12UR004 05UR017

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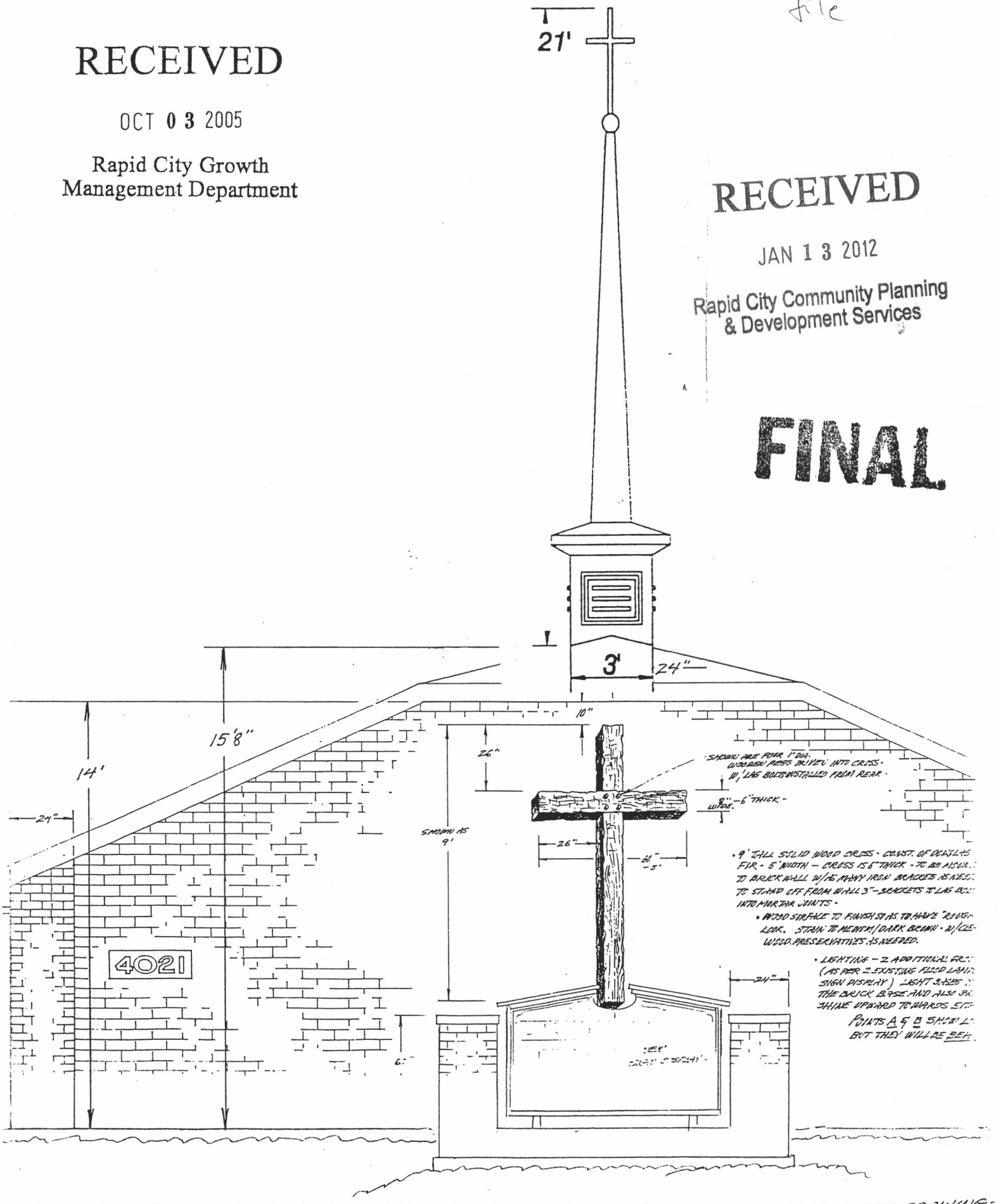
FINAL



SCALE THIS DRAWING - 1/4" = 1'0"

• PROPOSED STEEPLE •

J.R. 2-23-05

12UR004

CALCULATION SHEET

STEVE L. KNIGHT, PE
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STATESVILLE, NC 28677
(704) 878-2996

SHEET: 1
DATE: 10/10/2001
CLIENT: Amity

AMITY FIBERGLASS STEEPLE WIND LOAD CALCULATION
MODEL A

LOCATION:

DESIGN METHOD: ASCE 7-93

DESIGN CONDITIONS: WIND

Basic Wind Speed:	100 MPH
Category:	II
Exposure Factor:	C
Importance Factor:	1.07

General Shape and Height Factors:

Base:	@	20	Kz= 0.87
Spire:	@	28	Kz= 0.96

Velocity Pressure: q=0.00256Kz(IV)2

qb = 25.50 PSF
qt = 28.14 PSF

Design Wind Pressure: P=qCfG

h/D = 7.00
Cf = 1.4

Gust Factors:

Base:	@	20	Gb= 1.29
Spire:	@	28	Gt= 1.27

Pb= 46.05 PSF (avg for base)
Pt= 50.03 PSF (avg for spire)

Wind Forces: F=P*A

Fb= 553 POUNDS
Ft= 638 POUNDS
Base Shear, F= 1190 POUNDS

DESIGN CONDITIONS: SEISMIC

Av:	0.05
Cc:	3
P:	1.5
Seismic Hazard Group:	II

Design Seismic Force: Fp=AvCcPWc

Base Shear, Fp= 50.625 POUNDS

SEISMIC DOES NOT GOVERN.

STEEPLE DETAILS:

Manufacturer's Weight:	225 POUNDS
Mounting Height (above grade):	18 FEET
Steeple Height:	21 FEET
Steeple Base Width:	3 FEET
Steeple Base Height:	4 FEET
Distance to CG:	2.00 FEET
Spire Width:	1.5 FEET
Spire Height:	17 FEET
Distance to CG:	9.67 FEET

Sum of Moments: (D-.5)*Rb=Db*Fb+Dm*Fm+Dt*Ft-(D-.5)/2*W

Rb = 2773 Pounds (down) per side
Ra = -2548 Pounds (uplift) per side

Rod Size : Ar=Fa*SF/2/Ra (Using one anchor rod in each corner)

Ar= 0.27 SQIN

Steve Knight
10-10-01

USE: 4- 3/4 " DIA ANCHOR BOLTS

These calculations determine anchoring requirements only. The ability of the supporting structure to support these loads are the responsibility of others.

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