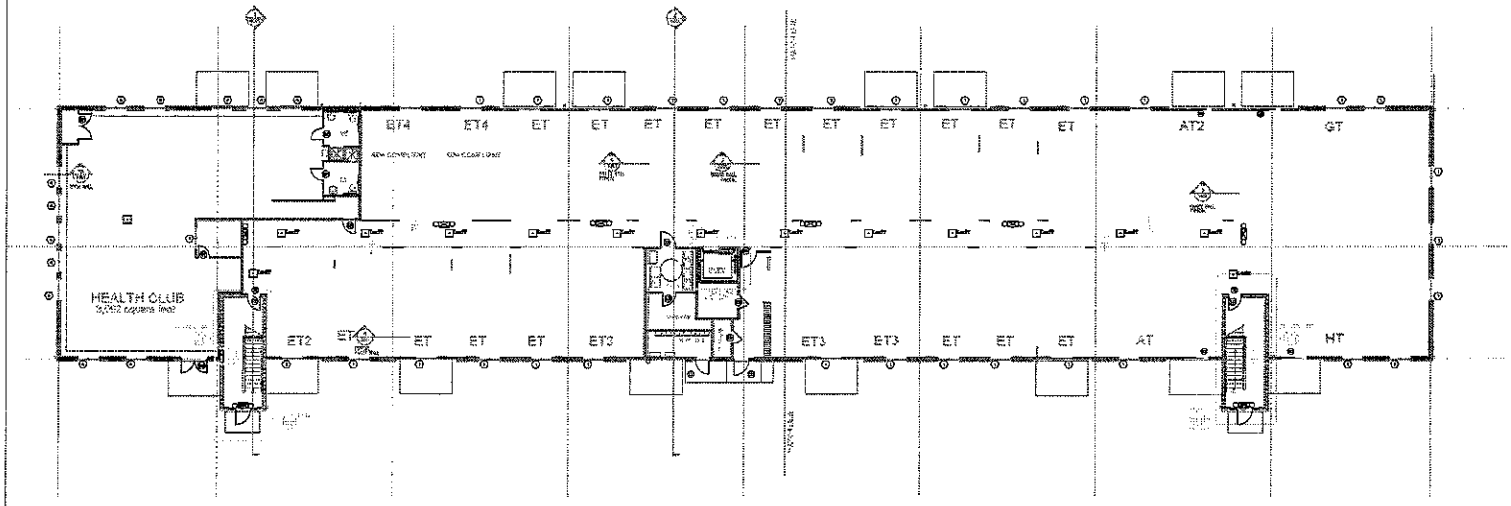
Project Name and Address

Altoona towers

Project	Sheet
Date	E1.2
Scale	



BUILDING "B"
SECOND & THIRD FLOOR PLAN - 16 UNITS EACH



BUILDING "B"
GROUND FLOOR PLAN - 10 UNITS / 17 UNITS CORPORATE
18,600 SQ FT GROSS

TOTAL 58 UNITS RESIDENTIAL

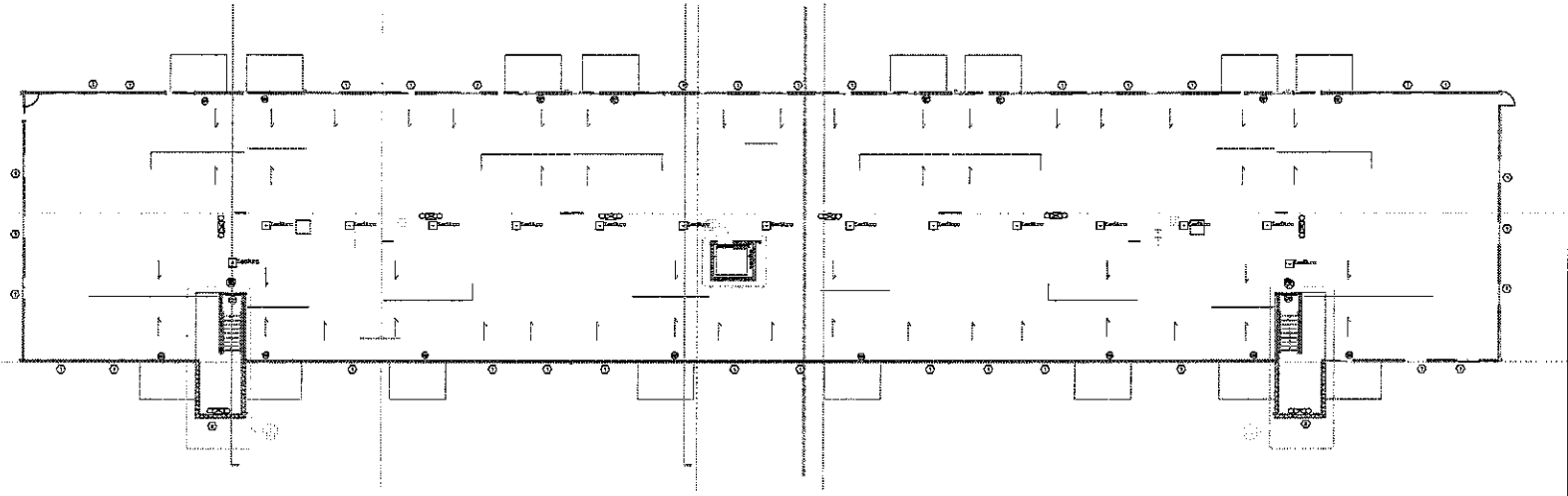
General Notes

No.	Revision/Issue	Date

Firm Name and Address

Project Name and Address

Project
Date
Scale
Sheet



Fourth Floor

