

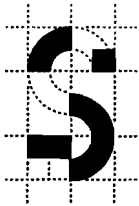
March 6, 2006

Mayor Doug Formon and Jonesboro City Council  
City of Jonesboro  
515 West Washington Avenue  
Jonesboro, Arkansas 72401

**RE: JUSTICE COMPLEX TRUSSES**

Dear Mayor and City Council:

This letter is being written at the request of Mayor Doug Formon. Mayor Formon has asked for us to provide some historical information on the renovation of the old Safeway building, which is now known as the Justice Complex.



In April of 1993, our firm was invited to respond to a "Call for Architects" to provide professional services for the renovation of the building. Attached is a copy of the first page of information provided to us prior to being hired as the architect for the project. You will note that the City had already determined to renovate the building for use as a Police Department, Municipal Court, Information Systems Department, City Attorney's Office, and Fire Department Administrative Offices. Our firm was selected to provide architectural and engineering services for the project after an interview process by the Building Committee and then recommended to the mayor and city council. We entered into an agreement with the City on May 24, 1993. We appeared at the City Council meeting when the recommendation to hire our firm was made. At that meeting, Alderman Gene Vance recommended that we hire Ray Wooten of Reaves & Sweeney, Incorporated to provide structural engineering services. It is our belief that Mr. Wooten had helped the City determine the usability of the structure either before or after the purchase in 1989.

Immediately upon approval of our agreement with the City, we began the design process. After approval of the design concept, we started development of the construction drawings, which includes the plans and specifications on the project. Attached is a letter dated July 6, 1993 from structural engineers, Reaves & Sweeney, Incorporated outlining the renovation required to bring the building into compliance with current seismic standards of the existing standard building code. All of the items were included in the original plans and specifications. Also attached is a calculation of the dead load imposed on the trusses.

REAVES  
SWEENEY  
MARCOM

October 26, 1995

Hubert Brodell, Mayor  
City of Jonesboro  
314 West Washington  
Jonesboro, Arkansas

RE: ROOF STRUCTURE - JONESBORO COURTS/OFFICE/POLICE CENTER

Dear Mayor Brodell:

After reviewing the building with Joe Tomlinson and Ron Shipley the city building inspectors, Tony Pardew of Olympus Construction, Eddie Buck of Kermit Buck & Co., and Ken Stacks of Arnold & Stacks Architects, P.A. I have determined that the building is not in imminent danger from structural failure. However, there are three trusses which have damage in addition to the original damaged truss that require shoring to prevent further damage.

I am in general agreement with Fred Hegi's report dated October 23, 1995 with the exception of having to vacate the building. We will have all the damage trusses supported and I believe that no further damage will occur once these supports are in place. I believe the addition of these supports will relieve some of the anxiety of the employees and city officials.


During the repair process, the existing built up roof must be removed to bring the overall weight in line with the existing condition prior to renovation. After all repairs have been made, all trusses should be reviewed to insure that during repair that no other damage occurred.

After this review the metal roof structure should be inspected to determine if any of the columns need to be moved and insure that all connections are properly installed.

We will continue to work with the contractor and architect to correct this situation. If you have any questions please do not hesitate to call.

Sincerely,

Reaves Sweeney Marcom Incorporated



William T. Gavin, P.E.



**Arnold & Stacks**  
ARCHITECTS, P.A.

October 26, 1995

Mr. Bill Gavin  
Reaves, Sweeney & Marcom  
800 Park Avenue  
Memphis, Tennessee

RE: ROOF STRUCTURE - JONESBORO COURTS/OFFICE/POLICE CENTER

Dear Bill:

This letter is to confirm the statements made in our telephone conversations last evening with Mayor Brodell, Councilman Gene Vance, Police Chief Floyd Johnson, and Fire Chief Wayne Master-son.

1. We informed you of the concerns addressed by Fred Hegi, a structural engineer who visited the building and made a brief inspection. We faxed you a copy of his letter outlining his concerns.
2. We discussed your review of the structure on three recent visits to the project. You indicated that in your opinion that the structure was not in imminent danger of failure.
3. You told us that wood structures like this one may have a failure of some members, but total failure or collapse would not happen without notice of sagging, deflection, or other visible signs over a period of time.
4. Based upon your comments, the mayor chose to delay evacuation of the building until you could come to the building today and confirm the structural stability visually and in writing.

It is imperative that the building be restored to structural soundness, quickly. We are looking to you and your firm to provide the guidance on repairs and inspection of the roof structure. We must address the concerns in the letter from Fred Hegi, make certain that the contractor did the installation correctly and completely, and provide a step by step procedure for correcting this problem.

We will assist you in this process in any manner that you request within our ability and means. Thank you for your prompt attention to this matter.

Sincerely,

Arnold & Stacks Architects, P.A.



Ken Stacks, AIA

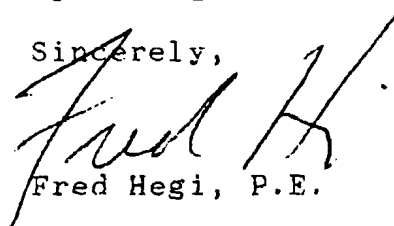
Concerning the truss that failed there are two possible reasons in my opinion. Either the bottom chord was damaged before the renovation or the truss is overloaded now. If the truss was damaged sufficiently to fail this should certainly have been spotted and repaired before any load was added to the roof. On the other hand if the bottom chord was sound before the renovation then it must be severely overloaded now. If this is the case then all of the other trusses must also be overloaded since the trusses appear to be identical and have similar loading. If they are overloaded then what might we expect if another 15 pounds per square foot of load is added in a heavy snow or ice storm?

To reiterate my recommendations I would evacuate the building immediately at least until the structural engineer has evaluated the structure in place and given you a written statement that it is safe. He is not likely to do that unless he is convinced that it is safe.

I may be considered an alarmist for making such a drastic recommendation but this building has suffered a structural failure and you are lucky the roof did not collapse. This is a gravely serious matter in my opinion. I have been fortunate to have never been directly involved in a structural failure but I have studied structural failures over a period of many years. Quite often there is ample warning of an impending disaster that is ignored by owners, and design and construction professionals alike who simply do not want to believe there is a serious problem. They make decisions based on their hope that everything will be okay. These decisions sometimes look very foolish in retrospect.

If I can be of further service please give me a call.

