

T.C.
GEBZE YÜKSEK TEKNOLOJİ ENSTİTÜSÜ
MÜHENDİSLİK VE FEN BİLİMLERİ ENSTİTÜSÜ

ÇELİK ÇERÇEVELERDE KİRİŞLERİN
ÖN TASARIMI İÇİN BİR YAKLAŞIM

Selcen GÜRBÜZ
YÜKSEK LİSANS TEZİ
DEPREM VE YAPI ANABİLİM DALI

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TEZ DANIŞMANI
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GEBZE

ÖZET

Tez Başlığı: Çelik Çerçevelerde Kirişlerin Ön Tasarımı İçin Bir Yaklaşım

Yazar Adı : Selcen GÜRBÜZ

Günümüzde mühendislik ofislerinde yapı tasarımı yapılırken ön tasarım genellikle deneme-yanılma yoluyla yapılmaktadır. İlk olarak mühendisin tecrübesine dayalı olarak yapı elemanlarının kesitleri atanır. Analizler yapıldıktan sonra, eğer kesit yetersizse büyütülür ya da kesit gereğinden büyükse küçültülebilir. Yönetmelikteki tüm şartları sağlayan gerçek kesiti bulmak zaman ve tecrübe gerektiren bir süreçtir. Bazen, bu deneme-yanılma safhası defalarca tekrarlanabilir.

Bu çalışmanın amacı, düzenli çelik çerçevelerde kirişlerin ön tasarımı için bir yaklaşım sunmaktır. İlk olarak, farklı zeminlerde inşa edilen ve farklı şiddetteki yer hareketlerine maruz 3-, 9- ve 20- katlı çelik çerçevelerin histeretik enerji talepleri, doğrusal olmayan zaman geçmişi analizleri sonuçlarından elde edilmiştir. İkinci adımda, ilk adımda elde edilen sonuçlar yardımıyla bir yapay sinir ağı (YSA) modeli oluşturulmuş ve farklı kat sayısına sahip çelik çerçeveler için de histeretik enerji talepleri tahmin edilmiştir. Son adımda ise çelik çerçevelerdeki kirişlerin ön tasarımı için bir algoritma geliştirilerek bir uygulama örneği sunulmuştur. Ayrıca, sunulan yaklaşımın pratik ve etkili bir şekilde uygulanabilmesi için ön tasarım abakları geliştirilmiştir.

Sonuçlar göstermiştir ki; enerjiye dayalı parametreler yardımıyla yapılan ön tasarım yaklaşık değerler vermektedir.

SUMMARY

Heading: An Approach for The Preliminary Design of Beams in Steel Frames

Author : Selcen GÜRBÜZ

Preliminary design is a trial-and-error process in engineering offices. The first step is to assign the element sections to the members based on the engineer's experience. After all the analyses are complete, the section is either reduced or enlarged. To come up with the section that complies with all the code requirements takes some time and experience. Sometimes, this process is repeated many times.

The purpose of this study is to present an approach for the preliminary design of beams in steel frames. First, the hysteretic energy demands of 3-, 9-, and 20-storey frames subject to earthquake ground motions recorded on different soils and having different characteristics are evaluated through nonlinear dynamic time history analyses. Second, a Neural Network model is constructed. Then, the hysteretic energy demands for steel frames with different storey levels are predicted. Finally, an algorithm is developed for the preliminary design of steel beams and an application is presented. In addition, preliminary design charts are plotted, to be able to use the proposed method in a fast and efficient way.

The results indicate that preliminary design based on energy parameters is in close agreement with the real design.

TEŞEKKÜR

Eğitim sürem boyunca bana yardımcı olan değerli hocam Yrd.Doç.Dr. Bülent AKBAŞ'a, tez hazırlık çalışmaları süresince; birlikte çalıştığım tüm meslektaşlarıma, arkadaşlarıma ve aileme teşekkürü bir borç bilirim.

Haziran 2006

Selcen GÜRBÜZ

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SİMGELER DİZİNİ

c	: Viskoz sönüm katsayısı
C_y	: Yapının akma dayanımı katsayısı
E_D	: Sönüm enerjisi
E_I	: Yapıya giren enerji
E_K	: Kinetik enerji
E_S	: Elastik birim şekil değiştirme enerjisi
E_H	: Histeretik enerji
f_s	: Yay kuvveti
g	: Yer çekimi ivmesi (m / sn^2)
k	: Rijitlik
R_y	: Akma dayanımı
t	: Zaman (sn.)
T	: Periyot (sn.)
u	: Kütlenin yere göre relatif yer değiştirmesi (m)
u_g	: Yer hareketi yer değiştirmesi (m)
u_{max}	: Maksimum yer değiştirme (m)
y_i	: i . çıkış verisi
Z_f	: Plastik kesit modülü (mm^3)
x_i	: i . giriş verisi
W	: Yapının toplam ağırlığı (t)
ξ	: Sönüm oranı
η	: Taban Kesme Kuvveti Katsayısı
μ	: Yer değiştirme sübekliği oranı
θ_i	: Kutuplanma değeri (YSA modeli için)
θ_{pa}	: Kümülatif plastik dönme kapasitesi oranı

KISALTMALAR DİZİNİ

YSA	Yapay Sinir Ağları
ÇSD	Çok Serbestlik Dereceli Sistem
TSD	Tek Serbestlik Dereceli Sistem
EQ	Deprem Şiddeti (Earthquake Intensity)
MLP	Çok Katmanlı Algılayıcılar (Multi Layer Perseptron)
MSE	Hataların Kareleri Toplamı (The Mean Square Error)
NN	Yapay Sinir Ağları (Neural Network)

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1. GİRİŞ

1. 1. Genel

Depremler çok sık görülmeyen, buna karşın gerçekleştikleri takdirde yapılara büyük zararlar veren doğal afetlerdir. Bir yapının servis ömrü boyunca en az bir küçük depremle karşılaşma olasılığı oldukça yüksektir.

Tüm dünyada kabul edilen depreme dayanıklı yapı tasarımı felsefesi şu üç kriterden oluşmaktadır;

- I. Yapının ömrü boyunca karşılaşma olasılığı çok fazla olan hafif şiddetli depremlerde; yapısal olan ve olmayan elemanlarda oluşacak hasar önlenmelidir.
- II. Yapının ömrü boyunca karşılaşma olasılığı çok fazla olmayan orta şiddetli depremlerde; yapısal ve olmayan elemanlarda oluşacak hasar onarılabilir düzeyde olmalıdır.
- III. Yapının ömrü boyunca karşılaşma olasılığı çok az olan şiddetli depremlerde; can kaybı ve yapının göçmesi önlenmelidir.

Depreme dayanıklı yapı tasarımı kapsamlı bir tasarım teorisine dayanmaktadır. Fakat pratik uygulama amaçlarını sağlayamamaktadır. Bunun nedeni; deprem hareketlerini veya önlenmesi gereken hasarı tarif edememesidir. Bu sorunu aşmak amacıyla yapıdaki hasarı sınırlamayı hedefleyen, daha kapsamlı ve detaylı bir tanım olan performans dayalı tasarım yaklaşımı benimsenmiştir (Bertero, FEMA-273, Vision2000 Committee, 1995).

Performansa dayalı depreme dayanıklı tasarım; sismik riskin, performans seviyelerinin seçiminin, zeminin uygunluğunun, kavramsal tasarımın, sayısal ön tasarımın, tasarım sırasındaki kabul edilebilirlik kontrollerinin, tasarımın gözden geçirilmesinin, inşaatın kalitesinin ve binanın servis ömrü boyunca bakımının tanımlanmasının ifade edilmesidir (SEAOC, Vision 2000).

Performansa dayalı depreme dayanıklı tasarım yöntemi, yapısal mukabele parametreleri olarak; gerilmeler, şekil değiştirmeler, görelî kat ötelemeleri oranı, yapısal ivmeler, süneklik değerleri, hasar indisi ve enerji parametrelerini kullanabilir.

Performans seviyelerinin belirlenmesi ve orta şiddette veya şiddetli depremlere maruz yapıların tasarımı için, en cazip parametreler enerji parametreleridir (Bertero ve Uang, 1992; Bertero ve Teran-Gilmore, 1994).Yapılara yer hareketlerinin etki etmesi sonucu bir enerji girişı olacaktır. Eğer yer hareketi küçükse; bu enerji girişı sönüm ve doğrusal şekil değiştirmeler yoluyla, orta şiddette veya şiddetli bir yer hareketiyse; sönüm ve doğrusal şekil değiştirme yoluyla veya tüm yapısal elemanlardaki doğrusal olmayan şekil değiştirme (histeretik enerji) yoluyla tüketilecektir.

Geleneksel yönetmelikler; yapıların, bölgenin depremselliği ve yapının özelliklerine göre statik yatay kuvvetlere karşı koyacak şekilde tasarlanmasını ister. Yapının doğal titreşim periyotunu hesaplayan formüller binanın yüksekliği boyunca etkiyen yatay yük dağılımına ve taban kesme kuvvetine göre belirlenir. Bu kuvvetler için binanın statik analizi, farklı katlar için kesme kuvvetleri ve devrilme momentlerini içeren tasarım kuvvetlerini belirler.

Bu aşamadan sonra; yapısal elemanların ön tasarımı deneme-yanılma yöntemiyle yapılmaktadır. Yük analizinden önce bir kesit belirlenmekte, yük analizden sonra kesit yönetmeliklerde belirtilen şartları sağlamıyorsa yeni bir kesit seçilmektedir. Yani ön tasarım tamamen tecrübeye dayalı olarak yapılmaktadır. Ve ön tasarım bu yolla yapıldığında zaman alacaktır. Hâlbuki önceden elde ettiğimiz

değerlere dayanarak bir ön tasarım yapılması; daha gerçekçi ve daha yaklaşık sonuçlar vererek, bizi ön tasarımın zorlu uğraşlarından kurtaracaktır.

Ön tasarımın önemli olduğu diğer bir konuda maliyet analizleridir. Yapının maliyetinin, statik ve dinamik analizler yapılmaksızın doğru bir biçimde hesaplanabilmesi günümüz şartlarında önemli bir bilgidir.

Enerjiye dayalı yapı tasarımında ise; bir yer hareketi süresince oluşan enerji talebi ve yapının veya yapısal elemanların enerji tüketme kapasiteleri tahmin edilmeye çalışılmaktadır. Bu şekilde öncelikle, yapıya gelen histeretik enerji (E_H / m) değeri belirlenir. Ardından, kat histeretik enerjisi ($E_{H(KAT)} / E_H$) saptanır. Kat histeretik enerjisini belirlemek demek kata gelen talebi belirlemek demektir. Böylece bu talebe göre kirişlerin ön tasarımı yapılabilir.

Deprem şartları gibi yüksek karmaşıklık içeren bir konuda belli bir ön tasarım koşulu oluşturabilmek kolay değildir. Bu konuda pek çok etkili girdi değeri bulunmaktadır. Ve tüm bu parametreler bölgenin depremselliğine göre değişkenlik göstermektedir. Bununla birlikte, yüksek karmaşıklığa sahip bu veriler düzenlenebilir.

Bu tip yüksek karmaşıklık düzeyine sahip problemleri çözmek amacıyla YSA'lar (Yapay Sinir Ağları) geliştirilmiştir. YSA'lar basit matematiksel yapılardır ve çeşitli parametreler arasında mevcut bir ilişkileri oluşturmak için en uygun araçlardır. Modelleri genelleştirebilirler. Bir YSA geliştirebilmek için, çok karmaşık matematiksel fonksiyonlara gerek yoktur. Genellikle deneysel yollarla elde edilmiş veriler ve yaklaşık sonuçlar YSA modeline girdi değişkeni olarak verilebilir.

YSA uygulamaları; birbirlerinden tümüyle farklı uygulamalar olması karşın, belirsizlikler üzerine kurulan sistemler olması bu teknikleri ortak yönü olarak

değerlendirilebilir. Başka bir deyişle, klasik yöntemlerle ortaya çıkan belirsizlikleri içeren ve işleyen uygulamalardır. Yapay sinir ağları uygulamaları; biyolojik sinir hücrelerinin basitleştirilmiş olarak modellenmesi yardımıyla, öğrenebilen sistemlerin geliştirilmesinde kullanılan uygulamalardır ve farklı mühendislik dallarında olduğu kadar inşaat mühendisliğinin değişik alanlarında da son yıllarda yaygın olarak kullanılmaktadır (Sagiroglu ve ark., 2003)

Mühendislik problemindeki belirsizliğin kaynağı, model ve modelin içerdiği parametreler olup söz konusu belirsizlikler genellikle olasılık teorisi ve istatistiksel yöntemler yardımıyla bulunmaktadır. Belirsizlikler altında ortaya çıkacak başarısızlık (risk) ise güvenilirlik analiziyle belirlenecektir. Yüksek derecede belirsizlik gösteren (karmaşık) mühendislik problemlerinin çözümünde belirsizliklerin azaltılması ve değerlendirilmesine yönelik klasik yaklaşımlar, çoğunlukla daha karmaşık ve zaman-maliyet açısından ekonomik olmayan çözümlere neden olabilmektedir.

YSA, yapay sinir hücrelerinin katmanlar şeklinde bağlanmasıyla oluşturulan veri tabanlı sistemler olup insan beyninin öğrenme ve değişik koşullar altında çok hızlı karar verme gibi yeteneklerinin, basitleştirilmiş modeller yardımıyla karmaşık problemlerin çözülmesinde kullanılmasını amaçlamaktadır. Sınıflandırma, kümeleme ve zaman serilerinin tahmini gibi değişik alanlarda kullanılan YSA uygulamalarının en büyük avantajı, karmaşık modellere gereksinim duymaksızın yalnızca ağı eğitilmesi yoluyla problemlere çözüm getirebilmesidir. Bu nedenle, yapay zeka tekniklerinin, belirsizlikler göz önüne alındığında, klasik yöntemlerin sağlayamayacağı avantajlara sahip olduğu söylenebilir (Sagiroglu ve ark., 2003).

1. 2. Çalışmanın Amacı

Bu çalışmanın amacı; düzenli çelik çerçevelerde kirişlerin ön tasarımı için bir algoritma geliştirmektir. Bu çalışmada; çelik çerçevelerde histeretik enerji talebiyle yer hareketi parametreleri arasındaki doğrusal olmayan ilişkileri NN yardımıyla tahmin edilmeye çalışılmıştır. Bu amaçla, daha önce 3-, 9- ve 20- katlı yapılar kullanılarak elde edilen (E_H) histeretik enerji talepleri, zemin tipi ve modellere ait dinamik değişkenler (T, kat sayısı v.b.) giriş verileri olarak kullanılmıştır (Akbaş ve ark., 2003).

Bu 6 tasarım değişkeni, öncelikle YSA modelinde E_H/E_I değerleri veri alınarak; kat histeretik enerji talepleri öngörülme (E_H/m) çalışılmıştır. Ardından ikinci bir model olarak $E_{H(KAT)}/E_H$ değerleri veri alınarak kat histeretik enerji talebi oranları öngörülme çalışılmıştır. Bu şekilde katlar için biri E_H/m değerlerinin öngören, diğeri ise $E_{H(KAT)}/E_H$ değerlerini öngören iki abak oluşturulmuştur. Bu abaklar, yer ivmesi büyüklüğü $\ddot{u}_{g,max} = 0.4g$, $\ddot{u}_{g,max} = 0.6g$ ve $\ddot{u}_{g,max} = 0.8g$ göre hazırlanmıştır.

Daha sonra bu abaklar yardımıyla; 4-,9- ve 20- yapı örnekleri için kiriş ön tasarımı yapılmıştır. Uygulamalar doğrultusunda, bir ön tasarım algoritması oluşturulmuştur.

1. 3. Çalışmanın İçeriği

Çalışmanın ikinci bölümünde, depreme dayanıklı yapı tasarımının genel felsefesi ve enerji kavramları irdelenerek bu konudaki literatür araştırmaları verilmiştir.

Çalışmanın üçüncü bölümünde; deprem hareketlerinin özellikleri ile depreme dayanıklı yapı tasarımında enerji denklemlerinin çıkarılışından söz edilmiştir.

Çalışmanın dördüncü bölümünde ise; YSA'lar hakkında genel bilgiler verilmiştir. Uygulama tekniklerinden bahsedilmiştir.

Beşinci bölümde; YSA modellemesinde kullanılan yöntem ve YSA modeli hakkında gerekli bilgiler verilerek, YSA analizlerinden çıkan sonuçlar verilmiştir.

Altıncı bölümde; kirişlerin ön tasarımı için bir yaklaşım geliştirilmiş ve uygulama örnekleri yapılmıştır.

Yedinci bölümde; Bölüm 6'da önerilen yaklaşımın pratik olarak uygulanabilmesi için ön tasarım abakları oluşturulmuştur.

Son bölümde ise sonuçlar tartışılarak öneriler verilmiştir.

2. DEPREME DAYANIKLI YAPI TASARIMINDA ENERJİ KAVRAMI

Geleneksel olarak, yapılar kuvvetli yer hareketlerinin meydana getireceği kuvvetlerden daha küçük yatay kuvvetler dikkate alınarak elastik olarak tasarlanmaktadır. Ekonomik sebeplerden dolayı, orta şiddetli ve şiddetli yer hareketleri sırasında plastik şekil değiştirmeye izin veren daha az kuvvetli bir yapı tasarlanır. Bu yolla, yapısal ve yapısal olmayan elemanlar da doğrusal olmayan şekil değiştirmeler oluşurken yapı giren enerjiyi tüketilir.

Enerji esaslı tasarım yöntemi ilk kez Housner (1956) tarafından geleneksel sismik tasarım yöntemlerine alternatif bir yöntem olarak önerilmiştir. Hesaplamalar, TSD sistemlere (Berg ve Thomaides, 1960) ve hatta ÇSD sistemlere (Anderson ve Bertero, 1969) giren enerjinin tahmin edilmesine dayanmaktadır. Enerjiye dayalı depreme dayanıklı yapı tasarımında temel ilke; bir yer hareketi süresince oluşan enerji talebini tahmin etmek ve yapının veya yapısal elemanların enerji tüketme kapasitelerini belirlemektir.

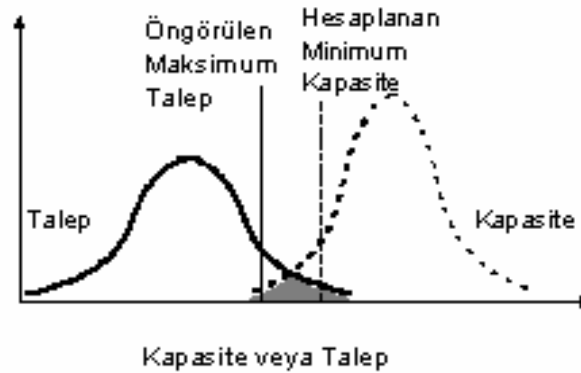
Enerji ve enerji parametreleri orta ve şiddetli depremlere maruz yapıların tasarımı ve performans seviyelerinin seçiminin belirlenmesinde en umut veren parametrelerdir (Bertero ve Teran-Gilmore, 1994).Yapılara, yer hareketlerinin etkimesi sonucunda bir enerji girişi olacaktır. Yapılar, deprem sırasında yapıya giren bütün enerjiyi tüketmek zorundadır. Bu enerjini bir kısmı elastik şekil değiştirme enerjisi ve kinetik enerji olarak depolanmaktadır. Diğer bir kısmı ise yapısal ve yapısal olmayan elemanlar tarafından sönüm ve doğrusal olmayan şekil değiştirmeler yoluyla tüketilmektedir (Berg ve Thomaides, 1960). Plastik şekil değiştirmeler tarafından harcanan enerji, histeretik enerji olarak adlandırılır. Yapılardaki hasar, yapının harcadığı histeretik enerji ile ilişkilidir. Histeretik enerji, yapısal özelliklerin

ve zemin hareket karakteristiklerinin fonksiyonu olarak incelenebilir (Bertero ve Teran-Gilmore, 1994).

Depremler oldukça düzensiz yer hareketleri olmalarına rağmen, yapıya giren enerji oldukça kararlı bir değerdir. Enerji girişi, yer hareketlerinin özelliklerinin (etkili yer hareketi süresi, genlik, frekans v.b.) ve yapısal özelliklerin (kütle, doğal periyot) bir fonksiyonudur. Ve dayanımdan çok az etkilenir (Akiyama, 1985). Yani, Housner (1956) tarafından ortaya atılan enerji kavramı depreme dayanıklı yapı tasarımı için bir temel teşkil edebilir. Doğrusal olmayan sistemlere ait enerji girişini doğru bir şekilde belirleyebilmek için maksimum yer değiştirme değil, doğrusal olmayan yer değiştirme artımlarının kümülatif değerlerinin belirlenmesi gerekmektedir (Sucuoğlu ve ark., 1994 ; Hadjian, 1982 ; Penzien , 1960). Herhangi bir yapı için enerji kavramları kullanılarak tasarım yapılabilmesi için Enerji Talebinin Enerji Tüketme Kapasitesinden küçük yada eşit olması gereklidir.

$$\text{Talep} \leq \text{Kapasite} \quad (1)$$

Bu eşitlik, yer hareketlerinin yapı üzerindeki etkisini yapıya giren enerji (Talep) olarak ve yapının buna karşılık dayanımını da enerji yutma kapasitesi (Kapasite) olarak tanımlamaktadır. Bir deprem sonucu oluşacak yer hareketi süresince enerji talebinin tahmin edilmesi ve buna uygun enerji tüketme kapasitesine sahip yapıların tasarlanması gerekmektedir.



Şekil 2.1 Talep ve kapasite fonksiyonları. (Rai, 2000)

Bir yapının veya yapısal elemanın enerji tüketme kapasitesi, onun histeretik davranış yoluyla bu enerjiyi tüketme yeteneğidir. Eğer enerji tüketme kapasitesi enerji talebinden büyükse depreme dayanıklı yapı tasarımı sağlanmış demektir.

Basitleştirilmiş olarak; Şekil 2.1’de verilen grafik talep ve kapasitenin olasılık yoğunluğunu fonksiyonlarını göstermektedir. Tasarım talebi, tasarım amaçları için sismik talebin öngörülen maksimum değeridir. Benzer şekilde; hesaplanmış kapasite analiz ve tasarımın kabul edilebilir metodlarıyla bulunmuştur. Kapasitenin dağılımı bazen gerçek kapasitenin hesaplanan kapasiteden daha az olabileceğini göstermektedir. Şekil 2.1’de iki fonksiyonunda kapsadığı taralı alan kapasitenin talepten daha az olduğu bölgeyi göstermektedir (Rai, 2000)

Kapasiteler ve talepler; rijitliğin, dayanımın, enerji yutma ve tüketme kapasitesinin mekanik özellikleri ile ilgilidir. Kapasite ve taleplerin belirlenmesi, tüm zemin-yapı sistemini dikkate alan matematik modellerin kullanılması ile nümerik analizden elde edilebilir. Dinamik bir problemde, talep ve kapasite birbirine bağlıdır. Taleplerin belirlenmesi ve kapasitelerin tahmini çok basit yöntemler değildir.

Tek serbestlik dereceli ve hatta çok serbestlik dereceli sistemlere enerji girişini tahmin etmek için çalışmalar yapılmaktadır. Housner (1956), doğrusal sistemdeki hız mukabelesi spektrumunu kullanarak yapının mukabelesine katkısını etkileyen toplam enerjiyi tahmin etmiştir ve doğrusal olmayan sistemde hasara yol açan enerji girişinin doğrusal sistemdeki ile aynı olduğunu kabul etmiştir. Bu limit tasarım yaklaşımı; yapıya enerji girişine ve yapının bu enerjiyi tüketme yeteneğine bağlıdır. Ayrıca, Housner (1956) bir yapıya giren toplam enerji miktarı; kütlenin yarısıyla yere göre relatif hızın karesinin çarpımı olarak tahmin etmiştir. Relatif hız belirli bir sönüm oranı (ξ) ve periyota (T) bağlı olarak hız mukabele spektrumundan bulunabilir. Akiyama (1985), Housner’in (1956) yöntemini geliştirerek tek katlı yapılardan çok katlı yapılara kadar düzgün bir şekilde uygulanabilecek depreme dayanıklı tasarım yöntemi önermiştir.

Veletsos ve Newmark (1960), TSD doğrusal olmayan sistemler üzerinde yaptıkları çalışmada doğrusal olmayan sistemlerdeki maksimum yer değiştirmenin doğrusal sistemlerdeki maksimum yer değiştirmeye oranını elde etmişlerdir. Ayrıca birim şekil değiştirme enerjisini tahmin ederek bu orana bir üst sınır verebilme ihtimalini araştırmışlardır. Penzien (1956), TSD ve ÇSD sistemlerde benzer sonuçlar elde etmiştir.

Kuvamura ve Galambos (1989), yapının ve yer hareketinin dinamik özellikleri ve deprem riski potansiyeline göre bir maksimum enerji girişini göz önüne alarak bir limit durum kriteri getirmişlerdir.

Fajfar ve ark. (1991), TSD sistemlere maksimum enerji girişini bulmak için bir formül geliştirmiştir. Ayrıca Kuvamura ve Galambos ' un (1989) formülünü değiştirerek diğer çalışmalarla karşılaştırmışlardır. Çalışma sonucunda enerji girişinin depremin şiddetiyle oldukça yakın ilişkili olduğu gözlenmiştir.

Kuvamura ve ark. (1992), düzleştirilmiş fourier spektrumundan, sönümlü doğrusal TSD sistemlerin enerji girişini tahmin etmeye çalışmışlardır. Çalışma sonucunda sönüm oranındaki artışın TSD sistemlerde daha düzgün spektrumlara yol açtığı; ÇSD sistemlerde ise yüksek modların katkısından dolayı oluşan düzleştirme etkisinin, sönümden dolayı düzleştirme etkisinden daha az önemli olduğu görülmüştür. Bunun sebebi ÇSD sistemlerde birinci modun hâkim olmasındandır.

Tso. ve ark. (1993), az katlı düktıl moment çerçevelerde enerji girişi ve histeretik enerji talebini tahmin etmek için eşdeğer TSD sistemler üzerinde çalışmışlardır. Çalışma sonucunda çok katlı düktıl moment çerçevelerde yüksek modların katkısının önemli olduğu ve eşdeğer TSD sistemlerin bu tip yapılarıdaki enerji talebini daha düşük tahmin edebileceği sonucu çıkartılmıştır. Bu özellikle

yüksek frekans içeriğine sahip olup yüksek modların katkısını arttıran deprem hareketleri için geçerlidir.

Fajfar ve Vivic (1994) ise histeretik enerji ve toplam enerjiye bağlı olarak bir doğrusal olmayan tasarım spektrumu önermişlerdir.

Nurtuğ ve Sucuoğlu (1995), doğrusal bir TSD sistemde tüketilen enerjiyi hesaplamak için yer hareketinin spektral hızı, etkili mukabele süresi ve mukabele yer değiştirmelerinin genliklerinin dağılımına bağlı bir analitik yöntem önermişlerdir.

Shen ve Akbaş (1999); az, orta ve çok katlı çelik moment çerçevelerde enerji girişini ve histeretik enerjiyi tahmin ederek çelik moment çerçeveler için bir enerjiye dayalı deprem tasarımı yöntemi önermişlerdir. Çalışmada ayrıca TSD sistemlerdeki enerji girişini tahmin edebilmek için yapılan çalışmalarla karşılaştırmalar yapılmış ve TSD ve ÇSD sistemlerdeki enerji girişini tahmin etmek için kullanılmasının doğru bir yaklaşım olmadığı sonucuna varılmıştır.

Akbaş ve Shen (2002), değişik özelliklere sahip yedi deprem hareketine maruz TSD sistemler üzerinde bir çalışma yaparak $T = 0-3$ sn aralığındaki yapılar için bir Enerji Spektrumu elde etmeye çalışmışlardır. Çalışmada ayrıca enerjiye dayalı bir hasar parametresi tanımlanmış ve bu performansa dayalı deprem tasarımında nasıl kullanılacağı araştırılmıştır.

Enerji kavramlarını depreme dayanıklı yapı tarımında bir kriter olarak kullanılmasına halen üç temel soru tam olarak açıklığa kavuşturulmamıştır (Akiyama, 1985):

- I. Deprem sırasında yapıya girecek olan enerjinin miktarı.
- II. Yapıya giren enerjinin yapı tarafından nasıl tüketileceği.
- III. Yapı elemanlarının enerji tüketme kapasiteleri.

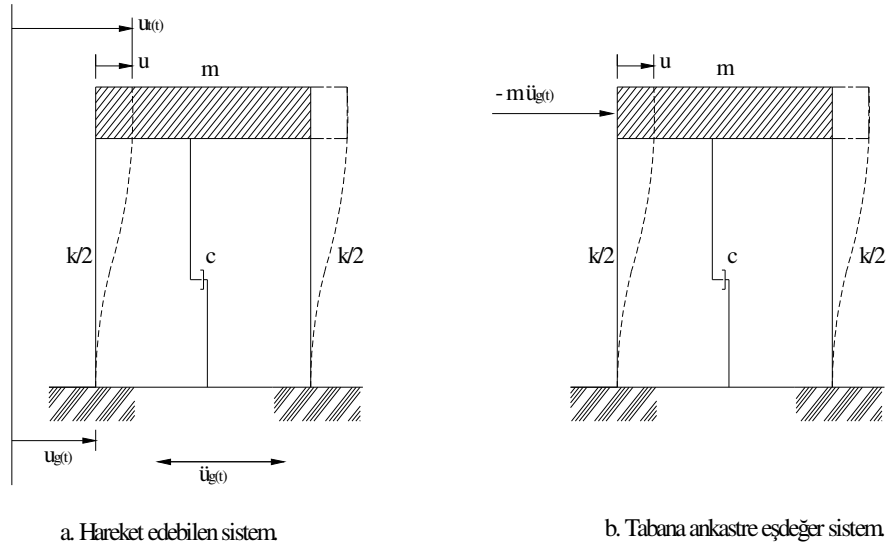
Yukarıdaki sorulara cevap bulunduğunda, bir yapıya enerji girişi ve enerji kapasitesini karşılaştırmak mümkün olacak ve böylece yapının depreme dayanıklılığı hesaplanabilecektir.

3. DEPREM HAREKETİNİN ÖZELLİKLERİ

3.1 Temel Hareket Denklemleri:

3.1.1 Tek Serbestlik Dereceli Sistemler (TSD)

Doğrusal esnek bir dinamik sistemin temel öğeleri olan kütle, rijitlik ve sönümün bir tek fiziksel eleman üzerinde toplandığı varsayılan sistemler Tek Serbestlik Dereceli Sistemler olarak adlandırılmıştır (Chopra, 2000). Sistemdeki enerji kaybı mekanizması viskoz sönüm katsayısı c olan bir söndürücü ile temsil edilmiştir. Sisteme deprem hareketi, her iki yay (kolon) mesnedinden eş-zamanlı ve eş-nicelikli olarak etmektedir (Şekil 3.1).



Şekil 3.1 Yer hareketine maruz TSD sistemin matematiksel modeli.

Şekildeki sistemin hareket denklemi aşağıdaki şekilde ifade edilebilir;

$$m\ddot{u}_t + c\dot{u} + f_s = 0 \quad (2)$$

Burada m kütle, c viskoz sönüm katsayısı, f_s yay kuvveti, u kütlenin yere göre relatif yer değiştirmesi, u_g yer hareketi yer değiştirmesidir. Burada $u_t = u + u_g$ dir. Buna göre denklem tekrar yazılırsa;

$$m\ddot{u} + c\dot{u} + f_s(u, \dot{u}) = -m\ddot{u}_g(t) \quad (3)$$

ifadesi elde edilir.(3) denkleminde görüleceği gibi sistem tabana ankastre ve büyüklüğü $-m\ddot{u}_g(t)$ olan etkili bir dinamik kuvvet (p_{eff}) etkisindeki bir sisteme dönüşmektedir.

3.1.2 Çok Serbestlik Dereceli Sistemler (ÇSD)

Mühendislik yapılarında kütle ve rijitlik normal olarak bütün yapı üzerinde dağılmış olarak bulunur. Bu yapıların statik denge konumlarından öteye herhangi bir hareketini belirlemek için serbestlik derecesine gereksinme vardır. Böyle sistemlerin, belirli noktalarda kütlelerin toplanmasıyla gerçekleştirilen idealize edilmiş çok serbestlik dereceli (ÇSD) sistemlerle temsili mümkündür. Bu yaklaşımın başarısı sistemdeki kütle ve rijitenin dağılımı ile beraber yapıya etkiyen yer hareketinin zaman ve mekândaki değişimi ile de yakından ilgili olmaktadır.

Hareket denklemleri; sisteme etkiyen atalet kuvvetleri, sönüm etkileri ve şekil değiştirme sonucu meydana gelen elastik kuvvetlerle, varsa dış kuvvetlerin dengesinden ibarettir. Sadece yer hareketinin var olduğu kabul edilirse, (3) denklemi;

$$[m] \ddot{u} + [c] \dot{u} + [k] u = -[k] [1] \ddot{u}_g(t) \quad (4)$$

olarak yazılabilir. Burada;

$m = [m_{ij}]$	Kütle matrisi	$c = [c_{ij}]$	Sönüm matrisi
$k = [k_{ij}]$	Rijitlik matrisi	u_g	Yer hareketi
$u = [u_{ij}]$	Yer değiştirme vektörü		
$1 = [1 \ 1 \dots 1]^T$			

olarak isimlendirilir (Chopra, 2000).

3.2 Doğrusal Olmayan Sistemler İçin Hareket Denklemlerinin Normalleştirilmesi

(3) denklemi, doğrusal olmayan sistemlerde doğrusal olmayan davranışı etkileyen belirli parametreleri tanımlamak için normalleştirilmiş bir formda düzenlenebilir (Mahin ve Lin, 1983). Dış yükleme durumunda, normalleştirme aşağıdaki tanımlanan parametrelere göre yapılabilir;

$$\mu(t) = \frac{u(t)}{u_y} \quad (5)$$

$$\rho(t) = \frac{R(t)}{R_y}$$

Burada; u_y akma yer değiştirmesi, R_y akma kuvvetidir. $\mu(t)$ değeri genellikle yer değiştirme sünekliği olarak adlandırılır. Yer değiştirme sünekliğinin maksimum değeri, $\mu_{\max}$ yapının tasarımında dikkate alınması gereken bir parametredir.

(2) denklemi, u_y ile bölünürse;

$$\frac{\ddot{u}(t)}{u_y} + 2\omega\xi \frac{\dot{u}(t)}{u_y} + \frac{R_y}{mu_y} = -\frac{\ddot{u}_g(t)}{u_y} \quad (6)$$

şekline dönüşür. Burada ω açısal frekanstır. (6) denklemini daha uygun bir forma sokmak için aşağıdaki dönüşümler tanımlanabilir;

$$\frac{R(t)}{mu_y} = \frac{k}{m} \frac{R(t)}{ku_y} = \omega^2 \frac{R(t)}{R_y} = \omega^2 \rho(t) \quad (7)$$

$$\frac{\ddot{u}_g(t)}{u_y} = \frac{k}{k} \frac{\ddot{u}_g(t)}{u_y} = \frac{\omega^2 m \ddot{u}_g(t)}{R_y}$$

(6) denklemi yeniden yazılırsa;

$$\ddot{\mu}(t) + 2\omega\xi \dot{\mu}(t) + \omega^2 \rho(t) = -\omega^2 \left[\frac{m}{R_y} \right] \ddot{u}_g(t) \quad (8)$$

şekline dönüşür. (7) denkleminin sağ tarafını basitleştirmek için bir parametre, η , tanımlanabilir;

$$\eta = \frac{R_y}{m \ddot{u}_{g,\max}} \quad (9)$$

Burada η , bir sistemin akma dayanımının sonsuz rijit bir sistemin yer hareketi sırasında maruz kalacağı maksimum atalet kuvvetine oranını ifade eder ve atalet kuvveti indisi olarak adlandırılır. η parametresi yapının akma dayanımı katsayısı (C_y) cinsinden yazılarak da ifade edilebilir;

$$R_y = C_y W = C_y mg \quad (10)$$

$$\eta = \frac{C_y}{\ddot{u}_{g,\max}/g} \quad (11)$$

Burada W yapının ağırlığı, g yer çekim ivmesidir. (9) ve (11) denklemleri kullanılarak (8) denklemi yeniden yazılırsa;

$$\ddot{\mu}(t) + 2\omega\xi \dot{\mu}(t) + \omega^2 \rho(t) = -\frac{\omega^2}{\eta} \frac{\ddot{u}_g(t)}{\ddot{u}_{g,\max}} \quad (12)$$

3.3. Enerji Denklemlerinin Elde Edilmesi

Enerjiye dayalı yöntemlerin oluşturulabilmesi için enerji denklemlerinin elde edilmesi gerekmektedir. Yapısal sistemler gerçekte çok serbestlik derecelidirler. Fakat enerji kavramının daha iyi anlaşılabilmesi için enerji denklemleri aşağıda tek serbestlik dereceli sistemler için çıkarılmıştır. Doğrusal olmayan bir sisteme yer hareketi sırasında giren enerji, viskoz sönüm ve akma yoluyla tüketilmektedir. Doğrusal olmayan bir sistem için değişik enerji terimleri hareket denklemleri (3), integre edilerek aşağıdaki gibi elde edilebilir (Chopra, 2000).

$$\int_0^u m \ddot{u}(t) du + \int_0^u c \dot{u}(t) du + \int_0^u f_s(u, \dot{u}) du = - \int_0^u m \ddot{u}_g(t) du \quad (13)$$

(13) denklemi sağ tarafı yapıya giren toplam enerjiyi (E_I) göstermektedir.

$$E_I(t) = - \int_0^u m \ddot{u}_g(t) du \quad (14)$$

(13) denkleminin sol tarafındaki ilk terim kütle için yere göre relatif hareketiyle ilişkili olan kinetik enerjiyi (E_K) göstermektedir.

$$E_K(t) = \int_0^u m \ddot{u}(t) du = \int_0^u m \dot{u}(t) d\dot{u} = \frac{m \dot{u}^2}{2} \quad (15)$$

(13) denkleminin sol tarafındaki ikinci terim viskoz sönüm yoluyla tüketilen enerjiyi (E_D) göstermektedir.

$$E_D(t) = \int_0^u f_D(t) du = \int_0^u c u(t) du \quad (16)$$

(13) denkleminin sol tarafındaki üçüncü terim ise sistemin akması sonucu oluşan histeretik enerjiyi (E_H) ve elastik birim şekil değiştirme enerjisi (E_S) 'nin toplamını vermektedir. Elastik birim şekil değiştirme enerjisi (E_S) ;

$$E_S(t) = \frac{[f_s(t)]^2}{2k} \quad (17)$$

şeklinde ifade edilebilir. Burada k doğrusal olmayan sistemin başlangıç rijitliğini göstermektedir. Sistemin akması sonucu tüketilen enerji olan histeretik enerji (E_H);

$$E_H(t) = \int_0^u f_s(u, \dot{u}) du - E_S(t) \quad (18)$$

şeklinde ifade edilebilir. Bu enerji terimleri göz önüne alınarak TSD bir sistemin enerji dengesi yeniden yazılırsa;

$$E_I(t) = E_K(t) + E_D(t) + E_S(t) + E_H(t) \quad (19)$$

Viskoz sönüm enerjisi (E_D) ve histeretik enerji (E_H) integraller zamana göre yeniden yazılarak daha uygun bir forma sokulabilir.

$$E_D(t) = \int_0^t c \left[\dot{u}(\tau) \right]^2 d\tau \quad (20)$$

$$E_H(t) = \left[\int_0^t \dot{u} f_s(\tau) \right] - E_S(t) \quad (21)$$

Herhangi bir t anındaki kinetik enerji (E_K) ve birim şekil değiştirme enerjisi (E_S) sırasıyla (15) ve (17) denklemlerinden kolaylıkla elde edilebilir.

Bu bölümdeki değişik enerji terimleri, tabana ankastre ve büyüklüğü $-m\ddot{u}_g(t)$ olan etkili bir yatay dinamik kuvvete (P_{eff}) maruz bir sistem için yapılmıştır. Bu sebeple (19) denklemindeki enerji terimleri toplam hareket sonucu oluşan değil, kütlelerin yere göre relatif hareketi sonucu oluşan hareket enerjisini ifade etmektedir. Toplam enerji (E_t), yer hareketi sonucu yapının temelinde oluşan toplam kesme kuvvetinin yaptığı işe göre de mutlak enerji şeklinde ifade edilebilir (Uang ve Bertero, 1988). Fakat bir yapıda iç kuvvetlere yol açan etkilerin relatif yer değiştirmeler ve hızlar olduğu göz önüne alındığında, relatif hareket göre yazılan enerji terimlerinin mutlak hız ve yer değiştirmelere göre yazılan enerji terimlerinden daha anlamlı olduğu görülmektedir (Chopra, 2000) .

4. YAPAY SİNİR AĞLARI

4.1. Yapay Sinir Ağlarının Tanımı ve Tarihçesi

Yapay sinir ağları, insanın düşünce yapısını anlamak ve bunun benzerini ortaya çıkaracak bilgisayar işlemlerini geliştirmeye çalışmak olarak tanımlanır. Yani programlanmış bir bilgisayarın düşünme girişimidir. Yapay sinir ağları konusundaki ilk çalışma McCulloch ve Pitts tarafından yapılmıştır.

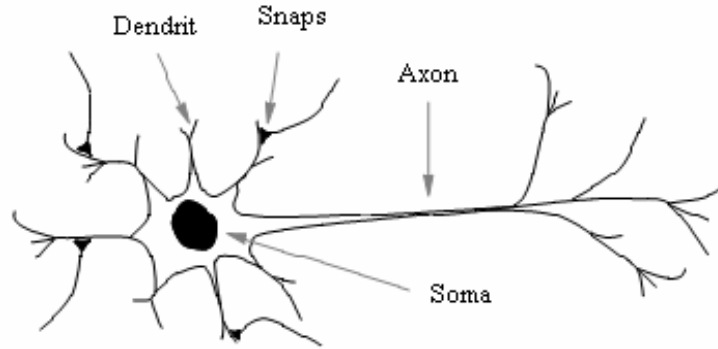
Diğer bir deyişle; YSA, beyindeki sinirlerin çalışmasını taklit ederek sistemlere öğrenme, genelleme yapma, hatırlatma gibi yetenekler kazandırmayı hedefleyen bilgi işleme sistemidir (Bose ve Liang, 1996).

İnsan beyninin ve düşünme yeteneğinin taklit edilmesi isteği sanıldığı kadar aksine çok eski zamanlarda var olmuş bir istektir. İnsan beyni ve düşünebilme yeteneğine ilişkin ilk açıklayıcı teori geliştirme denemeleri antik Yunan düşürleri olan Plato ve Aristoteles'e kadar uzanmaktadır.

Beynin üstün özellikleri, bilim adamlarını üzerinde çalışmaya zorlamış ve beyin nörofiziksel yapısından esinlenerek matematiksel modeli çıkarılamaya çalışılmıştır. Beynin bütün davranışlarını modelleyebilmek için fiziksel bileşenlerinin doğru olarak modellenmesi gerektiği düşüncesi ile çeşitli yapay hücre ve ağ modelleri geliştirilmiştir. Böylece, Yapay Sinir Ağları denen günümüz bilgisayarlarının algoritmik hesaplama yöntemlerinden farklı bir bilim alanı ortaya çıkmıştır.

Genel anlamda YSA, beynin bir işlevini yerine getirme yöntemini modellemek için tasarlanan bir sistem olarak tanımlanabilir. Bir YSA, yapay sinir hücrelerinin birbirleriyle çeşitli şekillerde bağlanmasıyla oluşur. YSA'lar öğrenme algoritmaları ile öğrenme sürecinden geçtikten sonra, bilgiyi toplama, hücreler arasındaki bağlantı ağırlıkları ile bu bilgiyi saklama ve genelleme yeteneğine sahip olurlar. YSA'lar yapılarına göre farklı öğrenme yaklaşımları kullanırlar.

YSA'ların dayandığı ilk hesaplama modelinin temelleri 1940'ların başında araştırmalarına başlayan W.S.McCulloch ve W.A.Pitts'in, 1943 yılında yayınladıkları bir makaleyle atılmıştır. Daha sonra 1954 yılında B.G.Farley ve W.A.Clark tarafından bir ağ içerisinde uyarılara tepki veren, uyarılara adapte olabilen model oluşturulmuştur. 1960 yılı ise ilk neural bilgisayarın ortaya çıkış tarihidir. 1963 yılında basit modellerin, ilk eksiklikleri fark edilmiştir. Ancak başarılı sonuçların alınması 1970 ve 1980'lerde termodinamikteki teorik yapıların doğrusal olmayan ağların geliştirilmesinde kullanılmasına kadar gecikmiştir. 1985 yapay sinir ağlarının oldukça tanındığı, yoğun araştırmaların başladığı yıl olmuştur (Haykin, 1999; Fu, 1994)



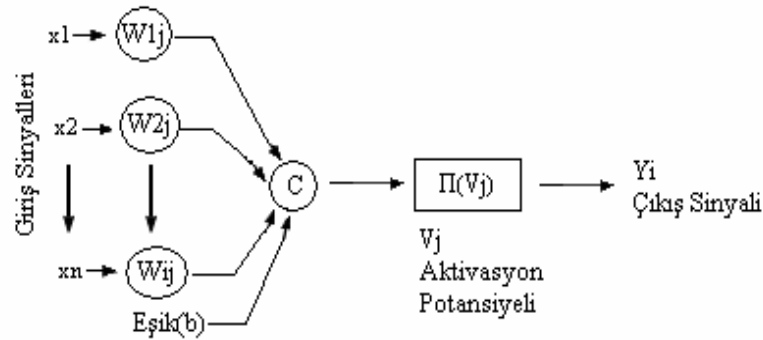
Şekil 4.1 Gerçek sinir hücresinin yapısı.

Bir nöron (sinir hücresi), dendrit ve akson ismi verilen iki ana kısımdan oluşur. Dendrit, bir nöron ile diğerinin bağlantısını gerçekleştiren kısımdır ve farklı nöronların dendritlerini birbirine bağlayan bölgelere sinaps denir. Nöronlar arası elektriksel ve kimyasal sinyal üretimi, bu bağlantı bölgelerinden sinyal geçişleri ile gerçekleşir. Aksonlar ise, dal şeklindeki uzun geçiş yapılarıdır. İşleyiş olarak, bir

nöronun sinapslar üzerinden aldığı toplam ileti, bir eşik değerinden yüksek ise; nöron, bu toplam iletiyi akson boyunca diğer ucuna iletir ve buradaki diğer sinaps yardımıyla başka bir nörona aktarılır. Sinapslar, arttırıcı ve veya azaltıcı etkili olabilir. Arttırıcı etkili sinapslar, diğer nörondan alınan toplam iletiyi büyütürler; diğer yandan azaltıcı etkiye sahip sinapslar, gelen toplam iletiyi küçültürler. Özetle; bir nöron, bir dizi giriş sinyali alır ve bu sinyalleri işleyerek (arttırarak veya azaltarak) çıkış sinyali olarak diğer bir nörona iletir. Beyin içerisinde, birbirine paralel olarak bağlı ve yukarıda anlatılan mekanizmaya benzer bir sistemle çalışan yaklaşık 100 milyar nöron bulunmaktadır (Kecman, 2001; Sagirolu ve ark., 2003).

Biyolojik sinir ağlarında olduğu gibi yapay sinir ağlarında da temel unsur, yapay sinir hücresidir. Yapay sinir hücresi, yapay sinir ağlarının çalışmasına esas teşkil eden en küçük ve temel bilgi işleme birimidir. Burada girişler dış kaynaklardan veya diğer işlem elemanlarından gelen işaretlerdir. Bu işaretler, kaynağına göre kuvvetli veya zayıf olabileceğinden ağırlıkları da farklıdır.

Yapay nöronda ise; dentrit yerine toplama fonksiyonu, hücre gövdesi yerine transfer fonksiyonu ve sinapslar yerine ağırlıklar kullanılmaktadır. Kısaca; bir yapay nöron, ağırlıklar, toplama fonksiyonu ve transfer fonksiyonundan oluşmaktadır. Şekil 4.2’de yapay bir nöronun yapısı verilmektedir (Haykin, 1999).



Şekil 4.2 Bir yapay nöronun yapısı.

Yapay nöron, diğer nöronlardan gelen iletileri (ağırlıklar ve giriş sinyallerinin çarpımı) toplar, bir eşik değeri ile karşılaştırarak aktivasyon potansiyelini hesaplar ve bu potansiyeli transfer fonksiyonundan geçirerek çıkış sinyalini üretir. Bunun fonksiyonel ifadesi aşağıdaki gibidir;

$$u_i = \varphi \left(\sum_{j=1}^n w_{ij} x_j - \theta_i \right) \quad (22)$$

Burada; u_i , yapay nöronun çıkış sinyalinin ifade eder ve w_{ij} , sinaptik ağırlıkları ifade eder. x_i , giriş sinyalini göstermektedir ve θ_i ise, kutuplanma değerini (eşik değerinin negatif işaretlisi) göstermektedir. n önceki katmandaki (giriş sinyalini gönderen) nöron sayısını ve i ise işlem yapılan nöronun kaçınıcı nöron olduğunu göstermektedir.

Sinaptik ağırlıkların pozitif olması arttırıcı etkiyi, negatif olması ise azaltıcı etkiyi ifade eder. Eşik değeri ise toplanan iletilerin bir seviye ile karşılaştırılması ve eğer bu seviyeden büyük ise pozitif, küçük ise negatif aktivasyon potansiyeli gönderilmesini sağlamaktadır. Son olarak, transfer (aktivasyon) fonksiyonu, aktivasyon potansiyeli normalize etmekte ve istenilen aralığa ([0,1] veya [-1,1]) göre ölçeklendirmektedir. Diğer bir deyişle, transfer fonksiyonu, nöronun çıkış genliğini istenilen değerler arasında sınırlar ve nöronların oluşturduğu sinir ağının yakınsamasını sağlar. Yaygın olarak; doğrusal, basamak, sigmoid ve hiperbolik tanjant transfer fonksiyonları kullanılmaktadır (Rafiq, 2001).

Burada ki çalışmamızda kullanacağımız YSA modelinin oluşumunda kullanılan aktivasyon fonksiyonu en genel formu ile (-1) ile (1) arasındaki girdi değerlerinden üretilen hiperbolik tanjant fonksiyonudur (Neuro Solutions 2003).

$$f(x_i) = \tanh(\beta x_i) \quad (23)$$

β burada fonksiyonun kontrollü eğimi için kullanılır. Gerekli nöron sayısını saptamak için bir metot yoktur. Bir çok pratik mühendislik problemleri için; nöronları optimum bir sayıda tek gizli tabaka yeterli olduğu düşünülmektedir.

Geleneksel bilgisayar uygulamalarının geliştirilmesinde karşılaşılan durum, bilgisayarın belli bilgisayar dilleri aracılığıyla ve kesin yazım algoritmalarına uygun ifadelerle programlanmasıdır. Bu oldukça zaman alan, uyumluluk konusunda zayıf, teknik personel gerektiren, çoğu zaman pahalı olan bir süreçtir. Oysa biyolojik temele dayanan yapay zekâ teknolojilerinden biri olan yapay sinir ağlarının geliştirilmesinde programlama, yerini büyük ölçüde "eğitime" bırakmaktadır. Proses elemanlarının bağlantı ağırlık değerlerinin belirlenmesi işlemine "ağın eğitilmesi" denir. Yapay sinir ağının eğitilmesinde kullanılan girdi ve çıktı dizileri çiftinden oluşan verilerin tümüne "eğitim seti" adı verilir (Fauset, 1994).

Yapay sinir ağı öğrenme sürecinde, gerçek hayattaki problem alanına ilişkin veri ve sonuçlardan, bir başka deyişle örneklerden yararlanır. Gerçek hayattaki problem alanına ilişkin değişkenler yapay sinir ağının girdi dizisini, bu değişkenlerle elde edilmiş gerçek hayata ilişkin sonuçlar ise yapay sinir ağının ulaşması gereken hedef çıktıların dizisini oluşturur.

Öğrenme süresinde, seçilen öğrenme yaklaşıma göre ağırlıklar değiştirilir. Ağırlık değişimi, öğrenmeyi ifade eder. YSA'da ağırlık değişimi yoksa, öğrenme işlemi de durmuştur. Başlangıçta bu ağırlık değerleri rastgele atanır. YSA'lar kendilerine örnekler gösterildikçe, bu ağırlık değerlerini değiştirirler. Amaç, ağa gösterilen örnekler için doğru çıktılar üretecek ağırlık değerlerini bulmaktır. Ağın doğru ağırlık değerlerine ulaşması örnekler olay hakkında, genellemeler yapabilme yeteneğine kavuşması demektir. Bu genelleştirme özelliğine kavuşması işlemine, "ağın öğrenmesi" denir.

Yapay sinir ağının öğrenme sürecinde temel olarak üç adım bulunmaktadır;

- Çıktılar hesaplamak,
- Çıktılar hedef çıktılarla karşılaştırmak ve hatayı hesaplanmak,
- Ağırlıkları değiştirerek süreci tekrarlamak,

Eğitim süreci sonucunda yapay sinir ağında hesaplanan hatanın kabul edilebilir bir hata oranına inmesi beklenir. Ancak hata kareleri ortalamasının düşmesi her zaman için yapay sinir ağının genellemeye (generalization) ulaştığını göstermez. Yapay sinir ağının gerçek hedef girdi-çıkı örnekleri için genellemeye ulaşmaktadır.

YSA sistemlerinin öğrenme başarısı, gerçekleştirilen testlerle sınanmalıdır. YSA geliştirme sürecinde veriler ikiye ayrılır; bir bölümü ağı eğitilmesi için kullanılır ve eğitim seti adını alır, diğer bölümü ise ağı eğitimi verileri dışındaki performansını ölçmede kullanılır ve “test seti” olarak adlandırılır.

Eğitim ve test setleriyle ilgili temel sorun, yeterli eğitim ve test verisinin miktarının ne olduğudur. Sonsuz sayıda verinin bulunabildiği durumlarda, yapay sinir ağı mümkün olan en çok veriyle eğitilmelidir. Eğitim verisinin yeterli olup olmadığı konusunda emin olmanın yolu; eğitim verisinin miktarının artırılmasının, ağı performansında bir değişiklik yaratmadığını takip etmektir. Ancak bunun mümkün olmadığı durumlarda yapay sinir ağının eğitim ve test verileri üzerindeki performansı nın yakın olması da verilerin sayıca yeterli olduğuna ilişkin bir gösterge olarak kabul edilebilir. Bununla birlikte eğitim setinin içermesi gereken veri miktarı değişik yapay sinir ağı modellerine göre ve özellikle problemin gösterdiği karmaşıklığa göre farklılık gösterebilmektedir.

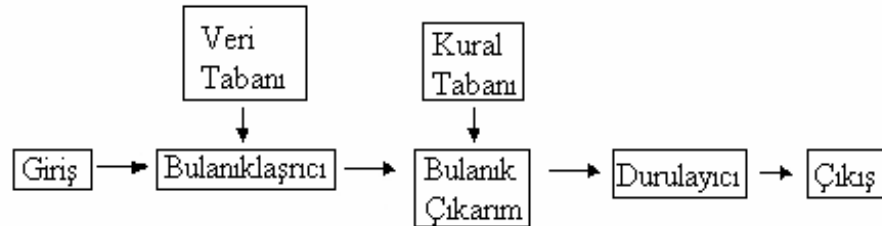
4.2. Yapay Sinir Ağı Teknikleri

Bu bölümde inşaat mühendisliği problemlerinin çözümünde kullanılan yapay sinir ağı tekniklerinden kısaca bahsedilecektir.

4.2.1. Bulanık Mantık (Fuzzy Logic)

Bulanık mantık, sistemlerin ve modellerin tanımlanmasında ve kontrol edilmesinde geniş çapta kullanılan bir sistemdir. Bu yaklaşımı ilk olarak 1965 yılında L.A. Zadeh tarafından tanımlanmıştır. Zadeh bu çalışmasında insan düşüncesinin büyük çoğunluğunun bulanık olduğunu, kesin olmadığını belirtmiştir. Araştırmalar bulanık mantık denetimi ile elde edilen sonuç performansının klasik yöntemlerle elde edilenlere göre daha iyi olduğunu göstermiştir. Bilindiği gibi istatistikte ve olasılık kuramında, belirsizliklerle değil kesinliklerle çalışılır ama insanın yaşadığı ortam daha çok belirsizliklerle doludur. Bu yüzden insanoğlunun sonuç çıkarabilme yeteneğini anlayabilmek için belirsizliklerle çalışmak gereklidir (Zadeh, 1965).

Bulanık mantık, bulanık denetleyiciden oluşmaktadır. Şekil 4.3’de basit bir bulanık denetleyici görülmektedir. Bulanık denetleyici; giriş, veri tabanı, bulanıklaştırma, bulanık çıkarım, kural tabanı, durulaştırma ve çıkış işlemlerinden meydana gelmektedir.

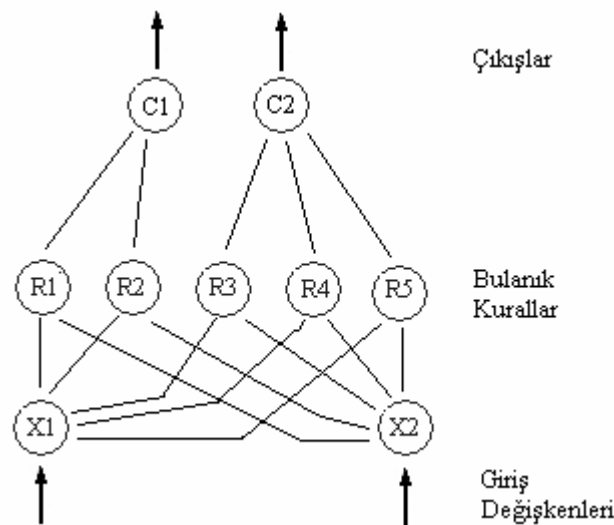


Şekil 4.3 Bulanıklaştırma-durulama birimli bulanık sistem.

4.2.2. Sinirsel – Bulanık Sistem (Neuro Fuzzy)

Sinirsel-bulanık sistem birleşimi yıllardır kontrol, veri analizi, karar destek gibi çeşitli amaçlarla kullanılmaktadır. Bulanık sınıflayıcıların veriden öğrenmesi, sinirsel-bulanık sistem yaklaşımı ile basit bir şekilde sağlanmaktadır. Sinirsel-bulanık sistemlerin özellikleri aşağıda kısaca verilmiştir (Zadeh, 1965);

- Sinirsel-bulanık sistem, bir bulanık sistemdir ve öğrenme algoritması için sinir ağı teorisi kullanılarak eğitilir.
- Bir sinirsel-bulanık sistem, özel bir 3 katmanlı ileri beslemeli sinir ağı olarak görülebilir. İlk katman giriş değişkenlerini, orta katman bulanık kurallarını ve çıkış katmanı ise çıkış değişkenlerini içermektedir.
- Bir sinirsel-bulanık sistem, n boyutlu bir fonksiyon çıkarımı yapar. Bu da eğitim verisi ile verilmektedir.
- İstatistiksel halde verilen veriler, sinir ağı ile eğitilip, bulanık kurallar yardımıyla sınıflama yapılmaktadır. Uygulama açısından sınıflayıcının uyarlanması, kullanılması ve anlaşılması kolay olabilir. Şekil 4.4’de üç katmanlı ileri beslemeli bir sinir ağı şeklinde sinirsel-bulanık sistem görülmektedir.



Şekil 4.4 Üç katmanlı ileri beslemeli bir sinir ağı şeklinde sinirsel - bulanık sistem.

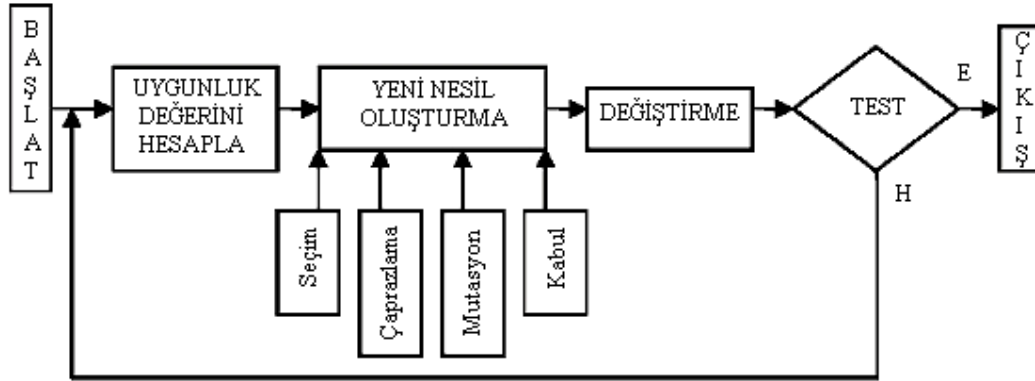
4.2.3. Genetik Algoritmalar

Genetik algoritmalar, bazı doğal olayları modelleyen stokastik bir arama yöntemidir. Biyolojik evrimin işleyiş biçimini taklit eden, doğal seleksiyon mekanizmasına dayanan sayısal optimizasyon algoritmalarıdır. Darwin'in en iyi olan yaşar (survival of the fittest) prensibine dayalı olarak bir popülasyonu oluşturan bireylerin rekabet etmelerini sağlayan, evrimsel süreci taklit eden Genetik algoritmalar ilk olarak John Holland tarafından ortaya atılmıştır. Genetik algoritma tekniği, çözüm uzayının büyüklüğüne rağmen iyi bir çözüme kısa zamanda yakınsamaktadır (Bolat ve ark., 2004).

Genetik algoritma evrim sürecinden etkilenerek, canlılarda yaşanan genetik sürecin bilgisayar ortamında gerçekleştirilmesi işlemidir. İşlemler bilgisayar hafızasına depo edilmiş kromozomlar üzerinde icra edilmektedir. Çaprazlama operatörü vasıtasıyla, kromozomlar arasındaki genetik bilgi sürekli olarak değişmekte ve topluluğun başarısı artmaktadır. Genetik algoritmalar doğal seçim ilkesine dayanan bir sayısal optimizasyon yöntemidir. Genetik algoritma, çözüm dizilerinden oluşan bir başlangıç nesliyle, çaprazlama ve mutasyon gibi doğal seçim operatörlerini kullanmaktadır.

Genetik algoritmada bağımsız parametrelerin kromozomlar içinde kodlanması gerekmektedir. Yığındaki her birey ikili düzende veya tamsayı olarak kodlanmaktadır.

Genetik algoritmalar oldukça genel prensiplerle Şekil 4.5'de akış şemasında görüldüğü gibi çalışmaktadır. Öncelikle ele alınan problem için rasgele bir n kromozomlu popülasyon oluşturulur. Daha sonra popülasyondaki her bir kromozom için $f(x)$ uygunluk fonksiyonu hesaplanır. Yeni bir popülasyon oluşuncaya kadar aşağıdaki adımlar tekrar edilir.



Şekil 4.5 Genetik algoritmanın genel akış şeması.

Yeni popülasyon kabul edildikten sonra hesaplama yeni popülasyonla tekrarlanır. Hedeflenen uygunluk değerine ulaşıldığında program durdurulur ve popülasyondaki en iyi çözüm alınır.

Genetik algoritmalarda kromozomlarla bir başlangıç popülasyonu rasgele oluşturulur. Burada popülasyon genişliğinin belirlenmesi gerekmektedir. Büyük popülasyonlarda, çözüm uzayı iyi örneklediği için aramanın etkinliği artmakta, fakat buna bağlı olarak da arama süresi uzamaktadır. Küçük popülasyonlarda ise, çözüm yeterli örnekleyememe ve zamansız yakınsama oluşabilmektedir.

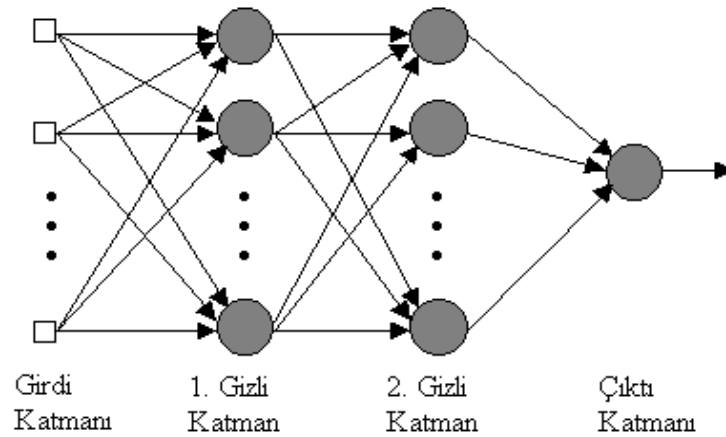
Genetik algoritmanın her çevriminde, yığındaki dizilerin bir değerlendirme fonksiyonu yardımıyla uygunluk değeri hesaplanır. Uygunluk fonksiyonu her bir çözümün yeni nesil çözümlere katkı sağlayıp sağlamayacağına karar verir. Sonrasında insan üremesindeki gen transferine benzer operasyonlar kullanan algoritma yeni bir çözüm aday popülasyonu oluşturur. Genellikle genetik algoritmaların başarısı bu fonksiyonun verimli ve hassas olmasına bağlıdır.

4.2.4. Yapay Sinir Ağları (Artificial Neural Network)

Yapay sinir ağları, giriş ve çıkış veri kümelerini kullanarak sistem davranışını öğrenebilen esnek bir matematik modelleme yöntemidir. Yapay sinir ağları herhangi bir problem hakkında girdiler ve çıktılar arasındaki ilişkiyi (doğrusal olsun ya da olmasın), mevcut örneklerden genelleme yaparak daha önce hiç görülmemiş veya uygulanmamış olan örneklerle kabul edilebilir çözümler üretir (Rafiq, 2001).

Öğrenme yeteneği, kolayca farklı problemlere uyarlanabilirliği, genelleme yapabilmesi, daha az bilgi gerektirmesi, paralel yapılardan dolayı hızlı çalışabilme özelliği ve kolayca uygulanabilmesi gibi pek çok avantajından dolayı yapay sinir ağları mühendisliğin pek çok alanında farklı problemlerin çözümünde kullanılmaktadır.

Genellikle bir yapay sinir ağı, gizli ve çıktı tabakaları olmak üzere üç bölümden oluşmaktadır. Girdi ve çıktı tabakalarında çözülecek problemdeki girdi ve çıktı sayısı kadar nöron bulunur. Gizli tabakadaki nöron sayısının belli bir sistemiği bulunmamaktadır. Şekil 4.6 'da iki gizli katmana sahip 4 tabakalı bir yapay sinir ağının yapısı görülmektedir.



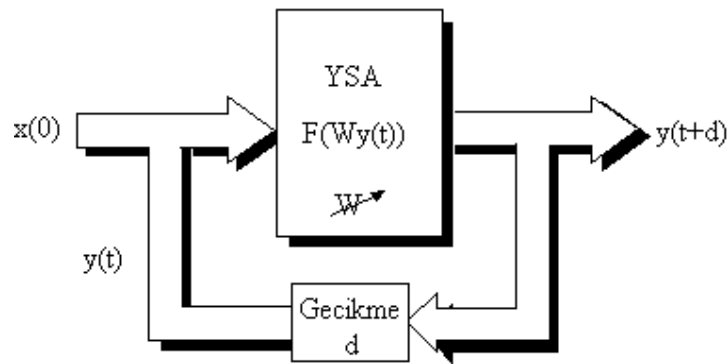
Şekil 4.6 İki gizli katmanlı sinir ağının yapısı.

4.2.5. Yapay Sinir Ağ Yapıları

Yapay sinir ağları farklı şekillerde sınıflandırılmaktadır. Birçok farklı YSA yapısı vardır. Biz burada sadece geri ve ileri beslemeli YSA'lardan bahsedeceğiz.

a) Geri Beslemeli Ağlar

Bir geri beslemeli sinir ağı, çıkış ve ara katmanlardaki çıkışların, giriş birimlerine veya önceki ara katmanlara geri beslendiği bir ağ yapısıdır. Böylece, girişler hem ileri yönde hem de geri yönde aktarılmış olur. Şekil 4.7 'de geri beslemeli bir ağ görülmektedir. Bu çeşit sinir ağlarının dinamik hafızaları vardır ve bir andaki çıkış hem o andaki hem de daha önceki girişleri yansıtır. Bundan dolayı, özellikle önceden tahmin uygulamaları için uygundur. Bu ağlar çeşitli tipteki zaman-serilerinin tahmininde oldukça başarı sağlamışlardır (Rojas, 1996 ; Sağıroğlu ve ark., 2003).

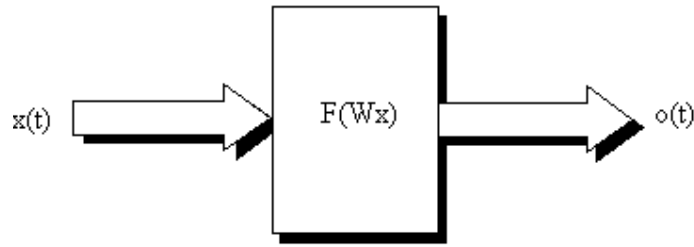


Şekil 4.7 Geri beslemeli ağ için blok diyagramı.

Geri beslemeli yapay sinir ağlarında, en az bir hücrenin çıkışı kendisine ya da diğer hücrelere giriş olarak verilir ve genellikle geri besleme bir geciktirme elemanı üzerinden yapılır. Geri besleme, bir katmandaki hücreler arasında olabileceği gibi katmanlar arasında da olabilir. Bu yapısı ile geri beslemeli yapay sinir ağlar, doğrusal olmayan dinamik bir davranış gösterir.

b) İleri Beslemeli Ağlar

Her bir katmandaki hücreler sadece bir önceki katmanın hücrelerince beslenir. İleri beslemeli yapay sinir ağlarında, katmanlar şeklinde düzenlenir ve bir katmandaki hücrelerin çıkışları bir sonraki katmana ağırlıklar üzerinden giriş olarak verilir. Giriş katmanı, dış ortamlardan aldığı bilgileri hiçbir değişikliğe uğratmadan orta (gizli) katmandaki hücrelere verir. Bilgi, orta ve çıkış katmanında işlenerek ağ çıkışı belirlenir (Rojas, 1996; Sağiroğlu ve ark., 2003).



Şekil 4.8 İleri beslemeli ağ için blok diyagram.

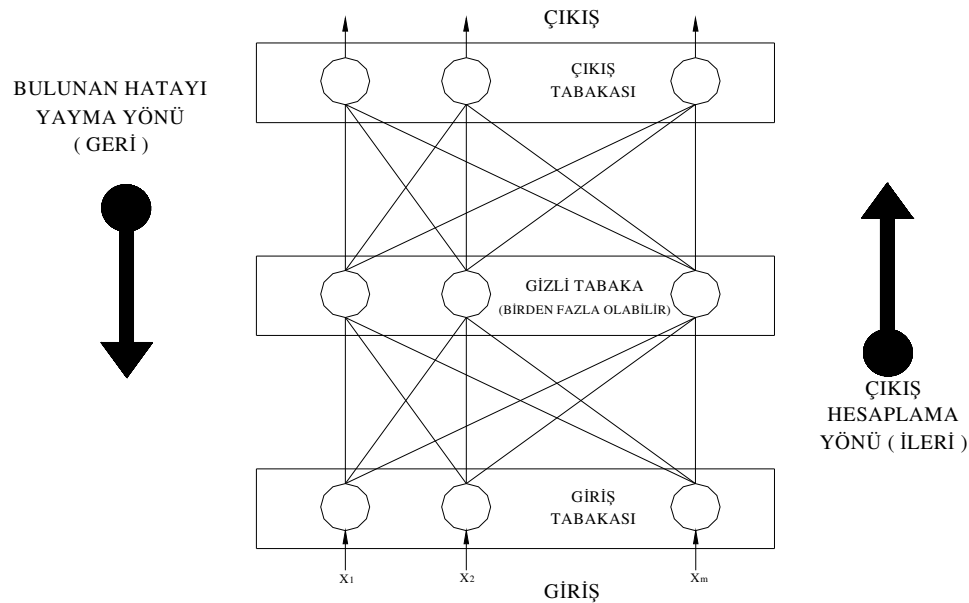
İleri beslemeli ağlara örnek olarak Çok Katlı Algılayıcılar (Multi Layer Perceptron-MLP) verilebilir. Çok katmanlı perseptronlar (MLP) yapay sinir ağlarının en çok kullanılan türüdür. Doğrusal olmayan ilişkiler gösteren problemleri çözmek amacıyla yapılan çalışmalar sonucunda Çok Katmanlı Algılayıcı modeli geliştirilmiştir. MLP modeli yapay sinir ağlarına olan ilgiyi arttırmış ve yapay sinir ağları tarihinde yani bir dönem başlatmıştır. Bu ağ modeli özellikle mühendislik uygulamalarında en çok uygulanan sinir ağı modeli olmuştur.

Bir MLP modeli; bir giriş, bir veya daha fazla ara ve bir de çıkış katmanından oluşur. Bir katmandaki bütün işlem elemanları bir üst katmandaki bütün işlem elemanlarına bağlıdır. Bilgi akışı ileri doğru olup geri besleme yoktur. Giriş katmanında herhangi bir bilgi işleme alınmaz. Buradaki işlem elemanı sayısı tamamen uygulanan problemin giriş verisi sayısına bağlıdır. Ara katman ve ara katmandaki işlem sayısı ise deneme-yanılma yoluyla bulunur. Çıkış katmanındaki eleman sayısı yine uygulanan probleme dayanılarak belirlenir.

MPL modelinin amacı, ağıın beklenen çıktısı ile ürettiği çıktı arasındaki hatayı en aza indirmektir. Bu ağlara eğitim sırasında hem girdiler hem de o girdilere karşılık üretilmesi gereken (beklenen) çıktılar gösterilir (danışmalı öğrenme). Ağıın görevi her girdi için o girdiye karşılık gelen çıktıyı üretmektir.

MLP ‘deki sinyal (bilgi) akışı ileri yönlüdür ve ilk olarak, çıkış katmanına gelen değerler ile hedeflenen değerler arasındaki farklılık (hata) hesaplanır. Bunu takiben, bulunan hata miktarı geriye doğru yayılarak (ağırlıklar ve kutuplanama değerleri değiştirilerek) giriş katmanına ulaşılır. Daha sonra MPL, yeni ağırlıklar ile tekrar ileri beslemeli sinyaller üretir ve yeni hata miktarı hesaplanır. Bu ileri besleme ve geri yayılma işlemi, çıkış katmanındaki hata miktarı belirli bir limit değerinin altında kalana kadar devam eder. Geri yayılma sırasında serbest değişkenlerin değişimi, öğrenme algoritmasının durumuna bağlıdır.

MPL öğrenme algoritmaları içinde en popüler olanı, geri-yayılım algoritmasıdır (Rumelhart ve Mccllelland, 1986).Bu algoritma, Widrow-Hoff (delta) öğrenme kuralını kullanır ve azalan hata eğimi (gradyanı) optimizasyon tekniğini uygular.



Şekil 4.9 Çok Katlı algılayıcılar için ağ modeli.

5. ALÇAK, ORTA VE ÇOK KATLI ÇELİK ÇERÇEVELERDE HİSTERETİK ENERJİ TALEPLERİNİN TAHMİN EDİLMESİ

5.1. YSA Modellerinde Kullandığımız Veriler

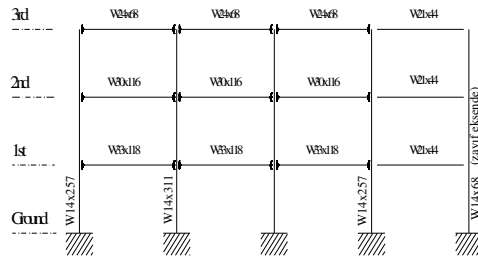
Girdi değişkenlerinin seçimi; YSA modelinden elde ettiğimiz öngörülerin kalitesini önemli ölçüde etkiler. Farklı parametreler, farklı sonuçları doğuracaktır. Çok fazla girdi ve çıktı parametresi öğrenme işleminin yavaşlamasına neden olur.

Bu çalışmada değişkenler; ele aldığımız 3-, 9- ve 20- katlı yapı modelleri için, modal, elastik ötesi statik itme analizi (pushover) ve doğrusal olmayan zaman geçmiş analizinden (time-history) kolayca elde edilmiştir iki boyutlu modeller doğrusal olmayan dinamik analiz programı DRAIN-2DX (Prakash ve ark., 1993) kullanılarak oluşturulmuştur (Akbaş ve ark., 2003).

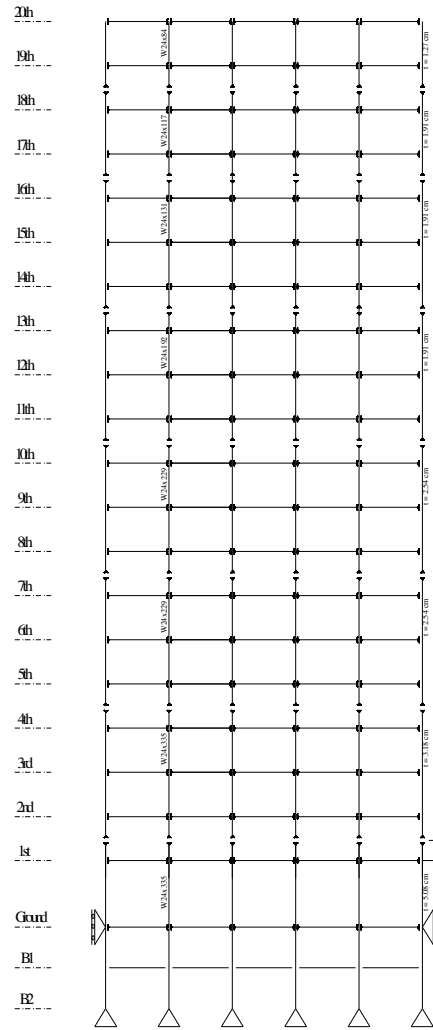
Girdi katmanı için 6 tasarım parametresi, TSD sistemlerde histeretik enerji talebini değerlendirmek için seçilmiştir. Bu 6 tasarım parametresi aşağıda verilmiştir;

- Deprem şiddeti (E_Q)
- Kat Sayısı
- Zemin Tipi
- Yapının Temel Periyodu (T)
- Taban Kesme Kuvveti Katsayısı (η)
- Histeretik Enerji (E_H)

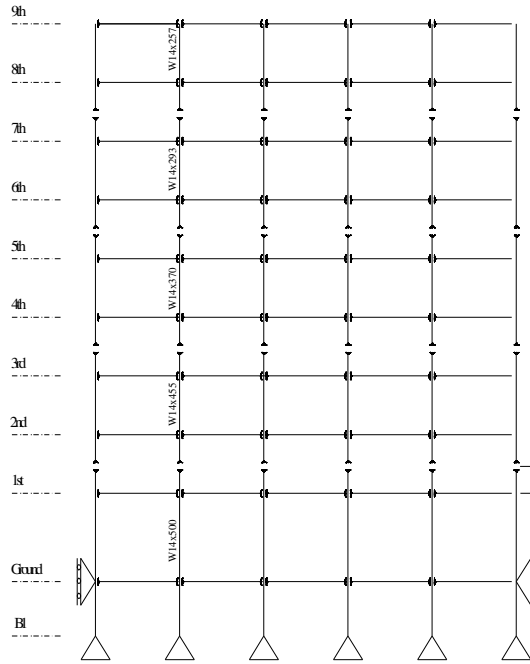
3-Katlı Yapı



20-Katlı Yapı



9-Katlı Yapı



Şekil 5.1 3-, 9- ve 20- katlı yapı modelleri.

Deprem şiddeti; yapının sismik davranışı ve potansiyel hasara göre saptanır. Kat sayısı ve zemin tipi, yapının sismik tepkisini büyük ölçüde etkiler ve sismik tasarımda anahtar parametrelerdir. Temel periyot, zemin tipine bağlı olarak yapının sismik tepkisinde oldukça etkilidir. Taban Kesme Kuvveti Katsayısı; yapıya gelen taban kesme kuvvetinin, yapının sismik kütlesine oranıdır. Ve yapının dinamik bir özelliğidir. E_H ; histeretik enerjidir. Dikkat edilirse E_H parametresi çıktı parametresi olarak seçilmiştir. Sadece girdi parametresi olarak seçilen E_H pek mantıklı sonuçlar vermeyecektir (Akbaş, 2006).

Yukarıda adı geçen girdi parametrelerini saptamak için modal analiz, doğrusal olmayan zaman geçmişi analizi ve elastik ötesi statik öteleme analizleri; 3-, 9- ve 20-katlı üç çelik yapıya uygulanmıştır (Akbaş ve ark., 2003). Çalışmada kullandığımız 3-, 9- ve 20- katlı çelik yapılar, deneysel amaçlı olarak düşey yükler, rüzgar ve deprem yüklerine göre tasarlanmışlardır (Ohtori ve ark., 2000)(Şekil 5.1).Gerçekte inşa edilmemiş olan bu yapılar; Los Angeles, ABD bölgesine ait deprem yönetmeliklerinin şartlarını sağlamakta ve alçak, orta ve yüksek katlı tipik yapıları temsil etmektedir.Tüm yapılar için taşıyıcı sistem moment aktaran dış çerçevelerden ve sadece düşey yük taşıyan iç çerçevelerden oluşmaktadır.Yatay yükler dış çerçevelerle taşınmakta, iç çerçevelerin deprem yüklerini karşılamakta katkısı bulunmamaktadır.Yapılar planda simetriktir.3- katlı yapı; planda 27.45 m x 54.90 m olup, K-G doğrultusunda 3, D-B doğrultusunda 6 adet 9.15 m'lik açıklıklara sahiptir.Kat yükseklikleri kiriş merkezinden kiriş merkezine 3.96 m'dir.Kolonlar temele ankastre bağlıdır.9- katlı yapı; planda 45.75 m x 45.75 m olup, K-G ve D-B doğrultularında 4'er adet 9.15 m'lik açıklıklara sahiptir.Yapının bir bodrum katı olup (B_1), bodrum kat yüksekliği 3.65 m, zemin kat yüksekliği 5.96 m ve diğer tüm kat yükseklikleri 3.96 m'dir.20- katlı yapı; planda 45.75 m x 54.90 m olup; K-G doğrultusunda 4, D-B doğrultusunda 6 adet 6.10 m'lik açıklıklara sahiptir (Şekil 5.3). İki bodrum katı olan binanın (B_1 , B_2) bodrum kat yükseklikleri 3.65 m, zemin kat yüksekliği 5.96m ve diğer tüm kat yükseklikleri 3.96 m 'dir. 9-ve 20- katlı yapılar, sırasıyla B_1 ve B_2 seviyelerinden zemine oturtulmuşlardır. 9- ve 20- katlı yapılarda bodrum katlar toprak altında ve betonarme perde duvar ile çevrili olduklarından yapının zemin katında yatay yer değiştirmesinin önleniği kabul edilmiştir.

Seçilen yapıların kat sistemlerinin diyafram etkisi gösterdiği ve yatay düzlemde rijit olduğu kabul edilmiştir. Tüm yapılarda her kat seviyesinde oluşan atalet etkilerinin moment çerçeveleri tarafından karşılandığı kabul edilmiştir. Dolayısıyla moment çerçeveleri her doğrultuda yapının sismik kütlelerinin yarısını taşımaktadır. Bu sismik kütleler 3-, 9- ve 20- katlı yapılar için sırasıyla 2950t, 9000t ve 11100t olarak verilmiştir. Kütleler noktalara atanmıştır. İki boyutlu modeller doğrusal olmayan dinamik analiz programı DRAIN-2DX (Prakash ve ark., 1993) kullanılarak oluşturulmuştur (Akbaş ve ark., 2003). DRAIN-2DX; düzlem yapıların statik ve

doğrusal olmayan dinamik zaman geçmişi analizleri için genel amaçlı olarak kullanılan bir bilgisayar programıdır. DRAIN-2DX programı olaydan olaya yöntemiyle doğrusal olmayan analizleri gerçekleştirmektedir. Zaman geçmişi analizleri ise ortalama ivme yöntemiyle çözülmektedir. Analizlerde kiriş-kolon elemanları kullanılmıştır. Doğrusal olmayan etkiler eleman uç noktalarındaki plastik mafsallarda göz önüne alınmıştır. Kolon elemanlarının akma yüzeyleri olarak, AISC-LRFD (1999) tarafından önerilen eksenel yük-moment etkileşim ilişkileri kullanılmıştır. Analizlerde panel bölgesi etkileri ihmal edilmiş ve 9- ve 20- katlı yapılar için P-Δ (büyük deformasyon) etkileri göz önüne alınmıştır.

Modal analizden 3-, 9- ve 20- katlı yapıların 1.doğal periyotları sırayla 1.01, 2.29 ve 3.79 sn. bulunmuştur (Akbaş ve diğ., 2003).Zaman geçmişi analizi için; dört farklı zemin tipi (A&B,C ve D) için kaydedilen deprem hareketleri çalışmada kullanılmıştır.Zemin tipi A&B , C ve D için kesme hızı sırasıyla <750 m/s , 360-750 m/s , 180-360 m/s , >180 m/sn dir.Elastik ötesi statik öteleme analizi sonucunda (Pushover) sırasıyla 3-, 9- ve 20- katlı çerçeveler için Taban Kesme Kuvveti Katsayısı (η) 0.22, 0.11 ve 0.058 olarak bulunmuştur (Akbaş ve ark., 2003).

Analizlerde kullanılan bu depremlerin maksimum yer ivmeleri; g yer çekimi ivmesi olmak üzere $\ddot{u}_{g0} = 0,4g$, $\ddot{u}_{g0} = 0,6g$ ve $\ddot{u}_{g0} = 0,8g$ 'e ölçeklendirilmiştir. Bu sayede, çelik çerçevelere şiddetli ve çok şiddetli depremlerin etkimesi durumunda her üç çerçeve de histeretik enerji taleplerini değerlendirmek mümkün olabilecektir. Sönüm oranı %5 olarak alınıp; 3-, 9- ve 20- katlı çerçeveler için Rayleigh sönüm oranları sırasıyla, birinci ve üçüncü , ikinci ve dördüncü , üçüncü ve altıncı doğal frekanslar alınarak hesaplanmıştır (Akbaş ve ark., 2003) .

YSA modeli için; öncelikle deneme ve eğitim verilerini içeren veri bölümü normalize edilir. Normalizasyon için veri bölümü normalizasyon katsayıları (genlik ve ofset) ile çarpılır. Normalizasyon katsayıları, veri bölümü içinde bulunan maksimum ve minimum değerlere dayanılarak hesaplanır. Bu çalışmamızdaki 6 girdi

değeri için her adımda ayrı ayrı normalizasyon katsayıları aşağıdaki formüller yardımıyla hesaplanmıştır (Neuro Solutions 2003) ;

$$Genlik(i) = \frac{Üst\ limit - Alt\ limit}{\max(i) - \min(i)} \quad (24)$$

$$Offset(i) = Üst\ limit - Genlik(i) \times \max(i) \quad (25)$$

Burada $\max(i)$ ve $\min(i)$ değerleri girdi değerleri içerisindeki maksimum ve minimum değerlerdir. $Alt\ limit$ ve $Üst\ limit$ ise sırasıyla (1) ve (-1) dir. Daha sonra girdi bölümü aşağıdaki gibi normalize edilir (Neuro Solutions 2003) ;

$$NormalizeVeri(i) = Genlik(i) \times veri(i) + offset(i) \quad (26)$$

Eğitim safhası sonunda, YSA verileri eşitlik (26) 'ya göre geri normalize edilir;

$$Veri(i) = \frac{NormalizeVeri(i) - Offset(i)}{Genlik(i)} \quad (27)$$

5.2. YSA Modellerinin Eğitim ve Test Safhası

Ağın eğitilmesi için standart bir geri besleme algoritması ele alınmıştır. Modellerde ağ tipi olarak, ileri beslemeli geri yayımlı çok katmanlı perseptron (MLP) ağı kullanılmıştır. Bir YSA yazılımı (Neuro solutions 2003); bu çalışmada eğitim amacıyla kullanılmıştır. Test aşamasında birçok deneme sonunda bir gizli katman uygun görülmüştür. Hiperbolik tanjant fonksiyonu bu çalışmada aktivasyon fonksiyonu olarak seçilmiştir.

Ağın eğitim algoritması; eğitim ve öğrenme verileri ve örneklerden öğrenen YSA, hedef çıktı ile girdi değerlerini birleştirilerek oluşturulan örneklerin bir serisini içerir. İleri yönde çıktı oluşuncaya kadar girdi verisi, girdi katmanından gizli katmana doğru iletilir. Ardından çıktı, modele verilen çıktı verileriyle karşılaştırılır. YSA çıktısı ile hedef çıktı arasındaki hata; bireysel ağırlıklar düzeltilerek ağ boyunca geri iletilir. Öğrenme boyunca hedef çıktı ile model çıktısı arasındaki hatanın dereceli azalımı olur ve Hataların Kareleri Toplamı (MSE) minimize edilerek hata minimuma indirilir. MSE'yi Günaydın ve Doğan (2004) aşağıdaki şekilde tanımlamışlardır;

$$MSE = \sqrt{\sum_{i=1}^n (x_i - X(i))^2} / n \quad (28)$$

Burada; n eğitim safhasında işlenen örnek sayısıdır. x_i ise i . örnek için ($i = 1, 2, \dots, n$) model çıktısıdır. Ve $X(i)$ aynı şekilde histeretik enerji talebini gösteren hedef çıktıdır. MSE; eğitim safhasının ne kadar başarılı olduğunu göstermektedir.

Modelleri test etmek amacıyla; veriler arasında maksimum ve minimum veri aralığında kalan verilerden bazıları seçilerek veri sıralaması değiştirilmiştir.

5.3. Yapı Histeretik Enerjilerinin Belirlenmesi

5.3.1. Yapı Histeretik Enerjilerinin Belirlenmesi Amacıyla Oluşturulan Modelin Veri Dosyası (1.YSA Modeli)

Daha önce belirtildiği gibi 6 tasarım parametresi veri olarak alınacaktır.Yapı Histeretik Enerji Talebini belirlemek amacıyla; 3-, 9- ve 20- katlı yapıların DRAIN-2DX programı ile yapılan analiz sonuçları ele alınarak bir YSA modeli oluşturulmuştur (Akbaş ve ark., 2003) (Ek 2). Modelimizde kullandığımız veriler ve veri aralıkları Tablo 5.1’de verilmiştir.

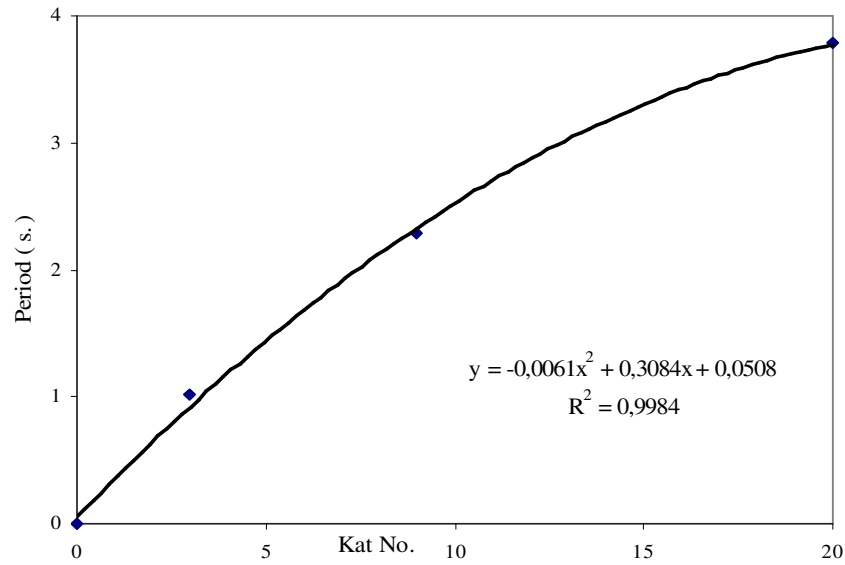
Tablo 5.1 Model 1 için tasarım parametreleri (Akbaş, 2006).

Tasarım Parametresi	Tanım	Veri Aralığı
X_1	Deprem yoğunluğu (EQ)	1 , 2 , 3
X_2	Kat Sayısı	1 - 20
X_3	Zemin Tipi	1 , 2 , 3
X_4	Yapının Temel Periyodu (T)	0.3531 - 3.7788
X_5	Taban Kesme Kuvveti Kat. (η)	0.0535 – 0.2695
X_6	E_H / E_I	0.6632 – 0.91599
Y	E_H / m	1

Deprem yoğunluğu 0.4g, 0.6g ve 0.8g değerleri için sırasıyla 1, 2 ve 3 olarak atanmıştır. Yer ivmesi büyüklükleri sırasıyla 0.4g, 0.6g ve 0.8g şiddetinde düşünülmüştür. Kat sayıları 3-, 9- ve 20- dir. Üç zemin tipi A&B, C ve D için sırasıyla 1, 2 ve 3 olarak atanmıştır.

Zaman gemiři analizi iin; drt farklı zemin tipi (A&B, C ve D) iin kaydedilen deprem hareketleri alıřmada kullanılmıřtır. Zemin tipi A&B, C ve D iin kesme hızı sırasıyla <750 m/s, 360–750 m/s, 180–360 m/s , >180 m/sn dir.

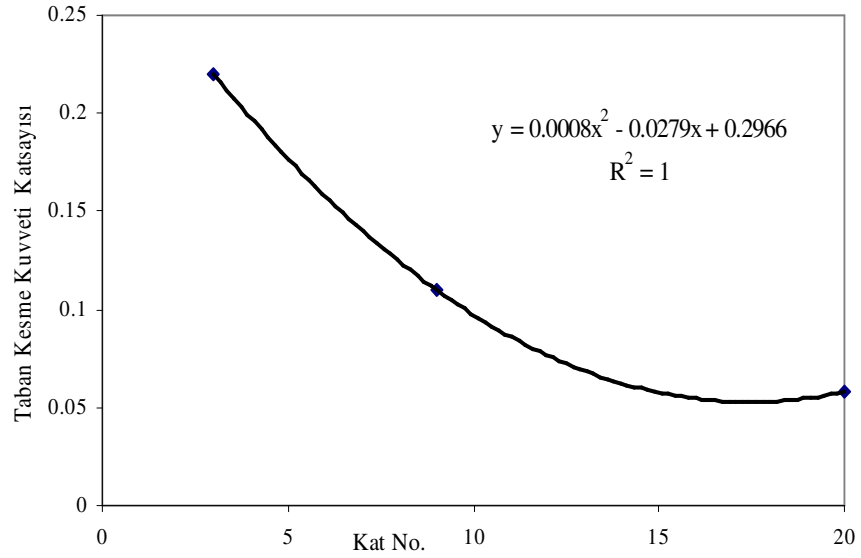
Modal analizden 3-, 9- ve 20- katlı yapıların 1. doęal periyotları sırayla 1.01, 2.29 ve 3.79 sn. bulunmuřtur (Akbař ve ark., 2003).Kat periyot deęerleri 3-, 9- ve 20- katlı yapıların periyotları arasında bir eęri uydurularak saptanmıřtır. řekil 5.2’de Periyot – Kat Sayısı iliřkisi verilmiřtir. Ek 3’de, hesaplanan kat periyot deęerleri verilmiřtir.



řekil 5.2 Periyot – Kat Sayısı iliřkisi.