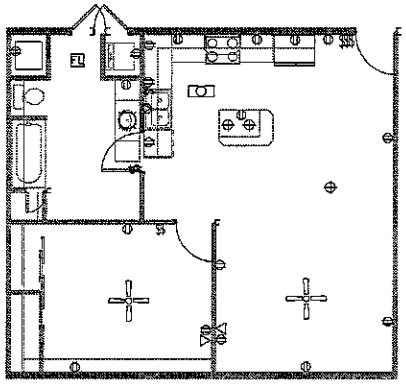
General Notes

No.	Revision/Issue	Date

Firm Name and Address

Project Name and Address

Project:	Sheet:
Date:	
Scale:	



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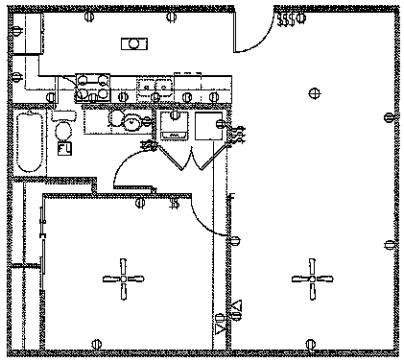

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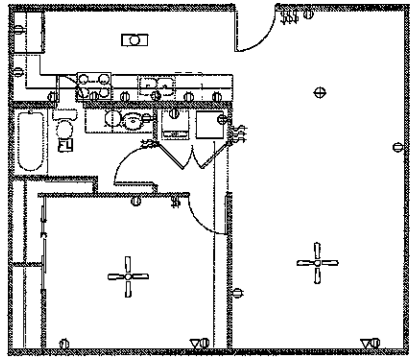

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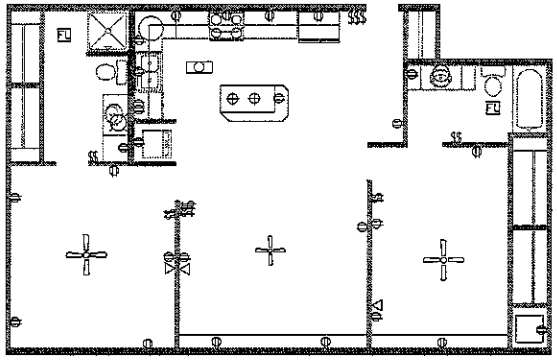
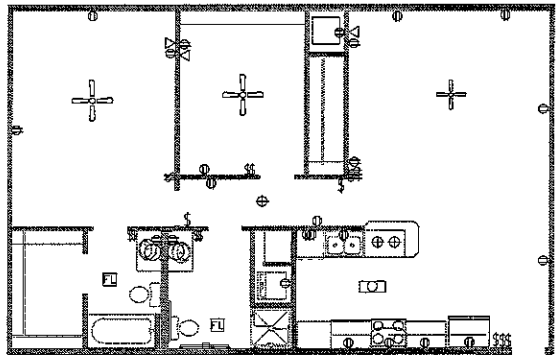