Sincerely,

A handwritten signature in cursive script that reads "Fred H.". The signature is written in dark ink and is positioned above the typed name "Fred Hegi, P.E.". The signature is somewhat stylized and overlaps slightly with the typed name below it.

Fred Hegi, P.E.

FH/tam

cc: Mr. Joe Tomlinson  
Mr. Ron Shipley

2. The original building design probably accounted for only the weight of the original roof structure with only a minimum code required live load. Since the building is now more than 40 years old it is likely that several additional layers of roofing material have been added over the years. In addition the roof is now taking the additional weight of the new metal roof and its supporting steel structure, the additional weight of plywood decking nailed to the ceiling joists, the additional weight of the added floored areas in attic and the mechanical units, piping, etc. which have been added in the attic.
3. There are some areas of the roof which can be observed from the attic where construction defects are apparent. Several of the steel stub columns from the new metal roof down on to the existing truss panel points are not centered on the truss; some of these stub columns are not plumb and one of the columns is actually missing. Some of the steel collars which tie the steel stub columns to the trusses are twisted somewhat and the bolts are not tight and do not appear to be properly installed. There is one new steel roof purlin that was welded to a steel beam whose welds have failed. The purlin is barely connected to the supporting beam by a weld at the top flange. This purlin appears to be in danger of collapsing.
4. The existing main roof trusses appear to be over stressed along the bottom chord connections at a few locations. There is some rather deep cracking in some areas around the bolts. Of course one of the trusses has actually had its bottom chord severed according to what you, Mr. Tomlison and Mr. Shipley told me. I could not observe this damaged member from the attic but if it is indeed severed then this represents a structural failure of a major load bearing member and in my opinion you are very lucky that a section of roof did not collapse.
5. There are several areas where badly cracked truss members have been repaired with epoxy injection. Several other truss members have been reinforced by nailing 2 inch thick members on each side. Mr. Shipley said he inquired about these added members and was told by the architect that they were just for added strength.

In view of the above noted observations I would immediately contact the architect and structural engineer and ask for written certification from the structural engineer that the building is safe in its present condition with the old roof still in place. I would ask why the one truss failed and others are showing signs of distress.

There is nothing wrong with repairing the cracked trusses with epoxy injection if it is done properly. However this will only bring the member back to its original strength. It will not prevent the member from failing if it is overstressed.

# FRED HEGI & ASSOCIATES

*Consulting Engineers*

1423 S. Broadway • Little Rock, Arkansas 72202

(501) 374-2057

FAX (501) 374-1849

October 23, 1995

Mayor Hubert Brodell  
P.O. Box 1845  
Jonesboro, AR 72403

RE: Police/Court Building  
410 West Washington  
Jonesboro, AR

Dear Mayor Brodell,

This is to confirm, record and reiterate the comments I made to you, Joe Tomlison and Ron Shipley after my inspection of the above referenced building this past Sunday (Oct. 22, 1995). I have also added some comments concerning thoughts I have had since our conversation on Sunday.

As you know I have not made a structural analysis of this building and I do not feel that you should have me to do this. My observations are based on a relatively brief inspection of the structure from the attic, a very brief look at the plans and information about the building's history and the recent renovation and subsequent problems passed on to me by yourself, Mr. Tomlison and Mr. Shipley. I am also relying on thirty years experience as a structural engineer.

Based on my observation of the building and its recent history I would be gravely concerned about the building's safety and would seriously consider evacuation immediately. This may be an over reaction but I would much prefer to be overly cautious than to risk a catastrophic failure. This recommendation is based on the following facts and assumptions.

1. The existing roof which is as much as 1 1/2 inches thick in places and was originally to have been removed according to the plans submitted to the buildings department, was not removed. The removal of the existing roof would have at least partially compensated for the extra load that has been added to the structure. Apparently the plans issued to the contractor were altered to delete the note calling for removal of the existing roof.

Fred C. Heei, P. E.

# Olympus Construction Inc.

---

April 26, 1994

Mr. Ken Stacks  
Arnold & Stacks Architects  
527 West Washington  
Jonesboro, Arkansas 72401

Re: Truss Repairs - JCOP - Jonesboro

Dear Mr. Stacks:

In response to our phone conversation of last week, we are revising our original price for the additional truss repairs. As per the phone conversation, we propose to use two 2 x 6, #1 YP members with 3/4" CD plywood sandwiched between to replace the numbered pieces to be repaired and recommend that the epoxy injection system be used on the lettered pieces to be repaired. The list of replaced or repaired pieces is as follows:

1. Truss 1 - No. 3
2. Truss 3 - No. 2, 4, 17, 19, F
3. Truss 4 - No. 2, 10, C, D
4. Truss 5 - No. 20
5. Truss 6 - No. 17
6. Truss 7 - No. 3, B, G

This additional repair/replacement work would cost: \$ 6,120.00. Please let me know what your feelings are concerning this matter as soon as possible. These repairs could possible be made before the plywood is attached to the bottom side of the trusses.

Sincerely,



Stan Owens  
Project Coordinator

Approved as Change Order #1  
4/21/94  
per Gene Vance  
Ken Stacks

# Olympus Construction Inc.

---

April 15, 1994

Mr. Ken Stacks  
Arnold & Stacks Architects  
527 West Washington  
Jonesboro, Arkansas 72401

Re: Truss Repairs - JCOP - Jonesboro

Dear Mr. Stacks:

I received a letter from Kermit B. Buck & Son, Inc. concerning the truss repairs that they made to the above referenced project. They feel that more repairs should be made in several more locations through-out the existing building. Following is a list of the wood members that they feel should receive the truss repair process:

1. Truss 1 - No. 8
2. Truss 3 - No. 2, 4, 17, 19, F
3. Truss 4 - No. 2, 10, C, D
4. Truss 5 - No. 20
5. Truss 6 - No. 17
6. Truss 7 - No. 3, B, G