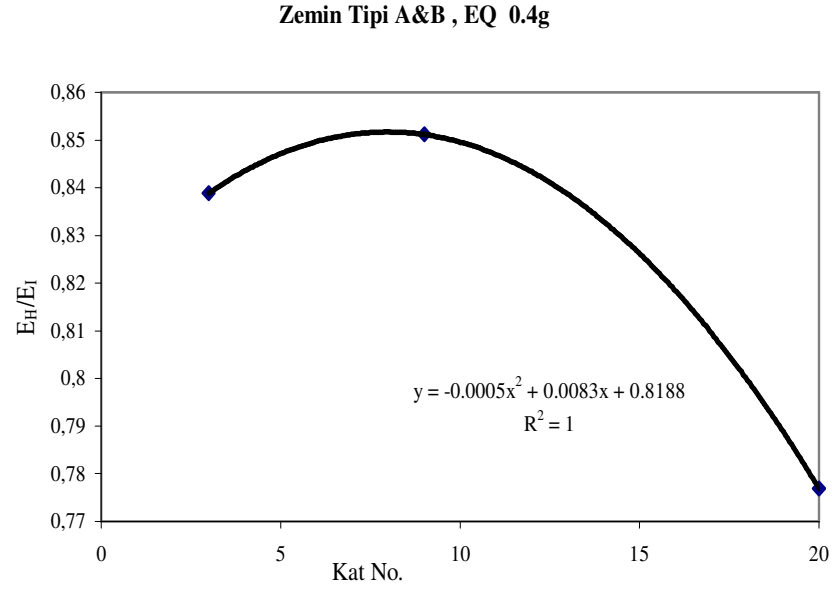
Elastik ötesi statik öteleme analizi sonucunda (Pushover) sırasıyla 3-, 9- ve 20- katlı ereveler iin Taban Kesme Kuvveti Katsayısı (η) 0.22, 0.11 ve 0.058 olarak bulunmuřtur (Akbař ve ark., 2003).Kat Taban Kesme Kuvveti Katsayısı; 3-, 9- ve 20- katlı yapıların Taban Kesme Kuvveti Katsayıları iin bir eęri uydurularak hesaplanmıřtır. řekil 5.3’de Taban Kesme Kuvveti Katsayısı – Kat Sayısı iliřkisi

verilmiştir. Ek 4’de, hesaplanan Yapı Taban Kesme Kuvveti Katsayısı değerleri verilmiştir.



Şekil 5.3 Taban Kesme Kuvveti Katsayısı – Kat Sayısı ilişkisi.

Son olarak; 3-, 9- ve 20- katlı yapıların E_H / E_I değerlerinden, yapı E_H / E_I parametrelerini belirleyebilmek için bir eğri uydurulmuştur. Uydurulan bu eğriden yapı E_H / E_I değerleri elde edilmiştir. Her zemin tipi için oluşturulan E_H / E_I - Kat No. grafikleri Ek 5’dedir.

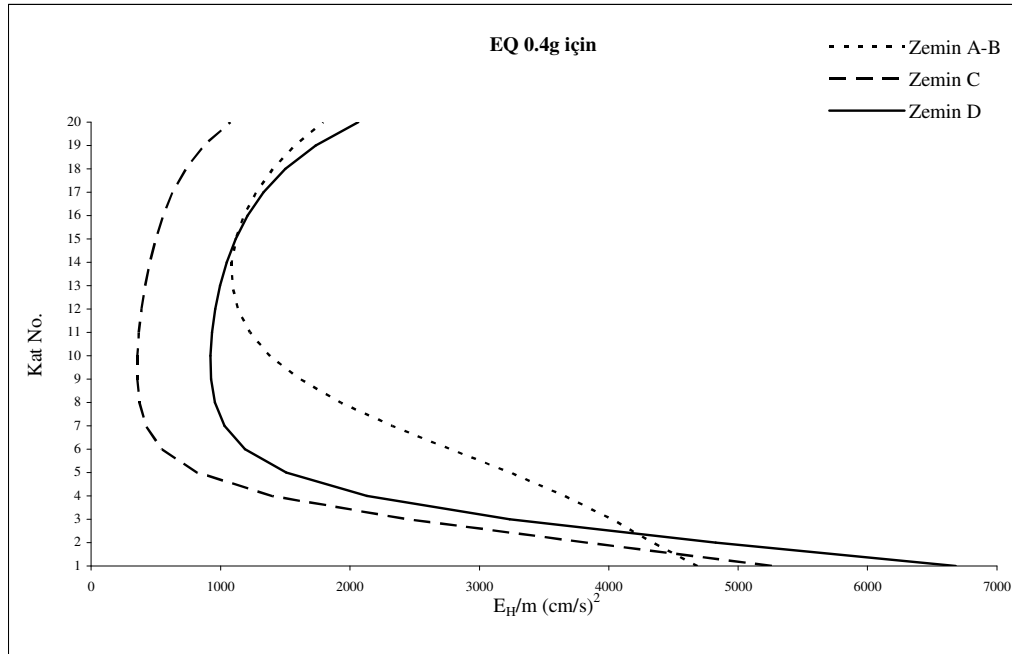


Şekil 5.4 A&B Zemin tipi ve en büyük yer ivmesi 0.4g için E_H / E_I – Kat No. grafiği.

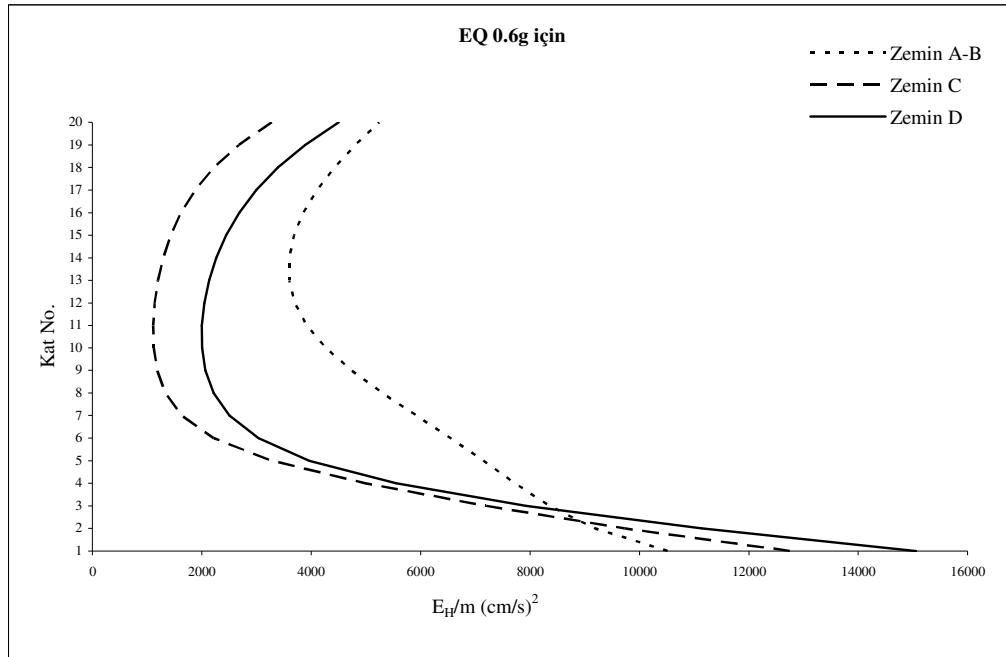
Bu veriler bir araya getirilerek yazılım için bir veri dosyası oluşturulmuş ve normalize edilmiştir. Ek 6'te ham veri dosyası ve normalize edilmiş veri dosyası verilmiştir.

5.3.2. Yapı Histeretik Enerjilerinin Belirlenmesi Amacıyla Oluşturulan Modelin Çıktı Dosyası

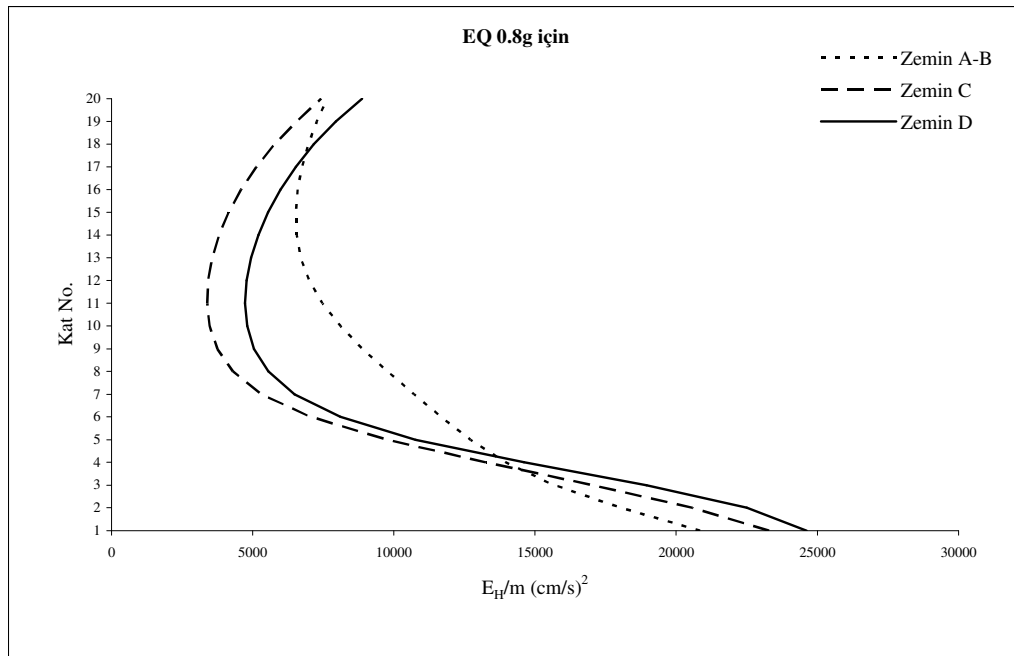
Ham çıktı dosyası Ek 6’te verilmiştir. Aşağıda sırasıyla deprem şiddeti 0.4g, 0.6g ve 0.8g için Kat No.- E_H/m grafikleri verilmiştir (Ek 7). Bu grafikler yardımıyla parametrelere göre E_H/m değerleri bulunabilir. Şekillerden de görüldüğü gibi, en büyük E_H/m değerleri deprem şiddeti 0.8g için tahmin edilmiştir. YSA modeli yardımıyla, farklı kat sayısına sahip çelik çerçevelerde bina yüksekliği boyunca E_H/m değerleri dağılımı %4.97 bir doğrulukla tahmin edilebilmiştir. Bunun dışında, 3 grafikte genel olarak aynı özellikleri taşımaktadır.



Şekil 5.5.a EQ 0.4g değeri için Kat no. - E_H/m grafiği.



Şekil 5.5.b EQ 0.6g değeri için Kat no. - E_H / m grafiği.



Şekil 5.5.c EQ 0.8g değeri için Kat no. - E_H / m grafiği.

5.4. Kat Histeretik Enerji Oranlarının Belirlenmesi

5.4.1. Kat Histeretik Enerji Oranlarının Belirlenmesi Amacıyla Oluşturulan Modelin Veri Dosyası (2.YSA Modeli)

Bu ikinci modelimizde; kat histeretik enerji oranlarını bulmak için 3-, 9- ve 20-katlı çelik çerçevelerin analizlerinden elde edilen histeretik enerji talepleri kullanılmıştır (Akbaş,2006).Kat histeretik enerji oranı; kat histeretik enerji talebinin, yapının toplam histeretik enerjisine oranıdır. Ek 8’de kat histeretik enerji oranı değerleri verilmiştir.

Tablo 5.2 Model 2 için tasarım parametreleri (Akbaş,2006).

Tasarım Parametresi	Tanım	Veri Aralığı
X_1	Deprem yoğunluğu (EQ)	1, 2, 3
X_2	Kat Sayısı	1 – 20
X_3	Zemin Tipi	1, 2, 3
X_4	Yapının Temel Periyodu (T)	1.0109 – 3.7863
X_5	Taban Kesme Kuvveti Kat. (η)	0.68 – 0.91
X_6	Kat No.	1 – 20
Y	$E_{H(KAT)}/E_H$ (Nm)	0.0004 – 0.5372

Seçilen tasarım değişkenleri için veri aralığı, tablo 5.2’de verilmiştir. Deprem yoğunluğu 0.4g, 0.6g ve 0.8g değerleri için sırasıyla 1, 2 ve 3 olarak atanmıştır. Yer ivmesi büyüklükleri sırasıyla 0.4g, 0.6g ve 0.8g şiddetinde düşünülmüştür. Kat sayısı 1 ile 20 arasında alınmıştır. Üç zemin tipi A&B, C ve D için sırasıyla 1, 2 ve 3 olarak atanmıştır.

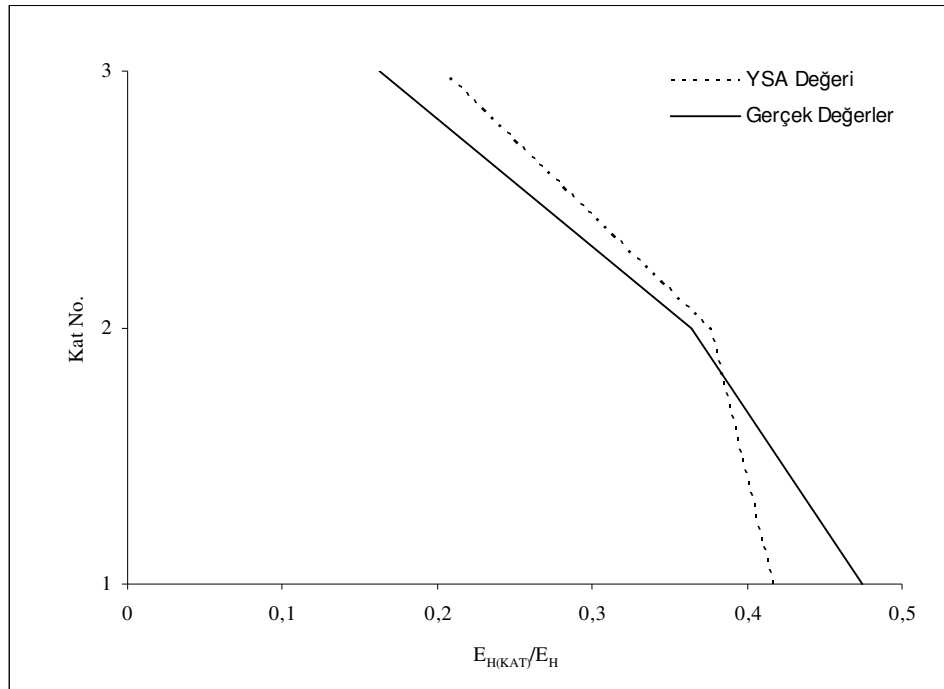
Kat periyot değerleri ilk modelde olduğu gibi 3-, 9- ve 20- katlı yapıların periyotları arasında bir eğri uydurularak saptanmıştır (Ek 3). Kat Taban Kesme Kuvveti Katsayısı ilk modelde olduğu gibi; 3-, 9- ve 20- katlı yapıların Taban Kesme Kuvveti Katsayıları için bir eğri uydurularak hesaplanmıştır (Ek 4).

3-, 9- ve 20- katlı yapıların kat histeretik enerji oranlarını belirlemek amacıyla 1890 verilik ikinci bir YSA modeli kullanılmıştır. Ek 8’de verilen kat histeretik enerji oranları modelde, hem veri hemde çıktı olarak kullanılmıştır. 3-, 9- ve 20- katlı yapıların kat histeretik enerji oranları ayrı ayrı girilmiştir.

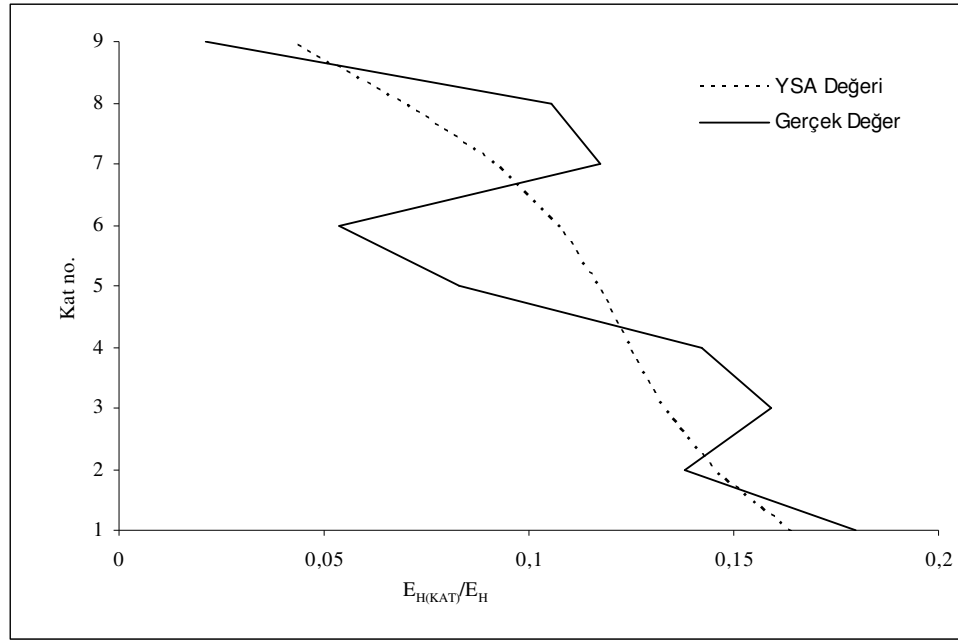
Modeli test etmek amacıyla; veriler arasında maksimum ve minimum $E_{(KAT)}/E_H$ oranı aralığında kalan (0.0004–0.5372), $E_{H(KAT)}/E_H$ oranlarına sahip bazı verilerin veri sıralaması değiştirilmiştir. Ek 9’da modeline ait veriler tablosu görülmektedir.

5.4.2. Kat Histeretik Enerjilerinin Belirlenmesi Amacıyla Oluşturulan Modelin Çıktı Dosyası

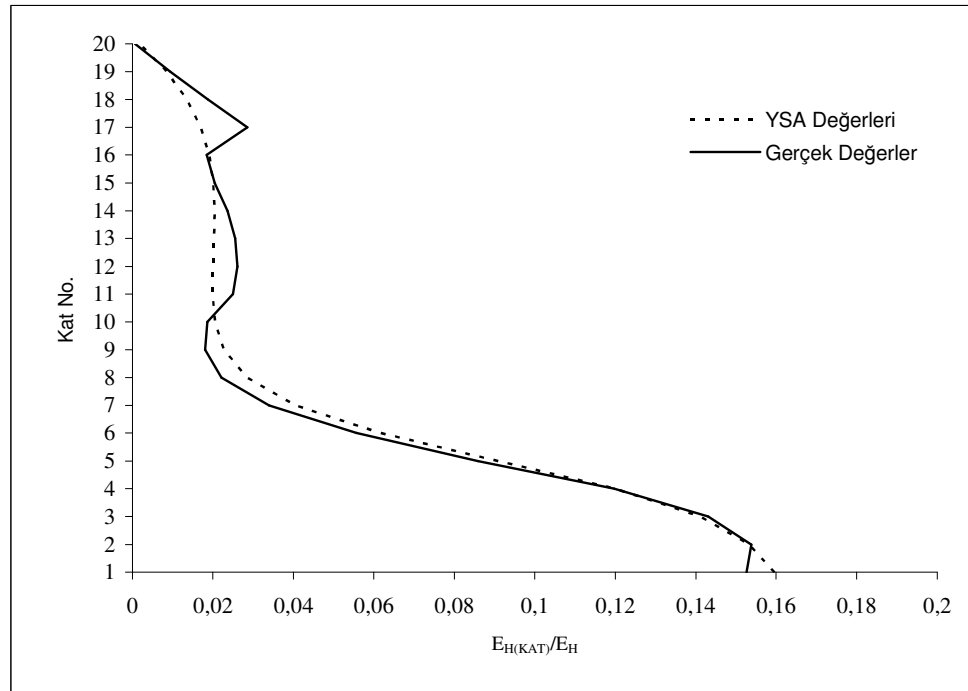
Analiz gerçekleştirildikten sonra, çıktılar alınmış ve normalize edilmiştir (Ek 10).Aşağıdaki grafiklerde görüldüğü gibi; 3-, 9- ve 20- katlı yapılar için YSA değeri ile gerçek değerler oldukça yakın bulunmuştur. Kat histeretik enerji talepleri girdi verilerine dayanılarak yaklaşık olarak bu grafiklerden bulunabilir. Aşağıda örnek olarak 3-, 9- ve 20- katlı yapılar için zemin tipi A&B ve deprem şiddeti 1 ($\ddot{u}_g = 0.4g$) olan örnekler görülmektedir. Şekillerden görüldüğü gibi değerler bu abaklar sayesinde yakın bir şekilde tahmin edilebilir. Bu çalışmada oluşturulan YSA modeli yardımıyla histeretik enerjinin farklı kat sayısına sahip çelik çerçevelerde bina yüksekliği boyunca dağılımı %4.97 bir doğrulukla tahmin edilebilmiştir. 3-, 9- ve 20- katlı yapılar için YSA sonuçlarından elde edilen değerlerle gerçek değerlerin karşılaştırmaları Ek 11’de verilmiştir. Her kat için ayrı ayrı Kat No.- $E_{H(KAT)} / E_H$ grafikleri Ek 12’de verilmiştir.



Şekil. 5.6 3- katlı yapı için Kat No.- $E_{H(KAT)}/E_H$ grafiği (Zemin Tipi A&B ve Deprem Şiddeti 1 için).



Şekil. 5.7 9- katlı yapı için Kat No.- $E_{H(KAT)}/E_H$ grafiği (Zemin Tipi A&B ve Deprem Şiddeti 1 için).



Şekil. 5.8 20- katlı yapı için Kat No.- $E_{H(KAT)}/E_H$ grafiği (Zemin Tipi A&B ve Deprem Şiddeti 1 için).

6. ALÇAK, ORTA VE ÇOK KATLI ÇELİK ÇERÇEVELERDE KİRİŞLERİN ÖN TASARIMI İÇİN BİR YAKLAŞIM

6.1. Önerilen Yaklaşım

Bölüm 5’de 3-, 9- ve 20- katlı 3 çelik çerçeve kullanılarak yapı histeretik enerjisi ve kat histeretik enerji oranları öngörölmeye çalışılmıştır. Elde edilen sonuçlar ışığında, çelik çerçevelerdeki kiriş kesitlerinin ön tasarımı için önerilen bir yaklaşım aşağıda sunulmuştur;

- a) Yapının dağıtması gereken histeretik enerji (E_H) miktarı bulunur. Bunun için Ek 12’den bulunan E_H / m değeri alındıktan sonra, kütlesi ile çarpılır.
- b) Ek 14’den $E_{H(KAT)} / E_H$ oranı bulunur ve (a) şıkkından elde edilen (E_H) değeriyle çarpılarak $E_{H(KAT)}$ değeri elde edilir.
- c) $E_{H(KAT)}$, açıklık sayısına bölünerek her bir kirişin dağıtması beklenen histeretik enerji miktarı $E_{H(KIRIS)}$ bulunur.

$$E_{H(KIRIS)} = \frac{E_{H(KAT)}}{AS} \quad (29)$$

Yukarıdaki formülde AS, açıklık sayısıdır. Formül (29)’da, histeretik enerjinin kat içindeki bütün kirişler tarafından eşit bir şekilde dağıtıldığı kabul edilmiştir.

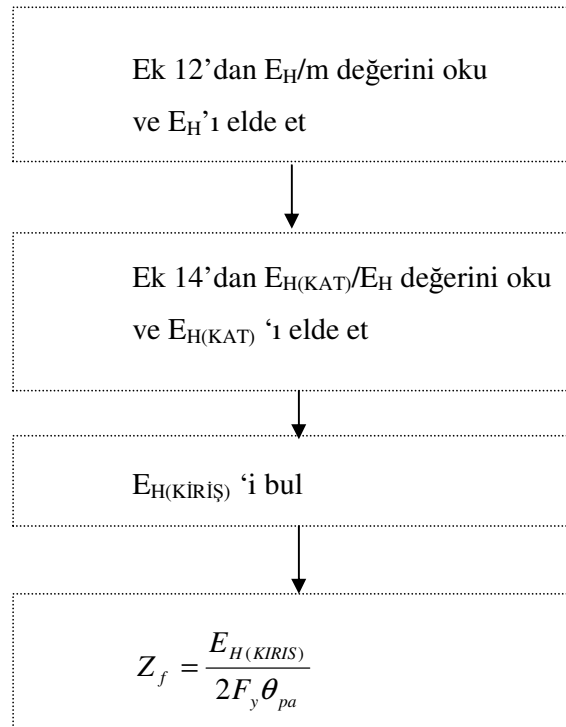
- d) Çelik kirişin tasarımında temel parametre olan plastik kesit modülü, Z_f , hesaplanır. Bunun için ilk olarak, çelik kirişin enerji dağıtma kapasitesi aşağıdaki formülle elde edilir (akbaş ve ark., 200).

$$E_{H(KIRIS)} = 2(M_p \theta_{pa}) = 2(F_y Z_f \theta_{pa}) \quad (30)$$

(30) formülünde M_p , kesitin plastik momenti; θ_{pa} , kesitin kümülatif plastik dönme kapasitesi; F_y , çelik malzemenin akma dayanımıdır. $E_{H(KIRIS)kapasite} = E_{H(KIRIS)}$ kabulü yapılarak (30) formülü yardımıyla Z_f aşağıdaki gibi elde edilir.

$$Z_f = \frac{E_{H(KIRIS)}}{2F_y \theta_{pa}} \quad (31)$$

Yukarıda adım adım açıklanan yaklaşım, Şekil 6.1 'deki akış diyagramında verilmiştir.



Şekil 6.1 Kiriş öntasarımı için akış diyagramı.

6.2. Uygulama ve Sonuçlar

Bölüm 6.1’de verilen yaklaşımı sınamak amacıyla, 4-,9- ve 20- katlı üç çelik çerçeve kullanılmıştır. Binalar, boyut olarak 3-,9- ve 20- katlı yapılara benzemektedirler. Yapıların açıklıkları sırasıyla 4,5 ve 5’tir.Yapılara ait kütleler; 3009 t, 9006 t ve 11067 t’dur ve ASCE/SEI 7.05 yönetmelik hükümlerine göre tasarlanmışlardır (Shen,J. ve Akbaş,B.; 2006). Çerçeveler için zemin tipi A&B olarak seçilmiştir. Sonuçlar, etkin yer ivmesi 0.6g ve 0.8g, θ_{pa} değeri %5 ve %10 için verilmiştir.

Ek 13’de Bölüm 6.1’de sunulan yaklaşımla elde edilen Z_f değerleri verilmiştir. Elde edilen bu değerlere göre yapılan kiriş ön boyutlandırmaları aşağıda verilmiştir.

Tablo 6.1 4- katlı yapı için kiriş tahmini sonuçları.

Kat No.	$\ddot{u}_{g0} = 0,6g$ $\theta_{pa} \%5$ Kiriş Boyutu	$\ddot{u}_{g0} = 0,6g$ $\theta_{pa} \%10$ Kiriş Boyutu	$\ddot{u}_{g0} = 0,8g$ $\theta_{pa} \%5$ Kiriş Boyutu	$\ddot{u}_{g0} = 0,8g$ $\theta_{pa} \%10$ Kiriş Boyutu	Gerçek Değerler
1	W30X221	W30x116	W33X169	W40X277	W33x201
2	W30X221	W30x116	W33X169	W40X277	W33x201
3	W30X221	W30x116	W33X169	W40X277	W33x201
4	W24X55	W18X40	W24X55	W27X84	W27x94

Tablo 6.2 9- katlı yapı için kiriş tahmini sonuçları.

Kat No.	$\ddot{u}_{g0} = 0,6g$ $\theta_{pa} \%5$ Kiriş Boyutu	$\ddot{u}_{g0} = 0,6g$ $\theta_{pa} \%10$ Kiriş Boyutu	$\ddot{u}_{g0} = 0,8g$ $\theta_{pa} \%5$ Kiriş Boyutu	$\ddot{u}_{g0} = 0,8g$ $\theta_{pa} \%10$ Kiriş Boyutu	Gerçek Değerler
1	W30X116	W30X90	W30X211	W30X116	W36x300
2	W30X99	W27X84	W30X173	W30X99	W36x230

3	W30X99	W27X84	W30X173	W30X99	W36x230
4	W30X99	W27X84	W30X173	W30X99	W36x230
5	W30X99	W27X84	W30X173	W30X99	W36x230
6	W30X99	W27X84	W30X173	W30X99	W36x230
7	W30X99	W27X84	W30X173	W30X99	W36x230
8	W24X84	W24X55	W30X90	W24X55	W33x169
9	W21X50	W18X55	W24X76	W21X44	W24x55

Tablo 6.3 20- katlı yapının kiriş tahmini sonuçları.

Kat No.	$\ddot{u}_{g0} = 0,6g$ $\theta_{pa} \%5$ Kiriş Boyutu	$\ddot{u}_{g0} = 0,6g$ $\theta_{pa} \%10$ Kiriş Boyutu	$\ddot{u}_{g0} = 0,8g$ $\theta_{pa} \%5$ Kiriş Boyutu	$\ddot{u}_{g0} = 0,8g$ $\theta_{pa} \%10$ Kiriş Boyutu	Gerçek Değerler
1	W36x150	W30X99	W33x221	W33X148	W33x201
2	W36x150	W30X99	W33x221	W33X148	W33x201
3	W36x150	W30X99	W33x221	W33X148	W33x201
4	W36x150	W30X99	W33x221	W33X148	W33x201
5	W36x150	W30X99	W33x221	W33X148	W33x201
6	W36x150	W30X99	W33x221	W33X148	W33x221
7	W36x150	W30X99	W33x221	W33X148	W33x221
8	W30X90	W24X55	W30x99	W30X90	W33x221
9	W30X90	W24X55	W30x99	W30x90	W33x221
10	W30X90	W24X55	W30x99	W30x90	W33x221
11	W30X90	W24X55	W30x99	W30x90	W33x221
12	W30X90	W24X55	W30x99	W30x90	W33x221
13	W30X90	W24X55	W30x99	W30x90	W33x221
14	W24X55	W21X44	W24x55	W24X55	W33x169
15	W24X55	W21X44	W24x55	W24X55	W33x169
16	W24X55	W21X44	W24x55	W24X55	W33x169
17	W24X55	W21X44	W24x55	W24X55	W33x169
18	W24X55	W21X44	W24x55	W24X55	W33x169
19	W18X55	W18X40	W18X55	W18X55	W27x102
20	W21X50	W18X35	W21X50	W21X50	W24x55

Yukarıdaki tablolarda görüldüğü gibi, gerçek değerlere en yakın değerlere $\ddot{u}_{g0} = 0,8g$ ve $\theta_{pa} \%5$ kombinasyonunda ulaşılmıştır. $\ddot{u}_{g0} = 0,8g$ ve $\theta_{pa} \%10$ kombinasyonlarında her zaman gerçek kesitlerden daha büyük ve ekonomik olmayan kesit değerleri çıkmıştır.

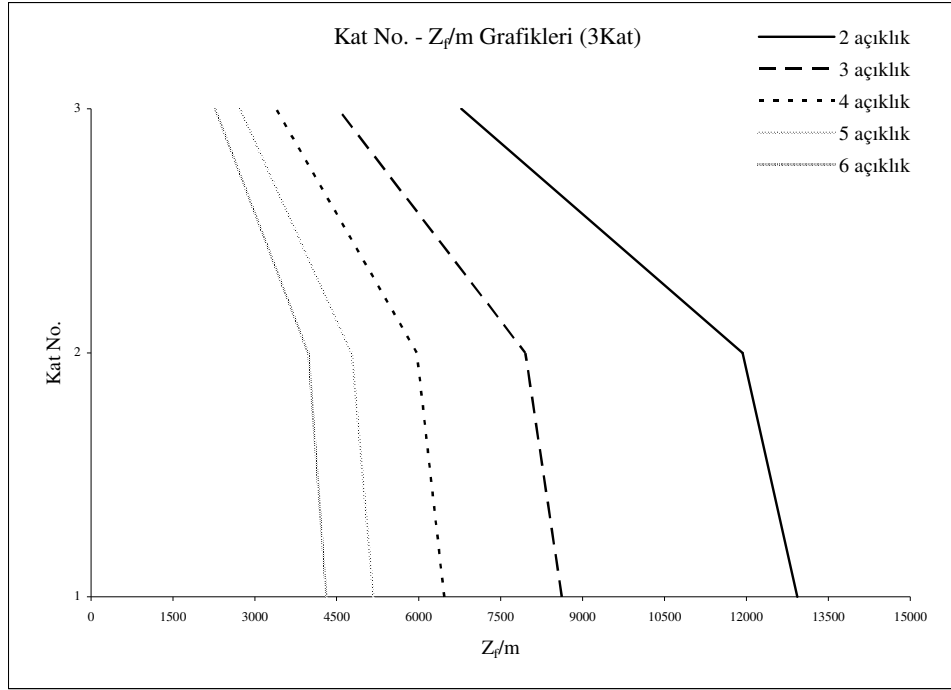
7. ÖNERİLEN YAKLAŞIMIN PRATİK UYGULAMASI

Bölüm 6'daki uygulamalar, $\ddot{u}_{g0} = 0,8g$ için ve θ_{pa} %5 değerleri için önerilen ön boyutlandırma yaklaşımının en iyi ve gerçeğe en yakın sonuçlar verdiğini göstermiştir. Bu bölümde, Bölüm 6'da önerilen yaklaşımın daha kolay ve pratik bir şekilde uygulanabilmesi için ön tasarım abakları hazırlanacaktır.

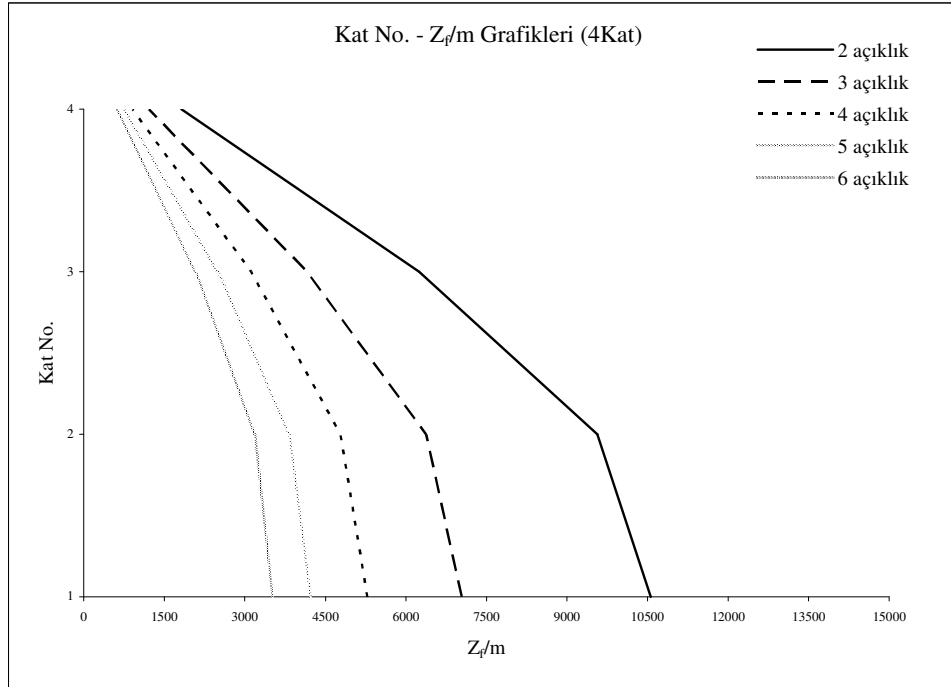
Abaklar hazırlanırken sırasıyla aşağıdaki adımlar takip edilmiştir:

- Ek 12'den bulunan E_H / m değeri alındıktan sonra, yapının kütlesi ile çarpılır.
- Ek 14'den $E_{H(KAT)} / E_H$ oranı bulunur ve (a) şikkından elde edilen (E_H) değeriyle çarpılarak $E_{H(KAT)}$ değeri elde edilir.
- $E_{H(KAT)}$, açıklık sayısına bölünerek her bir kirişin dağıtması beklenen histeretik enerji miktarı $E_{H(KIRIS)}$ bulunur.
- (30) formülü yardımıyla Z_f değerleri elde edilir.

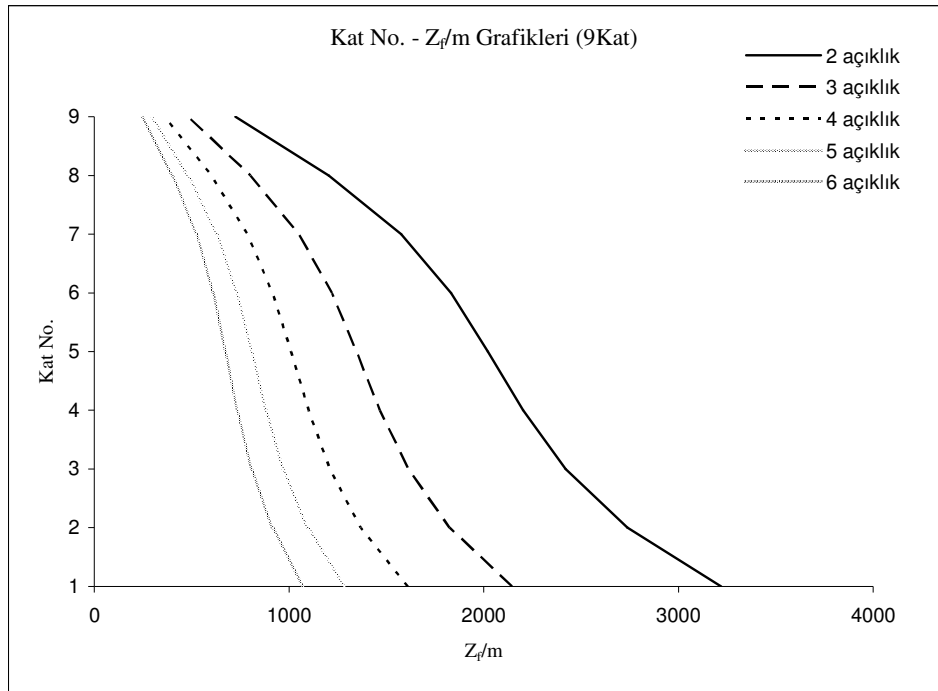
Abaklar, açıklık sayısına göre kullanılabilecek şekilde $F_y = 248Mpa$ (36 ksi) için oluşturulmuştur. Abaklara *Kat No*'su ve *AS* (a açıklık sayısı) girilerek herhangi bir kat ve kiriş için Z_f / m değerleri kolayca bulunur. Bulunan Z_f / m değeriyle m çarpılarak Z_f değeri kolayca elde edilir. Abaklarda, kütlenin (m) birimi t (ton) olarak girilir ve okunan Z_f değeri mm olarak elde edilir. Şekil 6.2, 6.3, 6.4 ve 6.5'de sırasıyla 3-,4-,9- ve 20-katlı çelik çerçeveler için oluşturulan abaklar verilmiştir. 5-,6-,7-,8- ve 10-,11-,12-,13-,14-,15-,16-,17-,18-,19- katlı çelik çerçeveler için oluşturulan abaklar Ek 14'de sunulmuştur.



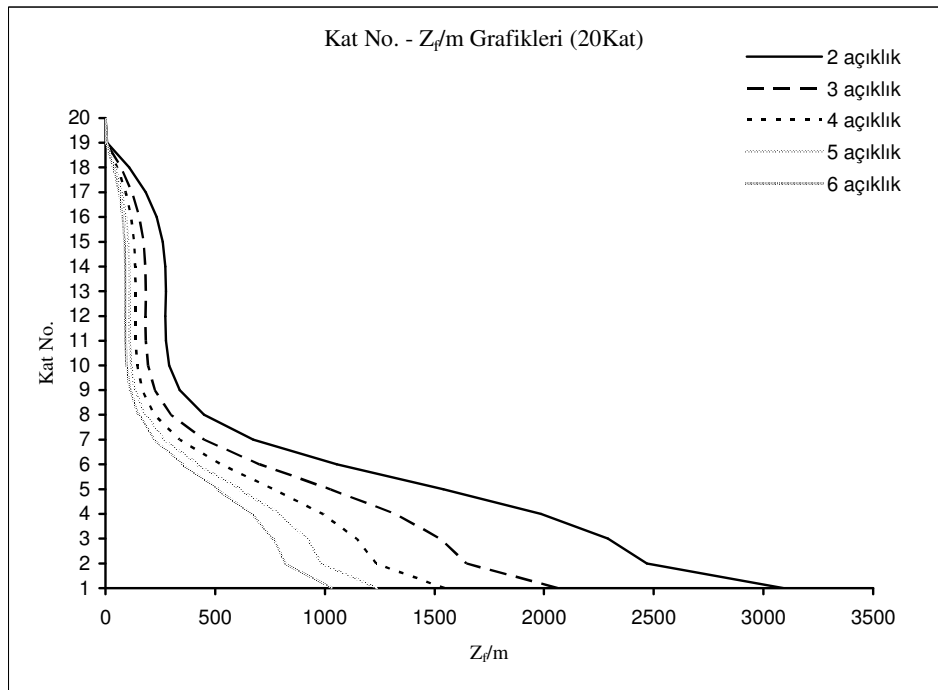
Şekil 7.1 3- Katlı yapı için Z_p/m – Kat No. grafiği.



Şekil 7.2 4- Katlı yapı için Z_p/m – Kat No. grafiği.



Şekil 7.3 9- Katlı yapı için Z_t/m – Kat No. grafiği.



Şekil 7.4 20- Katlı yapı için Z_t/m – Kat No. grafiği.

8. SONUÇLAR VE ÖNERİLER

Ülkemizde ve dünyada yapı tasarım aşamalarından ön tasarım evresi, tamamen tecrübeye dayalı olarak deneme-yanılma yoluyla yapılmaktadır. Bu şekilde uygulandığında ön tasarım bazen oldukça zaman alan bir süreç olabilmektedir. İlk aşamada gerçek boyutlara yakın değerler seçilmesi tasarımı oldukça kolay bir hale getirecektir.

Bu çalışmada, kirişlerin ön tasarımı için enerjiye dayalı depreme dayanıklı yapı tasarım kurallarına bağlı kalarak bir yaklaşım geliştirilmiş ve uygulama örnekleri yapılmıştır. Bu amaçla, ilk olarak farklı zeminlerde inşa edilen ve farklı şiddetteki yer hareketlerine maruz 3-,9- ve 20- katlı çelik çerçevelerin histeretik enerji talepleri, doğrusal olmayan zaman geçmişi analizleri sonuçlarından elde edilmiştir. İkinci adımda, ilk adımda elde edilen sonuçlar yardımıyla bir YSA modeli oluşturulmuş ve farklı kat sayısına sahip çelik çerçeveler içinde histeretik enerji talepleri tahmin edilmiştir. Son adımda ise çelik çerçevelerdeki kirişlerin ön tasarımı için bir algoritma geliştirilerek bir uygulama örneği sunulmuştur. Ayrıca sunulan yaklaşımın pratik ve etkili bir şekilde uygulanabilmesi için ön tasarım abakları geliştirilmiştir.

Bu çalışmadan elde edilen sonuçlar aşağıdaki gibi özetlenebilir;

- a) Çelik çerçevelerde kirişlerin ön tasarımı için histeretik enerji talebi, bir tasarım parametresi olarak kullanılabilir.
- b) Farklı zeminlerde ve farklı şiddetteki yer hareketlerine maruz binalardaki histeretik enerji talebi de farklıdır ve üniform olarak değişmemektedir.
- c) Histeretik enerji talebi, bina yüksekliği boyunca üniform bir değişim göstermemektedir. Farklı kat sayılarına sahip binalar için, eğer binanın dağıtması gereken histeretik enerji talebi önceden tahmin

edilebilirse bu enerjinin bina yüksekliđi boyunca dađılımlı da belirlenebilir.

- d) Yapay sınır ađları, birçok mhendislik probleminin özmnde olduka iyi sonular vermektedir. Bu alıřmada oluřturulan YSA modeli yardımıyla histeretik enerjinin farklı kat sayısına sahip elik erevelerde bina yüksekliđi boyunca dađılımlı %4.97 bir dođrulukla tahmin edilebilmiřtir.
- e) n tasarım iin oluřturulan abaklardan ok kolay bir řekilde Z_f okunarak n tasarım yapılabilir. Bylece, n tasarım, birkaç denemede fazla zaman kaybetmeden ve kolayca yapılabilir.
- f) Verilen abaklar yardımıyla yapıya giren enerji ve kiriřler tarafından dađıtılan enerji kolayca bulunabilir. Bylece n tasarım, yapıya sadece kiriřlerin boyutları hakkında fikir vermekle kalmaz, hangi kattaki kiriřlerde daha fazla histeretik enerji talebi olduđunu da bize gsterir.

alıřmadan elde edilen sonular ıřıđında bazı neriler ise ařađıdaki gibidir:

- a) Bu alıřma elik ereveler iin yapılmıřtır. Benzer bir alıřma, betonarme kiriřler iin de yapılabilir.
- b) Bu alıřmada sadece kiriřlerin n tasarımı iin bir yaklařım geliřtirilmiřtir. nk histeretik enerjinin sadece kiriřler tarafından dađıtılacađı ve kolonların yer hareketi sırasında elastik sınırlar ierisinde kalacađı kabul yapılmıřtır. Kolonların n tasarımı iin de toplam enerji kullanılarak bir yaklařım geliřtirilebilir.
- c) YSA modelleri yardımıyla, daha farklı tasarım algoritmaları geliřtirilerek n tasarım abakları oluřturulabilir.
- d) n tasarım abakları, farklı elik sınıfları iin de oluřturulabilir.
- e) Bu alıřma sınırlı sayıda bina ve yer hareketi kaydı iin yapılmıřtır. Daha fazla sayıdaki bina ve yer hareketi iin benzer bir alıřma yapılarak daha hassas sonular elde etmek mmkndr.

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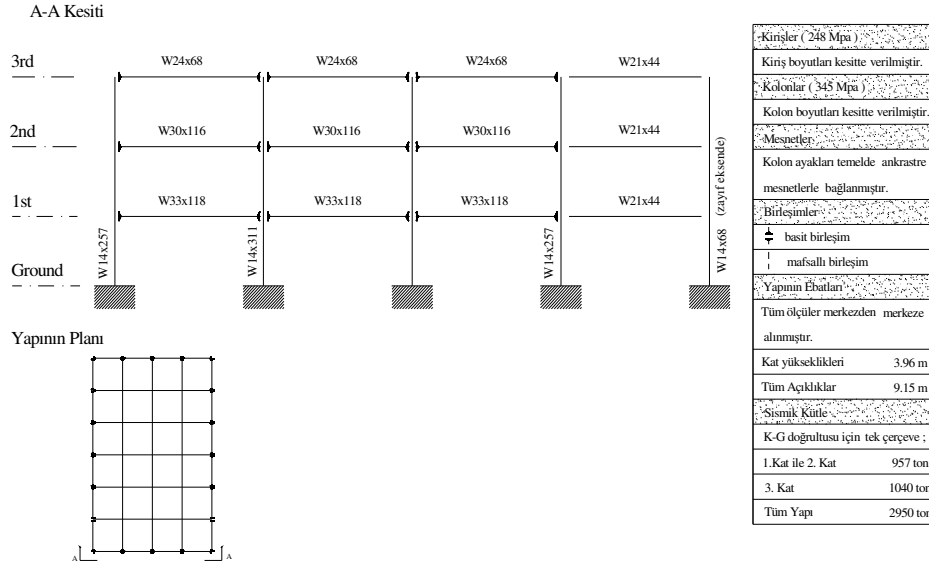
ÖZGEÇMİŞ

Selcen GÜRBÜZ, 1998 yılında İstanbul Üniversitesi Mühendislik Fakültesi İnşaat Mühendisliği Bölümü'ne girmeye hak kazandı. Öğrenciliği sırasında zemin mekaniği ve betonarme alanlarında öğrenci asistanlık yaptı. Bitirme tezini, zemin mekaniği bölümü yüzeysel temeller konusunda hazırladı. Mezun olduğu yıl İstanbul Üniversitesi İle Bakırköy Belediyesi'nin ortak çalışması olan 'Bakırköy bölgesinin zemin ve zemin yapı etkileşimine bağlı risk analizi' projesinde mühendis olarak çalıştı. 2002 yılında Gebze Yüksek Teknoloji Enstitüsü Deprem ve Yapı Bölümü'nde yüksek lisansa başladı. Yüksek lisansı sırasında pek çok firmada proje mühendisi olarak çalıştı. Halen özel bir firmada proje mühendisi olarak çalışmaktadır.

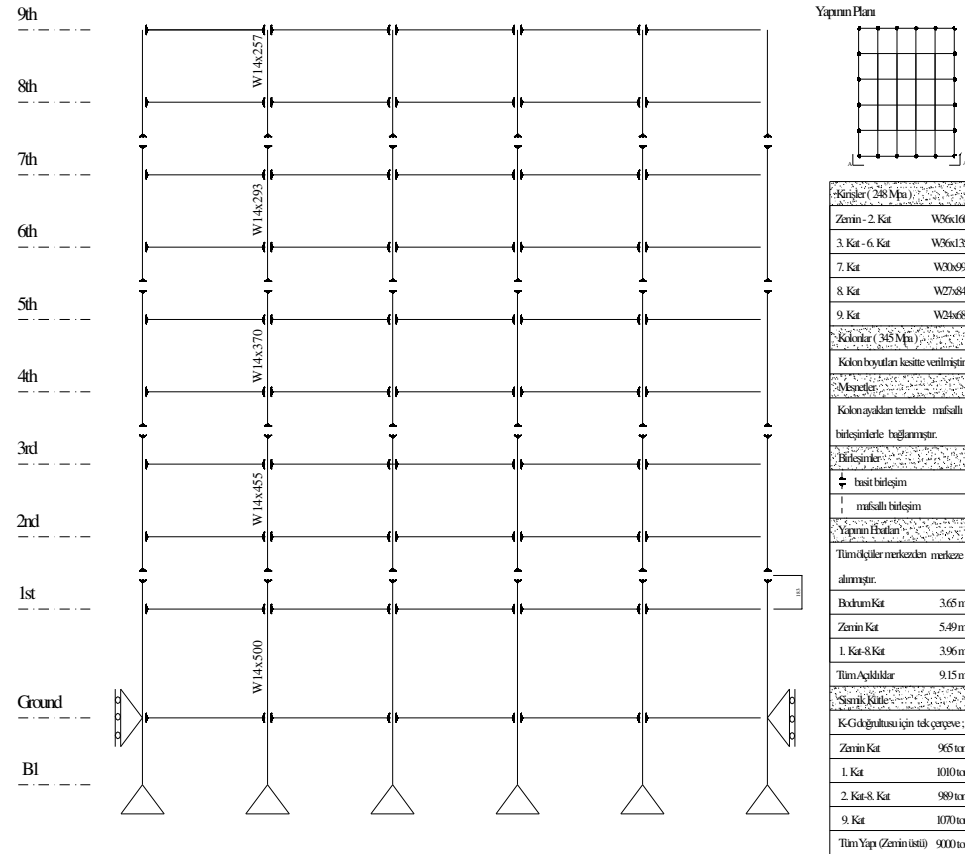
EKLER

EK-1 3-, 9- Ve 20- Katlı Yapı Modelleri.

3- katlı yapı:



9- katlı yapı:



EK-2 3-,9- ve 20- Katlı yapılar İçin E_H/m Değerleri (Akbaş,2003).

3- Katlı Yapı

$W = 2950 \text{ kN sec}^2 / \text{m}$

0,4g

Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	271	1837	1
2	222	1505	
3	69.5	471	
Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	263	1783	2
2	219	1485	
3	76.9	521	
Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	364	2468	3
2	291	1973	
3	96.6	655	

0,6g

Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	611	4142	1
2	563	3817	
3	223	1512	
Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	634	4298	2
2	600	4068	
3	267	1810	
Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	750	5085	3
2	710	4814	
3	293	1986	

0,8g

Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	1010	6847	1
2	1020	6915	
3	468	3173	
Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	1090	7390	2
2	1110	7525	
3	548	3715	
Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	1220	8271	3
2	1220	8271	
3	567	3844	

9- Katlı Yapı

$W = 9000 \text{ kN sec}^2 / \text{m}$

0,4g

Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	158	351	1
2	130	289	
3	137	304	
4	104	231	
5	54.6	121	
6	42.1	94	
7	84.8	188	
8	52.2	116	
9	7.76	17	
Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	30.8	68	2
2	26.9	60	
3	31.5	70	
4	26.1	58	
5	14.3	32	
6	7.16	16	
7	17.8	40	
8	16.8	37	
9	2.01	4	
Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	63.1	140	3
2	47.1	105	
3	57.1	127	
4	55.2	123	
5	33.4	74	
6	22.5	50	
7	41.8	93	
8	29.4	65	
9	4.9	11	

0,6g

Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	412	916	1
2	373	829	
3	359	798	
4	297	660	
5	182	404	
6	122	271	
7	180	400	
8	111	247	
9	20.3	45	
Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	86.4	192	2
2	74.4	165	
3	86.5	192	
4	77.6	172	
5	44.5	99	
6	28.7	64	
7	64.3	143	
8	58.2	129	
9	11.5	26	
Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	171	380	3
2	143	318	
3	171	380	
4	161	358	
5	101	224	
6	66.3	147	
7	105	233	
8	75.4	168	
9	13.6	30	

0,8g

Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	758	1684	1
2	715	1589	
3	648	1440	
4	546	1213	
5	349	776	
6	234	520	
7	270	600	
8	170	378	
9	39.5	88	
Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	175	389	2
2	149	331	
3	161	358	
4	144	320	
5	95.6	212	
6	68.1	151	
7	128	284	
8	116	258	
9	29.6	66	
Kat No	$E_{H(KAT)}$	Eh / m	Zemin Tipi
1	332	738	3
2	291	647	
3	317	704	
4	292	649	
5	184	409	
6	126	280	
7	167	371	
8	119	264	
9	28.1	62	

20- Kath Yapı

W = 11100 kN sec² / m

0,4g

Kat No	E _{H(KAT)}	Eh / m	Zemin Tipi
1	91.6	165.0	1
2	104	187.4	
3	33	59.46	
4	21.9	39.46	
5	11.5	20.72	
6	7.15	12.88	
7	5.13	9.24	
8	4.67	8.41	
9	5.42	9.77	
10	6.89	12.41	
11	9.3	16.76	
12	9.45	17.03	
13	8.53	15.37	
14	6.18	11.14	
15	4.7	8.47	
16	4.62	8.32	
17	8.95	16.13	
18	5.84	10.52	
19	2.39	4.31	
20	0.144	0.26	

0,6g

Kat No	E _{H(KAT)}	Eh / m	Zemin Tipi
1	230	414	1
2	265	477	
3	133	240	
4	98.5	177	
5	57.9	104	
6	36.9	48	
7	28.4	51	
8	24.2	44	
9	22.1	40	
10	22.1	40	
11	26.1	47	
12	28	50	
13	26.7	48	
14	21.6	39	
15	17.1	31	
16	17.3	31	
17	31.8	57	
18	24.5	44	
19	9.02	16	
20	0.488	1	

0,8g

Kat No	E _{H(KAT)}	Eh / m	Zemin Tipi
1	420	757	1
2	482	868	
3	287	517	
4	222	400	
5	148	267	
6	99.6	179	
7	74.1	134	
8	58.2	105	
9	50.8	92	
10	47	85	
11	49.8	90	
12	51.5	93	
13	48.1	87	
14	38.7	70	
15	31.5	57	
16	31.3	56	
17	57.7	104	
18	41.1	74	
19	17.6	32	
20	0.678	1	

Kat No	E _{H(KAT)}	Eh / m	Zemin Tipi
1	44.7	8	2
2	21.3	38	
3	15.4	28	
4	9.88	18	
5	4.72	9	
6	3.03	5	
7	2.57	5	
8	2.1	4	
9	1.58	3	
10	1.21	2	
11	1.59	3	
12	1.24	2	
13	0.725	1	
14	0.669	1	
15	0.727	1	
16	0.607	1	
17	1.95	4	
18	1.22	2	
19	1.16	2	
20	0.005	0	

Kat No	E _{H(KAT)}	Eh / m	Zemin Tipi
1	145	261	2
2	93.3	168	
3	73.2	132	
4	54.6	98	
5	28.3	51	
6	16.2	29	
7	10.9	20	
8	7.98	14	
9	6.47	12	
10	4.99	9	
11	5.69	10	
12	5.77	10	
13	5.39	10	
14	5.82	10	
15	5.52	10	
16	5.32	10	
17	15.6	28	
18	12	22	
19	8.76	16	
20	0.103	0	

Kat No	E _{H(KAT)}	Eh / m	Zemin Tipi
1	287	517	2
2	210	378	
3	174	314	
4	134	24	
5	77.1	139	
6	46.8	84	
7	29.4	53	
8	20.2	36	
9	13.9	25	
10	11.4	21	
11	13.7	25	
12	17.2	31	
13	19.9	36	
14	19.2	35	
15	16.8	30	
16	14.8	27	
17	34.5	62	
18	25.6	46	
19	18.9	34	
20	0.474	1	

0,4g

Kat No	E _{H(KAT)}	Eh / m	Zemin Tipi
1	101	182	3
2	121	218	
3	120	216	
4	88.6	160	
5	62.2	112	
6	37.7	68	
7	21.3	38	

0,6g

Kat No	E _{H(KAT)}	Eh / m	Zemin Tipi
1	240	432	3
2	282	508	
3	282	508	
4	221	398	
5	162	292	
6	108	195	
7	66.9	121	

0,8g

Kat No	E _{H(KAT)}	Eh / m	Zemin Tipi
1	430	775	3
2	494	890	
3	491	885	
4	394	710	
5	302	544	
6	208	375	
7	133	240	

8	13.4	24	
9	10.2	18	
10	9.4	17	
11	12.1	22	
12	12.5	23	
13	10.8	19	
14	6.07	11	
15	5.57	10	
16	6.05	11	
17	10.2	18	
18	5.53	10	
19	2.12	4	
20	0.191	2	

8	43.1	78	
9	30.1	54	
10	26.2	47	
11	27.6	50	
12	27.1	49	
13	23.6	43	
14	16.5	30	
15	13.1	24	
16	12.4	22	
17	23.4	42	
18	16.5	30	
19	6.38	11	
20	0.301	1	

8	90.2	163	
9	63.4	114	
10	50.3	91	
11	47.6	86	
12	45.1	81	
13	40.1	72	
14	28	50	
15	22.7	41	
16	21.3	38	
17	37.6	68	
18	26.7	48	
19	11.9	21	
20	0.611	1	

EK-7 1.YSA Modelinden Elde Edilen E_H/m Değerleri Çıktı Dosyası ve Grafikleri

1.YSA modelinden elde edilen çıktı değerlerinin düzenlenmiş hali.

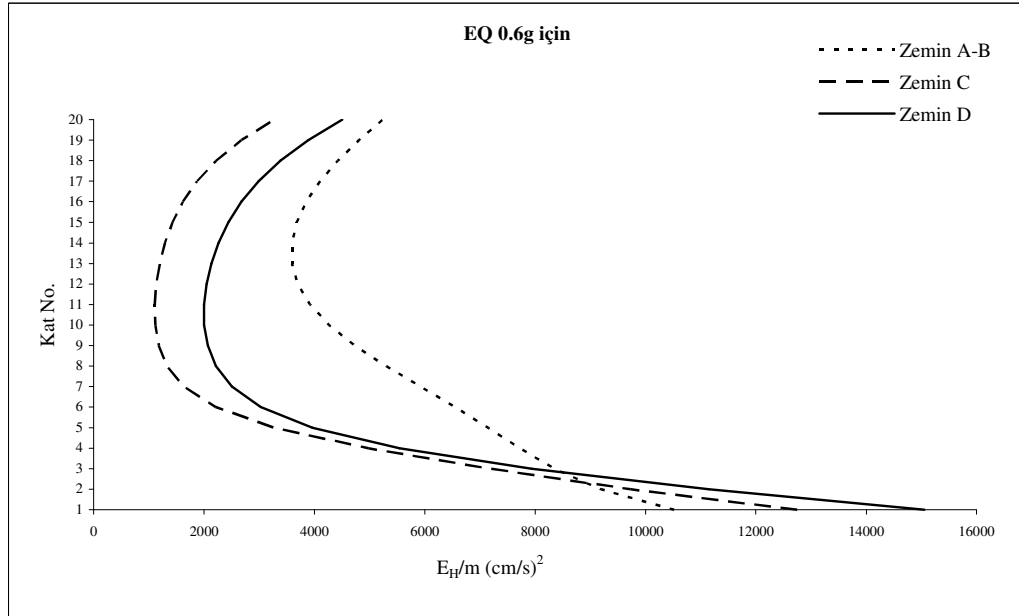
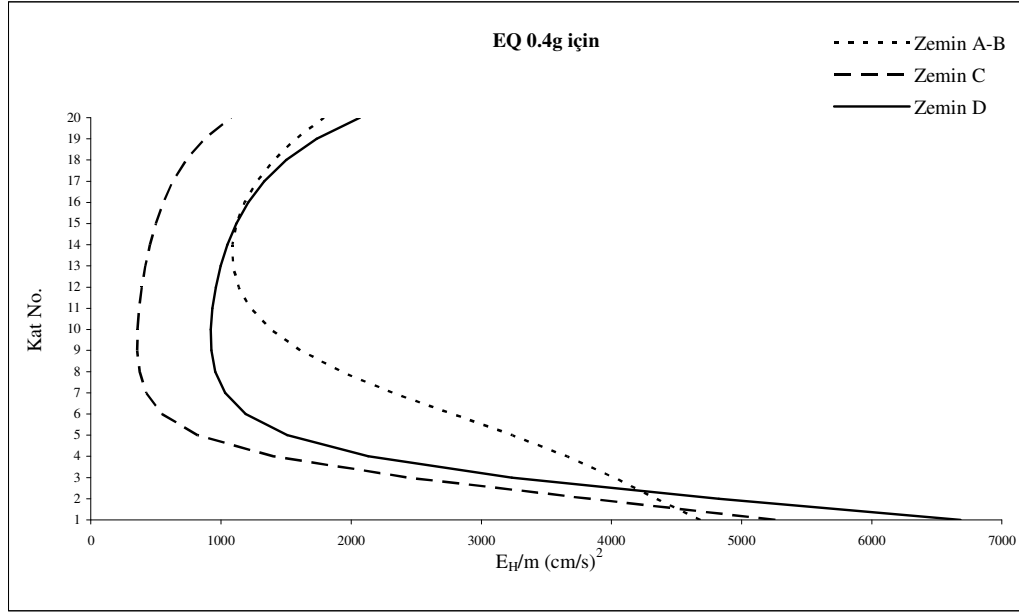
0.4g	A&B		C		D	
	Kat no.	E_H/m	Kat no.	E_H/m	Kat no.	E_H/m
	1	4683.86286	1	5261.485561	1	6680.630693
	2	4346.324057	2	3841.745032	2	4825.402401
	3	4024.987622	3	2447.872556	3	3232.933721
	4	3662.31551	4	1399.40571	4	2131.083932
	5	3241.003236	5	820.0601622	5	1507.72976
	6	2781.306928	6	547.4701835	6	1188.534217
	7	2328.983396	7	425.6927197	7	1030.956991
	8	1930.764882	8	374.0959643	8	956.4184916
	9	1613.912918	9	356.6901352	9	926.1799806
	10	1382.861305	10	357.640235	10	921.6195014
	11	1227.919022	11	369.902857	11	933.9454633
	12	1135.024594	12	390.4376816	12	959.4461431
	13	1091.472017	13	418.319945	13	997.3107888
	14	1087.937646	14	453.955023	14	1048.882208
	15	1118.746217	15	498.9770876	15	1117.530089
	16	1181.465474	16	556.439126	16	1209.005702
	17	1276.424786	17	631.5603535	17	1332.353997
	18	1406.373109	18	732.8029927	18	1501.243745
	19	1576.187621	19	873.9244893	19	1735.95641
	20	1792.493685	20	1077.22052	20	2065.501707

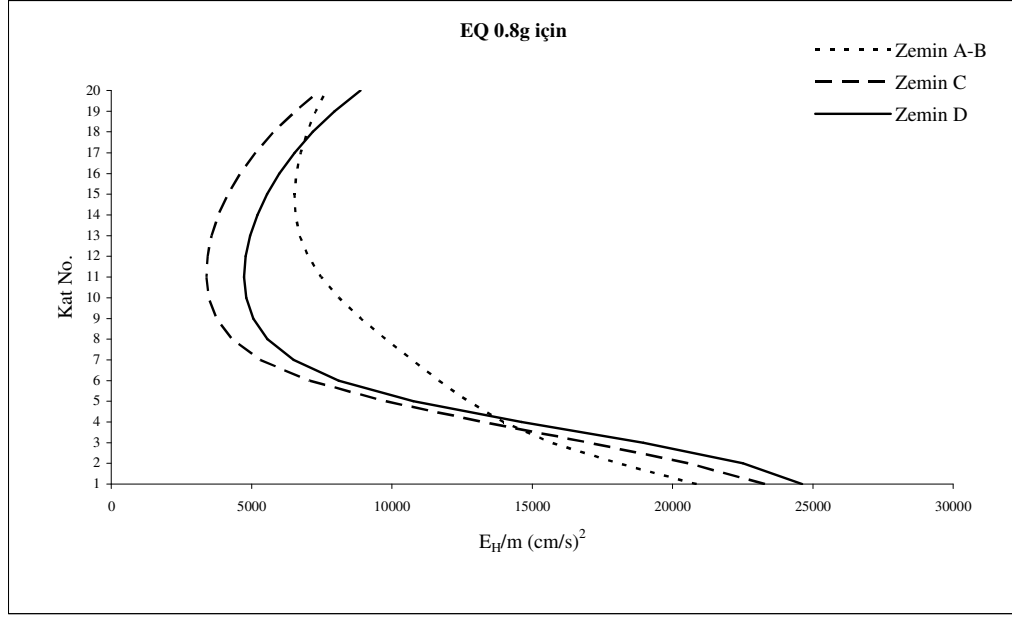
0.6g	A&B		C		D	
	Kat no.	E_H/m	Kat no.	E_H/m	Kat no.	E_H/m
	1	10519.35076	1	12752.31341	1	15056.45754
	2	9196.773771	2	9733.504174	2	11140.69072
	3	8361.95271	3	7201.336078	3	7939.246956
	4	7730.73171	4	4982.903619	4	5545.603417
	5	7151.740867	5	3282.275573	5	3966.942856
	6	6554.73613	6	2217.669698	6	3029.536347
	7	5928.594998	7	1635.055807	7	2502.408287
	8	5305.595529	8	1333.532121	8	2214.566039
	9	4737.486496	9	1184.062414	9	2066.135107
	10	4268.909921	10	1119.911672	10	2003.897234
	11	3922.896227	11	1108.966522	11	2000.920254
	12	3701.941008	12	1136.785446	12	2044.675519
	13	3596.897969	13	1198.478595	13	2131.071264
	14	3595.187789	14	1295.097415	14	2261.526307
	15	3685.307926	15	1432.456517	15	2441.715909
	16	3858.175426	16	1621.057669	16	2680.887709
	17	4106.759548	17	1876.583855	17	2991.532354
	18	4424.865643	18	2220.228634	18	3388.610748
	19	4806.147044	19	2677.936066	19	3888.223917
	20	5243.674355	20	3276.752326	20	4505.62413

0.8g	A&B		C		D	
	Kat no.	E_H/m	Kat no.	E_H/m	Kat no.	E_H/m
	1	20855.60095	1	23295.82472	1	24615.14603
	2	18056.32812	2	20581.78218	2	22498.37425
	3	15696.8375	3	17054.45417	3	18958.20089
	4	13983.13608	4	13261.23756	4	14612.74825
	5	12722.12557	5	9766.136936	5	10766.51606
	6	11682.50099	6	7073.76934	6	8103.53822
	7	10719.40378	7	5323.862782	7	6487.393053
	8	9783.796125	8	4305.077055	8	5560.767011
	9	8897.707677	9	3751.206851	9	5052.792963
	10	8114.280683	10	3480.061024	10	4804.386192

11	7479.753336	11	3390.168911	11	4729.492989
12	7014.343761	12	3430.009765	12	4783.116624
13	6713.630827	13	3575.818421	13	4942.796737
14	6559.119257	14	3818.993308	14	5198.512943
15	6527.943314	15	4158.964368	15	5547.098241
16	6598.592738	16	4598.746583	16	5989.363384
17	6753.750377	17	5141.760312	17	6529.248118
18	6982.027699	18	5790.463149	18	7175.468027
19	7280.409721	19	6548.655491	19	7947.481154
20	7659.094182	20	7430.576168	20	8887.193238

EQ 0.4g, 0.6g ve 0.8g için E_H/m – Kat No. grafikleri.





EK-8 2.YSA Modeli İçin $E_{H(KAT)}/E_H$ Değerleri.

3- katlı yapının $E_{H(KAT)}/E_H$ değerleri.

$\ddot{u}_{g(max)} = 0.4g$									
Kat No	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi
1	320283.31	0.522	1	294405.70	0.498	2	455796.52	0.537	3
2	223404.57	0.364		220163.25	0.372		294173.97	0.347	
3	69981.41	0.114		77191.79	0.130		98396.93	0.116	
Toplam	613669.29			591760.74			848367.42		

$\ddot{u}_{g(max)} = 0.6g$									
Kat No	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi
1	826443.54	0.512	1	784779.73	0.474	2	1048863.63	0.510	3
2	564657.91	0.350		601886.26	0.364		714378.99	0.347	
3	223869.81	0.139		268246.44	0.162		294833.63	0.143	
Toplam	1614971.26			1654912.43			2058076.24		

$\ddot{u}_{g(max)} = 0.8g$									
Kat No	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi
1	1480410.31	0.498	1	1488936.30	0.472	2	1834040.60	0.505	3
2	1021222.64	0.344		1115517.20	0.354		1226213.07	0.338	
3	469147.47	0.158		549627.03	0.174		570274.16	0.157	
Toplam	2970780.42			3154080.53			3630527.82		

9- katlı yapının $E_{H(KAT)}/E_H$ değerleri.

$\ddot{u}_{g(max)} = 0.4g$									
Kat No	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi
1	165234.92	0.209	1	34410.07	0.186	2	75225.96	0.201	3
2	131992.27	0.167		28754.58	0.156		48760.08	0.130	
3	139094.87	0.176		33089.79	0.179		58474.93	0.156	
4	105663.95	0.134		27282.76	0.148		56325.36	0.151	
5	56569.02	0.072		15396.20	0.083		34499.96	0.092	
6	43606.32	0.055		7904.32	0.043		23267.39	0.062	
7	86132.93	0.109		18469.16	0.100		42458.37	0.114	
8	52963.67	0.067		17073.47	0.093		29739.50	0.080	
9	8402.04	0.011		2161.16	0.012		5121.41	0.014	
Toplam	789659.99			184541.51			373872.96		

$\ddot{u}_{g(max)} = 0.6g$									
Kat No	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi
1	499064.52	0.231	1	100044.48	0.180	2	215297.11	0.203	3
2	375874.62	0.174		76766.29	0.138		145038.20	0.137	
3	361262.20	0.167		88454.75	0.159		172490.75	0.163	
4	299382.66	0.139		79145.01	0.142		162074.05	0.153	
5	185357.65	0.086		46058.47	0.083		102573.04	0.097	
6	124588.36	0.058		29889.44	0.054		67405.96	0.064	
7	182579.83	0.084		65430.81	0.118		105684.43	0.100	
8	111738.97	0.052		58679.13	0.105		75796.48	0.071	
9	21282.17	0.010		11744.54	0.021		13887.87	0.013	
Toplam	2161130.99			556212.92			1060247.88		

$\ddot{u}_{g(max)} = 0.8g$									
Kat No	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi
1	1066772.50	0.262	1	210500.04	0.189	2	433685.30	0.220	3
2	718409.80	0.177		151810.94	0.136		293503.42	0.149	
3	651279.54	0.160		163586.38	0.147		318615.70	0.162	

4	548846.11	0.135		145588.00	0.131		293846.21	0.149	
5	357579.68	0.088		97882.82	0.088		186417.29	0.095	
6	237715.25	0.058		69439.55	0.062		128507.17	0.065	
7	272379.67	0.067		129738.24	0.116		168633.02	0.086	
8	171753.26	0.042		116981.90	0.105		119825.74	0.061	
9	40407.92	0.010		29822.32	0.027		28356.89	0.014	
Toplam	4065143.73			1115350.20			1971390.75		

20- katlı yapının $E_{H(KAT)}/E_H$ değerleri.

$\ddot{u}_{g(max)} = 0.4g$									
Kat No	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi
1	125848.13	0.153	1	92081.62	0.155	2	148226.99	0.146	3
2	126773.58	0.154		97742.17	0.164		154781.82	0.153	
3	117955.02	0.143		90578.08	0.152		152667.70	0.151	
4	98649.68	0.120		74780.11	0.126		134956.62	0.133	
5	70791.39	0.086		47479.83	0.080		100409.95	0.099	
6	43921.65	0.056		30810.29	0.052		64784.07	0.064	
7	27979.23	0.034		21711.06	0.037		38876.91	0.038	
8	18212.95	0.022		17939.26	0.030		23339.75	0.023	
9	14894.13	0.018		15737.06	0.026		16527.51	0.016	
10	15306.18	0.019		14944.53	0.025		14795.86	0.015	
11	20602.51	0.025		18204.60	0.031		20051.83	0.020	
12	21491.78	0.026		17106.20	0.029		21657.81	0.021	
13	21062.41	0.026		13649.11	0.023		20286.51	0.020	
14	19467.76	0.024		9551.36	0.016		18215.21	0.018	
15	16845.52	0.020		7440.55	0.013		17054.78	0.017	
16	15197.51	0.018		6018.34	0.010		16527.47	0.016	
17	23530.95	0.029		8969.34	0.015		27278.40	0.027	
18	15423.84	0.019		5283.40	0.009		14482.10	0.014	
19	7732.51	0.009		4097.53	0.007		7834.61	0.008	
20	536.49	0.001		243.25	0.000		1086.60	0.001	
Toplam	824223.23			594367.72			1013842.49		

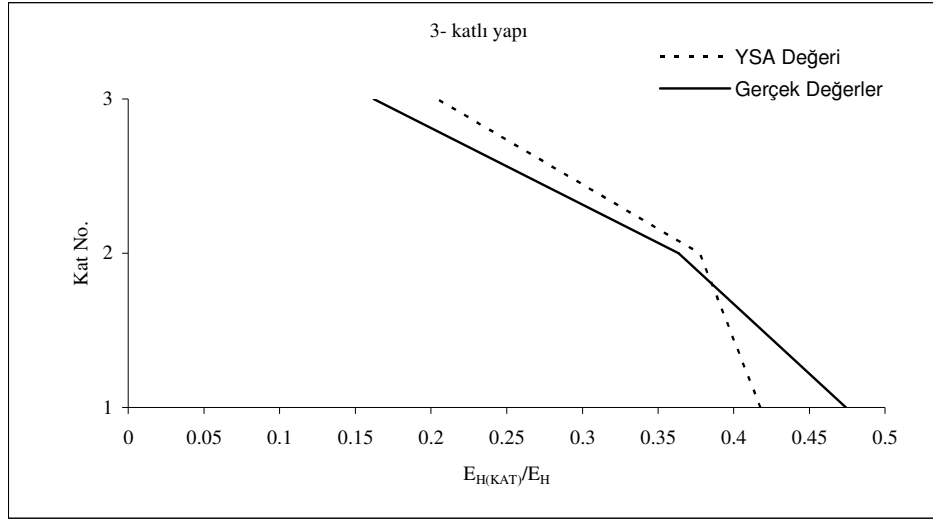
$\ddot{u}_{g(max)} = 0.6g$									
Kat No	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi
1	358619.90	0.160	1	262757.96	0.152	2	356659.06	0.144	3
2	320974.53	0.143		272047.25	0.157		357655.45	0.145	
3	306582.10	0.137		251815.85	0.146		358613.19	0.145	
4	266065.72	0.119		214926.74	0.124		323823.64	0.131	
5	192252.51	0.086		150620.94	0.087		250010.80	0.101	
6	134577.38	0.060		102312.67	0.059		170498.85	0.069	
7	95962.18	0.043		70468.32	0.041		108527.48	0.044	
8	67789.27	0.030		51405.22	0.030		67136.86	0.027	
9	49283.88	0.022		41882.29	0.024		44684.63	0.018	
10	43385.00	0.019		35673.50	0.021		37734.69	0.015	
11	52057.48	0.023		39655.64	0.023		46724.21	0.019	
12	56727.95	0.025		38209.70	0.022		49827.30	0.020	
13	56003.77	0.025		32836.57	0.019		46699.58	0.019	
14	44956.49	0.020		24701.35	0.014		43034.19	0.017	
15	36578.24	0.016		19342.63	0.011		37213.25	0.015	
16	33176.75	0.015		17676.74	0.010		35848.41	0.015	
17	56923.79	0.025		40856.83	0.024		65136.20	0.026	
18	44317.94	0.020		30970.96	0.018		42857.62	0.017	
19	25670.21	0.011		29587.33	0.017		25818.96	0.010	
20	1469.49	0.001		934.65	0.001		1989.11	0.001	
Toplam	2243374.59			1728683.13			2470493.49		

$\ddot{u}_{g(max)} = 0.8g$									
Kat No	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi	$E_{H(KAT)}$	$E_{H(KAT)}/E_H$	Zemin Tipi
1	718567.01	0.170	1	524617.35	0.153	2	704130.10	0.157	3

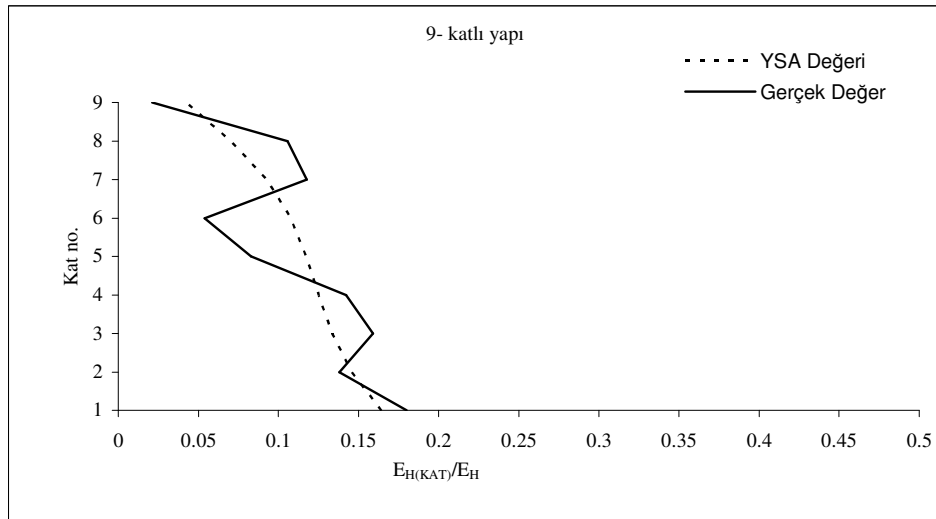
2	584625.33	0.138		519628.69	0.152		627436.20	0.140	
3	567189.97	0.134		486500.85	0.142		624555.24	0.139	
4	496884.40	0.118		416552.85	0.122		570356.06	0.127	
5	377138.79	0.089		308160.40	0.090		453609.99	0.101	
6	267383.36	0.063		215318.31	0.063		315124.79	0.070	
7	195360.90	0.046		148914.25	0.043		212971.83	0.047	
8	145088.19	0.034		101798.77	0.030		139756.34	0.031	
9	108947.08	0.026		71579.44	0.021		93589.59	0.021	
10	90704.62	0.021		59979.04	0.018		73478.94	0.016	
11	98024.06	0.023		66994.13	0.020		83602.01	0.019	
12	96884.17	0.023		67616.82	0.020		86624.23	0.019	
13	88966.51	0.021		62892.57	0.018		82162.56	0.018	
14	71262.33	0.017		51118.75	0.015		71144.22	0.016	
15	55688.72	0.013		41538.92	0.012		58815.86	0.013	
16	50502.42	0.012		38131.73	0.011		59279.70	0.013	
17	94041.24	0.022		89754.62	0.026		107017.57	0.024	
18	69606.03	0.016		75023.30	0.022		73848.54	0.016	
19	45595.60	0.011		75077.06	0.022		54949.80	0.012	
20	2180.04	0.001		2526.26	0.001		3418.82	0.001	
Toplam	4224640.76			3423724.11			4495872.38		

EK-11 2.YSA Modeli 3-, 9- ve 20- Katlı Yapıların Gerçek ve Hesaplanmış Kat Histeretik Enerji Oranları Karşılaştırılması.

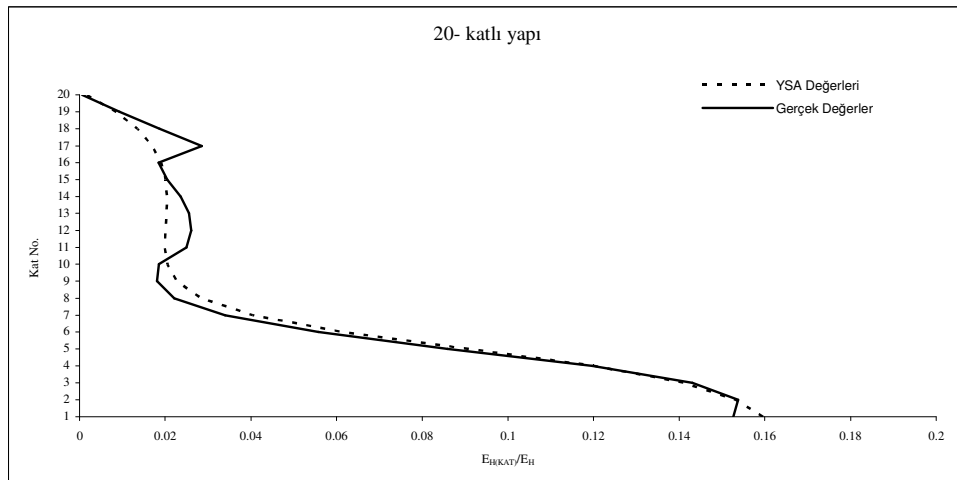
3- katlı yapı için Gerçek ve Hesaplanmış kat histeretik enerji oranları karşılaştırılması.



9- katlı yapı için Gerçek ve Hesaplanmış kat histeretik enerji oranları karşılaştırılması.

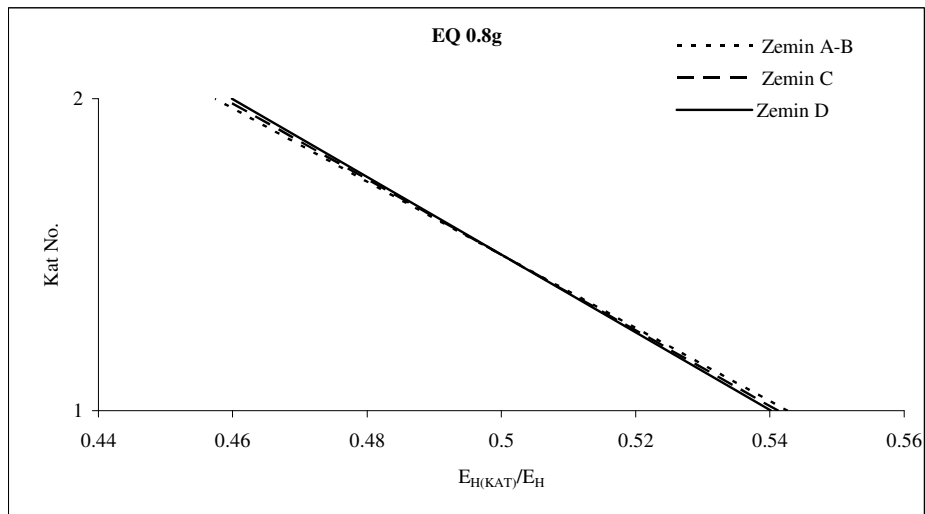
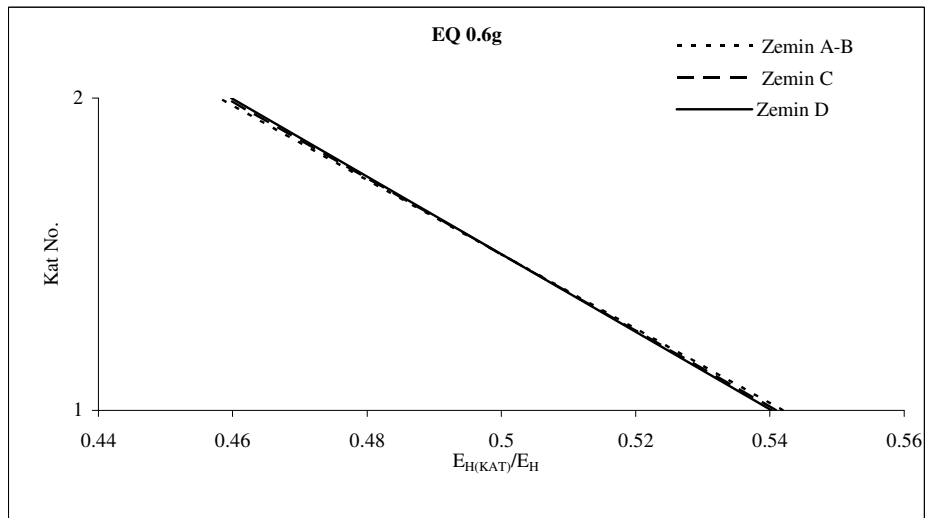
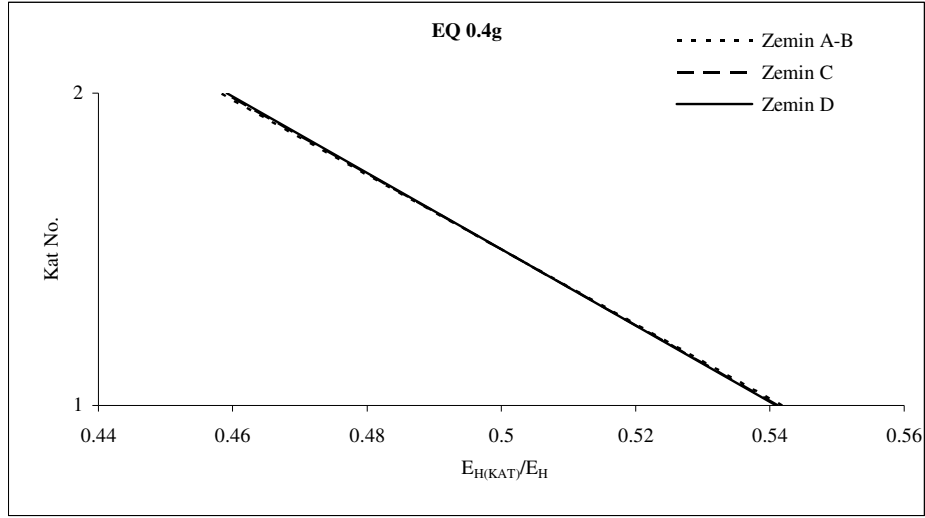


20- katlı yapı için Gerçek ve Hesaplanmış kat histeretik enerji oranları karşılaştırılması.

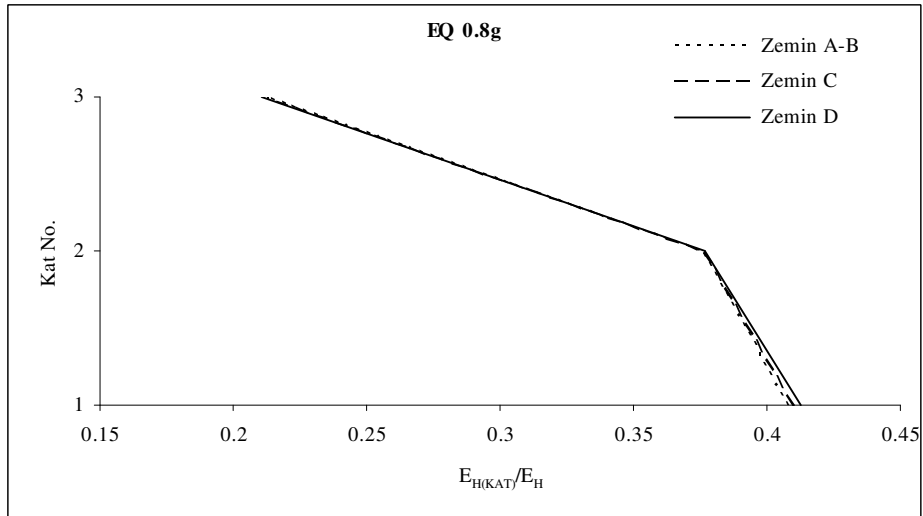
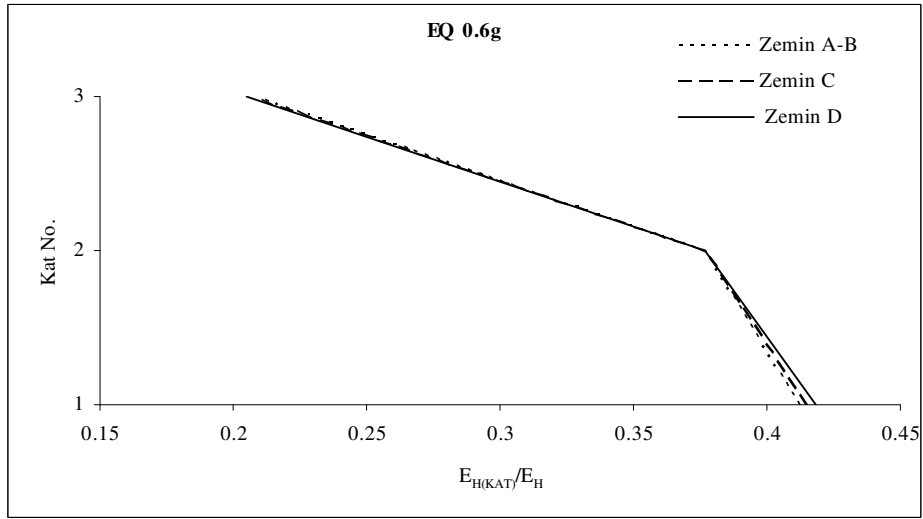
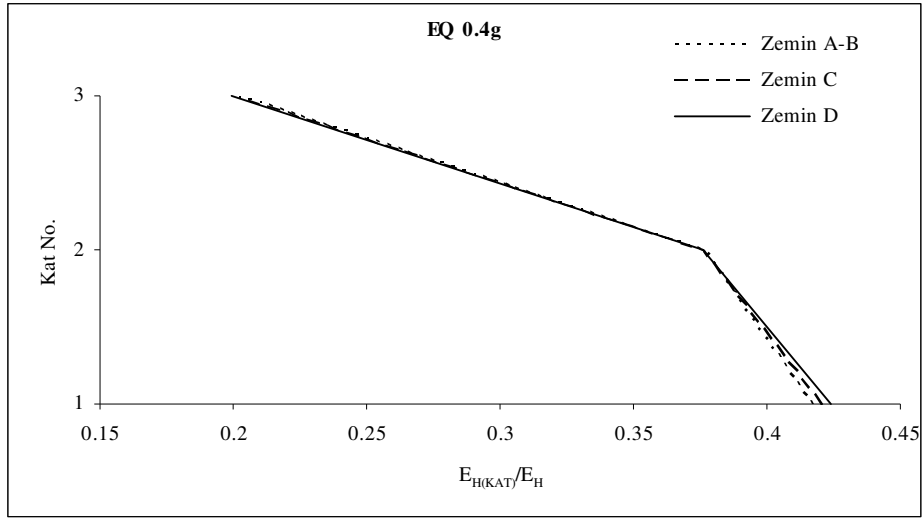


EK-12 2. YSA Modeli Katlara Göre Düzenlenmiş $E_{H(KAT)}/E_H$ Tabloları ve Grafikleri.