JT3



1F(TYPE A)

General Notes

No.	Revision/Issue	Date

Firm Name and Address

Jaspering Electric

2716 SE 5th Suite 2
Ames IA 50010

Project name and address

ALTOONA TOWERS

UNIT LAYOUT

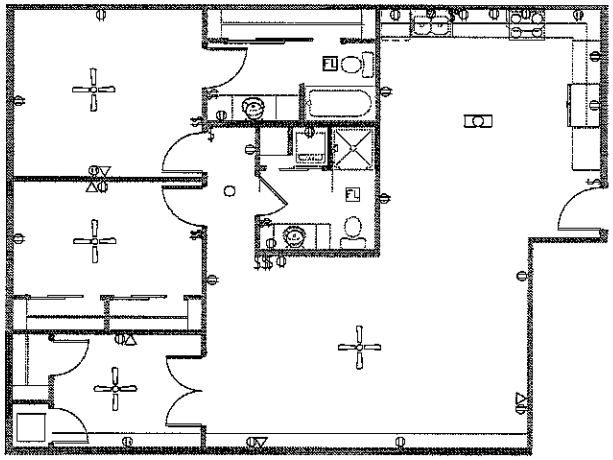
Project

Date

Scale

Sheet

E.2



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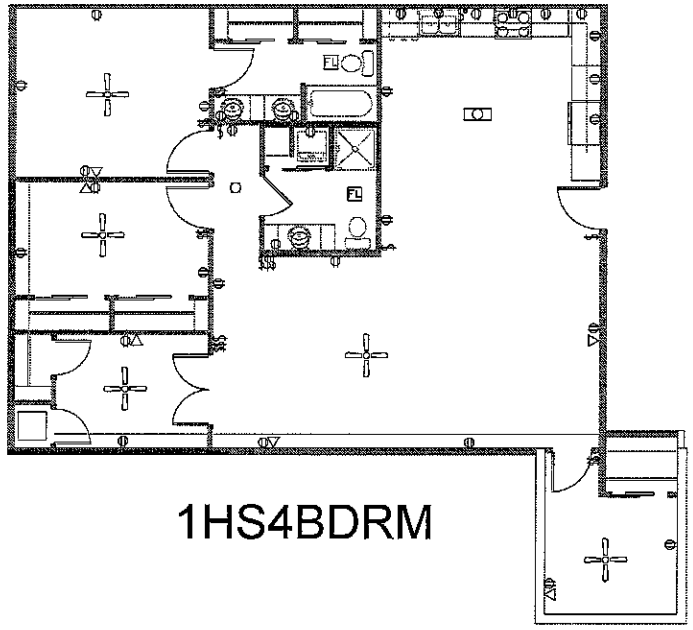

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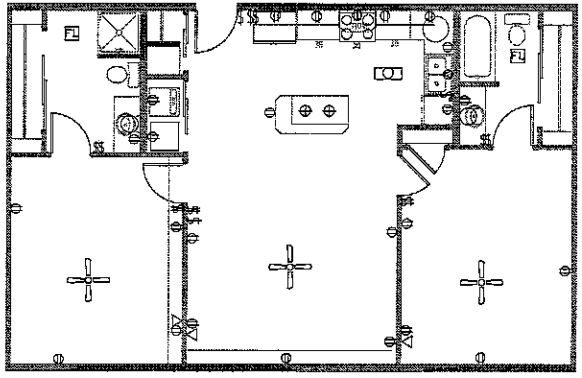

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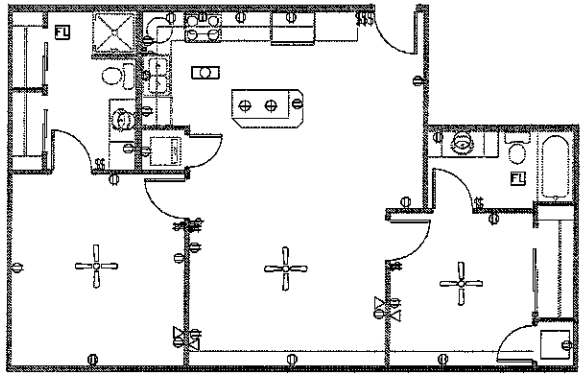