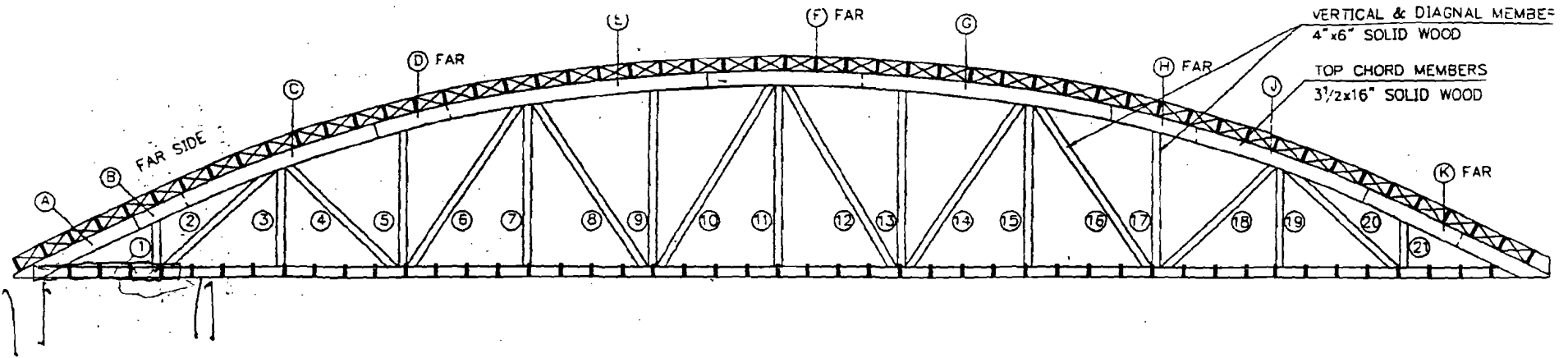
This additional repair work would cost: \$ 8,160.00. Please let me know what your feelings are concerning this matter as soon as possible. These repairs could possible be made before the plywood is attached to the bottom side of the trusses.

Sincerely,

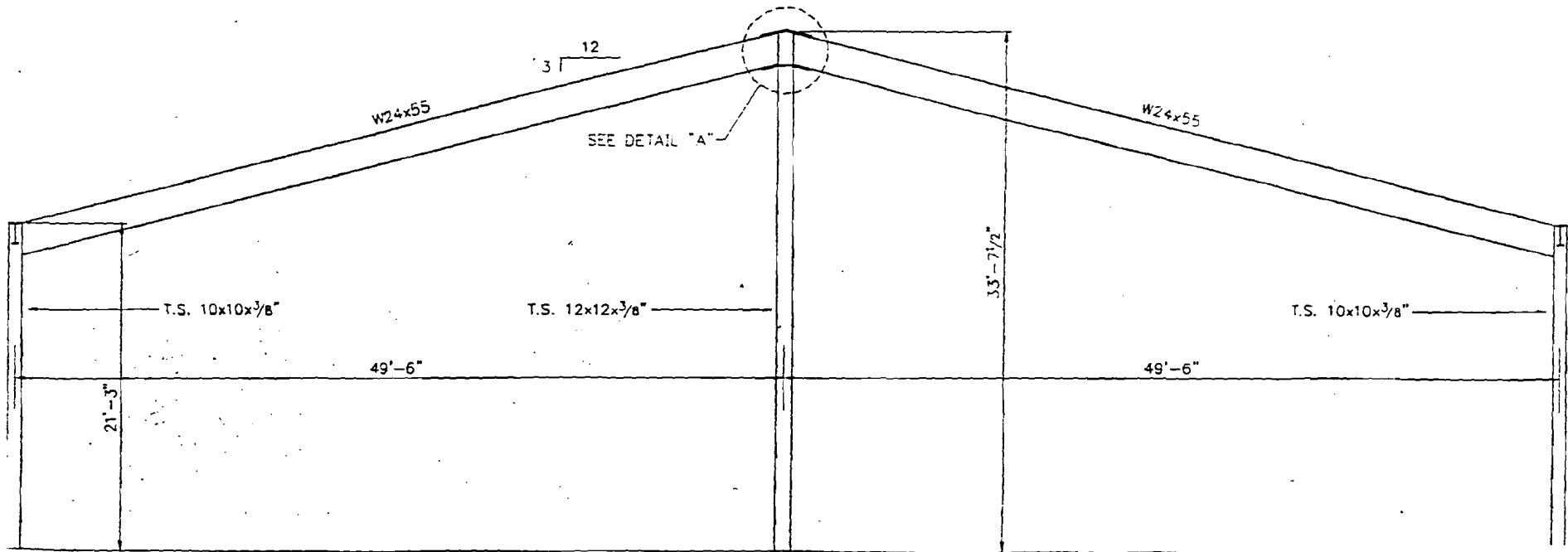


Stan Owens  
Project Coordinator



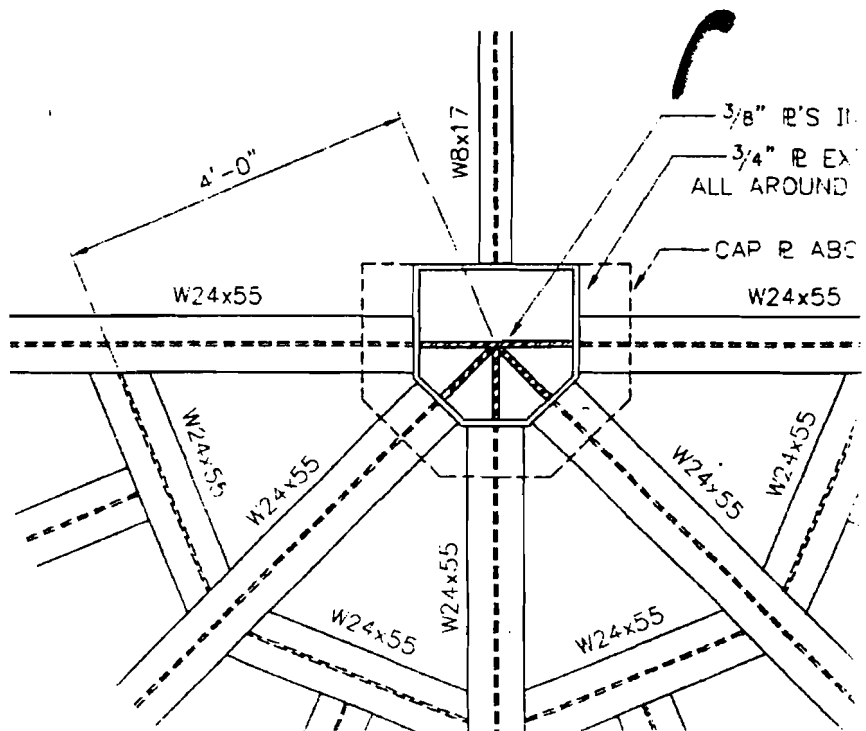
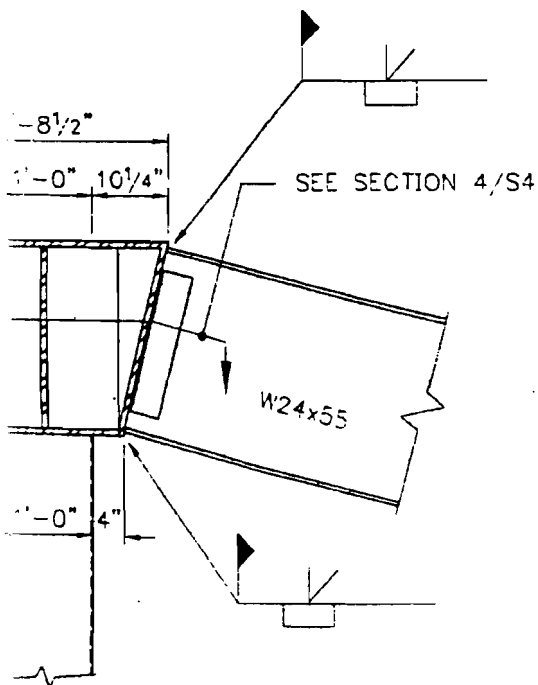