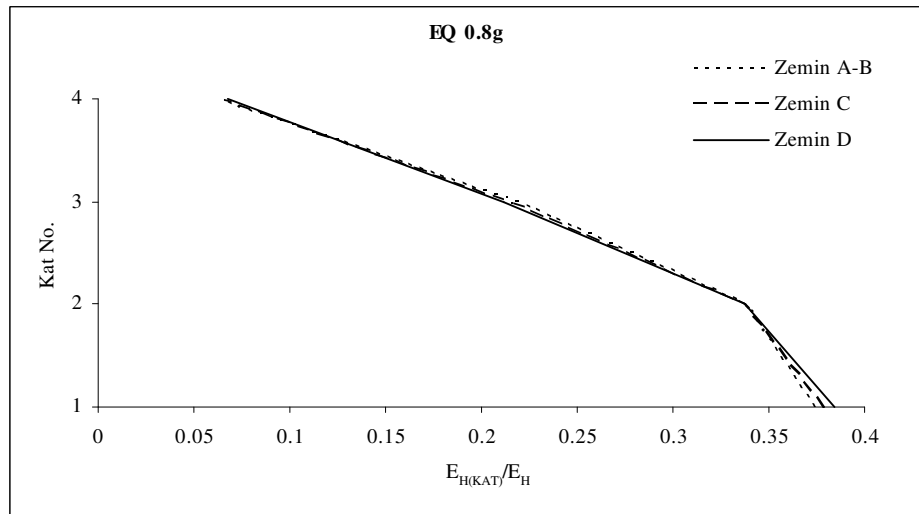
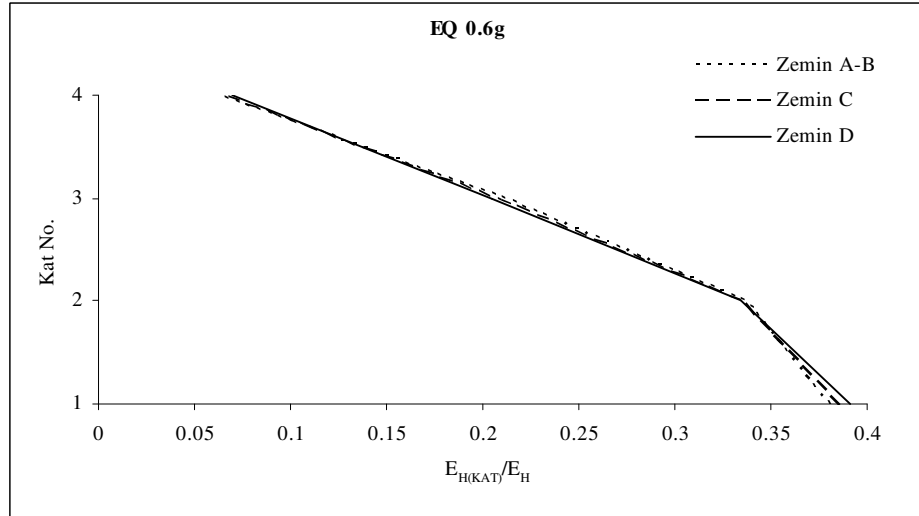
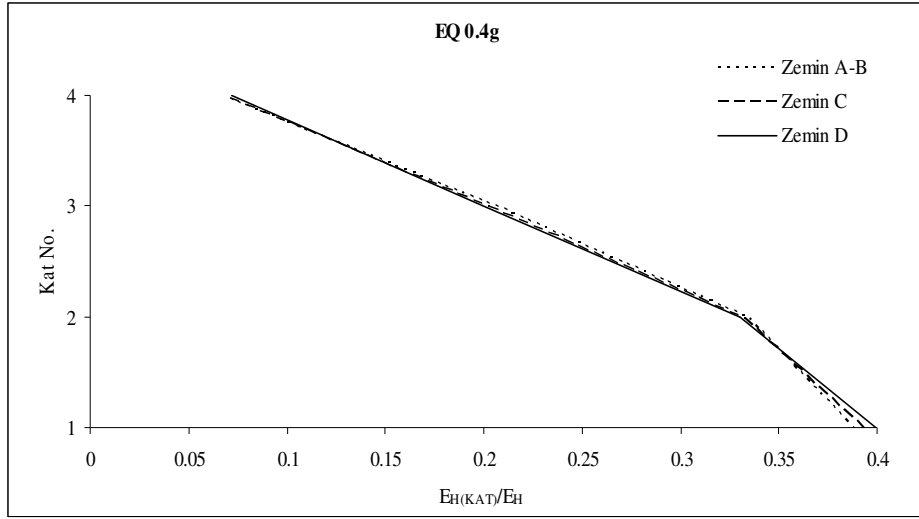
2 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



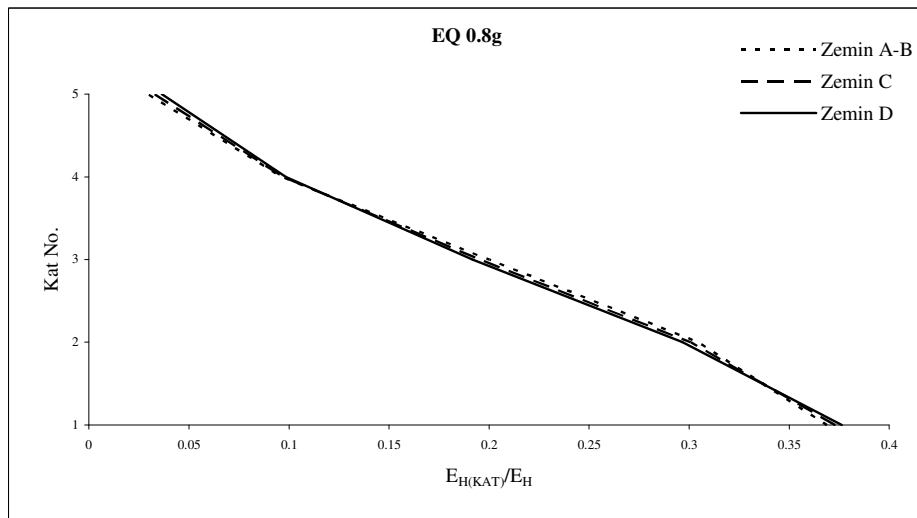
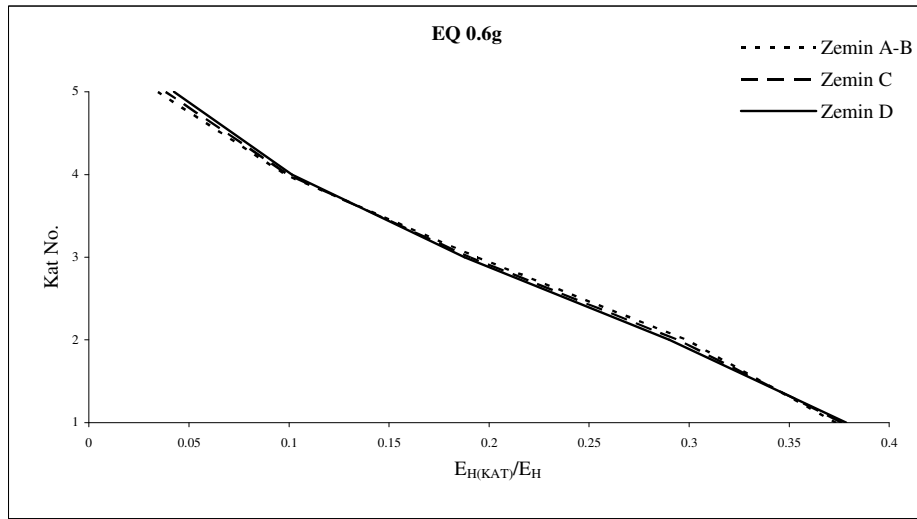
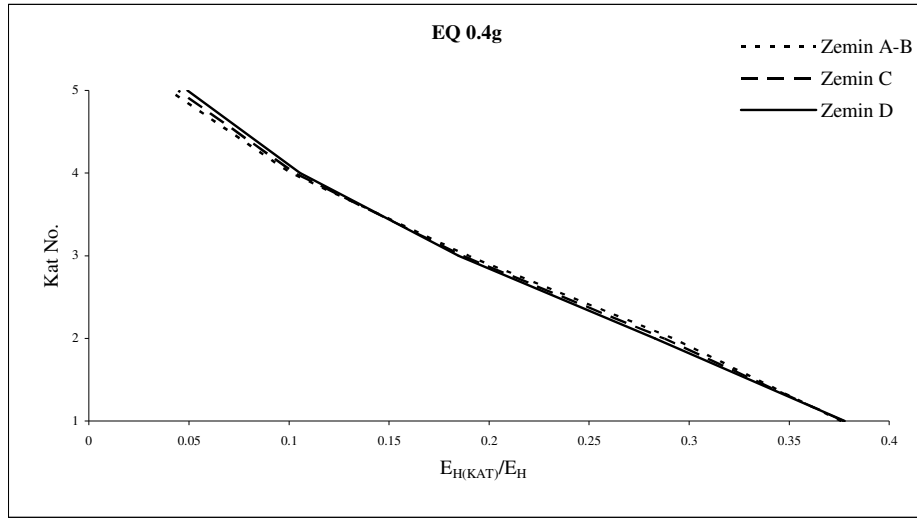
3 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



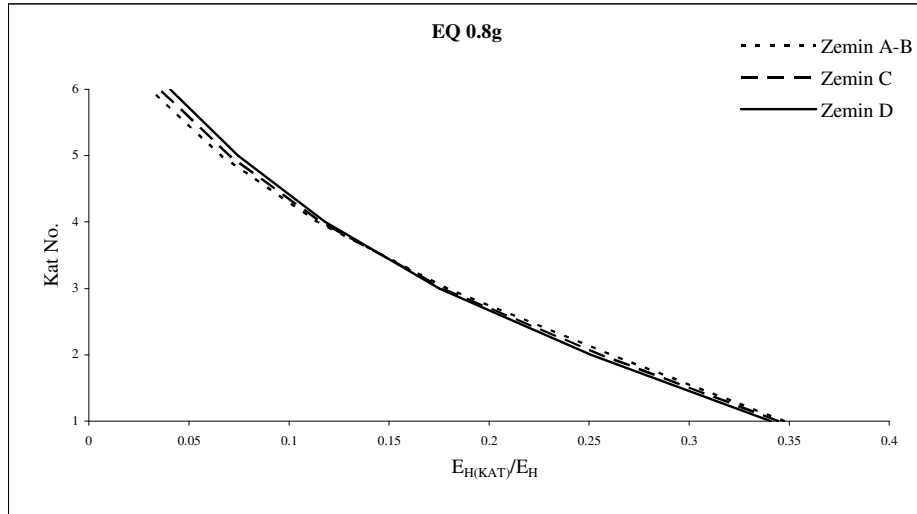
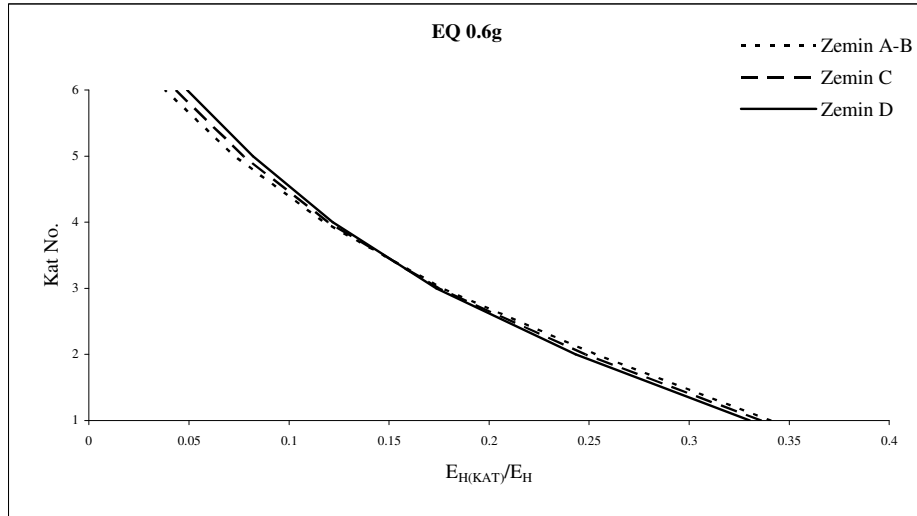
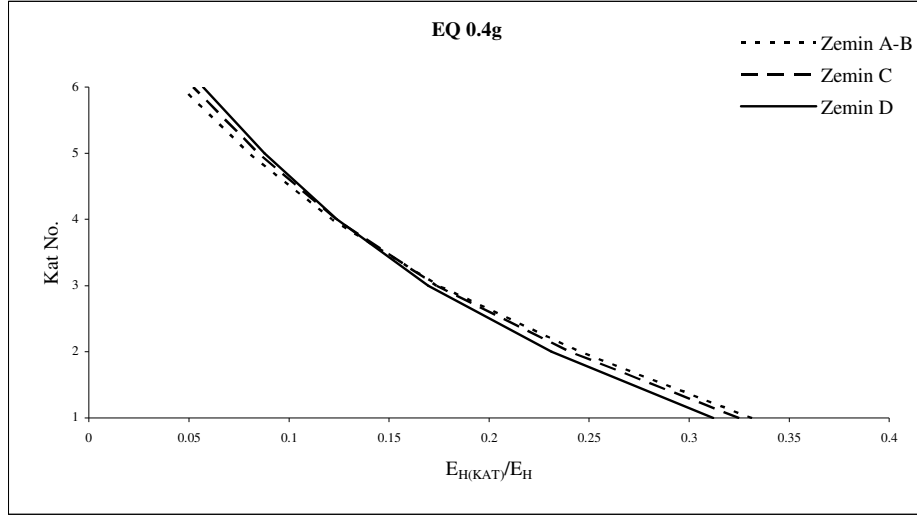
4 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



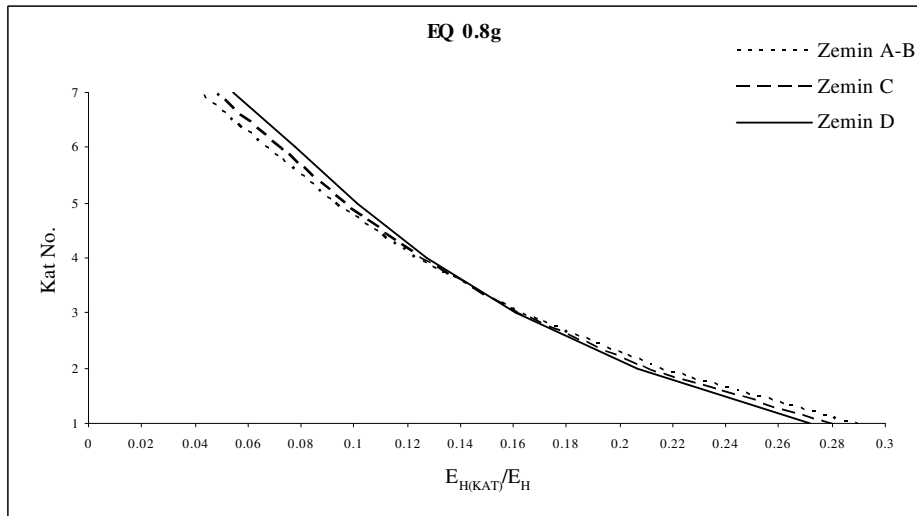
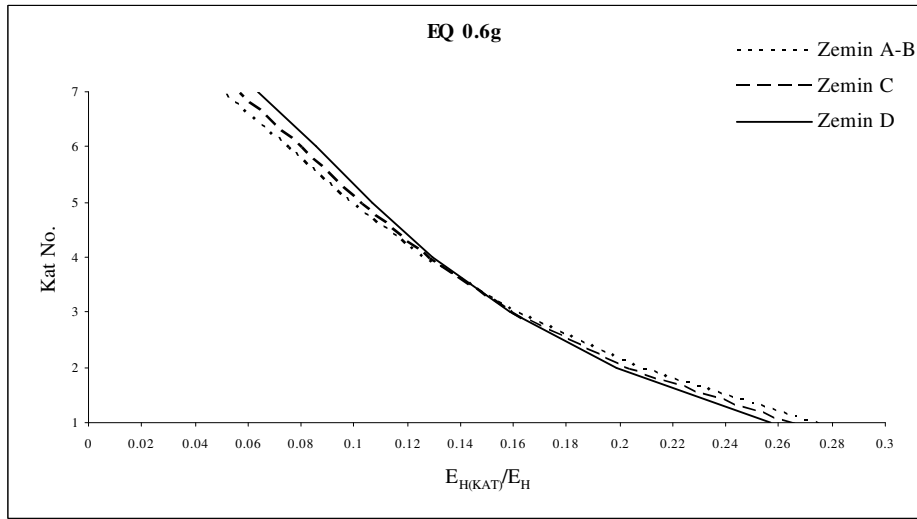
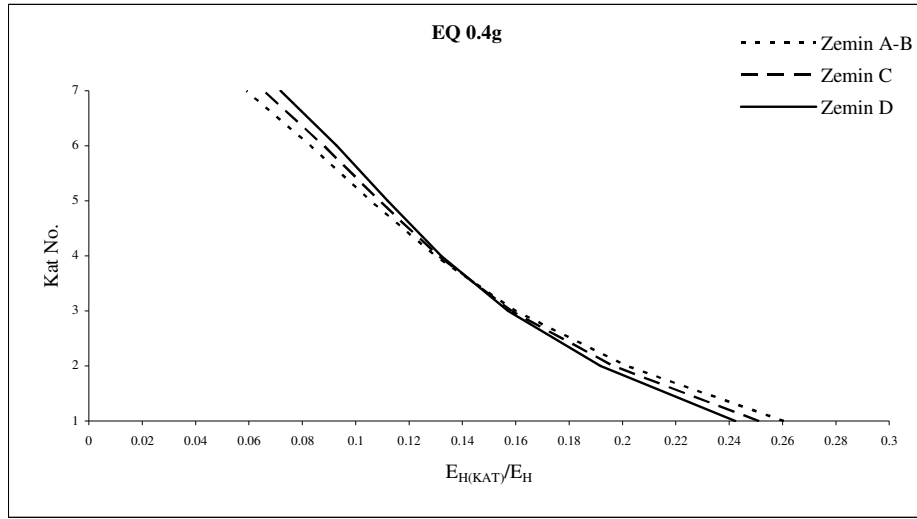
5 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



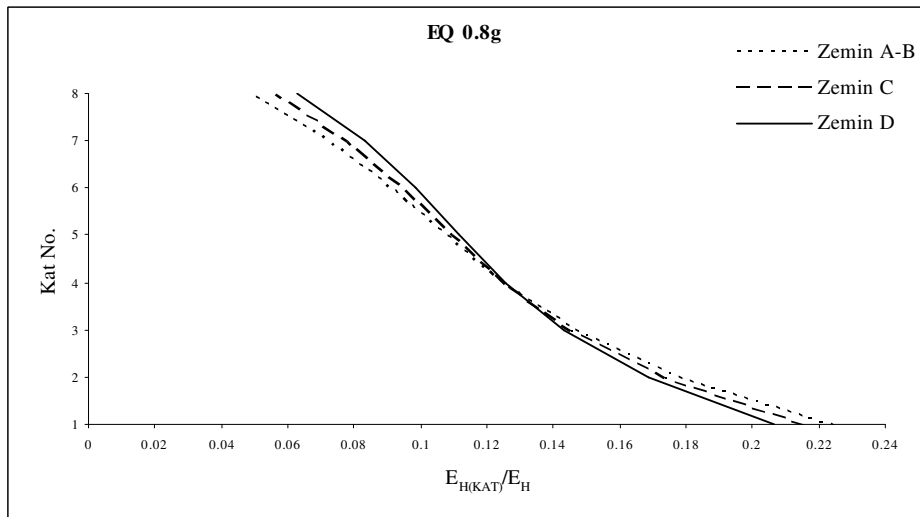
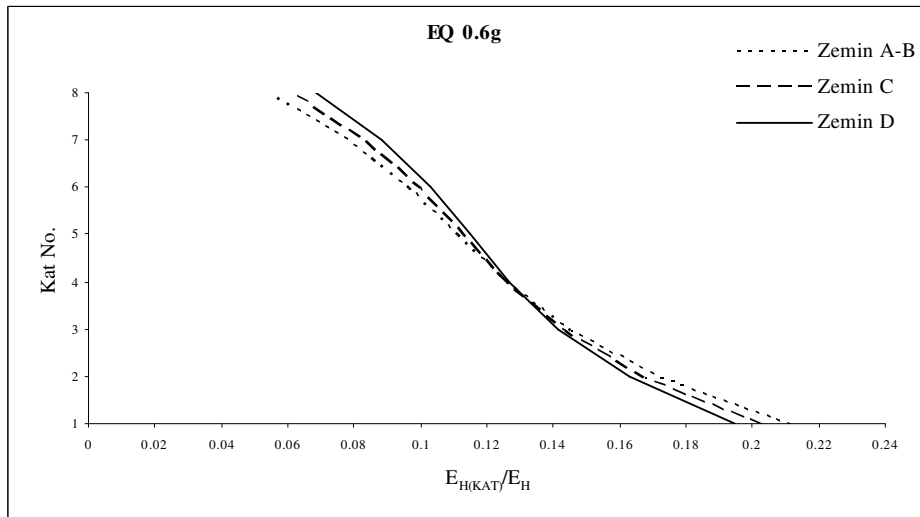
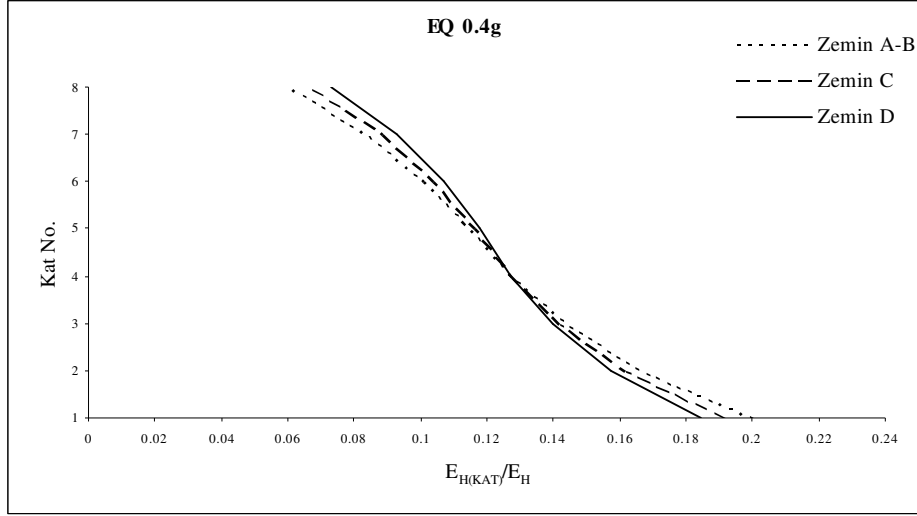
6 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



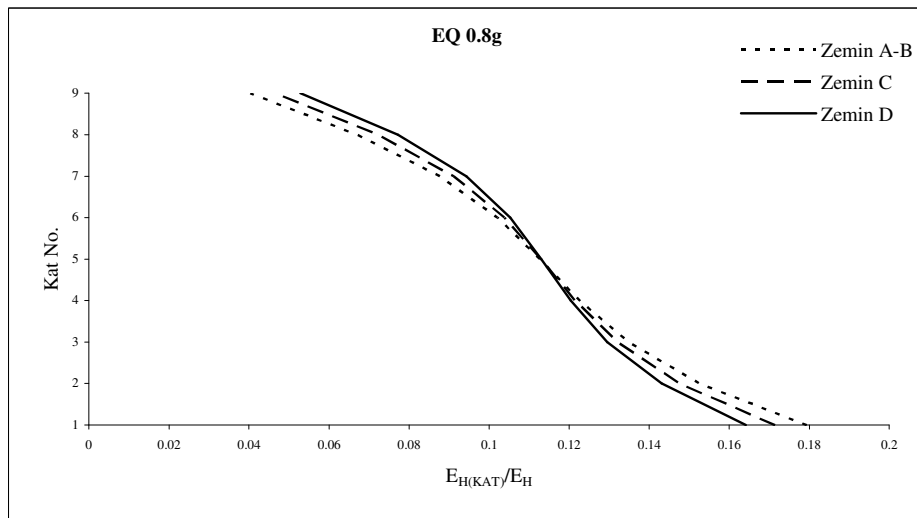
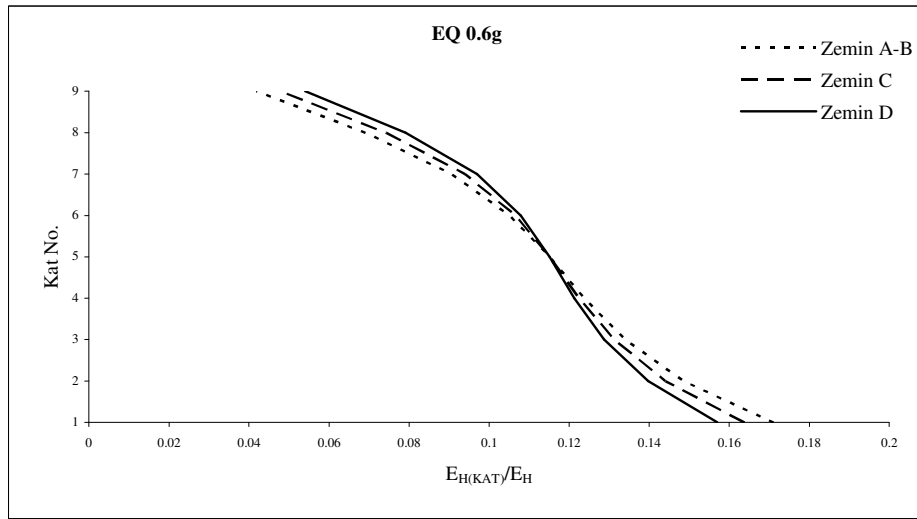
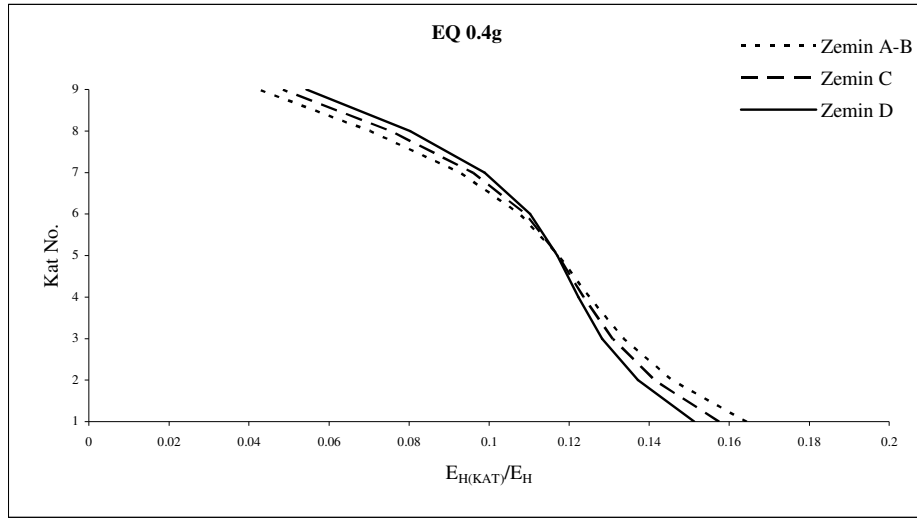
7 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



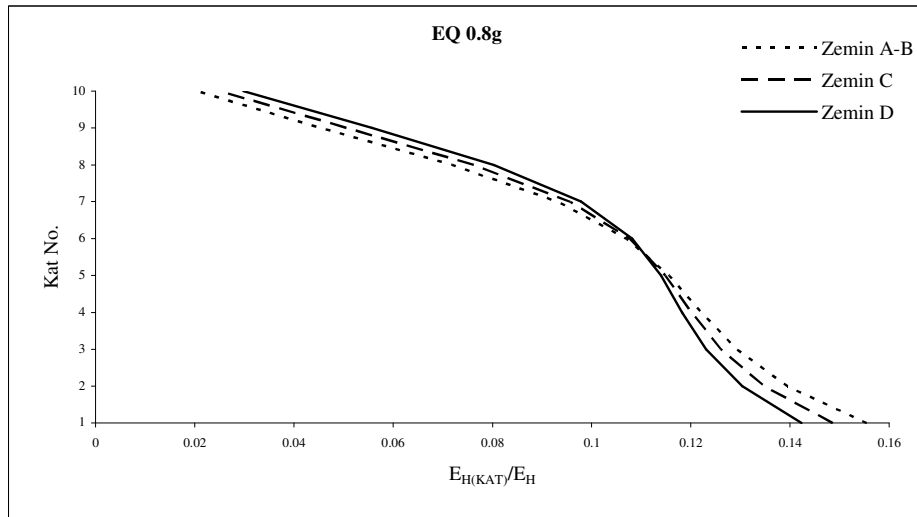
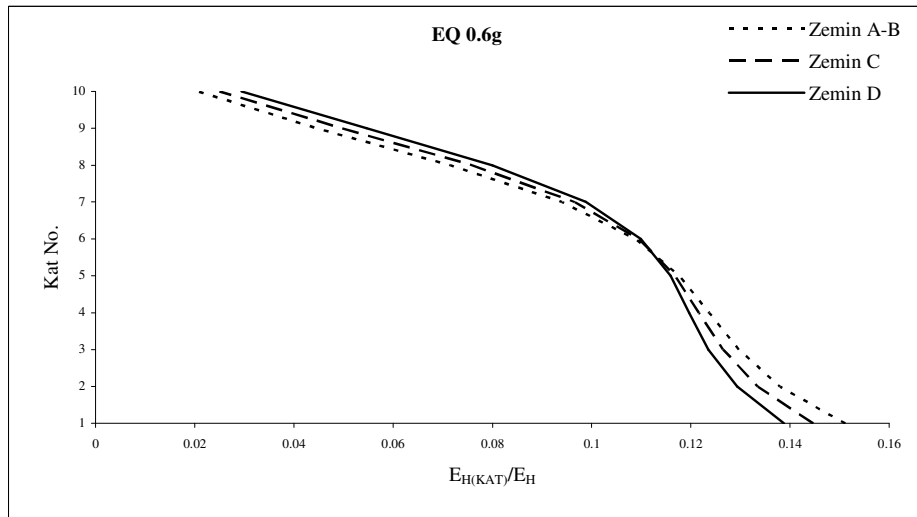
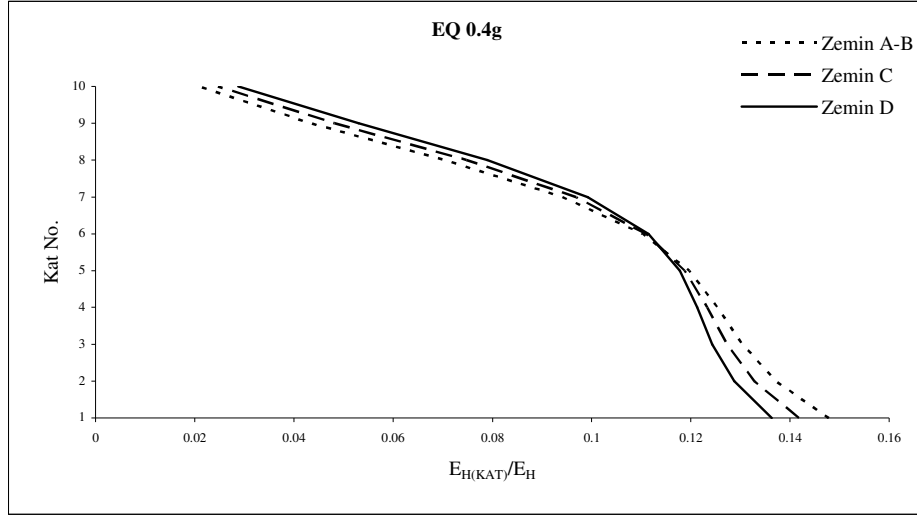
8 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



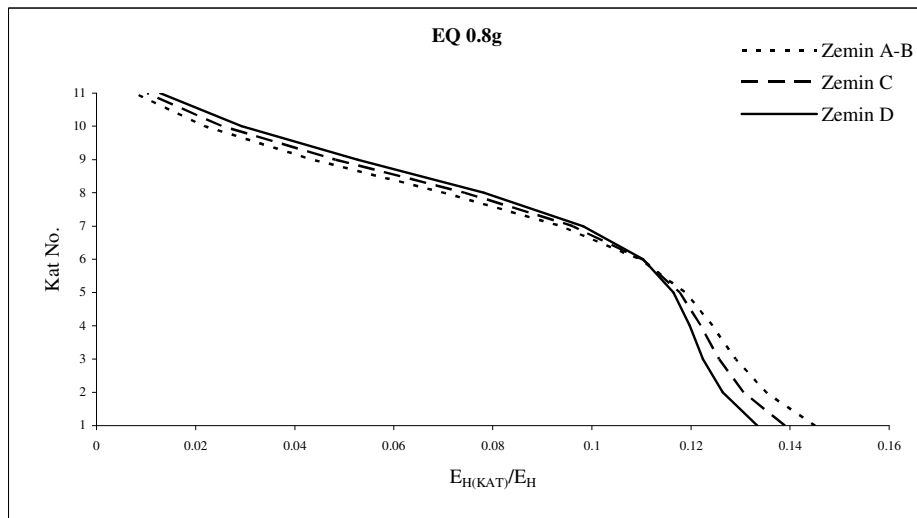
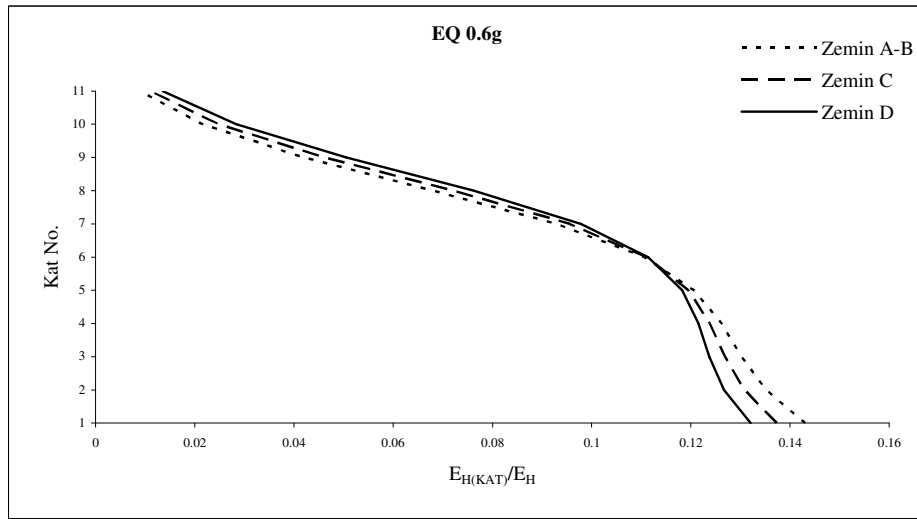
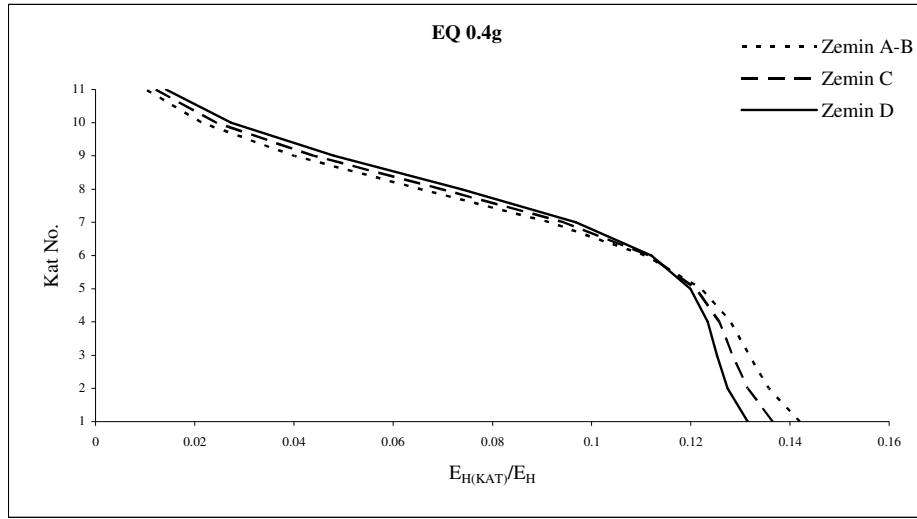
9 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



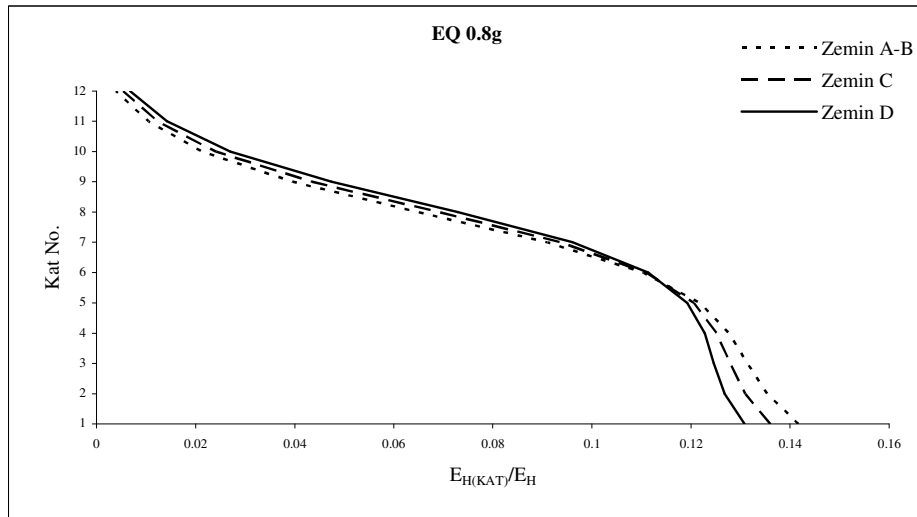
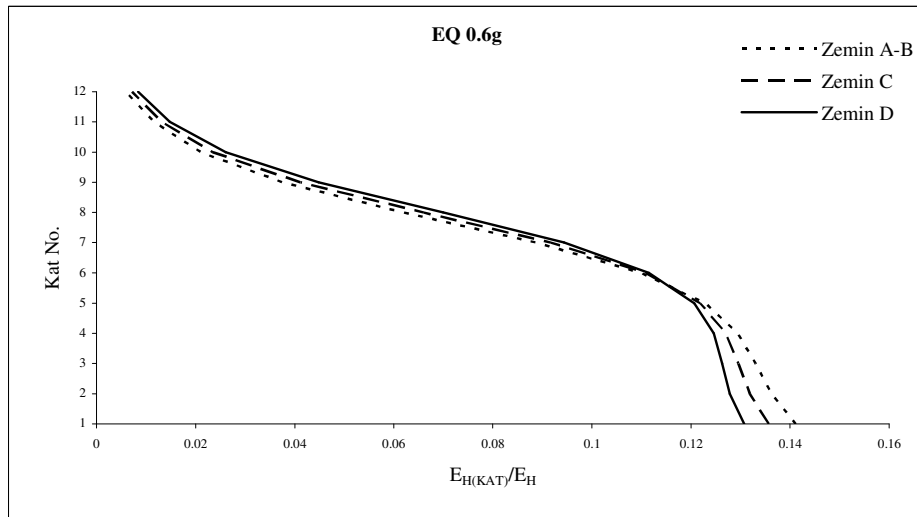
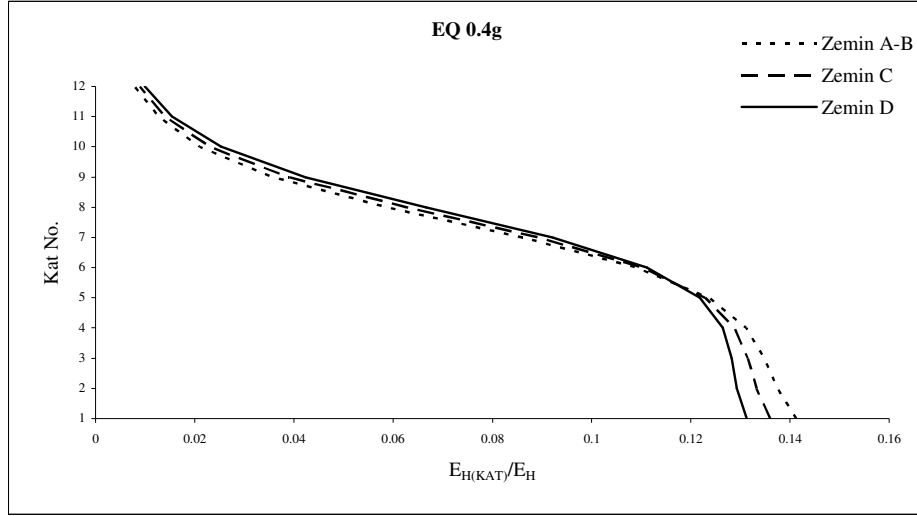
10 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



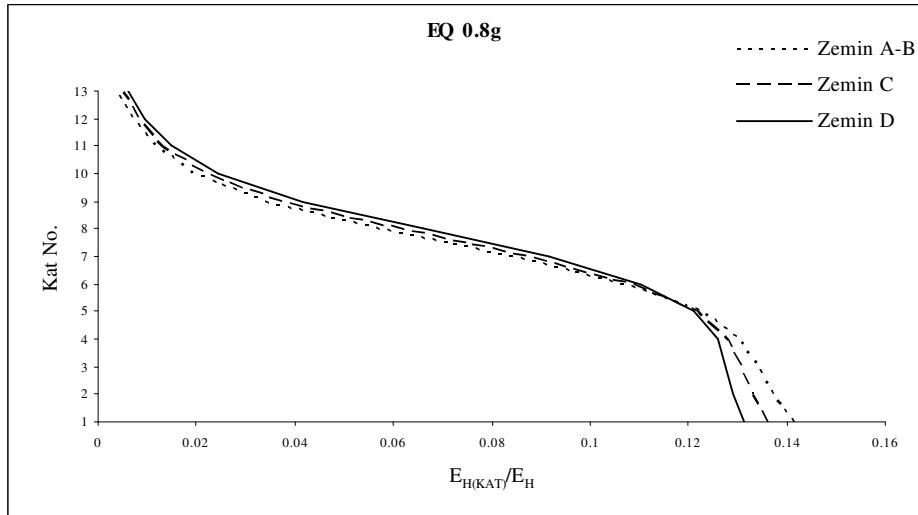
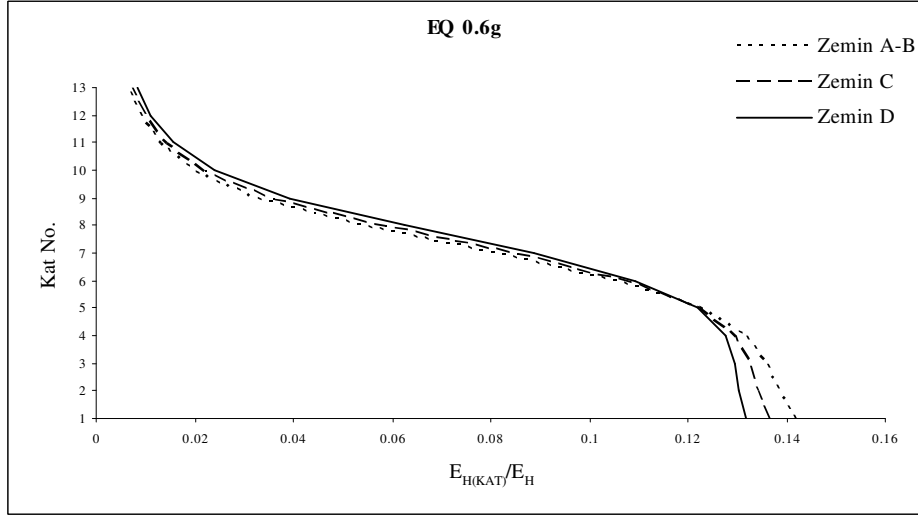
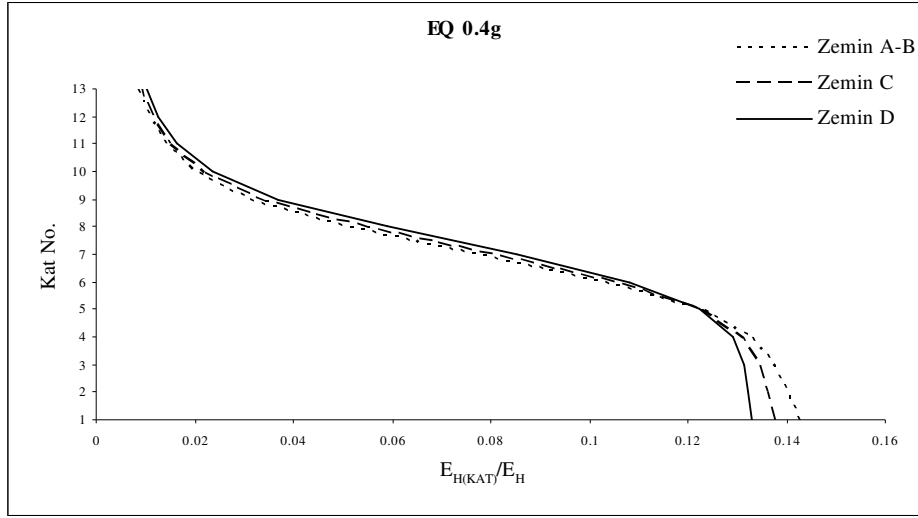
11 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



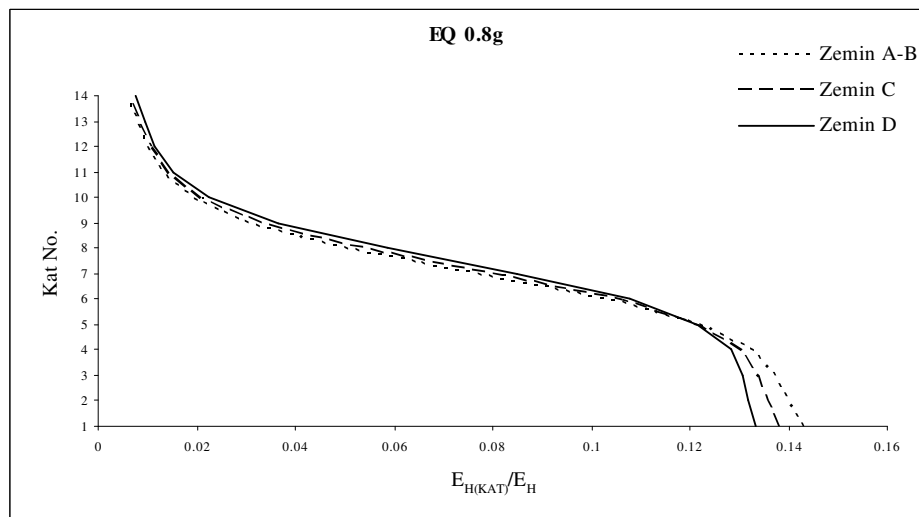
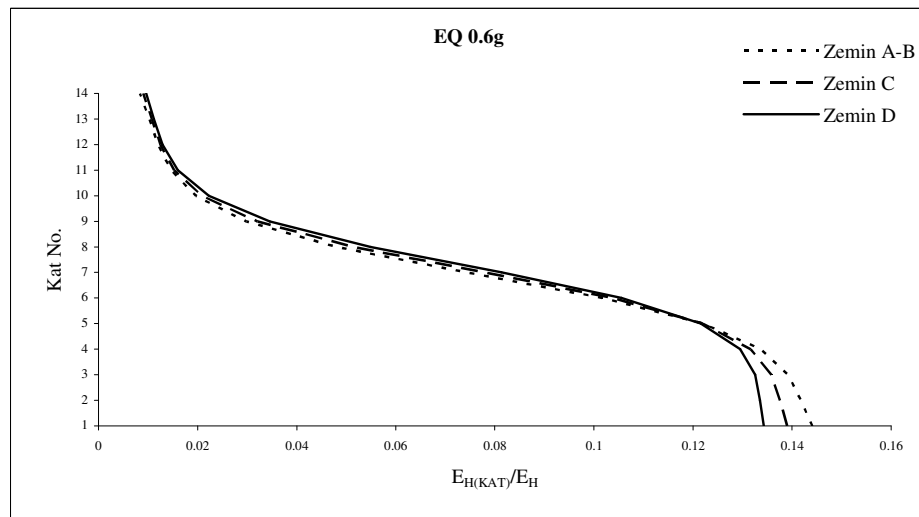
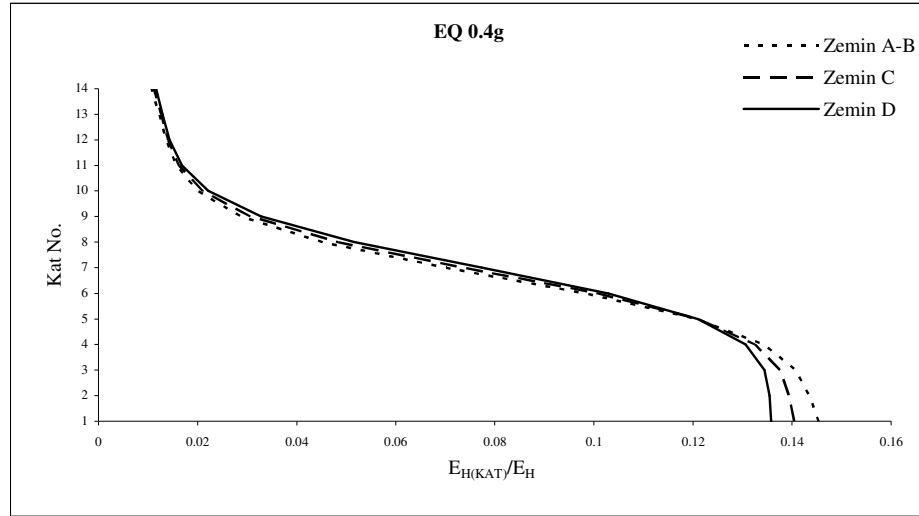
12 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



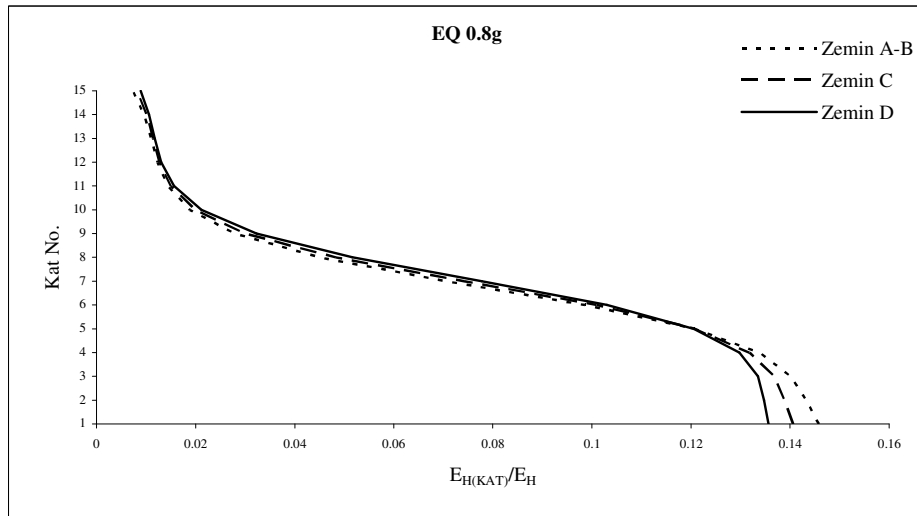
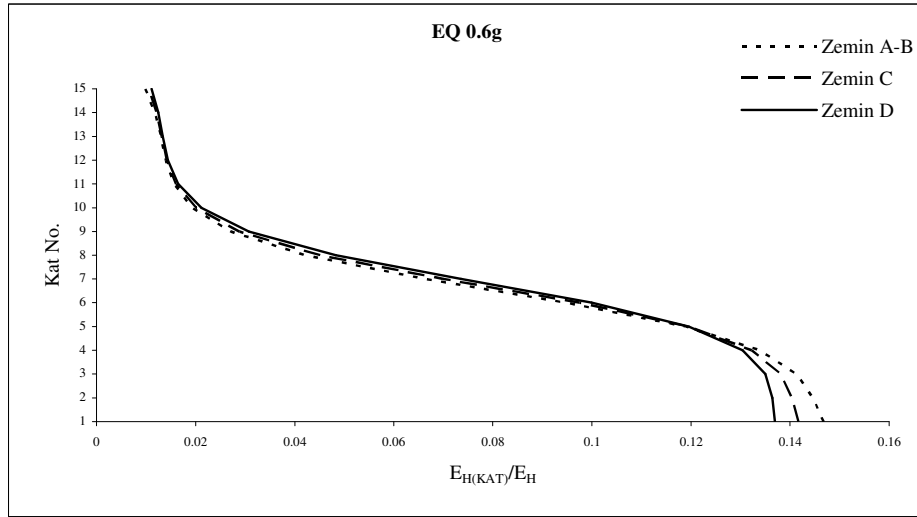
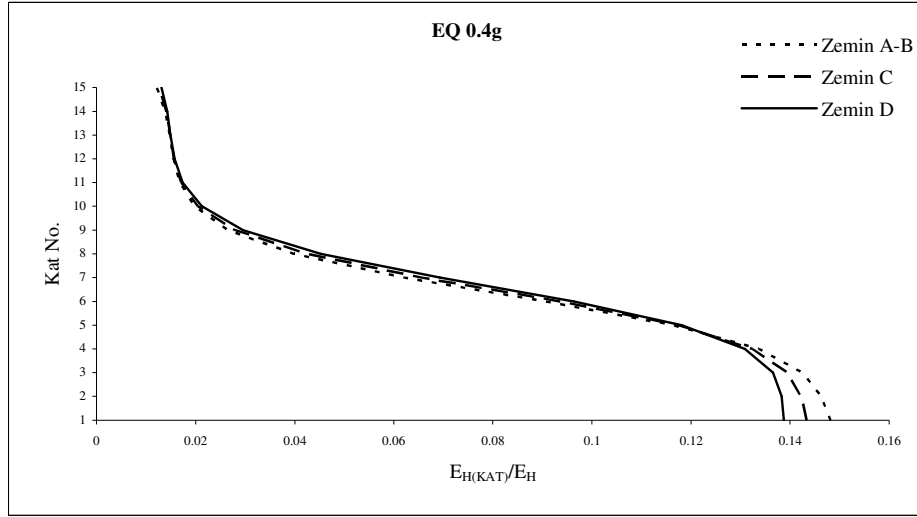
13 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



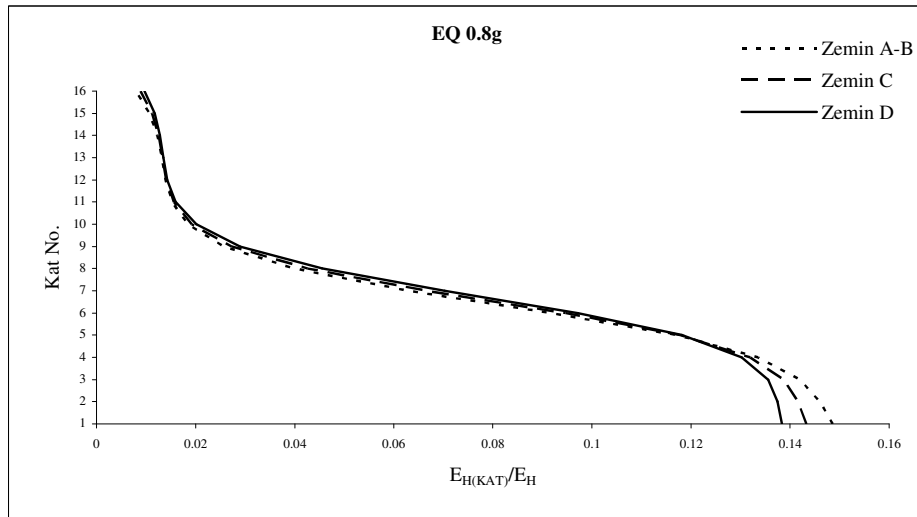
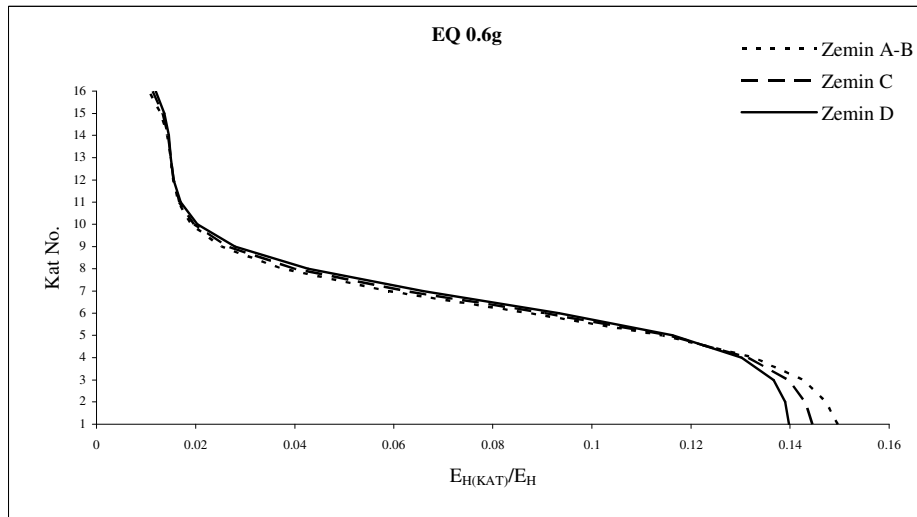
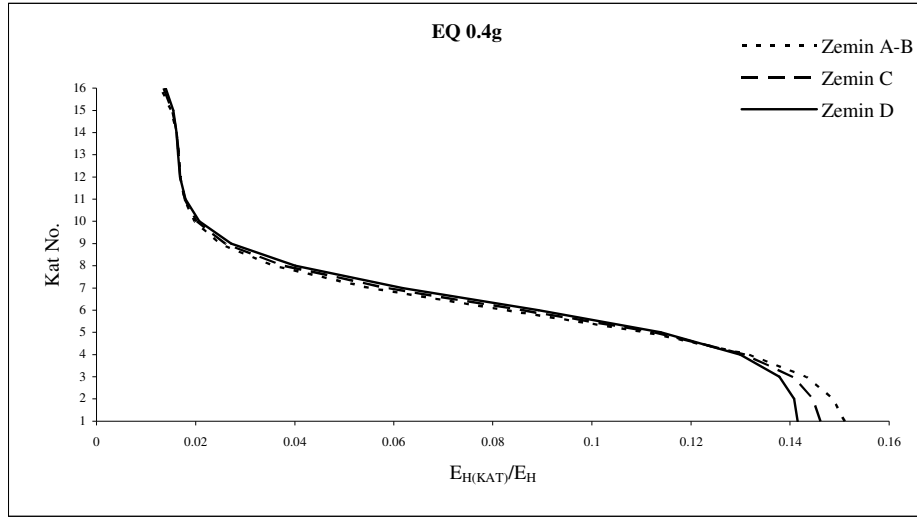
14 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



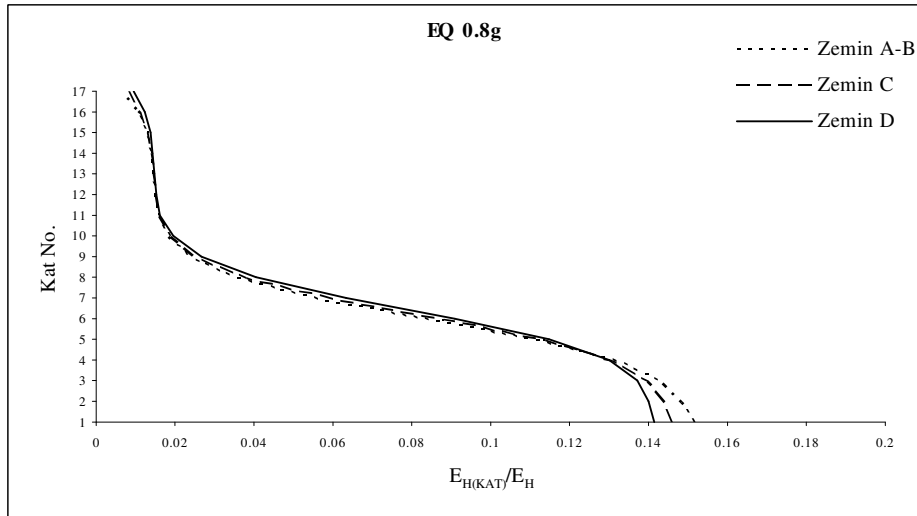
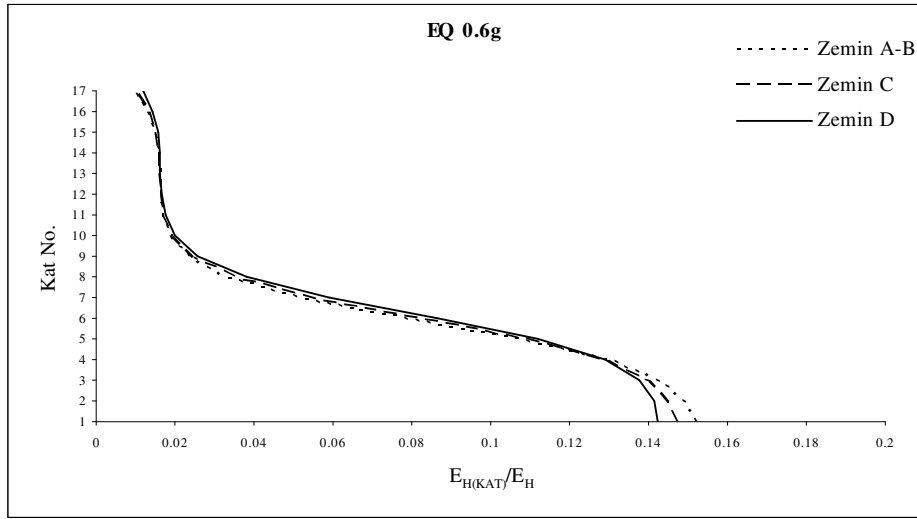
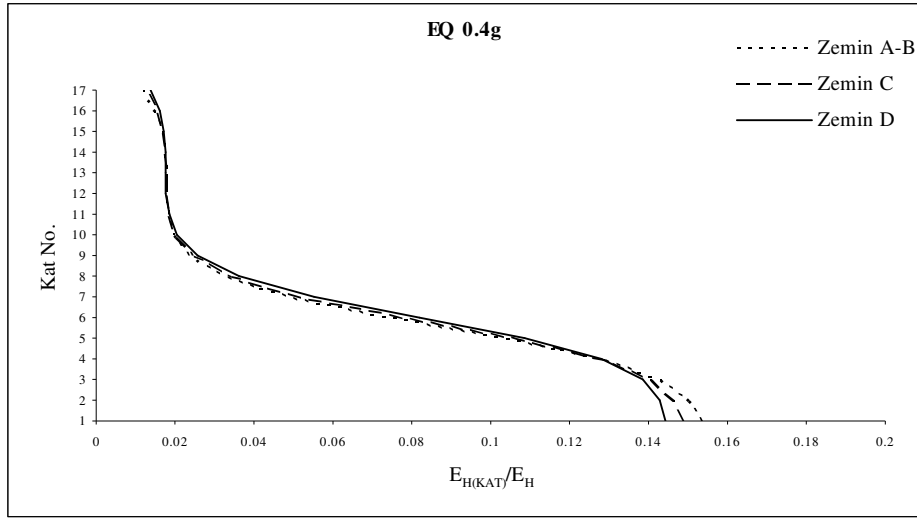
15 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



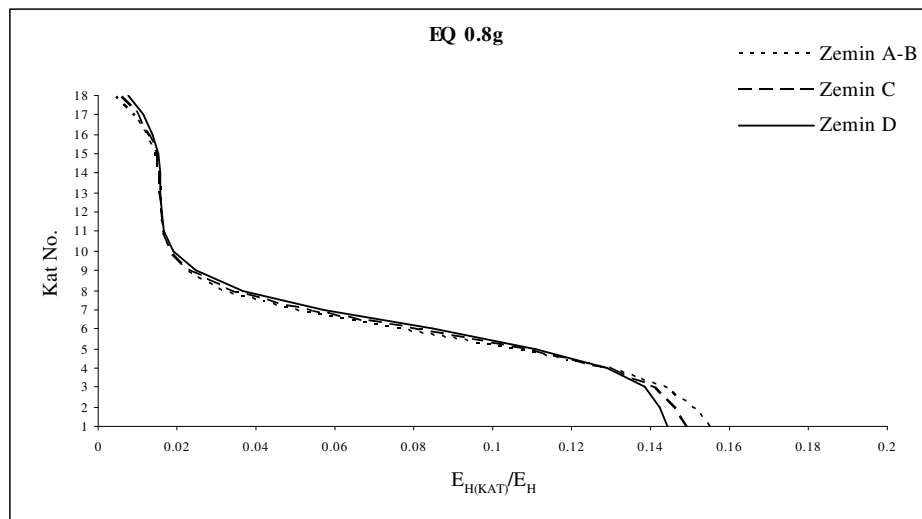
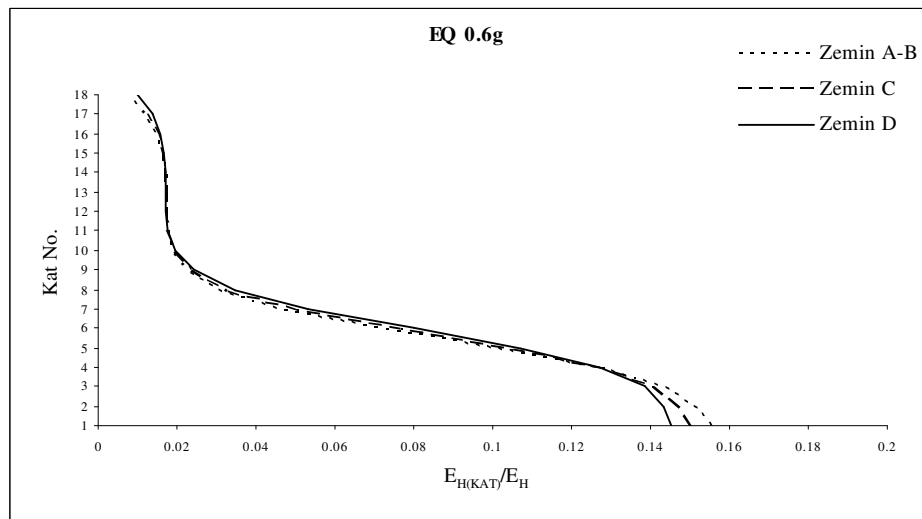
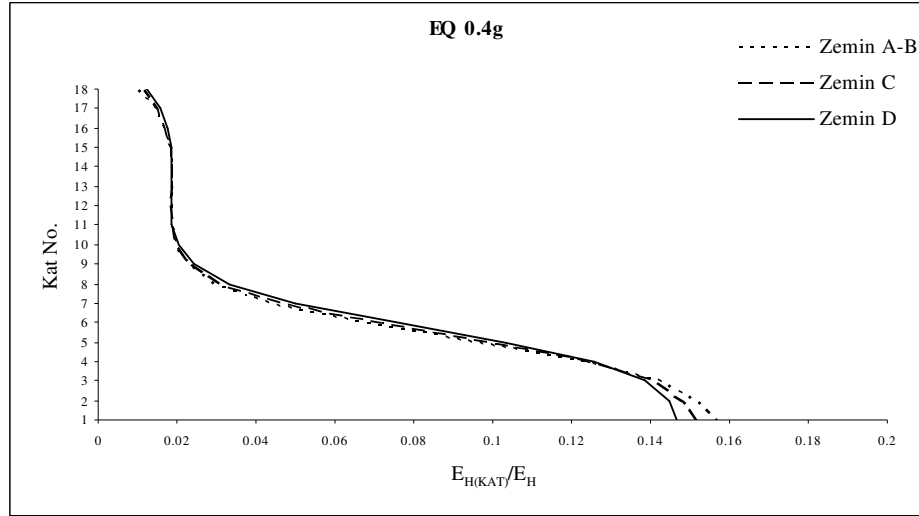
16 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



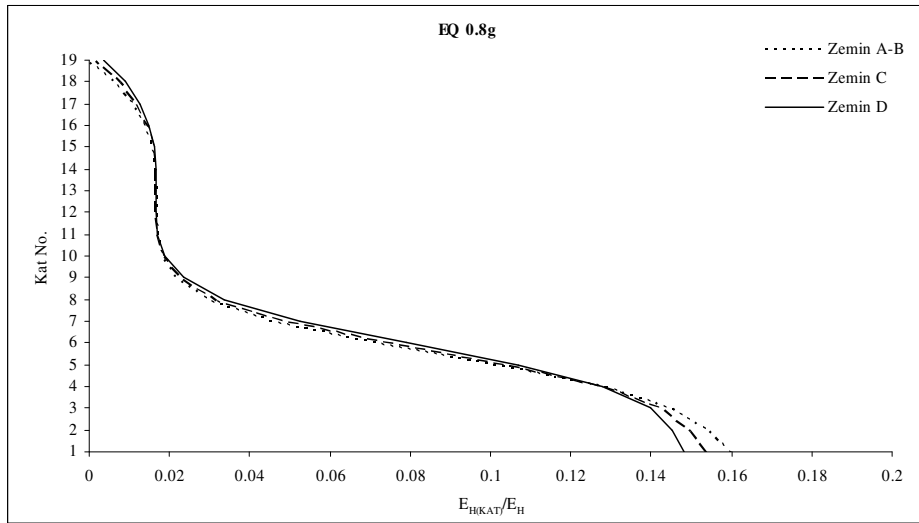
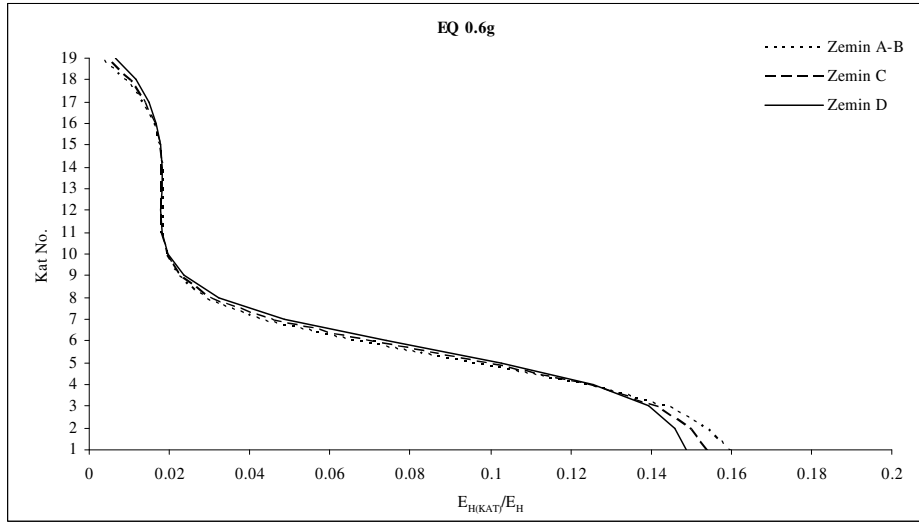
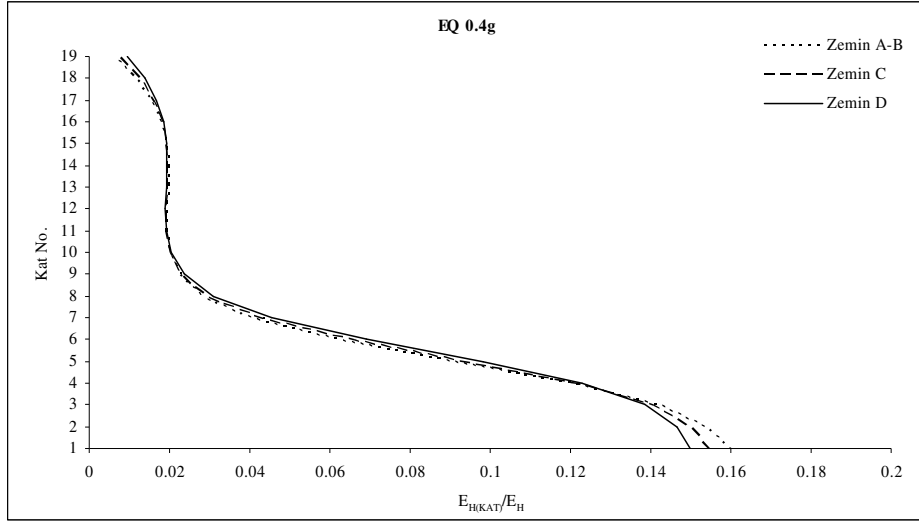
17 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



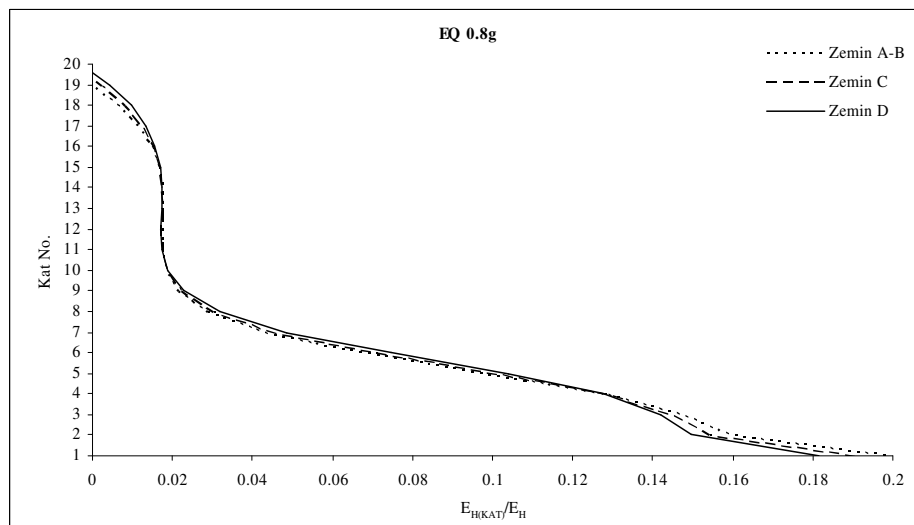
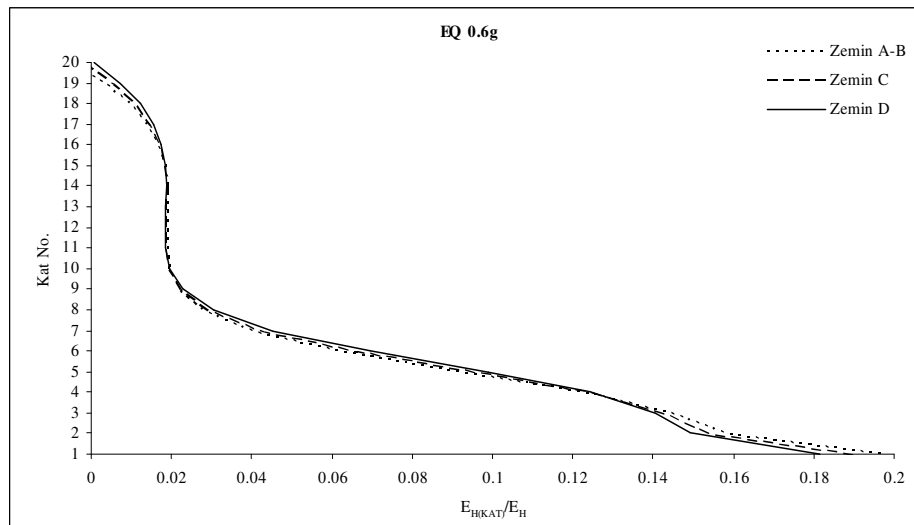
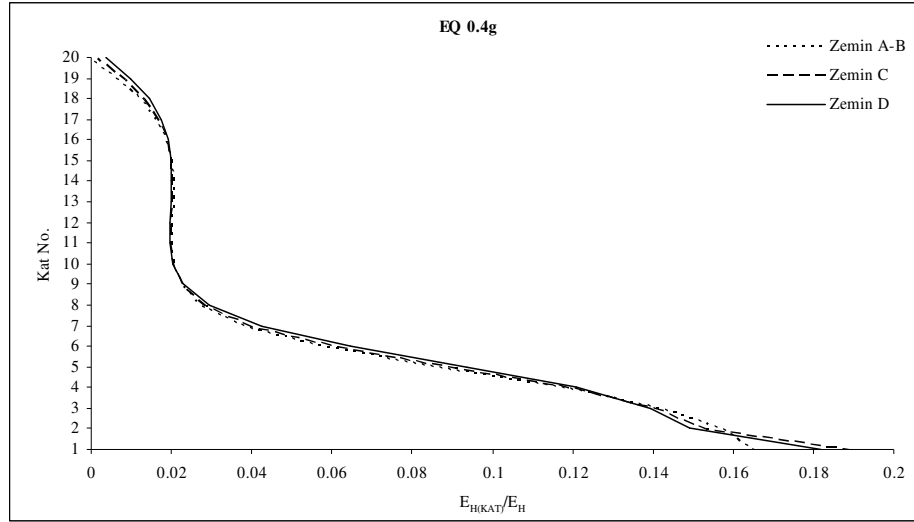
18 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



19 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



20 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.



EK-13 4-, 9- ve 20- Katlı Yapılar İçin Verilen Yaklaşım Göre Hesaplanan Z_f Değerleri.

4- katlı yapı için

m = 3904 kNs2/m 39.04 kNs2/cm $F_y=36$ ksi = 248 Mpa (N/mm2) 24.800 kN/cm2

0.6g			E_H		cm/sn2	kNcm	kN cm			
1	Eh/m	7730.7	301807.8	Kat No.	$E_{H(KAT)/EH}$	$E_{H(KAT)}$	$E_{H(Kiriş)}$	θ_{pa} %10 için	Z_f (cm ³)	Z_f (inc ³)
				1	0.382	115211.65	28802.912	0.1	5807.039	354.369
				2	0.338	102059.33	25514.832	0.1	5144.119	313.915
				3	0.214	64664.81	16166.202	0.1	3259.315	198.896
				4	0.066	19871.98	4967.996	0.1	1001.612	61.122
0.6g										
2	Eh/m	7730.7	301807.8	Kat No.	$E_{H(KAT)/EH}$	$E_{H(KAT)}$	$E_{H(Kiriş)}$	θ_{pa} %5 için	Z_f (cm ³)	Z_f (inc ³)
				1	0.382	115211.65	28802.912	0.05	11614.077	708.737
				2	0.338	102059.33	25514.832	0.05	10288.239	627.829
				3	0.214	64664.81	16166.202	0.05	6518.630	397.793
				4	0.066	19871.98	4967.996	0.05	2003.224	122.245
0.8g										
			E_H							
3	Eh/m	13983	545901.6	Kat No.	$E_{H(KAT)/EH}$	EH(KAT)	EH(Kiriş)	θ_{pa} %10 için	Z_f (cm ³)	Z_f (inc ³)
				1	0.375	204518.24	51129.559	0.1	10308.379	629.058
				2	0.339	185246.70	46311.676	0.1	9337.031	569.783
				3	0.221	120882.52	30220.631	0.1	6092.869	371.811
				4	0.065	35254.17	8813.542	0.1	1776.924	108.435
0.8g										
			E_H							
4	Eh/m	13983	545901.6	Kat No.	$E_{H(KAT)/EH}$	EH(KAT)	EH(Kiriş)	θ_{pa} %5 için	Z_f (cm ³)	Z_f (inc ³)
				1	0.375	204518.24	51129.559	0.05	20616.758	1258.117
				2	0.339	185246.70	46311.676	0.05	18674.063	1139.566
				3	0.221	120882.52	30220.631	0.05	12185.738	743.622
				4	0.065	35254.17	8813.542	0.05	3553.848	216.870

9- katlı yapı için

m = 9006 kNs2/m 90.06 kNs2/cm

0.6g	E_H								
1 Eh/m	4737.5	426658.0	Kat No.	$E_{H(KAT)/EH}$	$E_{H(KAT)}$	$E_{H(KIRIS)}$	θ_{pa} %10 için	Z_f (cm ³)	Z_f (inc ³)
			1	0.171	73034.42	14606.884	0.1	2944.936	179.712
			2	0.149	63476.56	12695.312	0.1	2559.539	156.193
			3	0.134	57221.61	11444.321	0.1	2307.323	140.802
			4	0.124	52838.57	10567.715	0.1	2130.588	130.017
			5	0.115	49126.52	9825.303	0.1	1980.908	120.883
			6	0.105	44865.25	8973.049	0.1	1809.082	110.397
			7	0.091	38698.27	7739.653	0.1	1560.414	95.223
			8	0.069	29532.67	5906.534	0.1	1190.833	72.669
			9	0.042	17864.17	3572.835	0.1	720.330	43.957
2 Eh/m	4737.5	426658.0	Kat No.	$E_{H(KAT)/EH}$	$E_{H(KAT)}$	$E_{H(KIRIS)}$	θ_{pa} %5 için	Z_f (cm ³)	Z_f (inc ³)
			1	0.171	73034.42	14606.884	0.05	5889.873	359.423
			2	0.149	63476.56	12695.312	0.05	5119.078	312.386
			3	0.134	57221.61	11444.321	0.05	4614.646	281.604
			4	0.124	52838.57	10567.715	0.05	4261.175	260.034
			5	0.115	49126.52	9825.303	0.05	3961.816	241.766
			6	0.105	44865.25	8973.049	0.05	3618.165	220.795
			7	0.091	38698.27	7739.653	0.05	3120.828	190.445
			8	0.069	29532.67	5906.534	0.05	2381.667	145.339
			9	0.042	17864.17	3572.835	0.05	1440.659	87.915
3 Eh/m	8897.7	801327.6	Kat No.	$E_{H(KAT)/EH}$	$E_{H(KAT)}$	$E_{H(KIRIS)}$	θ_{pa} %10 için	Z_f (cm ³)	Z_f (inc ³)
			1	0.179	143813.91	28762.781	0.1	5798.948	353.875
			2	0.153	122305.00	24460.999	0.1	4931.653	300.949
			3	0.135	108162.70	21632.540	0.1	4361.399	266.150

4	0.123	98325.60	19665.121	0.1	3964.742	241.944
5	0.113	90333.44	18066.687	0.1	3642.477	222.278
6	0.102	81851.56	16370.313	0.1	3300.466	201.408
7	0.088	70381.54	14076.308	0.1	2837.965	173.184
8	0.067	53773.42	10754.684	0.1	2168.283	132.317
9	0.040	32380.39	6476.078	0.1	1305.661	79.677

4	0.8g		E_H							
	Eh/m	8897.7	801327.6	Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}$	$E_{H(KIRIS)}$	θ_{pa} %5 için	Z_f (cm ³)	Z_f (inc ³)
				1	0.179	143813.91	28762.781	0.05	11597.896	707.750
				2	0.153	122305.00	24460.999	0.05	9863.306	601.898
				3	0.135	108162.70	21632.540	0.05	8722.798	532.300
				4	0.123	98325.60	19665.121	0.05	7929.484	483.889
				5	0.113	90333.44	18066.687	0.05	7284.954	444.557
				6	0.102	81851.56	16370.313	0.05	6600.933	402.815
				7	0.088	70381.54	14076.308	0.05	5675.931	346.368
				8	0.067	53773.42	10754.684	0.05	4336.566	264.635
				9	0.040	32380.39	6476.078	0.05	2611.322	159.353

20- katlı yapı için

m = 11067 kNs2/m 110.67 kNs2/cm

0.6g		E_H								
1	Eh/m	5243.7	580317.4	Kat No.	$E_{H(KAT)/E_H}$	$E_{H(KAT)}$	$E_{H(KIRIS)}$	θ_{pa} %10 için	Z_f (cm ³)	Z_f (inc ³)
				1	0.199	115441.92	23088.384	0.1	4654.916	284.062
				2	0.159	92037.15	18407.430	0.1	3711.175	226.471
				3	0.146	84608.47	16921.693	0.1	3411.632	208.191
				4	0.124	71946.51	14389.301	0.1	2901.069	177.035
				5	0.094	54456.88	10891.376	0.1	2195.842	133.999
				6	0.063	36742.89	7348.579	0.1	1481.568	90.411
				7	0.041	23778.58	4755.717	0.1	958.814	58.511
				8	0.028	16413.51	3282.701	0.1	661.835	40.388
				9	0.022	12896.52	2579.303	0.1	520.021	31.734
				10	0.020	11483.90	2296.781	0.1	463.061	28.258
				11	0.019	11093.16	2218.633	0.1	447.305	27.296
				12	0.019	11126.04	2225.208	0.1	448.631	27.377
				13	0.019	11241.53	2248.306	0.1	453.287	27.661
				14	0.019	11214.60	2242.920	0.1	452.202	27.595
				15	0.019	10856.41	2171.281	0.1	437.758	26.714
				16	0.017	9974.14	1994.829	0.1	402.183	24.543
				17	0.014	8359.80	1671.960	0.1	337.089	20.570
				18	0.010	5815.45	1163.089	0.1	234.494	14.310
				19	0.004	2235.51	447.102	0.1	90.141	5.501
				20	0.000	0.00	0.000	0.1	0.000	0.000

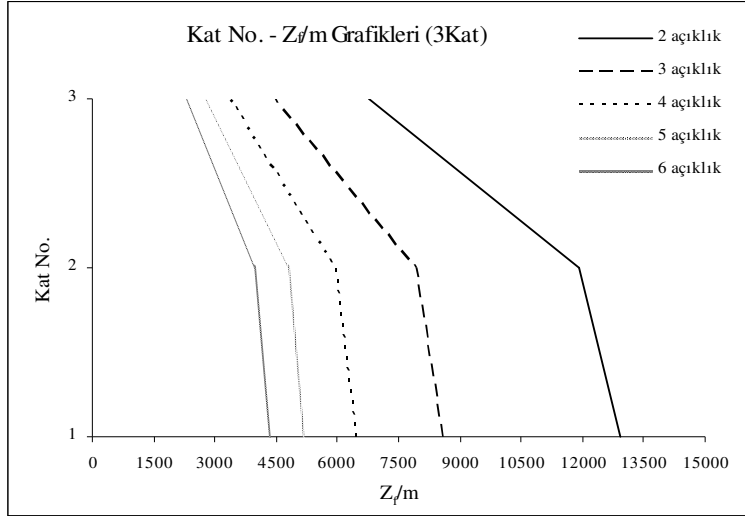
0.6g		E_H								
2	Eh/m	5243.7	580317.4	Kat No.	$E_{H(KAT)/E_H}$	$E_{H(KAT)}$	$E_{H(KIRIS)}$	θ_{pa} %5 için	Z_f (cm ³)	Z_f (inc ³)
				1	0.199	115441.92	23088.384	0.05	9309.832	568.123
				2	0.159	92037.15	18407.430	0.05	7422.351	452.941
				3	0.146	84608.47	16921.693	0.05	6823.263	416.383
				4	0.124	71946.51	14389.301	0.05	5802.138	354.070
				5	0.094	54456.88	10891.376	0.05	4391.684	267.998
				6	0.063	36742.89	7348.579	0.05	2963.137	180.822
				7	0.041	23778.58	4755.717	0.05	1917.628	117.021
				8	0.028	16413.51	3282.701	0.05	1323.670	80.776
				9	0.022	12896.52	2579.303	0.05	1040.042	63.467
				10	0.020	11483.90	2296.781	0.05	926.121	56.516
				11	0.019	11093.16	2218.633	0.05	894.610	54.593
				12	0.019	11126.04	2225.208	0.05	897.261	54.754
				13	0.019	11241.53	2248.306	0.05	906.575	55.323
				14	0.019	11214.60	2242.920	0.05	904.403	55.190
				15	0.019	10856.41	2171.281	0.05	875.517	53.428
				16	0.017	9974.14	1994.829	0.05	804.366	49.086
				17	0.014	8359.80	1671.960	0.05	674.177	41.141
				18	0.010	5815.45	1163.089	0.05	468.988	28.619
				19	0.004	2235.51	447.102	0.05	180.283	11.002
				20	0.000	0.00	0.000	0.05	0.000	0.000

0.8g			E _H							
3	Eh/m	7659.1	847632.0	Kat No.	E _{H(KAT)/EH}	E _{H(KAT)}	E _{H(KIRIS)}	θ _{na} %10 için	Z _f (cm ³)	Z _f (inc ³)
				1	0.200	169728.99	33945.798	0.1	6843.911	417.643
				2	0.160	135461.50	27092.299	0.1	5462.157	333.323
				3	0.148	125748.56	25149.711	0.1	5070.506	309.422
				4	0.129	108974.98	21794.996	0.1	4394.153	268.149
				5	0.100	84529.50	16905.901	0.1	3408.448	207.997
				6	0.068	57915.02	11583.004	0.1	2335.283	142.508
				7	0.044	37073.78	7414.757	0.1	1494.911	91.225
				8	0.029	24658.10	4931.620	0.1	994.278	60.675
				9	0.022	18525.05	3705.010	0.1	746.978	45.584
				10	0.019	15947.04	3189.408	0.1	643.026	39.240
				11	0.018	15125.31	3025.062	0.1	609.891	37.218
				12	0.018	15045.79	3009.159	0.1	606.685	37.022
				13	0.018	15128.29	3025.658	0.1	610.012	37.225
				14	0.018	14991.38	2998.275	0.1	604.491	36.888
				15	0.017	14320.22	2864.045	0.1	577.428	35.237
				16	0.015	12802.00	2560.399	0.1	516.209	31.501
				17	0.012	10115.15	2023.030	0.1	407.869	24.890
				18	0.007	5986.86	1197.372	0.1	241.406	14.732
				19	0.000	341.83	68.366	0.1	13.784	0.841
				20	0.000	0.00	0.000	0.1	0.000	0.000

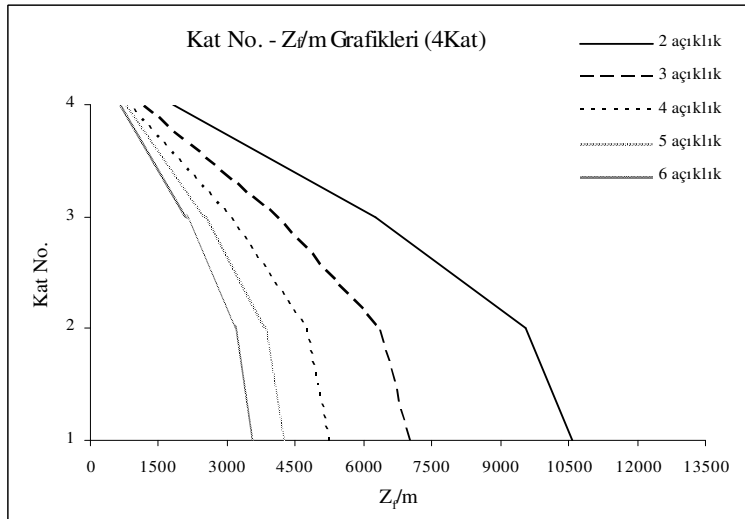
0.8g			E _H							
4	Eh/m	7659.1	847632.0	Kat No.	E _{H(KAT)/EH}	E _{H(KAT)}	E _{H(KIRIS)}	θ _{pa} %10 için	Z _f (cm ³)	Z _f (inc ³)
				1	0.200	169728.99	33945.798	0.05	13687.822	835.285
				2	0.160	135461.50	27092.299	0.05	10924.314	666.645
				3	0.148	125748.56	25149.711	0.05	10141.013	618.845
				4	0.129	108974.98	21794.996	0.05	8788.305	536.297
				5	0.100	84529.50	16905.901	0.05	6816.895	415.994
				6	0.068	57915.02	11583.004	0.05	4670.566	285.017
				7	0.044	37073.78	7414.757	0.05	2989.821	182.451
				8	0.029	24658.10	4931.620	0.05	1988.556	121.350
				9	0.022	18525.05	3705.010	0.05	1493.956	91.167
				10	0.019	15947.04	3189.408	0.05	1286.052	78.480
				11	0.018	15125.31	3025.062	0.05	1219.783	74.436
				12	0.018	15045.79	3009.159	0.05	1213.370	74.045
				13	0.018	15128.29	3025.658	0.05	1220.023	74.451
				14	0.018	14991.38	2998.275	0.05	1208.982	73.777
				15	0.017	14320.22	2864.045	0.05	1154.857	70.474
				16	0.015	12802.00	2560.399	0.05	1032.419	63.002
				17	0.012	10115.15	2023.030	0.05	815.738	49.780
				18	0.007	5986.86	1197.372	0.05	482.811	29.463
				19	0.000	341.83	68.366	0.05	27.567	1.682
				20	0.000	0.00	0.000	0.05	0.000	0.000

EK-14 3-, 4-, 5-, 6-, 7-, 8-, 9-, 10-, 11-, 12-, 13-, 14-, 15-, 16-, 17-, 18-, 19- ve 20- Katlı Yapılar için Verilen Yaklaşım Göre Hesaplanan Z_f Değerler ve Kat No. - Z_f/m grafikleri.