1JE

General Notes

No.	Revision/Issue	Date

Firm Name and Address

Jaspering Electric

2716 SE 5th Suite 2
Ames IA 50010

Project Name and Address

ALTOONA TOWERS

UNIT LAYOUT

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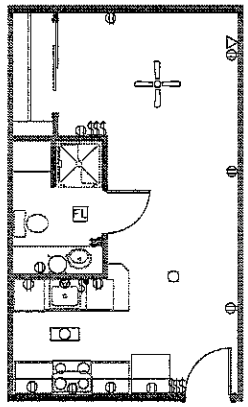

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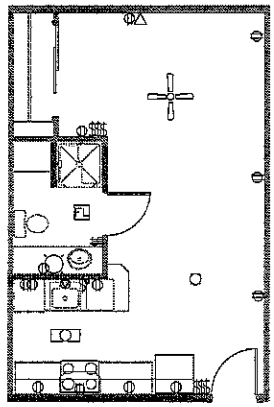

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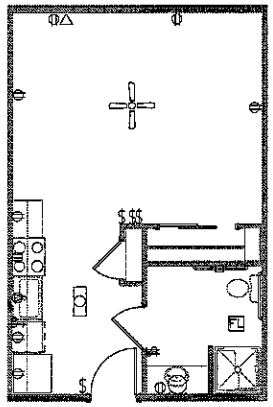

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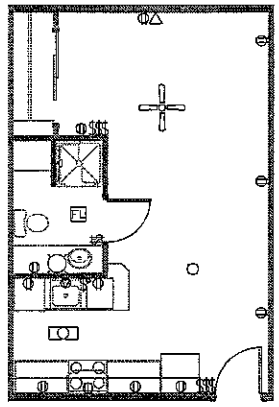

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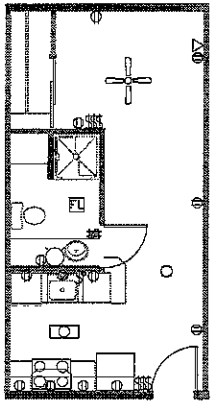

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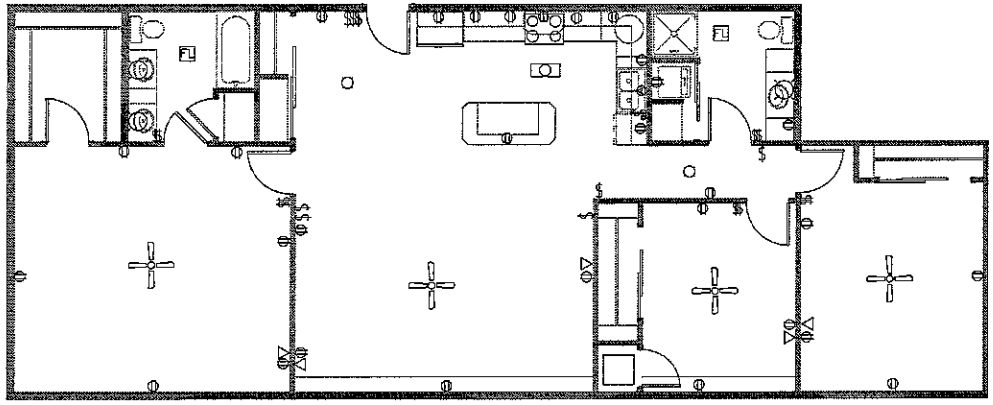

Mngrs Bdrm

General Notes

No.	Revision/Issue	Date

Firm Name and Address

Jaspering Electric

2716 SE 5th Suite 2
Ames IA 50010

Project Name and Address

ALTOONA TOWERS

UNIT LAYOUT

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Unit Panel Schedules

Main: 100A Unit: 1A Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: 1A2 Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: 1A3 Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: JT3 Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: 1F Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: 1F(type A) Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: 1HS Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: 4BDRM Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: 1J Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: 1JE Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: Effa Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	20	1	1	20	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: Effb Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: Effc Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: Effd Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: EffF Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