**TYPICAL TRUSS LOOKING SOUTH**  
**EXISTING WOOD TRUSS**



# FRAME 1

<b>TRUSS REPAIRS SCHEDULE</b>	
TRUSS NO	REPAIRS
TRUSS 1	REPLACE MEMBERS 16 & 18, PRESSURE GLUE MEMBER 17
TRUSS 2	PRESSURE GLUE MEMBERS 2, 7, 17 & 18 @ CRACKS
TRUSS 3	REPLACE OR GLUE MEMBER "C" & "J" GLUE CRACKS IN MEMBERS 5 & 20
TRUSS 4	REPLACE OR GLUE MEMBER "G" & "H" GLUE CRACKS IN MEMBERS 3, 17 & 18
TRUSS 5	REPLACE OR GLUE MEMBER "E" & "G" GLUE CRACKS IN MEMBERS 3, 17 & 18
TRUSS 6	REPLACE OR GLUE MEMBER "F" & "G" GLUE CRACKS IN MEMBERS 2, 19 & 20
TRUSS 7	REPLACE OR GLUE MEMBER "D" GLUE CRACKS IN MEMBERS 2, 5 & 14
NOTE	PARALLAM OR GLUE LAM LUMBER MAY BE USED AS REPLACEMENT MEMBERS IN PLACE OF SOLID MEMBERS IF DESIRED.



BID TABULATION  
 JONESBORO COURTS/OFFICE/POLICE CENTER  
 CITY OF JONESBORO, ARKANSAS  
 ARNOLD & STACKS ARCHITECTS, P.A.  
 FEBRUARY 10, 1994

GENERAL CONTRACTOR	LICENSE NUMBER	ADDENDUM NO. 1	BID BOND	BASE BID	ALT NO. 1 OMIT SOME MILLWORK	ALT NO. 2 OMIT EMER. GENERATOR	ALT NO. 3 OMIT INT. DEMOLITION	SUBCONTRACTOR LISTING
BIG M CONSTRUCTION 1200 FALLS JONESBORO, AR 72401 PHONE: (501) 932-3673	4310994	YES	5%	\$1,610,000	(\$18,782) \$1,591,218	(\$31,000) \$1,560,218	(\$6,500) \$1,553,718	PLBG D & B MECH HVAC D & B MECH ELEC SMITH ELEC RF/SM ACCURATE
OLYMPUS CONST. CO., INC. P.O. BOX 1674 JONESBORO, AR 72403 PHONE: (501) 932-6670	13400194	YES	5%	\$1,515,860	(\$18,000) \$1,497,860	(\$31,000) \$1,466,860	(\$8,000) \$1,458,860	PLBG D & B MECH HVAC D & B MECH ELEC SMITH ELEC RF/SM OLYMPUS
TATE GENERAL CONTRACTORS P.O. BOX 1766 JONESBORO, AR 72403 PHONE: (501) 935-4428	27550394	YES	5%	\$1,609,900	(\$21,300) \$1,588,600	(\$22,800) \$1,565,800	(\$6,000) \$1,559,800	PLBG D & B MECH HVAC D & B MECH ELEC JAKE HENRY RF/SM TATE G.C.
BUILDERS OF JONESBORO P.O. BOX 1654 JONESBORO, AR 72403 PHONE: (501) 972-5632	38750694	YES	5%	\$1,558,500	(\$17,500) \$1,541,000	(\$6,000) \$1,535,000	(\$31,000) \$1,504,000	PLBG D & B MECH HVAC D & B MECH ELEC SMITH ELEC RF/SM ACCURATE

I certify that the above tabulation  
 is a true and accurate record of the bids  
 received on February 10, 1994 at 2:00 P.M.

ARNOLD & STACKS ARCHITECTS, P.A.

  
 Ken Stacks, AIA

# Arnold & Stacks

ARCHITECTS, P.A.

Negotiated Changes - Safeway Building Renovation

December 16, 1993

Page - 3

Items flagged with asterisk symbol (\*) indicate items to be performed by owner or donated by others.

Please review this list and let me know your comments.

Sincerely,

Arnold & Stacks Architects, P.A.

Ken Stacks, AIA

# Arnold & Stacks

ARCHITECTS, P.A.