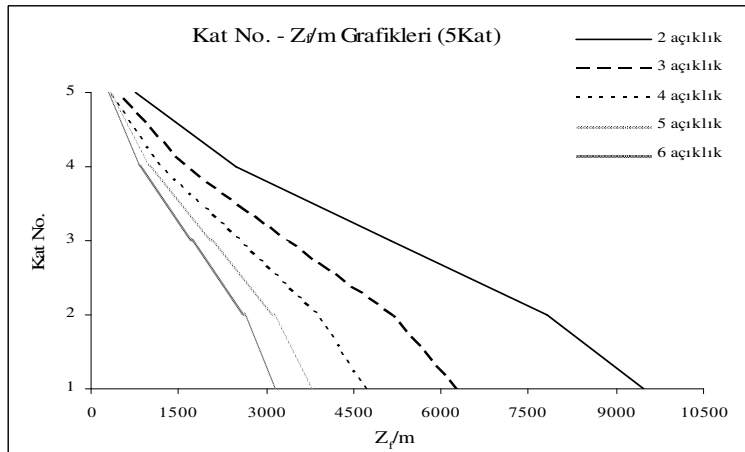
3- katlı yapı için

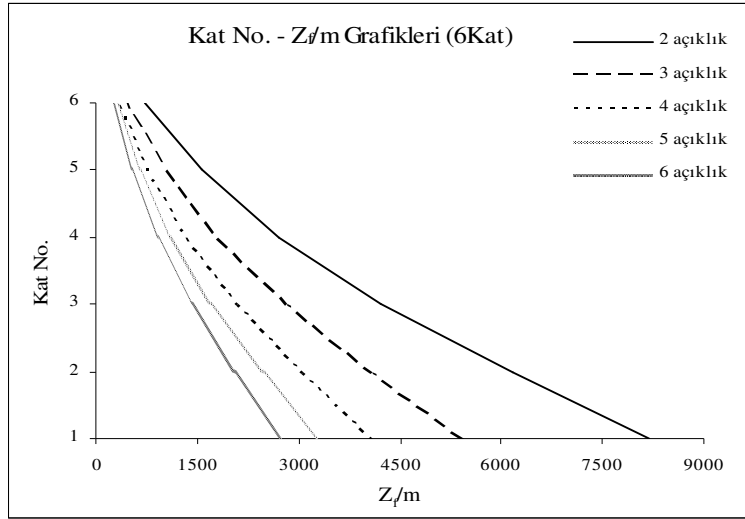
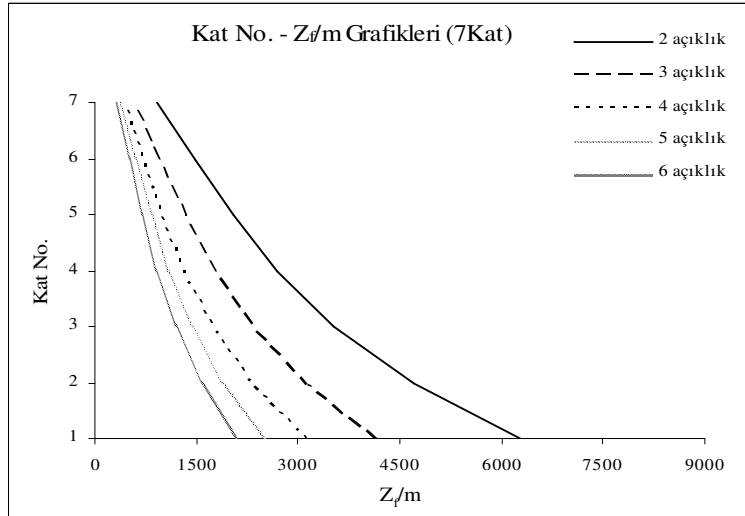
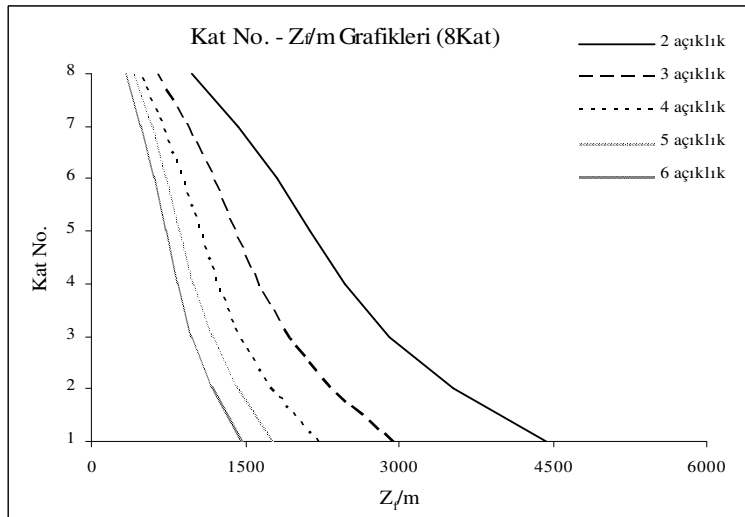


4- katlı yapı için

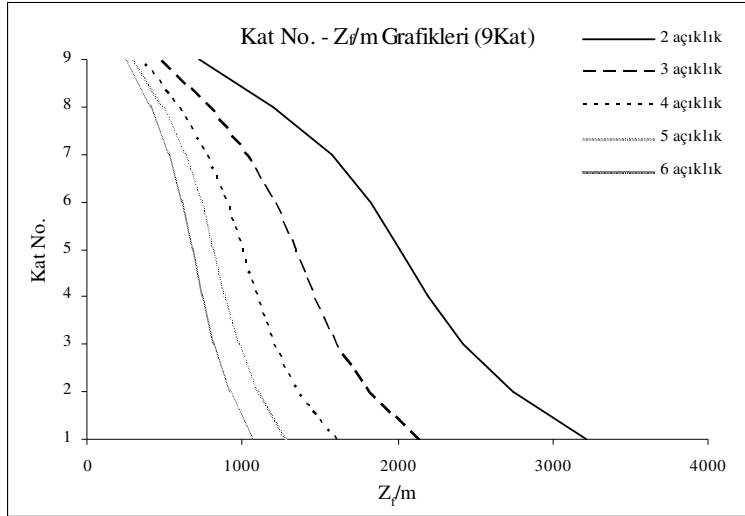


5- katlı yapı için

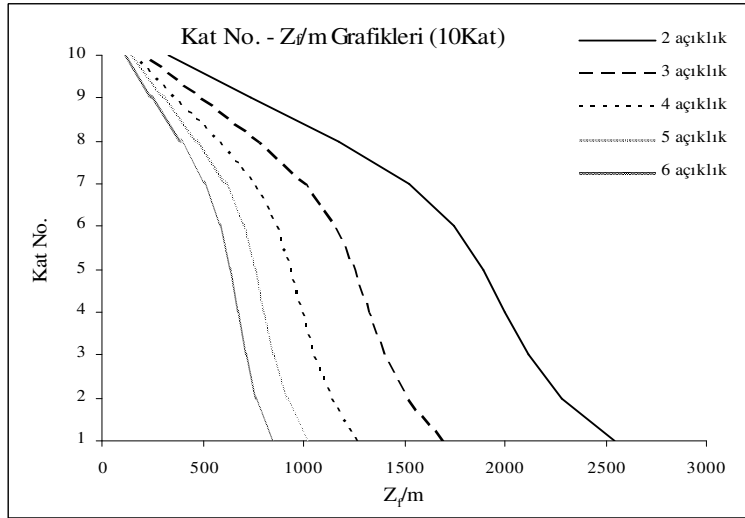


6- katlı yapı için**7- katlı yapı için****8- katlı yapı için**

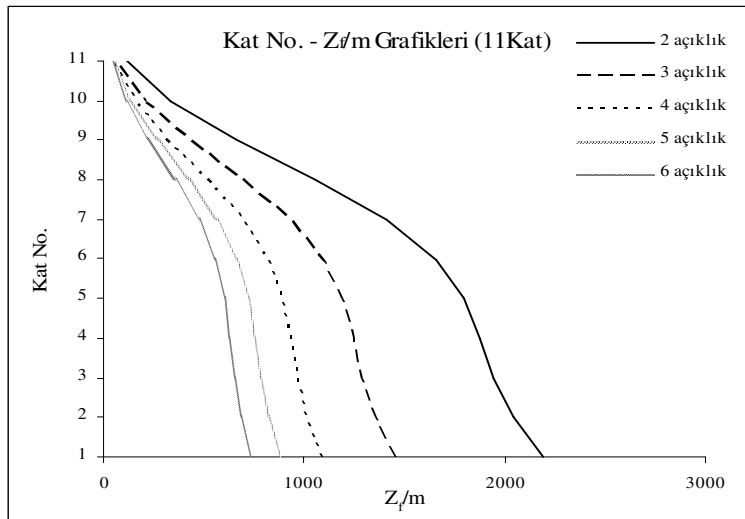
9- katlı yapı için

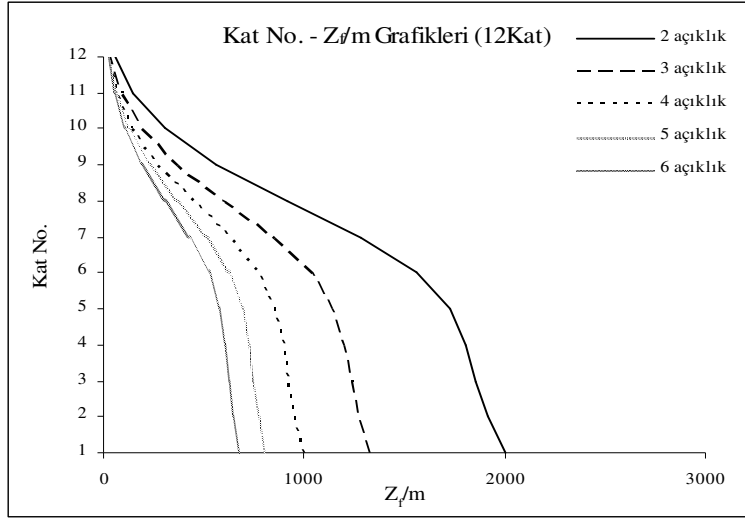
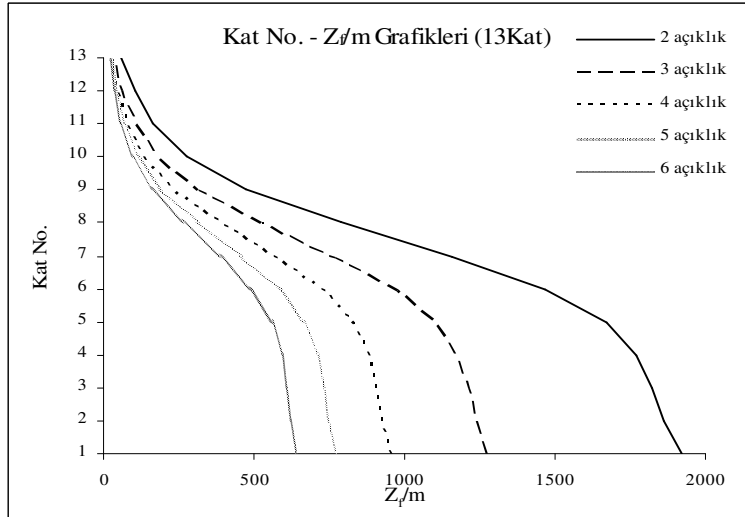
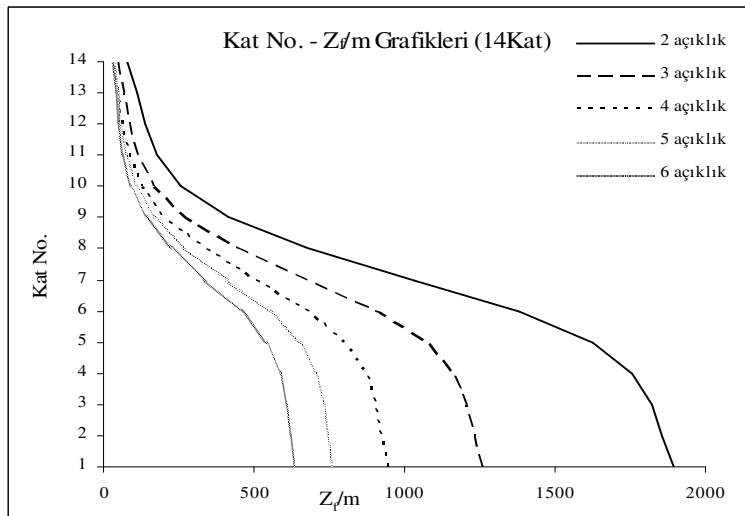


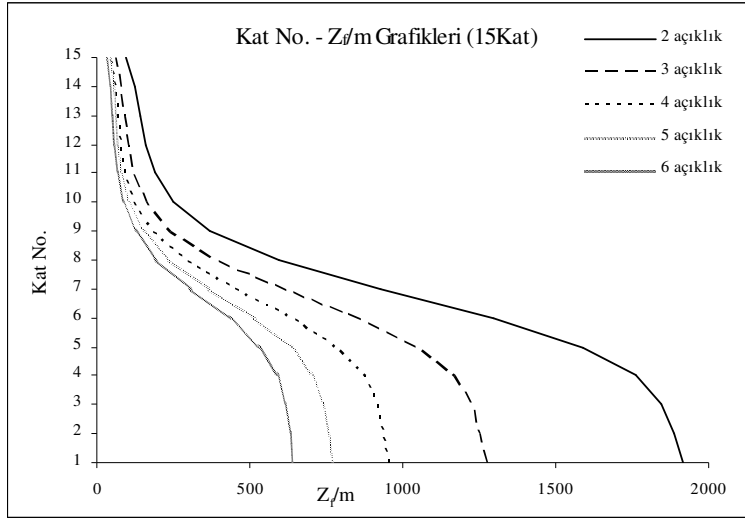
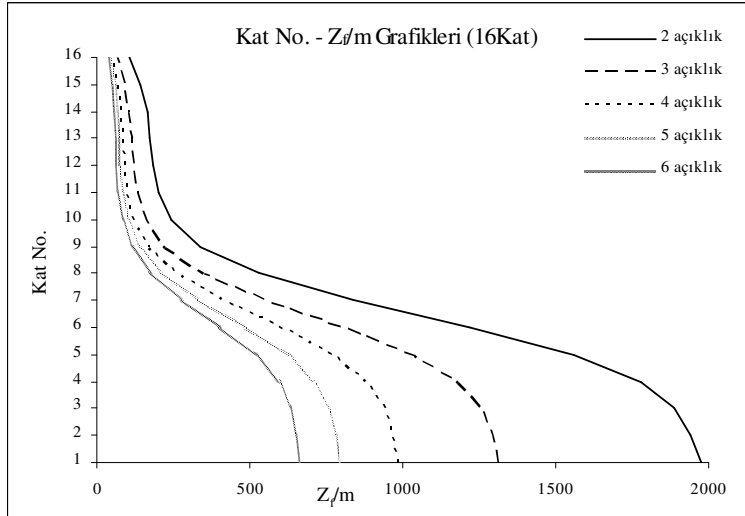
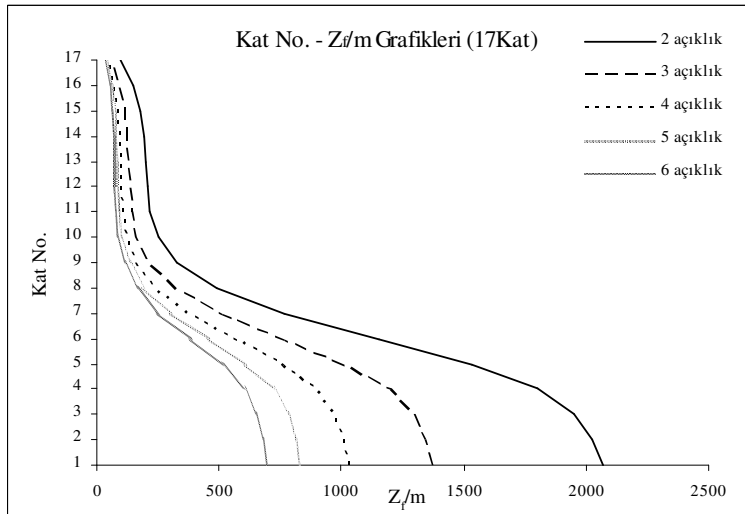
10- katlı yapı için

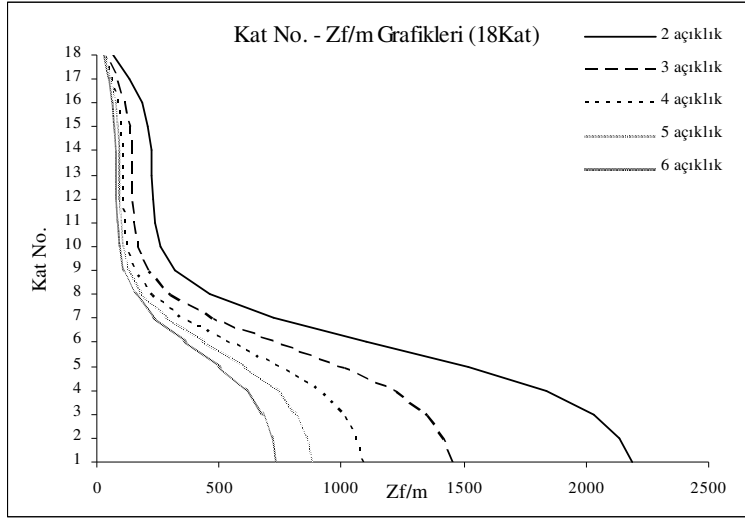
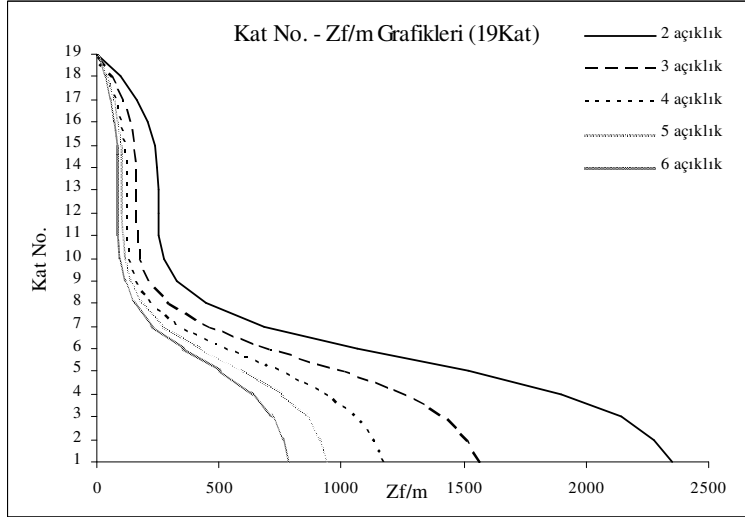
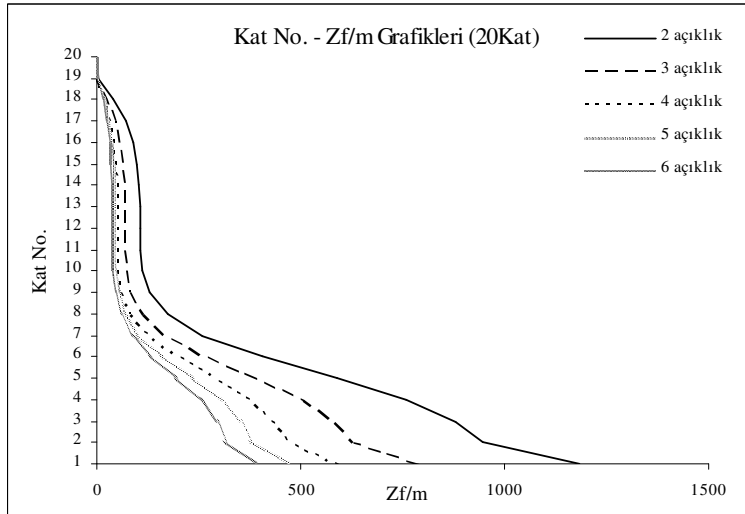


11- katlı yapı için



12- katlı yapı için**13- katlı yapı için****14- katlı yapı için**

15- katlı yapı için**16- katlı yapı için****17- katlı yapı için**

18- katlı yapı için**19- katlı yapı için****20- katlı yapı için**

561	1	17	3	3.5307	0.0535	5	1
562	1	17	3	3.5307	0.0535	6	1
563	1	17	3	3.5307	0.0535	7	1
564	1	17	3	3.5307	0.0535	8	1
565	1	17	3	3.5307	0.0535	9	1
566	1	17	3	3.5307	0.0535	10	1
567	1	17	3	3.5307	0.0535	11	1
568	1	17	3	3.5307	0.0535	12	1
569	1	17	3	3.5307	0.0535	13	1
570	1	17	3	3.5307	0.0535	14	1
571	1	17	3	3.5307	0.0535	15	1
572	1	17	3	3.5307	0.0535	16	1
573	1	17	3	3.5307	0.0535	17	1
574	1	18	3	3.6256	0.0536	1	1
575	1	18	3	3.6256	0.0536	2	1
576	1	18	3	3.6256	0.0536	3	1
577	1	18	3	3.6256	0.0536	4	1
578	1	18	3	3.6256	0.0536	5	1
579	1	18	3	3.6256	0.0536	6	1
580	1	18	3	3.6256	0.0536	7	1
581	1	18	3	3.6256	0.0536	8	1
582	1	18	3	3.6256	0.0536	9	1
583	1	18	3	3.6256	0.0536	10	1
584	1	18	3	3.6256	0.0536	11	1
585	1	18	3	3.6256	0.0536	12	1
586	1	18	3	3.6256	0.0536	13	1
587	1	18	3	3.6256	0.0536	14	1
588	1	18	3	3.6256	0.0536	15	1
589	1	18	3	3.6256	0.0536	16	1
590	1	18	3	3.6256	0.0536	17	1
591	1	18	3	3.6256	0.0536	18	1
592	1	19	3	3.7083	0.0553	1	1
593	1	19	3	3.7083	0.0553	2	1
594	1	19	3	3.7083	0.0553	3	1
595	1	19	3	3.7083	0.0553	4	1
596	1	19	3	3.7083	0.0553	5	1
597	1	19	3	3.7083	0.0553	6	1
598	1	19	3	3.7083	0.0553	7	1
599	1	19	3	3.7083	0.0553	8	1
600	1	19	3	3.7083	0.0553	9	1
601	1	19	3	3.7083	0.0553	10	1
602	1	19	3	3.7083	0.0553	11	1
603	1	19	3	3.7083	0.0553	12	1
604	1	19	3	3.7083	0.0553	13	1
605	1	19	3	3.7083	0.0553	14	1
606	1	19	3	3.7083	0.0553	15	1
607	1	19	3	3.7083	0.0553	16	1
608	1	19	3	3.7083	0.0553	17	1
609	1	19	3	3.7083	0.0553	18	1
610	1	19	3	3.7083	0.0553	19	1
611	1	20	3	3.7788	0.0586	1	1
612	1	20	3	3.7788	0.0586	2	1
613	1	20	3	3.7788	0.0586	3	1
614	1	20	3	3.7788	0.0586	4	1
615	1	20	3	3.7788	0.0586	5	1
616	1	20	3	3.7788	0.0586	6	1
617	1	20	3	3.7788	0.0586	7	1
618	1	20	3	3.7788	0.0586	8	1
619	1	20	3	3.7788	0.0586	9	1
620	1	20	3	3.7788	0.0586	10	1
621	1	20	3	3.7788	0.0586	11	1
622	1	20	3	3.7788	0.0586	12	1
623	1	20	3	3.7788	0.0586	13	1

624	1	20	3	3.7788	0.0586	14	1
625	1	20	3	3.7788	0.0586	15	1
626	1	20	3	3.7788	0.0586	16	1
627	1	20	3	3.7788	0.0586	17	1
628	1	20	3	3.7788	0.0586	18	1
629	1	20	3	3.7788	0.0586	19	1
630	1	20	3	3.7788	0.0586	20	1
631	2	1	1	0.3531	0.2695	1	1
632	2	2	1	0.6432	0.244	1	1
633	2	2	1	0.6432	0.244	2	1
634	2	3	1	0.9211	0.2201	1	1
635	2	3	1	0.9211	0.2201	2	1
636	2	3	1	0.9211	0.2201	3	1
637	2	4	1	1.1868	0.1978	1	1
638	2	4	1	1.1868	0.1978	2	1
639	2	4	1	1.1868	0.1978	3	1
640	2	4	1	1.1868	0.1978	4	1
641	2	5	1	1.4403	0.1771	1	1
642	2	5	1	1.4403	0.1771	2	1
643	2	5	1	1.4403	0.1771	3	1
644	2	5	1	1.4403	0.1771	4	1
645	2	5	1	1.4403	0.1771	5	1
646	2	6	1	1.6816	0.158	1	1
647	2	6	1	1.6816	0.158	2	1
648	2	6	1	1.6816	0.158	3	1
649	2	6	1	1.6816	0.158	4	1
650	2	6	1	1.6816	0.158	5	1
651	2	6	1	1.6816	0.158	6	1
652	2	7	1	1.9107	0.1405	1	1
653	2	7	1	1.9107	0.1405	2	1
654	2	7	1	1.9107	0.1405	3	1
655	2	7	1	1.9107	0.1405	4	1
656	2	7	1	1.9107	0.1405	5	1
657	2	7	1	1.9107	0.1405	6	1
658	2	7	1	1.9107	0.1405	7	1
659	2	8	1	2.1276	0.1246	1	1
660	2	8	1	2.1276	0.1246	2	1
661	2	8	1	2.1276	0.1246	3	1
662	2	8	1	2.1276	0.1246	4	1
663	2	8	1	2.1276	0.1246	5	1
664	2	8	1	2.1276	0.1246	6	1
665	2	8	1	2.1276	0.1246	7	1
666	2	8	1	2.1276	0.1246	8	1
667	2	9	1	2.3323	0.1103	1	1
668	2	9	1	2.3323	0.1103	2	1
669	2	9	1	2.3323	0.1103	3	1
670	2	9	1	2.3323	0.1103	4	1
671	2	9	1	2.3323	0.1103	5	1
672	2	9	1	2.3323	0.1103	6	1
673	2	9	1	2.3323	0.1103	7	1
674	2	9	1	2.3323	0.1103	8	1
675	2	9	1	2.3323	0.1103	9	1
676	2	10	1	2.5248	0.0976	1	1
677	2	10	1	2.5248	0.0976	2	1
678	2	10	1	2.5248	0.0976	3	1
679	2	10	1	2.5248	0.0976	4	1
680	2	10	1	2.5248	0.0976	5	1
681	2	10	1	2.5248	0.0976	6	1
682	2	10	1	2.5248	0.0976	7	1
683	2	10	1	2.5248	0.0976	8	1
684	2	10	1	2.5248	0.0976	9	1
685	2	10	1	2.5248	0.0976	10	1
686	2	11	1	2.7051	0.0865	1	1

687	2	11	1	2.7051	0.0865	2	1
688	2	11	1	2.7051	0.0865	3	1
689	2	11	1	2.7051	0.0865	4	1
690	2	11	1	2.7051	0.0865	5	1
691	2	11	1	2.7051	0.0865	6	1
692	2	11	1	2.7051	0.0865	7	1
693	2	11	1	2.7051	0.0865	8	1
694	2	11	1	2.7051	0.0865	9	1
695	2	11	1	2.7051	0.0865	10	1
696	2	11	1	2.7051	0.0865	11	1
697	2	12	1	2.8732	0.077	1	1
698	2	12	1	2.8732	0.077	2	1
699	2	12	1	2.8732	0.077	3	1
700	2	12	1	2.8732	0.077	4	1
701	2	12	1	2.8732	0.077	5	1
702	2	12	1	2.8732	0.077	6	1
703	2	12	1	2.8732	0.077	7	1
704	2	12	1	2.8732	0.077	8	1
705	2	12	1	2.8732	0.077	9	1
706	2	12	1	2.8732	0.077	10	1
707	2	12	1	2.8732	0.077	11	1
708	2	12	1	2.8732	0.077	12	1
709	2	13	1	3.0291	0.0691	1	1
710	2	13	1	3.0291	0.0691	2	1
711	2	13	1	3.0291	0.0691	3	1
712	2	13	1	3.0291	0.0691	4	1
713	2	13	1	3.0291	0.0691	5	1
714	2	13	1	3.0291	0.0691	6	1
715	2	13	1	3.0291	0.0691	7	1
716	2	13	1	3.0291	0.0691	8	1
717	2	13	1	3.0291	0.0691	9	1
718	2	13	1	3.0291	0.0691	10	1
719	2	13	1	3.0291	0.0691	11	1
720	2	13	1	3.0291	0.0691	12	1
721	2	13	1	3.0291	0.0691	13	1
722	2	14	1	3.1728	0.0628	1	1
723	2	14	1	3.1728	0.0628	2	1
724	2	14	1	3.1728	0.0628	3	1
725	2	14	1	3.1728	0.0628	4	1
726	2	14	1	3.1728	0.0628	5	1
727	2	14	1	3.1728	0.0628	6	1
728	2	14	1	3.1728	0.0628	7	1
729	2	14	1	3.1728	0.0628	8	1
730	2	14	1	3.1728	0.0628	9	1
731	2	14	1	3.1728	0.0628	10	1
732	2	14	1	3.1728	0.0628	11	1
733	2	14	1	3.1728	0.0628	12	1
734	2	14	1	3.1728	0.0628	13	1
735	2	14	1	3.1728	0.0628	14	1
736	2	15	1	3.3043	0.0581	1	1
737	2	15	1	3.3043	0.0581	2	1
738	2	15	1	3.3043	0.0581	3	1
739	2	15	1	3.3043	0.0581	4	1
740	2	15	1	3.3043	0.0581	5	1
741	2	15	1	3.3043	0.0581	6	1
742	2	15	1	3.3043	0.0581	7	1
743	2	15	1	3.3043	0.0581	8	1
744	2	15	1	3.3043	0.0581	9	1
745	2	15	1	3.3043	0.0581	10	1
746	2	15	1	3.3043	0.0581	11	1
747	2	15	1	3.3043	0.0581	12	1
748	2	15	1	3.3043	0.0581	13	1
749	2	15	1	3.3043	0.0581	14	1

750	2	15	1	3.3043	0.0581	15	1
751	2	16	1	3.4236	0.055	1	1
752	2	16	1	3.4236	0.055	2	1
753	2	16	1	3.4236	0.055	3	1
754	2	16	1	3.4236	0.055	4	1
755	2	16	1	3.4236	0.055	5	1
756	2	16	1	3.4236	0.055	6	1
757	2	16	1	3.4236	0.055	7	1
758	2	16	1	3.4236	0.055	8	1
759	2	16	1	3.4236	0.055	9	1
760	2	16	1	3.4236	0.055	10	1
761	2	16	1	3.4236	0.055	11	1
762	2	16	1	3.4236	0.055	12	1
763	2	16	1	3.4236	0.055	13	1
764	2	16	1	3.4236	0.055	14	1
765	2	16	1	3.4236	0.055	15	1
766	2	16	1	3.4236	0.055	16	1
767	2	17	1	3.5307	0.0535	1	1
768	2	17	1	3.5307	0.0535	2	1
769	2	17	1	3.5307	0.0535	3	1
770	2	17	1	3.5307	0.0535	4	1
771	2	17	1	3.5307	0.0535	5	1
772	2	17	1	3.5307	0.0535	6	1
773	2	17	1	3.5307	0.0535	7	1
774	2	17	1	3.5307	0.0535	8	1
775	2	17	1	3.5307	0.0535	9	1
776	2	17	1	3.5307	0.0535	10	1
777	2	17	1	3.5307	0.0535	11	1
778	2	17	1	3.5307	0.0535	12	1
779	2	17	1	3.5307	0.0535	13	1
780	2	17	1	3.5307	0.0535	14	1
781	2	17	1	3.5307	0.0535	15	1
782	2	17	1	3.5307	0.0535	16	1
783	2	17	1	3.5307	0.0535	17	1
784	2	18	1	3.6256	0.0536	1	1
785	2	18	1	3.6256	0.0536	2	1
786	2	18	1	3.6256	0.0536	3	1
787	2	18	1	3.6256	0.0536	4	1
788	2	18	1	3.6256	0.0536	5	1
789	2	18	1	3.6256	0.0536	6	1
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793	2	18	1	3.6256	0.0536	10	1
794	2	18	1	3.6256	0.0536	11	1
795	2	18	1	3.6256	0.0536	12	1
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797	2	18	1	3.6256	0.0536	14	1
798	2	18	1	3.6256	0.0536	15	1
799	2	18	1	3.6256	0.0536	16	1
800	2	18	1	3.6256	0.0536	17	1
801	2	18	1	3.6256	0.0536	18	1
802	2	19	1	3.7083	0.0553	1	1
803	2	19	1	3.7083	0.0553	2	1
804	2	19	1	3.7083	0.0553	3	1
805	2	19	1	3.7083	0.0553	4	1
806	2	19	1	3.7083	0.0553	5	1
807	2	19	1	3.7083	0.0553	6	1
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809	2	19	1	3.7083	0.0553	8	1
810	2	19	1	3.7083	0.0553	9	1
811	2	19	1	3.7083	0.0553	10	1
812	2	19	1	3.7083	0.0553	11	1

813	2	19	1	3.7083	0.0553	12	1
814	2	19	1	3.7083	0.0553	13	1
815	2	19	1	3.7083	0.0553	14	1
816	2	19	1	3.7083	0.0553	15	1
817	2	19	1	3.7083	0.0553	16	1
818	2	19	1	3.7083	0.0553	17	1
819	2	19	1	3.7083	0.0553	18	1
820	2	19	1	3.7083	0.0553	19	1
821	2	20	1	3.7788	0.0586	1	1
822	2	20	1	3.7788	0.0586	2	1
823	2	20	1	3.7788	0.0586	3	1
824	2	20	1	3.7788	0.0586	4	1
825	2	20	1	3.7788	0.0586	5	1
826	2	20	1	3.7788	0.0586	6	1
827	2	20	1	3.7788	0.0586	7	1
828	2	20	1	3.7788	0.0586	8	1
829	2	20	1	3.7788	0.0586	9	1
830	2	20	1	3.7788	0.0586	10	1
831	2	20	1	3.7788	0.0586	11	1
832	2	20	1	3.7788	0.0586	12	1
833	2	20	1	3.7788	0.0586	13	1
834	2	20	1	3.7788	0.0586	14	1
835	2	20	1	3.7788	0.0586	15	1
836	2	20	1	3.7788	0.0586	16	1
837	2	20	1	3.7788	0.0586	17	1
838	2	20	1	3.7788	0.0586	18	1
839	2	20	1	3.7788	0.0586	19	1
840	2	20	1	3.7788	0.0586	20	1
841	2	1	2	0.3531	0.2695	1	1
842	2	2	2	0.6432	0.244	1	1
843	2	2	2	0.6432	0.244	2	1
844	2	3	2	0.9211	0.2201	1	1
845	2	3	2	0.9211	0.2201	2	1
846	2	3	2	0.9211	0.2201	3	1
847	2	4	2	1.1868	0.1978	1	1
848	2	4	2	1.1868	0.1978	2	1
849	2	4	2	1.1868	0.1978	3	1
850	2	4	2	1.1868	0.1978	4	1
851	2	5	2	1.4403	0.1771	1	1
852	2	5	2	1.4403	0.1771	2	1
853	2	5	2	1.4403	0.1771	3	1
854	2	5	2	1.4403	0.1771	4	1
855	2	5	2	1.4403	0.1771	5	1
856	2	6	2	1.6816	0.158	1	1
857	2	6	2	1.6816	0.158	2	1
858	2	6	2	1.6816	0.158	3	1
859	2	6	2	1.6816	0.158	4	1
860	2	6	2	1.6816	0.158	5	1
861	2	6	2	1.6816	0.158	6	1
862	2	7	2	1.9107	0.1405	1	1
863	2	7	2	1.9107	0.1405	2	1
864	2	7	2	1.9107	0.1405	3	1
865	2	7	2	1.9107	0.1405	4	1
866	2	7	2	1.9107	0.1405	5	1
867	2	7	2	1.9107	0.1405	6	1
868	2	7	2	1.9107	0.1405	7	1
869	2	8	2	2.1276	0.1246	1	1
870	2	8	2	2.1276	0.1246	2	1
871	2	8	2	2.1276	0.1246	3	1
872	2	8	2	2.1276	0.1246	4	1
873	2	8	2	2.1276	0.1246	5	1
874	2	8	2	2.1276	0.1246	6	1
875	2	8	2	2.1276	0.1246	7	1

876	2	8	2	2.1276	0.1246	8	1
877	2	9	2	2.3323	0.1103	1	1
878	2	9	2	2.3323	0.1103	2	1
879	2	9	2	2.3323	0.1103	3	1
880	2	9	2	2.3323	0.1103	4	1
881	2	9	2	2.3323	0.1103	5	1
882	2	9	2	2.3323	0.1103	6	1
883	2	9	2	2.3323	0.1103	7	1
884	2	9	2	2.3323	0.1103	8	1
885	2	9	2	2.3323	0.1103	9	1
886	2	10	2	2.5248	0.0976	1	1
887	2	10	2	2.5248	0.0976	2	1
888	2	10	2	2.5248	0.0976	3	1
889	2	10	2	2.5248	0.0976	4	1
890	2	10	2	2.5248	0.0976	5	1
891	2	10	2	2.5248	0.0976	6	1
892	2	10	2	2.5248	0.0976	7	1
893	2	10	2	2.5248	0.0976	8	1
894	2	10	2	2.5248	0.0976	9	1
895	2	10	2	2.5248	0.0976	10	1
896	2	11	2	2.7051	0.0865	1	1
897	2	11	2	2.7051	0.0865	2	1
898	2	11	2	2.7051	0.0865	3	1
899	2	11	2	2.7051	0.0865	4	1
900	2	11	2	2.7051	0.0865	5	1
901	2	11	2	2.7051	0.0865	6	1
902	2	11	2	2.7051	0.0865	7	1
903	2	11	2	2.7051	0.0865	8	1
904	2	11	2	2.7051	0.0865	9	1
905	2	11	2	2.7051	0.0865	10	1
906	2	11	2	2.7051	0.0865	11	1
907	2	12	2	2.8732	0.077	1	1
908	2	12	2	2.8732	0.077	2	1
909	2	12	2	2.8732	0.077	3	1
910	2	12	2	2.8732	0.077	4	1
911	2	12	2	2.8732	0.077	5	1
912	2	12	2	2.8732	0.077	6	1
913	2	12	2	2.8732	0.077	7	1
914	2	12	2	2.8732	0.077	8	1
915	2	12	2	2.8732	0.077	9	1
916	2	12	2	2.8732	0.077	10	1
917	2	12	2	2.8732	0.077	11	1
918	2	12	2	2.8732	0.077	12	1
919	2	13	2	3.0291	0.0691	1	1
920	2	13	2	3.0291	0.0691	2	1
921	2	13	2	3.0291	0.0691	3	1
922	2	13	2	3.0291	0.0691	4	1
923	2	13	2	3.0291	0.0691	5	1
924	2	13	2	3.0291	0.0691	6	1
925	2	13	2	3.0291	0.0691	7	1
926	2	13	2	3.0291	0.0691	8	1
927	2	13	2	3.0291	0.0691	9	1
928	2	13	2	3.0291	0.0691	10	1
929	2	13	2	3.0291	0.0691	11	1
930	2	13	2	3.0291	0.0691	12	1
931	2	13	2	3.0291	0.0691	13	1
932	2	14	2	3.1728	0.0628	1	1
933	2	14	2	3.1728	0.0628	2	1
934	2	14	2	3.1728	0.0628	3	1
935	2	14	2	3.1728	0.0628	4	1
936	2	14	2	3.1728	0.0628	5	1
937	2	14	2	3.1728	0.0628	6	1
938	2	14	2	3.1728	0.0628	7	1

939	2	14	2	3.1728	0.0628	8	1
940	2	14	2	3.1728	0.0628	9	1
941	2	14	2	3.1728	0.0628	10	1
942	2	14	2	3.1728	0.0628	11	1
943	2	14	2	3.1728	0.0628	12	1
944	2	14	2	3.1728	0.0628	13	1
945	2	14	2	3.1728	0.0628	14	1
946	2	15	2	3.3043	0.0581	1	1
947	2	15	2	3.3043	0.0581	2	1
948	2	15	2	3.3043	0.0581	3	1
949	2	15	2	3.3043	0.0581	4	1
950	2	15	2	3.3043	0.0581	5	1
951	2	15	2	3.3043	0.0581	6	1
952	2	15	2	3.3043	0.0581	7	1
953	2	15	2	3.3043	0.0581	8	1
954	2	15	2	3.3043	0.0581	9	1
955	2	15	2	3.3043	0.0581	10	1
956	2	15	2	3.3043	0.0581	11	1
957	2	15	2	3.3043	0.0581	12	1
958	2	15	2	3.3043	0.0581	13	1
959	2	15	2	3.3043	0.0581	14	1
960	2	15	2	3.3043	0.0581	15	1
961	2	16	2	3.4236	0.055	1	1
962	2	16	2	3.4236	0.055	2	1
963	2	16	2	3.4236	0.055	3	1
964	2	16	2	3.4236	0.055	4	1
965	2	16	2	3.4236	0.055	5	1
966	2	16	2	3.4236	0.055	6	1
967	2	16	2	3.4236	0.055	7	1
968	2	16	2	3.4236	0.055	8	1
969	2	16	2	3.4236	0.055	9	1
970	2	16	2	3.4236	0.055	10	1
971	2	16	2	3.4236	0.055	11	1
972	2	16	2	3.4236	0.055	12	1
973	2	16	2	3.4236	0.055	13	1
974	2	16	2	3.4236	0.055	14	1
975	2	16	2	3.4236	0.055	15	1
976	2	16	2	3.4236	0.055	16	1
977	2	17	2	3.5307	0.0535	1	1
978	2	17	2	3.5307	0.0535	2	1
979	2	17	2	3.5307	0.0535	3	1
980	2	17	2	3.5307	0.0535	4	1
981	2	17	2	3.5307	0.0535	5	1
982	2	17	2	3.5307	0.0535	6	1
983	2	17	2	3.5307	0.0535	7	1
984	2	17	2	3.5307	0.0535	8	1
985	2	17	2	3.5307	0.0535	9	1
986	2	17	2	3.5307	0.0535	10	1
987	2	17	2	3.5307	0.0535	11	1
988	2	17	2	3.5307	0.0535	12	1
989	2	17	2	3.5307	0.0535	13	1
990	2	17	2	3.5307	0.0535	14	1
991	2	17	2	3.5307	0.0535	15	1
992	2	17	2	3.5307	0.0535	16	1
993	2	17	2	3.5307	0.0535	17	1
994	2	18	2	3.6256	0.0536	1	1
995	2	18	2	3.6256	0.0536	2	1
996	2	18	2	3.6256	0.0536	3	1
997	2	18	2	3.6256	0.0536	4	1
998	2	18	2	3.6256	0.0536	5	1
999	2	18	2	3.6256	0.0536	6	1
1000	2	18	2	3.6256	0.0536	7	1
1001	2	18	2	3.6256	0.0536	8	1

1002	2	18	2	3.6256	0.0536	9	1
1003	2	18	2	3.6256	0.0536	10	1
1004	2	18	2	3.6256	0.0536	11	1
1005	2	18	2	3.6256	0.0536	12	1
1006	2	18	2	3.6256	0.0536	13	1
1007	2	18	2	3.6256	0.0536	14	1
1008	2	18	2	3.6256	0.0536	15	1
1009	2	18	2	3.6256	0.0536	16	1
1010	2	18	2	3.6256	0.0536	17	1
1011	2	18	2	3.6256	0.0536	18	1
1012	2	19	2	3.7083	0.0553	1	1
1013	2	19	2	3.7083	0.0553	2	1
1014	2	19	2	3.7083	0.0553	3	1
1015	2	19	2	3.7083	0.0553	4	1
1016	2	19	2	3.7083	0.0553	5	1
1017	2	19	2	3.7083	0.0553	6	1
1018	2	19	2	3.7083	0.0553	7	1
1019	2	19	2	3.7083	0.0553	8	1
1020	2	19	2	3.7083	0.0553	9	1
1021	2	19	2	3.7083	0.0553	10	1
1022	2	19	2	3.7083	0.0553	11	1
1023	2	19	2	3.7083	0.0553	12	1
1024	2	19	2	3.7083	0.0553	13	1
1025	2	19	2	3.7083	0.0553	14	1
1026	2	19	2	3.7083	0.0553	15	1
1027	2	19	2	3.7083	0.0553	16	1
1028	2	19	2	3.7083	0.0553	17	1
1029	2	19	2	3.7083	0.0553	18	1
1030	2	19	2	3.7083	0.0553	19	1
1031	2	20	2	3.7788	0.0586	1	1
1032	2	20	2	3.7788	0.0586	2	1
1033	2	20	2	3.7788	0.0586	3	1
1034	2	20	2	3.7788	0.0586	4	1
1035	2	20	2	3.7788	0.0586	5	1
1036	2	20	2	3.7788	0.0586	6	1
1037	2	20	2	3.7788	0.0586	7	1
1038	2	20	2	3.7788	0.0586	8	1
1039	2	20	2	3.7788	0.0586	9	1
1040	2	20	2	3.7788	0.0586	10	1
1041	2	20	2	3.7788	0.0586	11	1
1042	2	20	2	3.7788	0.0586	12	1
1043	2	20	2	3.7788	0.0586	13	1
1044	2	20	2	3.7788	0.0586	14	1
1045	2	20	2	3.7788	0.0586	15	1
1046	2	20	2	3.7788	0.0586	16	1
1047	2	20	2	3.7788	0.0586	17	1
1048	2	20	2	3.7788	0.0586	18	1
1049	2	20	2	3.7788	0.0586	19	1
1050	2	20	2	3.7788	0.0586	20	1
1051	2	1	3	0.3531	0.2695	1	1
1052	2	2	3	0.6432	0.244	1	1
1053	2	2	3	0.6432	0.244	2	1
1054	2	3	3	0.9211	0.2201	1	1
1055	2	3	3	0.9211	0.2201	2	1
1056	2	3	3	0.9211	0.2201	3	1
1057	2	4	3	1.1868	0.1978	1	1
1058	2	4	3	1.1868	0.1978	2	1
1059	2	4	3	1.1868	0.1978	3	1
1060	2	4	3	1.1868	0.1978	4	1
1061	2	5	3	1.4403	0.1771	1	1
1062	2	5	3	1.4403	0.1771	2	1
1063	2	5	3	1.4403	0.1771	3	1
1064	2	5	3	1.4403	0.1771	4	1

1065	2	5	3	1.4403	0.1771	5	1
1066	2	6	3	1.6816	0.158	1	1
1067	2	6	3	1.6816	0.158	2	1
1068	2	6	3	1.6816	0.158	3	1
1069	2	6	3	1.6816	0.158	4	1
1070	2	6	3	1.6816	0.158	5	1
1071	2	6	3	1.6816	0.158	6	1
1072	2	7	3	1.9107	0.1405	1	1
1073	2	7	3	1.9107	0.1405	2	1
1074	2	7	3	1.9107	0.1405	3	1
1075	2	7	3	1.9107	0.1405	4	1
1076	2	7	3	1.9107	0.1405	5	1
1077	2	7	3	1.9107	0.1405	6	1
1078	2	7	3	1.9107	0.1405	7	1
1079	2	8	3	2.1276	0.1246	1	1
1080	2	8	3	2.1276	0.1246	2	1
1081	2	8	3	2.1276	0.1246	3	1
1082	2	8	3	2.1276	0.1246	4	1
1083	2	8	3	2.1276	0.1246	5	1
1084	2	8	3	2.1276	0.1246	6	1
1085	2	8	3	2.1276	0.1246	7	1
1086	2	8	3	2.1276	0.1246	8	1
1087	2	9	3	2.3323	0.1103	1	1
1088	2	9	3	2.3323	0.1103	2	1
1089	2	9	3	2.3323	0.1103	3	1
1090	2	9	3	2.3323	0.1103	4	1
1091	2	9	3	2.3323	0.1103	5	1
1092	2	9	3	2.3323	0.1103	6	1
1093	2	9	3	2.3323	0.1103	7	1
1094	2	9	3	2.3323	0.1103	8	1
1095	2	9	3	2.3323	0.1103	9	1
1096	2	10	3	2.5248	0.0976	1	1
1097	2	10	3	2.5248	0.0976	2	1
1098	2	10	3	2.5248	0.0976	3	1
1099	2	10	3	2.5248	0.0976	4	1
1100	2	10	3	2.5248	0.0976	5	1
1101	2	10	3	2.5248	0.0976	6	1
1102	2	10	3	2.5248	0.0976	7	1
1103	2	10	3	2.5248	0.0976	8	1
1104	2	10	3	2.5248	0.0976	9	1
1105	2	10	3	2.5248	0.0976	10	1
1106	2	11	3	2.7051	0.0865	1	1
1107	2	11	3	2.7051	0.0865	2	1
1108	2	11	3	2.7051	0.0865	3	1
1109	2	11	3	2.7051	0.0865	4	1
1110	2	11	3	2.7051	0.0865	5	1
1111	2	11	3	2.7051	0.0865	6	1
1112	2	11	3	2.7051	0.0865	7	1
1113	2	11	3	2.7051	0.0865	8	1
1114	2	11	3	2.7051	0.0865	9	1
1115	2	11	3	2.7051	0.0865	10	1
1116	2	11	3	2.7051	0.0865	11	1
1117	2	12	3	2.8732	0.077	1	1
1118	2	12	3	2.8732	0.077	2	1
1119	2	12	3	2.8732	0.077	3	1
1120	2	12	3	2.8732	0.077	4	1
1121	2	12	3	2.8732	0.077	5	1
1122	2	12	3	2.8732	0.077	6	1
1123	2	12	3	2.8732	0.077	7	1
1124	2	12	3	2.8732	0.077	8	1
1125	2	12	3	2.8732	0.077	9	1
1126	2	12	3	2.8732	0.077	10	1
1127	2	12	3	2.8732	0.077	11	1

1128	2	12	3	2.8732	0.077	12	1
1129	2	13	3	3.0291	0.0691	1	1
1130	2	13	3	3.0291	0.0691	2	1
1131	2	13	3	3.0291	0.0691	3	1
1132	2	13	3	3.0291	0.0691	4	1
1133	2	13	3	3.0291	0.0691	5	1
1134	2	13	3	3.0291	0.0691	6	1
1135	2	13	3	3.0291	0.0691	7	1
1136	2	13	3	3.0291	0.0691	8	1
1137	2	13	3	3.0291	0.0691	9	1
1138	2	13	3	3.0291	0.0691	10	1
1139	2	13	3	3.0291	0.0691	11	1
1140	2	13	3	3.0291	0.0691	12	1
1141	2	13	3	3.0291	0.0691	13	1
1142	2	14	3	3.1728	0.0628	1	1
1143	2	14	3	3.1728	0.0628	2	1
1144	2	14	3	3.1728	0.0628	3	1
1145	2	14	3	3.1728	0.0628	4	1
1146	2	14	3	3.1728	0.0628	5	1
1147	2	14	3	3.1728	0.0628	6	1
1148	2	14	3	3.1728	0.0628	7	1
1149	2	14	3	3.1728	0.0628	8	1
1150	2	14	3	3.1728	0.0628	9	1
1151	2	14	3	3.1728	0.0628	10	1
1152	2	14	3	3.1728	0.0628	11	1
1153	2	14	3	3.1728	0.0628	12	1
1154	2	14	3	3.1728	0.0628	13	1
1155	2	14	3	3.1728	0.0628	14	1
1156	2	15	3	3.3043	0.0581	1	1
1157	2	15	3	3.3043	0.0581	2	1
1158	2	15	3	3.3043	0.0581	3	1
1159	2	15	3	3.3043	0.0581	4	1
1160	2	15	3	3.3043	0.0581	5	1
1161	2	15	3	3.3043	0.0581	6	1
1162	2	15	3	3.3043	0.0581	7	1
1163	2	15	3	3.3043	0.0581	8	1
1164	2	15	3	3.3043	0.0581	9	1
1165	2	15	3	3.3043	0.0581	10	1
1166	2	15	3	3.3043	0.0581	11	1
1167	2	15	3	3.3043	0.0581	12	1
1168	2	15	3	3.3043	0.0581	13	1
1169	2	15	3	3.3043	0.0581	14	1
1170	2	15	3	3.3043	0.0581	15	1
1171	2	16	3	3.4236	0.055	1	1
1172	2	16	3	3.4236	0.055	2	1
1173	2	16	3	3.4236	0.055	3	1
1174	2	16	3	3.4236	0.055	4	1
1175	2	16	3	3.4236	0.055	5	1
1176	2	16	3	3.4236	0.055	6	1
1177	2	16	3	3.4236	0.055	7	1
1178	2	16	3	3.4236	0.055	8	1
1179	2	16	3	3.4236	0.055	9	1
1180	2	16	3	3.4236	0.055	10	1
1181	2	16	3	3.4236	0.055	11	1
1182	2	16	3	3.4236	0.055	12	1
1183	2	16	3	3.4236	0.055	13	1
1184	2	16	3	3.4236	0.055	14	1
1185	2	16	3	3.4236	0.055	15	1
1186	2	16	3	3.4236	0.055	16	1
1187	2	17	3	3.5307	0.0535	1	1
1188	2	17	3	3.5307	0.0535	2	1
1189	2	17	3	3.5307	0.0535	3	1
1190	2	17	3	3.5307	0.0535	4	1

1191	2	17	3	3.5307	0.0535	5	1
1192	2	17	3	3.5307	0.0535	6	1
1193	2	17	3	3.5307	0.0535	7	1
1194	2	17	3	3.5307	0.0535	8	1
1195	2	17	3	3.5307	0.0535	9	1
1196	2	17	3	3.5307	0.0535	10	1
1197	2	17	3	3.5307	0.0535	11	1
1198	2	17	3	3.5307	0.0535	12	1
1199	2	17	3	3.5307	0.0535	13	1
1200	2	17	3	3.5307	0.0535	14	1
1201	2	17	3	3.5307	0.0535	15	1
1202	2	17	3	3.5307	0.0535	16	1
1203	2	17	3	3.5307	0.0535	17	1
1204	2	18	3	3.6256	0.0536	1	1
1205	2	18	3	3.6256	0.0536	2	1
1206	2	18	3	3.6256	0.0536	3	1
1207	2	18	3	3.6256	0.0536	4	1
1208	2	18	3	3.6256	0.0536	5	1
1209	2	18	3	3.6256	0.0536	6	1
1210	2	18	3	3.6256	0.0536	7	1
1211	2	18	3	3.6256	0.0536	8	1
1212	2	18	3	3.6256	0.0536	9	1
1213	2	18	3	3.6256	0.0536	10	1
1214	2	18	3	3.6256	0.0536	11	1
1215	2	18	3	3.6256	0.0536	12	1
1216	2	18	3	3.6256	0.0536	13	1
1217	2	18	3	3.6256	0.0536	14	1
1218	2	18	3	3.6256	0.0536	15	1
1219	2	18	3	3.6256	0.0536	16	1
1220	2	18	3	3.6256	0.0536	17	1
1221	2	18	3	3.6256	0.0536	18	1
1222	2	19	3	3.7083	0.0553	1	1
1223	2	19	3	3.7083	0.0553	2	1
1224	2	19	3	3.7083	0.0553	3	1
1225	2	19	3	3.7083	0.0553	4	1
1226	2	19	3	3.7083	0.0553	5	1
1227	2	19	3	3.7083	0.0553	6	1
1228	2	19	3	3.7083	0.0553	7	1
1229	2	19	3	3.7083	0.0553	8	1
1230	2	19	3	3.7083	0.0553	9	1
1231	2	19	3	3.7083	0.0553	10	1
1232	2	19	3	3.7083	0.0553	11	1
1233	2	19	3	3.7083	0.0553	12	1
1234	2	19	3	3.7083	0.0553	13	1
1235	2	19	3	3.7083	0.0553	14	1
1236	2	19	3	3.7083	0.0553	15	1
1237	2	19	3	3.7083	0.0553	16	1
1238	2	19	3	3.7083	0.0553	17	1
1239	2	19	3	3.7083	0.0553	18	1
1240	2	19	3	3.7083	0.0553	19	1
1241	2	20	3	3.7788	0.0586	1	1
1242	2	20	3	3.7788	0.0586	2	1
1243	2	20	3	3.7788	0.0586	3	1
1244	2	20	3	3.7788	0.0586	4	1
1245	2	20	3	3.7788	0.0586	5	1
1246	2	20	3	3.7788	0.0586	6	1
1247	2	20	3	3.7788	0.0586	7	1
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1249	2	20	3	3.7788	0.0586	9	1
1250	2	20	3	3.7788	0.0586	10	1
1251	2	20	3	3.7788	0.0586	11	1
1252	2	20	3	3.7788	0.0586	12	1
1253	2	20	3	3.7788	0.0586	13	1

1254	2	20	3	3.7788	0.0586	14	1
1255	2	20	3	3.7788	0.0586	15	1
1256	2	20	3	3.7788	0.0586	16	1
1257	2	20	3	3.7788	0.0586	17	1
1258	2	20	3	3.7788	0.0586	18	1
1259	2	20	3	3.7788	0.0586	19	1
1260	2	20	3	3.7788	0.0586	20	1
1261	3	1	1	0.3531	0.2695	1	1
1262	3	2	1	0.6432	0.244	1	1
1263	3	2	1	0.6432	0.244	2	1
1264	3	3	1	0.9211	0.2201	1	1
1265	3	3	1	0.9211	0.2201	2	1
1266	3	3	1	0.9211	0.2201	3	1
1267	3	4	1	1.1868	0.1978	1	1
1268	3	4	1	1.1868	0.1978	2	1
1269	3	4	1	1.1868	0.1978	3	1
1270	3	4	1	1.1868	0.1978	4	1
1271	3	5	1	1.4403	0.1771	1	1
1272	3	5	1	1.4403	0.1771	2	1
1273	3	5	1	1.4403	0.1771	3	1
1274	3	5	1	1.4403	0.1771	4	1
1275	3	5	1	1.4403	0.1771	5	1
1276	3	6	1	1.6816	0.158	1	1
1277	3	6	1	1.6816	0.158	2	1
1278	3	6	1	1.6816	0.158	3	1
1279	3	6	1	1.6816	0.158	4	1
1280	3	6	1	1.6816	0.158	5	1
1281	3	6	1	1.6816	0.158	6	1
1282	3	7	1	1.9107	0.1405	1	1
1283	3	7	1	1.9107	0.1405	2	1
1284	3	7	1	1.9107	0.1405	3	1
1285	3	7	1	1.9107	0.1405	4	1
1286	3	7	1	1.9107	0.1405	5	1
1287	3	7	1	1.9107	0.1405	6	1
1288	3	7	1	1.9107	0.1405	7	1
1289	3	8	1	2.1276	0.1246	1	1
1290	3	8	1	2.1276	0.1246	2	1
1291	3	8	1	2.1276	0.1246	3	1
1292	3	8	1	2.1276	0.1246	4	1
1293	3	8	1	2.1276	0.1246	5	1
1294	3	8	1	2.1276	0.1246	6	1
1295	3	8	1	2.1276	0.1246	7	1
1296	3	8	1	2.1276	0.1246	8	1
1297	3	9	1	2.3323	0.1103	1	1
1298	3	9	1	2.3323	0.1103	2	1
1299	3	9	1	2.3323	0.1103	3	1
1300	3	9	1	2.3323	0.1103	4	1
1301	3	9	1	2.3323	0.1103	5	1
1302	3	9	1	2.3323	0.1103	6	1
1303	3	9	1	2.3323	0.1103	7	1
1304	3	9	1	2.3323	0.1103	8	1
1305	3	9	1	2.3323	0.1103	9	1
1306	3	10	1	2.5248	0.0976	1	1
1307	3	10	1	2.5248	0.0976	2	1
1308	3	10	1	2.5248	0.0976	3	1
1309	3	10	1	2.5248	0.0976	4	1
1310	3	10	1	2.5248	0.0976	5	1
1311	3	10	1	2.5248	0.0976	6	1
1312	3	10	1	2.5248	0.0976	7	1
1313	3	10	1	2.5248	0.0976	8	1
1314	3	10	1	2.5248	0.0976	9	1
1315	3	10	1	2.5248	0.0976	10	1
1316	3	11	1	2.7051	0.0865	1	1

1317	3	11	1	2.7051	0.0865	2	1
1318	3	11	1	2.7051	0.0865	3	1
1319	3	11	1	2.7051	0.0865	4	1
1320	3	11	1	2.7051	0.0865	5	1
1321	3	11	1	2.7051	0.0865	6	1
1322	3	11	1	2.7051	0.0865	7	1
1323	3	11	1	2.7051	0.0865	8	1
1324	3	11	1	2.7051	0.0865	9	1
1325	3	11	1	2.7051	0.0865	10	1
1326	3	11	1	2.7051	0.0865	11	1
1327	3	12	1	2.8732	0.077	1	1
1328	3	12	1	2.8732	0.077	2	1
1329	3	12	1	2.8732	0.077	3	1
1330	3	12	1	2.8732	0.077	4	1
1331	3	12	1	2.8732	0.077	5	1
1332	3	12	1	2.8732	0.077	6	1
1333	3	12	1	2.8732	0.077	7	1
1334	3	12	1	2.8732	0.077	8	1
1335	3	12	1	2.8732	0.077	9	1
1336	3	12	1	2.8732	0.077	10	1
1337	3	12	1	2.8732	0.077	11	1
1338	3	12	1	2.8732	0.077	12	1
1339	3	13	1	3.0291	0.0691	1	1
1340	3	13	1	3.0291	0.0691	2	1
1341	3	13	1	3.0291	0.0691	3	1
1342	3	13	1	3.0291	0.0691	4	1
1343	3	13	1	3.0291	0.0691	5	1
1344	3	13	1	3.0291	0.0691	6	1
1345	3	13	1	3.0291	0.0691	7	1
1346	3	13	1	3.0291	0.0691	8	1
1347	3	13	1	3.0291	0.0691	9	1
1348	3	13	1	3.0291	0.0691	10	1
1349	3	13	1	3.0291	0.0691	11	1
1350	3	13	1	3.0291	0.0691	12	1
1351	3	13	1	3.0291	0.0691	13	1
1352	3	14	1	3.1728	0.0628	1	1
1353	3	14	1	3.1728	0.0628	2	1
1354	3	14	1	3.1728	0.0628	3	1
1355	3	14	1	3.1728	0.0628	4	1
1356	3	14	1	3.1728	0.0628	5	1
1357	3	14	1	3.1728	0.0628	6	1
1358	3	14	1	3.1728	0.0628	7	1
1359	3	14	1	3.1728	0.0628	8	1
1360	3	14	1	3.1728	0.0628	9	1
1361	3	14	1	3.1728	0.0628	10	1
1362	3	14	1	3.1728	0.0628	11	1
1363	3	14	1	3.1728	0.0628	12	1
1364	3	14	1	3.1728	0.0628	13	1
1365	3	14	1	3.1728	0.0628	14	1
1366	3	15	1	3.3043	0.0581	1	1
1367	3	15	1	3.3043	0.0581	2	1
1368	3	15	1	3.3043	0.0581	3	1
1369	3	15	1	3.3043	0.0581	4	1
1370	3	15	1	3.3043	0.0581	5	1
1371	3	15	1	3.3043	0.0581	6	1
1372	3	15	1	3.3043	0.0581	7	1
1373	3	15	1	3.3043	0.0581	8	1
1374	3	15	1	3.3043	0.0581	9	1
1375	3	15	1	3.3043	0.0581	10	1
1376	3	15	1	3.3043	0.0581	11	1
1377	3	15	1	3.3043	0.0581	12	1
1378	3	15	1	3.3043	0.0581	13	1
1379	3	15	1	3.3043	0.0581	14	1

1380	3	15	1	3.3043	0.0581	15	1
1381	3	16	1	3.4236	0.055	1	1
1382	3	16	1	3.4236	0.055	2	1
1383	3	16	1	3.4236	0.055	3	1
1384	3	16	1	3.4236	0.055	4	1
1385	3	16	1	3.4236	0.055	5	1
1386	3	16	1	3.4236	0.055	6	1
1387	3	16	1	3.4236	0.055	7	1
1388	3	16	1	3.4236	0.055	8	1
1389	3	16	1	3.4236	0.055	9	1
1390	3	16	1	3.4236	0.055	10	1
1391	3	16	1	3.4236	0.055	11	1
1392	3	16	1	3.4236	0.055	12	1
1393	3	16	1	3.4236	0.055	13	1
1394	3	16	1	3.4236	0.055	14	1
1395	3	16	1	3.4236	0.055	15	1
1396	3	16	1	3.4236	0.055	16	1
1397	3	17	1	3.5307	0.0535	1	1
1398	3	17	1	3.5307	0.0535	2	1
1399	3	17	1	3.5307	0.0535	3	1
1400	3	17	1	3.5307	0.0535	4	1
1401	3	17	1	3.5307	0.0535	5	1
1402	3	17	1	3.5307	0.0535	6	1
1403	3	17	1	3.5307	0.0535	7	1
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1406	3	17	1	3.5307	0.0535	10	1
1407	3	17	1	3.5307	0.0535	11	1
1408	3	17	1	3.5307	0.0535	12	1
1409	3	17	1	3.5307	0.0535	13	1
1410	3	17	1	3.5307	0.0535	14	1
1411	3	17	1	3.5307	0.0535	15	1
1412	3	17	1	3.5307	0.0535	16	1
1413	3	17	1	3.5307	0.0535	17	1
1414	3	18	1	3.6256	0.0536	1	1
1415	3	18	1	3.6256	0.0536	2	1
1416	3	18	1	3.6256	0.0536	3	1
1417	3	18	1	3.6256	0.0536	4	1
1418	3	18	1	3.6256	0.0536	5	1
1419	3	18	1	3.6256	0.0536	6	1
1420	3	18	1	3.6256	0.0536	7	1
1421	3	18	1	3.6256	0.0536	8	1
1422	3	18	1	3.6256	0.0536	9	1
1423	3	18	1	3.6256	0.0536	10	1
1424	3	18	1	3.6256	0.0536	11	1
1425	3	18	1	3.6256	0.0536	12	1
1426	3	18	1	3.6256	0.0536	13	1
1427	3	18	1	3.6256	0.0536	14	1
1428	3	18	1	3.6256	0.0536	15	1
1429	3	18	1	3.6256	0.0536	16	1
1430	3	18	1	3.6256	0.0536	17	1
1431	3	18	1	3.6256	0.0536	18	1
1432	3	19	1	3.7083	0.0553	1	1
1433	3	19	1	3.7083	0.0553	2	1
1434	3	19	1	3.7083	0.0553	3	1
1435	3	19	1	3.7083	0.0553	4	1
1436	3	19	1	3.7083	0.0553	5	1
1437	3	19	1	3.7083	0.0553	6	1
1438	3	19	1	3.7083	0.0553	7	1
1439	3	19	1	3.7083	0.0553	8	1
1440	3	19	1	3.7083	0.0553	9	1
1441	3	19	1	3.7083	0.0553	10	1
1442	3	19	1	3.7083	0.0553	11	1

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1443	3	19	1	3.7083	0.0553	12	1
1444	3	19	1	3.7083	0.0553	13	1
1445	3	19	1	3.7083	0.0553	14	1
1446	3	19	1	3.7083	0.0553	15	1
1447	3	19	1	3.7083	0.0553	16	1
1448	3	19	1	3.7083	0.0553	17	1
1449	3	19	1	3.7083	0.0553	18	1
1450	3	19	1	3.7083	0.0553	19	1
1451	3	20	1	3.7788	0.0586	1	1
1452	3	20	1	3.7788	0.0586	2	1
1453	3	20	1	3.7788	0.0586	3	1
1454	3	20	1	3.7788	0.0586	4	1
1455	3	20	1	3.7788	0.0586	5	1
1456	3	20	1	3.7788	0.0586	6	1
1457	3	20	1	3.7788	0.0586	7	1
1458	3	20	1	3.7788	0.0586	8	1
1459	3	20	1	3.7788	0.0586	9	1
1460	3	20	1	3.7788	0.0586	10	1
1461	3	20	1	3.7788	0.0586	11	1
1462	3	20	1	3.7788	0.0586	12	1
1463	3	20	1	3.7788	0.0586	13	1
1464	3	20	1	3.7788	0.0586	14	1
1465	3	20	1	3.7788	0.0586	15	1
1466	3	20	1	3.7788	0.0586	16	1
1467	3	20	1	3.7788	0.0586	17	1
1468	3	20	1	3.7788	0.0586	18	1
1469	3	20	1	3.7788	0.0586	19	1
1470	3	20	1	3.7788	0.0586	20	1
1471	3	1	2	0.3531	0.2695	1	1
1472	3	2	2	0.6432	0.244	1	1
1473	3	2	2	0.6432	0.244	2	1
1474	3	3	2	0.9211	0.2201	1	1
1475	3	3	2	0.9211	0.2201	2	1
1476	3	3	2	0.9211	0.2201	3	1
1477	3	4	2	1.1868	0.1978	1	1
1478	3	4	2	1.1868	0.1978	2	1
1479	3	4	2	1.1868	0.1978	3	1
1480	3	4	2	1.1868	0.1978	4	1
1481	3	5	2	1.4403	0.1771	1	1
1482	3	5	2	1.4403	0.1771	2	1
1483	3	5	2	1.4403	0.1771		1
1484	3	5	2	1.4403	0.1771	4	1
1485	3	5	2	1.4403	0.1771	5	1
1486	3	6	2	1.6816	0.158	1	1
1487	3	6	2	1.6816	0.158	2	1
1488	3	6	2	1.6816	0.158	3	1
1489	3	6	2	1.6816	0.158	4	1
1490	3	6	2	1.6816	0.158	5	1
1491	3	6	2	1.6816	0.158	6	1
1492	3	7	2	1.9107	0.1405	1	1
1493	3	7	2	1.9107	0.1405	2	1
1494	3	7	2	1.9107	0.1405	3	1
1495	3	7	2	1.9107	0.1405	4	1
1496	3	7	2	1.9107	0.1405	5	1
1497	3	7	2	1.9107	0.1405	6	1
1498	3	7	2	1.9107	0.1405	7	1
1499	3	8	2	2.1276	0.1246	1	1
1500	3	8	2	2.1276	0.1246	2	1
1501	3	8	2	2.1276	0.1246	3	1
1502	3	8	2	2.1276	0.1246	4	1
1503	3	8	2	2.1276	0.1246	5	1
1504	3	8	2	2.1276	0.1246	6	1
1505	3	8	2	2.1276	0.1246	7	1

1506	3	8	2	2.1276	0.1246	8	1
1507	3	9	2	2.3323	0.1103	1	1
1508	3	9	2	2.3323	0.1103	2	1
1509	3	9	2	2.3323	0.1103	3	1
1510	3	9	2	2.3323	0.1103	4	1
1511	3	9	2	2.3323	0.1103	5	1
1512	3	9	2	2.3323	0.1103	6	1
1513	3	9	2	2.3323	0.1103	7	1
1514	3	9	2	2.3323	0.1103	8	1
1515	3	9	2	2.3323	0.1103	9	1
1516	3	10	2	2.5248	0.0976	1	1
1517	3	10	2	2.5248	0.0976	2	1
1518	3	10	2	2.5248	0.0976	3	1
1519	3	10	2	2.5248	0.0976	4	1
1520	3	10	2	2.5248	0.0976	5	1
1521	3	10	2	2.5248	0.0976	6	1
1522	3	10	2	2.5248	0.0976	7	1
1523	3	10	2	2.5248	0.0976	8	1
1524	3	10	2	2.5248	0.0976	9	1
1525	3	10	2	2.5248	0.0976	10	1
1526	3	11	2	2.7051	0.0865	1	1
1527	3	11	2	2.7051	0.0865	2	1
1528	3	11	2	2.7051	0.0865	3	1
1529	3	11	2	2.7051	0.0865	4	1
1530	3	11	2	2.7051	0.0865	5	1
1531	3	11	2	2.7051	0.0865	6	1
1532	3	11	2	2.7051	0.0865	7	1
1533	3	11	2	2.7051	0.0865	8	1
1534	3	11	2	2.7051	0.0865	9	1
1535	3	11	2	2.7051	0.0865	10	1
1536	3	11	2	2.7051	0.0865	11	1
1537	3	12	2	2.8732	0.077	1	1
1538	3	12	2	2.8732	0.077	2	1
1539	3	12	2	2.8732	0.077	3	1
1540	3	12	2	2.8732	0.077	4	1
1541	3	12	2	2.8732	0.077	5	1
1542	3	12	2	2.8732	0.077	6	1
1543	3	12	2	2.8732	0.077	7	1
1544	3	12	2	2.8732	0.077	8	1
1545	3	12	2	2.8732	0.077	9	1
1546	3	12	2	2.8732	0.077	10	1
1547	3	12	2	2.8732	0.077	11	1
1548	3	12	2	2.8732	0.077	12	1
1549	3	13	2	3.0291	0.0691	1	1
1550	3	13	2	3.0291	0.0691	2	1
1551	3	13	2	3.0291	0.0691	3	1
1552	3	13	2	3.0291	0.0691	4	1
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1554	3	13	2	3.0291	0.0691	6	1
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1559	3	13	2	3.0291	0.0691	11	1
1560	3	13	2	3.0291	0.0691	12	1
1561	3	13	2	3.0291	0.0691	13	1
1562	3	14	2	3.1728	0.0628	1	1
1563	3	14	2	3.1728	0.0628	2	1
1564	3	14	2	3.1728	0.0628	3	1
1565	3	14	2	3.1728	0.0628	4	1
1566	3	14	2	3.1728	0.0628	5	1
1567	3	14	2	3.1728	0.0628	6	1
1568	3	14	2	3.1728	0.0628	7	1

1569	3	14	2	3.1728	0.0628	8	1
1570	3	14	2	3.1728	0.0628	9	1
1571	3	14	2	3.1728	0.0628	10	1
1572	3	14	2	3.1728	0.0628	11	1
1573	3	14	2	3.1728	0.0628	12	1
1574	3	14	2	3.1728	0.0628	13	1
1575	3	14	2	3.1728	0.0628	14	1
1576	3	15	2	3.3043	0.0581	1	1
1577	3	15	2	3.3043	0.0581	2	1
1578	3	15	2	3.3043	0.0581	3	1
1579	3	15	2	3.3043	0.0581	4	1
1580	3	15	2	3.3043	0.0581	5	1
1581	3	15	2	3.3043	0.0581	6	1
1582	3	15	2	3.3043	0.0581	7	1
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1586	3	15	2	3.3043	0.0581	11	1
1587	3	15	2	3.3043	0.0581	12	1
1588	3	15	2	3.3043	0.0581	13	1
1589	3	15	2	3.3043	0.0581	14	1
1590	3	15	2	3.3043	0.0581	15	1
1591	3	16	2	3.4236	0.055	1	1
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1595	3	16	2	3.4236	0.055	5	1
1596	3	16	2	3.4236	0.055	6	1
1597	3	16	2	3.4236	0.055	7	1
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1601	3	16	2	3.4236	0.055	11	1
1602	3	16	2	3.4236	0.055	12	1
1603	3	16	2	3.4236	0.055	13	1
1604	3	16	2	3.4236	0.055	14	1
1605	3	16	2	3.4236	0.055	15	1
1606	3	16	2	3.4236	0.055	16	1
1607	3	17	2	3.5307	0.0535	1	1
1608	3	17	2	3.5307	0.0535	2	1
1609	3	17	2	3.5307	0.0535	3	1
1610	3	17	2	3.5307	0.0535	4	1
1611	3	17	2	3.5307	0.0535	5	1
1612	3	17	2	3.5307	0.0535	6	1
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1616	3	17	2	3.5307	0.0535	10	1
1617	3	17	2	3.5307	0.0535	11	1
1618	3	17	2	3.5307	0.0535	12	1
1619	3	17	2	3.5307	0.0535	13	1
1620	3	17	2	3.5307	0.0535	14	1
1621	3	17	2	3.5307	0.0535	15	1
1622	3	17	2	3.5307	0.0535	16	1
1623	3	17	2	3.5307	0.0535	17	1
1624	3	18	2	3.6256	0.0536	1	1
1625	3	18	2	3.6256	0.0536	2	1
1626	3	18	2	3.6256	0.0536	3	1
1627	3	18	2	3.6256	0.0536	4	1
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1636	3	18	2	3.6256	0.0536	13	1
1637	3	18	2	3.6256	0.0536	14	1
1638	3	18	2	3.6256	0.0536	15	1
1639	3	18	2	3.6256	0.0536	16	1
1640	3	18	2	3.6256	0.0536	17	1
1641	3	18	2	3.6256	0.0536	18	1
1642	3	19	2	3.7083	0.0553	1	1
1643	3	19	2	3.7083	0.0553	2	1
1644	3	19	2	3.7083	0.0553	3	1
1645	3	19	2	3.7083	0.0553	4	1
1646	3	19	2	3.7083	0.0553	5	1
1647	3	19	2	3.7083	0.0553	6	1
1648	3	19	2	3.7083	0.0553	7	1
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1656	3	19	2	3.7083	0.0553	15	1
1657	3	19	2	3.7083	0.0553	16	1
1658	3	19	2	3.7083	0.0553	17	1
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1660	3	19	2	3.7083	0.0553	19	1
1661	3	20	2	3.7788	0.0586	1	1
1662	3	20	2	3.7788	0.0586	2	1
1663	3	20	2	3.7788	0.0586	3	1
1664	3	20	2	3.7788	0.0586	4	1
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1671	3	20	2	3.7788	0.0586	11	1
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1675	3	20	2	3.7788	0.0586	15	1
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1678	3	20	2	3.7788	0.0586	18	1
1679	3	20	2	3.7788	0.0586	19	1
1680	3	20	2	3.7788	0.0586	20	1
1681	3	1	3	0.3531	0.2695	1	1
1682	3	2	3	0.6432	0.244	1	1
1683	3	2	3	0.6432	0.244	2	1
1684	3	3	3	0.9211	0.2201	1	1
1685	3	3	3	0.9211	0.2201	2	1
1686	3	3	3	0.9211	0.2201	3	1
1687	3	4	3	1.1868	0.1978	1	1
1688	3	4	3	1.1868	0.1978	2	1
1689	3	4	3	1.1868	0.1978	3	1
1690	3	4	3	1.1868	0.1978	4	1
1691	3	5	3	1.4403	0.1771	1	1
1692	3	5	3	1.4403	0.1771	2	1
1693	3	5	3	1.4403	0.1771	3	1
1694	3	5	3	1.4403	0.1771	4	1

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562	1	17	3	3.5307	0.0535	6	1
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565	1	17	3	3.5307	0.0535	9	1
566	1	17	3	3.5307	0.0535	10	1
567	1	17	3	3.5307	0.0535	11	1
568	1	17	3	3.5307	0.0535	12	1
569	1	17	3	3.5307	0.0535	13	1
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571	1	17	3	3.5307	0.0535	15	1
572	1	17	3	3.5307	0.0535	16	1
573	1	17	3	3.5307	0.0535	17	1
574	1	18	3	3.6256	0.0536	1	1
575	1	18	3	3.6256	0.0536	2	1
576	1	18	3	3.6256	0.0536	3	1
577	1	18	3	3.6256	0.0536	4	1
578	1	18	3	3.6256	0.0536	5	1
579	1	18	3	3.6256	0.0536	6	1
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592	1	19	3	3.7083	0.0553	1	1
593	1	19	3	3.7083	0.0553	2	1
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611	1	20	3	3.7788	0.0586	1	1
612	1	20	3	3.7788	0.0586	2	1
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621	1	20	3	3.7788	0.0586	11	1
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625	1	20	3	3.7788	0.0586	15	1
626	1	20	3	3.7788	0.0586	16	1
627	1	20	3	3.7788	0.0586	17	1
628	1	20	3	3.7788	0.0586	18	1
629	1	20	3	3.7788	0.0586	19	1
630	1	20	3	3.7788	0.0586	20	1
631	2	1	1	0.3531	0.2695	1	1
632	2	2	1	0.6432	0.244	1	1
633	2	2	1	0.6432	0.244	2	1
634	2	3	1	0.9211	0.2201	1	1
635	2	3	1	0.9211	0.2201	2	1
636	2	3	1	0.9211	0.2201	3	1
637	2	4	1	1.1868	0.1978	1	1
638	2	4	1	1.1868	0.1978	2	1
639	2	4	1	1.1868	0.1978	3	1
640	2	4	1	1.1868	0.1978	4	1
641	2	5	1	1.4403	0.1771	1	1
642	2	5	1	1.4403	0.1771	2	1
643	2	5	1	1.4403	0.1771	3	1
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646	2	6	1	1.6816	0.158	1	1
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652	2	7	1	1.9107	0.1405	1	1
653	2	7	1	1.9107	0.1405	2	1
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664	2	8	1	2.1276	0.1246	6	1
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667	2	9	1	2.3323	0.1103	1	1
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669	2	9	1	2.3323	0.1103	3	1
670	2	9	1	2.3323	0.1103	4	1
671	2	9	1	2.3323	0.1103	5	1
672	2	9	1	2.3323	0.1103	6	1
673	2	9	1	2.3323	0.1103	7	1
674	2	9	1	2.3323	0.1103	8	1
675	2	9	1	2.3323	0.1103	9	1
676	2	10	1	2.5248	0.0976	1	1
677	2	10	1	2.5248	0.0976	2	1
678	2	10	1	2.5248	0.0976	3	1
679	2	10	1	2.5248	0.0976	4	1
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682	2	10	1	2.5248	0.0976	7	1
683	2	10	1	2.5248	0.0976	8	1
684	2	10	1	2.5248	0.0976	9	1
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686	2	11	1	2.7051	0.0865	1	1

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1696	3	6	3	1.6816	0.158	1	1
1697	3	6	3	1.6816	0.158	2	1
1698	3	6	3	1.6816	0.158	3	1
1699	3	6	3	1.6816	0.158	4	1
1700	3	6	3	1.6816	0.158	5	1
1701	3	6	3	1.6816	0.158	6	1
1702	3	7	3	1.9107	0.1405	1	1
1703	3	7	3	1.9107	0.1405	2	1
1704	3	7	3	1.9107	0.1405	3	1
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1707	3	7	3	1.9107	0.1405	6	1
1708	3	7	3	1.9107	0.1405	7	1
1709	3	8	3	2.1276	0.1246	1	1
1710	3	8	3	2.1276	0.1246	2	1
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1717	3	9	3	2.3323	0.1103	1	1
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1726	3	10	3	2.5248	0.0976	1	1
1727	3	10	3	2.5248	0.0976	2	1
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1735	3	10	3	2.5248	0.0976	10	1
1736	3	11	3	2.7051	0.0865	1	1
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1739	3	11	3	2.7051	0.0865	4	1
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1741	3	11	3	2.7051	0.0865	6	1
1742	3	11	3	2.7051	0.0865	7	1
1743	3	11	3	2.7051	0.0865	8	1
1744	3	11	3	2.7051	0.0865	9	1
1745	3	11	3	2.7051	0.0865	10	1
1746	3	11	3	2.7051	0.0865	11	1
1747	3	12	3	2.8732	0.077	1	1
1748	3	12	3	2.8732	0.077	2	1
1749	3	12	3	2.8732	0.077	3	1
1750	3	12	3	2.8732	0.077	4	1
1751	3	12	3	2.8732	0.077	5	1
1752	3	12	3	2.8732	0.077	6	1
1753	3	12	3	2.8732	0.077	7	1
1754	3	12	3	2.8732	0.077	8	1
1755	3	12	3	2.8732	0.077	9	1
1756	3	12	3	2.8732	0.077	10	1
1757	3	12	3	2.8732	0.077	11	1

1758	3	12	3	2.8732	0.077	12	1
1759	3	13	3	3.0291	0.0691	1	1
1760	3	13	3	3.0291	0.0691	2	1
1761	3	13	3	3.0291	0.0691	3	1
1762	3	13	3	3.0291	0.0691	4	1
1763	3	13	3	3.0291	0.0691	5	1
1764	3	13	3	3.0291	0.0691	6	1
1765	3	13	3	3.0291	0.0691	7	1
1766	3	13	3	3.0291	0.0691	8	1
1767	3	13	3	3.0291	0.0691	9	1
1768	3	13	3	3.0291	0.0691	10	1
1769	3	13	3	3.0291	0.0691	11	1
1770	3	13	3	3.0291	0.0691	12	1
1771	3	13	3	3.0291	0.0691	13	1
1772	3	14	3	3.1728	0.0628	1	1
1773	3	14	3	3.1728	0.0628	2	1
1774	3	14	3	3.1728	0.0628	3	1
1775	3	14	3	3.1728	0.0628	4	1
1776	3	14	3	3.1728	0.0628	5	1
1777	3	14	3	3.1728	0.0628	6	1
1778	3	14	3	3.1728	0.0628	7	1
1779	3	14	3	3.1728	0.0628	8	1
1780	3	14	3	3.1728	0.0628	9	1
1781	3	14	3	3.1728	0.0628	10	1
1782	3	14	3	3.1728	0.0628	11	1
1783	3	14	3	3.1728	0.0628	12	1
1784	3	14	3	3.1728	0.0628	13	1
1785	3	14	3	3.1728	0.0628	14	1
1786	3	15	3	3.3043	0.0581	1	1
1787	3	15	3	3.3043	0.0581	2	1
1788	3	15	3	3.3043	0.0581	3	1
1789	3	15	3	3.3043	0.0581	4	1
1790	3	15	3	3.3043	0.0581	5	1
1791	3	15	3	3.3043	0.0581	6	1
1792	3	15	3	3.3043	0.0581	7	1
1793	3	15	3	3.3043	0.0581	8	1
1794	3	15	3	3.3043	0.0581	9	1
1795	3	15	3	3.3043	0.0581	10	1
1796	3	15	3	3.3043	0.0581	11	1
1797	3	15	3	3.3043	0.0581	12	1
1798	3	15	3	3.3043	0.0581	13	1
1799	3	15	3	3.3043	0.0581	14	1
1800	3	15	3	3.3043	0.0581	15	1
1801	3	16	3	3.4236	0.055	1	1
1802	3	16	3	3.4236	0.055	2	1
1803	3	16	3	3.4236	0.055	3	1
1804	3	16	3	3.4236	0.055	4	1
1805	3	16	3	3.4236	0.055	5	1
1806	3	16	3	3.4236	0.055	6	1
1807	3	16	3	3.4236	0.055	7	1
1808	3	16	3	3.4236	0.055	8	1
1809	3	16	3	3.4236	0.055	9	1
1810	3	16	3	3.4236	0.055	10	1
1811	3	16	3	3.4236	0.055	11	1
1812	3	16	3	3.4236	0.055	12	1
1813	3	16	3	3.4236	0.055	13	1
1814	3	16	3	3.4236	0.055	14	1
1815	3	16	3	3.4236	0.055	15	1
1816	3	16	3	3.4236	0.055	16	1
1817	3	17	3	3.5307	0.0535	1	1
1818	3	17	3	3.5307	0.0535	2	1
1819	3	17	3	3.5307	0.0535	3	1
1820	3	17	3	3.5307	0.0535	4	1

1821	3	17	3	3.5307	0.0535	5	1
1822	3	17	3	3.5307	0.0535	6	1
1823	3	17	3	3.5307	0.0535	7	1
1824	3	17	3	3.5307	0.0535	8	1
1825	3	17	3	3.5307	0.0535	9	1
1826	3	17	3	3.5307	0.0535	10	1
1827	3	17	3	3.5307	0.0535	11	1
1828	3	17	3	3.5307	0.0535	12	1
1829	3	17	3	3.5307	0.0535	13	1
1830	3	17	3	3.5307	0.0535	14	1
1831	3	17	3	3.5307	0.0535	15	1
1832	3	17	3	3.5307	0.0535	16	1
1833	3	17	3	3.5307	0.0535	17	1
1834	3	18	3	3.6256	0.0536	1	1
1835	3	18	3	3.6256	0.0536	2	1
1836	3	18	3	3.6256	0.0536	3	1
1837	3	18	3	3.6256	0.0536	4	1
1838	3	18	3	3.6256	0.0536	5	1
1839	3	18	3	3.6256	0.0536	6	1
1840	3	18	3	3.6256	0.0536	7	1
1841	3	18	3	3.6256	0.0536	8	1
1842	3	18	3	3.6256	0.0536	9	1
1843	3	18	3	3.6256	0.0536	10	1
1844	3	18	3	3.6256	0.0536	11	1
1845	3	18	3	3.6256	0.0536	12	1
1846	3	18	3	3.6256	0.0536	13	1
1847	3	18	3	3.6256	0.0536	14	1
1848	3	18	3	3.6256	0.0536	15	1
1849	3	18	3	3.6256	0.0536	16	1
1850	3	18	3	3.6256	0.0536	17	1
1851	3	18	3	3.6256	0.0536	18	1
1852	3	19	3	3.7083	0.0553	1	1
1853	3	19	3	3.7083	0.0553	2	1
1854	3	19	3	3.7083	0.0553	3	1
1855	3	19	3	3.7083	0.0553	4	1
1856	3	19	3	3.7083	0.0553	5	1
1857	3	19	3	3.7083	0.0553	6	1
1858	3	19	3	3.7083	0.0553	7	1
1859	3	19	3	3.7083	0.0553	8	1
1860	3	19	3	3.7083	0.0553	9	1
1861	3	19	3	3.7083	0.0553	10	1
1862	3	19	3	3.7083	0.0553	11	1
1863	3	19	3	3.7083	0.0553	12	1
1864	3	19	3	3.7083	0.0553	13	1
1865	3	19	3	3.7083	0.0553	14	1
1866	3	19	3	3.7083	0.0553	15	1
1867	3	19	3	3.7083	0.0553	16	1
1868	3	19	3	3.7083	0.0553	17	1
1869	3	19	3	3.7083	0.0553	18	1
1870	3	19	3	3.7083	0.0553	19	1
1871	3	20	3	3.7788	0.0586	1	1
1872	3	20	3	3.7788	0.0586	2	1
1873	3	20	3	3.7788	0.0586	3	1
1874	3	20	3	3.7788	0.0586	4	1
1875	3	20	3	3.7788	0.0586	5	1
1876	3	20	3	3.7788	0.0586	6	1
1877	3	20	3	3.7788	0.0586	7	1
1878	3	20	3	3.7788	0.0586	8	1
1879	3	20	3	3.7788	0.0586	9	1
1880	3	20	3	3.7788	0.0586	10	1
1881	3	20	3	3.7788	0.0586	11	1
1882	3	20	3	3.7788	0.0586	12	1
1883	3	20	3	3.7788	0.0586	13	1

1884	3	20	3	3.7788	0.0586	14	1
1885	3	20	3	3.7788	0.0586	15	1
1886	3	20	3	3.7788	0.0586	16	1
1887	3	20	3	3.7788	0.0586	17	1
1888	3	20	3	3.7788	0.0586	18	1
1889	3	20	3	3.7788	0.0586	19	1
1890	3	20	3	3.7788	0.0586	20	1
Minimum	1	1	1	0.3531	0.0535	1	1
Maximum	3	20	3	3.7788	0.2695	20	1

2. YSA modeli için hazırlanan Hazezy'e göre normalize edilmiş veri dosyası.

2x(V-Vmin)/(Vmax-Vmin)-1 by Hazezy

	X1	X2	X3	X4	X5	X6	Y
			Zemin	Period			$E_{H(KAT)}/E_H$
Project No.	EQ	Kat Sayısı	Tipi	(s)	(h)	Kat No.	Nm
1	-1	-1	-1	-1	1	-1	1
2	-1	-0.8947368	-1	-0.83063	0.7638889	-1	1
3	-1	-0.8947368	-1	-0.83063	0.7638889	-0.894737	1
4	-1	-0.7894737	-1	-0.66839	0.5425926	-1	1
5	-1	-0.7894737	-1	-0.66839	0.5425926	-0.894737	1
6	-1	-0.7894737	-1	-0.66839	0.5425926	-0.789474	1
7	-1	-0.6842105	-1	-0.51327	0.3361111	-1	1
8	-1	-0.6842105	-1	-0.51327	0.3361111	-0.894737	1
9	-1	-0.6842105	-1	-0.51327	0.3361111	-0.789474	1
10	-1	-0.6842105	-1	-0.51327	0.3361111	-0.684211	1
11	-1	-0.5789474	-1	-0.36527	0.1444444	-1	1
12	-1	-0.5789474	-1	-0.36527	0.1444444	-0.894737	1
13	-1	-0.5789474	-1	-0.36527	0.1444444	-0.789474	1
14	-1	-0.5789474	-1	-0.36527	0.1444444	-0.684211	1
15	-1	-0.5789474	-1	-0.36527	0.1444444	-0.578947	1
16	-1	-0.4736842	-1	-0.22439	-0.032407	-1	1
17	-1	-0.4736842	-1	-0.22439	-0.032407	-0.894737	1
18	-1	-0.4736842	-1	-0.22439	-0.032407	-0.789474	1
19	-1	-0.4736842	-1	-0.22439	-0.032407	-0.684211	1
20	-1	-0.4736842	-1	-0.22439	-0.032407	-0.578947	1
21	-1	-0.4736842	-1	-0.22439	-0.032407	-0.473684	1
22	-1	-0.3684211	-1	-0.09064	-0.194444	-1	1
23	-1	-0.3684211	-1	-0.09064	-0.194444	-0.894737	1
24	-1	-0.3684211	-1	-0.09064	-0.194444	-0.789474	1
25	-1	-0.3684211	-1	-0.09064	-0.194444	-0.684211	1
26	-1	-0.3684211	-1	-0.09064	-0.194444	-0.578947	1
27	-1	-0.3684211	-1	-0.09064	-0.194444	-0.473684	1
28	-1	-0.3684211	-1	-0.09064	-0.194444	-0.368421	1
29	-1	-0.2631579	-1	0.035993	-0.341667	-1	1
30	-1	-0.2631579	-1	0.035993	-0.341667	-0.894737	1
31	-1	-0.2631579	-1	0.035993	-0.341667	-0.789474	1
32	-1	-0.2631579	-1	0.035993	-0.341667	-0.684211	1
33	-1	-0.2631579	-1	0.035993	-0.341667	-0.578947	1
34	-1	-0.2631579	-1	0.035993	-0.341667	-0.473684	1
35	-1	-0.2631579	-1	0.035993	-0.341667	-0.368421	1
36	-1	-0.2631579	-1	0.035993	-0.341667	-0.263158	1
37	-1	-0.1578947	-1	0.155501	-0.474074	-1	1
38	-1	-0.1578947	-1	0.155501	-0.474074	-0.894737	1
39	-1	-0.1578947	-1	0.155501	-0.474074	-0.789474	1
40	-1	-0.1578947	-1	0.155501	-0.474074	-0.684211	1
41	-1	-0.1578947	-1	0.155501	-0.474074	-0.578947	1
42	-1	-0.1578947	-1	0.155501	-0.474074	-0.473684	1
43	-1	-0.1578947	-1	0.155501	-0.474074	-0.368421	1
44	-1	-0.1578947	-1	0.155501	-0.474074	-0.263158	1
45	-1	-0.1578947	-1	0.155501	-0.474074	-0.157895	1
46	-1	-0.0526316	-1	0.267887	-0.591667	-1	1
47	-1	-0.0526316	-1	0.267887	-0.591667	-0.894737	1
48	-1	-0.0526316	-1	0.267887	-0.591667	-0.789474	1
49	-1	-0.0526316	-1	0.267887	-0.591667	-0.684211	1
50	-1	-0.0526316	-1	0.267887	-0.591667	-0.578947	1

51	-1	-0.0526316	-1	0.267887	-0.591667	-0.473684	1
52	-1	-0.0526316	-1	0.267887	-0.591667	-0.368421	1
53	-1	-0.0526316	-1	0.267887	-0.591667	-0.263158	1
54	-1	-0.0526316	-1	0.267887	-0.591667	-0.157895	1
55	-1	-0.0526316	-1	0.267887	-0.591667	-0.052632	1
56	-1	0.05263158	-1	0.37315	-0.694444	-1	1
57	-1	0.05263158	-1	0.37315	-0.694444	-0.894737	1
58	-1	0.05263158	-1	0.37315	-0.694444	-0.789474	1
59	-1	0.05263158	-1	0.37315	-0.694444	-0.684211	1
60	-1	0.05263158	-1	0.37315	-0.694444	-0.578947	1
61	-1	0.05263158	-1	0.37315	-0.694444	-0.473684	1
62	-1	0.05263158	-1	0.37315	-0.694444	-0.368421	1
63	-1	0.05263158	-1	0.37315	-0.694444	-0.263158	1
64	-1	0.05263158	-1	0.37315	-0.694444	-0.157895	1
65	-1	0.05263158	-1	0.37315	-0.694444	-0.052632	1
66	-1	0.05263158	-1	0.37315	-0.694444	0.052632	1
67	-1	0.15789474	-1	0.471291	-0.782407	-1	1
68	-1	0.15789474	-1	0.471291	-0.782407	-0.894737	1
69	-1	0.15789474	-1	0.471291	-0.782407	-0.789474	1
70	-1	0.15789474	-1	0.471291	-0.782407	-0.684211	1
71	-1	0.15789474	-1	0.471291	-0.782407	-0.578947	1
72	-1	0.15789474	-1	0.471291	-0.782407	-0.473684	1
73	-1	0.15789474	-1	0.471291	-0.782407	-0.368421	1
74	-1	0.15789474	-1	0.471291	-0.782407	-0.263158	1
75	-1	0.15789474	-1	0.471291	-0.782407	-0.157895	1
76	-1	0.15789474	-1	0.471291	-0.782407	-0.052632	1
77	-1	0.15789474	-1	0.471291	-0.782407	0.052632	1
78	-1	0.15789474	-1	0.471291	-0.782407	0.157895	1
79	-1	0.26315789	-1	0.562308	-0.855556	-1	1
80	-1	0.26315789	-1	0.562308	-0.855556	-0.894737	1
81	-1	0.26315789	-1	0.562308	-0.855556	-0.789474	1
82	-1	0.26315789	-1	0.562308	-0.855556	-0.684211	1
83	-1	0.26315789	-1	0.562308	-0.855556	-0.578947	1
84	-1	0.26315789	-1	0.562308	-0.855556	-0.473684	1
85	-1	0.26315789	-1	0.562308	-0.855556	-0.368421	1
86	-1	0.26315789	-1	0.562308	-0.855556	-0.263158	1
87	-1	0.26315789	-1	0.562308	-0.855556	-0.157895	1
88	-1	0.26315789	-1	0.562308	-0.855556	-0.052632	1
89	-1	0.26315789	-1	0.562308	-0.855556	0.052632	1
90	-1	0.26315789	-1	0.562308	-0.855556	0.157895	1
91	-1	0.26315789	-1	0.562308	-0.855556	0.263158	1
92	-1	0.36842105	-1	0.646204	-0.913889	-1	1
93	-1	0.36842105	-1	0.646204	-0.913889	-0.894737	1
94	-1	0.36842105	-1	0.646204	-0.913889	-0.789474	1
95	-1	0.36842105	-1	0.646204	-0.913889	-0.684211	1
96	-1	0.36842105	-1	0.646204	-0.913889	-0.578947	1
97	-1	0.36842105	-1	0.646204	-0.913889	-0.473684	1
98	-1	0.36842105	-1	0.646204	-0.913889	-0.368421	1
99	-1	0.36842105	-1	0.646204	-0.913889	-0.263158	1
100	-1	0.36842105	-1	0.646204	-0.913889	-0.157895	1
101	-1	0.36842105	-1	0.646204	-0.913889	-0.052632	1
102	-1	0.36842105	-1	0.646204	-0.913889	0.052632	1
103	-1	0.36842105	-1	0.646204	-0.913889	0.157895	1
104	-1	0.36842105	-1	0.646204	-0.913889	0.263158	1
105	-1	0.36842105	-1	0.646204	-0.913889	0.368421	1
106	-1	0.47368421	-1	0.722976	-0.957407	-1	1
107	-1	0.47368421	-1	0.722976	-0.957407	-0.894737	1
108	-1	0.47368421	-1	0.722976	-0.957407	-0.789474	1
109	-1	0.47368421	-1	0.722976	-0.957407	-0.684211	1
110	-1	0.47368421	-1	0.722976	-0.957407	-0.578947	1
111	-1	0.47368421	-1	0.722976	-0.957407	-0.473684	1
112	-1	0.47368421	-1	0.722976	-0.957407	-0.368421	1
113	-1	0.47368421	-1	0.722976	-0.957407	-0.263158	1
114	-1	0.47368421	-1	0.722976	-0.957407	-0.157895	1
115	-1	0.47368421	-1	0.722976	-0.957407	-0.052632	1
116	-1	0.47368421	-1	0.722976	-0.957407	0.052632	1