Main: 100A Unit: Mngr Bdrm Type: Bolt on
Volts: 120 Mounting: Recessed
Phase: 208Y/120 Fed From: Panel 2

CIR	Load Description	BRK	Pole	Pole	BRK	Load Description	CIR
1	Bedroom lights	15	1	1	15	Bathroom Lights	2
3	Kitchen Lights	15	1	1	15	Hallway Lights	4
5	Washer/Dryer	15	1	1	15	Microwave	6
7	Living rm Receipt	15	1	1	15	Dining Rm Receipt	8
9	Kit. Receptcs GFCI	20	1	1	15	Bedrm Receipt	10
11	Hallway Receipt	20	1	2	20	Furnace	12
13	Water Heater	20	2			Furnace	14
15	Water Heater			2	30	Stove	16
17	spare					Stove	18
19	spare					spare	20
21						spare	22
23							24
25							26
27							28

General Notes

No.	Revision/Issue	Date

Firm Name and Address
Jaspering Electric
2716 SE 5th Suite 2
Ames IA 50010

Project Name and Address
Altoona Towers

Unit Panel Schedules

Project
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Panel Schedules

General Notes

No.	Revision/Issue	Date

Firm Name and Address

Jaspering Electric

2716 SE 5th Suite 2
Ames IA 50010

Project Name and Address

Altoona Towers

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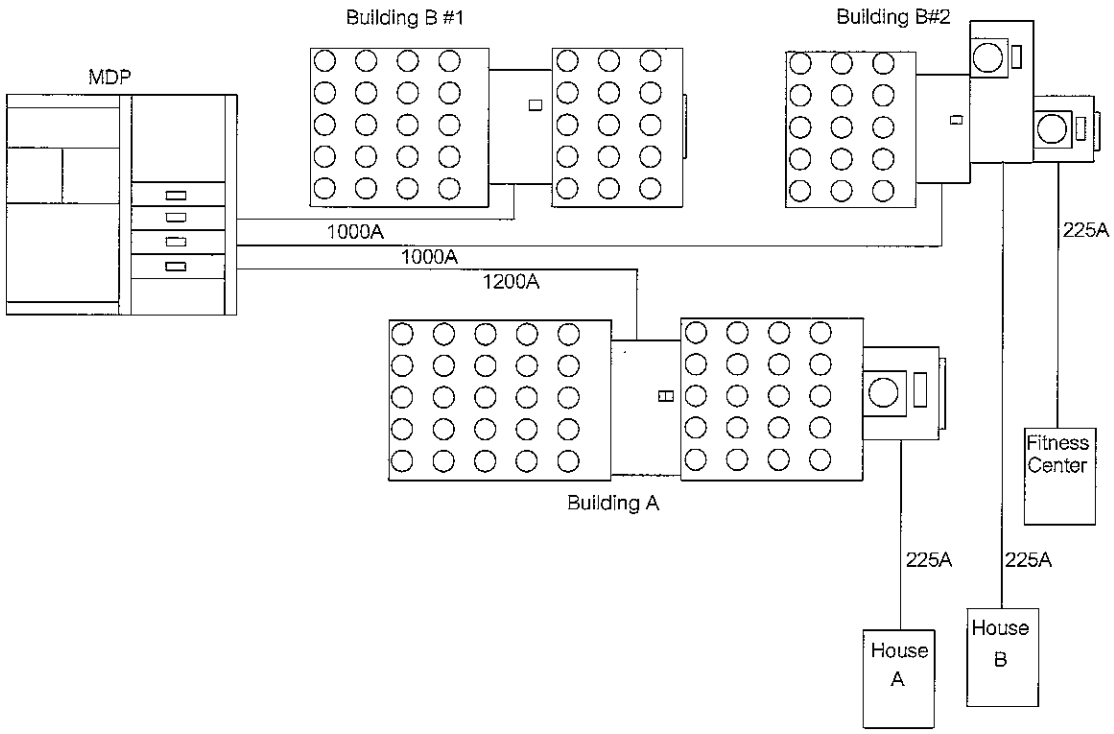

Power One-Line

General Notes

No.	Revision/Issue	Date

Firm Name and Address

Jaspering Electric

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Ames IA 50010

Project Name and Address

Altoona Towers

Electrical One Line Diagram

Project

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