Negotiated Changes - Safeway Building Renovation

December 16, 1993

Page - 2

	10,720	Change floor finish from quarry tile to vinyl tile at all areas except lobby, airlock 100A, public toilets and showers.
	-1,435	Omit sound insulation at certain interior partition walls.
	3,930	Omit tube grilles and ceramic tile inserts at Exterior Insulation and Finish System (EIFS).
	9,015	Reduce thickness and simplify EIFS.
<i>spec</i>	17,570	Change EIFS to expanded polystyrene.
	950	Omit bond beam at existing parapet.
<i>spec</i>	1,400	Reduce allowance for vinyl wall covering from \$.75/sq. ft. to \$.50/sq. ft.
	5,200	Removal of existing built-up roof to be omitted.
	5,000	Heat recovery unit to remain in contract.
	3,500	Ceiling space to become return air plenum. Smoke detectors to be added.
	25,500	Delete the DDC control system and provide manual thermostats and standard loop control panel.
	1,800	Reduce quality of grilles and registers and eliminate opposed blade dampers on registers where a damper is shown in the duct run-out.
	1,400	Change water heater system to A.O. Smith PVE-120-36 KW water heater (non ASME) with one 100 gallon insulated and jacketed storage tank (non ASME).
	1,300	Change pipe insulation to 1/2" armoflex on domestic water piping.
	64,050	Omit sprinkler system and eliminate unit heaters in attic.
	1,600	Change quality of plumbing fixtures.
	1,500	Eliminate heat trace on hot water lines and install a 3/4" return line with return pump.
	15,675*	Omit parking lot lights.
	8,640	Change exterior wall mounted lights to wall packs and omit five lights.
	13,950	Omit closed circuit T.V. system except for conduit.
	300	Revise fire alarm system.
<i>spec</i>	495*	Owner to provide termite treatment.
<i>spec</i>	520	Change all concrete to 3,000 psi.
<i>spec</i>	4,500	Change roof color to standard color.
	4,500*	Owner to provide drive-up window.
	3,450*	Omit intercom system except for rough-in boxes and conduit.
	12,850*	Omit wood laboratory equipment including fume hood.
	400	Change hydronic piping from steel to copper.
	900	Change F-1 to wall mounted exhaust fan.
<i>spec</i>	1,200*	Owner to provide temporary water and electrical.
	\$ 280,300	<b>TOTAL RECOMMENDED CHANGES</b>

\$1,519,700

REVISED CONTRACT AMOUNT WITH RECOMMENDED CHANGES

# Arnold & Stacks

ARCHITECTS, P.A.

December 16, 1993

City Council  
City of Jonesboro  
314 West Washington  
Jonesboro, Arkansas 72401

RE: NEGOTIATIONS ON SAFEWAY BUILDING RENOVATIONS

Dear Council Member:

After reviewing the changes with some members of the City Council, we have revised our recommendation on award of the construction contract. The general feeling that was presented at the last council meeting and privately with some of the councilmen was to: (1) not to include items that transferred the responsibility for completion of the project without definite plans for those items to be performed, (2) to have a completed building of which the city would be proud, and (3) to reduce the cost of the project.

We are recommending that the building not be sprinklered. Our reasons for this are as follows: (1) building codes do not require the building to be sprinklered, (2) the cost of \$64,050 is too much, (3) the city does not save money on fire insurance premiums, and (4) the hazard of property damage may be as great as any potential benefit.

The following items are changes to the contract to be deducted from the base bid of Tate General Contractors, Inc.

\$1,800,000 BASE BID - TATE GENERAL CONTRACTORS, INC.

## RECOMMENDED CHANGES

<i>Spec</i>	\$ 3,485	Change ornamental fencing to chainlink fence and omit short wall beneath fencing and omit columns.
	3,840*	Omit demolition of paving at areas to be landscaped by the owner.
	2,570*	Omit flagpoles.
	1,240*	Omit 8" thick concrete drive and concrete curbing at north side.
	400	Change mechanical equipment pad at north side from 6" thick to 4" thick.
	11,640	Omit 3" topping slab complete.
	8,450*	Omit shelving at rooms 106, 108, 196, 130, 131, 165, and 169.
	8,050*	Omit wood lockers.
<i>Spec</i>	1,100	Change insulation above suspended ceiling to blown-in R-19 above wood joists.
	7,600	Change suspended ceiling at courtroom to 2x2 color-tone tegular.
<i>omit</i>	7,785	Omit wood ceiling beams at courtroom.
	800+	Omit markerboards

BID TABULATION  
 JONESBORO COURTS/OFFICE/POLICE CENTER  
 CITY OF JONESBORO, ARKANSAS  
 ARNOLD & STACKS ARCHITECTS, P.A.  
 OCTOBER 14, 1993

GENERAL CONTRACTOR	LICENSE NUMBER	ADDENDA 1, 2 & 3	BID BOND	BASE BID	ALT NO. 1 OMIT NORTH CANOPY	ALT NO. 2 OMIT SOME MILLWORK	ALT NO. 3 OMIT SPRINKLERS	ALT NO. 4 OMIT SITE LIGHTING	ALT NO. 5 OMIT EMER. GENERATOR	ALT NO. 6 OMIT INT. DEMOLITION	SUBCONTRACTOR LISTING
RAMSONS, INC. P.O. BOX 9185 JONESBORO, AR 72403 PHONE: (501) 935-1210	001240294	YES	5%	\$1,919,000	(\$13,053) \$1,905,947	(\$54,178) \$1,851,769	(\$61,711) \$1,790,058	(\$14,225) \$1,775,833	(\$26,136) \$1,749,697	(\$3,902) \$1,745,795	PLBG_DIXIE_C HVAC_DIXIE_C ELEC_JAKE_HE RF/SM_RAMSON
BIG M CONSTRUCTION 1200 FALLS JONESBORO, AR 72401 PHONE: (501) 932-3673	004310994	YES	5%	\$1,960,000	(\$8,000) \$1,952,000	(\$44,000) \$1,908,000	(\$57,140) \$1,850,860	(\$12,977) \$1,837,883	(\$25,615) \$1,812,268	(\$16,000) \$1,796,268	PLBG_CONTROL HVAC_CONTROL ELEC_JAKE_HE RF/SM_ACCURA
OLYMPUS CONST. CO., INC. P.O. BOX 1674 JONESBORO, AR 72403 PHONE: (501) 932-6670	013400194	YES	5%	\$1,848,375	(\$7,598) \$1,840,777	(\$39,100) \$1,801,677	(\$62,140) \$1,739,537	(\$14,000) \$1,725,537	(\$25,615) \$1,699,922	(\$8,000) \$1,691,922	PLBG_RGB_MEC HVAC_RGB_MEC ELEC_JAKE_HE RF/SM_OLYMPU
TATE GENERAL CONTRACTORS P.O. BOX 1766 JONESBORO, AR 72403 PHONE: (501) 935-4428	027550394	YES	5%	\$1,800,000	(\$8,600) \$1,791,400	(\$51,000) \$1,740,400	(\$62,850) \$1,677,550	(\$15,675) \$1,661,875	(\$28,175) \$1,633,700	(\$6,600) \$1,627,100	PLBG_CONTROL HVAC_CONTROL ELEC_JAKE_HE RF/SM_TATE_G
BUILDERS OF JONESBORO P.O. BOX 1654 JONESBORO, AR 72403 PHONE: (501) 972-5632				NO BID							PLBG HVAC ELEC RF/SM