117	-1	0.47368421	-1	0.722976	-0.957407	0.157895	1
118	-1	0.47368421	-1	0.722976	-0.957407	0.263158	1
119	-1	0.47368421	-1	0.722976	-0.957407	0.368421	1
120	-1	0.47368421	-1	0.722976	-0.957407	0.473684	1
121	-1	0.57894737	-1	0.792626	-0.986111	-1	1
122	-1	0.57894737	-1	0.792626	-0.986111	-0.894737	1
123	-1	0.57894737	-1	0.792626	-0.986111	-0.789474	1
124	-1	0.57894737	-1	0.792626	-0.986111	-0.684211	1
125	-1	0.57894737	-1	0.792626	-0.986111	-0.578947	1
126	-1	0.57894737	-1	0.792626	-0.986111	-0.473684	1
127	-1	0.57894737	-1	0.792626	-0.986111	-0.368421	1
128	-1	0.57894737	-1	0.792626	-0.986111	-0.263158	1
129	-1	0.57894737	-1	0.792626	-0.986111	-0.157895	1
130	-1	0.57894737	-1	0.792626	-0.986111	-0.052632	1
131	-1	0.57894737	-1	0.792626	-0.986111	0.052632	1
132	-1	0.57894737	-1	0.792626	-0.986111	0.157895	1
133	-1	0.57894737	-1	0.792626	-0.986111	0.263158	1
134	-1	0.57894737	-1	0.792626	-0.986111	0.368421	1
135	-1	0.57894737	-1	0.792626	-0.986111	0.473684	1
136	-1	0.57894737	-1	0.792626	-0.986111	0.578947	1
137	-1	0.68421053	-1	0.855154	-1	-1	1
138	-1	0.68421053	-1	0.855154	-1	-0.894737	1
139	-1	0.68421053	-1	0.855154	-1	-0.789474	1
140	-1	0.68421053	-1	0.855154	-1	-0.684211	1
141	-1	0.68421053	-1	0.855154	-1	-0.578947	1
142	-1	0.68421053	-1	0.855154	-1	-0.473684	1
143	-1	0.68421053	-1	0.855154	-1	-0.368421	1
144	-1	0.68421053	-1	0.855154	-1	-0.263158	1
145	-1	0.68421053	-1	0.855154	-1	-0.157895	1
146	-1	0.68421053	-1	0.855154	-1	-0.052632	1
147	-1	0.68421053	-1	0.855154	-1	0.052632	1
148	-1	0.68421053	-1	0.855154	-1	0.157895	1
149	-1	0.68421053	-1	0.855154	-1	0.263158	1
150	-1	0.68421053	-1	0.855154	-1	0.368421	1
151	-1	0.68421053	-1	0.855154	-1	0.473684	1
152	-1	0.68421053	-1	0.855154	-1	0.578947	1
153	-1	0.68421053	-1	0.855154	-1	0.684211	1
154	-1	0.78947368	-1	0.910558	-0.999074	-1	1
155	-1	0.78947368	-1	0.910558	-0.999074	-0.894737	1
156	-1	0.78947368	-1	0.910558	-0.999074	-0.789474	1
157	-1	0.78947368	-1	0.910558	-0.999074	-0.684211	1
158	-1	0.78947368	-1	0.910558	-0.999074	-0.578947	1
159	-1	0.78947368	-1	0.910558	-0.999074	-0.473684	1
160	-1	0.78947368	-1	0.910558	-0.999074	-0.368421	1
161	-1	0.78947368	-1	0.910558	-0.999074	-0.263158	1
162	-1	0.78947368	-1	0.910558	-0.999074	-0.157895	1
163	-1	0.78947368	-1	0.910558	-0.999074	-0.052632	1
164	-1	0.78947368	-1	0.910558	-0.999074	0.052632	1
165	-1	0.78947368	-1	0.910558	-0.999074	0.157895	1
166	-1	0.78947368	-1	0.910558	-0.999074	0.263158	1
167	-1	0.78947368	-1	0.910558	-0.999074	0.368421	1
168	-1	0.78947368	-1	0.910558	-0.999074	0.473684	1
169	-1	0.78947368	-1	0.910558	-0.999074	0.578947	1
170	-1	0.78947368	-1	0.910558	-0.999074	0.684211	1
171	-1	0.78947368	-1	0.910558	-0.999074	0.789474	1
172	-1	0.89473684	-1	0.958841	-0.983333	-1	1
173	-1	0.89473684	-1	0.958841	-0.983333	-0.894737	1
174	-1	0.89473684	-1	0.958841	-0.983333	-0.789474	1
175	-1	0.89473684	-1	0.958841	-0.983333	-0.684211	1
176	-1	0.89473684	-1	0.958841	-0.983333	-0.578947	1
177	-1	0.89473684	-1	0.958841	-0.983333	-0.473684	1
178	-1	0.89473684	-1	0.958841	-0.983333	-0.368421	1
179	-1	0.89473684	-1	0.958841	-0.983333	-0.263158	1
180	-1	0.89473684	-1	0.958841	-0.983333	-0.157895	1
181	-1	0.89473684	-1	0.958841	-0.983333	-0.052632	1
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183	-1	0.89473684	-1	0.958841	-0.983333	0.157895	1
184	-1	0.89473684	-1	0.958841	-0.983333	0.263158	1
185	-1	0.89473684	-1	0.958841	-0.983333	0.368421	1
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187	-1	0.89473684	-1	0.958841	-0.983333	0.578947	1
188	-1	0.89473684	-1	0.958841	-0.983333	0.684211	1
189	-1	0.89473684	-1	0.958841	-0.983333	0.789474	1
190	-1	0.89473684	-1	0.958841	-0.983333	0.894737	1
191	-1	1	-1	1	-0.952778	-1	1
192	-1	1	-1	1	-0.952778	-0.894737	1
193	-1	1	-1	1	-0.952778	-0.789474	1
194	-1	1	-1	1	-0.952778	-0.684211	1
195	-1	1	-1	1	-0.952778	-0.578947	1
196	-1	1	-1	1	-0.952778	-0.473684	1
197	-1	1	-1	1	-0.952778	-0.368421	1
198	-1	1	-1	1	-0.952778	-0.263158	1
199	-1	1	-1	1	-0.952778	-0.157895	1
200	-1	1	-1	1	-0.952778	-0.052632	1
201	-1	1	-1	1	-0.952778	0.052632	1
202	-1	1	-1	1	-0.952778	0.157895	1
203	-1	1	-1	1	-0.952778	0.263158	1
204	-1	1	-1	1	-0.952778	0.368421	1
205	-1	1	-1	1	-0.952778	0.473684	1
206	-1	1	-1	1	-0.952778	0.578947	1
207	-1	1	-1	1	-0.952778	0.684211	1
208	-1	1	-1	1	-0.952778	0.789474	1
209	-1	1	-1	1	-0.952778	0.894737	1
210	-1	1	-1	1	-0.952778	1	1
211	-1	-1	0	-1	1	-1	1
212	-1	-0.8947368	0	-0.83063	0.7638889	-1	1
213	-1	-0.8947368	0	-0.83063	0.7638889	-0.894737	1
214	-1	-0.7894737	0	-0.66839	0.5425926	-1	1
215	-1	-0.7894737	0	-0.66839	0.5425926	-0.894737	1
216	-1	-0.7894737	0	-0.66839	0.5425926	-0.789474	1
217	-1	-0.6842105	0	-0.51327	0.3361111	-1	1
218	-1	-0.6842105	0	-0.51327	0.3361111	-0.894737	1
219	-1	-0.6842105	0	-0.51327	0.3361111	-0.789474	1
220	-1	-0.6842105	0	-0.51327	0.3361111	-0.684211	1
221	-1	-0.5789474	0	-0.36527	0.1444444	-1	1
222	-1	-0.5789474	0	-0.36527	0.1444444	-0.894737	1
223	-1	-0.5789474	0	-0.36527	0.1444444	-0.789474	1
224	-1	-0.5789474	0	-0.36527	0.1444444	-0.684211	1
225	-1	-0.5789474	0	-0.36527	0.1444444	-0.578947	1
226	-1	-0.4736842	0	-0.22439	-0.032407	-1	1
227	-1	-0.4736842	0	-0.22439	-0.032407	-0.894737	1
228	-1	-0.4736842	0	-0.22439	-0.032407	-0.789474	1
229	-1	-0.4736842	0	-0.22439	-0.032407	-0.684211	1
230	-1	-0.4736842	0	-0.22439	-0.032407	-0.578947	1
231	-1	-0.4736842	0	-0.22439	-0.032407	-0.473684	1
232	-1	-0.3684211	0	-0.09064	-0.194444	-1	1
233	-1	-0.3684211	0	-0.09064	-0.194444	-0.894737	1
234	-1	-0.3684211	0	-0.09064	-0.194444	-0.789474	1
235	-1	-0.3684211	0	-0.09064	-0.194444	-0.684211	1
236	-1	-0.3684211	0	-0.09064	-0.194444	-0.578947	1
237	-1	-0.3684211	0	-0.09064	-0.194444	-0.473684	1
238	-1	-0.3684211	0	-0.09064	-0.194444	-0.368421	1
239	-1	-0.2631579	0	0.035993	-0.341667	-1	1
240	-1	-0.2631579	0	0.035993	-0.341667	-0.894737	1
241	-1	-0.2631579	0	0.035993	-0.341667	-0.789474	1
242	-1	-0.2631579	0	0.035993	-0.341667	-0.684211	1
243	-1	-0.2631579	0	0.035993	-0.341667	-0.578947	1
244	-1	-0.2631579	0	0.035993	-0.341667	-0.473684	1
245	-1	-0.2631579	0	0.035993	-0.341667	-0.368421	1
246	-1	-0.2631579	0	0.035993	-0.341667	-0.263158	1
247	-1	-0.1578947	0	0.155501	-0.474074	-1	1
248	-1	-0.1578947	0	0.155501	-0.474074	-0.894737	1

249	-1	-0.1578947	0	0.155501	-0.474074	-0.789474	1
250	-1	-0.1578947	0	0.155501	-0.474074	-0.684211	1
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252	-1	-0.1578947	0	0.155501	-0.474074	-0.473684	1
253	-1	-0.1578947	0	0.155501	-0.474074	-0.368421	1
254	-1	-0.1578947	0	0.155501	-0.474074	-0.263158	1
255	-1	-0.1578947	0	0.155501	-0.474074	-0.157895	1
256	-1	-0.0526316	0	0.267887	-0.591667	-1	1
257	-1	-0.0526316	0	0.267887	-0.591667	-0.894737	1
258	-1	-0.0526316	0	0.267887	-0.591667	-0.789474	1
259	-1	-0.0526316	0	0.267887	-0.591667	-0.684211	1
260	-1	-0.0526316	0	0.267887	-0.591667	-0.578947	1
261	-1	-0.0526316	0	0.267887	-0.591667	-0.473684	1
262	-1	-0.0526316	0	0.267887	-0.591667	-0.368421	1
263	-1	-0.0526316	0	0.267887	-0.591667	-0.263158	1
264	-1	-0.0526316	0	0.267887	-0.591667	-0.157895	1
265	-1	-0.0526316	0	0.267887	-0.591667	-0.052632	1
266	-1	0.05263158	0	0.37315	-0.694444	-1	1
267	-1	0.05263158	0	0.37315	-0.694444	-0.894737	1
268	-1	0.05263158	0	0.37315	-0.694444	-0.789474	1
269	-1	0.05263158	0	0.37315	-0.694444	-0.684211	1
270	-1	0.05263158	0	0.37315	-0.694444	-0.578947	1
271	-1	0.05263158	0	0.37315	-0.694444	-0.473684	1
272	-1	0.05263158	0	0.37315	-0.694444	-0.368421	1
273	-1	0.05263158	0	0.37315	-0.694444	-0.263158	1
274	-1	0.05263158	0	0.37315	-0.694444	-0.157895	1
275	-1	0.05263158	0	0.37315	-0.694444	-0.052632	1
276	-1	0.05263158	0	0.37315	-0.694444	0.052632	1
277	-1	0.15789474	0	0.471291	-0.782407	-1	1
278	-1	0.15789474	0	0.471291	-0.782407	-0.894737	1
279	-1	0.15789474	0	0.471291	-0.782407	-0.789474	1
280	-1	0.15789474	0	0.471291	-0.782407	-0.684211	1
281	-1	0.15789474	0	0.471291	-0.782407	-0.578947	1
282	-1	0.15789474	0	0.471291	-0.782407	-0.473684	1
283	-1	0.15789474	0	0.471291	-0.782407	-0.368421	1
284	-1	0.15789474	0	0.471291	-0.782407	-0.263158	1
285	-1	0.15789474	0	0.471291	-0.782407	-0.157895	1
286	-1	0.15789474	0	0.471291	-0.782407	-0.052632	1
287	-1	0.15789474	0	0.471291	-0.782407	0.052632	1
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289	-1	0.26315789	0	0.562308	-0.855556	-1	1
290	-1	0.26315789	0	0.562308	-0.855556	-0.894737	1
291	-1	0.26315789	0	0.562308	-0.855556	-0.789474	1
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294	-1	0.26315789	0	0.562308	-0.855556	-0.473684	1
295	-1	0.26315789	0	0.562308	-0.855556	-0.368421	1
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302	-1	0.36842105	0	0.646204	-0.913889	-1	1
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304	-1	0.36842105	0	0.646204	-0.913889	-0.789474	1
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309	-1	0.36842105	0	0.646204	-0.913889	-0.263158	1
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311	-1	0.36842105	0	0.646204	-0.913889	-0.052632	1
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316	-1	0.47368421	0	0.722976	-0.957407	-1	1
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331	-1	0.57894737	0	0.792626	-0.986111	-1	1
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345	-1	0.57894737	0	0.792626	-0.986111	0.473684	1
346	-1	0.57894737	0	0.792626	-0.986111	0.578947	1
347	-1	0.68421053	0	0.855154	-1	-1	1
348	-1	0.68421053	0	0.855154	-1	-0.894737	1
349	-1	0.68421053	0	0.855154	-1	-0.789474	1
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356	-1	0.68421053	0	0.855154	-1	-0.052632	1
357	-1	0.68421053	0	0.855154	-1	0.052632	1
358	-1	0.68421053	0	0.855154	-1	0.157895	1
359	-1	0.68421053	0	0.855154	-1	0.263158	1
360	-1	0.68421053	0	0.855154	-1	0.368421	1
361	-1	0.68421053	0	0.855154	-1	0.473684	1
362	-1	0.68421053	0	0.855154	-1	0.578947	1
363	-1	0.68421053	0	0.855154	-1	0.684211	1
364	-1	0.78947368	0	0.910558	-0.999074	-1	1
365	-1	0.78947368	0	0.910558	-0.999074	-0.894737	1
366	-1	0.78947368	0	0.910558	-0.999074	-0.789474	1
367	-1	0.78947368	0	0.910558	-0.999074	-0.684211	1
368	-1	0.78947368	0	0.910558	-0.999074	-0.578947	1
369	-1	0.78947368	0	0.910558	-0.999074	-0.473684	1
370	-1	0.78947368	0	0.910558	-0.999074	-0.368421	1
371	-1	0.78947368	0	0.910558	-0.999074	-0.263158	1
372	-1	0.78947368	0	0.910558	-0.999074	-0.157895	1
373	-1	0.78947368	0	0.910558	-0.999074	-0.052632	1
374	-1	0.78947368	0	0.910558	-0.999074	0.052632	1
375	-1	0.78947368	0	0.910558	-0.999074	0.157895	1
376	-1	0.78947368	0	0.910558	-0.999074	0.263158	1
377	-1	0.78947368	0	0.910558	-0.999074	0.368421	1
378	-1	0.78947368	0	0.910558	-0.999074	0.473684	1
379	-1	0.78947368	0	0.910558	-0.999074	0.578947	1
380	-1	0.78947368	0	0.910558	-0.999074	0.684211	1

381	-1	0.78947368	0	0.910558	-0.999074	0.789474	1
382	-1	0.89473684	0	0.958841	-0.983333	-1	1
383	-1	0.89473684	0	0.958841	-0.983333	-0.894737	1
384	-1	0.89473684	0	0.958841	-0.983333	-0.789474	1
385	-1	0.89473684	0	0.958841	-0.983333	-0.684211	1
386	-1	0.89473684	0	0.958841	-0.983333	-0.578947	1
387	-1	0.89473684	0	0.958841	-0.983333	-0.473684	1
388	-1	0.89473684	0	0.958841	-0.983333	-0.368421	1
389	-1	0.89473684	0	0.958841	-0.983333	-0.263158	1
390	-1	0.89473684	0	0.958841	-0.983333	-0.157895	1
391	-1	0.89473684	0	0.958841	-0.983333	-0.052632	1
392	-1	0.89473684	0	0.958841	-0.983333	0.052632	1
393	-1	0.89473684	0	0.958841	-0.983333	0.157895	1
394	-1	0.89473684	0	0.958841	-0.983333	0.263158	1
395	-1	0.89473684	0	0.958841	-0.983333	0.368421	1
396	-1	0.89473684	0	0.958841	-0.983333	0.473684	1
397	-1	0.89473684	0	0.958841	-0.983333	0.578947	1
398	-1	0.89473684	0	0.958841	-0.983333	0.684211	1
399	-1	0.89473684	0	0.958841	-0.983333	0.789474	1
400	-1	0.89473684	0	0.958841	-0.983333	0.894737	1
401	-1	1	0	1	-0.952778	-1	1
402	-1	1	0	1	-0.952778	-0.894737	1
403	-1	1	0	1	-0.952778	-0.789474	1
404	-1	1	0	1	-0.952778	-0.684211	1
405	-1	1	0	1	-0.952778	-0.578947	1
406	-1	1	0	1	-0.952778	-0.473684	1
407	-1	1	0	1	-0.952778	-0.368421	1
408	-1	1	0	1	-0.952778	-0.263158	1
409	-1	1	0	1	-0.952778	-0.157895	1
410	-1	1	0	1	-0.952778	-0.052632	1
411	-1	1	0	1	-0.952778	0.052632	1
412	-1	1	0	1	-0.952778	0.157895	1
413	-1	1	0	1	-0.952778	0.263158	1
414	-1	1	0	1	-0.952778	0.368421	1
415	-1	1	0	1	-0.952778	0.473684	1
416	-1	1	0	1	-0.952778	0.578947	1
417	-1	1	0	1	-0.952778	0.684211	1
418	-1	1	0	1	-0.952778	0.789474	1
419	-1	1	0	1	-0.952778	0.894737	1
420	-1	1	0	1	-0.952778	1	1
421	-1	-1	1	-1	1	-1	1
422	-1	-0.8947368	1	-0.83063	0.7638889	-1	1
423	-1	-0.8947368	1	-0.83063	0.7638889	-0.894737	1
424	-1	-0.7894737	1	-0.66839	0.5425926	-1	1
425	-1	-0.7894737	1	-0.66839	0.5425926	-0.894737	1
426	-1	-0.7894737	1	-0.66839	0.5425926	-0.789474	1
427	-1	-0.6842105	1	-0.51327	0.3361111	-1	1
428	-1	-0.6842105	1	-0.51327	0.3361111	-0.894737	1
429	-1	-0.6842105	1	-0.51327	0.3361111	-0.789474	1
430	-1	-0.6842105	1	-0.51327	0.3361111	-0.684211	1
431	-1	-0.5789474	1	-0.36527	0.1444444	-1	1
432	-1	-0.5789474	1	-0.36527	0.1444444	-0.894737	1
433	-1	-0.5789474	1	-0.36527	0.1444444	-0.789474	1
434	-1	-0.5789474	1	-0.36527	0.1444444	-0.684211	1
435	-1	-0.5789474	1	-0.36527	0.1444444	-0.578947	1
436	-1	-0.4736842	1	-0.22439	-0.032407	-1	1
437	-1	-0.4736842	1	-0.22439	-0.032407	-0.894737	1
438	-1	-0.4736842	1	-0.22439	-0.032407	-0.789474	1
439	-1	-0.4736842	1	-0.22439	-0.032407	-0.684211	1
440	-1	-0.4736842	1	-0.22439	-0.032407	-0.578947	1
441	-1	-0.4736842	1	-0.22439	-0.032407	-0.473684	1
442	-1	-0.3684211	1	-0.09064	-0.194444	-1	1
443	-1	-0.3684211	1	-0.09064	-0.194444	-0.894737	1
444	-1	-0.3684211	1	-0.09064	-0.194444	-0.789474	1
445	-1	-0.3684211	1	-0.09064	-0.194444	-0.684211	1
446	-1	-0.3684211	1	-0.09064	-0.194444	-0.578947	1

447	-1	-0.3684211	1	-0.09064	-0.194444	-0.473684	1
448	-1	-0.3684211	1	-0.09064	-0.194444	-0.368421	1
449	-1	-0.2631579	1	0.035993	-0.341667	-1	1
450	-1	-0.2631579	1	0.035993	-0.341667	-0.894737	1
451	-1	-0.2631579	1	0.035993	-0.341667	-0.789474	1
452	-1	-0.2631579	1	0.035993	-0.341667	-0.684211	1
453	-1	-0.2631579	1	0.035993	-0.341667	-0.578947	1
454	-1	-0.2631579	1	0.035993	-0.341667	-0.473684	1
455	-1	-0.2631579	1	0.035993	-0.341667	-0.368421	1
456	-1	-0.2631579	1	0.035993	-0.341667	-0.263158	1
457	-1	-0.1578947	1	0.155501	-0.474074	-1	1
458	-1	-0.1578947	1	0.155501	-0.474074	-0.894737	1
459	-1	-0.1578947	1	0.155501	-0.474074	-0.789474	1
460	-1	-0.1578947	1	0.155501	-0.474074	-0.684211	1
461	-1	-0.1578947	1	0.155501	-0.474074	-0.578947	1
462	-1	-0.1578947	1	0.155501	-0.474074	-0.473684	1
463	-1	-0.1578947	1	0.155501	-0.474074	-0.368421	1
464	-1	-0.1578947	1	0.155501	-0.474074	-0.263158	1
465	-1	-0.1578947	1	0.155501	-0.474074	-0.157895	1
466	-1	-0.0526316	1	0.267887	-0.591667	-1	1
467	-1	-0.0526316	1	0.267887	-0.591667	-0.894737	1
468	-1	-0.0526316	1	0.267887	-0.591667	-0.789474	1
469	-1	-0.0526316	1	0.267887	-0.591667	-0.684211	1
470	-1	-0.0526316	1	0.267887	-0.591667	-0.578947	1
471	-1	-0.0526316	1	0.267887	-0.591667	-0.473684	1
472	-1	-0.0526316	1	0.267887	-0.591667	-0.368421	1
473	-1	-0.0526316	1	0.267887	-0.591667	-0.263158	1
474	-1	-0.0526316	1	0.267887	-0.591667	-0.157895	1
475	-1	-0.0526316	1	0.267887	-0.591667	-0.052632	1
476	-1	0.05263158	1	0.37315	-0.694444	-1	1
477	-1	0.05263158	1	0.37315	-0.694444	-0.894737	1
478	-1	0.05263158	1	0.37315	-0.694444	-0.789474	1
479	-1	0.05263158	1	0.37315	-0.694444	-0.684211	1
480	-1	0.05263158	1	0.37315	-0.694444	-0.578947	1
481	-1	0.05263158	1	0.37315	-0.694444	-0.473684	1
482	-1	0.05263158	1	0.37315	-0.694444	-0.368421	1
483	-1	0.05263158	1	0.37315	-0.694444	-0.263158	1
484	-1	0.05263158	1	0.37315	-0.694444	-0.157895	1
485	-1	0.05263158	1	0.37315	-0.694444	-0.052632	1
486	-1	0.05263158	1	0.37315	-0.694444	0.052632	1
487	-1	0.15789474	1	0.471291	-0.782407	-1	1
488	-1	0.15789474	1	0.471291	-0.782407	-0.894737	1
489	-1	0.15789474	1	0.471291	-0.782407	-0.789474	1
490	-1	0.15789474	1	0.471291	-0.782407	-0.684211	1
491	-1	0.15789474	1	0.471291	-0.782407	-0.578947	1
492	-1	0.15789474	1	0.471291	-0.782407	-0.473684	1
493	-1	0.15789474	1	0.471291	-0.782407	-0.368421	1
494	-1	0.15789474	1	0.471291	-0.782407	-0.263158	1
495	-1	0.15789474	1	0.471291	-0.782407	-0.157895	1
496	-1	0.15789474	1	0.471291	-0.782407	-0.052632	1
497	-1	0.15789474	1	0.471291	-0.782407	0.052632	1
498	-1	0.15789474	1	0.471291	-0.782407	0.157895	1
499	-1	0.26315789	1	0.562308	-0.855556	-1	1
500	-1	0.26315789	1	0.562308	-0.855556	-0.894737	1
501	-1	0.26315789	1	0.562308	-0.855556	-0.789474	1
502	-1	0.26315789	1	0.562308	-0.855556	-0.684211	1
503	-1	0.26315789	1	0.562308	-0.855556	-0.578947	1
504	-1	0.26315789	1	0.562308	-0.855556	-0.473684	1
505	-1	0.26315789	1	0.562308	-0.855556	-0.368421	1
506	-1	0.26315789	1	0.562308	-0.855556	-0.263158	1
507	-1	0.26315789	1	0.562308	-0.855556	-0.157895	1
508	-1	0.26315789	1	0.562308	-0.855556	-0.052632	1
509	-1	0.26315789	1	0.562308	-0.855556	0.052632	1
510	-1	0.26315789	1	0.562308	-0.855556	0.157895	1
511	-1	0.26315789	1	0.562308	-0.855556	0.263158	1
512	-1	0.36842105	1	0.646204	-0.913889	-1	1

513	-1	0.36842105	1	0.646204	-0.913889	-0.894737	1
514	-1	0.36842105	1	0.646204	-0.913889	-0.789474	1
515	-1	0.36842105	1	0.646204	-0.913889	-0.684211	1
516	-1	0.36842105	1	0.646204	-0.913889	-0.578947	1
517	-1	0.36842105	1	0.646204	-0.913889	-0.473684	1
518	-1	0.36842105	1	0.646204	-0.913889	-0.368421	1
519	-1	0.36842105	1	0.646204	-0.913889	-0.263158	1
520	-1	0.36842105	1	0.646204	-0.913889	-0.157895	1
521	-1	0.36842105	1	0.646204	-0.913889	-0.052632	1
522	-1	0.36842105	1	0.646204	-0.913889	0.052632	1
523	-1	0.36842105	1	0.646204	-0.913889	0.157895	1
524	-1	0.36842105	1	0.646204	-0.913889	0.263158	1
525	-1	0.36842105	1	0.646204	-0.913889	0.368421	1
526	-1	0.47368421	1	0.722976	-0.957407	-1	1
527	-1	0.47368421	1	0.722976	-0.957407	-0.894737	1
528	-1	0.47368421	1	0.722976	-0.957407	-0.789474	1
529	-1	0.47368421	1	0.722976	-0.957407	-0.684211	1
530	-1	0.47368421	1	0.722976	-0.957407	-0.578947	1
531	-1	0.47368421	1	0.722976	-0.957407	-0.473684	1
532	-1	0.47368421	1	0.722976	-0.957407	-0.368421	1
533	-1	0.47368421	1	0.722976	-0.957407	-0.263158	1
534	-1	0.47368421	1	0.722976	-0.957407	-0.157895	1
535	-1	0.47368421	1	0.722976	-0.957407	-0.052632	1
536	-1	0.47368421	1	0.722976	-0.957407	0.052632	1
537	-1	0.47368421	1	0.722976	-0.957407	0.157895	1
538	-1	0.47368421	1	0.722976	-0.957407	0.263158	1
539	-1	0.47368421	1	0.722976	-0.957407	0.368421	1
540	-1	0.47368421	1	0.722976	-0.957407	0.473684	1
541	-1	0.57894737	1	0.792626	-0.986111	-1	1
542	-1	0.57894737	1	0.792626	-0.986111	-0.894737	1
543	-1	0.57894737	1	0.792626	-0.986111	-0.789474	1
544	-1	0.57894737	1	0.792626	-0.986111	-0.684211	1
545	-1	0.57894737	1	0.792626	-0.986111	-0.578947	1
546	-1	0.57894737	1	0.792626	-0.986111	-0.473684	1
547	-1	0.57894737	1	0.792626	-0.986111	-0.368421	1
548	-1	0.57894737	1	0.792626	-0.986111	-0.263158	1
549	-1	0.57894737	1	0.792626	-0.986111	-0.157895	1
550	-1	0.57894737	1	0.792626	-0.986111	-0.052632	1
551	-1	0.57894737	1	0.792626	-0.986111	0.052632	1
552	-1	0.57894737	1	0.792626	-0.986111	0.157895	1
553	-1	0.57894737	1	0.792626	-0.986111	0.263158	1
554	-1	0.57894737	1	0.792626	-0.986111	0.368421	1
555	-1	0.57894737	1	0.792626	-0.986111	0.473684	1
556	-1	0.57894737	1	0.792626	-0.986111	0.578947	1
557	-1	0.68421053	1	0.855154	-1	-1	1
558	-1	0.68421053	1	0.855154	-1	-0.894737	1
559	-1	0.68421053	1	0.855154	-1	-0.789474	1
560	-1	0.68421053	1	0.855154	-1	-0.684211	1
561	-1	0.68421053	1	0.855154	-1	-0.578947	1
562	-1	0.68421053	1	0.855154	-1	-0.473684	1
563	-1	0.68421053	1	0.855154	-1	-0.368421	1
564	-1	0.68421053	1	0.855154	-1	-0.263158	1
565	-1	0.68421053	1	0.855154	-1	-0.157895	1
566	-1	0.68421053	1	0.855154	-1	-0.052632	1
567	-1	0.68421053	1	0.855154	-1	0.052632	1
568	-1	0.68421053	1	0.855154	-1	0.157895	1
569	-1	0.68421053	1	0.855154	-1	0.263158	1
570	-1	0.68421053	1	0.855154	-1	0.368421	1
571	-1	0.68421053	1	0.855154	-1	0.473684	1
572	-1	0.68421053	1	0.855154	-1	0.578947	1
573	-1	0.68421053	1	0.855154	-1	0.684211	1
574	-1	0.78947368	1	0.910558	-0.999074	-1	1
575	-1	0.78947368	1	0.910558	-0.999074	-0.894737	1
576	-1	0.78947368	1	0.910558	-0.999074	-0.789474	1
577	-1	0.78947368	1	0.910558	-0.999074	-0.684211	1
578	-1	0.78947368	1	0.910558	-0.999074	-0.578947	1

579	-1	0.78947368	1	0.910558	-0.999074	-0.473684	1
580	-1	0.78947368	1	0.910558	-0.999074	-0.368421	1
581	-1	0.78947368	1	0.910558	-0.999074	-0.263158	1
582	-1	0.78947368	1	0.910558	-0.999074	-0.157895	1
583	-1	0.78947368	1	0.910558	-0.999074	-0.052632	1
584	-1	0.78947368	1	0.910558	-0.999074	0.052632	1
585	-1	0.78947368	1	0.910558	-0.999074	0.157895	1
586	-1	0.78947368	1	0.910558	-0.999074	0.263158	1
587	-1	0.78947368	1	0.910558	-0.999074	0.368421	1
588	-1	0.78947368	1	0.910558	-0.999074	0.473684	1
589	-1	0.78947368	1	0.910558	-0.999074	0.578947	1
590	-1	0.78947368	1	0.910558	-0.999074	0.684211	1
591	-1	0.78947368	1	0.910558	-0.999074	0.789474	1
592	-1	0.89473684	1	0.958841	-0.983333	-1	1
593	-1	0.89473684	1	0.958841	-0.983333	-0.894737	1
594	-1	0.89473684	1	0.958841	-0.983333	-0.789474	1
595	-1	0.89473684	1	0.958841	-0.983333	-0.684211	1
596	-1	0.89473684	1	0.958841	-0.983333	-0.578947	1
597	-1	0.89473684	1	0.958841	-0.983333	-0.473684	1
598	-1	0.89473684	1	0.958841	-0.983333	-0.368421	1
599	-1	0.89473684	1	0.958841	-0.983333	-0.263158	1
600	-1	0.89473684	1	0.958841	-0.983333	-0.157895	1
601	-1	0.89473684	1	0.958841	-0.983333	-0.052632	1
602	-1	0.89473684	1	0.958841	-0.983333	0.052632	1
603	-1	0.89473684	1	0.958841	-0.983333	0.157895	1
604	-1	0.89473684	1	0.958841	-0.983333	0.263158	1
605	-1	0.89473684	1	0.958841	-0.983333	0.368421	1
606	-1	0.89473684	1	0.958841	-0.983333	0.473684	1
607	-1	0.89473684	1	0.958841	-0.983333	0.578947	1
608	-1	0.89473684	1	0.958841	-0.983333	0.684211	1
609	-1	0.89473684	1	0.958841	-0.983333	0.789474	1
610	-1	0.89473684	1	0.958841	-0.983333	0.894737	1
611	-1	1	1	1	-0.952778	-1	1
612	-1	1	1	1	-0.952778	-0.894737	1
613	-1	1	1	1	-0.952778	-0.789474	1
614	-1	1	1	1	-0.952778	-0.684211	1
615	-1	1	1	1	-0.952778	-0.578947	1
616	-1	1	1	1	-0.952778	-0.473684	1
617	-1	1	1	1	-0.952778	-0.368421	1
618	-1	1	1	1	-0.952778	-0.263158	1
619	-1	1	1	1	-0.952778	-0.157895	1
620	-1	1	1	1	-0.952778	-0.052632	1
621	-1	1	1	1	-0.952778	0.052632	1
622	-1	1	1	1	-0.952778	0.157895	1
623	-1	1	1	1	-0.952778	0.263158	1
624	-1	1	1	1	-0.952778	0.368421	1
625	-1	1	1	1	-0.952778	0.473684	1
626	-1	1	1	1	-0.952778	0.578947	1
627	-1	1	1	1	-0.952778	0.684211	1
628	-1	1	1	1	-0.952778	0.789474	1
629	-1	1	1	1	-0.952778	0.894737	1
630	-1	1	1	1	-0.952778	1	1
631	0	-1	-1	-1	1	-1	1
632	0	-0.8947368	-1	-0.83063	0.7638889	-1	1
633	0	-0.8947368	-1	-0.83063	0.7638889	-0.894737	1
634	0	-0.7894737	-1	-0.66839	0.5425926	-1	1
635	0	-0.7894737	-1	-0.66839	0.5425926	-0.894737	1
636	0	-0.7894737	-1	-0.66839	0.5425926	-0.789474	1
637	0	-0.6842105	-1	-0.51327	0.3361111	-1	1
638	0	-0.6842105	-1	-0.51327	0.3361111	-0.894737	1
639	0	-0.6842105	-1	-0.51327	0.3361111	-0.789474	1
640	0	-0.6842105	-1	-0.51327	0.3361111	-0.684211	1
641	0	-0.5789474	-1	-0.36527	0.1444444	-1	1
642	0	-0.5789474	-1	-0.36527	0.1444444	-0.894737	1
643	0	-0.5789474	-1	-0.36527	0.1444444	-0.789474	1
644	0	-0.5789474	-1	-0.36527	0.1444444	-0.684211	1

645	0	-0.5789474	-1	-0.36527	0.1444444	-0.578947	1
646	0	-0.4736842	-1	-0.22439	-0.032407	-1	1
647	0	-0.4736842	-1	-0.22439	-0.032407	-0.894737	1
648	0	-0.4736842	-1	-0.22439	-0.032407	-0.789474	1
649	0	-0.4736842	-1	-0.22439	-0.032407	-0.684211	1
650	0	-0.4736842	-1	-0.22439	-0.032407	-0.578947	1
651	0	-0.4736842	-1	-0.22439	-0.032407	-0.473684	1
652	0	-0.3684211	-1	-0.09064	-0.194444	-1	1
653	0	-0.3684211	-1	-0.09064	-0.194444	-0.894737	1
654	0	-0.3684211	-1	-0.09064	-0.194444	-0.789474	1
655	0	-0.3684211	-1	-0.09064	-0.194444	-0.684211	1
656	0	-0.3684211	-1	-0.09064	-0.194444	-0.578947	1
657	0	-0.3684211	-1	-0.09064	-0.194444	-0.473684	1
658	0	-0.3684211	-1	-0.09064	-0.194444	-0.368421	1
659	0	-0.2631579	-1	0.035993	-0.341667	-1	1
660	0	-0.2631579	-1	0.035993	-0.341667	-0.894737	1
661	0	-0.2631579	-1	0.035993	-0.341667	-0.789474	1
662	0	-0.2631579	-1	0.035993	-0.341667	-0.684211	1
663	0	-0.2631579	-1	0.035993	-0.341667	-0.578947	1
664	0	-0.2631579	-1	0.035993	-0.341667	-0.473684	1
665	0	-0.2631579	-1	0.035993	-0.341667	-0.368421	1
666	0	-0.2631579	-1	0.035993	-0.341667	-0.263158	1
667	0	-0.1578947	-1	0.155501	-0.474074	-1	1
668	0	-0.1578947	-1	0.155501	-0.474074	-0.894737	1
669	0	-0.1578947	-1	0.155501	-0.474074	-0.789474	1
670	0	-0.1578947	-1	0.155501	-0.474074	-0.684211	1
671	0	-0.1578947	-1	0.155501	-0.474074	-0.578947	1
672	0	-0.1578947	-1	0.155501	-0.474074	-0.473684	1
673	0	-0.1578947	-1	0.155501	-0.474074	-0.368421	1
674	0	-0.1578947	-1	0.155501	-0.474074	-0.263158	1
675	0	-0.1578947	-1	0.155501	-0.474074	-0.157895	1
676	0	-0.0526316	-1	0.267887	-0.591667	-1	1
677	0	-0.0526316	-1	0.267887	-0.591667	-0.894737	1
678	0	-0.0526316	-1	0.267887	-0.591667	-0.789474	1
679	0	-0.0526316	-1	0.267887	-0.591667	-0.684211	1
680	0	-0.0526316	-1	0.267887	-0.591667	-0.578947	1
681	0	-0.0526316	-1	0.267887	-0.591667	-0.473684	1
682	0	-0.0526316	-1	0.267887	-0.591667	-0.368421	1
683	0	-0.0526316	-1	0.267887	-0.591667	-0.263158	1
684	0	-0.0526316	-1	0.267887	-0.591667	-0.157895	1
685	0	-0.0526316	-1	0.267887	-0.591667	-0.052632	1
686	0	0.05263158	-1	0.37315	-0.694444	-1	1
687	0	0.05263158	-1	0.37315	-0.694444	-0.894737	1
688	0	0.05263158	-1	0.37315	-0.694444	-0.789474	1
689	0	0.05263158	-1	0.37315	-0.694444	-0.684211	1
690	0	0.05263158	-1	0.37315	-0.694444	-0.578947	1
691	0	0.05263158	-1	0.37315	-0.694444	-0.473684	1
692	0	0.05263158	-1	0.37315	-0.694444	-0.368421	1
693	0	0.05263158	-1	0.37315	-0.694444	-0.263158	1
694	0	0.05263158	-1	0.37315	-0.694444	-0.157895	1
695	0	0.05263158	-1	0.37315	-0.694444	-0.052632	1
696	0	0.05263158	-1	0.37315	-0.694444	0.052632	1
697	0	0.15789474	-1	0.471291	-0.782407	-1	1
698	0	0.15789474	-1	0.471291	-0.782407	-0.894737	1
699	0	0.15789474	-1	0.471291	-0.782407	-0.789474	1
700	0	0.15789474	-1	0.471291	-0.782407	-0.684211	1
701	0	0.15789474	-1	0.471291	-0.782407	-0.578947	1
702	0	0.15789474	-1	0.471291	-0.782407	-0.473684	1
703	0	0.15789474	-1	0.471291	-0.782407	-0.368421	1
704	0	0.15789474	-1	0.471291	-0.782407	-0.263158	1
705	0	0.15789474	-1	0.471291	-0.782407	-0.157895	1
706	0	0.15789474	-1	0.471291	-0.782407	-0.052632	1
707	0	0.15789474	-1	0.471291	-0.782407	0.052632	1
708	0	0.15789474	-1	0.471291	-0.782407	0.157895	1
709	0	0.26315789	-1	0.562308	-0.855556	-1	1
710	0	0.26315789	-1	0.562308	-0.855556	-0.894737	1

711	0	0.26315789	-1	0.562308	-0.855556	-0.789474	1
712	0	0.26315789	-1	0.562308	-0.855556	-0.684211	1
713	0	0.26315789	-1	0.562308	-0.855556	-0.578947	1
714	0	0.26315789	-1	0.562308	-0.855556	-0.473684	1
715	0	0.26315789	-1	0.562308	-0.855556	-0.368421	1
716	0	0.26315789	-1	0.562308	-0.855556	-0.263158	1
717	0	0.26315789	-1	0.562308	-0.855556	-0.157895	1
718	0	0.26315789	-1	0.562308	-0.855556	-0.052632	1
719	0	0.26315789	-1	0.562308	-0.855556	0.052632	1
720	0	0.26315789	-1	0.562308	-0.855556	0.157895	1
721	0	0.26315789	-1	0.562308	-0.855556	0.263158	1
722	0	0.36842105	-1	0.646204	-0.913889	-1	1
723	0	0.36842105	-1	0.646204	-0.913889	-0.894737	1
724	0	0.36842105	-1	0.646204	-0.913889	-0.789474	1
725	0	0.36842105	-1	0.646204	-0.913889	-0.684211	1
726	0	0.36842105	-1	0.646204	-0.913889	-0.578947	1
727	0	0.36842105	-1	0.646204	-0.913889	-0.473684	1
728	0	0.36842105	-1	0.646204	-0.913889	-0.368421	1
729	0	0.36842105	-1	0.646204	-0.913889	-0.263158	1
730	0	0.36842105	-1	0.646204	-0.913889	-0.157895	1
731	0	0.36842105	-1	0.646204	-0.913889	-0.052632	1
732	0	0.36842105	-1	0.646204	-0.913889	0.052632	1
733	0	0.36842105	-1	0.646204	-0.913889	0.157895	1
734	0	0.36842105	-1	0.646204	-0.913889	0.263158	1
735	0	0.36842105	-1	0.646204	-0.913889	0.368421	1
736	0	0.47368421	-1	0.722976	-0.957407	-1	1
737	0	0.47368421	-1	0.722976	-0.957407	-0.894737	1
738	0	0.47368421	-1	0.722976	-0.957407	-0.789474	1
739	0	0.47368421	-1	0.722976	-0.957407	-0.684211	1
740	0	0.47368421	-1	0.722976	-0.957407	-0.578947	1
741	0	0.47368421	-1	0.722976	-0.957407	-0.473684	1
742	0	0.47368421	-1	0.722976	-0.957407	-0.368421	1
743	0	0.47368421	-1	0.722976	-0.957407	-0.263158	1
744	0	0.47368421	-1	0.722976	-0.957407	-0.157895	1
745	0	0.47368421	-1	0.722976	-0.957407	-0.052632	1
746	0	0.47368421	-1	0.722976	-0.957407	0.052632	1
747	0	0.47368421	-1	0.722976	-0.957407	0.157895	1
748	0	0.47368421	-1	0.722976	-0.957407	0.263158	1
749	0	0.47368421	-1	0.722976	-0.957407	0.368421	1
750	0	0.47368421	-1	0.722976	-0.957407	0.473684	1
751	0	0.57894737	-1	0.792626	-0.986111	-1	1
752	0	0.57894737	-1	0.792626	-0.986111	-0.894737	1
753	0	0.57894737	-1	0.792626	-0.986111	-0.789474	1
754	0	0.57894737	-1	0.792626	-0.986111	-0.684211	1
755	0	0.57894737	-1	0.792626	-0.986111	-0.578947	1
756	0	0.57894737	-1	0.792626	-0.986111	-0.473684	1
757	0	0.57894737	-1	0.792626	-0.986111	-0.368421	1
758	0	0.57894737	-1	0.792626	-0.986111	-0.263158	1
759	0	0.57894737	-1	0.792626	-0.986111	-0.157895	1
760	0	0.57894737	-1	0.792626	-0.986111	-0.052632	1
761	0	0.57894737	-1	0.792626	-0.986111	0.052632	1
762	0	0.57894737	-1	0.792626	-0.986111	0.157895	1
763	0	0.57894737	-1	0.792626	-0.986111	0.263158	1
764	0	0.57894737	-1	0.792626	-0.986111	0.368421	1
765	0	0.57894737	-1	0.792626	-0.986111	0.473684	1
766	0	0.57894737	-1	0.792626	-0.986111	0.578947	1
767	0	0.68421053	-1	0.855154	-1	-1	1
768	0	0.68421053	-1	0.855154	-1	-0.894737	1
769	0	0.68421053	-1	0.855154	-1	-0.789474	1
770	0	0.68421053	-1	0.855154	-1	-0.684211	1
771	0	0.68421053	-1	0.855154	-1	-0.578947	1
772	0	0.68421053	-1	0.855154	-1	-0.473684	1
773	0	0.68421053	-1	0.855154	-1	-0.368421	1
774	0	0.68421053	-1	0.855154	-1	-0.263158	1
775	0	0.68421053	-1	0.855154	-1	-0.157895	1
776	0	0.68421053	-1	0.855154	-1	-0.052632	1

777	0	0.68421053	-1	0.855154	-1	0.052632	1
778	0	0.68421053	-1	0.855154	-1	0.157895	1
779	0	0.68421053	-1	0.855154	-1	0.263158	1
780	0	0.68421053	-1	0.855154	-1	0.368421	1
781	0	0.68421053	-1	0.855154	-1	0.473684	1
782	0	0.68421053	-1	0.855154	-1	0.578947	1
783	0	0.68421053	-1	0.855154	-1	0.684211	1
784	0	0.78947368	-1	0.910558	-0.999074	-1	1
785	0	0.78947368	-1	0.910558	-0.999074	-0.894737	1
786	0	0.78947368	-1	0.910558	-0.999074	-0.789474	1
787	0	0.78947368	-1	0.910558	-0.999074	-0.684211	1
788	0	0.78947368	-1	0.910558	-0.999074	-0.578947	1
789	0	0.78947368	-1	0.910558	-0.999074	-0.473684	1
790	0	0.78947368	-1	0.910558	-0.999074	-0.368421	1
791	0	0.78947368	-1	0.910558	-0.999074	-0.263158	1
792	0	0.78947368	-1	0.910558	-0.999074	-0.157895	1
793	0	0.78947368	-1	0.910558	-0.999074	-0.052632	1
794	0	0.78947368	-1	0.910558	-0.999074	0.052632	1
795	0	0.78947368	-1	0.910558	-0.999074	0.157895	1
796	0	0.78947368	-1	0.910558	-0.999074	0.263158	1
797	0	0.78947368	-1	0.910558	-0.999074	0.368421	1
798	0	0.78947368	-1	0.910558	-0.999074	0.473684	1
799	0	0.78947368	-1	0.910558	-0.999074	0.578947	1
800	0	0.78947368	-1	0.910558	-0.999074	0.684211	1
801	0	0.78947368	-1	0.910558	-0.999074	0.789474	1
802	0	0.89473684	-1	0.958841	-0.983333	-1	1
803	0	0.89473684	-1	0.958841	-0.983333	-0.894737	1
804	0	0.89473684	-1	0.958841	-0.983333	-0.789474	1
805	0	0.89473684	-1	0.958841	-0.983333	-0.684211	1
806	0	0.89473684	-1	0.958841	-0.983333	-0.578947	1
807	0	0.89473684	-1	0.958841	-0.983333	-0.473684	1
808	0	0.89473684	-1	0.958841	-0.983333	-0.368421	1
809	0	0.89473684	-1	0.958841	-0.983333	-0.263158	1
810	0	0.89473684	-1	0.958841	-0.983333	-0.157895	1
811	0	0.89473684	-1	0.958841	-0.983333	-0.052632	1
812	0	0.89473684	-1	0.958841	-0.983333	0.052632	1
813	0	0.89473684	-1	0.958841	-0.983333	0.157895	1
814	0	0.89473684	-1	0.958841	-0.983333	0.263158	1
815	0	0.89473684	-1	0.958841	-0.983333	0.368421	1
816	0	0.89473684	-1	0.958841	-0.983333	0.473684	1
817	0	0.89473684	-1	0.958841	-0.983333	0.578947	1
818	0	0.89473684	-1	0.958841	-0.983333	0.684211	1
819	0	0.89473684	-1	0.958841	-0.983333	0.789474	1
820	0	0.89473684	-1	0.958841	-0.983333	0.894737	1
821	0	1	-1	1	-0.952778	-1	1
822	0	1	-1	1	-0.952778	-0.894737	1
823	0	1	-1	1	-0.952778	-0.789474	1
824	0	1	-1	1	-0.952778	-0.684211	1
825	0	1	-1	1	-0.952778	-0.578947	1
826	0	1	-1	1	-0.952778	-0.473684	1
827	0	1	-1	1	-0.952778	-0.368421	1
828	0	1	-1	1	-0.952778	-0.263158	1
829	0	1	-1	1	-0.952778	-0.157895	1
830	0	1	-1	1	-0.952778	-0.052632	1
831	0	1	-1	1	-0.952778	0.052632	1
832	0	1	-1	1	-0.952778	0.157895	1
833	0	1	-1	1	-0.952778	0.263158	1
834	0	1	-1	1	-0.952778	0.368421	1
835	0	1	-1	1	-0.952778	0.473684	1
836	0	1	-1	1	-0.952778	0.578947	1
837	0	1	-1	1	-0.952778	0.684211	1
838	0	1	-1	1	-0.952778	0.789474	1
839	0	1	-1	1	-0.952778	0.894737	1
840	0	1	-1	1	-0.952778	1	1
841	0	-1	0	-1	1	-1	1
842	0	-0.8947368	0	-0.83063	0.7638889	-1	1

843	0	-0.8947368	0	-0.83063	0.7638889	-0.894737	1
844	0	-0.7894737	0	-0.66839	0.5425926	-1	1
845	0	-0.7894737	0	-0.66839	0.5425926	-0.894737	1
846	0	-0.7894737	0	-0.66839	0.5425926	-0.789474	1
847	0	-0.6842105	0	-0.51327	0.3361111	-1	1
848	0	-0.6842105	0	-0.51327	0.3361111	-0.894737	1
849	0	-0.6842105	0	-0.51327	0.3361111	-0.789474	1
850	0	-0.6842105	0	-0.51327	0.3361111	-0.684211	1
851	0	-0.5789474	0	-0.36527	0.1444444	-1	1
852	0	-0.5789474	0	-0.36527	0.1444444	-0.894737	1
853	0	-0.5789474	0	-0.36527	0.1444444	-0.789474	1
854	0	-0.5789474	0	-0.36527	0.1444444	-0.684211	1
855	0	-0.5789474	0	-0.36527	0.1444444	-0.578947	1
856	0	-0.4736842	0	-0.22439	-0.032407	-1	1
857	0	-0.4736842	0	-0.22439	-0.032407	-0.894737	1
858	0	-0.4736842	0	-0.22439	-0.032407	-0.789474	1
859	0	-0.4736842	0	-0.22439	-0.032407	-0.684211	1
860	0	-0.4736842	0	-0.22439	-0.032407	-0.578947	1
861	0	-0.4736842	0	-0.22439	-0.032407	-0.473684	1
862	0	-0.3684211	0	-0.09064	-0.194444	-1	1
863	0	-0.3684211	0	-0.09064	-0.194444	-0.894737	1
864	0	-0.3684211	0	-0.09064	-0.194444	-0.789474	1
865	0	-0.3684211	0	-0.09064	-0.194444	-0.684211	1
866	0	-0.3684211	0	-0.09064	-0.194444	-0.578947	1
867	0	-0.3684211	0	-0.09064	-0.194444	-0.473684	1
868	0	-0.3684211	0	-0.09064	-0.194444	-0.368421	1
869	0	-0.2631579	0	0.035993	-0.341667	-1	1
870	0	-0.2631579	0	0.035993	-0.341667	-0.894737	1
871	0	-0.2631579	0	0.035993	-0.341667	-0.789474	1
872	0	-0.2631579	0	0.035993	-0.341667	-0.684211	1
873	0	-0.2631579	0	0.035993	-0.341667	-0.578947	1
874	0	-0.2631579	0	0.035993	-0.341667	-0.473684	1
875	0	-0.2631579	0	0.035993	-0.341667	-0.368421	1
876	0	-0.2631579	0	0.035993	-0.341667	-0.263158	1
877	0	-0.1578947	0	0.155501	-0.474074	-1	1
878	0	-0.1578947	0	0.155501	-0.474074	-0.894737	1
879	0	-0.1578947	0	0.155501	-0.474074	-0.789474	1
880	0	-0.1578947	0	0.155501	-0.474074	-0.684211	1
881	0	-0.1578947	0	0.155501	-0.474074	-0.578947	1
882	0	-0.1578947	0	0.155501	-0.474074	-0.473684	1
883	0	-0.1578947	0	0.155501	-0.474074	-0.368421	1
884	0	-0.1578947	0	0.155501	-0.474074	-0.263158	1
885	0	-0.1578947	0	0.155501	-0.474074	-0.157895	1
886	0	-0.0526316	0	0.267887	-0.591667	-1	1
887	0	-0.0526316	0	0.267887	-0.591667	-0.894737	1
888	0	-0.0526316	0	0.267887	-0.591667	-0.789474	1
889	0	-0.0526316	0	0.267887	-0.591667	-0.684211	1
890	0	-0.0526316	0	0.267887	-0.591667	-0.578947	1
891	0	-0.0526316	0	0.267887	-0.591667	-0.473684	1
892	0	-0.0526316	0	0.267887	-0.591667	-0.368421	1
893	0	-0.0526316	0	0.267887	-0.591667	-0.263158	1
894	0	-0.0526316	0	0.267887	-0.591667	-0.157895	1
895	0	-0.0526316	0	0.267887	-0.591667	-0.052632	1
896	0	0.05263158	0	0.37315	-0.694444	-1	1
897	0	0.05263158	0	0.37315	-0.694444	-0.894737	1
898	0	0.05263158	0	0.37315	-0.694444	-0.789474	1
899	0	0.05263158	0	0.37315	-0.694444	-0.684211	1
900	0	0.05263158	0	0.37315	-0.694444	-0.578947	1
901	0	0.05263158	0	0.37315	-0.694444	-0.473684	1
902	0	0.05263158	0	0.37315	-0.694444	-0.368421	1
903	0	0.05263158	0	0.37315	-0.694444	-0.263158	1
904	0	0.05263158	0	0.37315	-0.694444	-0.157895	1
905	0	0.05263158	0	0.37315	-0.694444	-0.052632	1
906	0	0.05263158	0	0.37315	-0.694444	0.052632	1
907	0	0.15789474	0	0.471291	-0.782407	-1	1
908	0	0.15789474	0	0.471291	-0.782407	-0.894737	1

909	0	0.15789474	0	0.471291	-0.782407	-0.789474	1
910	0	0.15789474	0	0.471291	-0.782407	-0.684211	1
911	0	0.15789474	0	0.471291	-0.782407	-0.578947	1
912	0	0.15789474	0	0.471291	-0.782407	-0.473684	1
913	0	0.15789474	0	0.471291	-0.782407	-0.368421	1
914	0	0.15789474	0	0.471291	-0.782407	-0.263158	1
915	0	0.15789474	0	0.471291	-0.782407	-0.157895	1
916	0	0.15789474	0	0.471291	-0.782407	-0.052632	1
917	0	0.15789474	0	0.471291	-0.782407	0.052632	1
918	0	0.15789474	0	0.471291	-0.782407	0.157895	1
919	0	0.26315789	0	0.562308	-0.855556	-1	1
920	0	0.26315789	0	0.562308	-0.855556	-0.894737	1
921	0	0.26315789	0	0.562308	-0.855556	-0.789474	1
922	0	0.26315789	0	0.562308	-0.855556	-0.684211	1
923	0	0.26315789	0	0.562308	-0.855556	-0.578947	1
924	0	0.26315789	0	0.562308	-0.855556	-0.473684	1
925	0	0.26315789	0	0.562308	-0.855556	-0.368421	1
926	0	0.26315789	0	0.562308	-0.855556	-0.263158	1
927	0	0.26315789	0	0.562308	-0.855556	-0.157895	1
928	0	0.26315789	0	0.562308	-0.855556	-0.052632	1
929	0	0.26315789	0	0.562308	-0.855556	0.052632	1
930	0	0.26315789	0	0.562308	-0.855556	0.157895	1
931	0	0.26315789	0	0.562308	-0.855556	0.263158	1
932	0	0.36842105	0	0.646204	-0.913889	-1	1
933	0	0.36842105	0	0.646204	-0.913889	-0.894737	1
934	0	0.36842105	0	0.646204	-0.913889	-0.789474	1
935	0	0.36842105	0	0.646204	-0.913889	-0.684211	1
936	0	0.36842105	0	0.646204	-0.913889	-0.578947	1
937	0	0.36842105	0	0.646204	-0.913889	-0.473684	1
938	0	0.36842105	0	0.646204	-0.913889	-0.368421	1
939	0	0.36842105	0	0.646204	-0.913889	-0.263158	1
940	0	0.36842105	0	0.646204	-0.913889	-0.157895	1
941	0	0.36842105	0	0.646204	-0.913889	-0.052632	1
942	0	0.36842105	0	0.646204	-0.913889	0.052632	1
943	0	0.36842105	0	0.646204	-0.913889	0.157895	1
944	0	0.36842105	0	0.646204	-0.913889	0.263158	1
945	0	0.36842105	0	0.646204	-0.913889	0.368421	1
946	0	0.47368421	0	0.722976	-0.957407	-1	1
947	0	0.47368421	0	0.722976	-0.957407	-0.894737	1
948	0	0.47368421	0	0.722976	-0.957407	-0.789474	1
949	0	0.47368421	0	0.722976	-0.957407	-0.684211	1
950	0	0.47368421	0	0.722976	-0.957407	-0.578947	1
951	0	0.47368421	0	0.722976	-0.957407	-0.473684	1
952	0	0.47368421	0	0.722976	-0.957407	-0.368421	1
953	0	0.47368421	0	0.722976	-0.957407	-0.263158	1
954	0	0.47368421	0	0.722976	-0.957407	-0.157895	1
955	0	0.47368421	0	0.722976	-0.957407	-0.052632	1
956	0	0.47368421	0	0.722976	-0.957407	0.052632	1
957	0	0.47368421	0	0.722976	-0.957407	0.157895	1
958	0	0.47368421	0	0.722976	-0.957407	0.263158	1
959	0	0.47368421	0	0.722976	-0.957407	0.368421	1
960	0	0.47368421	0	0.722976	-0.957407	0.473684	1
961	0	0.57894737	0	0.792626	-0.986111	-1	1
962	0	0.57894737	0	0.792626	-0.986111	-0.894737	1
963	0	0.57894737	0	0.792626	-0.986111	-0.789474	1
964	0	0.57894737	0	0.792626	-0.986111	-0.684211	1
965	0	0.57894737	0	0.792626	-0.986111	-0.578947	1
966	0	0.57894737	0	0.792626	-0.986111	-0.473684	1
967	0	0.57894737	0	0.792626	-0.986111	-0.368421	1
968	0	0.57894737	0	0.792626	-0.986111	-0.263158	1
969	0	0.57894737	0	0.792626	-0.986111	-0.157895	1
970	0	0.57894737	0	0.792626	-0.986111	-0.052632	1
971	0	0.57894737	0	0.792626	-0.986111	0.052632	1
972	0	0.57894737	0	0.792626	-0.986111	0.157895	1
973	0	0.57894737	0	0.792626	-0.986111	0.263158	1
974	0	0.57894737	0	0.792626	-0.986111	0.368421	1

975	0	0.57894737	0	0.792626	-0.986111	0.473684	1
976	0	0.57894737	0	0.792626	-0.986111	0.578947	1
977	0	0.68421053	0	0.855154	-1	-1	1
978	0	0.68421053	0	0.855154	-1	-0.894737	1
979	0	0.68421053	0	0.855154	-1	-0.789474	1
980	0	0.68421053	0	0.855154	-1	-0.684211	1
981	0	0.68421053	0	0.855154	-1	-0.578947	1
982	0	0.68421053	0	0.855154	-1	-0.473684	1
983	0	0.68421053	0	0.855154	-1	-0.368421	1
984	0	0.68421053	0	0.855154	-1	-0.263158	1
985	0	0.68421053	0	0.855154	-1	-0.157895	1
986	0	0.68421053	0	0.855154	-1	-0.052632	1
987	0	0.68421053	0	0.855154	-1	0.052632	1
988	0	0.68421053	0	0.855154	-1	0.157895	1
989	0	0.68421053	0	0.855154	-1	0.263158	1
990	0	0.68421053	0	0.855154	-1	0.368421	1
991	0	0.68421053	0	0.855154	-1	0.473684	1
992	0	0.68421053	0	0.855154	-1	0.578947	1
993	0	0.68421053	0	0.855154	-1	0.684211	1
994	0	0.78947368	0	0.910558	-0.999074	-1	1
995	0	0.78947368	0	0.910558	-0.999074	-0.894737	1
996	0	0.78947368	0	0.910558	-0.999074	-0.789474	1
997	0	0.78947368	0	0.910558	-0.999074	-0.684211	1
998	0	0.78947368	0	0.910558	-0.999074	-0.578947	1
999	0	0.78947368	0	0.910558	-0.999074	-0.473684	1
1000	0	0.78947368	0	0.910558	-0.999074	-0.368421	1
1001	0	0.78947368	0	0.910558	-0.999074	-0.263158	1
1002	0	0.78947368	0	0.910558	-0.999074	-0.157895	1
1003	0	0.78947368	0	0.910558	-0.999074	-0.052632	1
1004	0	0.78947368	0	0.910558	-0.999074	0.052632	1
1005	0	0.78947368	0	0.910558	-0.999074	0.157895	1
1006	0	0.78947368	0	0.910558	-0.999074	0.263158	1
1007	0	0.78947368	0	0.910558	-0.999074	0.368421	1
1008	0	0.78947368	0	0.910558	-0.999074	0.473684	1
1009	0	0.78947368	0	0.910558	-0.999074	0.578947	1
1010	0	0.78947368	0	0.910558	-0.999074	0.684211	1
1011	0	0.78947368	0	0.910558	-0.999074	0.789474	1
1012	0	0.89473684	0	0.958841	-0.983333	-1	1
1013	0	0.89473684	0	0.958841	-0.983333	-0.894737	1
1014	0	0.89473684	0	0.958841	-0.983333	-0.789474	1
1015	0	0.89473684	0	0.958841	-0.983333	-0.684211	1
1016	0	0.89473684	0	0.958841	-0.983333	-0.578947	1
1017	0	0.89473684	0	0.958841	-0.983333	-0.473684	1
1018	0	0.89473684	0	0.958841	-0.983333	-0.368421	1
1019	0	0.89473684	0	0.958841	-0.983333	-0.263158	1
1020	0	0.89473684	0	0.958841	-0.983333	-0.157895	1
1021	0	0.89473684	0	0.958841	-0.983333	-0.052632	1
1022	0	0.89473684	0	0.958841	-0.983333	0.052632	1
1023	0	0.89473684	0	0.958841	-0.983333	0.157895	1
1024	0	0.89473684	0	0.958841	-0.983333	0.263158	1
1025	0	0.89473684	0	0.958841	-0.983333	0.368421	1
1026	0	0.89473684	0	0.958841	-0.983333	0.473684	1
1027	0	0.89473684	0	0.958841	-0.983333	0.578947	1
1028	0	0.89473684	0	0.958841	-0.983333	0.684211	1
1029	0	0.89473684	0	0.958841	-0.983333	0.789474	1
1030	0	0.89473684	0	0.958841	-0.983333	0.894737	1
1031	0	1	0	1	-0.952778	-1	1
1032	0	1	0	1	-0.952778	-0.894737	1
1033	0	1	0	1	-0.952778	-0.789474	1
1034	0	1	0	1	-0.952778	-0.684211	1
1035	0	1	0	1	-0.952778	-0.578947	1
1036	0	1	0	1	-0.952778	-0.473684	1
1037	0	1	0	1	-0.952778	-0.368421	1
1038	0	1	0	1	-0.952778	-0.263158	1
1039	0	1	0	1	-0.952778	-0.157895	1
1040	0	1	0	1	-0.952778	-0.052632	1

1041	0	1	0	1	-0.952778	0.052632	1
1042	0	1	0	1	-0.952778	0.157895	1
1043	0	1	0	1	-0.952778	0.263158	1
1044	0	1	0	1	-0.952778	0.368421	1
1045	0	1	0	1	-0.952778	0.473684	1
1046	0	1	0	1	-0.952778	0.578947	1
1047	0	1	0	1	-0.952778	0.684211	1
1048	0	1	0	1	-0.952778	0.789474	1
1049	0	1	0	1	-0.952778	0.894737	1
1050	0	1	0	1	-0.952778	1	1
1051	0	-1	1	-1	1	-1	1
1052	0	-0.8947368	1	-0.83063	0.7638889	-1	1
1053	0	-0.8947368	1	-0.83063	0.7638889	-0.894737	1
1054	0	-0.7894737	1	-0.66839	0.5425926	-1	1
1055	0	-0.7894737	1	-0.66839	0.5425926	-0.894737	1
1056	0	-0.7894737	1	-0.66839	0.5425926	-0.789474	1
1057	0	-0.6842105	1	-0.51327	0.3361111	-1	1
1058	0	-0.6842105	1	-0.51327	0.3361111	-0.894737	1
1059	0	-0.6842105	1	-0.51327	0.3361111	-0.789474	1
1060	0	-0.6842105	1	-0.51327	0.3361111	-0.684211	1
1061	0	-0.5789474	1	-0.36527	0.1444444	-1	1
1062	0	-0.5789474	1	-0.36527	0.1444444	-0.894737	1
1063	0	-0.5789474	1	-0.36527	0.1444444	-0.789474	1
1064	0	-0.5789474	1	-0.36527	0.1444444	-0.684211	1
1065	0	-0.5789474	1	-0.36527	0.1444444	-0.578947	1
1066	0	-0.4736842	1	-0.22439	-0.032407	-1	1
1067	0	-0.4736842	1	-0.22439	-0.032407	-0.894737	1
1068	0	-0.4736842	1	-0.22439	-0.032407	-0.789474	1
1069	0	-0.4736842	1	-0.22439	-0.032407	-0.684211	1
1070	0	-0.4736842	1	-0.22439	-0.032407	-0.578947	1
1071	0	-0.4736842	1	-0.22439	-0.032407	-0.473684	1
1072	0	-0.3684211	1	-0.09064	-0.194444	-1	1
1073	0	-0.3684211	1	-0.09064	-0.194444	-0.894737	1
1074	0	-0.3684211	1	-0.09064	-0.194444	-0.789474	1
1075	0	-0.3684211	1	-0.09064	-0.194444	-0.684211	1
1076	0	-0.3684211	1	-0.09064	-0.194444	-0.578947	1
1077	0	-0.3684211	1	-0.09064	-0.194444	-0.473684	1
1078	0	-0.3684211	1	-0.09064	-0.194444	-0.368421	1
1079	0	-0.2631579	1	0.035993	-0.341667	-1	1
1080	0	-0.2631579	1	0.035993	-0.341667	-0.894737	1
1081	0	-0.2631579	1	0.035993	-0.341667	-0.789474	1
1082	0	-0.2631579	1	0.035993	-0.341667	-0.684211	1
1083	0	-0.2631579	1	0.035993	-0.341667	-0.578947	1
1084	0	-0.2631579	1	0.035993	-0.341667	-0.473684	1
1085	0	-0.2631579	1	0.035993	-0.341667	-0.368421	1
1086	0	-0.2631579	1	0.035993	-0.341667	-0.263158	1
1087	0	-0.1578947	1	0.155501	-0.474074	-1	1
1088	0	-0.1578947	1	0.155501	-0.474074	-0.894737	1
1089	0	-0.1578947	1	0.155501	-0.474074	-0.789474	1
1090	0	-0.1578947	1	0.155501	-0.474074	-0.684211	1
1091	0	-0.1578947	1	0.155501	-0.474074	-0.578947	1
1092	0	-0.1578947	1	0.155501	-0.474074	-0.473684	1
1093	0	-0.1578947	1	0.155501	-0.474074	-0.368421	1
1094	0	-0.1578947	1	0.155501	-0.474074	-0.263158	1
1095	0	-0.1578947	1	0.155501	-0.474074	-0.157895	1
1096	0	-0.0526316	1	0.267887	-0.591667	-1	1
1097	0	-0.0526316	1	0.267887	-0.591667	-0.894737	1
1098	0	-0.0526316	1	0.267887	-0.591667	-0.789474	1
1099	0	-0.0526316	1	0.267887	-0.591667	-0.684211	1
1100	0	-0.0526316	1	0.267887	-0.591667	-0.578947	1
1101	0	-0.0526316	1	0.267887	-0.591667	-0.473684	1
1102	0	-0.0526316	1	0.267887	-0.591667	-0.368421	1
1103	0	-0.0526316	1	0.267887	-0.591667	-0.263158	1
1104	0	-0.0526316	1	0.267887	-0.591667	-0.157895	1
1105	0	-0.0526316	1	0.267887	-0.591667	-0.052632	1
1106	0	0.05263158	1	0.37315	-0.694444	-1	1

1107	0	0.05263158	1	0.37315	-0.694444	-0.894737	1
1108	0	0.05263158	1	0.37315	-0.694444	-0.789474	1
1109	0	0.05263158	1	0.37315	-0.694444	-0.684211	1
1110	0	0.05263158	1	0.37315	-0.694444	-0.578947	1
1111	0	0.05263158	1	0.37315	-0.694444	-0.473684	1
1112	0	0.05263158	1	0.37315	-0.694444	-0.368421	1
1113	0	0.05263158	1	0.37315	-0.694444	-0.263158	1
1114	0	0.05263158	1	0.37315	-0.694444	-0.157895	1
1115	0	0.05263158	1	0.37315	-0.694444	-0.052632	1
1116	0	0.05263158	1	0.37315	-0.694444	0.052632	1
1117	0	0.15789474	1	0.471291	-0.782407	-1	1
1118	0	0.15789474	1	0.471291	-0.782407	-0.894737	1
1119	0	0.15789474	1	0.471291	-0.782407	-0.789474	1
1120	0	0.15789474	1	0.471291	-0.782407	-0.684211	1
1121	0	0.15789474	1	0.471291	-0.782407	-0.578947	1
1122	0	0.15789474	1	0.471291	-0.782407	-0.473684	1
1123	0	0.15789474	1	0.471291	-0.782407	-0.368421	1
1124	0	0.15789474	1	0.471291	-0.782407	-0.263158	1
1125	0	0.15789474	1	0.471291	-0.782407	-0.157895	1
1126	0	0.15789474	1	0.471291	-0.782407	-0.052632	1
1127	0	0.15789474	1	0.471291	-0.782407	0.052632	1
1128	0	0.15789474	1	0.471291	-0.782407	0.157895	1
1129	0	0.26315789	1	0.562308	-0.855556	-1	1
1130	0	0.26315789	1	0.562308	-0.855556	-0.894737	1
1131	0	0.26315789	1	0.562308	-0.855556	-0.789474	1
1132	0	0.26315789	1	0.562308	-0.855556	-0.684211	1
1133	0	0.26315789	1	0.562308	-0.855556	-0.578947	1
1134	0	0.26315789	1	0.562308	-0.855556	-0.473684	1
1135	0	0.26315789	1	0.562308	-0.855556	-0.368421	1
1136	0	0.26315789	1	0.562308	-0.855556	-0.263158	1
1137	0	0.26315789	1	0.562308	-0.855556	-0.157895	1
1138	0	0.26315789	1	0.562308	-0.855556	-0.052632	1
1139	0	0.26315789	1	0.562308	-0.855556	0.052632	1
1140	0	0.26315789	1	0.562308	-0.855556	0.157895	1
1141	0	0.26315789	1	0.562308	-0.855556	0.263158	1
1142	0	0.36842105	1	0.646204	-0.913889	-1	1
1143	0	0.36842105	1	0.646204	-0.913889	-0.894737	1
1144	0	0.36842105	1	0.646204	-0.913889	-0.789474	1
1145	0	0.36842105	1	0.646204	-0.913889	-0.684211	1
1146	0	0.36842105	1	0.646204	-0.913889	-0.578947	1
1147	0	0.36842105	1	0.646204	-0.913889	-0.473684	1
1148	0	0.36842105	1	0.646204	-0.913889	-0.368421	1
1149	0	0.36842105	1	0.646204	-0.913889	-0.263158	1
1150	0	0.36842105	1	0.646204	-0.913889	-0.157895	1
1151	0	0.36842105	1	0.646204	-0.913889	-0.052632	1
1152	0	0.36842105	1	0.646204	-0.913889	0.052632	1
1153	0	0.36842105	1	0.646204	-0.913889	0.157895	1
1154	0	0.36842105	1	0.646204	-0.913889	0.263158	1
1155	0	0.36842105	1	0.646204	-0.913889	0.368421	1
1156	0	0.47368421	1	0.722976	-0.957407	-1	1
1157	0	0.47368421	1	0.722976	-0.957407	-0.894737	1
1158	0	0.47368421	1	0.722976	-0.957407	-0.789474	1
1159	0	0.47368421	1	0.722976	-0.957407	-0.684211	1
1160	0	0.47368421	1	0.722976	-0.957407	-0.578947	1
1161	0	0.47368421	1	0.722976	-0.957407	-0.473684	1
1162	0	0.47368421	1	0.722976	-0.957407	-0.368421	1
1163	0	0.47368421	1	0.722976	-0.957407	-0.263158	1
1164	0	0.47368421	1	0.722976	-0.957407	-0.157895	1
1165	0	0.47368421	1	0.722976	-0.957407	-0.052632	1
1166	0	0.47368421	1	0.722976	-0.957407	0.052632	1
1167	0	0.47368421	1	0.722976	-0.957407	0.157895	1
1168	0	0.47368421	1	0.722976	-0.957407	0.263158	1
1169	0	0.47368421	1	0.722976	-0.957407	0.368421	1
1170	0	0.47368421	1	0.722976	-0.957407	0.473684	1
1171	0	0.57894737	1	0.792626	-0.986111	-1	1
1172	0	0.57894737	1	0.792626	-0.986111	-0.894737	1

1173	0	0.57894737	1	0.792626	-0.986111	-0.789474	1
1174	0	0.57894737	1	0.792626	-0.986111	-0.684211	1
1175	0	0.57894737	1	0.792626	-0.986111	-0.578947	1
1176	0	0.57894737	1	0.792626	-0.986111	-0.473684	1
1177	0	0.57894737	1	0.792626	-0.986111	-0.368421	1
1178	0	0.57894737	1	0.792626	-0.986111	-0.263158	1
1179	0	0.57894737	1	0.792626	-0.986111	-0.157895	1
1180	0	0.57894737	1	0.792626	-0.986111	-0.052632	1
1181	0	0.57894737	1	0.792626	-0.986111	0.052632	1
1182	0	0.57894737	1	0.792626	-0.986111	0.157895	1
1183	0	0.57894737	1	0.792626	-0.986111	0.263158	1
1184	0	0.57894737	1	0.792626	-0.986111	0.368421	1
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1186	0	0.57894737	1	0.792626	-0.986111	0.578947	1
1187	0	0.68421053	1	0.855154	-1	-1	1
1188	0	0.68421053	1	0.855154	-1	-0.894737	1
1189	0	0.68421053	1	0.855154	-1	-0.789474	1
1190	0	0.68421053	1	0.855154	-1	-0.684211	1
1191	0	0.68421053	1	0.855154	-1	-0.578947	1
1192	0	0.68421053	1	0.855154	-1	-0.473684	1
1193	0	0.68421053	1	0.855154	-1	-0.368421	1
1194	0	0.68421053	1	0.855154	-1	-0.263158	1
1195	0	0.68421053	1	0.855154	-1	-0.157895	1
1196	0	0.68421053	1	0.855154	-1	-0.052632	1
1197	0	0.68421053	1	0.855154	-1	0.052632	1
1198	0	0.68421053	1	0.855154	-1	0.157895	1
1199	0	0.68421053	1	0.855154	-1	0.263158	1
1200	0	0.68421053	1	0.855154	-1	0.368421	1
1201	0	0.68421053	1	0.855154	-1	0.473684	1
1202	0	0.68421053	1	0.855154	-1	0.578947	1
1203	0	0.68421053	1	0.855154	-1	0.684211	1
1204	0	0.78947368	1	0.910558	-0.999074	-1	1
1205	0	0.78947368	1	0.910558	-0.999074	-0.894737	1
1206	0	0.78947368	1	0.910558	-0.999074	-0.789474	1
1207	0	0.78947368	1	0.910558	-0.999074	-0.684211	1
1208	0	0.78947368	1	0.910558	-0.999074	-0.578947	1
1209	0	0.78947368	1	0.910558	-0.999074	-0.473684	1
1210	0	0.78947368	1	0.910558	-0.999074	-0.368421	1
1211	0	0.78947368	1	0.910558	-0.999074	-0.263158	1
1212	0	0.78947368	1	0.910558	-0.999074	-0.157895	1
1213	0	0.78947368	1	0.910558	-0.999074	-0.052632	1
1214	0	0.78947368	1	0.910558	-0.999074	0.052632	1
1215	0	0.78947368	1	0.910558	-0.999074	0.157895	1
1216	0	0.78947368	1	0.910558	-0.999074	0.263158	1
1217	0	0.78947368	1	0.910558	-0.999074	0.368421	1
1218	0	0.78947368	1	0.910558	-0.999074	0.473684	1
1219	0	0.78947368	1	0.910558	-0.999074	0.578947	1
1220	0	0.78947368	1	0.910558	-0.999074	0.684211	1
1221	0	0.78947368	1	0.910558	-0.999074	0.789474	1
1222	0	0.89473684	1	0.958841	-0.983333	-1	1
1223	0	0.89473684	1	0.958841	-0.983333	-0.894737	1
1224	0	0.89473684	1	0.958841	-0.983333	-0.789474	1
1225	0	0.89473684	1	0.958841	-0.983333	-0.684211	1
1226	0	0.89473684	1	0.958841	-0.983333	-0.578947	1
1227	0	0.89473684	1	0.958841	-0.983333	-0.473684	1
1228	0	0.89473684	1	0.958841	-0.983333	-0.368421	1
1229	0	0.89473684	1	0.958841	-0.983333	-0.263158	1
1230	0	0.89473684	1	0.958841	-0.983333	-0.157895	1
1231	0	0.89473684	1	0.958841	-0.983333	-0.052632	1
1232	0	0.89473684	1	0.958841	-0.983333	0.052632	1
1233	0	0.89473684	1	0.958841	-0.983333	0.157895	1
1234	0	0.89473684	1	0.958841	-0.983333	0.263158	1
1235	0	0.89473684	1	0.958841	-0.983333	0.368421	1
1236	0	0.89473684	1	0.958841	-0.983333	0.473684	1
1237	0	0.89473684	1	0.958841	-0.983333	0.578947	1
1238	0	0.89473684	1	0.958841	-0.983333	0.684211	1

1239	0	0.89473684	1	0.958841	-0.983333	0.789474	1
1240	0	0.89473684	1	0.958841	-0.983333	0.894737	1
1241	0	1	1	1	-0.952778	-1	1
1242	0	1	1	1	-0.952778	-0.894737	1
1243	0	1	1	1	-0.952778	-0.789474	1
1244	0	1	1	1	-0.952778	-0.684211	1
1245	0	1	1	1	-0.952778	-0.578947	1
1246	0	1	1	1	-0.952778	-0.473684	1
1247	0	1	1	1	-0.952778	-0.368421	1
1248	0	1	1	1	-0.952778	-0.263158	1
1249	0	1	1	1	-0.952778	-0.157895	1
1250	0	1	1	1	-0.952778	-0.052632	1
1251	0	1	1	1	-0.952778	0.052632	1
1252	0	1	1	1	-0.952778	0.157895	1
1253	0	1	1	1	-0.952778	0.263158	1
1254	0	1	1	1	-0.952778	0.368421	1
1255	0	1	1	1	-0.952778	0.473684	1
1256	0	1	1	1	-0.952778	0.578947	1
1257	0	1	1	1	-0.952778	0.684211	1
1258	0	1	1	1	-0.952778	0.789474	1
1259	0	1	1	1	-0.952778	0.894737	1
1260	0	1	1	1	-0.952778	1	1
1261	1	-1	-1	-1	1	-1	1
1262	1	-0.8947368	-1	-0.83063	0.7638889	-1	1
1263	1	-0.8947368	-1	-0.83063	0.7638889	-0.894737	1
1264	1	-0.7894737	-1	-0.66839	0.5425926	-1	1
1265	1	-0.7894737	-1	-0.66839	0.5425926	-0.894737	1
1266	1	-0.7894737	-1	-0.66839	0.5425926	-0.789474	1
1267	1	-0.6842105	-1	-0.51327	0.3361111	-1	1
1268	1	-0.6842105	-1	-0.51327	0.3361111	-0.894737	1
1269	1	-0.6842105	-1	-0.51327	0.3361111	-0.789474	1
1270	1	-0.6842105	-1	-0.51327	0.3361111	-0.684211	1
1271	1	-0.5789474	-1	-0.36527	0.1444444	-1	1
1272	1	-0.5789474	-1	-0.36527	0.1444444	-0.894737	1
1273	1	-0.5789474	-1	-0.36527	0.1444444	-0.789474	1
1274	1	-0.5789474	-1	-0.36527	0.1444444	-0.684211	1
1275	1	-0.5789474	-1	-0.36527	0.1444444	-0.578947	1
1276	1	-0.4736842	-1	-0.22439	-0.032407	-1	1
1277	1	-0.4736842	-1	-0.22439	-0.032407	-0.894737	1
1278	1	-0.4736842	-1	-0.22439	-0.032407	-0.789474	1
1279	1	-0.4736842	-1	-0.22439	-0.032407	-0.684211	1
1280	1	-0.4736842	-1	-0.22439	-0.032407	-0.578947	1
1281	1	-0.4736842	-1	-0.22439	-0.032407	-0.473684	1
1282	1	-0.3684211	-1	-0.09064	-0.194444	-1	1
1283	1	-0.3684211	-1	-0.09064	-0.194444	-0.894737	1
1284	1	-0.3684211	-1	-0.09064	-0.194444	-0.789474	1
1285	1	-0.3684211	-1	-0.09064	-0.194444	-0.684211	1
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1287	1	-0.3684211	-1	-0.09064	-0.194444	-0.473684	1
1288	1	-0.3684211	-1	-0.09064	-0.194444	-0.368421	1
1289	1	-0.2631579	-1	0.035993	-0.341667	-1	1
1290	1	-0.2631579	-1	0.035993	-0.341667	-0.894737	1
1291	1	-0.2631579	-1	0.035993	-0.341667	-0.789474	1
1292	1	-0.2631579	-1	0.035993	-0.341667	-0.684211	1
1293	1	-0.2631579	-1	0.035993	-0.341667	-0.578947	1
1294	1	-0.2631579	-1	0.035993	-0.341667	-0.473684	1
1295	1	-0.2631579	-1	0.035993	-0.341667	-0.368421	1
1296	1	-0.2631579	-1	0.035993	-0.341667	-0.263158	1
1297	1	-0.1578947	-1	0.155501	-0.474074	-1	1
1298	1	-0.1578947	-1	0.155501	-0.474074	-0.894737	1
1299	1	-0.1578947	-1	0.155501	-0.474074	-0.789474	1
1300	1	-0.1578947	-1	0.155501	-0.474074	-0.684211	1
1301	1	-0.1578947	-1	0.155501	-0.474074	-0.578947	1
1302	1	-0.1578947	-1	0.155501	-0.474074	-0.473684	1
1303	1	-0.1578947	-1	0.155501	-0.474074	-0.368421	1
1304	1	-0.1578947	-1	0.155501	-0.474074	-0.263158	1

1305	1	-0.1578947	-1	0.155501	-0.474074	-0.157895	1
1306	1	-0.0526316	-1	0.267887	-0.591667	-1	1
1307	1	-0.0526316	-1	0.267887	-0.591667	-0.894737	1
1308	1	-0.0526316	-1	0.267887	-0.591667	-0.789474	1
1309	1	-0.0526316	-1	0.267887	-0.591667	-0.684211	1
1310	1	-0.0526316	-1	0.267887	-0.591667	-0.578947	1
1311	1	-0.0526316	-1	0.267887	-0.591667	-0.473684	1
1312	1	-0.0526316	-1	0.267887	-0.591667	-0.368421	1
1313	1	-0.0526316	-1	0.267887	-0.591667	-0.263158	1
1314	1	-0.0526316	-1	0.267887	-0.591667	-0.157895	1
1315	1	-0.0526316	-1	0.267887	-0.591667	-0.052632	1
1316	1	0.05263158	-1	0.37315	-0.694444	-1	1
1317	1	0.05263158	-1	0.37315	-0.694444	-0.894737	1
1318	1	0.05263158	-1	0.37315	-0.694444	-0.789474	1
1319	1	0.05263158	-1	0.37315	-0.694444	-0.684211	1
1320	1	0.05263158	-1	0.37315	-0.694444	-0.578947	1
1321	1	0.05263158	-1	0.37315	-0.694444	-0.473684	1
1322	1	0.05263158	-1	0.37315	-0.694444	-0.368421	1
1323	1	0.05263158	-1	0.37315	-0.694444	-0.263158	1
1324	1	0.05263158	-1	0.37315	-0.694444	-0.157895	1
1325	1	0.05263158	-1	0.37315	-0.694444	-0.052632	1
1326	1	0.05263158	-1	0.37315	-0.694444	0.052632	1
1327	1	0.15789474	-1	0.471291	-0.782407	-1	1
1328	1	0.15789474	-1	0.471291	-0.782407	-0.894737	1
1329	1	0.15789474	-1	0.471291	-0.782407	-0.789474	1
1330	1	0.15789474	-1	0.471291	-0.782407	-0.684211	1
1331	1	0.15789474	-1	0.471291	-0.782407	-0.578947	1
1332	1	0.15789474	-1	0.471291	-0.782407	-0.473684	1
1333	1	0.15789474	-1	0.471291	-0.782407	-0.368421	1
1334	1	0.15789474	-1	0.471291	-0.782407	-0.263158	1
1335	1	0.15789474	-1	0.471291	-0.782407	-0.157895	1
1336	1	0.15789474	-1	0.471291	-0.782407	-0.052632	1
1337	1	0.15789474	-1	0.471291	-0.782407	0.052632	1
1338	1	0.15789474	-1	0.471291	-0.782407	0.157895	1
1339	1	0.26315789	-1	0.562308	-0.855556	-1	1
1340	1	0.26315789	-1	0.562308	-0.855556	-0.894737	1
1341	1	0.26315789	-1	0.562308	-0.855556	-0.789474	1
1342	1	0.26315789	-1	0.562308	-0.855556	-0.684211	1
1343	1	0.26315789	-1	0.562308	-0.855556	-0.578947	1
1344	1	0.26315789	-1	0.562308	-0.855556	-0.473684	1
1345	1	0.26315789	-1	0.562308	-0.855556	-0.368421	1
1346	1	0.26315789	-1	0.562308	-0.855556	-0.263158	1
1347	1	0.26315789	-1	0.562308	-0.855556	-0.157895	1
1348	1	0.26315789	-1	0.562308	-0.855556	-0.052632	1
1349	1	0.26315789	-1	0.562308	-0.855556	0.052632	1
1350	1	0.26315789	-1	0.562308	-0.855556	0.157895	1
1351	1	0.26315789	-1	0.562308	-0.855556	0.263158	1
1352	1	0.36842105	-1	0.646204	-0.913889	-1	1
1353	1	0.36842105	-1	0.646204	-0.913889	-0.894737	1
1354	1	0.36842105	-1	0.646204	-0.913889	-0.789474	1
1355	1	0.36842105	-1	0.646204	-0.913889	-0.684211	1
1356	1	0.36842105	-1	0.646204	-0.913889	-0.578947	1
1357	1	0.36842105	-1	0.646204	-0.913889	-0.473684	1
1358	1	0.36842105	-1	0.646204	-0.913889	-0.368421	1
1359	1	0.36842105	-1	0.646204	-0.913889	-0.263158	1
1360	1	0.36842105	-1	0.646204	-0.913889	-0.157895	1
1361	1	0.36842105	-1	0.646204	-0.913889	-0.052632	1
1362	1	0.36842105	-1	0.646204	-0.913889	0.052632	1
1363	1	0.36842105	-1	0.646204	-0.913889	0.157895	1
1364	1	0.36842105	-1	0.646204	-0.913889	0.263158	1
1365	1	0.36842105	-1	0.646204	-0.913889	0.368421	1
1366	1	0.47368421	-1	0.722976	-0.957407	-1	1
1367	1	0.47368421	-1	0.722976	-0.957407	-0.894737	1
1368	1	0.47368421	-1	0.722976	-0.957407	-0.789474	1
1369	1	0.47368421	-1	0.722976	-0.957407	-0.684211	1
1370	1	0.47368421	-1	0.722976	-0.957407	-0.578947	1

1371	1	0.47368421	-1	0.722976	-0.957407	-0.473684	1
1372	1	0.47368421	-1	0.722976	-0.957407	-0.368421	1
1373	1	0.47368421	-1	0.722976	-0.957407	-0.263158	1
1374	1	0.47368421	-1	0.722976	-0.957407	-0.157895	1
1375	1	0.47368421	-1	0.722976	-0.957407	-0.052632	1
1376	1	0.47368421	-1	0.722976	-0.957407	0.052632	1
1377	1	0.47368421	-1	0.722976	-0.957407	0.157895	1
1378	1	0.47368421	-1	0.722976	-0.957407	0.263158	1
1379	1	0.47368421	-1	0.722976	-0.957407	0.368421	1
1380	1	0.47368421	-1	0.722976	-0.957407	0.473684	1
1381	1	0.57894737	-1	0.792626	-0.986111	-1	1
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1383	1	0.57894737	-1	0.792626	-0.986111	-0.789474	1
1384	1	0.57894737	-1	0.792626	-0.986111	-0.684211	1
1385	1	0.57894737	-1	0.792626	-0.986111	-0.578947	1
1386	1	0.57894737	-1	0.792626	-0.986111	-0.473684	1
1387	1	0.57894737	-1	0.792626	-0.986111	-0.368421	1
1388	1	0.57894737	-1	0.792626	-0.986111	-0.263158	1
1389	1	0.57894737	-1	0.792626	-0.986111	-0.157895	1
1390	1	0.57894737	-1	0.792626	-0.986111	-0.052632	1
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1392	1	0.57894737	-1	0.792626	-0.986111	0.157895	1
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1394	1	0.57894737	-1	0.792626	-0.986111	0.368421	1
1395	1	0.57894737	-1	0.792626	-0.986111	0.473684	1
1396	1	0.57894737	-1	0.792626	-0.986111	0.578947	1
1397	1	0.68421053	-1	0.855154	-1	-1	1
1398	1	0.68421053	-1	0.855154	-1	-0.894737	1
1399	1	0.68421053	-1	0.855154	-1	-0.789474	1
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1410	1	0.68421053	-1	0.855154	-1	0.368421	1
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1414	1	0.78947368	-1	0.910558	-0.999074	-1	1
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1419	1	0.78947368	-1	0.910558	-0.999074	-0.473684	1
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1427	1	0.78947368	-1	0.910558	-0.999074	0.368421	1
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1430	1	0.78947368	-1	0.910558	-0.999074	0.684211	1
1431	1	0.78947368	-1	0.910558	-0.999074	0.789474	1
1432	1	0.89473684	-1	0.958841	-0.983333	-1	1
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1439	1	0.89473684	-1	0.958841	-0.983333	-0.263158	1
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1441	1	0.89473684	-1	0.958841	-0.983333	-0.052632	1
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1451	1	1	-1	1	-0.952778	-1	1
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1454	1	1	-1	1	-0.952778	-0.684211	1
1455	1	1	-1	1	-0.952778	-0.578947	1
1456	1	1	-1	1	-0.952778	-0.473684	1
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1458	1	1	-1	1	-0.952778	-0.263158	1
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1465	1	1	-1	1	-0.952778	0.473684	1
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1467	1	1	-1	1	-0.952778	0.684211	1
1468	1	1	-1	1	-0.952778	0.789474	1
1469	1	1	-1	1	-0.952778	0.894737	1
1470	1	1	-1	1	-0.952778	1	1
1471	1	-1	0	-1	1	-1	1
1472	1	-0.8947368	0	-0.83063	0.7638889	-1	1
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1474	1	-0.7894737	0	-0.66839	0.5425926	-1	1
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1476	1	-0.7894737	0	-0.66839	0.5425926	-0.789474	1
1477	1	-0.6842105	0	-0.51327	0.3361111	-1	1
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1480	1	-0.6842105	0	-0.51327	0.3361111	-0.684211	1
1481	1	-0.5789474	0	-0.36527	0.1444444	-1	1
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1484	1	-0.5789474	0	-0.36527	0.1444444	-0.684211	1
1485	1	-0.5789474	0	-0.36527	0.1444444	-0.578947	1
1486	1	-0.4736842	0	-0.22439	-0.032407	-1	1
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1492	1	-0.3684211	0	-0.09064	-0.194444	-1	1
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1499	1	-0.2631579	0	0.035993	-0.341667	-1	1
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1501	1	-0.2631579	0	0.035993	-0.341667	-0.789474	1
1502	1	-0.2631579	0	0.035993	-0.341667	-0.684211	1

1503	1	-0.2631579	0	0.035993	-0.341667	-0.578947	1
1504	1	-0.2631579	0	0.035993	-0.341667	-0.473684	1
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1506	1	-0.2631579	0	0.035993	-0.341667	-0.263158	1
1507	1	-0.1578947	0	0.155501	-0.474074	-1	1
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1509	1	-0.1578947	0	0.155501	-0.474074	-0.789474	1
1510	1	-0.1578947	0	0.155501	-0.474074	-0.684211	1
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1512	1	-0.1578947	0	0.155501	-0.474074	-0.473684	1
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1516	1	-0.0526316	0	0.267887	-0.591667	-1	1
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1519	1	-0.0526316	0	0.267887	-0.591667	-0.684211	1
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1521	1	-0.0526316	0	0.267887	-0.591667	-0.473684	1
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1526	1	0.05263158	0	0.37315	-0.694444	-1	1
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1534	1	0.05263158	0	0.37315	-0.694444	-0.157895	1
1535	1	0.05263158	0	0.37315	-0.694444	-0.052632	1
1536	1	0.05263158	0	0.37315	-0.694444	0.052632	1
1537	1	0.15789474	0	0.471291	-0.782407	-1	1
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1539	1	0.15789474	0	0.471291	-0.782407	-0.789474	1
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1541	1	0.15789474	0	0.471291	-0.782407	-0.578947	1
1542	1	0.15789474	0	0.471291	-0.782407	-0.473684	1
1543	1	0.15789474	0	0.471291	-0.782407	-0.368421	1
1544	1	0.15789474	0	0.471291	-0.782407	-0.263158	1
1545	1	0.15789474	0	0.471291	-0.782407	-0.157895	1
1546	1	0.15789474	0	0.471291	-0.782407	-0.052632	1
1547	1	0.15789474	0	0.471291	-0.782407	0.052632	1
1548	1	0.15789474	0	0.471291	-0.782407	0.157895	1
1549	1	0.26315789	0	0.562308	-0.855556	-1	1
1550	1	0.26315789	0	0.562308	-0.855556	-0.894737	1
1551	1	0.26315789	0	0.562308	-0.855556	-0.789474	1
1552	1	0.26315789	0	0.562308	-0.855556	-0.684211	1
1553	1	0.26315789	0	0.562308	-0.855556	-0.578947	1
1554	1	0.26315789	0	0.562308	-0.855556	-0.473684	1
1555	1	0.26315789	0	0.562308	-0.855556	-0.368421	1
1556	1	0.26315789	0	0.562308	-0.855556	-0.263158	1
1557	1	0.26315789	0	0.562308	-0.855556	-0.157895	1
1558	1	0.26315789	0	0.562308	-0.855556	-0.052632	1
1559	1	0.26315789	0	0.562308	-0.855556	0.052632	1
1560	1	0.26315789	0	0.562308	-0.855556	0.157895	1
1561	1	0.26315789	0	0.562308	-0.855556	0.263158	1
1562	1	0.36842105	0	0.646204	-0.913889	-1	1
1563	1	0.36842105	0	0.646204	-0.913889	-0.894737	1
1564	1	0.36842105	0	0.646204	-0.913889	-0.789474	1
1565	1	0.36842105	0	0.646204	-0.913889	-0.684211	1
1566	1	0.36842105	0	0.646204	-0.913889	-0.578947	1
1567	1	0.36842105	0	0.646204	-0.913889	-0.473684	1
1568	1	0.36842105	0	0.646204	-0.913889	-0.368421	1

1569	1	0.36842105	0	0.646204	-0.913889	-0.263158	1
1570	1	0.36842105	0	0.646204	-0.913889	-0.157895	1
1571	1	0.36842105	0	0.646204	-0.913889	-0.052632	1
1572	1	0.36842105	0	0.646204	-0.913889	0.052632	1
1573	1	0.36842105	0	0.646204	-0.913889	0.157895	1
1574	1	0.36842105	0	0.646204	-0.913889	0.263158	1
1575	1	0.36842105	0	0.646204	-0.913889	0.368421	1
1576	1	0.47368421	0	0.722976	-0.957407	-1	1
1577	1	0.47368421	0	0.722976	-0.957407	-0.894737	1
1578	1	0.47368421	0	0.722976	-0.957407	-0.789474	1
1579	1	0.47368421	0	0.722976	-0.957407	-0.684211	1
1580	1	0.47368421	0	0.722976	-0.957407	-0.578947	1
1581	1	0.47368421	0	0.722976	-0.957407	-0.473684	1
1582	1	0.47368421	0	0.722976	-0.957407	-0.368421	1
1583	1	0.47368421	0	0.722976	-0.957407	-0.263158	1
1584	1	0.47368421	0	0.722976	-0.957407	-0.157895	1
1585	1	0.47368421	0	0.722976	-0.957407	-0.052632	1
1586	1	0.47368421	0	0.722976	-0.957407	0.052632	1
1587	1	0.47368421	0	0.722976	-0.957407	0.157895	1
1588	1	0.47368421	0	0.722976	-0.957407	0.263158	1
1589	1	0.47368421	0	0.722976	-0.957407	0.368421	1
1590	1	0.47368421	0	0.722976	-0.957407	0.473684	1
1591	1	0.57894737	0	0.792626	-0.986111	-1	1
1592	1	0.57894737	0	0.792626	-0.986111	-0.894737	1
1593	1	0.57894737	0	0.792626	-0.986111	-0.789474	1
1594	1	0.57894737	0	0.792626	-0.986111	-0.684211	1
1595	1	0.57894737	0	0.792626	-0.986111	-0.578947	1
1596	1	0.57894737	0	0.792626	-0.986111	-0.473684	1
1597	1	0.57894737	0	0.792626	-0.986111	-0.368421	1
1598	1	0.57894737	0	0.792626	-0.986111	-0.263158	1
1599	1	0.57894737	0	0.792626	-0.986111	-0.157895	1
1600	1	0.57894737	0	0.792626	-0.986111	-0.052632	1
1601	1	0.57894737	0	0.792626	-0.986111	0.052632	1
1602	1	0.57894737	0	0.792626	-0.986111	0.157895	1
1603	1	0.57894737	0	0.792626	-0.986111	0.263158	1
1604	1	0.57894737	0	0.792626	-0.986111	0.368421	1
1605	1	0.57894737	0	0.792626	-0.986111	0.473684	1
1606	1	0.57894737	0	0.792626	-0.986111	0.578947	1
1607	1	0.68421053	0	0.855154	-1	-1	1
1608	1	0.68421053	0	0.855154	-1	-0.894737	1
1609	1	0.68421053	0	0.855154	-1	-0.789474	1
1610	1	0.68421053	0	0.855154	-1	-0.684211	1
1611	1	0.68421053	0	0.855154	-1	-0.578947	1
1612	1	0.68421053	0	0.855154	-1	-0.473684	1
1613	1	0.68421053	0	0.855154	-1	-0.368421	1
1614	1	0.68421053	0	0.855154	-1	-0.263158	1
1615	1	0.68421053	0	0.855154	-1	-0.157895	1
1616	1	0.68421053	0	0.855154	-1	-0.052632	1
1617	1	0.68421053	0	0.855154	-1	0.052632	1
1618	1	0.68421053	0	0.855154	-1	0.157895	1
1619	1	0.68421053	0	0.855154	-1	0.263158	1
1620	1	0.68421053	0	0.855154	-1	0.368421	1
1621	1	0.68421053	0	0.855154	-1	0.473684	1
1622	1	0.68421053	0	0.855154	-1	0.578947	1
1623	1	0.68421053	0	0.855154	-1	0.684211	1
1624	1	0.78947368	0	0.910558	-0.999074	-1	1
1625	1	0.78947368	0	0.910558	-0.999074	-0.894737	1
1626	1	0.78947368	0	0.910558	-0.999074	-0.789474	1
1627	1	0.78947368	0	0.910558	-0.999074	-0.684211	1
1628	1	0.78947368	0	0.910558	-0.999074	-0.578947	1
1629	1	0.78947368	0	0.910558	-0.999074	-0.473684	1
1630	1	0.78947368	0	0.910558	-0.999074	-0.368421	1
1631	1	0.78947368	0	0.910558	-0.999074	-0.263158	1
1632	1	0.78947368	0	0.910558	-0.999074	-0.157895	1
1633	1	0.78947368	0	0.910558	-0.999074	-0.052632	1
1634	1	0.78947368	0	0.910558	-0.999074	0.052632	1

1635	1	0.78947368	0	0.910558	-0.999074	0.157895	1
1636	1	0.78947368	0	0.910558	-0.999074	0.263158	1
1637	1	0.78947368	0	0.910558	-0.999074	0.368421	1
1638	1	0.78947368	0	0.910558	-0.999074	0.473684	1
1639	1	0.78947368	0	0.910558	-0.999074	0.578947	1
1640	1	0.78947368	0	0.910558	-0.999074	0.684211	1
1641	1	0.78947368	0	0.910558	-0.999074	0.789474	1
1642	1	0.89473684	0	0.958841	-0.983333	-1	1
1643	1	0.89473684	0	0.958841	-0.983333	-0.894737	1
1644	1	0.89473684	0	0.958841	-0.983333	-0.789474	1
1645	1	0.89473684	0	0.958841	-0.983333	-0.684211	1
1646	1	0.89473684	0	0.958841	-0.983333	-0.578947	1
1647	1	0.89473684	0	0.958841	-0.983333	-0.473684	1
1648	1	0.89473684	0	0.958841	-0.983333	-0.368421	1
1649	1	0.89473684	0	0.958841	-0.983333	-0.263158	1
1650	1	0.89473684	0	0.958841	-0.983333	-0.157895	1
1651	1	0.89473684	0	0.958841	-0.983333	-0.052632	1
1652	1	0.89473684	0	0.958841	-0.983333	0.052632	1
1653	1	0.89473684	0	0.958841	-0.983333	0.157895	1
1654	1	0.89473684	0	0.958841	-0.983333	0.263158	1
1655	1	0.89473684	0	0.958841	-0.983333	0.368421	1
1656	1	0.89473684	0	0.958841	-0.983333	0.473684	1
1657	1	0.89473684	0	0.958841	-0.983333	0.578947	1
1658	1	0.89473684	0	0.958841	-0.983333	0.684211	1
1659	1	0.89473684	0	0.958841	-0.983333	0.789474	1
1660	1	0.89473684	0	0.958841	-0.983333	0.894737	1
1661	1	1	0	1	-0.952778	-1	1
1662	1	1	0	1	-0.952778	-0.894737	1
1663	1	1	0	1	-0.952778	-0.789474	1
1664	1	1	0	1	-0.952778	-0.684211	1
1665	1	1	0	1	-0.952778	-0.578947	1
1666	1	1	0	1	-0.952778	-0.473684	1
1667	1	1	0	1	-0.952778	-0.368421	1
1668	1	1	0	1	-0.952778	-0.263158	1
1669	1	1	0	1	-0.952778	-0.157895	1
1670	1	1	0	1	-0.952778	-0.052632	1
1671	1	1	0	1	-0.952778	0.052632	1
1672	1	1	0	1	-0.952778	0.157895	1
1673	1	1	0	1	-0.952778	0.263158	1
1674	1	1	0	1	-0.952778	0.368421	1
1675	1	1	0	1	-0.952778	0.473684	1
1676	1	1	0	1	-0.952778	0.578947	1
1677	1	1	0	1	-0.952778	0.684211	1
1678	1	1	0	1	-0.952778	0.789474	1
1679	1	1	0	1	-0.952778	0.894737	1
1680	1	1	0	1	-0.952778	1	1
1681	1	-1	1	-1	1	-1	1
1682	1	-0.8947368	1	-0.83063	0.7638889	-1	1
1683	1	-0.8947368	1	-0.83063	0.7638889	-0.894737	1
1684	1	-0.7894737	1	-0.66839	0.5425926	-1	1
1685	1	-0.7894737	1	-0.66839	0.5425926	-0.894737	1
1686	1	-0.7894737	1	-0.66839	0.5425926	-0.789474	1
1687	1	-0.6842105	1	-0.51327	0.3361111	-1	1
1688	1	-0.6842105	1	-0.51327	0.3361111	-0.894737	1
1689	1	-0.6842105	1	-0.51327	0.3361111	-0.789474	1
1690	1	-0.6842105	1	-0.51327	0.3361111	-0.684211	1
1691	1	-0.5789474	1	-0.36527	0.1444444	-1	1
1692	1	-0.5789474	1	-0.36527	0.1444444	-0.894737	1
1693	1	-0.5789474	1	-0.36527	0.1444444	-0.789474	1
1694	1	-0.5789474	1	-0.36527	0.1444444	-0.684211	1
1695	1	-0.5789474	1	-0.36527	0.1444444	-0.578947	1
1696	1	-0.4736842	1	-0.22439	-0.032407	-1	1
1697	1	-0.4736842	1	-0.22439	-0.032407	-0.894737	1
1698	1	-0.4736842	1	-0.22439	-0.032407	-0.789474	1
1699	1	-0.4736842	1	-0.22439	-0.032407	-0.684211	1
1700	1	-0.4736842	1	-0.22439	-0.032407	-0.578947	1

1701	1	-0.4736842	1	-0.22439	-0.032407	-0.473684	1
1702	1	-0.3684211	1	-0.09064	-0.194444	-1	1
1703	1	-0.3684211	1	-0.09064	-0.194444	-0.894737	1
1704	1	-0.3684211	1	-0.09064	-0.194444	-0.789474	1
1705	1	-0.3684211	1	-0.09064	-0.194444	-0.684211	1
1706	1	-0.3684211	1	-0.09064	-0.194444	-0.578947	1
1707	1	-0.3684211	1	-0.09064	-0.194444	-0.473684	1
1708	1	-0.3684211	1	-0.09064	-0.194444	-0.368421	1
1709	1	-0.2631579	1	0.035993	-0.341667	-1	1
1710	1	-0.2631579	1	0.035993	-0.341667	-0.894737	1
1711	1	-0.2631579	1	0.035993	-0.341667	-0.789474	1
1712	1	-0.2631579	1	0.035993	-0.341667	-0.684211	1
1713	1	-0.2631579	1	0.035993	-0.341667	-0.578947	1
1714	1	-0.2631579	1	0.035993	-0.341667	-0.473684	1
1715	1	-0.2631579	1	0.035993	-0.341667	-0.368421	1
1716	1	-0.2631579	1	0.035993	-0.341667	-0.263158	1
1717	1	-0.1578947	1	0.155501	-0.474074	-1	1
1718	1	-0.1578947	1	0.155501	-0.474074	-0.894737	1
1719	1	-0.1578947	1	0.155501	-0.474074	-0.789474	1
1720	1	-0.1578947	1	0.155501	-0.474074	-0.684211	1
1721	1	-0.1578947	1	0.155501	-0.474074	-0.578947	1
1722	1	-0.1578947	1	0.155501	-0.474074	-0.473684	1
1723	1	-0.1578947	1	0.155501	-0.474074	-0.368421	1
1724	1	-0.1578947	1	0.155501	-0.474074	-0.263158	1
1725	1	-0.1578947	1	0.155501	-0.474074	-0.157895	1
1726	1	-0.0526316	1	0.267887	-0.591667	-1	1
1727	1	-0.0526316	1	0.267887	-0.591667	-0.894737	1
1728	1	-0.0526316	1	0.267887	-0.591667	-0.789474	1
1729	1	-0.0526316	1	0.267887	-0.591667	-0.684211	1
1730	1	-0.0526316	1	0.267887	-0.591667	-0.578947	1
1731	1	-0.0526316	1	0.267887	-0.591667	-0.473684	1
1732	1	-0.0526316	1	0.267887	-0.591667	-0.368421	1
1733	1	-0.0526316	1	0.267887	-0.591667	-0.263158	1
1734	1	-0.0526316	1	0.267887	-0.591667	-0.157895	1
1735	1	-0.0526316	1	0.267887	-0.591667	-0.052632	1
1736	1	0.05263158	1	0.37315	-0.694444	-1	1
1737	1	0.05263158	1	0.37315	-0.694444	-0.894737	1
1738	1	0.05263158	1	0.37315	-0.694444	-0.789474	1
1739	1	0.05263158	1	0.37315	-0.694444	-0.684211	1
1740	1	0.05263158	1	0.37315	-0.694444	-0.578947	1
1741	1	0.05263158	1	0.37315	-0.694444	-0.473684	1
1742	1	0.05263158	1	0.37315	-0.694444	-0.368421	1
1743	1	0.05263158	1	0.37315	-0.694444	-0.263158	1
1744	1	0.05263158	1	0.37315	-0.694444	-0.157895	1
1745	1	0.05263158	1	0.37315	-0.694444	-0.052632	1
1746	1	0.05263158	1	0.37315	-0.694444	0.052632	1
1747	1	0.15789474	1	0.471291	-0.782407	-1	1
1748	1	0.15789474	1	0.471291	-0.782407	-0.894737	1
1749	1	0.15789474	1	0.471291	-0.782407	-0.789474	1
1750	1	0.15789474	1	0.471291	-0.782407	-0.684211	1
1751	1	0.15789474	1	0.471291	-0.782407	-0.578947	1
1752	1	0.15789474	1	0.471291	-0.782407	-0.473684	1
1753	1	0.15789474	1	0.471291	-0.782407	-0.368421	1
1754	1	0.15789474	1	0.471291	-0.782407	-0.263158	1
1755	1	0.15789474	1	0.471291	-0.782407	-0.157895	1
1756	1	0.15789474	1	0.471291	-0.782407	-0.052632	1
1757	1	0.15789474	1	0.471291	-0.782407	0.052632	1
1758	1	0.15789474	1	0.471291	-0.782407	0.157895	1
1759	1	0.26315789	1	0.562308	-0.855556	-1	1
1760	1	0.26315789	1	0.562308	-0.855556	-0.894737	1
1761	1	0.26315789	1	0.562308	-0.855556	-0.789474	1
1762	1	0.26315789	1	0.562308	-0.855556	-0.684211	1
1763	1	0.26315789	1	0.562308	-0.855556	-0.578947	1
1764	1	0.26315789	1	0.562308	-0.855556	-0.473684	1
1765	1	0.26315789	1	0.562308	-0.855556	-0.368421	1
1766	1	0.26315789	1	0.562308	-0.855556	-0.263158	1

1767	1	0.26315789	1	0.562308	-0.855556	-0.157895	1
1768	1	0.26315789	1	0.562308	-0.855556	-0.052632	1
1769	1	0.26315789	1	0.562308	-0.855556	0.052632	1
1770	1	0.26315789	1	0.562308	-0.855556	0.157895	1
1771	1	0.26315789	1	0.562308	-0.855556	0.263158	1
1772	1	0.36842105	1	0.646204	-0.913889	-1	1
1773	1	0.36842105	1	0.646204	-0.913889	-0.894737	1
1774	1	0.36842105	1	0.646204	-0.913889	-0.789474	1
1775	1	0.36842105	1	0.646204	-0.913889	-0.684211	1
1776	1	0.36842105	1	0.646204	-0.913889	-0.578947	1
1777	1	0.36842105	1	0.646204	-0.913889	-0.473684	1
1778	1	0.36842105	1	0.646204	-0.913889	-0.368421	1
1779	1	0.36842105	1	0.646204	-0.913889	-0.263158	1
1780	1	0.36842105	1	0.646204	-0.913889	-0.157895	1
1781	1	0.36842105	1	0.646204	-0.913889	-0.052632	1
1782	1	0.36842105	1	0.646204	-0.913889	0.052632	1
1783	1	0.36842105	1	0.646204	-0.913889	0.157895	1
1784	1	0.36842105	1	0.646204	-0.913889	0.263158	1
1785	1	0.36842105	1	0.646204	-0.913889	0.368421	1
1786	1	0.47368421	1	0.722976	-0.957407	-1	1
1787	1	0.47368421	1	0.722976	-0.957407	-0.894737	1
1788	1	0.47368421	1	0.722976	-0.957407	-0.789474	1
1789	1	0.47368421	1	0.722976	-0.957407	-0.684211	1
1790	1	0.47368421	1	0.722976	-0.957407	-0.578947	1
1791	1	0.47368421	1	0.722976	-0.957407	-0.473684	1
1792	1	0.47368421	1	0.722976	-0.957407	-0.368421	1
1793	1	0.47368421	1	0.722976	-0.957407	-0.263158	1
1794	1	0.47368421	1	0.722976	-0.957407	-0.157895	1
1795	1	0.47368421	1	0.722976	-0.957407	-0.052632	1
1796	1	0.47368421	1	0.722976	-0.957407	0.052632	1
1797	1	0.47368421	1	0.722976	-0.957407	0.157895	1
1798	1	0.47368421	1	0.722976	-0.957407	0.263158	1
1799	1	0.47368421	1	0.722976	-0.957407	0.368421	1
1800	1	0.47368421	1	0.722976	-0.957407	0.473684	1
1801	1	0.57894737	1	0.792626	-0.986111	-1	1
1802	1	0.57894737	1	0.792626	-0.986111	-0.894737	1
1803	1	0.57894737	1	0.792626	-0.986111	-0.789474	1
1804	1	0.57894737	1	0.792626	-0.986111	-0.684211	1
1805	1	0.57894737	1	0.792626	-0.986111	-0.578947	1
1806	1	0.57894737	1	0.792626	-0.986111	-0.473684	1
1807	1	0.57894737	1	0.792626	-0.986111	-0.368421	1
1808	1	0.57894737	1	0.792626	-0.986111	-0.263158	1
1809	1	0.57894737	1	0.792626	-0.986111	-0.157895	1
1810	1	0.57894737	1	0.792626	-0.986111	-0.052632	1
1811	1	0.57894737	1	0.792626	-0.986111	0.052632	1
1812	1	0.57894737	1	0.792626	-0.986111	0.157895	1
1813	1	0.57894737	1	0.792626	-0.986111	0.263158	1
1814	1	0.57894737	1	0.792626	-0.986111	0.368421	1
1815	1	0.57894737	1	0.792626	-0.986111	0.473684	1
1816	1	0.57894737	1	0.792626	-0.986111	0.578947	1
1817	1	0.68421053	1	0.855154	-1	-1	1
1818	1	0.68421053	1	0.855154	-1	-0.894737	1
1819	1	0.68421053	1	0.855154	-1	-0.789474	1
1820	1	0.68421053	1	0.855154	-1	-0.684211	1
1821	1	0.68421053	1	0.855154	-1	-0.578947	1
1822	1	0.68421053	1	0.855154	-1	-0.473684	1
1823	1	0.68421053	1	0.855154	-1	-0.368421	1
1824	1	0.68421053	1	0.855154	-1	-0.263158	1
1825	1	0.68421053	1	0.855154	-1	-0.157895	1
1826	1	0.68421053	1	0.855154	-1	-0.052632	1
1827	1	0.68421053	1	0.855154	-1	0.052632	1
1828	1	0.68421053	1	0.855154	-1	0.157895	1
1829	1	0.68421053	1	0.855154	-1	0.263158	1
1830	1	0.68421053	1	0.855154	-1	0.368421	1
1831	1	0.68421053	1	0.855154	-1	0.473684	1
1832	1	0.68421053	1	0.855154	-1	0.578947	1

1833	1	0.68421053	1	0.855154	-1	0.684211	1
1834	1	0.78947368	1	0.910558	-0.999074	-1	1
1835	1	0.78947368	1	0.910558	-0.999074	-0.894737	1
1836	1	0.78947368	1	0.910558	-0.999074	-0.789474	1
1837	1	0.78947368	1	0.910558	-0.999074	-0.684211	1
1838	1	0.78947368	1	0.910558	-0.999074	-0.578947	1
1839	1	0.78947368	1	0.910558	-0.999074	-0.473684	1
1840	1	0.78947368	1	0.910558	-0.999074	-0.368421	1
1841	1	0.78947368	1	0.910558	-0.999074	-0.263158	1
1842	1	0.78947368	1	0.910558	-0.999074	-0.157895	1
1843	1	0.78947368	1	0.910558	-0.999074	-0.052632	1
1844	1	0.78947368	1	0.910558	-0.999074	0.052632	1
1845	1	0.78947368	1	0.910558	-0.999074	0.157895	1
1846	1	0.78947368	1	0.910558	-0.999074	0.263158	1
1847	1	0.78947368	1	0.910558	-0.999074	0.368421	1
1848	1	0.78947368	1	0.910558	-0.999074	0.473684	1
1849	1	0.78947368	1	0.910558	-0.999074	0.578947	1
1850	1	0.78947368	1	0.910558	-0.999074	0.684211	1
1851	1	0.78947368	1	0.910558	-0.999074	0.789474	1
1852	1	0.89473684	1	0.958841	-0.983333	-1	1
1853	1	0.89473684	1	0.958841	-0.983333	-0.894737	1
1854	1	0.89473684	1	0.958841	-0.983333	-0.789474	1
1855	1	0.89473684	1	0.958841	-0.983333	-0.684211	1
1856	1	0.89473684	1	0.958841	-0.983333	-0.578947	1
1857	1	0.89473684	1	0.958841	-0.983333	-0.473684	1
1858	1	0.89473684	1	0.958841	-0.983333	-0.368421	1
1859	1	0.89473684	1	0.958841	-0.983333	-0.263158	1
1860	1	0.89473684	1	0.958841	-0.983333	-0.157895	1
1861	1	0.89473684	1	0.958841	-0.983333	-0.052632	1
1862	1	0.89473684	1	0.958841	-0.983333	0.052632	1
1863	1	0.89473684	1	0.958841	-0.983333	0.157895	1
1864	1	0.89473684	1	0.958841	-0.983333	0.263158	1
1865	1	0.89473684	1	0.958841	-0.983333	0.368421	1
1866	1	0.89473684	1	0.958841	-0.983333	0.473684	1
1867	1	0.89473684	1	0.958841	-0.983333	0.578947	1
1868	1	0.89473684	1	0.958841	-0.983333	0.684211	1
1869	1	0.89473684	1	0.958841	-0.983333	0.789474	1
1870	1	0.89473684	1	0.958841	-0.983333	0.894737	1
1871	1	1	1	1	-0.952778	-1	1
1872	1	1	1	1	-0.952778	-0.894737	1
1873	1	1	1	1	-0.952778	-0.789474	1
1874	1	1	1	1	-0.952778	-0.684211	1
1875	1	1	1	1	-0.952778	-0.578947	1
1876	1	1	1	1	-0.952778	-0.473684	1
1877	1	1	1	1	-0.952778	-0.368421	1
1878	1	1	1	1	-0.952778	-0.263158	1
1879	1	1	1	1	-0.952778	-0.157895	1
1880	1	1	1	1	-0.952778	-0.052632	1
1881	1	1	1	1	-0.952778	0.052632	1
1882	1	1	1	1	-0.952778	0.157895	1
1883	1	1	1	1	-0.952778	0.263158	1
1884	1	1	1	1	-0.952778	0.368421	1
1885	1	1	1	1	-0.952778	0.473684	1
1886	1	1	1	1	-0.952778	0.578947	1
1887	1	1	1	1	-0.952778	0.684211	1
1888	1	1	1	1	-0.952778	0.789474	1
1889	1	1	1	1	-0.952778	0.894737	1
1890	1	1	1	1	-0.952778	1	1

EK-10 2.YSA Modeli İçin Ham Çıktı Dosyası.

2. YSA Modelinin ham çıktı dosyası.

Project No.	Y1						$E_H(KAT)/E_H$ NN Output
	X1 EQ	X2 Kat Sayısı	X3 Zemin Tipi	X4 (sn.)	X5 (h)	X6 Kat No.	
1	1	1	1	0.3531	0.2695	1	0.500324349
2	1	2	1	0.6432	0.244	1	0.55250359
3	1	2	1	0.6432	0.244	2	0.467226772
4	1	3	1	0.9211	0.2201	1	0.556777752
5	1	3	1	0.9211	0.2201	2	0.503247518
6	1	3	1	0.9211	0.2201	3	0.272564371
7	1	4	1	1.1868	0.1978	1	0.539773443
8	1	4	1	1.1868	0.1978	2	0.465958991
9	1	4	1	1.1868	0.1978	3	0.287905238
10	1	4	1	1.1868	0.1978	4	0.094089992
11	1	5	1	1.4403	0.1771	1	0.47385987
12	1	5	1	1.4403	0.1771	2	0.368560818
13	1	5	1	1.4403	0.1771	3	0.239465183
14	1	5	1	1.4403	0.1771	4	0.127414658
15	1	5	1	1.4403	0.1771	5	0.050941706
16	1	6	1	1.6816	0.158	1	0.355952269
17	1	6	1	1.6816	0.158	2	0.263769094
18	1	6	1	1.6816	0.158	3	0.188030826
19	1	6	1	1.6816	0.158	4	0.130508815
20	1	6	1	1.6816	0.158	5	0.08600712
21	1	6	1	1.6816	0.158	6	0.049648156
22	1	7	1	1.9107	0.1405	1	0.252989337
23	1	7	1	1.9107	0.1405	2	0.195818697
24	1	7	1	1.9107	0.1405	3	0.155437355
25	1	7	1	1.9107	0.1405	4	0.126150636
26	1	7	1	1.9107	0.1405	5	0.102650932
27	1	7	1	1.9107	0.1405	6	0.080722063
28	1	7	1	1.9107	0.1405	7	0.057365162
29	1	8	1	2.1276	0.1246	1	0.192737156
30	1	8	1	2.1276	0.1246	2	0.160476534
31	1	8	1	2.1276	0.1246	3	0.138828171
32	1	8	1	2.1276	0.1246	4	0.123432276
33	1	8	1	2.1276	0.1246	5	0.110761183
34	1	8	1	2.1276	0.1246	6	0.097620074
35	1	8	1	2.1276	0.1246	7	0.080860571
36	1	8	1	2.1276	0.1246	8	0.058132326
37	1	9	1	2.3323	0.1103	1	0.162241709
38	1	9	1	2.3323	0.1103	2	0.143917814
39	1	9	1	2.3323	0.1103	3	0.131984895
40	1	9	1	2.3323	0.1103	4	0.123518441
41	1	9	1	2.3323	0.1103	5	0.115919006
42	1	9	1	2.3323	0.1103	6	0.106364082
43	1	9	1	2.3323	0.1103	7	0.091656433
44	1	9	1	2.3323	0.1103	8	0.069523291
45	1	9	1	2.3323	0.1103	9	0.042033958
46	1	10	1	2.5248	0.0976	1	0.147973476
47	1	10	1	2.5248	0.0976	2	0.137343501
48	1	10	1	2.5248	0.0976	3	0.130600617
49	1	10	1	2.5248	0.0976	4	0.125530032
50	1	10	1	2.5248	0.0976	5	0.119787038
51	1	10	1	2.5248	0.0976	6	0.110453834
52	1	10	1	2.5248	0.0976	7	0.094352513
53	1	10	1	2.5248	0.0976	8	0.070454464
54	1	10	1	2.5248	0.0976	9	0.04339542
55	1	10	1	2.5248	0.0976	10	0.020900438
56	1	11	1	2.7051	0.0865	1	0.142310205

57	1	11	1	2.7051	0.0865	2	0.136055321
58	1	11	1	2.7051	0.0865	3	0.13207777
59	1	11	1	2.7051	0.0865	4	0.128378847
60	1	11	1	2.7051	0.0865	5	0.122479092
61	1	11	1	2.7051	0.0865	6	0.111204356
62	1	11	1	2.7051	0.0865	7	0.091855069
63	1	11	1	2.7051	0.0865	8	0.065781151
64	1	11	1	2.7051	0.0865	9	0.040174028
65	1	11	1	2.7051	0.0865	10	0.021571505
66	1	11	1	2.7051	0.0865	11	0.010227783
67	1	12	1	2.8732	0.077	1	0.14125475
68	1	12	1	2.8732	0.077	2	0.137503215
69	1	12	1	2.8732	0.077	3	0.13483371
70	1	12	1	2.8732	0.077	4	0.131164045
71	1	12	1	2.8732	0.077	5	0.123686208
72	1	12	1	2.8732	0.077	6	0.109109552
73	1	12	1	2.8732	0.077	7	0.086026716
74	1	12	1	2.8732	0.077	8	0.058823794
75	1	12	1	2.8732	0.077	9	0.035830612
76	1	12	1	2.8732	0.077	10	0.02105371
77	1	12	1	2.8732	0.077	11	0.012767102
78	1	12	1	2.8732	0.077	12	0.007896496
79	1	13	1	3.0291	0.0691	1	0.142630707
80	1	13	1	3.0291	0.0691	2	0.140221843
81	1	13	1	3.0291	0.0691	3	0.137869081
82	1	13	1	3.0291	0.0691	4	0.133223953
83	1	13	1	3.0291	0.0691	5	0.123120364
84	1	13	1	3.0291	0.0691	6	0.104575553
85	1	13	1	3.0291	0.0691	7	0.078360979
86	1	13	1	3.0291	0.0691	8	0.051608478
87	1	13	1	3.0291	0.0691	9	0.031892521
88	1	13	1	3.0291	0.0691	10	0.020434449
89	1	13	1	3.0291	0.0691	11	0.014476445
90	1	13	1	3.0291	0.0691	12	0.011236263
91	1	13	1	3.0291	0.0691	13	0.008887528
92	1	14	1	3.1728	0.0628	1	0.14518801
93	1	14	1	3.1728	0.0628	2	0.143327543
94	1	14	1	3.1728	0.0628	3	0.140544224
95	1	14	1	3.1728	0.0628	4	0.134129089
96	1	14	1	3.1728	0.0628	5	0.120688684
97	1	14	1	3.1728	0.0628	6	0.098181624
98	1	14	1	3.1728	0.0628	7	0.070116515
99	1	14	1	3.1728	0.0628	8	0.045179117
100	1	14	1	3.1728	0.0628	9	0.028810174
101	1	14	1	3.1728	0.0628	10	0.020032882
102	1	14	1	3.1728	0.0628	11	0.015784221
103	1	14	1	3.1728	0.0628	12	0.013688612
104	1	14	1	3.1728	0.0628	13	0.012291986
105	1	14	1	3.1728	0.0628	14	0.010692162
106	1	15	1	3.3043	0.0581	1	0.148180702
107	1	15	1	3.3043	0.0581	2	0.146277555
108	1	15	1	3.3043	0.0581	3	0.142467503
109	1	15	1	3.3043	0.0581	4	0.133667126
110	1	15	1	3.3043	0.0581	5	0.116542294
111	1	15	1	3.3043	0.0581	6	0.090664596
112	1	15	1	3.3043	0.0581	7	0.062222884
113	1	15	1	3.3043	0.0581	8	0.039906406
114	1	15	1	3.3043	0.0581	9	0.02656532
115	1	15	1	3.3043	0.0581	10	0.019868873
116	1	15	1	3.3043	0.0581	11	0.016858734
117	1	15	1	3.3043	0.0581	12	0.015555521
118	1	15	1	3.3043	0.0581	13	0.014798289
119	1	15	1	3.3043	0.0581	14	0.013867116

120	1	15	1	3.3043	0.0581	15	0.012237496
121	1	16	1	3.4236	0.055	1	0.151166683
122	1	16	1	3.4236	0.055	2	0.148752451
123	1	16	1	3.4236	0.055	3	0.143436256
124	1	16	1	3.4236	0.055	4	0.131825986
125	1	16	1	3.4236	0.055	5	0.111044105
126	1	16	1	3.4236	0.055	6	0.08277875
127	1	16	1	3.4236	0.055	7	0.055220699
128	1	16	1	3.4236	0.055	8	0.035778269
129	1	16	1	3.4236	0.055	9	0.024986433
130	1	16	1	3.4236	0.055	10	0.019871826
131	1	16	1	3.4236	0.055	11	0.017756622
132	1	16	1	3.4236	0.055	12	0.017000732
133	1	16	1	3.4236	0.055	13	0.01666654
134	1	16	1	3.4236	0.055	14	0.016171829
135	1	16	1	3.4236	0.055	15	0.015079868
136	1	16	1	3.4236	0.055	16	0.012997412
137	1	17	1	3.5307	0.0535	1	0.15390088
138	1	17	1	3.5307	0.0535	2	0.150594128
139	1	17	1	3.5307	0.0535	3	0.143400823
140	1	17	1	3.5307	0.0535	4	0.128761624
141	1	17	1	3.5307	0.0535	5	0.104684803
142	1	17	1	3.5307	0.0535	6	0.07514603
143	1	17	1	3.5307	0.0535	7	0.04931316
144	1	17	1	3.5307	0.0535	8	0.032617542
145	1	17	1	3.5307	0.0535	9	0.02388293
146	1	17	1	3.5307	0.0535	10	0.019959065
147	1	17	1	3.5307	0.0535	11	0.018491306
148	1	17	1	3.5307	0.0535	12	0.018113093
149	1	17	1	3.5307	0.0535	13	0.018055113
150	1	17	1	3.5307	0.0535	14	0.017836076
151	1	17	1	3.5307	0.0535	15	0.017086091
152	1	17	1	3.5307	0.0535	16	0.015454861
153	1	17	1	3.5307	0.0535	17	0.012586988
154	1	18	1	3.6256	0.0536	1	0.156285584
155	1	18	1	3.6256	0.0536	2	0.151769033
156	1	18	1	3.6256	0.0536	3	0.142437976
157	1	18	1	3.6256	0.0536	4	0.124754815
158	1	18	1	3.6256	0.0536	5	0.09797923
159	1	18	1	3.6256	0.0536	6	0.068178204
160	1	18	1	3.6256	0.0536	7	0.044477717
161	1	18	1	3.6256	0.0536	8	0.030205457
162	1	18	1	3.6256	0.0536	9	0.02309107
163	1	18	1	3.6256	0.0536	10	0.020059725
164	1	18	1	3.6256	0.0536	11	0.019060103
165	1	18	1	3.6256	0.0536	12	0.018941458
166	1	18	1	3.6256	0.0536	13	0.019058492
167	1	18	1	3.6256	0.0536	14	0.019002928
168	1	18	1	3.6256	0.0536	15	0.018452653
169	1	18	1	3.6256	0.0536	16	0.017090118
170	1	18	1	3.6256	0.0536	17	0.014575763
171	1	18	1	3.6256	0.0536	18	0.010579154
172	1	19	1	3.7083	0.0553	1	0.158343345
173	1	19	1	3.7083	0.0553	2	0.152350446
174	1	19	1	3.7083	0.0553	3	0.140725144
175	1	19	1	3.7083	0.0553	4	0.120158004
176	1	19	1	3.7083	0.0553	5	0.091379417
177	1	19	1	3.7083	0.0553	6	0.062079276
178	1	19	1	3.7083	0.0553	7	0.040578816
179	1	19	1	3.7083	0.0553	8	0.028340964
180	1	19	1	3.7083	0.0553	9	0.022482815
181	1	19	1	3.7083	0.0553	10	0.020118779
182	1	19	1	3.7083	0.0553	11	0.019456838

183	1	19	1	3.7083	0.0553	12	0.019512134
184	1	19	1	3.7083	0.0553	13	0.01973117
185	1	19	1	3.7083	0.0553	14	0.019756939
186	1	19	1	3.7083	0.0553	15	0.019298198
187	1	19	1	3.7083	0.0553	16	0.018058334
188	1	19	1	3.7083	0.0553	17	0.015709598
189	1	19	1	3.7083	0.0553	18	0.011917799
190	1	19	1	3.7083	0.0553	19	0.006445648
191	1	20	1	3.7788	0.0586	1	0.160214012
192	1	20	1	3.7788	0.0586	2	0.15250667
193	1	20	1	3.7788	0.0586	3	0.138517869
194	1	20	1	3.7788	0.0586	4	0.115344304
195	1	20	1	3.7788	0.0586	5	0.08522734
196	1	20	1	3.7788	0.0586	6	0.056896757
197	1	20	1	3.7788	0.0586	7	0.037445468
198	1	20	1	3.7788	0.0586	8	0.026858174
199	1	20	1	3.7788	0.0586	9	0.021963409
200	1	20	1	3.7788	0.0586	10	0.020094083
201	1	20	1	3.7788	0.0586	11	0.019671579
202	1	20	1	3.7788	0.0586	12	0.019836125
203	1	20	1	3.7788	0.0586	13	0.020099989
204	1	20	1	3.7788	0.0586	14	0.020139984
205	1	20	1	3.7788	0.0586	15	0.019681511
206	1	20	1	3.7788	0.0586	16	0.018437084
207	1	20	1	3.7788	0.0586	17	0.016083248
208	1	20	1	3.7788	0.0586	18	0.012286081
209	1	20	1	3.7788	0.0586	19	0.006806145
210	1	20	1	3.7788	0.0586	20	-0.000296431
211	1	1	2	0.3531	0.2695	1	0.506863497
212	1	2	2	0.6432	0.244	1	0.553107819
213	1	2	2	0.6432	0.244	2	0.468878671
214	1	3	2	0.9211	0.2201	1	0.555299794
215	1	3	2	0.9211	0.2201	2	0.497554988
216	1	3	2	0.9211	0.2201	3	0.266776012
217	1	4	2	1.1868	0.1978	1	0.533201815
218	1	4	2	1.1868	0.1978	2	0.451113909
219	1	4	2	1.1868	0.1978	3	0.274874721
220	1	4	2	1.1868	0.1978	4	0.094378014
221	1	5	2	1.4403	0.1771	1	0.455871776
222	1	5	2	1.4403	0.1771	2	0.347555338
223	1	5	2	1.4403	0.1771	3	0.226032563
224	1	5	2	1.4403	0.1771	4	0.12452021
225	1	5	2	1.4403	0.1771	5	0.053998283
226	1	6	2	1.6816	0.158	1	0.333679545
227	1	6	2	1.6816	0.158	2	0.246878598
228	1	6	2	1.6816	0.158	3	0.178394031
229	1	6	2	1.6816	0.158	4	0.127046645
230	1	6	2	1.6816	0.158	5	0.087014527
231	1	6	2	1.6816	0.158	6	0.053461698
232	1	7	2	1.9107	0.1405	1	0.236781719
233	1	7	2	1.9107	0.1405	2	0.185243749
234	1	7	2	1.9107	0.1405	3	0.149354533
235	1	7	2	1.9107	0.1405	4	0.123456971
236	1	7	2	1.9107	0.1405	5	0.102652006
237	1	7	2	1.9107	0.1405	6	0.083049324
238	1	7	2	1.9107	0.1405	7	0.061710457
239	1	8	2	2.1276	0.1246	1	0.182697989
240	1	8	2	2.1276	0.1246	2	0.154097905
241	1	8	2	2.1276	0.1246	3	0.135070462
242	1	8	2	2.1276	0.1246	4	0.121654216
243	1	8	2	2.1276	0.1246	5	0.110684144
244	1	8	2	2.1276	0.1246	6	0.099259089
245	1	8	2	2.1276	0.1246	7	0.084393069

246	1	8	2	2.1276	0.1246	8	0.063512139
247	1	9	2	2.3323	0.1103	1	0.156003468
248	1	9	2	2.3323	0.1103	2	0.139959322
249	1	9	2	2.3323	0.1103	3	0.129665149
250	1	9	2	2.3323	0.1103	4	0.122510498
251	1	9	2	2.3323	0.1103	5	0.116169449
252	1	9	2	2.3323	0.1103	6	0.108071545
253	1	9	2	2.3323	0.1103	7	0.095152694
254	1	9	2	2.3323	0.1103	8	0.074800028
255	1	9	2	2.3323	0.1103	9	0.048029005
256	1	10	2	2.5248	0.0976	1	0.143924256
257	1	10	2	2.5248	0.0976	2	0.134807135
258	1	10	2	2.5248	0.0976	3	0.129209629
259	1	10	2	2.5248	0.0976	4	0.125158261
260	1	10	2	2.5248	0.0976	5	0.120544808
261	1	10	2	2.5248	0.0976	6	0.112672651
262	1	10	2	2.5248	0.0976	7	0.098363885
263	1	10	2	2.5248	0.0976	8	0.075927421
264	1	10	2	2.5248	0.0976	9	0.048900856
265	1	10	2	2.5248	0.0976	10	0.025120109
266	1	11	2	2.7051	0.0865	1	0.139564466
267	1	11	2	2.7051	0.0865	2	0.134409595
268	1	11	2	2.7051	0.0865	3	0.131342012
269	1	11	2	2.7051	0.0865	4	0.128574799
270	1	11	2	2.7051	0.0865	5	0.123857196
271	1	11	2	2.7051	0.0865	6	0.114177184
272	1	11	2	2.7051	0.0865	7	0.096576431
273	1	11	2	2.7051	0.0865	8	0.071387248
274	1	11	2	2.7051	0.0865	9	0.045034971
275	1	11	2	2.7051	0.0865	10	0.024917984
276	1	11	2	2.7051	0.0865	11	0.0124313
277	1	12	2	2.8732	0.077	1	0.139329324
278	1	12	2	2.8732	0.077	2	0.136461719
279	1	12	2	2.8732	0.077	3	0.134614136
280	1	12	2	2.8732	0.077	4	0.131914835
281	1	12	2	2.8732	0.077	5	0.125775912
282	1	12	2	2.8732	0.077	6	0.112938125
283	1	12	2	2.8732	0.077	7	0.09137029
284	1	12	2	2.8732	0.077	8	0.064287356
285	1	12	2	2.8732	0.077	9	0.039957944
286	1	12	2	2.8732	0.077	10	0.02365933
287	1	12	2	2.8732	0.077	11	0.014417928
288	1	12	2	2.8732	0.077	12	0.00914307
289	1	13	2	3.0291	0.0691	1	0.141253408
290	1	13	2	3.0291	0.0691	2	0.139628888
291	1	13	2	3.0291	0.0691	3	0.138104492
292	1	13	2	3.0291	0.0691	4	0.134552398
293	1	13	2	3.0291	0.0691	5	0.125987969
294	1	13	2	3.0291	0.0691	6	0.109231955
295	1	13	2	3.0291	0.0691	7	0.084058609
296	1	13	2	3.0291	0.0691	8	0.056654368
297	1	13	2	3.0291	0.0691	9	0.035299932
298	1	13	2	3.0291	0.0691	10	0.022458925
299	1	13	2	3.0291	0.0691	11	0.015724362
300	1	13	2	3.0291	0.0691	12	0.012167168
301	1	13	2	3.0291	0.0691	13	0.009790784
302	1	14	2	3.1728	0.0628	1	0.144198588
303	1	14	2	3.1728	0.0628	2	0.14309938
304	1	14	2	3.1728	0.0628	3	0.141217976
305	1	14	2	3.1728	0.0628	4	0.136071158
306	1	14	2	3.1728	0.0628	5	0.124355665
307	1	14	2	3.1728	0.0628	6	0.103516609
308	1	14	2	3.1728	0.0628	7	0.075841793

309	1	14	2	3.1728	0.0628	8	0.049644667
310	1	14	2	3.1728	0.0628	9	0.031583293
311	1	14	2	3.1728	0.0628	10	0.021617675
312	1	14	2	3.1728	0.0628	11	0.016745189
313	1	14	2	3.1728	0.0628	12	0.014399138
314	1	14	2	3.1728	0.0628	13	0.012980233
315	1	14	2	3.1728	0.0628	14	0.011512206
316	1	15	2	3.3043	0.0581	1	0.147481986
317	1	15	2	3.3043	0.0581	2	0.146370967
318	1	15	2	3.3043	0.0581	3	0.143585233
319	1	15	2	3.3043	0.0581	4	0.136252883
320	1	15	2	3.3043	0.0581	5	0.120967848
321	1	15	2	3.3043	0.0581	6	0.096444364
322	1	15	2	3.3043	0.0581	7	0.067696378
323	1	15	2	3.3043	0.0581	8	0.043750548
324	1	15	2	3.3043	0.0581	9	0.02881608
325	1	15	2	3.3043	0.0581	10	0.021125648
326	1	15	2	3.3043	0.0581	11	0.017615966
327	1	15	2	3.3043	0.0581	12	0.016114117
328	1	15	2	3.3043	0.0581	13	0.015339169
329	1	15	2	3.3043	0.0581	14	0.01451483
330	1	15	2	3.3043	0.0581	15	0.013095657
331	1	16	2	3.4236	0.055	1	0.150695057
332	1	16	2	3.4236	0.055	2	0.149145965
333	1	16	2	3.4236	0.055	3	0.145009238
334	1	16	2	3.4236	0.055	4	0.13506053
335	1	16	2	3.4236	0.055	5	0.116122474
336	1	16	2	3.4236	0.055	6	0.088740512
337	1	16	2	3.4236	0.055	7	0.060264441
338	1	16	2	3.4236	0.055	8	0.03904234
339	1	16	2	3.4236	0.055	9	0.026823546
340	1	16	2	3.4236	0.055	10	0.020885406
341	1	16	2	3.4236	0.055	11	0.018368367
342	1	16	2	3.4236	0.055	12	0.017454642
343	1	16	2	3.4236	0.055	13	0.017107834
344	1	16	2	3.4236	0.055	14	0.016702509
345	1	16	2	3.4236	0.055	15	0.015788516
346	1	16	2	3.4236	0.055	16	0.013972071
347	1	17	2	3.5307	0.0535	1	0.15361071
348	1	17	2	3.5307	0.0535	2	0.151273785
349	1	17	2	3.5307	0.0535	3	0.145434694
350	1	17	2	3.5307	0.0535	4	0.132616503
351	1	17	2	3.5307	0.0535	5	0.11026003
352	1	17	2	3.5307	0.0535	6	0.08105518
353	1	17	2	3.5307	0.0535	7	0.053850917
354	1	17	2	3.5307	0.0535	8	0.035379655
355	1	17	2	3.5307	0.0535	9	0.025398468
356	1	17	2	3.5307	0.0535	10	0.020792262
357	1	17	2	3.5307	0.0535	11	0.018998365
358	1	17	2	3.5307	0.0535	12	0.018494796
359	1	17	2	3.5307	0.0535	13	0.018430105
360	1	17	2	3.5307	0.0535	14	0.018289449
361	1	17	2	3.5307	0.0535	15	0.017694884
362	1	17	2	3.5307	0.0535	16	0.016300406
363	1	17	2	3.5307	0.0535	17	0.013752766
364	1	18	2	3.6256	0.0536	1	0.156135802
365	1	18	2	3.6256	0.0536	2	0.152719533
366	1	18	2	3.6256	0.0536	3	0.144921462
367	1	18	2	3.6256	0.0536	4	0.129165338
368	1	18	2	3.6256	0.0536	5	0.10387308
369	1	18	2	3.6256	0.0536	6	0.073863486
370	1	18	2	3.6256	0.0536	7	0.048509758
371	1	18	2	3.6256	0.0536	8	0.032553388

372	1	18	2	3.6256	0.0536	9	0.024359387
373	1	18	2	3.6256	0.0536	10	0.02075844
374	1	18	2	3.6256	0.0536	11	0.019492002
375	1	18	2	3.6256	0.0536	12	0.019273771
376	1	18	2	3.6256	0.0536	13	0.019391073
377	1	18	2	3.6256	0.0536	14	0.01940879
378	1	18	2	3.6256	0.0536	15	0.018999975
379	1	18	2	3.6256	0.0536	16	0.017854866
380	1	18	2	3.6256	0.0536	17	0.015640881
381	1	18	2	3.6256	0.0536	18	0.012017923
382	1	19	2	3.7083	0.0553	1	0.158288049
383	1	19	2	3.7083	0.0553	2	0.153545214
384	1	19	2	3.7083	0.0553	3	0.143626034
385	1	19	2	3.7083	0.0553	4	0.125029685
386	1	19	2	3.7083	0.0553	5	0.097420633
387	1	19	2	3.7083	0.0553	6	0.067440835
388	1	19	2	3.7083	0.0553	7	0.044148626
389	1	19	2	3.7083	0.0553	8	0.03035524
390	1	19	2	3.7083	0.0553	9	0.023561891
391	1	19	2	3.7083	0.0553	10	0.020717371
392	1	19	2	3.7083	0.0553	11	0.019834783
393	1	19	2	3.7083	0.0553	12	0.019811967
394	1	19	2	3.7083	0.0553	13	0.020038788
395	1	19	2	3.7083	0.0553	14	0.020137569
396	1	19	2	3.7083	0.0553	15	0.019814919
397	1	19	2	3.7083	0.0553	16	0.018783086
398	1	19	2	3.7083	0.0553	17	0.016723983
399	1	19	2	3.7083	0.0553	18	0.013298856
400	1	19	2	3.7083	0.0553	19	0.008230687
401	1	20	2	3.7788	0.0586	1	0.160192538
402	1	20	2	3.7788	0.0586	2	0.153901685
403	1	20	2	3.7788	0.0586	3	0.141779256
404	1	20	2	3.7788	0.0586	4	0.120563597
405	1	20	2	3.7788	0.0586	5	0.09127312
406	1	20	2	3.7788	0.0586	6	0.061895135
407	1	20	2	3.7788	0.0586	7	0.040615054
408	1	20	2	3.7788	0.0586	8	0.02860778
409	1	20	2	3.7788	0.0586	9	0.022897803
410	1	20	2	3.7788	0.0586	10	0.020618858
411	1	20	2	3.7788	0.0586	11	0.020012213
412	1	20	2	3.7788	0.0586	12	0.020116631
413	1	20	2	3.7788	0.0586	13	0.020397674
414	1	20	2	3.7788	0.0586	14	0.020514708
415	1	20	2	3.7788	0.0586	15	0.020194207
416	1	20	2	3.7788	0.0586	16	0.019158347
417	1	20	2	3.7788	0.0586	17	0.017094144
418	1	20	2	3.7788	0.0586	18	0.013664722
419	1	20	2	3.7788	0.0586	19	0.008590648
420	1	20	2	3.7788	0.0586	20	0.001830584
421	1	1	3	0.3531	0.2695	1	0.512771842
422	1	2	3	0.6432	0.244	1	0.553440132
423	1	2	3	0.6432	0.244	2	0.469689589
424	1	3	3	0.9211	0.2201	1	0.553403894
425	1	3	3	0.9211	0.2201	2	0.490697485
426	1	3	3	0.9211	0.2201	3	0.260383962
427	1	4	3	1.1868	0.1978	1	0.525138002
428	1	4	3	1.1868	0.1978	2	0.434753824
429	1	4	3	1.1868	0.1978	3	0.261871584
430	1	4	3	1.1868	0.1978	4	0.094559202
431	1	5	3	1.4403	0.1771	1	0.436167629
432	1	5	3	1.4403	0.1771	2	0.326719503
433	1	5	3	1.4403	0.1771	3	0.213422134
434	1	5	3	1.4403	0.1771	4	0.121734476

435	1	5	3	1.4403	0.1771	5	0.056892999
436	1	6	3	1.6816	0.158	1	0.312048629
437	1	6	3	1.6816	0.158	2	0.231251588
438	1	6	3	1.6816	0.158	3	0.169614055
439	1	6	3	1.6816	0.158	4	0.123847264
440	1	6	3	1.6816	0.158	5	0.087897383
441	1	6	3	1.6816	0.158	6	0.057065598
442	1	7	3	1.9107	0.1405	1	0.221940663
443	1	7	3	1.9107	0.1405	2	0.175696877
444	1	7	3	1.9107	0.1405	3	0.14386547
445	1	7	3	1.9107	0.1405	4	0.121001402
446	1	7	3	1.9107	0.1405	5	0.1026257
447	1	7	3	1.9107	0.1405	6	0.08516936
448	1	7	3	1.9107	0.1405	7	0.065788936
449	1	8	3	2.1276	0.1246	1	0.17366408
450	1	8	3	2.1276	0.1246	2	0.148369137
451	1	8	3	2.1276	0.1246	3	0.131686672
452	1	8	3	2.1276	0.1246	4	0.120041507
453	1	8	3	2.1276	0.1246	5	0.110600127
454	1	8	3	2.1276	0.1246	6	0.100735169
455	1	8	3	2.1276	0.1246	7	0.087642914
456	1	8	3	2.1276	0.1246	8	0.068622451
457	1	9	3	2.3323	0.1103	1	0.150407572
458	1	9	3	2.3323	0.1103	2	0.136405349
459	1	9	3	2.3323	0.1103	3	0.127577861
460	1	9	3	2.3323	0.1103	4	0.121597846
461	1	9	3	2.3323	0.1103	5	0.116387143
462	1	9	3	2.3323	0.1103	6	0.109612584
463	1	9	3	2.3323	0.1103	7	0.098372475
464	1	9	3	2.3323	0.1103	8	0.079833838
465	1	9	3	2.3323	0.1103	9	0.054054116
466	1	10	3	2.5248	0.0976	1	0.14029244
467	1	10	3	2.5248	0.0976	2	0.132530607
468	1	10	3	2.5248	0.0976	3	0.127959565
469	1	10	3	2.5248	0.0976	4	0.124821117
470	1	10	3	2.5248	0.0976	5	0.121223391
471	1	10	3	2.5248	0.0976	6	0.114689343
472	1	10	3	2.5248	0.0976	7	0.102104683
473	1	10	3	2.5248	0.0976	8	0.081257843
474	1	10	3	2.5248	0.0976	9	0.054562248
475	1	10	3	2.5248	0.0976	10	0.029636392
476	1	11	3	2.7051	0.0865	1	0.137102186
477	1	11	3	2.7051	0.0865	2	0.132934589
478	1	11	3	2.7051	0.0865	3	0.130682219
479	1	11	3	2.7051	0.0865	4	0.128749545
480	1	11	3	2.7051	0.0865	5	0.125100549
481	1	11	3	2.7051	0.0865	6	0.116906817
482	1	11	3	2.7051	0.0865	7	0.101062381
483	1	11	3	2.7051	0.0865	8	0.076995223
484	1	11	3	2.7051	0.0865	9	0.050163805
485	1	11	3	2.7051	0.0865	10	0.028551947
486	1	11	3	2.7051	0.0865	11	0.014800436
487	1	12	3	2.8732	0.077	1	0.137604681
488	1	12	3	2.8732	0.077	2	0.135530546
489	1	12	3	2.8732	0.077	3	0.134418722
490	1	12	3	2.8732	0.077	4	0.132590466
491	1	12	3	2.8732	0.077	5	0.127674227
492	1	12	3	2.8732	0.077	6	0.116501493
493	1	12	3	2.8732	0.077	7	0.096562741
494	1	12	3	2.8732	0.077	8	0.069904458
495	1	12	3	2.8732	0.077	9	0.044409
496	1	12	3	2.8732	0.077	10	0.026521566
497	1	12	3	2.8732	0.077	11	0.016199746

498	1	12	3	2.8732	0.077	12	0.010426688
499	1	13	3	3.0291	0.0691	1	0.140021597
500	1	13	3	3.0291	0.0691	2	0.139100893
501	1	13	3	3.0291	0.0691	3	0.138317891
502	1	13	3	3.0291	0.0691	4	0.135751461
503	1	13	3	3.0291	0.0691	5	0.128615063
504	1	13	3	3.0291	0.0691	6	0.113637378
505	1	13	3	3.0291	0.0691	7	0.089731007
506	1	13	3	3.0291	0.0691	8	0.061971637
507	1	13	3	3.0291	0.0691	9	0.039034824
508	1	13	3	3.0291	0.0691	10	0.024700021
509	1	13	3	3.0291	0.0691	11	0.017075354
510	1	13	3	3.0291	0.0691	12	0.013125989
511	1	13	3	3.0291	0.0691	13	0.010673909
512	1	14	3	3.1728	0.0628	1	0.143316001
513	1	14	3	3.1728	0.0628	2	0.142898328
514	1	14	3	3.1728	0.0628	3	0.141825157
515	1	14	3	3.1728	0.0628	4	0.137832038
516	1	14	3	3.1728	0.0628	5	0.127750997
517	1	14	3	3.1728	0.0628	6	0.108659937
518	1	14	3	3.1728	0.0628	7	0.081680078
519	1	14	3	3.1728	0.0628	8	0.054446556
520	1	14	3	3.1728	0.0628	9	0.034657318
521	1	14	3	3.1728	0.0628	10	0.023379897
522	1	14	3	3.1728	0.0628	11	0.017788028
523	1	14	3	3.1728	0.0628	12	0.015131675
524	1	14	3	3.1728	0.0628	13	0.013652106
525	1	14	3	3.1728	0.0628	14	0.012286618
526	1	15	3	3.3043	0.0581	1	0.146860041
527	1	15	3	3.3043	0.0581	2	0.146457938
528	1	15	3	3.3043	0.0581	3	0.144592639
529	1	15	3	3.3043	0.0581	4	0.138610477
530	1	15	3	3.3043	0.0581	5	0.125117729
531	1	15	3	3.3043	0.0581	6	0.102128305
532	1	15	3	3.3043	0.0581	7	0.073401523
533	1	15	3	3.3043	0.0581	8	0.047949282
534	1	15	3	3.3043	0.0581	9	0.031329361
535	1	15	3	3.3043	0.0581	10	0.022526837
536	1	15	3	3.3043	0.0581	11	0.018438158
537	1	15	3	3.3043	0.0581	12	0.01669043
538	1	15	3	3.3043	0.0581	13	0.015866628
539	1	15	3	3.3043	0.0581	14	0.015124696
540	1	15	3	3.3043	0.0581	15	0.013893421
541	1	16	3	3.4236	0.055	1	0.150276311
542	1	16	3	3.4236	0.055	2	0.149501362
543	1	16	3	3.4236	0.055	3	0.14643029
544	1	16	3	3.4236	0.055	4	0.13803148
545	1	16	3	3.4236	0.055	5	0.120952817
546	1	16	3	3.4236	0.055	6	0.094721332
547	1	16	3	3.4236	0.055	7	0.065620901
548	1	16	3	3.4236	0.055	8	0.042647582
549	1	16	3	3.4236	0.055	9	0.028883723
550	1	16	3	3.4236	0.055	10	0.022016289
551	1	16	3	3.4236	0.055	11	0.019031918
552	1	16	3	3.4236	0.055	12	0.017922241
553	1	16	3	3.4236	0.055	13	0.017537854
554	1	16	3	3.4236	0.055	14	0.017200978
555	1	16	3	3.4236	0.055	15	0.016445088
556	1	16	3	3.4236	0.055	16	0.014874253
557	1	17	3	3.5307	0.0535	1	0.15335302
558	1	17	3	3.5307	0.0535	2	0.151885262
559	1	17	3	3.5307	0.0535	3	0.147277445
560	1	17	3	3.5307	0.0535	4	0.136187924

561	1	17	3	3.5307	0.0535	5	0.1156436
562	1	17	3	3.5307	0.0535	6	0.087095323
563	1	17	3	3.5307	0.0535	7	0.05874434
564	1	17	3	3.5307	0.0535	8	0.038455559
565	1	17	3	3.5307	0.0535	9	0.02710271
566	1	17	3	3.5307	0.0535	10	0.021721019
567	1	17	3	3.5307	0.0535	11	0.019547029
568	1	17	3	3.5307	0.0535	12	0.018886699
569	1	17	3	3.5307	0.0535	13	0.018794897
570	1	17	3	3.5307	0.0535	14	0.018714906
571	1	17	3	3.5307	0.0535	15	0.018257775
572	1	17	3	3.5307	0.0535	16	0.017080186
573	1	17	3	3.5307	0.0535	17	0.014833453
574	1	18	3	3.6256	0.0536	1	0.156001857
575	1	18	3	3.6256	0.0536	2	0.153573399
576	1	18	3	3.6256	0.0536	3	0.147181348
577	1	18	3	3.6256	0.0536	4	0.13329106
578	1	18	3	3.6256	0.0536	5	0.109651238
579	1	18	3	3.6256	0.0536	6	0.079772905
580	1	18	3	3.6256	0.0536	7	0.052909812
581	1	18	3	3.6256	0.0536	8	0.035182093
582	1	18	3	3.6256	0.0536	9	0.025787419
583	1	18	3	3.6256	0.0536	10	0.021536341
584	1	18	3	3.6256	0.0536	11	0.019957454
585	1	18	3	3.6256	0.0536	12	0.019613599
586	1	18	3	3.6256	0.0536	13	0.019713186
587	1	18	3	3.6256	0.0536	14	0.019788882
588	1	18	3	3.6256	0.0536	15	0.019505423
589	1	18	3	3.6256	0.0536	16	0.018558681
590	1	18	3	3.6256	0.0536	17	0.016624665
591	1	18	3	3.6256	0.0536	18	0.013360594
592	1	19	3	3.7083	0.0553	1	0.158236243
593	1	19	3	3.7083	0.0553	2	0.154618922
594	1	19	3	3.7083	0.0553	3	0.14627836
595	1	19	3	3.7083	0.0553	4	0.129632133
596	1	19	3	3.7083	0.0553	5	0.103429638
597	1	19	3	3.7083	0.0553	6	0.073094175
598	1	19	3	3.7083	0.0553	7	0.048079738
599	1	19	3	3.7083	0.0553	8	0.032619152
600	1	19	3	3.7083	0.0553	9	0.024777596
601	1	19	3	3.7083	0.0553	10	0.021382533
602	1	19	3	3.7083	0.0553	11	0.020240108
603	1	19	3	3.7083	0.0553	12	0.020116363
604	1	19	3	3.7083	0.0553	13	0.020335936
605	1	19	3	3.7083	0.0553	14	0.020493234
606	1	19	3	3.7083	0.0553	15	0.020291109
607	1	19	3	3.7083	0.0553	16	0.019449054
608	1	19	3	3.7083	0.0553	17	0.017659451
609	1	19	3	3.7083	0.0553	18	0.014584889
610	1	19	3	3.7083	0.0553	19	0.009919361
611	1	20	3	3.7788	0.0586	1	0.160167843
612	1	20	3	3.7788	0.0586	2	0.155156849
613	1	20	3	3.7788	0.0586	3	0.144777317
614	1	20	3	3.7788	0.0586	4	0.125543722
615	1	20	3	3.7788	0.0586	5	0.097367485
616	1	20	3	3.7788	0.0586	6	0.067228509
617	1	20	3	3.7788	0.0586	7	0.044129567
618	1	20	3	3.7788	0.0586	8	0.030579644
619	1	20	3	3.7788	0.0586	9	0.023950305
620	1	20	3	3.7788	0.0586	10	0.021199734
621	1	20	3	3.7788	0.0586	11	0.020375126
622	1	20	3	3.7788	0.0586	12	0.020399822
623	1	20	3	3.7788	0.0586	13	0.020683281

624	1	20	3	3.7788	0.0586	14	0.020863932
625	1	20	3	3.7788	0.0586	15	0.020666101
626	1	20	3	3.7788	0.0586	16	0.019820825
627	1	20	3	3.7788	0.0586	17	0.018026391
628	1	20	3	3.7788	0.0586	18	0.014947534
629	1	20	3	3.7788	0.0586	19	0.010277979
630	1	20	3	3.7788	0.0586	20	0.003891834
631	2	1	1	0.3531	0.2695	1	0.491611211
632	2	2	1	0.6432	0.244	1	0.551603555
633	2	2	1	0.6432	0.244	2	0.466149843
634	2	3	1	0.9211	0.2201	1	0.558458642
635	2	3	1	0.9211	0.2201	2	0.510680796
636	2	3	1	0.9211	0.2201	3	0.283455793
637	2	4	1	1.1868	0.1978	1	0.546995738
638	2	4	1	1.1868	0.1978	2	0.484551851
639	2	4	1	1.1868	0.1978	3	0.307012135
640	2	4	1	1.1868	0.1978	4	0.094347145
641	2	5	1	1.4403	0.1771	1	0.495399251
642	2	5	1	1.4403	0.1771	2	0.396545131
643	2	5	1	1.4403	0.1771	3	0.258021537
644	2	5	1	1.4403	0.1771	4	0.130378628
645	2	5	1	1.4403	0.1771	5	0.045825757
646	2	6	1	1.6816	0.158	1	0.385398971
647	2	6	1	1.6816	0.158	2	0.286440164
648	2	6	1	1.6816	0.158	3	0.199848859
649	2	6	1	1.6816	0.158	4	0.133010822
650	2	6	1	1.6816	0.158	5	0.082334772
651	2	6	1	1.6816	0.158	6	0.042925672
652	2	7	1	1.9107	0.1405	1	0.274160437
653	2	7	1	1.9107	0.1405	2	0.208365776
654	2	7	1	1.9107	0.1405	3	0.161016877
655	2	7	1	1.9107	0.1405	4	0.126704132
656	2	7	1	1.9107	0.1405	5	0.099641598
657	2	7	1	1.9107	0.1405	6	0.075271385
658	2	7	1	1.9107	0.1405	7	0.05062013
659	2	8	1	2.1276	0.1246	1	0.203992028
660	2	8	1	2.1276	0.1246	2	0.165968012
661	2	8	1	2.1276	0.1246	3	0.140315524
662	2	8	1	2.1276	0.1246	4	0.122159396
663	2	8	1	2.1276	0.1246	5	0.107581934
664	2	8	1	2.1276	0.1246	6	0.093225657
665	2	8	1	2.1276	0.1246	7	0.075983254
666	2	8	1	2.1276	0.1246	8	0.053580074
667	2	9	1	2.3323	0.1103	1	0.167126006
668	2	9	1	2.3323	0.1103	2	0.14525458
669	2	9	1	2.3323	0.1103	3	0.130941251
670	2	9	1	2.3323	0.1103	4	0.120911479
671	2	9	1	2.3323	0.1103	5	0.112417109
672	2	9	1	2.3323	0.1103	6	0.102665964
673	2	9	1	2.3323	0.1103	7	0.088553955
674	2	9	1	2.3323	0.1103	8	0.067580149
675	2	9	1	2.3323	0.1103	9	0.040878917
676	2	10	1	2.5248	0.0976	1	0.149101138
677	2	10	1	2.5248	0.0976	2	0.136197587
678	2	10	1	2.5248	0.0976	3	0.127974328
679	2	10	1	2.5248	0.0976	4	0.122065178
680	2	10	1	2.5248	0.0976	5	0.116149317
681	2	10	1	2.5248	0.0976	6	0.107459532
682	2	10	1	2.5248	0.0976	7	0.092835364
683	2	10	1	2.5248	0.0976	8	0.070557003
684	2	10	1	2.5248	0.0976	9	0.04392261
685	2	10	1	2.5248	0.0976	10	0.020461828
686	2	11	1	2.7051	0.0865	1	0.141149527

687	2	11	1	2.7051	0.0865	2	0.133362193
688	2	11	1	2.7051	0.0865	3	0.128470649
689	2	11	1	2.7051	0.0865	4	0.124466257
690	2	11	1	2.7051	0.0865	5	0.119012358
691	2	11	1	2.7051	0.0865	6	0.109107136
692	2	11	1	2.7051	0.0865	7	0.091796552
693	2	11	1	2.7051	0.0865	8	0.067206498
694	2	11	1	2.7051	0.0865	9	0.04134947
695	2	11	1	2.7051	0.0865	10	0.021410718
696	2	11	1	2.7051	0.0865	11	0.008839748
697	2	12	1	2.8732	0.077	1	0.138640272
698	2	12	1	2.8732	0.077	2	0.133832746
699	2	12	1	2.8732	0.077	3	0.130669603
700	2	12	1	2.8732	0.077	4	0.127162605
701	2	12	1	2.8732	0.077	5	0.12071499
702	2	12	1	2.8732	0.077	6	0.108105904
703	2	12	1	2.8732	0.077	7	0.087218263
704	2	12	1	2.8732	0.077	8	0.060888802
705	2	12	1	2.8732	0.077	9	0.036992364
706	2	12	1	2.8732	0.077	10	0.020784746
707	2	12	1	2.8732	0.077	11	0.011416646
708	2	12	1	2.8732	0.077	12	0.005856719
709	2	13	1	3.0291	0.0691	1	0.139077003
710	2	13	1	3.0291	0.0691	2	0.135960029
711	2	13	1	3.0291	0.0691	3	0.133475469
712	2	13	1	3.0291	0.0691	4	0.12944826
713	2	13	1	3.0291	0.0691	5	0.12092839
714	2	13	1	3.0291	0.0691	6	0.104749494
715	2	13	1	3.0291	0.0691	7	0.080460615
716	2	13	1	3.0291	0.0691	8	0.053773878
717	2	13	1	3.0291	0.0691	9	0.032734844
718	2	13	1	3.0291	0.0691	10	0.019931148
719	2	13	1	3.0291	0.0691	11	0.013080893
720	2	13	1	3.0291	0.0691	12	0.009288558
721	2	13	1	3.0291	0.0691	13	0.006554629
722	2	14	1	3.1728	0.0628	1	0.141043498
723	2	14	1	3.1728	0.0628	2	0.13875999
724	2	14	1	3.1728	0.0628	3	0.136188729
725	2	14	1	3.1728	0.0628	4	0.130844886
726	2	14	1	3.1728	0.0628	5	0.119472979
727	2	14	1	3.1728	0.0628	6	0.099457457
728	2	14	1	3.1728	0.0628	7	0.072713008
729	2	14	1	3.1728	0.0628	8	0.047103738
730	2	14	1	3.1728	0.0628	9	0.029248784
731	2	14	1	3.1728	0.0628	10	0.01929095
732	2	14	1	3.1728	0.0628	11	0.014324784
733	2	14	1	3.1728	0.0628	12	0.01179996
734	2	14	1	3.1728	0.0628	13	0.010102965
735	2	14	1	3.1728	0.0628	14	0.008235787
736	2	15	1	3.3043	0.0581	1	0.143700925
737	2	15	1	3.3043	0.0581	2	0.141628669
738	2	15	1	3.3043	0.0581	3	0.138369966
739	2	15	1	3.3043	0.0581	4	0.131080564
740	2	15	1	3.3043	0.0581	5	0.116385532
741	2	15	1	3.3043	0.0581	6	0.092825433
742	2	15	1	3.3043	0.0581	7	0.064939096
743	2	15	1	3.3043	0.0581	8	0.041430266
744	2	15	1	3.3043	0.0581	9	0.026621958
745	2	15	1	3.3043	0.0581	10	0.018925084
746	2	15	1	3.3043	0.0581	11	0.015342927
747	2	15	1	3.3043	0.0581	12	0.013708207
748	2	15	1	3.3043	0.0581	13	0.012722275
749	2	15	1	3.3043	0.0581	14	0.011581997

750	2	15	1	3.3043	0.0581	15	0.009715356
751	2	16	1	3.4236	0.055	1	0.146548398
752	2	16	1	3.4236	0.055	2	0.144202346
753	2	16	1	3.4236	0.055	3	0.139772228
754	2	16	1	3.4236	0.055	4	0.130072353
755	2	16	1	3.4236	0.055	5	0.11191005
756	2	16	1	3.4236	0.055	6	0.085530663
757	2	16	1	3.4236	0.055	7	0.05778364
758	2	16	1	3.4236	0.055	8	0.036865666
759	2	16	1	3.4236	0.055	9	0.024720153
760	2	16	1	3.4236	0.055	10	0.018770202
761	2	16	1	3.4236	0.055	11	0.016198135
762	2	16	1	3.4236	0.055	12	0.01518536
763	2	16	1	3.4236	0.055	13	0.014677497
764	2	16	1	3.4236	0.055	14	0.014021193
765	2	16	1	3.4236	0.055	15	0.012734354
766	2	16	1	3.4236	0.055	16	0.010400113
767	2	17	1	3.5307	0.0535	1	0.149304068
768	2	17	1	3.5307	0.0535	2	0.146287487
769	2	17	1	3.5307	0.0535	3	0.140300492
770	2	17	1	3.5307	0.0535	4	0.127900779
771	2	17	1	3.5307	0.0535	5	0.106438973
772	2	17	1	3.5307	0.0535	6	0.078194018
773	2	17	1	3.5307	0.0535	7	0.051567677
774	2	17	1	3.5307	0.0535	8	0.033298541
775	2	17	1	3.5307	0.0535	9	0.02335735
776	2	17	1	3.5307	0.0535	10	0.018737722
777	2	17	1	3.5307	0.0535	11	0.01690195
778	2	17	1	3.5307	0.0535	12	0.016322954
779	2	17	1	3.5307	0.0535	13	0.016131565
780	2	17	1	3.5307	0.0535	14	0.015785831
781	2	17	1	3.5307	0.0535	15	0.014874522
782	2	17	1	3.5307	0.0535	16	0.013020497
783	2	17	1	3.5307	0.0535	17	0.009862186
784	2	18	1	3.6256	0.0536	1	0.151843924
785	2	18	1	3.6256	0.0536	2	0.147821546
786	2	18	1	3.6256	0.0536	3	0.139986433
787	2	18	1	3.6256	0.0536	4	0.124775216
788	2	18	1	3.6256	0.0536	5	0.100429431
789	2	18	1	3.6256	0.0536	6	0.071282024
790	2	18	1	3.6256	0.0536	7	0.046363953
791	2	18	1	3.6256	0.0536	8	0.030536696
792	2	18	1	3.6256	0.0536	9	0.022362559
793	2	18	1	3.6256	0.0536	10	0.018748191
794	2	18	1	3.6256	0.0536	11	0.017448736
795	2	18	1	3.6256	0.0536	12	0.017170109
796	2	18	1	3.6256	0.0536	13	0.01718192
797	2	18	1	3.6256	0.0536	14	0.017023279
798	2	18	1	3.6256	0.0536	15	0.016334228
799	2	18	1	3.6256	0.0536	16	0.014770641
800	2	18	1	3.6256	0.0536	17	0.011980343
801	2	18	1	3.6256	0.0536	18	0.007651959
802	2	19	1	3.7083	0.0553	1	0.154175749
803	2	19	1	3.7083	0.0553	2	0.148851769
804	2	19	1	3.7083	0.0553	3	0.138965874
805	2	19	1	3.7083	0.0553	4	0.120991738
806	2	19	1	3.7083	0.0553	5	0.094320034
807	2	19	1	3.7083	0.0553	6	0.065075457
808	2	19	1	3.7083	0.0553	7	0.042098381
809	2	19	1	3.7083	0.0553	8	0.028383107
810	2	19	1	3.7083	0.0553	9	0.021596201
811	2	19	1	3.7083	0.0553	10	0.018737991
812	2	19	1	3.7083	0.0553	11	0.01782695

813	2	19	1	3.7083	0.0553	12	0.017751522
814	2	19	1	3.7083	0.0553	13	0.017883856
815	2	19	1	3.7083	0.0553	14	0.017820507
816	2	19	1	3.7083	0.0553	15	0.017235605
817	2	19	1	3.7083	0.0553	16	0.015805963
818	2	19	1	3.7083	0.0553	17	0.013189338
819	2	19	1	3.7083	0.0553	18	0.009064153
820	2	19	1	3.7083	0.0553	19	0.003262642
821	2	20	1	3.7788	0.0586	1	0.156436977
822	2	20	1	3.7788	0.0586	2	0.149531426
823	2	20	1	3.7788	0.0586	3	0.137462146
824	2	20	1	3.7788	0.0586	4	0.116890443
825	2	20	1	3.7788	0.0586	5	0.088475306
826	2	20	1	3.7788	0.0586	6	0.059695645
827	2	20	1	3.7788	0.0586	7	0.038632721
828	2	20	1	3.7788	0.0586	8	0.026666785
829	2	20	1	3.7788	0.0586	9	0.020952781
830	2	20	1	3.7788	0.0586	10	0.018657731
831	2	20	1	3.7788	0.0586	11	0.018022901
832	2	20	1	3.7788	0.0586	12	0.018076318
833	2	20	1	3.7788	0.0586	13	0.018263949
834	2	20	1	3.7788	0.0586	14	0.018220195
835	2	20	1	3.7788	0.0586	15	0.017638246
836	2	20	1	3.7788	0.0586	16	0.016204846
837	2	20	1	3.7788	0.0586	17	0.013582046
838	2	20	1	3.7788	0.0586	18	0.009448272
839	2	20	1	3.7788	0.0586	19	0.003631997
840	2	20	1	3.7788	0.0586	20	-0.003657405
841	2	1	2	0.3531	0.2695	1	0.498945976
842	2	2	2	0.6432	0.244	1	0.552594319
843	2	2	2	0.6432	0.244	2	0.468906856
844	2	3	2	0.9211	0.2201	1	0.557448014
845	2	3	2	0.9211	0.2201	2	0.506464883
846	2	3	2	0.9211	0.2201	3	0.278407219
847	2	4	2	1.1868	0.1978	1	0.542157343
848	2	4	2	1.1868	0.1978	2	0.471886395
849	2	4	2	1.1868	0.1978	3	0.293931959
850	2	4	2	1.1868	0.1978	4	0.094566181
851	2	5	2	1.4403	0.1771	1	0.480008457
852	2	5	2	1.4403	0.1771	2	0.375675474
853	2	5	2	1.4403	0.1771	3	0.243323283
854	2	5	2	1.4403	0.1771	4	0.127165021
855	2	5	2	1.4403	0.1771	5	0.048917767
856	2	6	2	1.6816	0.158	1	0.362611672
857	2	6	2	1.6816	0.158	2	0.267724633
858	2	6	2	1.6816	0.158	3	0.188841744
859	2	6	2	1.6816	0.158	4	0.129051257
860	2	6	2	1.6816	0.158	5	0.083366068
861	2	6	2	1.6816	0.158	6	0.04678941
862	2	7	2	1.9107	0.1405	1	0.255941765
863	2	7	2	1.9107	0.1405	2	0.196189394
864	2	7	2	1.9107	0.1405	3	0.153977918
865	2	7	2	1.9107	0.1405	4	0.123566758
866	2	7	2	1.9107	0.1405	5	0.099526711
867	2	7	2	1.9107	0.1405	6	0.077631932
868	2	7	2	1.9107	0.1405	7	0.054956836
869	2	8	2	2.1276	0.1246	1	0.192398132
870	2	8	2	2.1276	0.1246	2	0.158570434
871	2	8	2	2.1276	0.1246	3	0.135942044
872	2	8	2	2.1276	0.1246	4	0.120031844
873	2	8	2	2.1276	0.1246	5	0.10731646
874	2	8	2	2.1276	0.1246	6	0.094750591
875	2	8	2	2.1276	0.1246	7	0.079396839

876	2	8	2	2.1276	0.1246	8	0.058792388
877	2	9	2	2.3323	0.1103	1	0.159894853
878	2	9	2	2.3323	0.1103	2	0.140654548
879	2	9	2	2.3323	0.1103	3	0.128204907
880	2	9	2	2.3323	0.1103	4	0.119617661
881	2	9	2	2.3323	0.1103	5	0.112437509
882	2	9	2	2.3323	0.1103	6	0.10413238
883	2	9	2	2.3323	0.1103	7	0.091762194
884	2	9	2	2.3323	0.1103	8	0.072597048
885	2	9	2	2.3323	0.1103	9	0.046826453
886	2	10	2	2.5248	0.0976	1	0.144405277
887	2	10	2	2.5248	0.0976	2	0.133227175
888	2	10	2	2.5248	0.0976	3	0.126272501
889	2	10	2	2.5248	0.0976	4	0.121433838
890	2	10	2	2.5248	0.0976	5	0.116632754
891	2	10	2	2.5248	0.0976	6	0.109331541
892	2	10	2	2.5248	0.0976	7	0.096444364
893	2	10	2	2.5248	0.0976	8	0.07576207
894	2	10	2	2.5248	0.0976	9	0.049496227
895	2	10	2	2.5248	0.0976	10	0.024941605
896	2	11	2	2.7051	0.0865	1	0.13795122
897	2	11	2	2.7051	0.0865	2	0.131393819
898	2	11	2	2.7051	0.0865	3	0.127473443
899	2	11	2	2.7051	0.0865	4	0.124398613
900	2	11	2	2.7051	0.0865	5	0.120059223
901	2	11	2	2.7051	0.0865	6	0.111646455
902	2	11	2	2.7051	0.0865	7	0.096084136
903	2	11	2	2.7051	0.0865	8	0.072648586
904	2	11	2	2.7051	0.0865	9	0.046396969
905	2	11	2	2.7051	0.0865	10	0.025039581
906	2	11	2	2.7051	0.0865	11	0.011251832
907	2	12	2	2.8732	0.077	1	0.136371259
908	2	12	2	2.8732	0.077	2	0.132526043
909	2	12	2	2.8732	0.077	3	0.130203345
910	2	12	2	2.8732	0.077	4	0.127621883
911	2	12	2	2.8732	0.077	5	0.122408496
912	2	12	2	2.8732	0.077	6	0.111445672
913	2	12	2	2.8732	0.077	7	0.092186308
914	2	12	2	2.8732	0.077	8	0.066349411
915	2	12	2	2.8732	0.077	9	0.04138356
916	2	12	2	2.8732	0.077	10	0.023652082
917	2	12	2	2.8732	0.077	11	0.013244365
918	2	12	2	2.8732	0.077	12	0.007218718
919	2	13	2	3.0291	0.0691	1	0.137416245
920	2	13	2	3.0291	0.0691	2	0.135126832
921	2	13	2	3.0291	0.0691	3	0.133455069
922	2	13	2	3.0291	0.0691	4	0.130440098
923	2	13	2	3.0291	0.0691	5	0.123335642
924	2	13	2	3.0291	0.0691	6	0.108910648
925	2	13	2	3.0291	0.0691	7	0.085914781
926	2	13	2	3.0291	0.0691	8	0.058966866
927	2	13	2	3.0291	0.0691	9	0.036432425
928	2	13	2	3.0291	0.0691	10	0.022181908
929	2	13	2	3.0291	0.0691	11	0.014471345
930	2	13	2	3.0291	0.0691	12	0.010314754
931	2	13	2	3.0291	0.0691	13	0.007534656
932	2	14	2	3.1728	0.0628	1	0.139801755
933	2	14	2	3.1728	0.0628	2	0.138295343
934	2	14	2	3.1728	0.0628	3	0.136580095
935	2	14	2	3.1728	0.0628	4	0.132394783
936	2	14	2	3.1728	0.0628	5	0.122631559
937	2	14	2	3.1728	0.0628	6	0.104350343
938	2	14	2	3.1728	0.0628	7	0.078360711

939	2	14	2	3.1728	0.0628	8	0.051817851
940	2	14	2	3.1728	0.0628	9	0.032302408
941	2	14	2	3.1728	0.0628	10	0.021064447
942	2	14	2	3.1728	0.0628	11	0.015400102
943	2	14	2	3.1728	0.0628	12	0.012587256
944	2	14	2	3.1728	0.0628	13	0.010856439
945	2	14	2	3.1728	0.0628	14	0.009122938
946	2	15	2	3.3043	0.0581	1	0.142761431
947	2	15	2	3.3043	0.0581	2	0.141473787
948	2	15	2	3.3043	0.0581	3	0.139166389
949	2	15	2	3.3043	0.0581	4	0.133216974
950	2	15	2	3.3043	0.0581	5	0.120284433
951	2	15	2	3.3043	0.0581	6	0.098268594
952	2	15	2	3.3043	0.0581	7	0.070491507
953	2	15	2	3.3043	0.0581	8	0.045571288
954	2	15	2	3.3043	0.0581	9	0.029125844
955	2	15	2	3.3043	0.0581	10	0.020337815
956	2	15	2	3.3043	0.0581	11	0.01619223
957	2	15	2	3.3043	0.0581	12	0.01432881
958	2	15	2	3.3043	0.0581	13	0.013317377
959	2	15	2	3.3043	0.0581	14	0.012288497
960	2	15	2	3.3043	0.0581	15	0.01064304
961	2	16	2	3.4236	0.055	1	0.145833845
962	2	16	2	3.4236	0.055	2	0.144324212
963	2	16	2	3.4236	0.055	3	0.140977197
964	2	16	2	3.4236	0.055	4	0.132807623
965	2	16	2	3.4236	0.055	5	0.116481361
966	2	16	2	3.4236	0.055	6	0.091292715
967	2	16	2	3.4236	0.055	7	0.063024944
968	2	16	2	3.4236	0.055	8	0.040435207
969	2	16	2	3.4236	0.055	9	0.026777914
970	2	16	2	3.4236	0.055	10	0.019912895
971	2	16	2	3.4236	0.055	11	0.01688504
972	2	16	2	3.4236	0.055	12	0.01569054
973	2	16	2	3.4236	0.055	13	0.015164423
974	2	16	2	3.4236	0.055	14	0.014602874
975	2	16	2	3.4236	0.055	15	0.013506887
976	2	16	2	3.4236	0.055	16	0.011452884
977	2	17	2	3.5307	0.0535	1	0.148757014
978	2	17	2	3.5307	0.0535	2	0.146663284
979	2	17	2	3.5307	0.0535	3	0.141915886
980	2	17	2	3.5307	0.0535	4	0.131220952
981	2	17	2	3.5307	0.0535	5	0.111564048
982	2	17	2	3.5307	0.0535	6	0.08404492
983	2	17	2	3.5307	0.0535	7	0.056377619
984	2	17	2	3.5307	0.0535	8	0.036352971
985	2	17	2	3.5307	0.0535	9	0.025063203
986	2	17	2	3.5307	0.0535	10	0.019678559
987	2	17	2	3.5307	0.0535	11	0.017471821
988	2	17	2	3.5307	0.0535	12	0.016747873
989	2	17	2	3.5307	0.0535	13	0.016546016
990	2	17	2	3.5307	0.0535	14	0.016284569
991	2	17	2	3.5307	0.0535	15	0.015541563
992	2	17	2	3.5307	0.0535	16	0.013941201
993	2	17	2	3.5307	0.0535	17	0.011116545
994	2	18	2	3.6256	0.0536	1	0.151413636
995	2	18	2	3.6256	0.0536	2	0.14842846
996	2	18	2	3.6256	0.0536	3	0.142002319
997	2	18	2	3.6256	0.0536	4	0.128635464
998	2	18	2	3.6256	0.0536	5	0.105957146
999	2	18	2	3.6256	0.0536	6	0.077033071
1000	2	18	2	3.6256	0.0536	7	0.050704685
1001	2	18	2	3.6256	0.0536	8	0.033153053

1002	2	18	2	3.6256	0.0536	9	0.023794349
1003	2	18	2	3.6256	0.0536	10	0.019537903
1004	2	18	2	3.6256	0.0536	11	0.017933784
1005	2	18	2	3.6256	0.0536	12	0.017540001
1006	2	18	2	3.6256	0.0536	13	0.017549665
1007	2	18	2	3.6256	0.0536	14	0.017470479
1008	2	18	2	3.6256	0.0536	15	0.016936309
1009	2	18	2	3.6256	0.0536	16	0.015607327
1010	2	18	2	3.6256	0.0536	17	0.013133773
1011	2	18	2	3.6256	0.0536	18	0.009185213
1012	2	19	2	3.7083	0.0553	1	0.153807735
1013	2	19	2	3.7083	0.0553	2	0.149658929
1014	2	19	2	3.7083	0.0553	3	0.141354337
1015	2	19	2	3.7083	0.0553	4	0.125317438
1016	2	19	2	3.7083	0.0553	5	0.10009175
1017	2	19	2	3.7083	0.0553	6	0.070598341
1018	2	19	2	3.7083	0.0553	7	0.045986813
1019	2	19	2	3.7083	0.0553	8	0.030640041
1020	2	19	2	3.7083	0.0553	9	0.022816738
1021	2	19	2	3.7083	0.0553	10	0.019414426
1022	2	19	2	3.7083	0.0553	11	0.018250796
1023	2	19	2	3.7083	0.0553	12	0.018084639
1024	2	19	2	3.7083	0.0553	13	0.018224221
1025	2	19	2	3.7083	0.0553	14	0.018240327
1026	2	19	2	3.7083	0.0553	15	0.01780467
1027	2	19	2	3.7083	0.0553	16	0.016600775
1028	2	19	2	3.7083	0.0553	17	0.014292035
1029	2	19	2	3.7083	0.0553	18	0.010543185
1030	2	19	2	3.7083	0.0553	19	0.005129014
1031	2	20	2	3.7788	0.0586	1	0.156060911
1032	2	20	2	3.7788	0.0586	2	0.150490784
1033	2	20	2	3.7788	0.0586	3	0.140171648
1034	2	20	2	3.7788	0.0586	4	0.121584425
1035	2	20	2	3.7788	0.0586	5	0.094347413
1036	2	20	2	3.7788	0.0586	6	0.064921112
1037	2	20	2	3.7788	0.0586	7	0.042115292
1038	2	20	2	3.7788	0.0586	8	0.028634355
1039	2	20	2	3.7788	0.0586	9	0.022010652
1040	2	20	2	3.7788	0.0586	10	0.019250149
1041	2	20	2	3.7788	0.0586	11	0.018404604
1042	2	20	2	3.7788	0.0586	12	0.018387962
1043	2	20	2	3.7788	0.0586	13	0.01859304
1044	2	20	2	3.7788	0.0586	14	0.018633573
1045	2	20	2	3.7788	0.0586	15	0.018203016
1046	2	20	2	3.7788	0.0586	16	0.016996437
1047	2	20	2	3.7788	0.0586	17	0.01468206
1048	2	20	2	3.7788	0.0586	18	0.01092623
1049	2	20	2	3.7788	0.0586	19	0.005500248
1050	2	20	2	3.7788	0.0586	20	-0.001508647
1051	2	1	3	0.3531	0.2695	1	0.505693156
1052	2	2	3	0.6432	0.244	1	0.55329196
1053	2	2	3	0.6432	0.244	2	0.470880062
1054	2	3	3	0.9211	0.2201	1	0.556127622
1055	2	3	3	0.9211	0.2201	2	0.501226263
1056	2	3	3	0.9211	0.2201	3	0.272670131
1057	2	4	3	1.1868	0.1978	1	0.536119616
1058	2	4	3	1.1868	0.1978	2	0.457585682
1059	2	4	3	1.1868	0.1978	3	0.280652879
1060	2	4	3	1.1868	0.1978	4	0.094690195
1061	2	5	3	1.4403	0.1771	1	0.462601776
1062	2	5	3	1.4403	0.1771	2	0.354463841
1063	2	5	3	1.4403	0.1771	3	0.229381726
1064	2	5	3	1.4403	0.1771	4	0.124059053

1065	2	5	3	1.4403	0.1771	5	0.05187261
1066	2	6	3	1.6816	0.158	1	0.339944092
1067	2	6	3	1.6816	0.158	2	0.250211924
1068	2	6	3	1.6816	0.158	3	0.178778419
1069	2	6	3	1.6816	0.158	4	0.125387498
1070	2	6	3	1.6816	0.158	5	0.084268519
1071	2	6	3	1.6816	0.158	6	0.050469543
1072	2	7	3	1.9107	0.1405	1	0.239105223
1073	2	7	3	1.9107	0.1405	2	0.185165906
1074	2	7	3	1.9107	0.1405	3	0.147623984
1075	2	7	3	1.9107	0.1405	4	0.120706132
1076	2	7	3	1.9107	0.1405	5	0.099390887
1077	2	7	3	1.9107	0.1405	6	0.079786863
1078	2	7	3	1.9107	0.1405	7	0.059050883
1079	2	8	3	2.1276	0.1246	1	0.181943977
1080	2	8	3	2.1276	0.1246	2	0.151926599
1081	2	8	3	2.1276	0.1246	3	0.132005564
1082	2	8	3	2.1276	0.1246	4	0.118102659
1083	2	8	3	2.1276	0.1246	5	0.107060113
1084	2	8	3	2.1276	0.1246	6	0.096122789
1085	2	8	3	2.1276	0.1246	7	0.082537971
1086	2	8	3	2.1276	0.1246	8	0.063742449
1087	2	9	3	2.3323	0.1103	1	0.153409121
1088	2	9	3	2.3323	0.1103	2	0.13652641
1089	2	9	3	2.3323	0.1103	3	0.125742895
1090	2	9	3	2.3323	0.1103	4	0.118446783
1091	2	9	3	2.3323	0.1103	5	0.112446367
1092	2	9	3	2.3323	0.1103	6	0.105451967
1093	2	9	3	2.3323	0.1103	7	0.094706032
1094	2	9	3	2.3323	0.1103	8	0.077351963
1095	2	9	3	2.3323	0.1103	9	0.05275493
1096	2	10	3	2.5248	0.0976	1	0.140194732
1097	2	10	3	2.5248	0.0976	2	0.130561158
1098	2	10	3	2.5248	0.0976	3	0.124742199
1099	2	10	3	2.5248	0.0976	4	0.120862625
1100	2	10	3	2.5248	0.0976	5	0.117062505
1101	2	10	3	2.5248	0.0976	6	0.111026657
1102	2	10	3	2.5248	0.0976	7	0.09978789
1103	2	10	3	2.5248	0.0976	8	0.080779506
1104	2	10	3	2.5248	0.0976	9	0.05516433
1105	2	10	3	2.5248	0.0976	10	0.029708599
1106	2	11	3	2.7051	0.0865	1	0.135083347
1107	2	11	3	2.7051	0.0865	2	0.129628106
1108	2	11	3	2.7051	0.0865	3	0.12657824
1109	2	11	3	2.7051	0.0865	4	0.124335801
1110	2	11	3	2.7051	0.0865	5	0.121001133
1111	2	11	3	2.7051	0.0865	6	0.113966469
1112	2	11	3	2.7051	0.0865	7	0.100121545
1113	2	11	3	2.7051	0.0865	8	0.078026519
1114	2	11	3	2.7051	0.0865	9	0.051664579
1115	2	11	3	2.7051	0.0865	10	0.028960225
1116	2	11	3	2.7051	0.0865	11	0.013848863
1117	2	12	3	2.8732	0.077	1	0.134337388
1118	2	12	3	2.8732	0.077	2	0.131355702
1119	2	12	3	2.8732	0.077	3	0.129785673
1120	2	12	3	2.8732	0.077	4	0.128034187
1121	2	12	3	2.8732	0.077	5	0.123941482
1122	2	12	3	2.8732	0.077	6	0.114533118
1123	2	12	3	2.8732	0.077	7	0.096961355
1124	2	12	3	2.8732	0.077	8	0.071892427
1125	2	12	3	2.8732	0.077	9	0.046075662
1126	2	12	3	2.8732	0.077	10	0.026791067
1127	2	12	3	2.8732	0.077	11	0.01521945

1128	2	12	3	2.8732	0.077	12	0.008627959
1129	2	13	3	3.0291	0.0691	1	0.135929428
1130	2	13	3	3.0291	0.0691	2	0.134382484
1131	2	13	3	3.0291	0.0691	3	0.133438427
1132	2	13	3	3.0291	0.0691	4	0.131333423
1133	2	13	3	3.0291	0.0691	5	0.125531106
1134	2	13	3	3.0291	0.0691	6	0.112813575
1135	2	13	3	3.0291	0.0691	7	0.091277951
1136	2	13	3	3.0291	0.0691	8	0.064374326
1137	2	13	3	3.0291	0.0691	9	0.04045695
1138	2	13	3	3.0291	0.0691	10	0.02466781
1139	2	13	3	3.0291	0.0691	11	0.015979367
1140	2	13	3	3.0291	0.0691	12	0.011375845
1141	2	13	3	3.0291	0.0691	13	0.008496698
1142	2	14	3	3.1728	0.0628	1	0.138692078
1143	2	14	3	3.1728	0.0628	2	0.137881697
1144	2	14	3	3.1728	0.0628	3	0.136933077
1145	2	14	3	3.1728	0.0628	4	0.133796508
1146	2	14	3	3.1728	0.0628	5	0.125538622
1147	2	14	3	3.1728	0.0628	6	0.109018019
1148	2	14	3	3.1728	0.0628	7	0.084045993
1149	2	14	3	3.1728	0.0628	8	0.05683475
1150	2	14	3	3.1728	0.0628	9	0.035669824
1151	2	14	3	3.1728	0.0628	10	0.0230347
1152	2	14	3	3.1728	0.0628	11	0.016568564
1153	2	14	3	3.1728	0.0628	12	0.013401395
1154	2	14	3	3.1728	0.0628	13	0.011593808
1155	2	14	3	3.1728	0.0628	14	0.009963383
1156	2	15	3	3.3043	0.0581	1	0.141922865
1157	2	15	3	3.3043	0.0581	2	0.141337963
1158	2	15	3	3.3043	0.0581	3	0.139883625
1159	2	15	3	3.3043	0.0581	4	0.135157433
1160	2	15	3	3.3043	0.0581	5	0.12391276
1161	2	15	3	3.3043	0.0581	6	0.103558752
1162	2	15	3	3.3043	0.0581	7	0.076206316
1163	2	15	3	3.3043	0.0581	8	0.050055628
1164	2	15	3	3.3043	0.0581	9	0.031911847
1165	2	15	3	3.3043	0.0581	10	0.021912407
1166	2	15	3	3.3043	0.0581	11	0.017115887
1167	2	15	3	3.3043	0.0581	12	0.014970887
1168	2	15	3	3.3043	0.0581	13	0.01389879
1169	2	15	3	3.3043	0.0581	14	0.012955269
1170	2	15	3	3.3043	0.0581	15	0.011508448
1171	2	16	3	3.4236	0.055	1	0.145196331
1172	2	16	3	3.4236	0.055	2	0.144435341
1173	2	16	3	3.4236	0.055	3	0.142063521
1174	2	16	3	3.4236	0.055	4	0.135307483
1175	2	16	3	3.4236	0.055	5	0.120789345
1176	2	16	3	3.4236	0.055	6	0.097000545
1177	2	16	3	3.4236	0.055	7	0.068527159
1178	2	16	3	3.4236	0.055	8	0.044352093
1179	2	16	3	3.4236	0.055	9	0.02908048
1180	2	16	3	3.4236	0.055	10	0.021187655
1181	2	16	3	3.4236	0.055	11	0.017631535
1182	2	16	3	3.4236	0.055	12	0.016212093
1183	2	16	3	3.4236	0.055	13	0.015639539
1184	2	16	3	3.4236	0.055	14	0.015150465
1185	2	16	3	3.4236	0.055	15	0.014224123
1186	2	16	3	3.4236	0.055	16	0.012431032
1187	2	17	3	3.5307	0.0535	1	0.148268477
1188	2	17	3	3.5307	0.0535	2	0.147000965
1189	2	17	3	3.5307	0.0535	3	0.143375323
1190	2	17	3	3.5307	0.0535	4	0.134278334

1191	2	17	3	3.5307	0.0535	5	0.116460423
1192	2	17	3	3.5307	0.0535	6	0.089948701
1193	2	17	3	3.5307	0.0535	7	0.061511284
1194	2	17	3	3.5307	0.0535	8	0.039736492
1195	2	17	3	3.5307	0.0535	9	0.026978429
1196	2	17	3	3.5307	0.0535	10	0.020727839
1197	2	17	3	3.5307	0.0535	11	0.018089471
1198	2	17	3	3.5307	0.0535	12	0.017185409
1199	2	17	3	3.5307	0.0535	13	0.01694973
1200	2	17	3	3.5307	0.0535	14	0.016753242
1201	2	17	3	3.5307	0.0535	15	0.016159482
1202	2	17	3	3.5307	0.0535	16	0.014792383
1203	2	17	3	3.5307	0.0535	17	0.012284739
1204	2	18	3	3.6256	0.0536	1	0.151027906
1205	2	18	3	3.6256	0.0536	2	0.148972561
1206	2	18	3	3.6256	0.0536	3	0.14382977
1207	2	18	3	3.6256	0.0536	4	0.1322195
1208	2	18	3	3.6256	0.0536	5	0.1113128
1209	2	18	3	3.6256	0.0536	6	0.082935243
1210	2	18	3	3.6256	0.0536	7	0.05539974
1211	2	18	3	3.6256	0.0536	8	0.036071391
1212	2	18	3	3.6256	0.0536	9	0.025405179
1213	2	18	3	3.6256	0.0536	10	0.020417806
1214	2	18	3	3.6256	0.0536	11	0.018457484
1215	2	18	3	3.6256	0.0536	12	0.017918752
1216	2	18	3	3.6256	0.0536	13	0.017906404
1217	2	18	3	3.6256	0.0536	14	0.017889762
1218	2	18	3	3.6256	0.0536	15	0.017492758
1219	2	18	3	3.6256	0.0536	16	0.016378786
1220	2	18	3	3.6256	0.0536	17	0.014203455
1221	2	18	3	3.6256	0.0536	18	0.01062425
1222	2	19	3	3.7083	0.0553	1	0.153474886
1223	2	19	3	3.7083	0.0553	2	0.150382071
1224	2	19	3	3.7083	0.0553	3	0.143527789
1225	2	19	3	3.7083	0.0553	4	0.129369074
1226	2	19	3	3.7083	0.0553	5	0.105761732
1227	2	19	3	3.7083	0.0553	6	0.076351267
1228	2	19	3	3.7083	0.0553	7	0.050237085
1229	2	19	3	3.7083	0.0553	8	0.033169159
1230	2	19	3	3.7083	0.0553	9	0.024191084
1231	2	19	3	3.7083	0.0553	10	0.020167096
1232	2	19	3	3.7083	0.0553	11	0.018706853
1233	2	19	3	3.7083	0.0553	12	0.0184242
1234	2	19	3	3.7083	0.0553	13	0.018553044
1235	2	19	3	3.7083	0.0553	14	0.018633304
1236	2	19	3	3.7083	0.0553	15	0.018329982
1237	2	19	3	3.7083	0.0553	16	0.017332776
1238	2	19	3	3.7083	0.0553	17	0.015312326
1239	2	19	3	3.7083	0.0553	18	0.011927463
1240	2	19	3	3.7083	0.0553	19	0.006908416
1241	2	20	3	3.7788	0.0586	1	0.155717861
1242	2	20	3	3.7788	0.0586	2	0.151350018
1243	2	20	3	3.7788	0.0586	3	0.142648154
1244	2	20	3	3.7788	0.0586	4	0.12602018
1245	2	20	3	3.7788	0.0586	5	0.100190799
1246	2	20	3	3.7788	0.0586	6	0.070433259
1247	2	20	3	3.7788	0.0586	7	0.045952723
1248	2	20	3	3.7788	0.0586	8	0.030846998
1249	2	20	3	3.7788	0.0586	9	0.023202199
1250	2	20	3	3.7788	0.0586	10	0.019907527
1251	2	20	3	3.7788	0.0586	11	0.018812345
1252	2	20	3	3.7788	0.0586	12	0.018703095
1253	2	20	3	3.7788	0.0586	13	0.018909247