2X10 @ 24" OC	3.85*/LF	1.93*/SF
2X12 @ 24" OC	4.68*/LF	2.34*/SF
1X ROOF DECK		2.40*/SF
CEILING & LIGHTS		5.00*/SF
TRUSS WT	72IL*/LF / 20 =	3.61*/SF
MISC DUCTS & SPRINKLER ALLOW		5.00*/SF
BLOWN IN INSULATION		1.0*/SF
BUR		8.0
SUB TOTAL		29.28

### ADDED ROOF

PURLINS 9" .105 GA @ 5'0 = 5.84\*/LF = 1.17\*/SF

ROOF 26 GA ROOF DECK 1.50\*/SF

ROOF PLY'S 7" 12 GA EWF 4.71\*/LF

COLS @ 10'0" 3 1/2 X 3 1/2 X 3/4 @ 6.87\*/FT

AVERAGE HT 5'0 X 11 COLS = 55 LF

$$55 \times 6.87 = 378 \text{*/TRUSS}/100 = 3.78 \text{*/FT}$$

$$\frac{4.71}{8.49} / 20 = 0.43 \text{*/SF}$$

1/2" PLY WOOD ON BOTTOM CHORD 2.08\*/SF

50\*/CU FT

SUB TOTAL

5.18

TOTAL

34.46

MAX POSSIBLE EFFECT FROM MECH

3.0

37.46\*/SF

TAKE EXIST ROOF OFF

8.0

29.46\*/SF

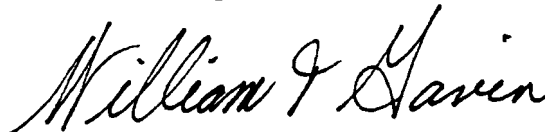


Mr. Ken Stacks  
July 6, 1993  
Page Two  
-----

6. Increase the wall along the east side to provide a total of 100 lineal feet of shear wall.
7. Change windows on the south wall to provide more shear wall. Provide additional reinforcing around the new windows which are installed.
8. If any additional weight is added to the roof structure for architectural considerations existing roof dead loads should be removed to offset these added loads.

We are looking forward to working with you on this project and hope this is the information you need for preliminary purposes. If we can be of further service please call.

Sincerely,



William T. Gavin, P.E.  
Reaves & Sweeney, Inc.

WTG/mm  
mmLtr39

ATTN:  
BILL  
GWIN



Planning • Design  
Engineering  
Landscape Architecture

July 6, 1993

Mr. Ken Stacks  
Arnold & Stacks Architects, P.A.  
527 West Washington  
Jonesboro, AR 72403

RE: Old Safeway Building  
Modification for Seismic  
Our File No. 93-410

Dear Ken:

This letter is to confirm our previous conversations concerning structural modifications necessary to bring the Old Safeway Building into conformance with current Seismic Standards. These conclusions were reached after reviewing plans of the existing building, visiting and inspecting the building and making some structural calculations.

We feel that the following items are the major components necessary to bring the building into compliance with the existing Standard Building Code.

1. Install a layer of 1/2" plywood below the existing ceiling wood joists, between the wood trusses, attaching with nails or screws to form a diaphragm.
2. Attach a continuous steel angle around the perimeter of the building attaching to the block walls and the ceiling diaphragm. This will transfer seismic loads from the plywood diaphragm to the walls.
3. Either install plywood under the steel joists or attach the existing roof deck in a more secure manner to provide a diaphragm for the area with steel joists.
4. Attach a steel "T" column at a maximum of 12'-0" o.c. inside or outside of perimeter and dividing block walls.
5. Repair or replace any damaged wood roof truss members.

## CALL FOR ARCHITECTS

The City of Jonesboro is soliciting responses from interested firms to provide professional services for the renovation of the old Safeway Building. The building is located just West of City Hall on West Washington Avenue. It contains approximately 18,750 square feet and was originally constructed in 1950. The current plan is to provide the departments listed below with offices for current needs with allowance for future growth.

	<u>Existing Sq Ft</u> <u>currently in use</u>
Police Department .....	13000
Municipal Court .....	5380
Information Systems Department .....	600
City Attorney's office .....	1312
Fire Department Administrative offices .....	<u>1009</u>
Total .....	21,301

Responses should address the following at a minimum:

- Current projects
- Experience with similar projects

We are currently planning to have the presentations after April 20, 1993. The place will be announced later.

For more information please call Dillon Watkins at 935-6649 extension 14, or Gene Vance at 932-8262. Please contact Shirley Watkins in the Mayors office at 932-1052 to schedule your presentation time.

### Enclosures

- Single line existing Layouts
- Memo's from department heads

REAVES  
SWEENEY  
MARCOM

January 9, 1996

Mr. Ken Stacks  
Arnold & Stacks  
Post Office Box 69  
Jonesboro, AR 72403

**RE: Jonesboro Courts/Office/Police Center  
416 West Washington  
Jonesboro, AR 72401  
Recommended Truss Modification  
Our File 95-790**

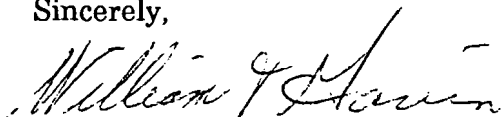
Dear Ken:

On December 28, 1995, Harold Fanning and myself, along with Tony Pardue of Olympus Construction Company, inspected our recommended modifications to the seven wood roof trusses. The recommended modifications were shown on Drawings S2A, S2B and S2C dated November 9, 1995. These modifications, as you know, were recommended after a failure at some knots in the bottom chord of Truss #5. This failure also caused damage to some adjacent trusses. These modifications strengthen the bottom chords of the trusses, thus helping to prevent any further splits in these bottom chords. This strengthening will also allow you to leave the built-up roof in place.