1254	2	20	3	3.7788	0.0586	14	0.01901957
1255	2	20	3	3.7788	0.0586	15	0.018724032
1256	2	20	3	3.7788	0.0586	16	0.017725216
1257	2	20	3	3.7788	0.0586	17	0.015699666
1258	2	20	3	3.7788	0.0586	18	0.012308629
1259	2	20	3	3.7788	0.0586	19	0.007280456
1260	2	20	3	3.7788	0.0586	20	0.000597162
1261	3	1	1	0.3531	0.2695	1	0.481964752
1262	3	2	1	0.6432	0.244	1	0.550157002
1263	3	2	1	0.6432	0.244	2	0.463681121
1264	3	3	1	0.9211	0.2201	1	0.559620125
1265	3	3	1	0.9211	0.2201	2	0.516301924
1266	3	3	1	0.9211	0.2201	3	0.293638568
1267	3	4	1	1.1868	0.1978	1	0.552277038
1268	3	4	1	1.1868	0.1978	2	0.500236573
1269	3	4	1	1.1868	0.1978	3	0.326428796
1270	3	4	1	1.1868	0.1978	4	0.095199669
1271	3	5	1	1.4403	0.1771	1	0.513358892
1272	3	5	1	1.4403	0.1771	2	0.423998226
1273	3	5	1	1.4403	0.1771	3	0.278794559
1274	3	5	1	1.4403	0.1771	4	0.134292829
1275	3	5	1	1.4403	0.1771	5	0.041016352
1276	3	6	1	1.6816	0.158	1	0.41517718
1277	3	6	1	1.6816	0.158	2	0.312005412
1278	3	6	1	1.6816	0.158	3	0.214175609
1279	3	6	1	1.6816	0.158	4	0.136655523
1280	3	6	1	1.6816	0.158	5	0.078961987
1281	3	6	1	1.6816	0.158	6	0.036420346
1282	3	7	1	1.9107	0.1405	1	0.29859373
1283	3	7	1	1.9107	0.1405	2	0.223761403
1284	3	7	1	1.9107	0.1405	3	0.16843754
1285	3	7	1	1.9107	0.1405	4	0.128247318
1286	3	7	1	1.9107	0.1405	5	0.097051546
1287	3	7	1	1.9107	0.1405	6	0.069909558
1288	3	7	1	1.9107	0.1405	7	0.04384074
1289	3	8	1	2.1276	0.1246	1	0.218029951
1290	3	8	1	2.1276	0.1246	2	0.173392701
1291	3	8	1	2.1276	0.1246	3	0.143059653
1292	3	8	1	2.1276	0.1246	4	0.121662269
1293	3	8	1	2.1276	0.1246	5	0.104814184
1294	3	8	1	2.1276	0.1246	6	0.088918747
1295	3	8	1	2.1276	0.1246	7	0.070872673
1296	3	8	1	2.1276	0.1246	8	0.048533111
1297	3	9	1	2.3323	0.1103	1	0.173900564
1298	3	9	1	2.3323	0.1103	2	0.147891874
1299	3	9	1	2.3323	0.1103	3	0.130790932
1300	3	9	1	2.3323	0.1103	4	0.118895861
1301	3	9	1	2.3323	0.1103	5	0.109231686
1302	3	9	1	2.3323	0.1103	6	0.098975362
1303	3	9	1	2.3323	0.1103	7	0.085105743
1304	3	9	1	2.3323	0.1103	8	0.065023114
1305	3	9	1	2.3323	0.1103	9	0.039154543
1306	3	10	1	2.5248	0.0976	1	0.151540602
1307	3	10	1	2.5248	0.0976	2	0.13598553
1308	3	10	1	2.5248	0.0976	3	0.126011322
1309	3	10	1	2.5248	0.0976	4	0.119029269
1310	3	10	1	2.5248	0.0976	5	0.112683657
1311	3	10	1	2.5248	0.0976	6	0.104319742
1312	3	10	1	2.5248	0.0976	7	0.090852495
1313	3	10	1	2.5248	0.0976	8	0.070093967
1314	3	10	1	2.5248	0.0976	9	0.044118025
1315	3	10	1	2.5248	0.0976	10	0.019938664
1316	3	11	1	2.7051	0.0865	1	0.140960554

1317	3	11	1	2.7051	0.0865	2	0.131376639
1318	3	11	1	2.7051	0.0865	3	0.125356897
1319	3	11	1	2.7051	0.0865	4	0.120825851
1320	3	11	1	2.7051	0.0865	5	0.115542403
1321	3	11	1	2.7051	0.0865	6	0.106681899
1322	3	11	1	2.7051	0.0865	7	0.091188834
1323	3	11	1	2.7051	0.0865	8	0.068213099
1324	3	11	1	2.7051	0.0865	9	0.042447067
1325	3	11	1	2.7051	0.0865	10	0.021320526
1326	3	11	1	2.7051	0.0865	11	0.007507813
1327	3	12	1	2.8732	0.077	1	0.136783294
1328	3	12	1	2.8732	0.077	2	0.130708256
1329	3	12	1	2.8732	0.077	3	0.126851498
1330	3	12	1	2.8732	0.077	4	0.123270415
1331	3	12	1	2.8732	0.077	5	0.117550774
1332	3	12	1	2.8732	0.077	6	0.10660835
1333	3	12	1	2.8732	0.077	7	0.087862756
1334	3	12	1	2.8732	0.077	8	0.062734237
1335	3	12	1	2.8732	0.077	9	0.038247528
1336	3	12	1	2.8732	0.077	10	0.020651338
1337	3	12	1	2.8732	0.077	11	0.010138666
1338	3	12	1	2.8732	0.077	12	0.003838954
1339	3	13	1	3.0291	0.0691	1	0.136130212
1340	3	13	1	3.0291	0.0691	2	0.132112129
1341	3	13	1	3.0291	0.0691	3	0.129287473
1342	3	13	1	3.0291	0.0691	4	0.125612708
1343	3	13	1	3.0291	0.0691	5	0.11835686
1344	3	13	1	3.0291	0.0691	6	0.104321621
1345	3	13	1	3.0291	0.0691	7	0.082110635
1346	3	13	1	3.0291	0.0691	8	0.055908678
1347	3	13	1	3.0291	0.0691	9	0.033753256
1348	3	13	1	3.0291	0.0691	10	0.019571725
1349	3	13	1	3.0291	0.0691	11	0.011750569
1350	3	13	1	3.0291	0.0691	12	0.007349441
1351	3	13	1	3.0291	0.0691	13	0.004197841
1352	3	14	1	3.1728	0.0628	1	0.137388329
1353	3	14	1	3.1728	0.0628	2	0.134488244
1354	3	14	1	3.1728	0.0628	3	0.131899267
1355	3	14	1	3.1728	0.0628	4	0.127331177
1356	3	14	1	3.1728	0.0628	5	0.117718272
1357	3	14	1	3.1728	0.0628	6	0.10010705
1358	3	14	1	3.1728	0.0628	7	0.075019333
1359	3	14	1	3.1728	0.0628	8	0.049134656
1360	3	14	1	3.1728	0.0628	9	0.029884956
1361	3	14	1	3.1728	0.0628	10	0.01867491
1362	3	14	1	3.1728	0.0628	11	0.012913663
1363	3	14	1	3.1728	0.0628	12	0.009905671
1364	3	14	1	3.1728	0.0628	13	0.007872606
1365	3	14	1	3.1728	0.0628	14	0.0057166
1366	3	15	1	3.3043	0.0581	1	0.139611441
1367	3	15	1	3.3043	0.0581	2	0.137164998
1368	3	15	1	3.3043	0.0581	3	0.134201296
1369	3	15	1	3.3043	0.0581	4	0.128105052
1370	3	15	1	3.3043	0.0581	5	0.115578373
1371	3	15	1	3.3043	0.0581	6	0.094420157
1372	3	15	1	3.3043	0.0581	7	0.067536127
1373	3	15	1	3.3043	0.0581	8	0.043137461
1374	3	15	1	3.3043	0.0581	9	0.026864884
1375	3	15	1	3.3043	0.0581	10	0.018081418
1376	3	15	1	3.3043	0.0581	11	0.013855842
1377	3	15	1	3.3043	0.0581	12	0.011841029
1378	3	15	1	3.3043	0.0581	13	0.010592844
1379	3	15	1	3.3043	0.0581	14	0.009217693

1380	3	15	1	3.3043	0.0581	15	0.007098194
1381	3	16	1	3.4236	0.055	1	0.142235582
1382	3	16	1	3.4236	0.055	2	0.139733575
1383	3	16	1	3.4236	0.055	3	0.135905002
1384	3	16	1	3.4236	0.055	4	0.127791798
1385	3	16	1	3.4236	0.055	5	0.11207567
1386	3	16	1	3.4236	0.055	6	0.087837524
1387	3	16	1	3.4236	0.055	7	0.060371544
1388	3	16	1	3.4236	0.055	8	0.038166195
1389	3	16	1	3.4236	0.055	9	0.024615467
1390	3	16	1	3.4236	0.055	10	0.017742664
1391	3	16	1	3.4236	0.055	11	0.014649849
1392	3	16	1	3.4236	0.055	12	0.013337778
1393	3	16	1	3.4236	0.055	13	0.012625373
1394	3	16	1	3.4236	0.055	14	0.011782244
1395	3	16	1	3.4236	0.055	15	0.010280395
1396	3	16	1	3.4236	0.055	16	0.00768417
1397	3	17	1	3.5307	0.0535	1	0.144939447
1398	3	17	1	3.5307	0.0535	2	0.141966618
1399	3	17	1	3.5307	0.0535	3	0.13687617
1400	3	17	1	3.5307	0.0535	4	0.126406715
1401	3	17	1	3.5307	0.0535	5	0.107506238
1402	3	17	1	3.5307	0.0535	6	0.080945931
1403	3	17	1	3.5307	0.0535	7	0.053948356
1404	3	17	1	3.5307	0.0535	8	0.034193476
1405	3	17	1	3.5307	0.0535	9	0.022966252
1406	3	17	1	3.5307	0.0535	10	0.017567918
1407	3	17	1	3.5307	0.0535	11	0.015307763
1408	3	17	1	3.5307	0.0535	12	0.014490135
1409	3	17	1	3.5307	0.0535	13	0.014137422
1410	3	17	1	3.5307	0.0535	14	0.0136411
1411	3	17	1	3.5307	0.0535	15	0.012547529
1412	3	17	1	3.5307	0.0535	16	0.010455678
1413	3	17	1	3.5307	0.0535	17	0.007005855
1414	3	18	1	3.6256	0.0536	1	0.147574325
1415	3	18	1	3.6256	0.0536	2	0.143773937
1416	3	18	1	3.6256	0.0536	3	0.137107017
1417	3	18	1	3.6256	0.0536	4	0.124095291
1418	3	18	1	3.6256	0.0536	5	0.102258223
1419	3	18	1	3.6256	0.0536	6	0.074235258
1420	3	18	1	3.6256	0.0536	7	0.048437283
1421	3	18	1	3.6256	0.0536	8	0.031067913
1422	3	18	1	3.6256	0.0536	9	0.021742762
1423	3	18	1	3.6256	0.0536	10	0.017469137
1424	3	18	1	3.6256	0.0536	11	0.015819653
1425	3	18	1	3.6256	0.0536	12	0.01534749
1426	3	18	1	3.6256	0.0536	13	0.015228577
1427	3	18	1	3.6256	0.0536	14	0.014944581
1428	3	18	1	3.6256	0.0536	15	0.014096889
1429	3	18	1	3.6256	0.0536	16	0.012314803
1430	3	18	1	3.6256	0.0536	17	0.009240509
1431	3	18	1	3.6256	0.0536	18	0.004598602
1432	3	19	1	3.7083	0.0553	1	0.150135923
1433	3	19	1	3.7083	0.0553	2	0.14518291
1434	3	19	1	3.7083	0.0553	3	0.136697666
1435	3	19	1	3.7083	0.0553	4	0.121099378
1436	3	19	1	3.7083	0.0553	5	0.096737755
1437	3	19	1	3.7083	0.0553	6	0.068044527
1438	3	19	1	3.7083	0.0553	7	0.04383564
1439	3	19	1	3.7083	0.0553	8	0.02860617
1440	3	19	1	3.7083	0.0553	9	0.020796557
1441	3	19	1	3.7083	0.0553	10	0.017374382
1442	3	19	1	3.7083	0.0553	11	0.016169145

1443	3	19	1	3.7083	0.0553	12	0.015932661
1444	3	19	1	3.7083	0.0553	13	0.015955209
1445	3	19	1	3.7083	0.0553	14	0.015781536
1446	3	19	1	3.7083	0.0553	15	0.01505061
1447	3	19	1	3.7083	0.0553	16	0.013413474
1448	3	19	1	3.7083	0.0553	17	0.010518758
1449	3	19	1	3.7083	0.0553	18	0.006071729
1450	3	19	1	3.7083	0.0553	19	-3.57732E-06
1451	3	20	1	3.7788	0.0586	1	0.152763018
1452	3	20	1	3.7788	0.0586	2	0.146334193
1453	3	20	1	3.7788	0.0586	3	0.135841653
1454	3	20	1	3.7788	0.0586	4	0.117721762
1455	3	20	1	3.7788	0.0586	5	0.091314189
1456	3	20	1	3.7788	0.0586	6	0.062563518
1457	3	20	1	3.7788	0.0586	7	0.040049478
1458	3	20	1	3.7788	0.0586	8	0.026637258
1459	3	20	1	3.7788	0.0586	9	0.020011945
1460	3	20	1	3.7788	0.0586	10	0.017227015
1461	3	20	1	3.7788	0.0586	11	0.016339328
1462	3	20	1	3.7788	0.0586	12	0.016253431
1463	3	20	1	3.7788	0.0586	13	0.016342549
1464	3	20	1	3.7788	0.0586	14	0.016194646
1465	3	20	1	3.7788	0.0586	15	0.015469624
1466	3	20	1	3.7788	0.0586	16	0.013829536
1467	3	20	1	3.7788	0.0586	17	0.010927036
1468	3	20	1	3.7788	0.0586	18	0.006467391
1469	3	20	1	3.7788	0.0586	19	0.000369268
1470	3	20	1	3.7788	0.0586	20	-0.006990462
1471	3	1	2	0.3531	0.2695	1	0.490008433
1472	3	2	2	0.6432	0.244	1	0.551574833
1473	3	2	2	0.6432	0.244	2	0.467463524
1474	3	3	2	0.9211	0.2201	1	0.558961137
1475	3	3	2	0.9211	0.2201	2	0.513376339
1476	3	3	2	0.9211	0.2201	3	0.289459967
1477	3	4	2	1.1868	0.1978	1	0.548792856
1478	3	4	2	1.1868	0.1978	2	0.489801208
1479	3	4	2	1.1868	0.1978	3	0.31365248
1480	3	4	2	1.1868	0.1978	4	0.095328245
1481	3	5	2	1.4403	0.1771	1	0.500777722
1482	3	5	2	1.4403	0.1771	2	0.404038
1483	3	5	2	1.4403	0.1771	3	0.262977503
1484	3	5	2	1.4403	0.1771	4	0.130749326
1485	3	5	2	1.4403	0.1771	5	0.044115341
1486	3	6	2	1.6816	0.158	1	0.39273991
1487	3	6	2	1.6816	0.158	2	0.291656504
1488	3	6	2	1.6816	0.158	3	0.201672819
1489	3	6	2	1.6816	0.158	4	0.132143267
1490	3	6	2	1.6816	0.158	5	0.080025763
1491	3	6	2	1.6816	0.158	6	0.040310657
1492	3	7	2	1.9107	0.1405	1	0.278426278
1493	3	7	2	1.9107	0.1405	2	0.209803739
1494	3	7	2	1.9107	0.1405	3	0.16029803
1495	3	7	2	1.9107	0.1405	4	0.124610133
1496	3	7	2	1.9107	0.1405	5	0.096824457
1497	3	7	2	1.9107	0.1405	6	0.072326474
1498	3	7	2	1.9107	0.1405	7	0.048175029
1499	3	8	2	2.1276	0.1246	1	0.204679469
1500	3	8	2	2.1276	0.1246	2	0.164812702
1501	3	8	2	2.1276	0.1246	3	0.137976452
1502	3	8	2	2.1276	0.1246	4	0.119147377
1503	3	8	2	2.1276	0.1246	5	0.104363227
1504	3	8	2	2.1276	0.1246	6	0.090361542
1505	3	8	2	2.1276	0.1246	7	0.07421271

1506	3	8	2	2.1276	0.1246	8	0.053603696
1507	3	9	2	2.3323	0.1103	1	0.165513834
1508	3	9	2	2.3323	0.1103	2	0.142548568
1509	3	9	2	2.3323	0.1103	3	0.127583498
1510	3	9	2	2.3323	0.1103	4	0.117296305
1511	3	9	2	2.3323	0.1103	5	0.109030903
1512	3	9	2	2.3323	0.1103	6	0.100235358
1513	3	9	2	2.3323	0.1103	7	0.088073202
1514	3	9	2	2.3323	0.1103	8	0.069799503
1515	3	9	2	2.3323	0.1103	9	0.045011887
1516	3	10	2	2.5248	0.0976	1	0.146094219
1517	3	10	2	2.5248	0.0976	2	0.132520406
1518	3	10	2	2.5248	0.0976	3	0.123968056
1519	3	10	2	2.5248	0.0976	4	0.11813326
1520	3	10	2	2.5248	0.0976	5	0.112910746
1521	3	10	2	2.5248	0.0976	6	0.10588306
1522	3	10	2	2.5248	0.0976	7	0.094090797
1523	3	10	2	2.5248	0.0976	8	0.075008327
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1525	3	10	2	2.5248	0.0976	10	0.024646604
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1527	3	11	2	2.7051	0.0865	2	0.129048841
1528	3	11	2	2.7051	0.0865	3	0.124084017
1529	3	11	2	2.7051	0.0865	4	0.120501322
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1532	3	11	2	2.7051	0.0865	7	0.095043713
1533	3	11	2	2.7051	0.0865	8	0.073427024
1534	3	11	2	2.7051	0.0865	9	0.047620728
1535	3	11	2	2.7051	0.0865	10	0.025222648
1536	3	11	2	2.7051	0.0865	11	0.010133834
1537	3	12	2	2.8732	0.077	1	0.134126942
1538	3	12	2	2.8732	0.077	2	0.129114606
1539	3	12	2	2.8732	0.077	3	0.126135872
1540	3	12	2	2.8732	0.077	4	0.123455629
1541	3	12	2	2.8732	0.077	5	0.118881903
1542	3	12	2	2.8732	0.077	6	0.109483471
1543	3	12	2	2.8732	0.077	7	0.092417155
1544	3	12	2	2.8732	0.077	8	0.068106534
1545	3	12	2	2.8732	0.077	9	0.042862861
1546	3	12	2	2.8732	0.077	10	0.023786027
1547	3	12	2	2.8732	0.077	11	0.012154552
1548	3	12	2	2.8732	0.077	12	0.005321476
1549	3	13	2	3.0291	0.0691	1	0.134156469
1550	3	13	2	3.0291	0.0691	2	0.131027147
1551	3	13	2	3.0291	0.0691	3	0.129017972
1552	3	13	2	3.0291	0.0691	4	0.126293707
1553	3	13	2	3.0291	0.0691	5	0.120338387
1554	3	13	2	3.0291	0.0691	6	0.107987259
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1562	3	14	2	3.1728	0.0628	1	0.135873596
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1564	3	14	2	3.1728	0.0628	3	0.132023548
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1567	3	14	2	3.1728	0.0628	6	0.104523747
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1573	3	14	2	3.1728	0.0628	12	0.010775374
1574	3	14	2	3.1728	0.0628	13	0.008693724
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1576	3	15	2	3.3043	0.0581	1	0.138416941
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1579	3	15	2	3.3043	0.0581	4	0.129826742
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1581	3	15	2	3.3043	0.0581	6	0.099459067
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1584	3	15	2	3.3043	0.0581	9	0.029631561
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1591	3	16	2	3.4236	0.055	1	0.14126844
1592	3	16	2	3.4236	0.055	2	0.139592919
1593	3	16	2	3.4236	0.055	3	0.136769873
1594	3	16	2	3.4236	0.055	4	0.130059468
1595	3	16	2	3.4236	0.055	5	0.116125158
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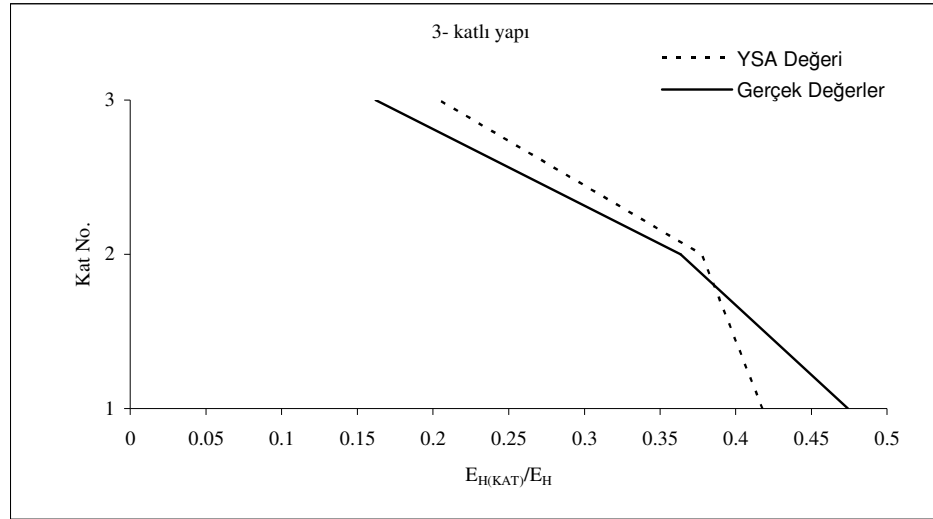
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1887	3	20	3	3.7788	0.0586	17	0.013218059
1888	3	20	3	3.7788	0.0586	18	0.00951162
1889	3	20	3	3.7788	0.0586	19	0.00415355
1890	3	20	3	3.7788	0.0586	20	-0.002743411

EK-11 2.YSA Modeli 3-, 9- ve 20- Katlı Yapıların Gerçek ve Hesaplanmış Kat Histeretik Enerji Oranları Karşılaştırılması.

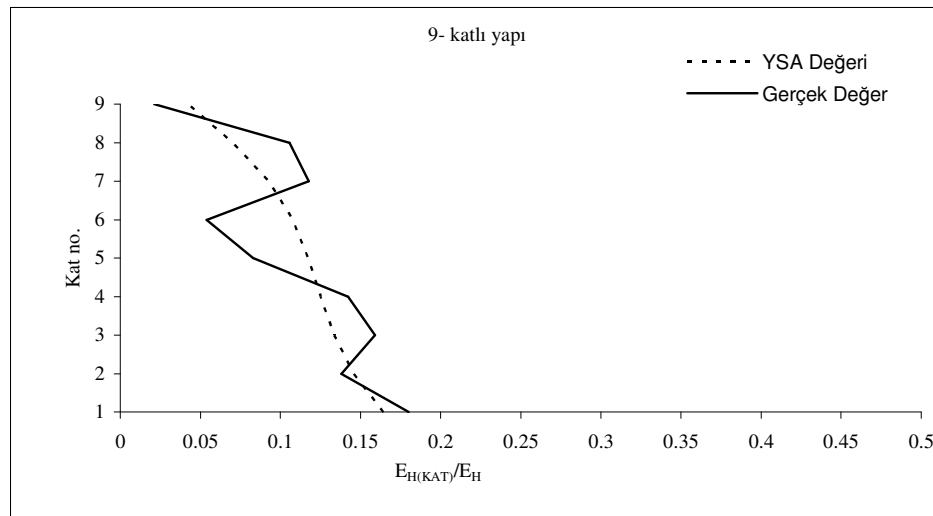
3- katlı yapı için Gerçek ve Hesaplanmış kat histeretik enerji oranları karşılaştırılması.

Veri No.	X1 EQ	X2 Kat Sayısı	X3 Zemin Tipi	X4 Period	X5 η	X6 Kat No.	$E_{H(KAT)}/E_H$ NN Output	Hesaplanan Output	Gerçek $E_{H(KAT)}/E_H$
4	1	3	1	0.921	0.2201	1	0.556777752	0.417816359	0.474212238
5	1	3	1	0.921	0.2201	2	0.503247518	0.377646278	0.363696742
6	1	3	1	0.921	0.2201	3	0.272564371	0.204537363	0.16209102



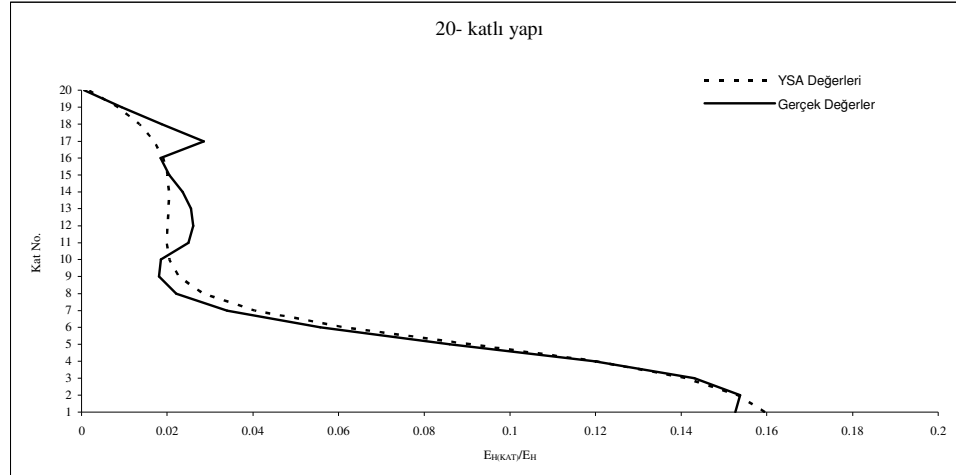
9- katlı yapı için Gerçek ve Hesaplanmış kat histeretik enerji oranları karşılaştırılması.

Veri No.	X1 EQ	X2 Kat Sayısı	X3 Zemin Tipi	X4 Period	X5 η	X6 Kat No.	$E_{H(KAT)}/E_H$ NN Output	Hesaplanan Output	Gerçek $E_{H(KAT)}/E_H$
37	1	9	1	2.3323	0.1103	1	0.162241709	0.164352051	0.179867235
38	1	9	1	2.3323	0.1103	2	0.143917814	0.145789809	0.138016009
39	1	9	1	2.3323	0.1103	3	0.131984895	0.133701674	0.159030377
40	1	9	1	2.3323	0.1103	4	0.123518441	0.125125094	0.142292657
41	1	9	1	2.3323	0.1103	5	0.115919006	0.11742681	0.082807272
42	1	9	1	2.3323	0.1103	6	0.106364082	0.107747601	0.053737401
43	1	9	1	2.3323	0.1103	7	0.091656433	0.092848644	0.117636263
44	1	9	1	2.3323	0.1103	8	0.069523291	0.070427608	0.105497605
45	1	9	1	2.3323	0.1103	9	0.042033958	0.04258071	0.021115181



20- katlı yapı için Gerçek ve Hesaplanmış kat histeretik enerji oranları karşılaştırılması.

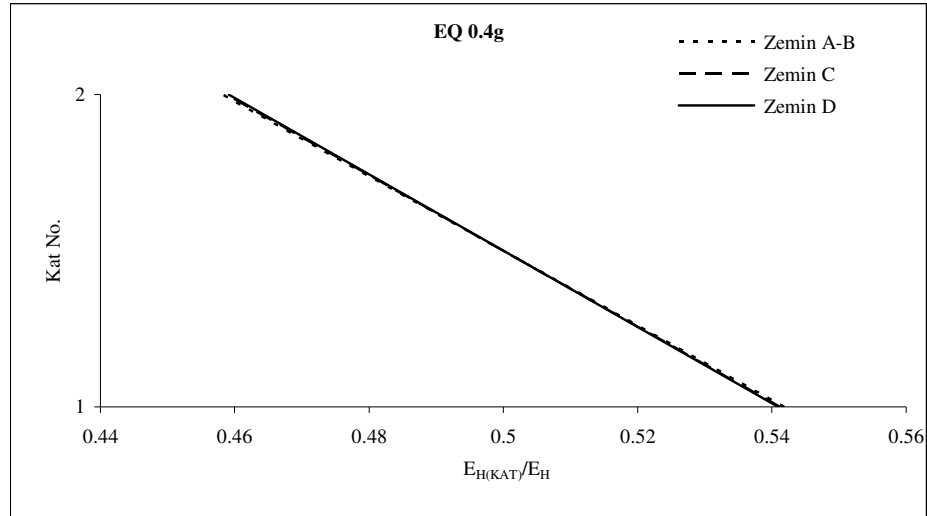
Veri No.	X1 EQ	X2 Kat Sayısı	X3 Zemin Tipi	X4 Period	X5 η	X6 Kat No.	$E_{H(KAT)}/E_H$ NN Output	Hesaplanmış Output	Gerçek $E_{H(KAT)}/E_H$
191	1	20	1	3.7788	0.0586	1	0.160214012	0.165542254	0.152686946
192	1	20	1	3.7788	0.0586	2	0.15250667	0.157578588	0.153809767
193	1	20	1	3.7788	0.0586	3	0.138517869	0.143124562	0.143110531
194	1	20	1	3.7788	0.0586	4	0.115344304	0.119180313	0.119688057
195	1	20	1	3.7788	0.0586	5	0.08522734	0.088061748	0.085888611
196	1	20	1	3.7788	0.0586	6	0.056896757	0.058788974	0.055715066
197	1	20	1	3.7788	0.0586	7	0.037445468	0.038690793	0.033946178
198	1	20	1	3.7788	0.0586	8	0.026858174	0.027751397	0.022097111
199	1	20	1	3.7788	0.0586	9	0.021963409	0.022693846	0.018070505
200	1	20	1	3.7788	0.0586	10	0.020094083	0.020762353	0.01857043
201	1	20	1	3.7788	0.0586	11	0.019671579	0.020325798	0.024996275
202	1	20	1	3.7788	0.0586	12	0.019836125	0.020495816	0.026075194
203	1	20	1	3.7788	0.0586	13	0.020099989	0.020768455	0.02555425
204	1	20	1	3.7788	0.0586	14	0.020139984	0.02080978	0.023619529
205	1	20	1	3.7788	0.0586	15	0.019681511	0.02033606	0.020438057
206	1	20	1	3.7788	0.0586	16	0.018437084	0.019050247	0.018438588
207	1	20	1	3.7788	0.0586	17	0.016083248	0.016618129	0.028549249
208	1	20	1	3.7788	0.0586	18	0.012286081	0.01269468	0.018713181
209	1	20	1	3.7788	0.0586	19	0.006806145	0.007032498	0.009381569
210	1	20	1	3.7788	0.0586	20	-0.00029643	-0.00030629	0.000650906
401	1	20	2	3.7788	0.0586	1	0.160192538	0.159567241	0.152686946
402	1	20	2	3.7788	0.0586	2	0.153901685	0.153300944	0.153809767
403	1	20	2	3.7788	0.0586	3	0.141779256	0.141225834	0.143110531
404	1	20	2	3.7788	0.0586	4	0.120563597	0.120092989	0.119688057
405	1	20	2	3.7788	0.0586	5	0.09127312	0.090916844	0.085888611
406	1	20	2	3.7788	0.0586	6	0.061895135	0.061653533	0.055715066
407	1	20	2	3.7788	0.0586	7	0.040615054	0.040456516	0.033946178
408	1	20	2	3.7788	0.0586	8	0.02860778	0.028496112	0.022097111
409	1	20	2	3.7788	0.0586	9	0.022897803	0.022808423	0.018070505
410	1	20	2	3.7788	0.0586	10	0.020618858	0.020538374	0.01857043
411	1	20	2	3.7788	0.0586	11	0.020012213	0.019934097	0.024996275
412	1	20	2	3.7788	0.0586	12	0.020116631	0.020038108	0.026075194
413	1	20	2	3.7788	0.0586	13	0.020397674	0.020318054	0.02555425
414	1	20	2	3.7788	0.0586	14	0.020514708	0.020434631	0.023619529
415	1	20	2	3.7788	0.0586	15	0.020194207	0.02011538	0.020438057
416	1	20	2	3.7788	0.0586	16	0.019158347	0.019083564	0.018438588
417	1	20	2	3.7788	0.0586	17	0.017094144	0.017027419	0.028549249
418	1	20	2	3.7788	0.0586	18	0.013664722	0.013611383	0.018713181
419	1	20	2	3.7788	0.0586	19	0.008590648	0.008557115	0.009381569
420	1	20	2	3.7788	0.0586	20	0.001830584	0.001823438	0.000650906

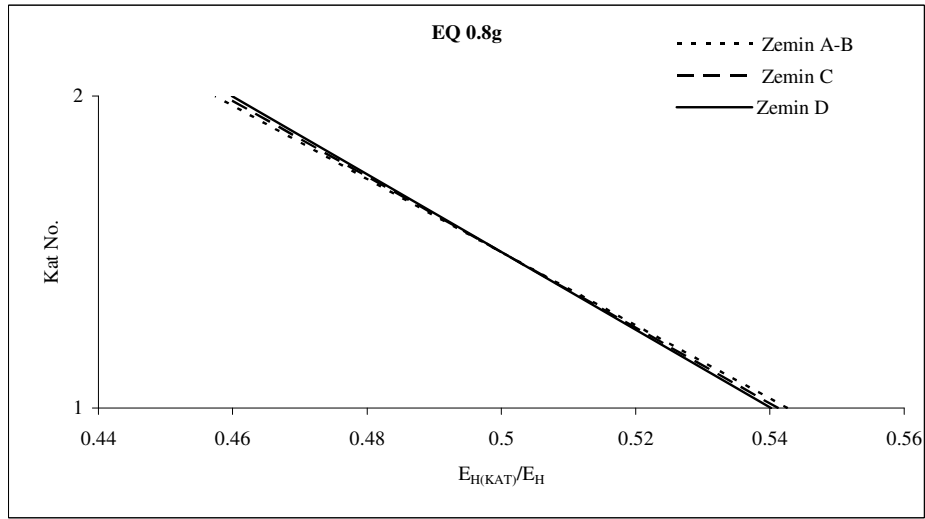
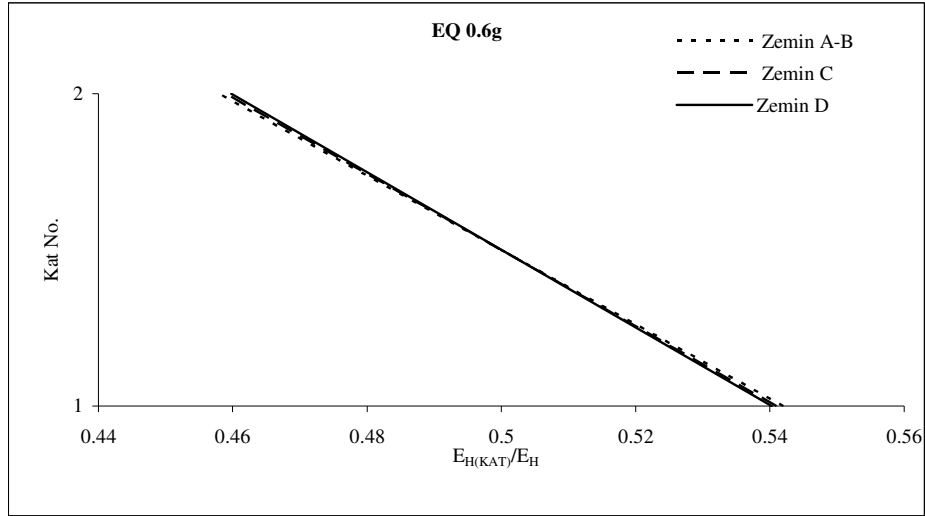


EK 12. 2. YSA Modeli Katlara Göre Düzenlenmiş $E_{H(KAT)}/E_H$ Tabloları ve Grafikleri.

2 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat Sayısı	Zemin Tipi	Period (sec)	η	Kat No.	$E_{H(KAT)}/E_H$ NN Output	Ölçeklendirilmiş Output
2	1	2	1	0.6432	0.244	1	0.55250359	0.541813415
3	1	2	1	0.6432	0.244	2	0.467226772	0.458186585
212	1	2	2	0.6432	0.244	1	0.553107819	0.541208543
213	1	2	2	0.6432	0.244	2	0.468878671	0.458791457
422	1	2	3	0.6432	0.244	1	0.553440132	0.540928604
423	1	2	3	0.6432	0.244	2	0.469689589	0.459071396
632	2	2	1	0.6432	0.244	1	0.551603555	0.541981541
633	2	2	1	0.6432	0.244	2	0.466149843	0.458018459
842	2	2	2	0.6432	0.244	1	0.552594319	0.540962979
843	2	2	2	0.6432	0.244	2	0.468906856	0.459037021
1052	2	2	3	0.6432	0.244	1	0.55329196	0.540233426
1053	2	2	3	0.6432	0.244	2	0.470880062	0.459766574
1262	3	2	1	0.6432	0.244	1	0.550157002	0.542647776
1263	3	2	1	0.6432	0.244	2	0.463681121	0.457352224
1472	3	2	2	0.6432	0.244	1	0.551574833	0.541269942
1473	3	2	2	0.6432	0.244	2	0.467463524	0.458730058
1682	3	2	3	0.6432	0.244	1	0.552661962	0.540140393
1683	3	2	3	0.6432	0.244	2	0.470520102	0.459859607

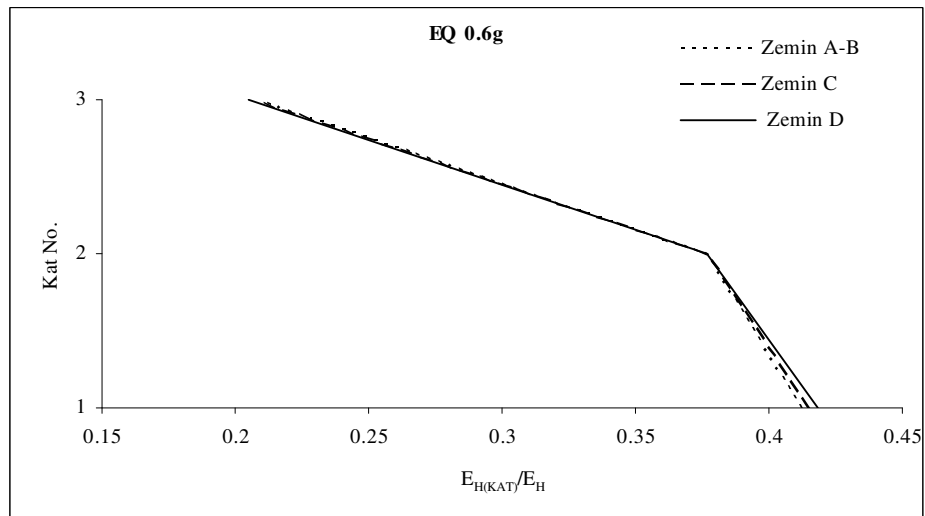
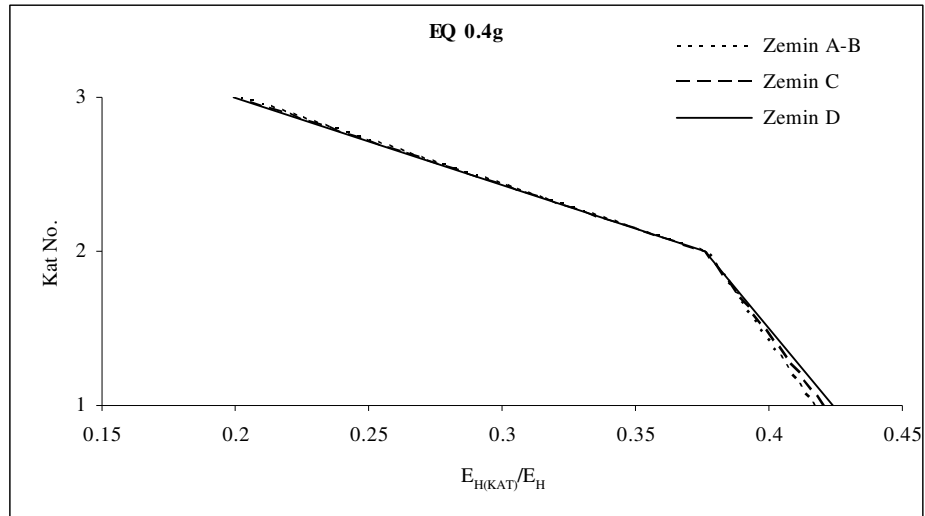


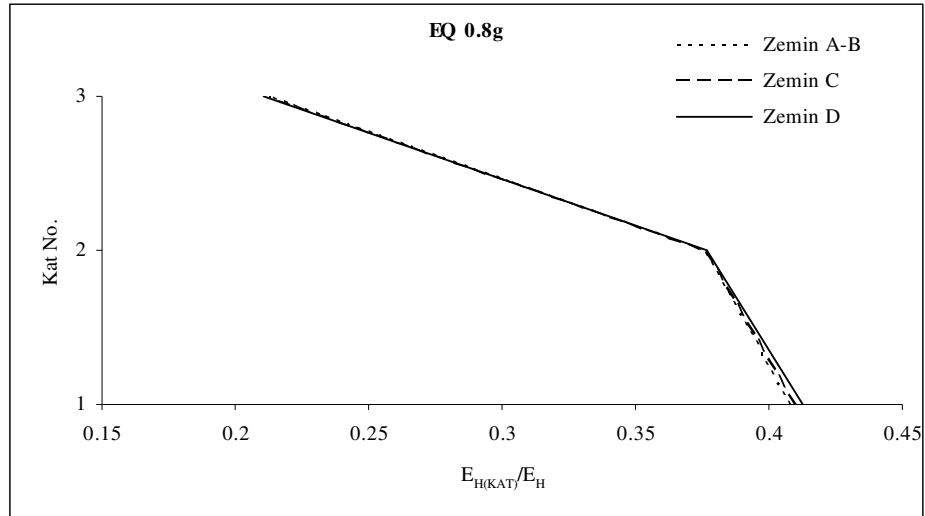


3 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat sayısı	Zemin Tipi	Period (sec)	(η)	Kat no.	$E_{H(KAT)}/E_H$	Ölçeklendirilmiş Output
							NN Output	
4	1	3	1	0.9211	0.2201	1	0.556777752	0.417816359
5	1	3	1	0.9211	0.2201	2	0.503247518	0.377646278
6	1	3	1	0.9211	0.2201	3	0.272564371	0.204537363
214	1	3	2	0.9211	0.2201	1	0.555299794	0.42079936
215	1	3	2	0.9211	0.2201	2	0.497554988	0.377041056
216	1	3	2	0.9211	0.2201	3	0.266776012	0.202159584
424	1	3	3	0.9211	0.2201	1	0.553403894	0.424231593
425	1	3	3	0.9211	0.2201	2	0.490697485	0.376161747
426	1	3	3	0.9211	0.2201	3	0.260383962	0.19960666
634	2	3	1	0.9211	0.2201	1	0.558458642	0.412879351
635	2	3	1	0.9211	0.2201	2	0.510680796	0.37755626
636	2	3	1	0.9211	0.2201	3	0.283455793	0.209564389
844	2	3	2	0.9211	0.2201	1	0.557448014	0.41528694
845	2	3	2	0.9211	0.2201	2	0.506464883	0.37730559
846	2	3	2	0.9211	0.2201	3	0.278407219	0.20740747
1054	2	3	3	0.9211	0.2201	1	0.556127622	0.418133519
1055	2	3	3	0.9211	0.2201	2	0.501226263	0.376855047
1056	2	3	3	0.9211	0.2201	3	0.272670131	0.205011434

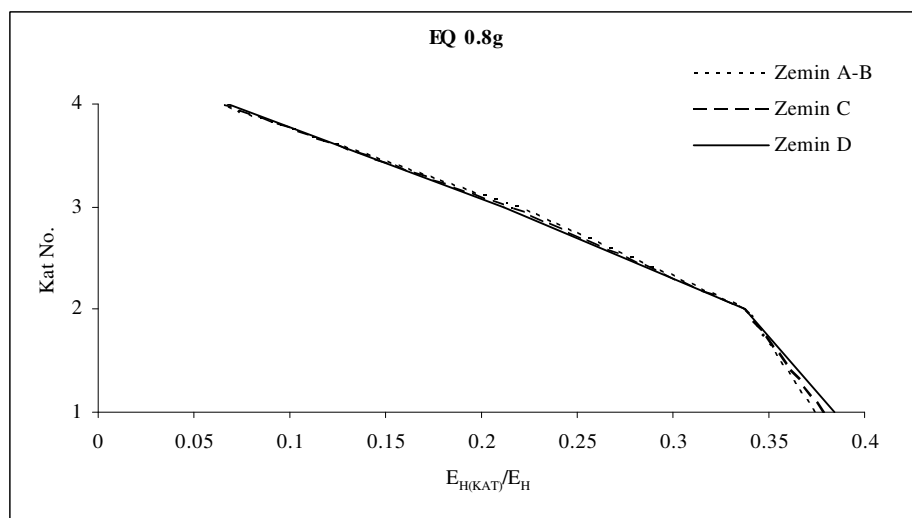
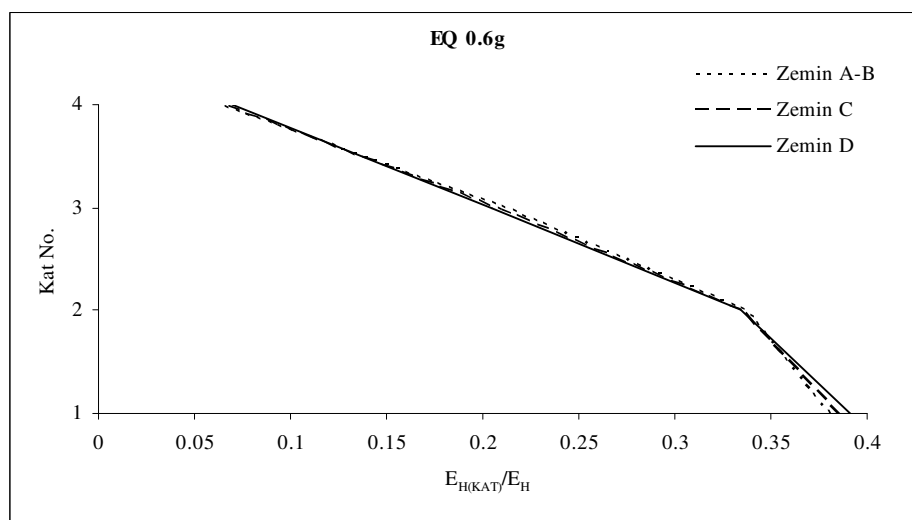
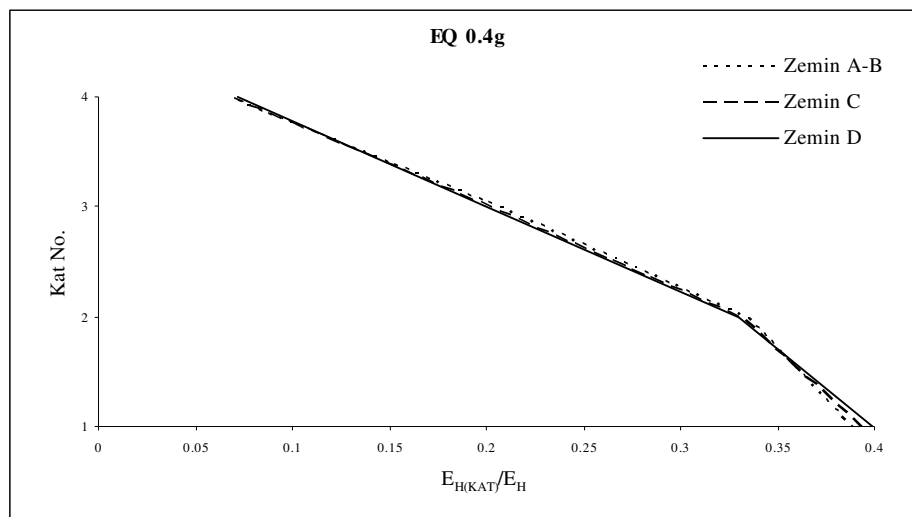
1264	3	3	1	0.9211	0.2201	1	0.559620125	0.408612892
1265	3	3	1	0.9211	0.2201	2	0.516301924	0.376983624
1266	3	3	1	0.9211	0.2201	3	0.293638568	0.214403484
1474	3	3	2	0.9211	0.2201	1	0.558961137	0.410458354
1475	3	3	2	0.9211	0.2201	2	0.513376339	0.376984361
1476	3	3	2	0.9211	0.2201	3	0.289459967	0.212557285
1684	3	3	3	0.9211	0.2201	1	0.558068886	0.41272151
1685	3	3	3	0.9211	0.2201	2	0.509563335	0.376849085
1686	3	3	3	0.9211	0.2201	3	0.284535943	0.210429406





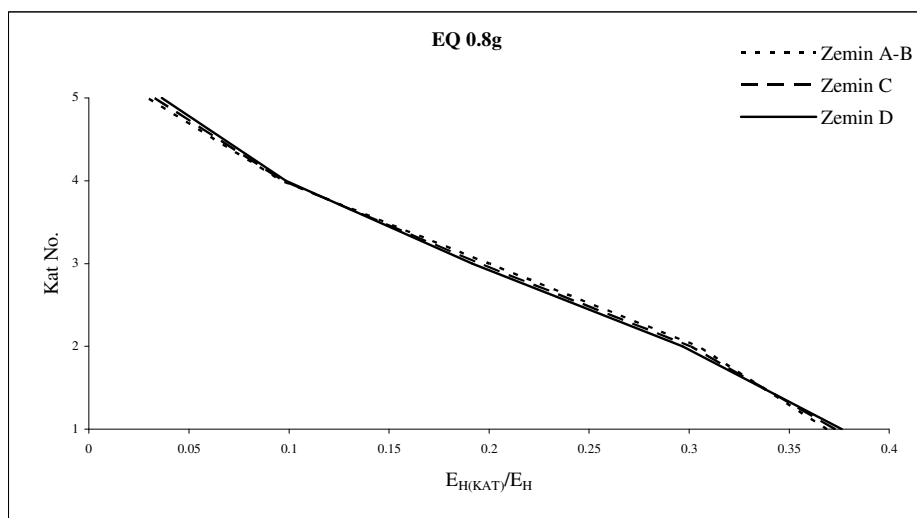
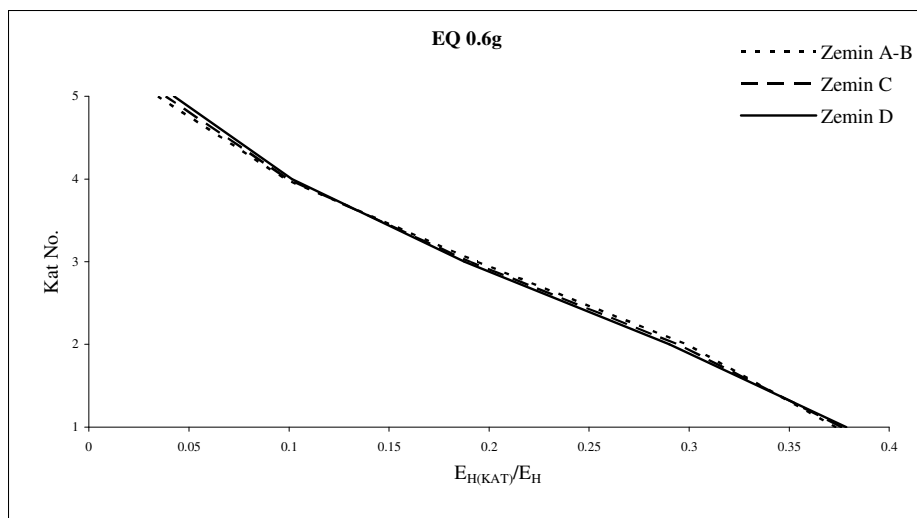
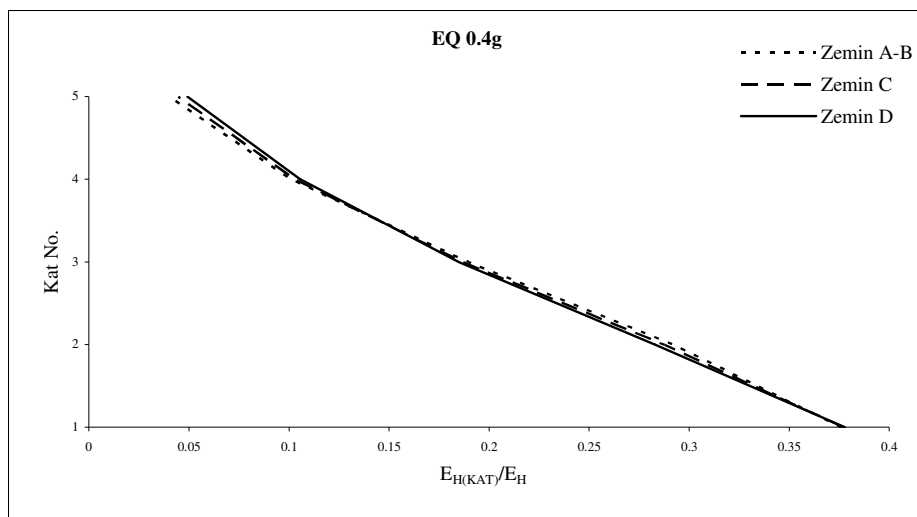
4 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat Sayısı	Zemin Tipi	Period (sec)	(η)	Kat No.	$E_{H(KAT)}/E_H$ NN Output	Ölçeklendirilmiş Output
7	1	4	1	1.1868	0.1978	1	0.539773443	0.388962083
8	1	4	1	1.1868	0.1978	2	0.465958991	0.335771206
9	1	4	1	1.1868	0.1978	3	0.287905238	0.207465229
10	1	4	1	1.1868	0.1978	4	0.094089992	0.067801482
217	1	4	2	1.1868	0.1978	1	0.533201815	0.39392305
218	1	4	2	1.1868	0.1978	2	0.451113909	0.333277497
219	1	4	2	1.1868	0.1978	3	0.274874721	0.203074118
220	1	4	2	1.1868	0.1978	4	0.094378014	0.069725335
427	1	4	3	1.1868	0.1978	1	0.525138002	0.398943235
428	1	4	3	1.1868	0.1978	2	0.434753824	0.330279082
429	1	4	3	1.1868	0.1978	3	0.261871584	0.198941795
430	1	4	3	1.1868	0.1978	4	0.094559202	0.071835887
637	2	4	1	1.1868	0.1978	1	0.546995738	0.381738514
638	2	4	1	1.1868	0.1978	2	0.484551851	0.338160045
639	2	4	1	1.1868	0.1978	3	0.307012135	0.214258262
640	2	4	1	1.1868	0.1978	4	0.094347145	0.06584318
847	2	4	2	1.1868	0.1978	1	0.542157343	0.386553408
848	2	4	2	1.1868	0.1978	2	0.471886395	0.336450841
849	2	4	2	1.1868	0.1978	3	0.293931959	0.209570897
850	2	4	2	1.1868	0.1978	4	0.094566181	0.067424854
1057	2	4	3	1.1868	0.1978	1	0.536119616	0.3916002
1058	2	4	3	1.1868	0.1978	2	0.457585682	0.334236314
1059	2	4	3	1.1868	0.1978	3	0.280652879	0.204998512
1060	2	4	3	1.1868	0.1978	4	0.094690195	0.069164974
1267	3	4	1	1.1868	0.1978	1	0.552277038	0.374643019
1268	3	4	1	1.1868	0.1978	2	0.500236573	0.339340815
1269	3	4	1	1.1868	0.1978	3	0.326428796	0.221436456
1270	3	4	1	1.1868	0.1978	4	0.095199669	0.064579711
1477	3	4	2	1.1868	0.1978	1	0.548792856	0.379111919
1478	3	4	2	1.1868	0.1978	2	0.489801208	0.338359863
1479	3	4	2	1.1868	0.1978	3	0.31365248	0.216674456
1480	3	4	2	1.1868	0.1978	4	0.095328245	0.065853762
1687	3	4	3	1.1868	0.1978	1	0.544388239	0.383925718
1688	3	4	3	1.1868	0.1978	2	0.477752597	0.336931431
1689	3	4	3	1.1868	0.1978	3	0.300432186	0.211877543
1690	3	4	3	1.1868	0.1978	4	0.095378978	0.067265308



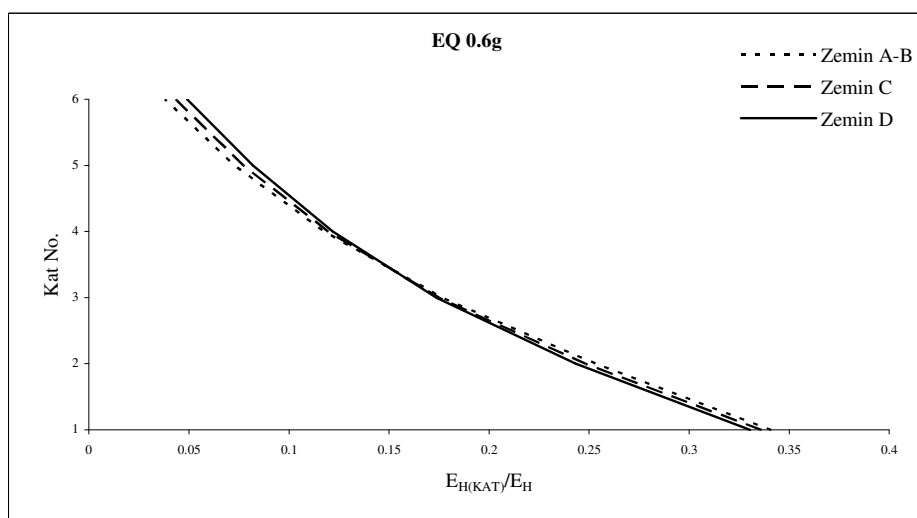
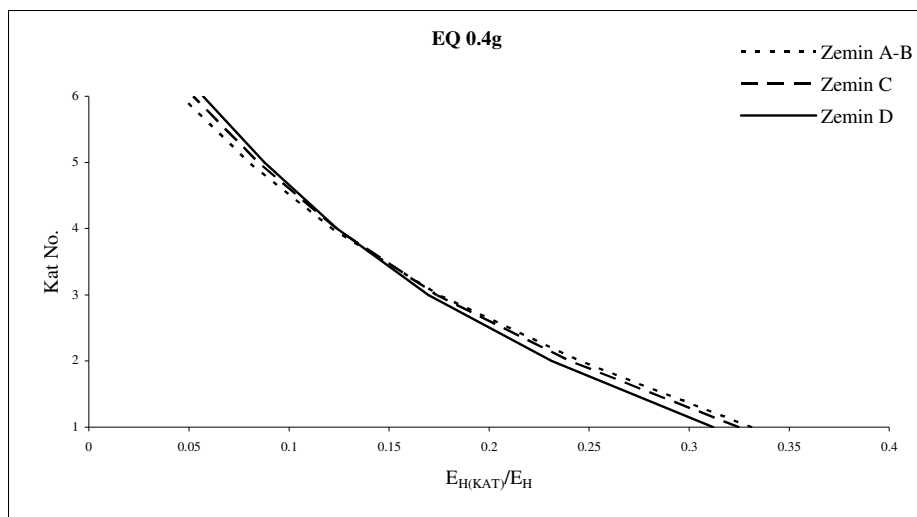
5 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

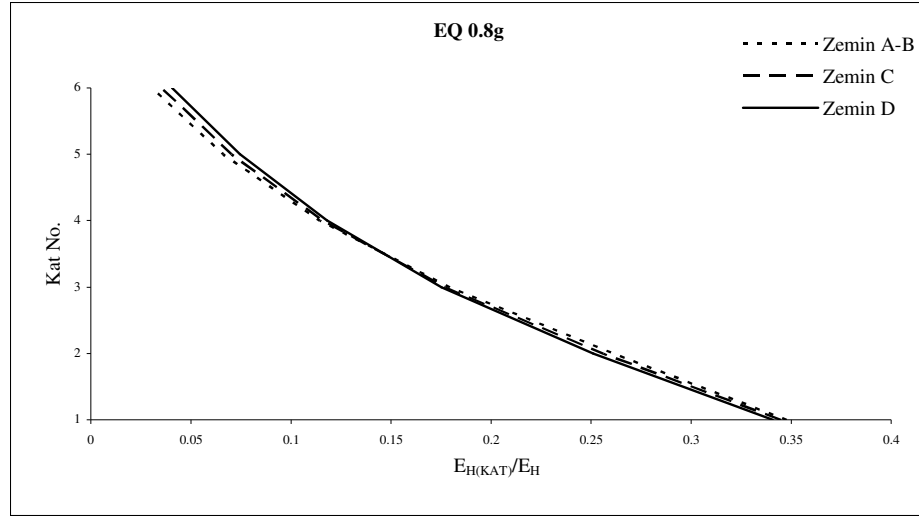
Veri No.	EQ	Kat sayısı	Zemin Period		(η)	Kat No.	$E_{H(KAT)}/E_H$	
			Tipi	(sec)			NN Output	Ölçeklendirilmiş Output
11	1	5	1	1.4403	0.1771	1	0.47385987	0.376006974
12	1	5	1	1.4403	0.1771	2	0.368560818	0.292452362
13	1	5	1	1.4403	0.1771	3	0.239465183	0.190015202
14	1	5	1	1.4403	0.1771	4	0.127414658	0.101103307
15	1	5	1	1.4403	0.1771	5	0.050941706	0.040422154
221	1	5	2	1.4403	0.1771	1	0.455871776	0.377384118
222	1	5	2	1.4403	0.1771	2	0.347555338	0.287716572
223	1	5	2	1.4403	0.1771	3	0.226032563	0.18711643
224	1	5	2	1.4403	0.1771	4	0.12452021	0.103081507
225	1	5	2	1.4403	0.1771	5	0.053998283	0.044701373
431	1	5	3	1.4403	0.1771	1	0.436167629	0.377654995
432	1	5	3	1.4403	0.1771	2	0.326719503	0.282889522
433	1	5	3	1.4403	0.1771	3	0.213422134	0.18479119
434	1	5	3	1.4403	0.1771	4	0.121734476	0.105403587
435	1	5	3	1.4403	0.1771	5	0.056892999	0.049260706
641	2	5	1	1.4403	0.1771	1	0.495399251	0.373556285
642	2	5	1	1.4403	0.1771	2	0.396545131	0.299015239
643	2	5	1	1.4403	0.1771	3	0.258021537	0.194561389
644	2	5	1	1.4403	0.1771	4	0.130378628	0.098312131
645	2	5	1	1.4403	0.1771	5	0.045825757	0.034554956
851	2	5	2	1.4403	0.1771	1	0.480008457	0.376450647
852	2	5	2	1.4403	0.1771	2	0.375675474	0.294626633
853	2	5	2	1.4403	0.1771	3	0.243323283	0.19082832
854	2	5	2	1.4403	0.1771	4	0.127165021	0.099730231
855	2	5	2	1.4403	0.1771	5	0.048917767	0.038364168
1061	2	5	3	1.4403	0.1771	1	0.462601776	0.378443816
1062	2	5	3	1.4403	0.1771	2	0.354463841	0.289978672
1063	2	5	3	1.4403	0.1771	3	0.229381726	0.187651886
1064	2	5	3	1.4403	0.1771	4	0.124059053	0.101489843
1065	2	5	3	1.4403	0.1771	5	0.05187261	0.042435783
1271	3	5	1	1.4403	0.1771	1	0.513358892	0.368935201
1272	3	5	1	1.4403	0.1771	2	0.423998226	0.304714447
1273	3	5	1	1.4403	0.1771	3	0.278794559	0.200361051
1274	3	5	1	1.4403	0.1771	4	0.134292829	0.096512114
1275	3	5	1	1.4403	0.1771	5	0.041016352	0.029477187
1481	3	5	2	1.4403	0.1771	1	0.500777722	0.372974922
1482	3	5	2	1.4403	0.1771	2	0.404038	0.300924012
1483	3	5	2	1.4403	0.1771	3	0.262977503	0.195863373
1484	3	5	2	1.4403	0.1771	4	0.130749326	0.097380968
1485	3	5	2	1.4403	0.1771	5	0.044115341	0.032856725
1691	3	5	3	1.4403	0.1771	1	0.486106311	0.376388854
1692	3	5	3	1.4403	0.1771	2	0.383197333	0.296707123
1693	3	5	3	1.4403	0.1771	3	0.247782391	0.191856243
1694	3	5	3	1.4403	0.1771	4	0.127307287	0.098573178
1695	3	5	3	1.4403	0.1771	5	0.047106959	0.036474602



6 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	X1	X2	X3	X4	X5	X6	Y1	
			zemin	Period			$E_{H(KAT)}/E_H$	
EQ	Kat sayısı	Tipi	(sec)	(η)	Kat No.	NN Output	Ölçeklendirilmiş Output	
16	1	6	1	1.6816	0.158	1	0.355952269	0.33145253
17	1	6	1	1.6816	0.158	2	0.263769094	0.245614205
18	1	6	1	1.6816	0.158	3	0.188030826	0.175088906
19	1	6	1	1.6816	0.158	4	0.130508815	0.121526061
20	1	6	1	1.6816	0.158	5	0.08600712	0.080087361
21	1	6	1	1.6816	0.158	6	0.049648156	0.046230937
226	1	6	2	1.6816	0.158	1	0.333679545	0.325073217
227	1	6	2	1.6816	0.158	2	0.246878598	0.240511058
228	1	6	2	1.6816	0.158	3	0.178394031	0.173792858
229	1	6	2	1.6816	0.158	4	0.127046645	0.123769833
230	1	6	2	1.6816	0.158	5	0.087014527	0.084770231
231	1	6	2	1.6816	0.158	6	0.053461698	0.052082803
436	1	6	3	1.6816	0.158	1	0.312048629	0.312048629
437	1	6	3	1.6816	0.158	2	0.231251588	0.231251588
438	1	6	3	1.6816	0.158	3	0.169614055	0.169614055
439	1	6	3	1.6816	0.158	4	0.123847264	0.123847264
440	1	6	3	1.6816	0.158	5	0.087897383	0.087897383
441	1	6	3	1.6816	0.158	6	0.057065598	0.057065598
646	2	6	1	1.6816	0.158	1	0.385398971	0.341073333
647	2	6	1	1.6816	0.158	2	0.286440164	0.25349601
648	2	6	1	1.6816	0.158	3	0.199848859	0.176863773
649	2	6	1	1.6816	0.158	4	0.133010822	0.117712936
650	2	6	1	1.6816	0.158	5	0.082334772	0.072865257
651	2	6	1	1.6816	0.158	6	0.042925672	0.03798869
856	2	6	2	1.6816	0.158	1	0.362611672	0.336254441
857	2	6	2	1.6816	0.158	2	0.267724633	0.248264476
858	2	6	2	1.6816	0.158	3	0.188841744	0.175115364
859	2	6	2	1.6816	0.158	4	0.129051257	0.119670881
860	2	6	2	1.6816	0.158	5	0.083366068	0.077306421
861	2	6	2	1.6816	0.158	6	0.04678941	0.043388418
1066	2	6	3	1.6816	0.158	1	0.339944092	0.330344289
1067	2	6	3	1.6816	0.158	2	0.250211924	0.243146099
1068	2	6	3	1.6816	0.158	3	0.178778419	0.173729831
1069	2	6	3	1.6816	0.158	4	0.125387498	0.121846635
1070	2	6	3	1.6816	0.158	5	0.084268519	0.08188883
1071	2	6	3	1.6816	0.158	6	0.050469543	0.049044315
1276	3	6	1	1.6816	0.158	1	0.41517718	0.347895552
1277	3	6	1	1.6816	0.158	2	0.312005412	0.261443307
1278	3	6	1	1.6816	0.158	3	0.214175609	0.179467334
1279	3	6	1	1.6816	0.158	4	0.136655523	0.114509783
1280	3	6	1	1.6816	0.158	5	0.078961987	0.066165785
1281	3	6	1	1.6816	0.158	6	0.036420346	0.030518239
1486	3	6	2	1.6816	0.158	1	0.39273991	0.344947769
1487	3	6	2	1.6816	0.158	2	0.291656504	0.256165105
1488	3	6	2	1.6816	0.158	3	0.201672819	0.177131448
1489	3	6	2	1.6816	0.158	4	0.132143267	0.11606288
1490	3	6	2	1.6816	0.158	5	0.080025763	0.070287505
1491	3	6	2	1.6816	0.158	6	0.040310657	0.035405292
1696	3	6	3	1.6816	0.158	1	0.369785919	0.340732082
1697	3	6	3	1.6816	0.158	2	0.272330571	0.250933737
1698	3	6	3	1.6816	0.158	3	0.190184952	0.175242246
1699	3	6	3	1.6816	0.158	4	0.12796037	0.117906608
1700	3	6	3	1.6816	0.158	5	0.080956936	0.074596203
1701	3	6	3	1.6816	0.158	6	0.044050113	0.040589124

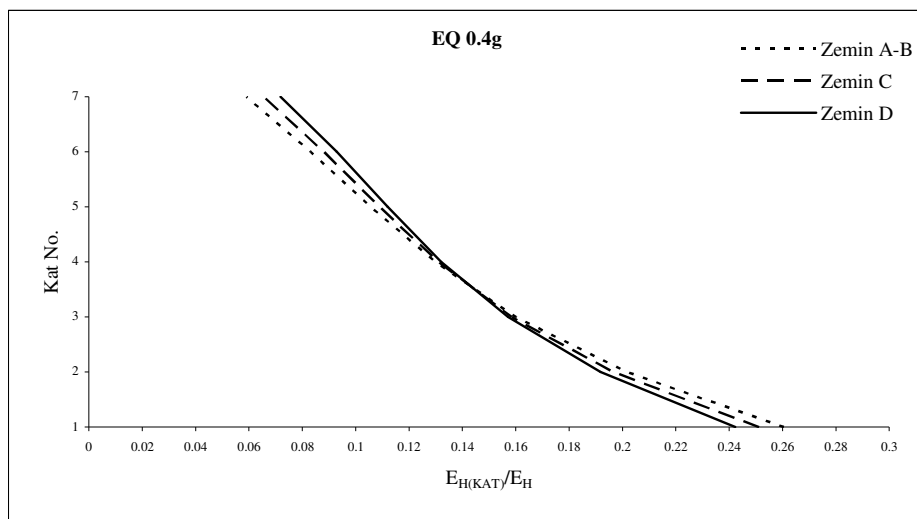


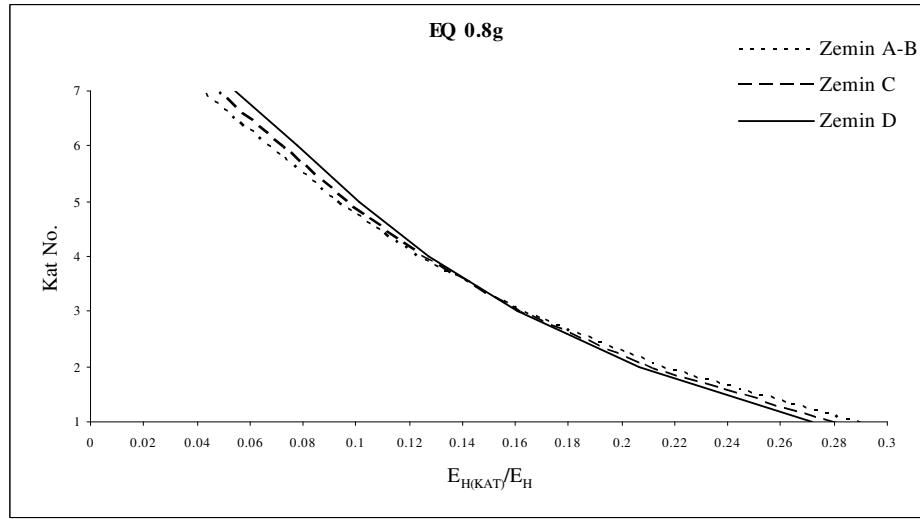
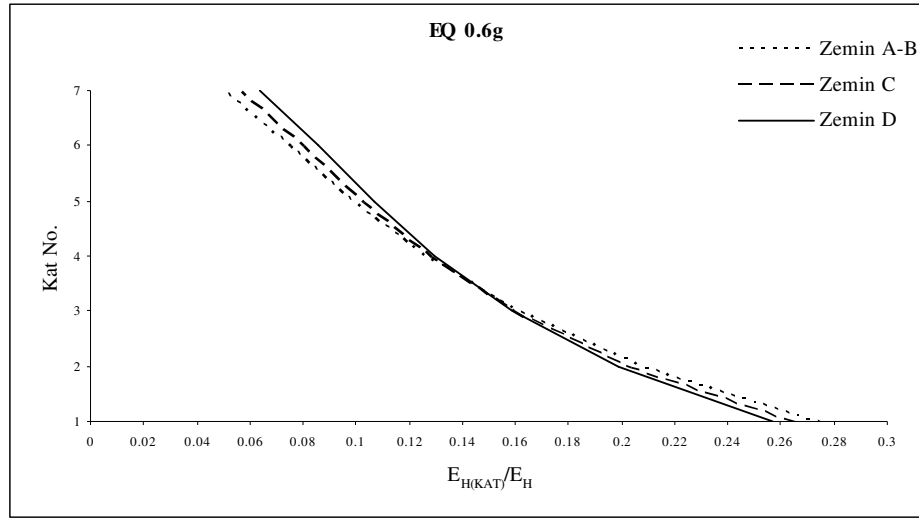


7 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat Sayısı	Zemin Tipi	Period (sec)	η	Kat No.	$E_{H(KAT)}/E_H$ NN Output	Ölçeklendirilmiş Output
22	1	7	1	1.9107	0.1405	1	0.252989337	0.260509147
23	1	7	1	1.9107	0.1405	2	0.195818697	0.201639177
24	1	7	1	1.9107	0.1405	3	0.155437355	0.160057547
25	1	7	1	1.9107	0.1405	4	0.126150636	0.129900314
26	1	7	1	1.9107	0.1405	5	0.102650932	0.10570211
27	1	7	1	1.9107	0.1405	6	0.080722063	0.083121431
28	1	7	1	1.9107	0.1405	7	0.057365162	0.059070274
232	1	7	2	1.9107	0.1405	1	0.236781719	0.251294275
233	1	7	2	1.9107	0.1405	2	0.185243749	0.196597499
234	1	7	2	1.9107	0.1405	3	0.149354533	0.158508601
235	1	7	2	1.9107	0.1405	4	0.123456971	0.131023756
236	1	7	2	1.9107	0.1405	5	0.102652006	0.108943636
237	1	7	2	1.9107	0.1405	6	0.083049324	0.088139489
238	1	7	2	1.9107	0.1405	7	0.061710457	0.065492744
442	1	7	3	1.9107	0.1405	1	0.221940663	0.242269917
443	1	7	3	1.9107	0.1405	2	0.175696877	0.191790307
444	1	7	3	1.9107	0.1405	3	0.14386547	0.157043217
445	1	7	3	1.9107	0.1405	4	0.121001402	0.132084852
446	1	7	3	1.9107	0.1405	5	0.1026257	0.112025978
447	1	7	3	1.9107	0.1405	6	0.08516936	0.092970677
448	1	7	3	1.9107	0.1405	7	0.065788936	0.071815051
652	2	7	1	1.9107	0.1405	1	0.274160437	0.275322204
653	2	7	1	1.9107	0.1405	2	0.208365776	0.209248736
654	2	7	1	1.9107	0.1405	3	0.161016877	0.161699194
655	2	7	1	1.9107	0.1405	4	0.126704132	0.127241046
656	2	7	1	1.9107	0.1405	5	0.099641598	0.100063833
657	2	7	1	1.9107	0.1405	6	0.075271385	0.075590351
658	2	7	1	1.9107	0.1405	7	0.05062013	0.050834635
862	2	7	2	1.9107	0.1405	1	0.255941765	0.266109458
863	2	7	2	1.9107	0.1405	2	0.196189394	0.203983329
864	2	7	2	1.9107	0.1405	3	0.153977918	0.160094935
865	2	7	2	1.9107	0.1405	4	0.123566758	0.128475644
866	2	7	2	1.9107	0.1405	5	0.099526711	0.103480567
867	2	7	2	1.9107	0.1405	6	0.077631932	0.080715984
868	2	7	2	1.9107	0.1405	7	0.054956836	0.057140083
1072	2	7	3	1.9107	0.1405	1	0.239105223	0.256873171
1073	2	7	3	1.9107	0.1405	2	0.185165906	0.198925615
1074	2	7	3	1.9107	0.1405	3	0.147623984	0.158593947

1075	2	7	3	1.9107	0.1405	4	0.120706132	0.129675825
1076	2	7	3	1.9107	0.1405	5	0.099390887	0.10677664
1077	2	7	3	1.9107	0.1405	6	0.079786863	0.085715838
1078	2	7	3	1.9107	0.1405	7	0.059050883	0.063438964
1282	3	7	1	1.9107	0.1405	1	0.29859373	0.289941348
1283	3	7	1	1.9107	0.1405	2	0.223761403	0.217277445
1284	3	7	1	1.9107	0.1405	3	0.16843754	0.163556708
1285	3	7	1	1.9107	0.1405	4	0.128247318	0.124531082
1286	3	7	1	1.9107	0.1405	5	0.097051546	0.094239273
1287	3	7	1	1.9107	0.1405	6	0.069909558	0.067883781
1288	3	7	1	1.9107	0.1405	7	0.04384074	0.042570362
1492	3	7	2	1.9107	0.1405	1	0.278426278	0.281106873
1493	3	7	2	1.9107	0.1405	2	0.209803739	0.21182366
1494	3	7	2	1.9107	0.1405	3	0.16029803	0.161841326
1495	3	7	2	1.9107	0.1405	4	0.124610133	0.125809838
1496	3	7	2	1.9107	0.1405	5	0.096824457	0.097756651
1497	3	7	2	1.9107	0.1405	6	0.072326474	0.073022809
1498	3	7	2	1.9107	0.1405	7	0.048175029	0.048638843
1702	3	7	3	1.9107	0.1405	1	0.259553449	0.271977781
1703	3	7	3	1.9107	0.1405	2	0.197111441	0.206546792
1704	3	7	3	1.9107	0.1405	3	0.152944743	0.160265918
1705	3	7	3	1.9107	0.1405	4	0.121293182	0.127099257
1706	3	7	3	1.9107	0.1405	5	0.096582068	0.101205268
1707	3	7	3	1.9107	0.1405	6	0.074539117	0.078107163
1708	3	7	3	1.9107	0.1405	7	0.052294577	0.05479782

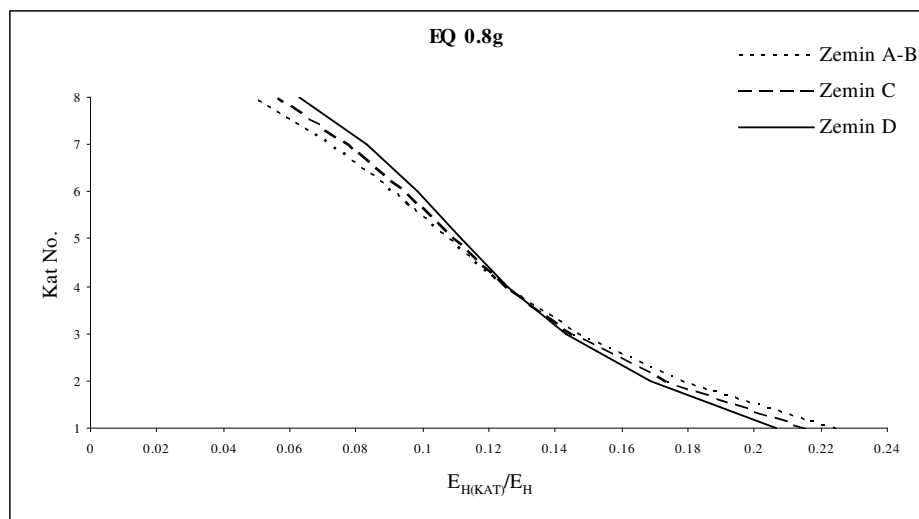
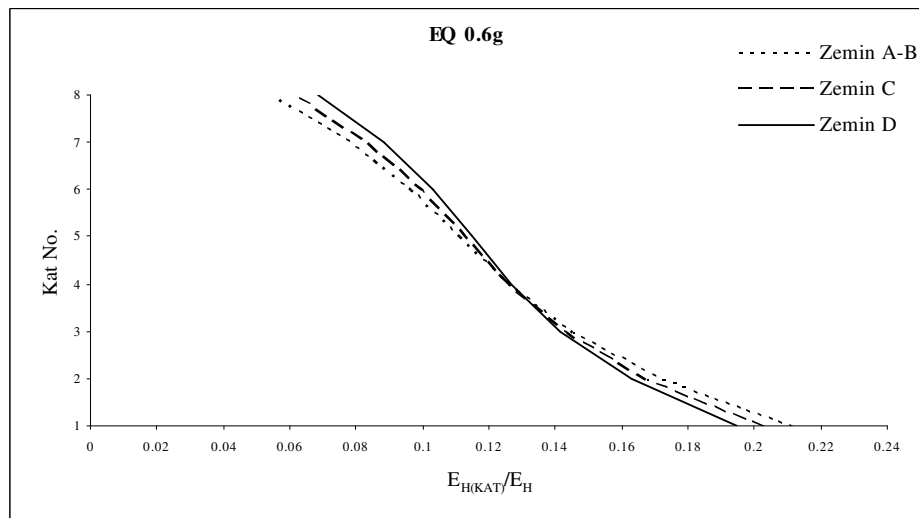
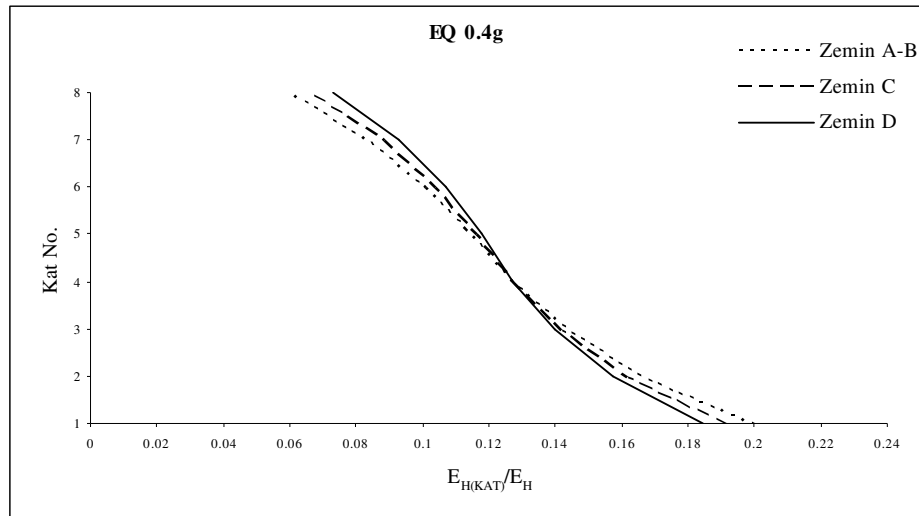




8 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat Sayısı	Zemin		Period (sec)	(η)	$E_{H(KAT)}/E_H$	
			Tipi				Kat No.	NN Output
29	1	8	1	2.1276	0.1246	1	0.192737156	0.20017396
30	1	8	1	2.1276	0.1246	2	0.160476534	0.166668556
31	1	8	1	2.1276	0.1246	3	0.138828171	0.144184886
32	1	8	1	2.1276	0.1246	4	0.123432276	0.128194937
33	1	8	1	2.1276	0.1246	5	0.110761183	0.115034927
34	1	8	1	2.1276	0.1246	6	0.097620074	0.101386766
35	1	8	1	2.1276	0.1246	7	0.080860571	0.083980593
36	1	8	1	2.1276	0.1246	8	0.058132326	0.060375375
239	1	8	2	2.1276	0.1246	1	0.182697989	0.192036934
240	1	8	2	2.1276	0.1246	2	0.154097905	0.161974904
241	1	8	2	2.1276	0.1246	3	0.135070462	0.141974839
242	1	8	2	2.1276	0.1246	4	0.121654216	0.127872796
243	1	8	2	2.1276	0.1246	5	0.110684144	0.116341969
244	1	8	2	2.1276	0.1246	6	0.099259089	0.104332901
245	1	8	2	2.1276	0.1246	7	0.084393069	0.088706977
246	1	8	2	2.1276	0.1246	8	0.063512139	0.066758679
449	1	8	3	2.1276	0.1246	1	0.17366408	0.184481708

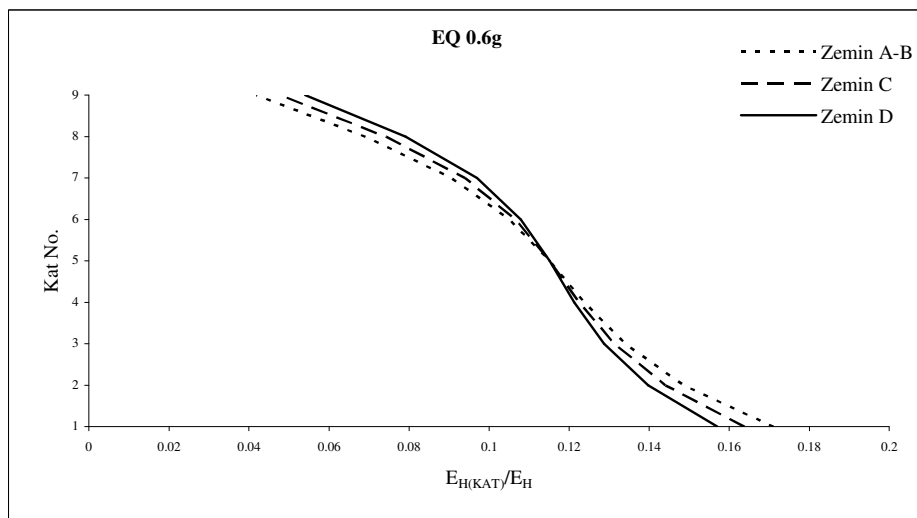
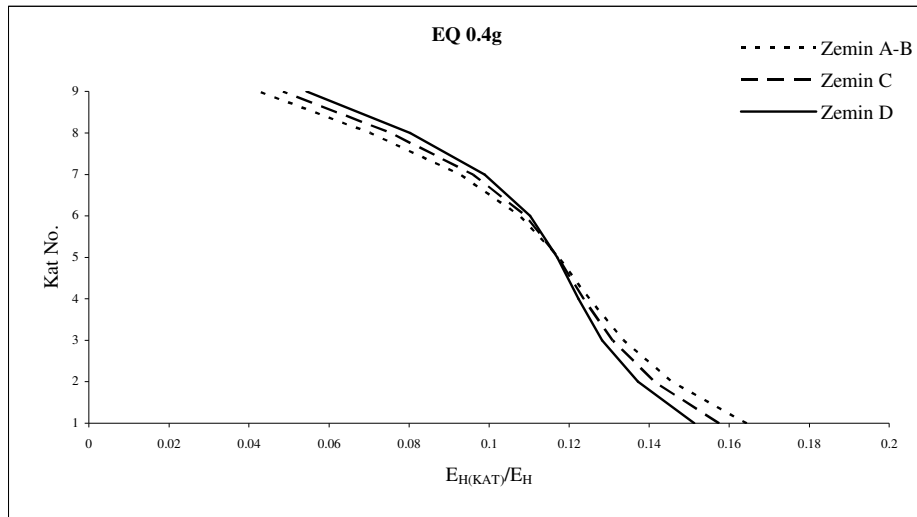
450	1	8	3	2.1276	0.1246	2	0.148369137	0.15761113
451	1	8	3	2.1276	0.1246	3	0.131686672	0.139889505
452	1	8	3	2.1276	0.1246	4	0.120041507	0.127518956
453	1	8	3	2.1276	0.1246	5	0.110600127	0.117489467
454	1	8	3	2.1276	0.1246	6	0.100735169	0.107010016
455	1	8	3	2.1276	0.1246	7	0.087642914	0.093102238
456	1	8	3	2.1276	0.1246	8	0.068622451	0.072896979
659	2	8	1	2.1276	0.1246	1	0.203992028	0.211872437
660	2	8	1	2.1276	0.1246	2	0.165968012	0.172379516
661	2	8	1	2.1276	0.1246	3	0.140315524	0.145736049
662	2	8	1	2.1276	0.1246	4	0.122159396	0.126878531
663	2	8	1	2.1276	0.1246	5	0.107581934	0.111737928
664	2	8	1	2.1276	0.1246	6	0.093225657	0.096827054
665	2	8	1	2.1276	0.1246	7	0.075983254	0.07891856
666	2	8	1	2.1276	0.1246	8	0.053580074	0.055649924
869	2	8	2	2.1276	0.1246	1	0.192398132	0.2031233
870	2	8	2	2.1276	0.1246	2	0.158570434	0.167409889
871	2	8	2	2.1276	0.1246	3	0.135942044	0.143520087
872	2	8	2	2.1276	0.1246	4	0.120031844	0.126722978
873	2	8	2	2.1276	0.1246	5	0.10731646	0.113298779
874	2	8	2	2.1276	0.1246	6	0.094750591	0.10003243
875	2	8	2	2.1276	0.1246	7	0.079396839	0.083822788
876	2	8	2	2.1276	0.1246	8	0.058792388	0.062069749
1079	2	8	3	2.1276	0.1246	1	0.181943977	0.194917256
1080	2	8	3	2.1276	0.1246	2	0.151926599	0.162759528
1081	2	8	3	2.1276	0.1246	3	0.132005564	0.141418049
1082	2	8	3	2.1276	0.1246	4	0.118102659	0.126523816
1083	2	8	3	2.1276	0.1246	5	0.107060113	0.114693895
1084	2	8	3	2.1276	0.1246	6	0.096122789	0.1029767
1085	2	8	3	2.1276	0.1246	7	0.082537971	0.088423234
1086	2	8	3	2.1276	0.1246	8	0.063742449	0.068287522
1289	3	8	1	2.1276	0.1246	1	0.218029951	0.224939348
1290	3	8	1	2.1276	0.1246	2	0.173392701	0.178887537
1291	3	8	1	2.1276	0.1246	3	0.143059653	0.147593231
1292	3	8	1	2.1276	0.1246	4	0.121662269	0.125517762
1293	3	8	1	2.1276	0.1246	5	0.104814184	0.108135759
1294	3	8	1	2.1276	0.1246	6	0.088918747	0.091736594
1295	3	8	1	2.1276	0.1246	7	0.070872673	0.073118637
1296	3	8	1	2.1276	0.1246	8	0.048533111	0.050071131
1499	3	8	2	2.1276	0.1246	1	0.204679469	0.215643388
1500	3	8	2	2.1276	0.1246	2	0.164812702	0.173641107
1501	3	8	2	2.1276	0.1246	3	0.137976452	0.145367338
1502	3	8	2	2.1276	0.1246	4	0.119147377	0.125529659
1503	3	8	2	2.1276	0.1246	5	0.104363227	0.109953578
1504	3	8	2	2.1276	0.1246	6	0.090361542	0.095201874
1505	3	8	2	2.1276	0.1246	7	0.07421271	0.078188009
1506	3	8	2	2.1276	0.1246	8	0.053603696	0.056475046
1709	3	8	3	2.1276	0.1246	1	0.192601332	0.206812022
1710	3	8	3	2.1276	0.1246	2	0.15710375	0.168695325
1711	3	8	3	2.1276	0.1246	3	0.133402457	0.143245282
1712	3	8	3	2.1276	0.1246	4	0.116867627	0.125490463
1713	3	8	3	2.1276	0.1246	5	0.10393616	0.111604875
1714	3	8	3	2.1276	0.1246	6	0.091658044	0.098420843
1715	3	8	3	2.1276	0.1246	7	0.077290224	0.082992924
1716	3	8	3	2.1276	0.1246	8	0.058427327	0.062738267