The modifications were all installed and we checked the tightness of all the rods. We made inspections a number of times during the installation and repair process and feel that all the work is as close as possible to the design drawings. All the trusses raised slightly, as expected, when the rods were tightened. Where there were shores under the truss, the truss raised free of the shore. With these modifications complete the portions of the building which were not occupied during repair are ready for occupancy. The total design load at this time does not exceed the original design load shown on the original buildings plans, and we feel, as stated in our letter of October 26, 1996, that the building is safe for occupancy.

If you have any questions or need additional information, please call.

Sincerely,



William T. Gavin, P.E.

In August of 1993, the structural engineer, Bill Gavin, and our associate, Matt Silas, reviewed on-site the repairs needed to each truss. We completed the plans and specifications, obtained the City's approval and then advertised for bids. Attached is a Bid Tabulation of the bids received on October 14, 1993. The low bidder was Tate General Contractors. The administration viewed the bids as too high, therefore, we entered into negotiations with the low bidder. Attached is a copy of our letter of December 16, 1993; we had reached a negotiated amount of \$1,519,700.00 that the mayor was prepared to recommend to the city council. Just before the council meeting, the city attorney (Pam Honeycutt) declared that the city council could not approve the bid because an amount had not been appropriated before the bids were accepted. This forced us to re-bid the project.

There were 42 items of changes on the list of negotiations presented to the city council. One of the items was removal of the built up roofing. The credit was only \$5,200. The contractor recommended this because of exposing the building to adverse weather conditions during construction. We got approval from the structural engineer to omit removal of the existing built-up roofing. Ray Wooten agreed with the understanding that the sprinkler system dead load was also omitted.

We were instructed by the City to revise the plans including the negotiated changes and re-bid the project. Attached is a copy of the bid tabulation on the project which was re-bid on February 10, 1994. The City of Jonesboro entered into an agreement with the low bidder, Olympus Construction, Incorporated on February 22, 1994.

Attached are copies of a typical truss and the repair schedule shown on the drawings. Also attached are letters dated April 15, 1994 and April 26, 1994 from Olympus Construction notifying us of additional truss repairs. The city approved \$6,120.00 of additional truss repairs at that time.

Project construction continued and was occupied and substantially complete in May of 1995. In the fall of 1995, we were notified that a light switch had come out of the wall in the municipal courtroom. We investigated the incident, but didn't immediately find the cause. We called our structural engineer. Approximately one (1) week later the engineer found a split at a knot in the bottom chord. The contractor shored up the broken truss. Soon thereafter three (3) other trusses were discovered to have small splits. The city closed the courtroom while repairs were made.

The extent of the problem required a thorough investigation, and a new structural solution. The city hired Fred Hegi, a structural engineer from Little Rock, to come and look at the problem. Mr. Hegi inspected the building on October 22, 1995. A copy of his letter of October 23, 1995 is attached. Mr. Hegi recommended an evacuation unless the structural engineer gives the City a written statement that

the building is safe. We were not aware of Mr. Hegi's inspection until called into the mayor's office on the evening of October 25, 1995. Attached is a letter from us to Reaves, Sweeny & Marcom which outlines the proceedings of that meeting. Mayor Brodell decided not to evacuate the building until the structural engineer could come the following day to confirm the structural integrity of the building. Attached is the letter of October 26, 1995 from our structural engineer giving approval to continue occupancy of the building.

Following the structural engineer's review, the engineer developed a plan for truss modification. The modification included repairs to the trusses with a gel epoxy injection and adding 1½" diameter steel rods on each side of each bottom chord of the seven bowstring trusses.

Olympus Construction, Incorporated performed this work under a construction change directive. Upon completion of the work the engineer inspected the work and determined that the building was safe for occupancy. Attached is the structural engineer's letter of January 9, 1996. His letter stipulates that the truss modifications allow the existing built up roof to remain.

The structural engineer made comments advising the city to monitor the trusses for repairs and adjust the tension on the trusses annually. He also warned about adding loads on the trusses, such as storage.

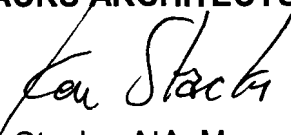
Our involvement continued for several months to help resolve payments to the contractor. Mayor Brodell called us in May of 2003 requesting a copy of the letter from the structural engineer stating that the building was safe for occupancy. We faxed a copy of the letter to his office.

It is our sincere hope that your current architect and structural engineer can provide the improvements which will restore confidence in the building.

Our firm is and has been a friend to the City. We have served as volunteers on city committees and on various civic boards. We take our civic and professional duties seriously. We provided services on the Justice Complex in a competent and professional manner. We expect no less from our consultants. Our firm will provide you and your design team with any relevant information that is in our files. Please call us at 932-5530.

Sincerely,

**STACKS ARCHITECTURAL FIRM, PLC**

A handwritten signature in black ink that reads "Ken Stacks". The signature is written in a cursive, flowing style.

Ken Stacks, AIA, Managing Member

PARSONS ENGINEERING, INC  
P.O. BOX 1027  
STATE UNIVERSITY, AR 72467

STRUCTURAL INSPECTION REPORT

Client: City of Jonesboro  
515 West Washington  
Jonesboro, Ar. 72401

Date: November 14, 2005

Services: A structural inspection of Justice Complex at 410 West Washington in Jonesboro, Arkansas was conducted. The inspection was limited to the roof system of the building. An as-built roof trusses analysis was performed on the roof system. The trusses were measured and analyzed for existing dead loads and a 20 pound per square foot live load.

Findings: The roof trusses were inspected and measured so an finite element model of the trusses could be formulated. The trusses consist of a double top cord that is tapered. The top edge of the top cord is curved. See Figure 1. The member is 15' - 4" long with the center 10.5" deep and the ends ranging from 7.25" to 7.5" deep. The member is 3.5" thick. The building plans provided by the city for the remodeling of the building reported the member to be 16" by 3.5 inches. The members were constructed so that the butting of two members on one side of the truss was at the center of the member on the other side of the truss. The bottom cord was a double member that measured 7.75" by 3.5". The verticals and diagonals that ran between the top and bottom cords measured 5.5" by 3.5". The finite element model generated is shown in Figure 2.

The following dead loads were placed on the truss:

1. The new standing seam roof had a calculated load of 3 pounds per square foot or 490 pounds per load point over the verticals in the truss. The roof load was supported by steel tube columns. The building plans showed the tubes over top of the truss verticals. The field measurements showed the tube being off-set by up to 14" from the verticals with an average of 4" to 8". These offsets were accounted for in the finite element model.
2. Existing old built up roof and decking were obtained from the roof was weighed. The weight of the decking and built up roofing was determined to be 6.3 pounds per square foot. The trusses were spaced 20' on center. The old built up roof and decking was supported by 2x12's on 2' centers. This load was placed on the top cord of the truss at the point loads generated from the 2x12 rafters. The applied point load was as 176 pounds on each side of the top cord..
3. A ceiling was attached to the bottom cord of the truss that consisted of 2x10's with ½" plywood placed on the under side. The top of the ceiling was cover with plywood and

used for walkways and areas to support the mechanical units. This load was added to the truss model as a uniform load on the bottom cord. The load was determined to be 80 pounds per foot.

4. The drop ceiling and lights in the building were also accounted for by adding to the bottom cord as a uniform load of 20 pounds per foot.

5. The mechanical equipment loads were calculated and added to the bottom cord as a uniform load on the bottom cord, that ranged from 27 to 75 pounds per foot.

The inspection found that the cracked truss members had been repaired. The cracked members had been pressure glued in order to fill cracks. This repair was called for when the building was renovated. The repair to the truss members had been performed as required. Several truss members had been reinforced or replaced, during the repair

The trusses were reinforced with 1.5 inch steel tension rods that ran on each side of the truss. See Figure 3. The tension rods were attached to the truss at the ends of the truss. They were not attached to the truss at interior points. The center of gravity of the rods were 7.125 inches above the center of gravity of the bottom cord. This was modeled in the finite element model.

The truss was first analyzed for the existing dead loads with tension rods loaded with 200, 2,000, 5,000, and 10,000 pounds. The bending and axial stresses were calculated in the truss members. The stresses near the middle of the truss in the top and bottom cords are reported in Table 1. The stresses near the end of the truss where the rods are attached to the truss are also reported in the top and bottom cords. The allowable stresses for axial compression, tension and bending were obtained from a 1974 timber construction manual. This was done to account for recent reductions in allowable stresses for newer woods. The allowable stresses are presented in Table 1. The interaction equations were calculated for the truss members and presented in Table 2. The values should be less than or equal to one. The member stresses and interaction equations were also calculated for the dead load and a live load of 20 pounds per square foot on the roof. The results are presented in Tables 1 and 2.


The truss was modeled with one end pinned and the other end permitted to slide. This was done to account for the flexibility of the walls. The analysis of the dead load condition showed that the end of the truss slid 0.59" for a 200 tension pound load on the rods and 0.31" for the 10,000 pound load. The center line deflection was 1.46" and 1.14" respectively. When the live load was added to the truss, the end slid 1.16" and 0.88" for the 200 and 10,000 pound loads. The center line deflection was 2.89" and 2.54" respectively. The truss was 1172" long

Interaction values over one does not mean the roof would fail but the factor of safety is being reduced. The factor of safety for wood would range from 2 to 4. The factor is this large in order to account for the knots and other defects on the wood.



The analysis revealed that the truss appears to be fully loaded when no live loads are applied to the truss. When the live load is added to the truss, the truss is over stressed and the factor of safety is being reduced. The vault action of the wood decking was not accounted for along with the diaphragm action or stiffness of the plywood attached to the bottom cord. These actions would help to reduce the chances of the collapse of the roof. The vault action would be limited by the lack of blocking between the 2x12's at load points and the methods of securing the 2x12's to the truss. If there is a large snow or ice load on the roof, care should be taken. The roof had been tested during the recent ice storms.

By placing columns from the floor to the bottom and top cord of the truss along the hall on the other side of the back wall of the court room the stresses in the roof trusses would be reduced. The interaction equations would be close to one in the truss with full live load. This should be investigated by further study and design.



Thomas J. Parsons, Ph.D., P.E.



Software licensed to Parsons Engineering, Inc.

Job No	Sheet No <b>1</b>	Rev
Part		
Ref		
By	Date 14-Sep-05	Chd
Client	File citytrussMODex.std	Date/Time 14-Nov-2005 19:49

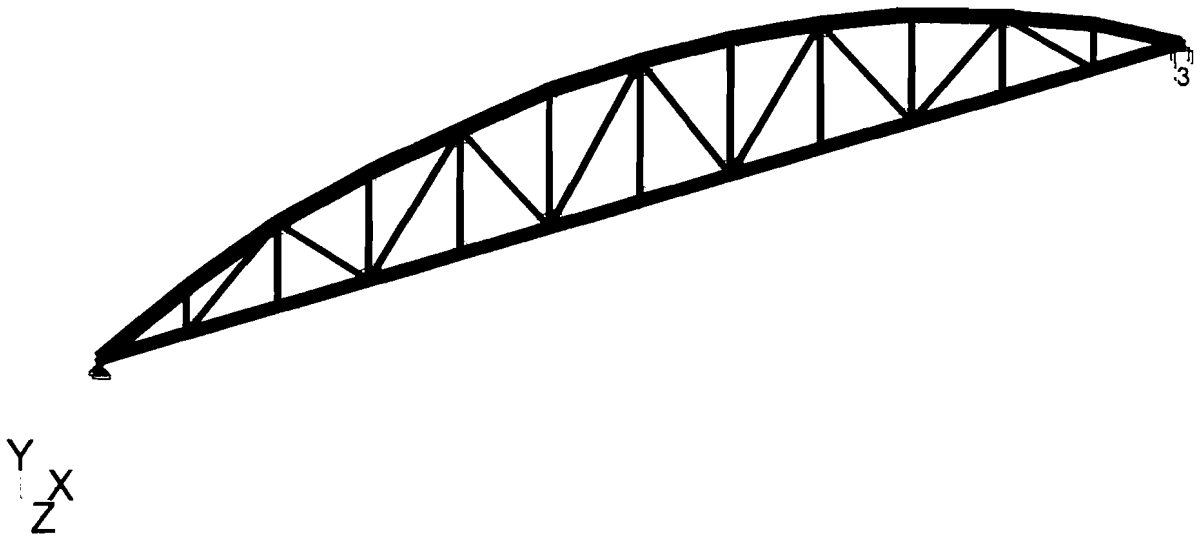


Figure 3 - Finite Element Model