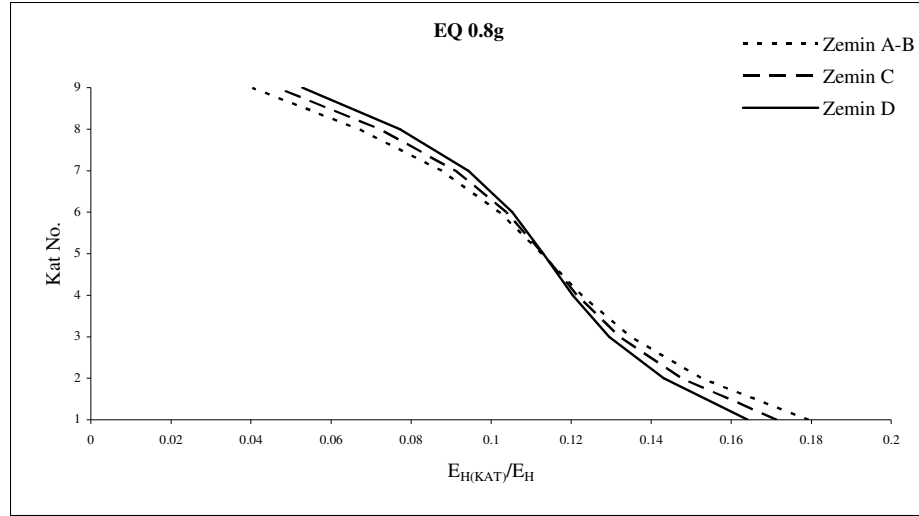


9 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Zemin		Period		$E_{H(KAT)}/E_H$		
		Kat Sayısı	Tipi	(sec)	(η)	Kat No.	NN Output	Ölçeklendirilmiş Output
37	1	9	1	2.3323	0.1103	1	0.162241709	0.164352051
38	1	9	1	2.3323	0.1103	2	0.143917814	0.145789809
39	1	9	1	2.3323	0.1103	3	0.131984895	0.133701674
40	1	9	1	2.3323	0.1103	4	0.123518441	0.125125094
41	1	9	1	2.3323	0.1103	5	0.115919006	0.11742681
42	1	9	1	2.3323	0.1103	6	0.106364082	0.107747601
43	1	9	1	2.3323	0.1103	7	0.091656433	0.092848644
44	1	9	1	2.3323	0.1103	8	0.069523291	0.070427608
45	1	9	1	2.3323	0.1103	9	0.042033958	0.04258071
247	1	9	2	2.3323	0.1103	1	0.156003468	0.157521795
248	1	9	2	2.3323	0.1103	2	0.139959322	0.141321497
249	1	9	2	2.3323	0.1103	3	0.129665149	0.130927135
250	1	9	2	2.3323	0.1103	4	0.122510498	0.12370285
251	1	9	2	2.3323	0.1103	5	0.116169449	0.117300086
252	1	9	2	2.3323	0.1103	6	0.108071545	0.109123368
253	1	9	2	2.3323	0.1103	7	0.095152694	0.096078782
254	1	9	2	2.3323	0.1103	8	0.074800028	0.075528031
255	1	9	2	2.3323	0.1103	9	0.048029005	0.048496455
457	1	9	3	2.3323	0.1103	1	0.150407572	0.151277602
458	1	9	3	2.3323	0.1103	2	0.136405349	0.137194384
459	1	9	3	2.3323	0.1103	3	0.127577861	0.128315833
460	1	9	3	2.3323	0.1103	4	0.121597846	0.122301227
461	1	9	3	2.3323	0.1103	5	0.116387143	0.117060382
462	1	9	3	2.3323	0.1103	6	0.109612584	0.110246636
463	1	9	3	2.3323	0.1103	7	0.098372475	0.098941509
464	1	9	3	2.3323	0.1103	8	0.079833838	0.080295635
465	1	9	3	2.3323	0.1103	9	0.054054116	0.054366791
667	2	9	1	2.3323	0.1103	1	0.167126006	0.171177888
668	2	9	1	2.3323	0.1103	2	0.14525458	0.1487762
669	2	9	1	2.3323	0.1103	3	0.130941251	0.134115852
670	2	9	1	2.3323	0.1103	4	0.120911479	0.123842914
671	2	9	1	2.3323	0.1103	5	0.112417109	0.115142602
672	2	9	1	2.3323	0.1103	6	0.102665964	0.105155046
673	2	9	1	2.3323	0.1103	7	0.088553955	0.090700899
674	2	9	1	2.3323	0.1103	8	0.067580149	0.069218594
675	2	9	1	2.3323	0.1103	9	0.040878917	0.041870005
877	2	9	2	2.3323	0.1103	1	0.159894853	0.163805286
878	2	9	2	2.3323	0.1103	2	0.140654548	0.144094435
879	2	9	2	2.3323	0.1103	3	0.128204907	0.131340322
880	2	9	2	2.3323	0.1103	4	0.119617661	0.122543064
881	2	9	2	2.3323	0.1103	5	0.112437509	0.115187312
882	2	9	2	2.3323	0.1103	6	0.10413238	0.106679071
883	2	9	2	2.3323	0.1103	7	0.091762194	0.094006356
884	2	9	2	2.3323	0.1103	8	0.072597048	0.074372502
885	2	9	2	2.3323	0.1103	9	0.046826453	0.047971653
1087	2	9	3	2.3323	0.1103	1	0.153409121	0.157046882
1088	2	9	3	2.3323	0.1103	2	0.13652641	0.139763834
1089	2	9	3	2.3323	0.1103	3	0.125742895	0.128724612
1090	2	9	3	2.3323	0.1103	4	0.118446783	0.121255488
1091	2	9	3	2.3323	0.1103	5	0.112446367	0.115112786
1092	2	9	3	2.3323	0.1103	6	0.105451967	0.107952529
1093	2	9	3	2.3323	0.1103	7	0.094706032	0.096951777
1094	2	9	3	2.3323	0.1103	8	0.077351963	0.079186195
1095	2	9	3	2.3323	0.1103	9	0.05275493	0.054005897
1297	3	9	1	2.3323	0.1103	1	0.173900564	0.179469563
1298	3	9	1	2.3323	0.1103	2	0.147891874	0.152627969
1299	3	9	1	2.3323	0.1103	3	0.130790932	0.134979385
1300	3	9	1	2.3323	0.1103	4	0.118895861	0.122703386
1301	3	9	1	2.3323	0.1103	5	0.109231686	0.112729726
1302	3	9	1	2.3323	0.1103	6	0.098975362	0.102144953

1303	3	9	1	2.3323	0.1103	7	0.085105743	0.087831172
1304	3	9	1	2.3323	0.1103	8	0.065023114	0.067105416
1305	3	9	1	2.3323	0.1103	9	0.039154543	0.040408429
1507	3	9	2	2.3323	0.1103	1	0.165513834	0.171500388
1508	3	9	2	2.3323	0.1103	2	0.142548568	0.14770448
1509	3	9	2	2.3323	0.1103	3	0.127583498	0.132198131
1510	3	9	2	2.3323	0.1103	4	0.117296305	0.121538855
1511	3	9	2	2.3323	0.1103	5	0.109030903	0.112974497
1512	3	9	2	2.3323	0.1103	6	0.100235358	0.103860822
1513	3	9	2	2.3323	0.1103	7	0.088073202	0.091258767
1514	3	9	2	2.3323	0.1103	8	0.069799503	0.072324116
1515	3	9	2	2.3323	0.1103	9	0.045011887	0.046639944
1717	3	9	3	2.3323	0.1103	1	0.157990364	0.16416258
1718	3	9	3	2.3323	0.1103	2	0.137755537	0.143137238
1719	3	9	3	2.3323	0.1103	3	0.124698983	0.129570603
1720	3	9	3	2.3323	0.1103	4	0.115849215	0.120375101
1721	3	9	3	2.3323	0.1103	5	0.108838441	0.113090437
1722	3	9	3	2.3323	0.1103	6	0.101365972	0.105326041
1723	3	9	3	2.3323	0.1103	7	0.090789146	0.094336009
1724	3	9	3	2.3323	0.1103	8	0.074303975	0.077206811
1725	3	9	3	2.3323	0.1103	9	0.050810177	0.05279518

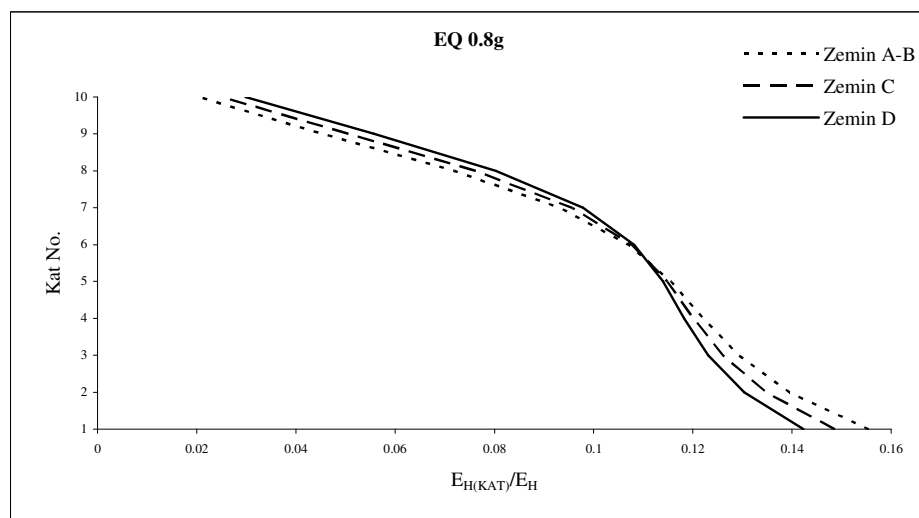
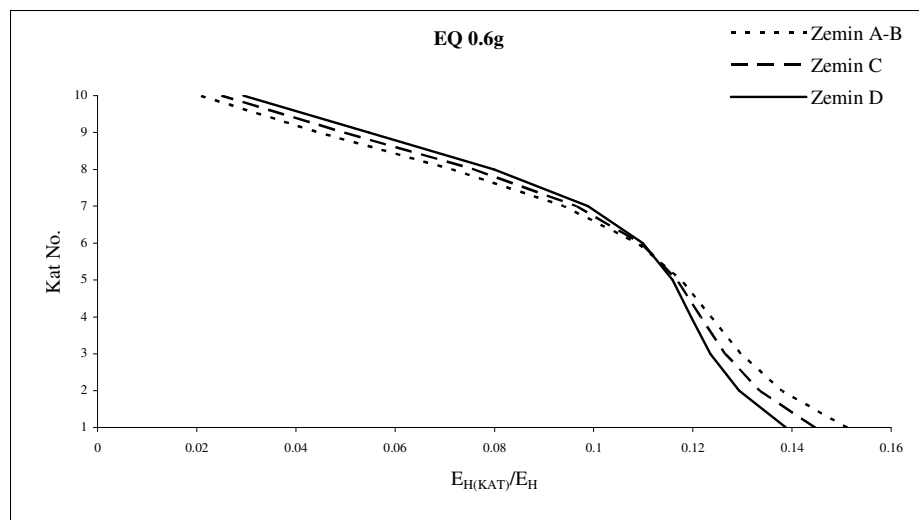
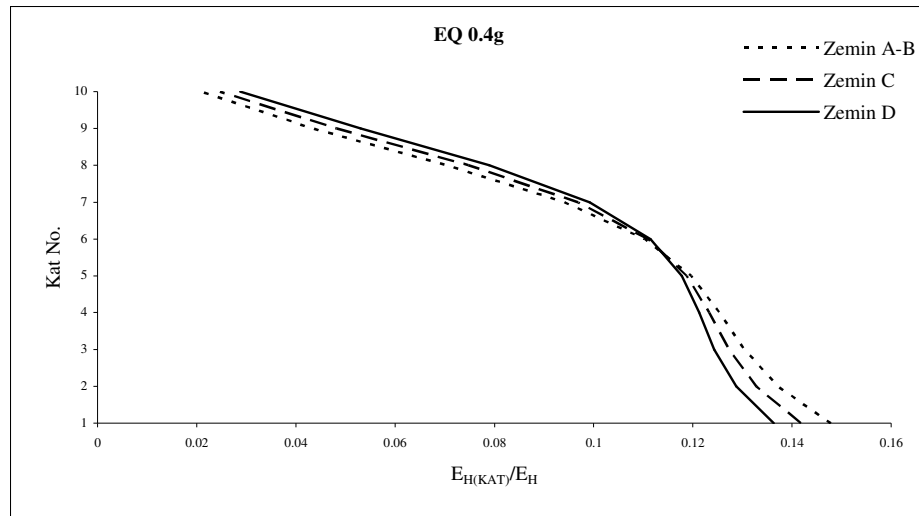




10 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Zemin Period				$E_{H(KAT)}/E_H$	
		Kat Sayısı	Tipi	(sec)	(η)	Kat No.	NN Output
46	1	10	1	2.5248	0.0976	1	0.147973476
47	1	10	1	2.5248	0.0976	2	0.137343501
48	1	10	1	2.5248	0.0976	3	0.130600617
49	1	10	1	2.5248	0.0976	4	0.125530032
50	1	10	1	2.5248	0.0976	5	0.119787038
51	1	10	1	2.5248	0.0976	6	0.110453834
52	1	10	1	2.5248	0.0976	7	0.094352513
53	1	10	1	2.5248	0.0976	8	0.070454464
54	1	10	1	2.5248	0.0976	9	0.04339542
55	1	10	1	2.5248	0.0976	10	0.020900438
256	1	10	2	2.5248	0.0976	1	0.143924256
257	1	10	2	2.5248	0.0976	2	0.134807135
258	1	10	2	2.5248	0.0976	3	0.129209629
259	1	10	2	2.5248	0.0976	4	0.125158261
260	1	10	2	2.5248	0.0976	5	0.120544808
261	1	10	2	2.5248	0.0976	6	0.112672651
262	1	10	2	2.5248	0.0976	7	0.098363885
263	1	10	2	2.5248	0.0976	8	0.075927421
264	1	10	2	2.5248	0.0976	9	0.048900856
265	1	10	2	2.5248	0.0976	10	0.025120109
466	1	10	3	2.5248	0.0976	1	0.14029244
467	1	10	3	2.5248	0.0976	2	0.132530607
468	1	10	3	2.5248	0.0976	3	0.127959565
469	1	10	3	2.5248	0.0976	4	0.124821117
470	1	10	3	2.5248	0.0976	5	0.121223391
471	1	10	3	2.5248	0.0976	6	0.114689343
472	1	10	3	2.5248	0.0976	7	0.102104683
473	1	10	3	2.5248	0.0976	8	0.081257843
474	1	10	3	2.5248	0.0976	9	0.054562248
475	1	10	3	2.5248	0.0976	10	0.029636392
676	2	10	1	2.5248	0.0976	1	0.149101138
677	2	10	1	2.5248	0.0976	2	0.136197587
678	2	10	1	2.5248	0.0976	3	0.127974328
679	2	10	1	2.5248	0.0976	4	0.122065178
680	2	10	1	2.5248	0.0976	5	0.116149317
681	2	10	1	2.5248	0.0976	6	0.107459532
682	2	10	1	2.5248	0.0976	7	0.092835364
683	2	10	1	2.5248	0.0976	8	0.070557003
684	2	10	1	2.5248	0.0976	9	0.04392261

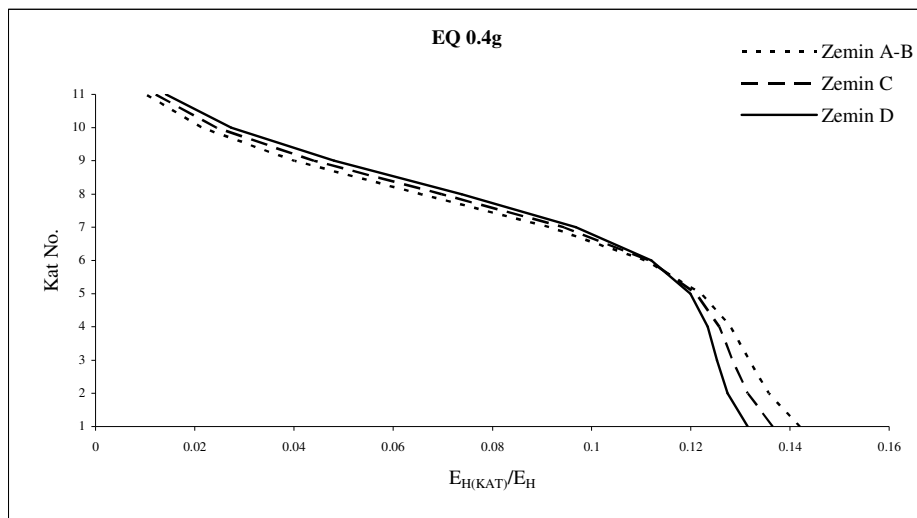
685	2	10	1	2.5248	0.0976	10	0.020461828	0.020737137
886	2	10	2	2.5248	0.0976	1	0.144405277	0.1447023
887	2	10	2	2.5248	0.0976	2	0.133227175	0.133501206
888	2	10	2	2.5248	0.0976	3	0.126272501	0.126532227
889	2	10	2	2.5248	0.0976	4	0.121433838	0.121683611
890	2	10	2	2.5248	0.0976	5	0.116632754	0.116872652
891	2	10	2	2.5248	0.0976	6	0.109331541	0.109556422
892	2	10	2	2.5248	0.0976	7	0.096444364	0.096642738
893	2	10	2	2.5248	0.0976	8	0.07576207	0.075917903
894	2	10	2	2.5248	0.0976	9	0.049496227	0.049598034
895	2	10	2	2.5248	0.0976	10	0.024941605	0.024992907
1096	2	10	3	2.5248	0.0976	1	0.140194732	0.138821757
1097	2	10	3	2.5248	0.0976	2	0.130561158	0.129282528
1098	2	10	3	2.5248	0.0976	3	0.124742199	0.123520556
1099	2	10	3	2.5248	0.0976	4	0.120862625	0.119678976
1100	2	10	3	2.5248	0.0976	5	0.117062505	0.115916072
1101	2	10	3	2.5248	0.0976	6	0.111026657	0.109939335
1102	2	10	3	2.5248	0.0976	7	0.09978789	0.098810633
1103	2	10	3	2.5248	0.0976	8	0.080779506	0.079988404
1104	2	10	3	2.5248	0.0976	9	0.05516433	0.054624086
1105	2	10	3	2.5248	0.0976	10	0.029708599	0.029417653
1306	3	10	1	2.5248	0.0976	1	0.151540602	0.155494313
1307	3	10	1	2.5248	0.0976	2	0.13598553	0.139533408
1308	3	10	1	2.5248	0.0976	3	0.126011322	0.129298972
1309	3	10	1	2.5248	0.0976	4	0.119029269	0.122134756
1310	3	10	1	2.5248	0.0976	5	0.112683657	0.115623586
1311	3	10	1	2.5248	0.0976	6	0.104319742	0.107041456
1312	3	10	1	2.5248	0.0976	7	0.090852495	0.093222847
1313	3	10	1	2.5248	0.0976	8	0.070093967	0.071922727
1314	3	10	1	2.5248	0.0976	9	0.044118025	0.045269069
1315	3	10	1	2.5248	0.0976	10	0.019938664	0.020458866
1516	3	10	2	2.5248	0.0976	1	0.146094219	0.148627875
1517	3	10	2	2.5248	0.0976	2	0.132520406	0.134818657
1518	3	10	2	2.5248	0.0976	3	0.123968056	0.126117987
1519	3	10	2	2.5248	0.0976	4	0.11813326	0.120182
1520	3	10	2	2.5248	0.0976	5	0.112910746	0.114868913
1521	3	10	2	2.5248	0.0976	6	0.10588306	0.10771935
1522	3	10	2	2.5248	0.0976	7	0.094090797	0.095722578
1523	3	10	2	2.5248	0.0976	8	0.075008327	0.076309168
1524	3	10	2	2.5248	0.0976	9	0.049697547	0.050559432
1525	3	10	2	2.5248	0.0976	10	0.024646604	0.025074041
1726	3	10	3	2.5248	0.0976	1	0.141212876	0.142324411
1727	3	10	3	2.5248	0.0976	2	0.129411217	0.130429857
1728	3	10	3	2.5248	0.0976	3	0.122130942	0.123092277
1729	3	10	3	2.5248	0.0976	4	0.117323416	0.118246909
1730	3	10	3	2.5248	0.0976	5	0.113108576	0.113998893
1731	3	10	3	2.5248	0.0976	6	0.107293376	0.108137919
1732	3	10	3	2.5248	0.0976	7	0.097074094	0.097838198
1733	3	10	3	2.5248	0.0976	8	0.079701772	0.080329132
1734	3	10	3	2.5248	0.0976	9	0.055310086	0.05574545
1735	3	10	3	2.5248	0.0976	10	0.029623776	0.029856955

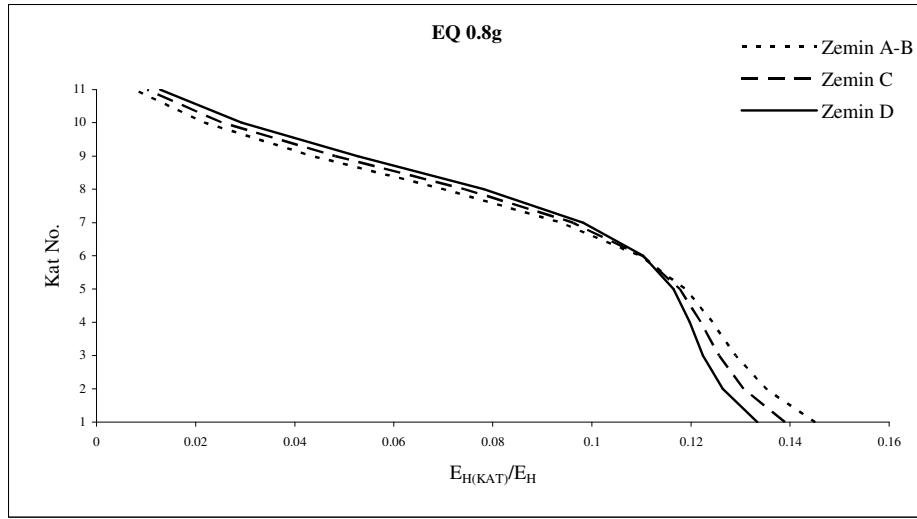
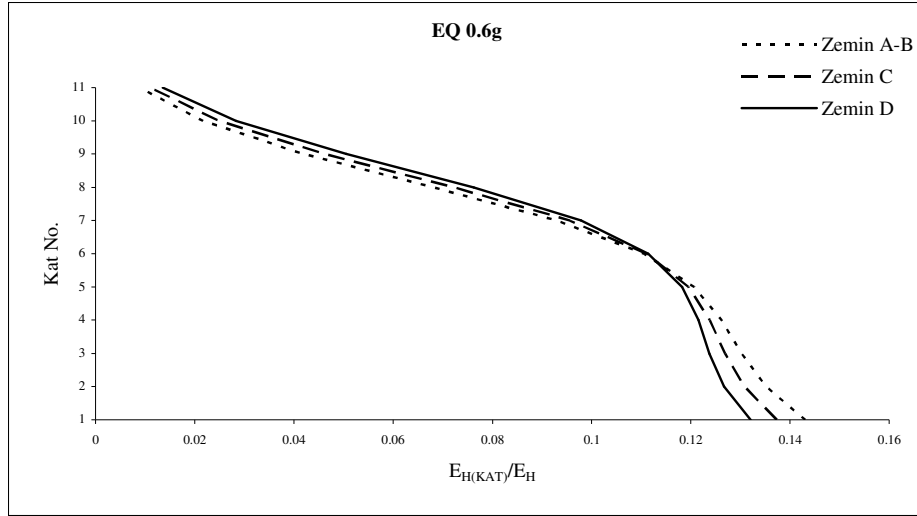


11 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat sayısı	Zemin Period		$E_{H(KAT)}/E_H$	Kat No.	NN Output	Ölçeklendirilmiş Output
			Tipi	(sec)	(η)			
56	1	11	1	2.7051	0.0865	1	0.142310205	0.142009836
57	1	11	1	2.7051	0.0865	2	0.136055321	0.135768154
58	1	11	1	2.7051	0.0865	3	0.13207777	0.131798999
59	1	11	1	2.7051	0.0865	4	0.128378847	0.128107883
60	1	11	1	2.7051	0.0865	5	0.122479092	0.12222058
61	1	11	1	2.7051	0.0865	6	0.111204356	0.110969641
62	1	11	1	2.7051	0.0865	7	0.091855069	0.091661194
63	1	11	1	2.7051	0.0865	8	0.065781151	0.06564231
64	1	11	1	2.7051	0.0865	9	0.040174028	0.040089234
65	1	11	1	2.7051	0.0865	10	0.021571505	0.021525975
66	1	11	1	2.7051	0.0865	11	0.010227783	0.010206196
266	1	11	2	2.7051	0.0865	1	0.139564466	0.136523649
267	1	11	2	2.7051	0.0865	2	0.134409595	0.131481092
268	1	11	2	2.7051	0.0865	3	0.131342012	0.128480346
269	1	11	2	2.7051	0.0865	4	0.128574799	0.125773424
270	1	11	2	2.7051	0.0865	5	0.123857196	0.121158608
271	1	11	2	2.7051	0.0865	6	0.114177184	0.111689503
272	1	11	2	2.7051	0.0865	7	0.096576431	0.094472233
273	1	11	2	2.7051	0.0865	8	0.071387248	0.06983187
274	1	11	2	2.7051	0.0865	9	0.045034971	0.044053754
275	1	11	2	2.7051	0.0865	10	0.024917984	0.024375073
276	1	11	2	2.7051	0.0865	11	0.0124313	0.012160448
476	1	11	3	2.7051	0.0865	1	0.137102186	0.131443579
477	1	11	3	2.7051	0.0865	2	0.132934589	0.127447992
478	1	11	3	2.7051	0.0865	3	0.130682219	0.125288583
479	1	11	3	2.7051	0.0865	4	0.128749545	0.123435676
480	1	11	3	2.7051	0.0865	5	0.125100549	0.119937285
481	1	11	3	2.7051	0.0865	6	0.116906817	0.112081733
482	1	11	3	2.7051	0.0865	7	0.101062381	0.096891243
483	1	11	3	2.7051	0.0865	8	0.076995223	0.073817406
484	1	11	3	2.7051	0.0865	9	0.050163805	0.048093398
485	1	11	3	2.7051	0.0865	10	0.028551947	0.027373525
486	1	11	3	2.7051	0.0865	11	0.014800436	0.014189579
686	2	11	1	2.7051	0.0865	1	0.141149527	0.14312884
687	2	11	1	2.7051	0.0865	2	0.133362193	0.135232306
688	2	11	1	2.7051	0.0865	3	0.128470649	0.130272169
689	2	11	1	2.7051	0.0865	4	0.124466257	0.126211624
690	2	11	1	2.7051	0.0865	5	0.119012358	0.120681246
691	2	11	1	2.7051	0.0865	6	0.109107136	0.110637125
692	2	11	1	2.7051	0.0865	7	0.091796552	0.093083798
693	2	11	1	2.7051	0.0865	8	0.067206498	0.068148923
694	2	11	1	2.7051	0.0865	9	0.04134947	0.041929305
695	2	11	1	2.7051	0.0865	10	0.021410718	0.021710956
696	2	11	1	2.7051	0.0865	11	0.008839748	0.008963706
896	2	11	2	2.7051	0.0865	1	0.13795122	0.137354569
897	2	11	2	2.7051	0.0865	2	0.131393819	0.130825529
898	2	11	2	2.7051	0.0865	3	0.127473443	0.126922109
899	2	11	2	2.7051	0.0865	4	0.124398613	0.123860578
900	2	11	2	2.7051	0.0865	5	0.120059223	0.119539956
901	2	11	2	2.7051	0.0865	6	0.111646455	0.111163574
902	2	11	2	2.7051	0.0865	7	0.096084136	0.095668563
903	2	11	2	2.7051	0.0865	8	0.072648586	0.072334374
904	2	11	2	2.7051	0.0865	9	0.046396969	0.046196298
905	2	11	2	2.7051	0.0865	10	0.025039581	0.024931283
906	2	11	2	2.7051	0.0865	11	0.011251832	0.011203167
1106	2	11	3	2.7051	0.0865	1	0.135083347	0.132018559
1107	2	11	3	2.7051	0.0865	2	0.129628106	0.126687087
1108	2	11	3	2.7051	0.0865	3	0.12657824	0.123706417
1109	2	11	3	2.7051	0.0865	4	0.124335801	0.121514855
1110	2	11	3	2.7051	0.0865	5	0.121001133	0.118255844

1111	2	11	3	2.7051	0.0865	6	0.113966469	0.111380783
1112	2	11	3	2.7051	0.0865	7	0.100121545	0.097849975
1113	2	11	3	2.7051	0.0865	8	0.078026519	0.076256244
1114	2	11	3	2.7051	0.0865	9	0.051664579	0.050492407
1115	2	11	3	2.7051	0.0865	10	0.028960225	0.028303172
1116	2	11	3	2.7051	0.0865	11	0.013848863	0.013534658
1316	3	11	1	2.7051	0.0865	1	0.140960554	0.145107497
1317	3	11	1	2.7051	0.0865	2	0.131376639	0.135241631
1318	3	11	1	2.7051	0.0865	3	0.125356897	0.129044793
1319	3	11	1	2.7051	0.0865	4	0.120825851	0.124380447
1320	3	11	1	2.7051	0.0865	5	0.115542403	0.118941565
1321	3	11	1	2.7051	0.0865	6	0.106681899	0.109820392
1322	3	11	1	2.7051	0.0865	7	0.091188834	0.093871533
1323	3	11	1	2.7051	0.0865	8	0.068213099	0.070219872
1324	3	11	1	2.7051	0.0865	9	0.042447067	0.043695825
1325	3	11	1	2.7051	0.0865	10	0.021320526	0.021947758
1326	3	11	1	2.7051	0.0865	11	0.007507813	0.007728687
1526	3	11	2	2.7051	0.0865	1	0.137243915	0.138990122
1527	3	11	2	2.7051	0.0865	2	0.129048841	0.130690778
1528	3	11	2	2.7051	0.0865	3	0.124084017	0.125662785
1529	3	11	2	2.7051	0.0865	4	0.120501322	0.122034507
1530	3	11	2	2.7051	0.0865	5	0.116286214	0.117765768
1531	3	11	2	2.7051	0.0865	6	0.108824214	0.110208826
1532	3	11	2	2.7051	0.0865	7	0.095043713	0.09625299
1533	3	11	2	2.7051	0.0865	8	0.073427024	0.074361264
1534	3	11	2	2.7051	0.0865	9	0.047620728	0.048226624
1535	3	11	2	2.7051	0.0865	10	0.025222648	0.025543566
1536	3	11	2	2.7051	0.0865	11	0.010133834	0.010262771
1736	3	11	3	2.7051	0.0865	1	0.133911395	0.133345474
1737	3	11	3	2.7051	0.0865	2	0.126960211	0.126423666
1738	3	11	3	2.7051	0.0865	3	0.122940249	0.122420693
1739	3	11	3	2.7051	0.0865	4	0.120206858	0.119698853
1740	3	11	3	2.7051	0.0865	5	0.11695245	0.116458199
1741	3	11	3	2.7051	0.0865	6	0.110772725	0.11030459
1742	3	11	3	2.7051	0.0865	7	0.098644928	0.098228046
1743	3	11	3	2.7051	0.0865	8	0.078519083	0.078187254
1744	3	11	3	2.7051	0.0865	9	0.052958397	0.05273459
1745	3	11	3	2.7051	0.0865	10	0.029413061	0.029288759
1746	3	11	3	2.7051	0.0865	11	0.012964664	0.012909875



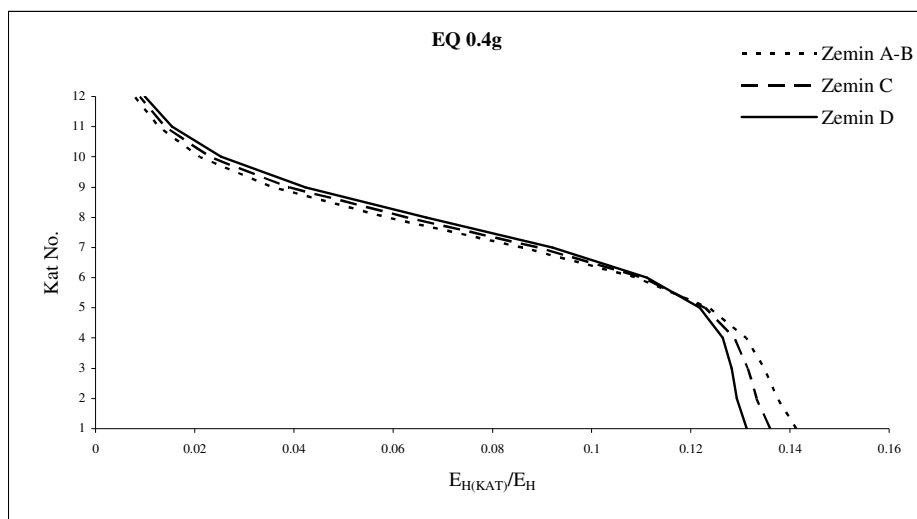


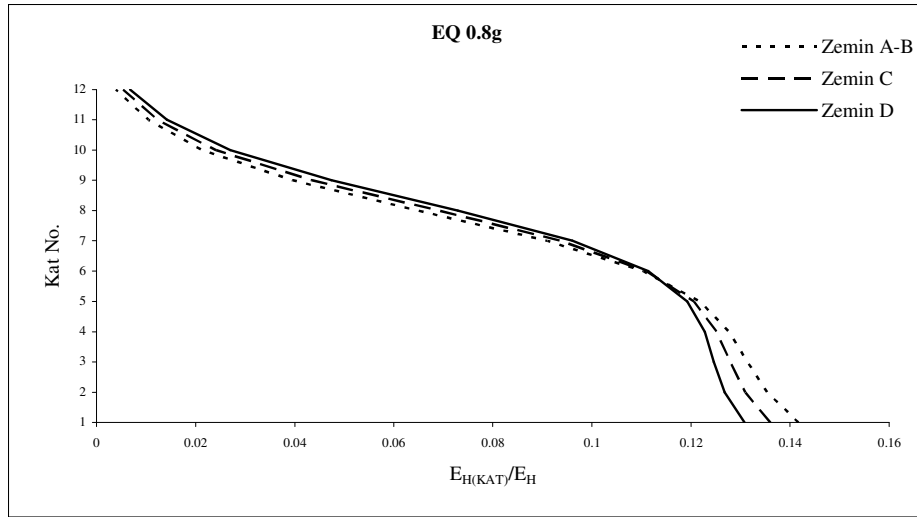
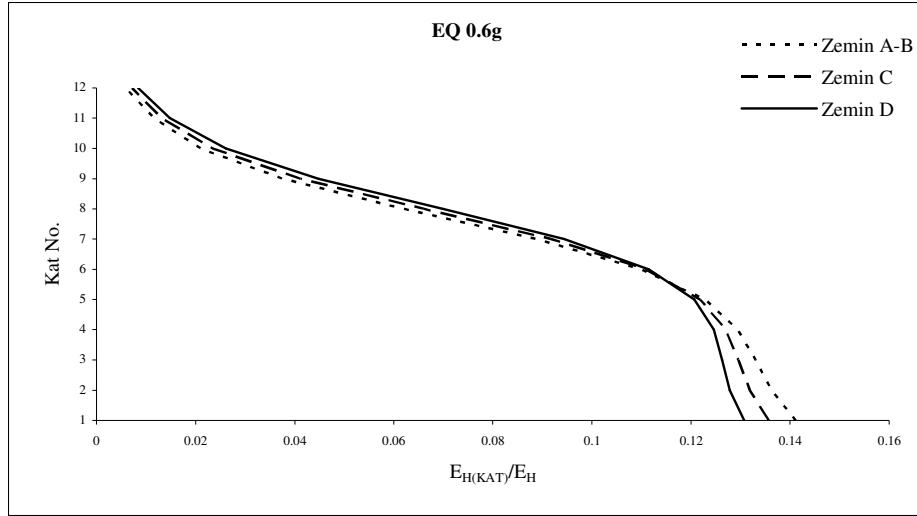
12 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat Sayısı	Zemin Tipi	Period (sec)	(η)	Kat No.	$E_{H(KAT)}/E_H$ NN Output	Ölçeklendirilmiş Output
67	1	12	1	2.8732	0.077	1	0.14125475	0.141261826
68	1	12	1	2.8732	0.077	2	0.137503215	0.137510103
69	1	12	1	2.8732	0.077	3	0.13483371	0.134840464
70	1	12	1	2.8732	0.077	4	0.131164045	0.131170616
71	1	12	1	2.8732	0.077	5	0.123686208	0.123692404
72	1	12	1	2.8732	0.077	6	0.109109552	0.141261826
73	1	12	1	2.8732	0.077	7	0.086026716	0.137510103
74	1	12	1	2.8732	0.077	8	0.058823794	0.058826741
75	1	12	1	2.8732	0.077	9	0.035830612	0.035832407
76	1	12	1	2.8732	0.077	10	0.02105371	0.021054764
77	1	12	1	2.8732	0.077	11	0.012767102	0.012767742
78	1	12	1	2.8732	0.077	12	0.007896496	0.007896891
277	1	12	2	2.8732	0.077	1	0.139329324	0.136081073
278	1	12	2	2.8732	0.077	2	0.136461719	0.133280322
279	1	12	2	2.8732	0.077	3	0.134614136	0.131475813
280	1	12	2	2.8732	0.077	4	0.131914835	0.128839442
281	1	12	2	2.8732	0.077	5	0.125775912	0.122843638

282	1	12	2	2.8732	0.077	6	0.112938125	0.110305145
283	1	12	2	2.8732	0.077	7	0.09137029	0.089240131
284	1	12	2	2.8732	0.077	8	0.064287356	0.062788594
285	1	12	2	2.8732	0.077	9	0.039957944	0.039026386
286	1	12	2	2.8732	0.077	10	0.02365933	0.023107749
287	1	12	2	2.8732	0.077	11	0.014417928	0.014081796
288	1	12	2	2.8732	0.077	12	0.00914307	0.008929913
487	1	12	3	2.8732	0.077	1	0.137604681	0.13125905
488	1	12	3	2.8732	0.077	2	0.135530546	0.129280564
489	1	12	3	2.8732	0.077	3	0.134418722	0.128220011
490	1	12	3	2.8732	0.077	4	0.132590466	0.126476065
491	1	12	3	2.8732	0.077	5	0.127674227	0.121786538
492	1	12	3	2.8732	0.077	6	0.116501493	0.111129034
493	1	12	3	2.8732	0.077	7	0.096562741	0.092109756
494	1	12	3	2.8732	0.077	8	0.069904458	0.066680818
495	1	12	3	2.8732	0.077	9	0.044409	0.042361082
496	1	12	3	2.8732	0.077	10	0.026521566	0.025298526
497	1	12	3	2.8732	0.077	11	0.016199746	0.015452695
498	1	12	3	2.8732	0.077	12	0.010426688	0.009945862
697	2	12	1	2.8732	0.077	1	0.138640272	0.14114077
698	2	12	1	2.8732	0.077	2	0.133832746	0.136246536
699	2	12	1	2.8732	0.077	3	0.130669603	0.133026343
700	2	12	1	2.8732	0.077	4	0.127162605	0.129456093
701	2	12	1	2.8732	0.077	5	0.12071499	0.12289219
702	2	12	1	2.8732	0.077	6	0.108105904	0.110055688
703	2	12	1	2.8732	0.077	7	0.087218263	0.08879132
704	2	12	1	2.8732	0.077	8	0.060888802	0.061986985
705	2	12	1	2.8732	0.077	9	0.036992364	0.037659553
706	2	12	1	2.8732	0.077	10	0.020784746	0.021159617
707	2	12	1	2.8732	0.077	11	0.011416646	0.011622555
708	2	12	1	2.8732	0.077	12	0.005856719	0.00596235
907	2	12	2	2.8732	0.077	1	0.136371259	0.135745318
908	2	12	2	2.8732	0.077	2	0.132526043	0.131917752
909	2	12	2	2.8732	0.077	3	0.130203345	0.129605715
910	2	12	2	2.8732	0.077	4	0.127621883	0.127036102
911	2	12	2	2.8732	0.077	5	0.122408496	0.121846643
912	2	12	2	2.8732	0.077	6	0.111445672	0.110934138
913	2	12	2	2.8732	0.077	7	0.092186308	0.091763175
914	2	12	2	2.8732	0.077	8	0.066349411	0.066044869
915	2	12	2	2.8732	0.077	9	0.04138356	0.04119361
916	2	12	2	2.8732	0.077	10	0.023652082	0.02354352
917	2	12	2	2.8732	0.077	11	0.013244365	0.013183574
918	2	12	2	2.8732	0.077	12	0.007218718	0.007185584
1117	2	12	3	2.8732	0.077	1	0.134337388	0.130734926
1118	2	12	3	2.8732	0.077	2	0.131355702	0.127833198
1119	2	12	3	2.8732	0.077	3	0.129785673	0.126305272
1120	2	12	3	2.8732	0.077	4	0.128034187	0.124600755
1121	2	12	3	2.8732	0.077	5	0.123941482	0.120617802
1122	2	12	3	2.8732	0.077	6	0.114533118	0.111461737
1123	2	12	3	2.8732	0.077	7	0.096961355	0.094361188
1124	2	12	3	2.8732	0.077	8	0.071892427	0.069964522
1125	2	12	3	2.8732	0.077	9	0.046075662	0.044840073
1126	2	12	3	2.8732	0.077	10	0.026791067	0.026072623
1127	2	12	3	2.8732	0.077	11	0.01521945	0.014811318
1128	2	12	3	2.8732	0.077	12	0.008627959	0.008396587
1327	3	12	1	2.8732	0.077	1	0.136783294	0.141708212
1328	3	12	1	2.8732	0.077	2	0.130708256	0.135414441
1329	3	12	1	2.8732	0.077	3	0.126851498	0.131418819
1330	3	12	1	2.8732	0.077	4	0.123270415	0.127708798
1331	3	12	1	2.8732	0.077	5	0.117550774	0.12178322
1332	3	12	1	2.8732	0.077	6	0.10660835	0.110446811
1333	3	12	1	2.8732	0.077	7	0.087862756	0.091026277
1334	3	12	1	2.8732	0.077	8	0.062734237	0.064993
1335	3	12	1	2.8732	0.077	9	0.038247528	0.03962464

1336	3	12	1	2.8732	0.077	10	0.020651338	0.021394895
1337	3	12	1	2.8732	0.077	11	0.010138666	0.010503711
1338	3	12	1	2.8732	0.077	12	0.003838954	0.003977177
1537	3	12	2	2.8732	0.077	1	0.134126942	0.136052489
1538	3	12	2	2.8732	0.077	2	0.129114606	0.130968195
1539	3	12	2	2.8732	0.077	3	0.126135872	0.127946698
1540	3	12	2	2.8732	0.077	4	0.123455629	0.125227977
1541	3	12	2	2.8732	0.077	5	0.118881903	0.12058859
1542	3	12	2	2.8732	0.077	6	0.109483471	0.111055233
1543	3	12	2	2.8732	0.077	7	0.092417155	0.09374391
1544	3	12	2	2.8732	0.077	8	0.068106534	0.069084282
1545	3	12	2	2.8732	0.077	9	0.042862861	0.043478206
1546	3	12	2	2.8732	0.077	10	0.023786027	0.024127503
1547	3	12	2	2.8732	0.077	11	0.012154552	0.012329044
1548	3	12	2	2.8732	0.077	12	0.005321476	0.005397872
1747	3	12	3	2.8732	0.077	1	0.131745189	0.130811338
1748	3	12	3	2.8732	0.077	2	0.127685769	0.126780692
1749	3	12	3	2.8732	0.077	3	0.125493795	0.124604255
1750	3	12	3	2.8732	0.077	4	0.123620712	0.122744449
1751	3	12	3	2.8732	0.077	5	0.120082845	0.11923166
1752	3	12	3	2.8732	0.077	6	0.112125597	0.111330815
1753	3	12	3	2.8732	0.077	7	0.096750103	0.096064307
1754	3	12	3	2.8732	0.077	8	0.073491178	0.072970249
1755	3	12	3	2.8732	0.077	9	0.047744473	0.047406045
1756	3	12	3	2.8732	0.077	10	0.027202297	0.027009478
1757	3	12	3	2.8732	0.077	11	0.014334715	0.014233106
1758	3	12	3	2.8732	0.077	12	0.006862247	0.006813605

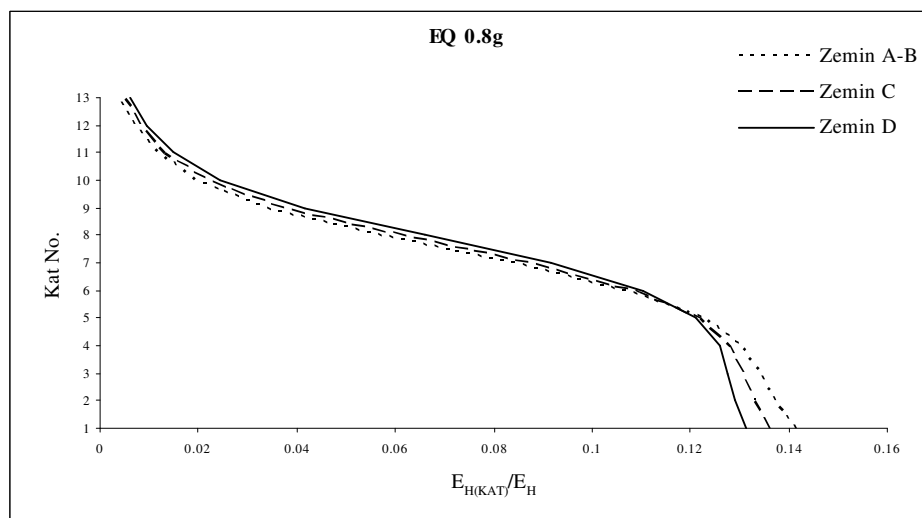
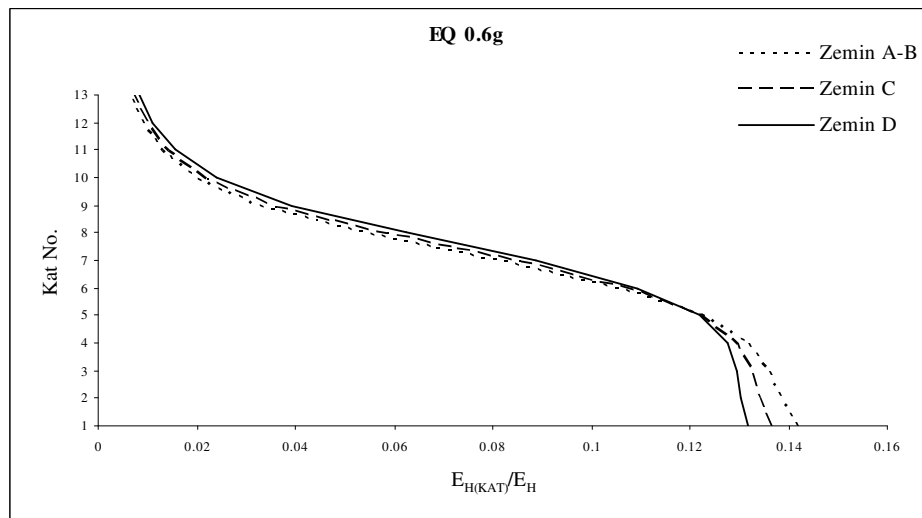
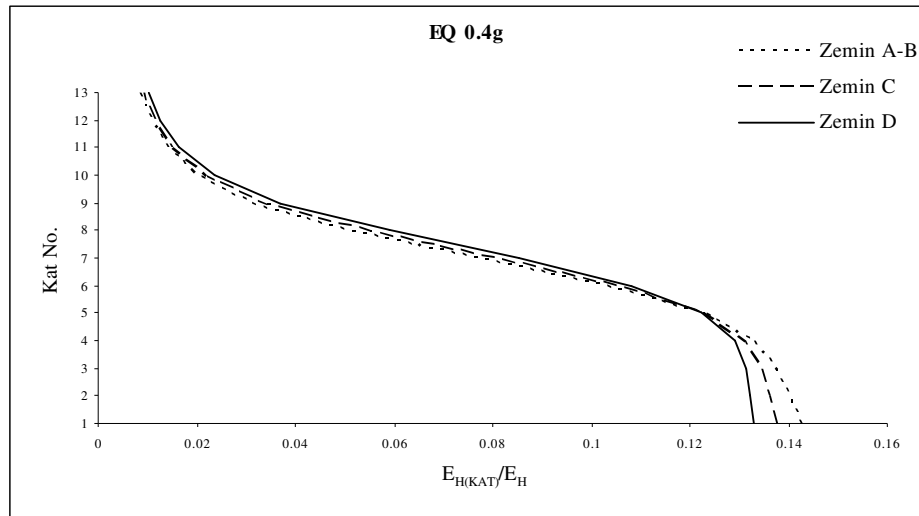




13 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat Sayısı	Zemin Tipi	Period (sec)	η	Kat No.	$E_{H(KAT)}/E_H$ NN Output	Ölçeklendirilmiş Output
79	1	13	1	3.0291	0.0691	1	0.142630707	0.142839514
80	1	13	1	3.0291	0.0691	2	0.140221843	0.140427125
81	1	13	1	3.0291	0.0691	3	0.137869081	0.138070918
82	1	13	1	3.0291	0.0691	4	0.133223953	0.13341899
83	1	13	1	3.0291	0.0691	5	0.123120364	0.123300609
84	1	13	1	3.0291	0.0691	6	0.104575553	0.104728649
85	1	13	1	3.0291	0.0691	7	0.078360979	0.078475698
86	1	13	1	3.0291	0.0691	8	0.051608478	0.051684032
87	1	13	1	3.0291	0.0691	9	0.031892521	0.03193921
88	1	13	1	3.0291	0.0691	10	0.020434449	0.020464364
89	1	13	1	3.0291	0.0691	11	0.014476445	0.014497638
90	1	13	1	3.0291	0.0691	12	0.011236263	0.011252713
91	1	13	1	3.0291	0.0691	13	0.008887528	0.008900539
289	1	13	2	3.0291	0.0691	1	0.141253408	0.137819866
290	1	13	2	3.0291	0.0691	2	0.139628888	0.136234835
291	1	13	2	3.0291	0.0691	3	0.138104492	0.134747493
292	1	13	2	3.0291	0.0691	4	0.134552398	0.131281742
293	1	13	2	3.0291	0.0691	5	0.125987969	0.122925494
294	1	13	2	3.0291	0.0691	6	0.109231955	0.10657678

295	1	13	2	3.0291	0.0691	7	0.084058609	0.08201534
296	1	13	2	3.0291	0.0691	8	0.056654368	0.055277232
297	1	13	2	3.0291	0.0691	9	0.035299932	0.034441873
298	1	13	2	3.0291	0.0691	10	0.022458925	0.021913
299	1	13	2	3.0291	0.0691	11	0.015724362	0.015342139
300	1	13	2	3.0291	0.0691	12	0.012167168	0.011871412
301	1	13	2	3.0291	0.0691	13	0.009790784	0.009552793
499	1	13	3	3.0291	0.0691	1	0.140021597	0.133131126
500	1	13	3	3.0291	0.0691	2	0.139100893	0.13225573
501	1	13	3	3.0291	0.0691	3	0.138317891	0.13151126
502	1	13	3	3.0291	0.0691	4	0.135751461	0.129071124
503	1	13	3	3.0291	0.0691	5	0.128615063	0.122285908
504	1	13	3	3.0291	0.0691	6	0.113637378	0.108045276
505	1	13	3	3.0291	0.0691	7	0.089731007	0.085315339
506	1	13	3	3.0291	0.0691	8	0.061971637	0.058922009
507	1	13	3	3.0291	0.0691	9	0.039034824	0.037113918
508	1	13	3	3.0291	0.0691	10	0.024700021	0.023484532
509	1	13	3	3.0291	0.0691	11	0.017075354	0.016235075
510	1	13	3	3.0291	0.0691	12	0.013125989	0.012480058
511	1	13	3	3.0291	0.0691	13	0.010673909	0.010148645
709	2	13	1	3.0291	0.0691	1	0.139077003	0.141993085
710	2	13	1	3.0291	0.0691	2	0.135960029	0.138810756
711	2	13	1	3.0291	0.0691	3	0.133475469	0.136274102
712	2	13	1	3.0291	0.0691	4	0.12944826	0.132162453
713	2	13	1	3.0291	0.0691	5	0.12092839	0.123463943
714	2	13	1	3.0291	0.0691	6	0.104749494	0.106945817
715	2	13	1	3.0291	0.0691	7	0.080460615	0.082147664
716	2	13	1	3.0291	0.0691	8	0.053773878	0.054901376
717	2	13	1	3.0291	0.0691	9	0.032734844	0.033421209
718	2	13	1	3.0291	0.0691	10	0.019931148	0.020349053
719	2	13	1	3.0291	0.0691	11	0.013080893	0.013355165
720	2	13	1	3.0291	0.0691	12	0.009288558	0.009483314
721	2	13	1	3.0291	0.0691	13	0.006554629	0.006692063
919	2	13	2	3.0291	0.0691	1	0.137416245	0.136800469
920	2	13	2	3.0291	0.0691	2	0.135126832	0.134521315
921	2	13	2	3.0291	0.0691	3	0.133455069	0.132857044
922	2	13	2	3.0291	0.0691	4	0.130440098	0.129855583
923	2	13	2	3.0291	0.0691	5	0.123335642	0.122782963
924	2	13	2	3.0291	0.0691	6	0.108910648	0.108422608
925	2	13	2	3.0291	0.0691	7	0.085914781	0.085529789
926	2	13	2	3.0291	0.0691	8	0.058966866	0.058702629
927	2	13	2	3.0291	0.0691	9	0.036432425	0.036269168
928	2	13	2	3.0291	0.0691	10	0.022181908	0.022082509
929	2	13	2	3.0291	0.0691	11	0.014471345	0.014406497
930	2	13	2	3.0291	0.0691	12	0.010314754	0.010268532
931	2	13	2	3.0291	0.0691	13	0.007534656	0.007500893
1129	2	13	3	3.0291	0.0691	1	0.135929428	0.131962966
1130	2	13	3	3.0291	0.0691	2	0.134382484	0.130461162
1131	2	13	3	3.0291	0.0691	3	0.133438427	0.129544652
1132	2	13	3	3.0291	0.0691	4	0.131333423	0.127501073
1133	2	13	3	3.0291	0.0691	5	0.125531106	0.12186807
1134	2	13	3	3.0291	0.0691	6	0.112813575	0.109521641
1135	2	13	3	3.0291	0.0691	7	0.091277951	0.088614433
1136	2	13	3	3.0291	0.0691	8	0.064374326	0.062495863
1137	2	13	3	3.0291	0.0691	9	0.04045695	0.039276404
1138	2	13	3	3.0291	0.0691	10	0.02466781	0.023947996
1139	2	13	3	3.0291	0.0691	11	0.015979367	0.015513084
1140	2	13	3	3.0291	0.0691	12	0.011375845	0.011043895
1141	2	13	3	3.0291	0.0691	13	0.008496698	0.008248762
1339	3	13	1	3.0291	0.0691	1	0.136130212	0.141733925
1340	3	13	1	3.0291	0.0691	2	0.132112129	0.137550441
1341	3	13	1	3.0291	0.0691	3	0.129287473	0.134609509
1342	3	13	1	3.0291	0.0691	4	0.125612708	0.130783475

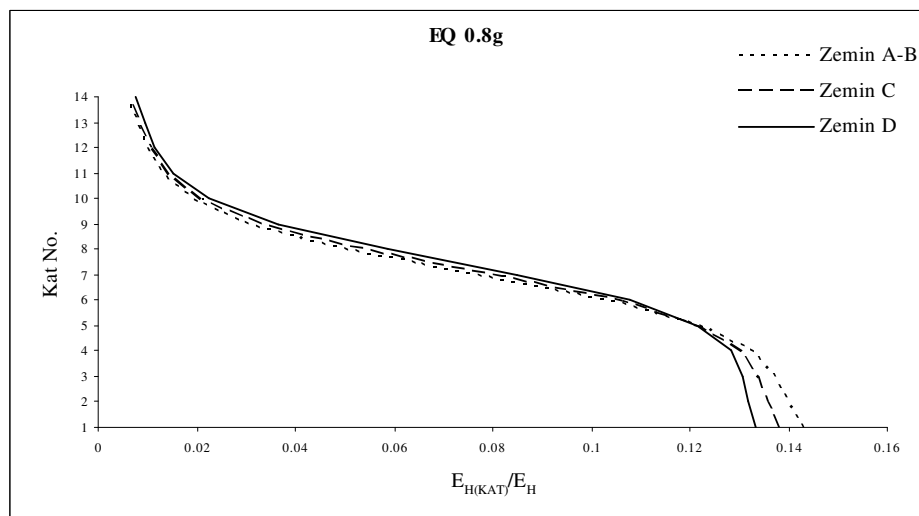
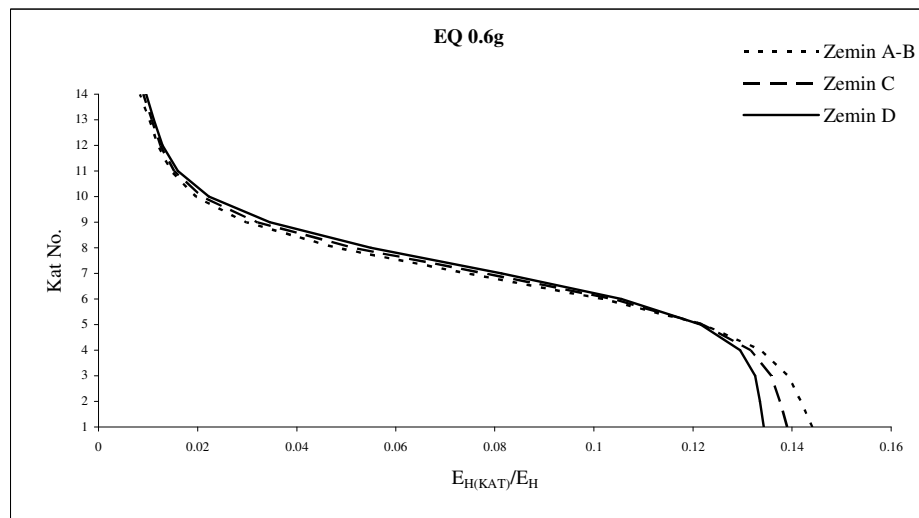
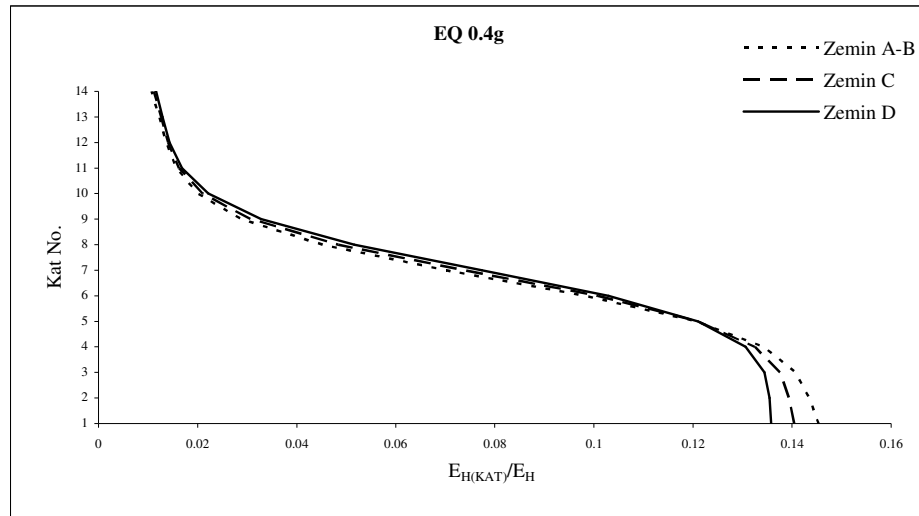


14 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat Sayısı	Zemin Tipi	Period (sec)	η	Kat No.	$E_{H(KAT)}/E_H$ NN Output	Ölçeklendirilmiş Output
92	1	14	1	3.1728	0.0628	1	0.14518801	0.145383574
93	1	14	1	3.1728	0.0628	2	0.143327543	0.143520601
94	1	14	1	3.1728	0.0628	3	0.140544224	0.140733533
95	1	14	1	3.1728	0.0628	4	0.134129089	0.134309757
96	1	14	1	3.1728	0.0628	5	0.120688684	0.120851248
97	1	14	1	3.1728	0.0628	6	0.098181624	0.098313871
98	1	14	1	3.1728	0.0628	7	0.070116515	0.07021096
99	1	14	1	3.1728	0.0628	8	0.045179117	0.045239971
100	1	14	1	3.1728	0.0628	9	0.028810174	0.028848981
101	1	14	1	3.1728	0.0628	10	0.020032882	0.020059866
102	1	14	1	3.1728	0.0628	11	0.015784221	0.015805482
103	1	14	1	3.1728	0.0628	12	0.013688612	0.01370705
104	1	14	1	3.1728	0.0628	13	0.012291986	0.012308543
105	1	14	1	3.1728	0.0628	14	0.010692162	0.010706564
302	1	14	2	3.1728	0.0628	1	0.144198588	0.140437179
303	1	14	2	3.1728	0.0628	2	0.14309938	0.139366644
304	1	14	2	3.1728	0.0628	3	0.141217976	0.137534316
305	1	14	2	3.1728	0.0628	4	0.136071158	0.132521752
306	1	14	2	3.1728	0.0628	5	0.124355665	0.121111857
307	1	14	2	3.1728	0.0628	6	0.103516609	0.100816386
308	1	14	2	3.1728	0.0628	7	0.075841793	0.073863465
309	1	14	2	3.1728	0.0628	8	0.049644667	0.04834969
310	1	14	2	3.1728	0.0628	9	0.031583293	0.030759445
311	1	14	2	3.1728	0.0628	10	0.021617675	0.021053779
312	1	14	2	3.1728	0.0628	11	0.016745189	0.016308392
313	1	14	2	3.1728	0.0628	12	0.014399138	0.014023537
314	1	14	2	3.1728	0.0628	13	0.012980233	0.012641645
315	1	14	2	3.1728	0.0628	14	0.011512206	0.011211911
512	1	14	3	3.1728	0.0628	1	0.143316001	0.135805323
513	1	14	3	3.1728	0.0628	2	0.142898328	0.13540954
514	1	14	3	3.1728	0.0628	3	0.141825157	0.13439261
515	1	14	3	3.1728	0.0628	4	0.137832038	0.130608756
516	1	14	3	3.1728	0.0628	5	0.127750997	0.121056025
517	1	14	3	3.1728	0.0628	6	0.108659937	0.10296546
518	1	14	3	3.1728	0.0628	7	0.081680078	0.077399518
519	1	14	3	3.1728	0.0628	8	0.054446556	0.051593207
520	1	14	3	3.1728	0.0628	9	0.034657318	0.032841052
521	1	14	3	3.1728	0.0628	10	0.023379897	0.022154641
522	1	14	3	3.1728	0.0628	11	0.017788028	0.016855821
523	1	14	3	3.1728	0.0628	12	0.015131675	0.014338678
524	1	14	3	3.1728	0.0628	13	0.013652106	0.012936648
525	1	14	3	3.1728	0.0628	14	0.012286618	0.01164272
722	2	14	1	3.1728	0.0628	1	0.141043498	0.144129673
723	2	14	1	3.1728	0.0628	2	0.13875999	0.141796199
724	2	14	1	3.1728	0.0628	3	0.136188729	0.139168676
725	2	14	1	3.1728	0.0628	4	0.130844886	0.133707904
726	2	14	1	3.1728	0.0628	5	0.119472979	0.122087169
727	2	14	1	3.1728	0.0628	6	0.099457457	0.101633687
728	2	14	1	3.1728	0.0628	7	0.072713008	0.074304043
729	2	14	1	3.1728	0.0628	8	0.047103738	0.048134415
730	2	14	1	3.1728	0.0628	9	0.029248784	0.029888777
731	2	14	1	3.1728	0.0628	10	0.01929095	0.019713056
732	2	14	1	3.1728	0.0628	11	0.014324784	0.014638224
733	2	14	1	3.1728	0.0628	12	0.01179996	0.012058155
734	2	14	1	3.1728	0.0628	13	0.010102965	0.010324028
735	2	14	1	3.1728	0.0628	14	0.008235787	0.008415995
932	2	14	2	3.1728	0.0628	1	0.139801755	0.139027922
933	2	14	2	3.1728	0.0628	2	0.138295343	0.137529848
934	2	14	2	3.1728	0.0628	3	0.136580095	0.135824094
935	2	14	2	3.1728	0.0628	4	0.132394783	0.131661948

936	2	14	2	3.1728	0.0628	5	0.122631559	0.121952766
937	2	14	2	3.1728	0.0628	6	0.104350343	0.103772741
938	2	14	2	3.1728	0.0628	7	0.078360711	0.077926967
939	2	14	2	3.1728	0.0628	8	0.051817851	0.051531028
940	2	14	2	3.1728	0.0628	9	0.032302408	0.032123607
941	2	14	2	3.1728	0.0628	10	0.021064447	0.02094785
942	2	14	2	3.1728	0.0628	11	0.015400102	0.015314859
943	2	14	2	3.1728	0.0628	12	0.012587256	0.012517583
944	2	14	2	3.1728	0.0628	13	0.010856439	0.010796346
945	2	14	2	3.1728	0.0628	14	0.009122938	0.009072441
1142	2	14	3	3.1728	0.0628	1	0.138692078	0.134265035
1143	2	14	3	3.1728	0.0628	2	0.137881697	0.133480522
1144	2	14	3	3.1728	0.0628	3	0.136933077	0.132562181
1145	2	14	3	3.1728	0.0628	4	0.133796508	0.129525731
1146	2	14	3	3.1728	0.0628	5	0.125538622	0.121531437
1147	2	14	3	3.1728	0.0628	6	0.109018019	0.10553817
1148	2	14	3	3.1728	0.0628	7	0.084045993	0.08136325
1149	2	14	3	3.1728	0.0628	8	0.05683475	0.055020589
1150	2	14	3	3.1728	0.0628	9	0.035669824	0.034531246
1151	2	14	3	3.1728	0.0628	10	0.0230347	0.022299434
1152	2	14	3	3.1728	0.0628	11	0.016568564	0.016039697
1153	2	14	3	3.1728	0.0628	12	0.013401395	0.012973623
1154	2	14	3	3.1728	0.0628	13	0.011593808	0.011223734
1155	2	14	3	3.1728	0.0628	14	0.009963383	0.009645352
1352	3	14	1	3.1728	0.0628	1	0.137388329	0.143403424
1353	3	14	1	3.1728	0.0628	2	0.134488244	0.140376368
1354	3	14	1	3.1728	0.0628	3	0.131899267	0.137674041
1355	3	14	1	3.1728	0.0628	4	0.127331177	0.132905953
1356	3	14	1	3.1728	0.0628	5	0.117718272	0.122872178
1357	3	14	1	3.1728	0.0628	6	0.10010705	0.104489907
1358	3	14	1	3.1728	0.0628	7	0.075019333	0.078303807
1359	3	14	1	3.1728	0.0628	8	0.049134656	0.051285855
1360	3	14	1	3.1728	0.0628	9	0.029884956	0.03119337
1361	3	14	1	3.1728	0.0628	10	0.01867491	0.01949253
1362	3	14	1	3.1728	0.0628	11	0.012913663	0.013479045
1363	3	14	1	3.1728	0.0628	12	0.009905671	0.010339358
1364	3	14	1	3.1728	0.0628	13	0.007872606	0.008217282
1365	3	14	1	3.1728	0.0628	14	0.0057166	0.005966883
1562	3	14	2	3.1728	0.0628	1	0.135873596	0.138114221
1563	3	14	2	3.1728	0.0628	2	0.133783355	0.135989511
1564	3	14	2	3.1728	0.0628	3	0.132023548	0.134200684
1565	3	14	2	3.1728	0.0628	4	0.128521651	0.130641039
1566	3	14	2	3.1728	0.0628	5	0.120395025	0.122380401
1567	3	14	2	3.1728	0.0628	6	0.104523747	0.106247397
1568	3	14	2	3.1728	0.0628	7	0.080493631	0.081821013
1569	3	14	2	3.1728	0.0628	8	0.054039889	0.054931035
1570	3	14	2	3.1728	0.0628	9	0.033219086	0.033766886
1571	3	14	2	3.1728	0.0628	10	0.020651069	0.020991616
1572	3	14	2	3.1728	0.0628	11	0.014113532	0.014346271
1573	3	14	2	3.1728	0.0628	12	0.010775374	0.010953066
1574	3	14	2	3.1728	0.0628	13	0.008693724	0.008837087
1575	3	14	2	3.1728	0.0628	14	0.006669784	0.006779773
1772	3	14	3	3.1728	0.0628	1	0.13451804	0.133189447
1773	3	14	3	3.1728	0.0628	2	0.133153894	0.131838774
1774	3	14	3	3.1728	0.0628	3	0.132136288	0.130831218
1775	3	14	3	3.1728	0.0628	4	0.129595358	0.128315385
1776	3	14	3	3.1728	0.0628	5	0.122846032	0.12163272
1777	3	14	3	3.1728	0.0628	6	0.108697785	0.107624211
1778	3	14	3	3.1728	0.0628	7	0.085934645	0.085085895
1779	3	14	3	3.1728	0.0628	8	0.059201739	0.058617022
1780	3	14	3	3.1728	0.0628	9	0.036873719	0.036509529
1781	3	14	3	3.1728	0.0628	10	0.022843312	0.022617696
1782	3	14	3	3.1728	0.0628	11	0.01541916	0.01526687

1783	3	14	3	3.1728	0.0628	12	0.011678094	0.011562753
1784	3	14	3	3.1728	0.0628	13	0.009500346	0.009406514
1785	3	14	3	3.1728	0.0628	14	0.007576799	0.007501965

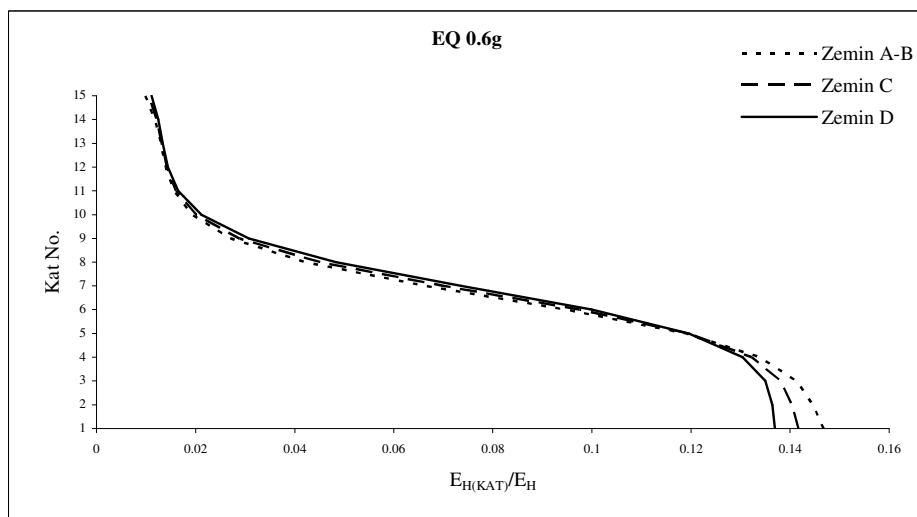
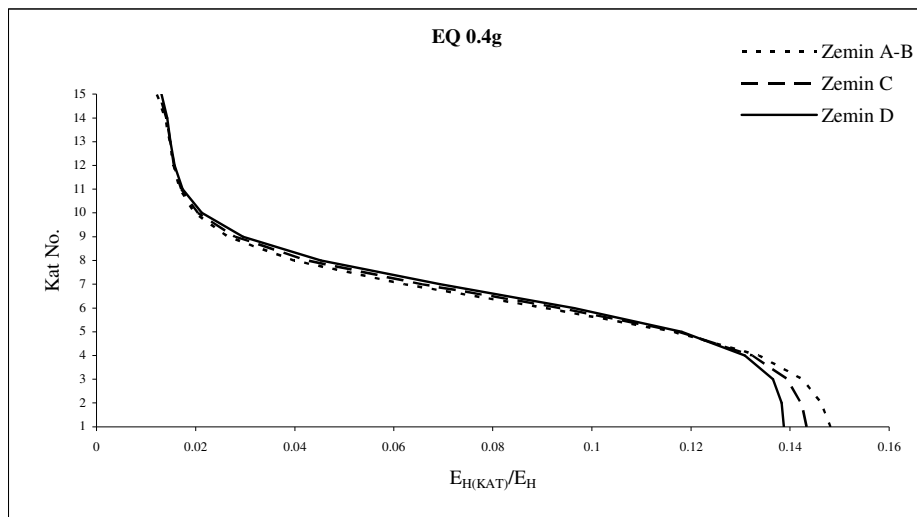


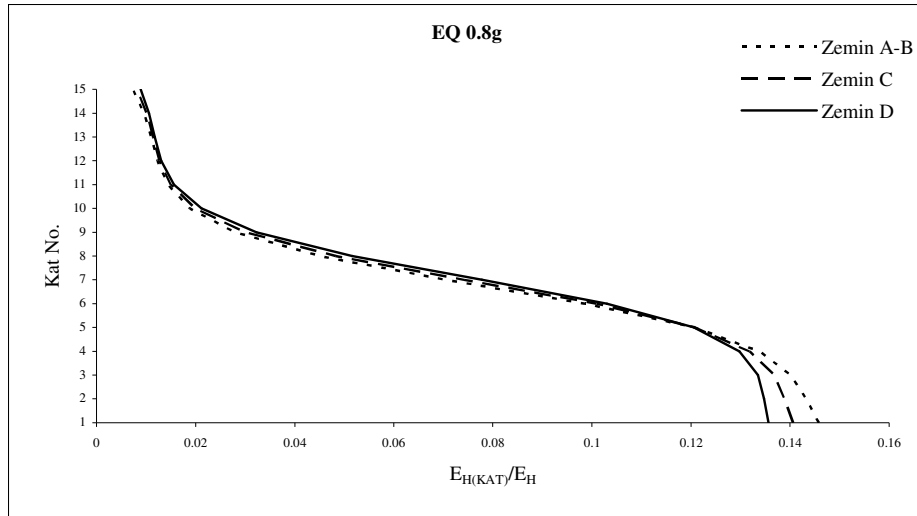
15 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat Sayısı	Zemin Tipi	Period (sec)	η	Kat No.	$E_{H(KAT)}/E_H$ NN Output	Ölçeklendirilmiş Output
106	1	15	1	3.3043	0.0581	1	0.148180702	0.148228073
107	1	15	1	3.3043	0.0581	2	0.146277555	0.146324318
108	1	15	1	3.3043	0.0581	3	0.142467503	0.142513048
109	1	15	1	3.3043	0.0581	4	0.133667126	0.133709858
110	1	15	1	3.3043	0.0581	5	0.116542294	0.116579551
111	1	15	1	3.3043	0.0581	6	0.090664596	0.09069358
112	1	15	1	3.3043	0.0581	7	0.062222884	0.062242776
113	1	15	1	3.3043	0.0581	8	0.039906406	0.039919164
114	1	15	1	3.3043	0.0581	9	0.02656532	0.026573812
115	1	15	1	3.3043	0.0581	10	0.019868873	0.019875225
116	1	15	1	3.3043	0.0581	11	0.016858734	0.016864123
117	1	15	1	3.3043	0.0581	12	0.015555521	0.015560494
118	1	15	1	3.3043	0.0581	13	0.014798289	0.014803019
119	1	15	1	3.3043	0.0581	14	0.013867116	0.013871549
120	1	15	1	3.3043	0.0581	15	0.012237496	0.012241408
316	1	15	2	3.3043	0.0581	1	0.147481986	0.143301638
317	1	15	2	3.3043	0.0581	2	0.146370967	0.14222211
318	1	15	2	3.3043	0.0581	3	0.143585233	0.139515337
319	1	15	2	3.3043	0.0581	4	0.136252883	0.132390821
320	1	15	2	3.3043	0.0581	5	0.120967848	0.117539038
321	1	15	2	3.3043	0.0581	6	0.096444364	0.093710667
322	1	15	2	3.3043	0.0581	7	0.067696378	0.065777537
323	1	15	2	3.3043	0.0581	8	0.043750548	0.042510447
324	1	15	2	3.3043	0.0581	9	0.02881608	0.027999293
325	1	15	2	3.3043	0.0581	10	0.021125648	0.020526846
326	1	15	2	3.3043	0.0581	11	0.017615966	0.017116645
327	1	15	2	3.3043	0.0581	12	0.016114117	0.015657366
328	1	15	2	3.3043	0.0581	13	0.015339169	0.014904383
329	1	15	2	3.3043	0.0581	14	0.01451483	0.01410341
330	1	15	2	3.3043	0.0581	15	0.013095657	0.012724463
526	1	15	3	3.3043	0.0581	1	0.146860041	0.138679679
527	1	15	3	3.3043	0.0581	2	0.146457938	0.138299973
528	1	15	3	3.3043	0.0581	3	0.144592639	0.136538575
529	1	15	3	3.3043	0.0581	4	0.138610477	0.130889629
530	1	15	3	3.3043	0.0581	5	0.125117729	0.118148451
531	1	15	3	3.3043	0.0581	6	0.102128305	0.096439578
532	1	15	3	3.3043	0.0581	7	0.073401523	0.06931293
533	1	15	3	3.3043	0.0581	8	0.047949282	0.045278423
534	1	15	3	3.3043	0.0581	9	0.031329361	0.02958426
535	1	15	3	3.3043	0.0581	10	0.022526837	0.021272052
536	1	15	3	3.3043	0.0581	11	0.018438158	0.01741112
537	1	15	3	3.3043	0.0581	12	0.01669043	0.015760744
538	1	15	3	3.3043	0.0581	13	0.015866628	0.014982829
539	1	15	3	3.3043	0.0581	14	0.015124696	0.014282224
540	1	15	3	3.3043	0.0581	15	0.013893421	0.013119533
736	2	15	1	3.3043	0.0581	1	0.143700925	0.146786636
737	2	15	1	3.3043	0.0581	2	0.141628669	0.144669882
738	2	15	1	3.3043	0.0581	3	0.138369966	0.141341205
739	2	15	1	3.3043	0.0581	4	0.131080564	0.133895277
740	2	15	1	3.3043	0.0581	5	0.116385532	0.118884696
741	2	15	1	3.3043	0.0581	6	0.092825433	0.094818687
742	2	15	1	3.3043	0.0581	7	0.064939096	0.066333543
743	2	15	1	3.3043	0.0581	8	0.041430266	0.042319904
744	2	15	1	3.3043	0.0581	9	0.026621958	0.027193615
745	2	15	1	3.3043	0.0581	10	0.018925084	0.019331465
746	2	15	1	3.3043	0.0581	11	0.015342927	0.015672388
747	2	15	1	3.3043	0.0581	12	0.013708207	0.014002565
748	2	15	1	3.3043	0.0581	13	0.012722275	0.012995462
749	2	15	1	3.3043	0.0581	14	0.011581997	0.011830699
750	2	15	1	3.3043	0.0581	15	0.009715356	0.009923976

946	2	15	2	3.3043	0.0581	1	0.142761431	0.141703189
947	2	15	2	3.3043	0.0581	2	0.141473787	0.14042509
948	2	15	2	3.3043	0.0581	3	0.139166389	0.138134796
949	2	15	2	3.3043	0.0581	4	0.133216974	0.132229482
950	2	15	2	3.3043	0.0581	5	0.120284433	0.119392806
951	2	15	2	3.3043	0.0581	6	0.098268594	0.097540162
952	2	15	2	3.3043	0.0581	7	0.070491507	0.069968978
953	2	15	2	3.3043	0.0581	8	0.045571288	0.045233484
954	2	15	2	3.3043	0.0581	9	0.029125844	0.028909944
955	2	15	2	3.3043	0.0581	10	0.020337815	0.020187058
956	2	15	2	3.3043	0.0581	11	0.01619223	0.016072202
957	2	15	2	3.3043	0.0581	12	0.01432881	0.014222595
958	2	15	2	3.3043	0.0581	13	0.013317377	0.01321866
959	2	15	2	3.3043	0.0581	14	0.012288497	0.012197406
960	2	15	2	3.3043	0.0581	15	0.01064304	0.010564147
1156	2	15	3	3.3043	0.0581	1	0.141922865	0.136950351
1157	2	15	3	3.3043	0.0581	2	0.141337963	0.136385942
1158	2	15	3	3.3043	0.0581	3	0.139883625	0.13498256
1159	2	15	3	3.3043	0.0581	4	0.135157433	0.130421958
1160	2	15	3	3.3043	0.0581	5	0.12391276	0.119571262
1161	2	15	3	3.3043	0.0581	6	0.103558752	0.099930391
1162	2	15	3	3.3043	0.0581	7	0.076206316	0.073536296
1163	2	15	3	3.3043	0.0581	8	0.050055628	0.048301843
1164	2	15	3	3.3043	0.0581	9	0.031911847	0.03079376
1165	2	15	3	3.3043	0.0581	10	0.021912407	0.021144668
1166	2	15	3	3.3043	0.0581	11	0.017115887	0.016516202
1167	2	15	3	3.3043	0.0581	12	0.014970887	0.014446356
1168	2	15	3	3.3043	0.0581	13	0.01389879	0.013411822
1169	2	15	3	3.3043	0.0581	14	0.012955269	0.012501359
1170	2	15	3	3.3043	0.0581	15	0.011508448	0.01110523
1366	3	15	1	3.3043	0.0581	1	0.139611441	0.145837718
1367	3	15	1	3.3043	0.0581	2	0.137164998	0.143282171
1368	3	15	1	3.3043	0.0581	3	0.134201296	0.140186296
1369	3	15	1	3.3043	0.0581	4	0.128105052	0.133818177
1370	3	15	1	3.3043	0.0581	5	0.115578373	0.120732843
1371	3	15	1	3.3043	0.0581	6	0.094420157	0.098631031
1372	3	15	1	3.3043	0.0581	7	0.067536127	0.070548048
1373	3	15	1	3.3043	0.0581	8	0.043137461	0.045061271
1374	3	15	1	3.3043	0.0581	9	0.026864884	0.028062983
1375	3	15	1	3.3043	0.0581	10	0.018081418	0.018887799
1376	3	15	1	3.3043	0.0581	11	0.013855842	0.014473773
1377	3	15	1	3.3043	0.0581	12	0.011841029	0.012369106
1378	3	15	1	3.3043	0.0581	13	0.010592844	0.011065255
1379	3	15	1	3.3043	0.0581	14	0.009217693	0.009628776
1380	3	15	1	3.3043	0.0581	15	0.007098194	0.007414753
1576	3	15	2	3.3043	0.0581	1	0.138416941	0.140568385
1577	3	15	2	3.3043	0.0581	2	0.136765041	0.13889081
1578	3	15	2	3.3043	0.0581	3	0.134698691	0.136792342
1579	3	15	2	3.3043	0.0581	4	0.129826742	0.131844668
1580	3	15	2	3.3043	0.0581	5	0.118960283	0.120809309
1581	3	15	2	3.3043	0.0581	6	0.099459067	0.101004981
1582	3	15	2	3.3043	0.0581	7	0.073071627	0.074207395
1583	3	15	2	3.3043	0.0581	8	0.047542884	0.048281853
1584	3	15	2	3.3043	0.0581	9	0.029631561	0.03009213
1585	3	15	2	3.3043	0.0581	10	0.019663795	0.019969434
1586	3	15	2	3.3043	0.0581	11	0.014805805	0.015035934
1587	3	15	2	3.3043	0.0581	12	0.012529007	0.012723749
1588	3	15	2	3.3043	0.0581	13	0.011244585	0.011419362
1589	3	15	2	3.3043	0.0581	14	0.009984589	0.010139781
1590	3	15	2	3.3043	0.0581	15	0.008094058	0.008219865
1786	3	15	3	3.3043	0.0581	1	0.137349138	0.135657541
1787	3	15	3	3.3043	0.0581	2	0.136409107	0.134729088
1788	3	15	3	3.3043	0.0581	3	0.135146159	0.133481693

1789	3	15	3	3.3043	0.0581	4	0.131385766	0.129767614
1790	3	15	3	3.3043	0.0581	5	0.122086383	0.120582763
1791	3	15	3	3.3043	0.0581	6	0.104302563	0.103017968
1792	3	15	3	3.3043	0.0581	7	0.078696245	0.077727019
1793	3	15	3	3.3043	0.0581	8	0.052268272	0.051624534
1794	3	15	3	3.3043	0.0581	9	0.032696459	0.032293768
1795	3	15	3	3.3043	0.0581	10	0.021426018	0.021162134
1796	3	15	3	3.3043	0.0581	11	0.015840859	0.015645762
1797	3	15	3	3.3043	0.0581	12	0.013242486	0.013079391
1798	3	15	3	3.3043	0.0581	13	0.011883709	0.011737349
1799	3	15	3	3.3043	0.0581	14	0.010710147	0.01057824
1800	3	15	3	3.3043	0.0581	15	0.009026304	0.008915136



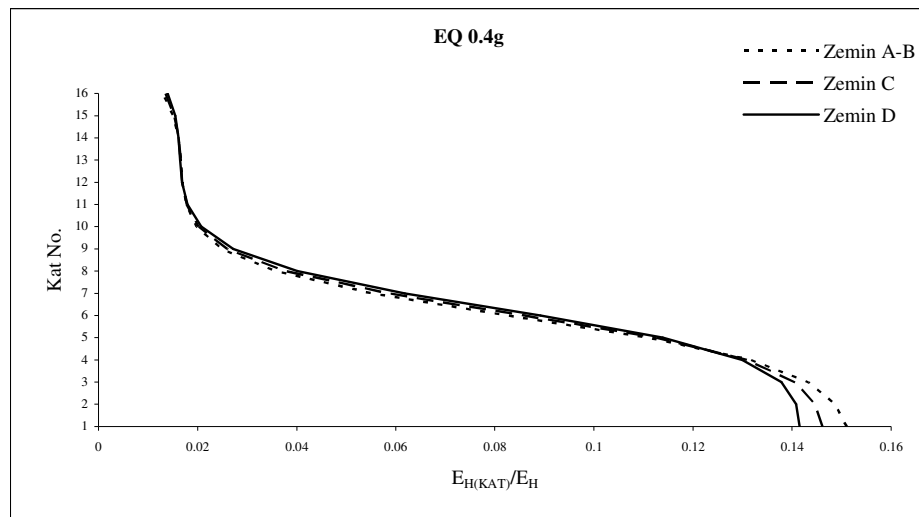


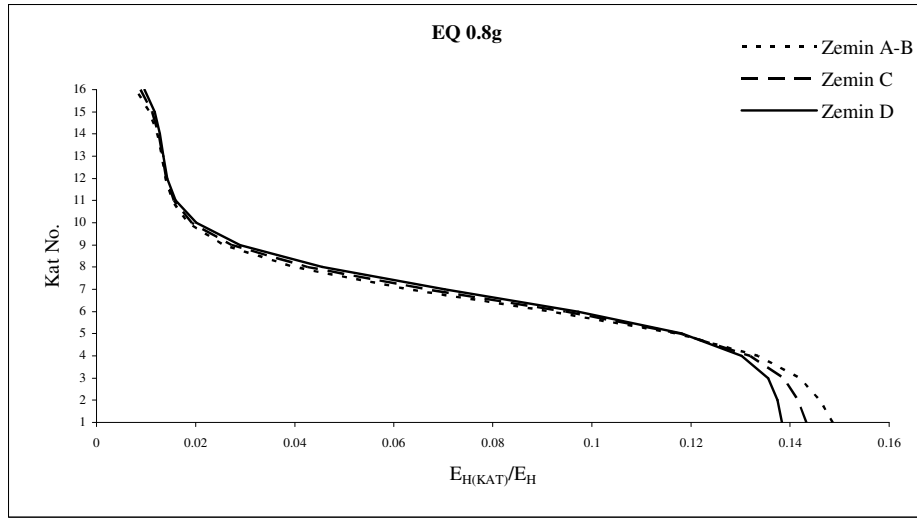
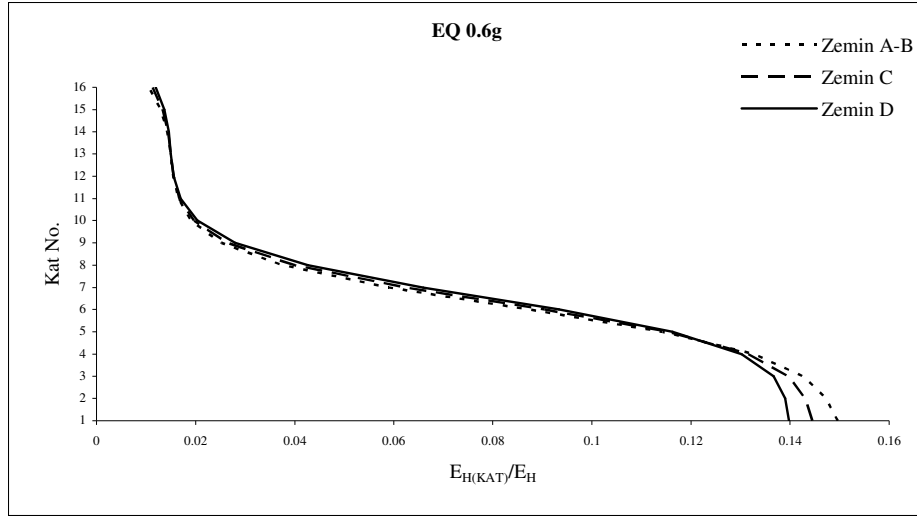
16 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kay Sayısı	Zemin Tipi	Period (sec)	η	Kat No.	$E_{H(KAT)}/E_H$ NN Output	Ölçeklendirilmiş Output
121	1	16	1	3.4236	0.055	1	0.151166683	0.151085933
122	1	16	1	3.4236	0.055	2	0.148752451	0.148672991
123	1	16	1	3.4236	0.055	3	0.143436256	0.143359636
124	1	16	1	3.4236	0.055	4	0.131825986	0.131755568
125	1	16	1	3.4236	0.055	5	0.111044105	0.110984788
126	1	16	1	3.4236	0.055	6	0.08277875	0.082734531
127	1	16	1	3.4236	0.055	7	0.055220699	0.055191202
128	1	16	1	3.4236	0.055	8	0.035778269	0.035759157
129	1	16	1	3.4236	0.055	9	0.024986433	0.024973085
130	1	16	1	3.4236	0.055	10	0.019871826	0.019861211
131	1	16	1	3.4236	0.055	11	0.017756622	0.017747137
132	1	16	1	3.4236	0.055	12	0.017000732	0.01699165
133	1	16	1	3.4236	0.055	13	0.01666654	0.016657637
134	1	16	1	3.4236	0.055	14	0.016171829	0.016163191
135	1	16	1	3.4236	0.055	15	0.015079868	0.015071813
136	1	16	1	3.4236	0.055	16	0.012997412	0.01299047
331	1	16	2	3.4236	0.055	1	0.150695057	0.146137971
332	1	16	2	3.4236	0.055	2	0.149145965	0.144635724
333	1	16	2	3.4236	0.055	3	0.145009238	0.140624094
334	1	16	2	3.4236	0.055	4	0.13506053	0.13097624
335	1	16	2	3.4236	0.055	5	0.116122474	0.112610879
336	1	16	2	3.4236	0.055	6	0.088740512	0.086056959
337	1	16	2	3.4236	0.055	7	0.060264441	0.058442018
338	1	16	2	3.4236	0.055	8	0.03904234	0.037861682
339	1	16	2	3.4236	0.055	9	0.026823546	0.02601239
340	1	16	2	3.4236	0.055	10	0.020885406	0.020253822
341	1	16	2	3.4236	0.055	11	0.018368367	0.017812899
342	1	16	2	3.4236	0.055	12	0.017454642	0.016926805
343	1	16	2	3.4236	0.055	13	0.017107834	0.016590485
344	1	16	2	3.4236	0.055	14	0.016702509	0.016197418
345	1	16	2	3.4236	0.055	15	0.015788516	0.015311064
346	1	16	2	3.4236	0.055	16	0.013972071	0.013549549
541	1	16	3	3.4236	0.055	1	0.150276311	0.141490538
542	1	16	3	3.4236	0.055	2	0.149501362	0.140760896
543	1	16	3	3.4236	0.055	3	0.14643029	0.137869371
544	1	16	3	3.4236	0.055	4	0.13803148	0.12996159
545	1	16	3	3.4236	0.055	5	0.120952817	0.113881416
546	1	16	3	3.4236	0.055	6	0.094721332	0.089183533
547	1	16	3	3.4236	0.055	7	0.065620901	0.061784432
548	1	16	3	3.4236	0.055	8	0.042647582	0.040154229

549	1	16	3	3.4236	0.055	9	0.028883723	0.027195062
550	1	16	3	3.4236	0.055	10	0.022016289	0.020729126
551	1	16	3	3.4236	0.055	11	0.019031918	0.017919234
552	1	16	3	3.4236	0.055	12	0.017922241	0.016874433
553	1	16	3	3.4236	0.055	13	0.017537854	0.016512519
554	1	16	3	3.4236	0.055	14	0.017200978	0.016195338
555	1	16	3	3.4236	0.055	15	0.016445088	0.01548364
556	1	16	3	3.4236	0.055	16	0.014874253	0.014004643
751	2	16	1	3.4236	0.055	1	0.146548398	0.149631961
752	2	16	1	3.4236	0.055	2	0.144202346	0.147236545
753	2	16	1	3.4236	0.055	3	0.139772228	0.142713212
754	2	16	1	3.4236	0.055	4	0.130072353	0.132809239
755	2	16	1	3.4236	0.055	5	0.11191005	0.114264779
756	2	16	1	3.4236	0.055	6	0.085530663	0.087330335
757	2	16	1	3.4236	0.055	7	0.05778364	0.05899948
758	2	16	1	3.4236	0.055	8	0.036865666	0.037641366
759	2	16	1	3.4236	0.055	9	0.024720153	0.025240296
760	2	16	1	3.4236	0.055	10	0.018770202	0.019165151
761	2	16	1	3.4236	0.055	11	0.016198135	0.016538964
762	2	16	1	3.4236	0.055	12	0.01518536	0.015504879
763	2	16	1	3.4236	0.055	13	0.014677497	0.01498633
764	2	16	1	3.4236	0.055	14	0.014021193	0.014316216
765	2	16	1	3.4236	0.055	15	0.012734354	0.013002301
766	2	16	1	3.4236	0.055	16	0.010400113	0.010618945
961	2	16	2	3.4236	0.055	1	0.145833845	0.14450862
962	2	16	2	3.4236	0.055	2	0.144324212	0.143012705
963	2	16	2	3.4236	0.055	3	0.140977197	0.139696105
964	2	16	2	3.4236	0.055	4	0.132807623	0.13160077
965	2	16	2	3.4236	0.055	5	0.116481361	0.115422868
966	2	16	2	3.4236	0.055	6	0.091292715	0.090463117
967	2	16	2	3.4236	0.055	7	0.063024944	0.062452222
968	2	16	2	3.4236	0.055	8	0.040435207	0.040067764
969	2	16	2	3.4236	0.055	9	0.026777914	0.026534577
970	2	16	2	3.4236	0.055	10	0.019912895	0.019731942
971	2	16	2	3.4236	0.055	11	0.01688504	0.016731601
972	2	16	2	3.4236	0.055	12	0.01569054	0.015547956
973	2	16	2	3.4236	0.055	13	0.015164423	0.01502662
974	2	16	2	3.4236	0.055	14	0.014602874	0.014470174
975	2	16	2	3.4236	0.055	15	0.013506887	0.013384147
976	2	16	2	3.4236	0.055	16	0.011452884	0.011348809
1171	2	16	3	3.4236	0.055	1	0.145196331	0.139715469
1172	2	16	3	3.4236	0.055	2	0.144435341	0.138983205
1173	2	16	3	3.4236	0.055	3	0.142063521	0.136700916
1174	2	16	3	3.4236	0.055	4	0.135307483	0.130199905
1175	2	16	3	3.4236	0.055	5	0.120789345	0.116229796
1176	2	16	3	3.4236	0.055	6	0.097000545	0.093338975
1177	2	16	3	3.4236	0.055	7	0.068527159	0.0659404
1178	2	16	3	3.4236	0.055	8	0.044352093	0.042677893
1179	2	16	3	3.4236	0.055	9	0.02908048	0.027982752
1180	2	16	3	3.4236	0.055	10	0.021187655	0.020387865
1181	2	16	3	3.4236	0.055	11	0.017631535	0.016965981
1182	2	16	3	3.4236	0.055	12	0.016212093	0.01560012
1183	2	16	3	3.4236	0.055	13	0.015639539	0.015049178
1184	2	16	3	3.4236	0.055	14	0.015150465	0.014578566
1185	2	16	3	3.4236	0.055	15	0.014224123	0.013687192
1186	2	16	3	3.4236	0.055	16	0.012431032	0.011961786
1381	3	16	1	3.4236	0.055	1	0.142235582	0.148652179
1382	3	16	1	3.4236	0.055	2	0.139733575	0.1460373
1383	3	16	1	3.4236	0.055	3	0.135905002	0.142036011
1384	3	16	1	3.4236	0.055	4	0.127791798	0.1335568
1385	3	16	1	3.4236	0.055	5	0.11207567	0.117131679
1386	3	16	1	3.4236	0.055	6	0.087837524	0.09180009
1387	3	16	1	3.4236	0.055	7	0.060371544	0.063095053

1388	3	16	1	3.4236	0.055	8	0.038166195	0.039887966
1389	3	16	1	3.4236	0.055	9	0.024615467	0.025725931
1390	3	16	1	3.4236	0.055	10	0.017742664	0.018543079
1391	3	16	1	3.4236	0.055	11	0.014649849	0.015310739
1392	3	16	1	3.4236	0.055	12	0.013337778	0.013939478
1393	3	16	1	3.4236	0.055	13	0.012625373	0.013194934
1394	3	16	1	3.4236	0.055	14	0.011782244	0.01231377
1395	3	16	1	3.4236	0.055	15	0.010280395	0.010744169
1396	3	16	1	3.4236	0.055	16	0.00768417	0.008030822
1591	3	16	2	3.4236	0.055	1	0.14126844	0.143326144
1592	3	16	2	3.4236	0.055	2	0.139592919	0.141626217
1593	3	16	2	3.4236	0.055	3	0.136769873	0.138762051
1594	3	16	2	3.4236	0.055	4	0.130059468	0.131953903
1595	3	16	2	3.4236	0.055	5	0.116125158	0.117816627
1596	3	16	2	3.4236	0.055	6	0.093307527	0.094666637
1597	3	16	2	3.4236	0.055	7	0.06573015	0.06668757
1598	3	16	2	3.4236	0.055	8	0.042029663	0.042641864
1599	3	16	2	3.4236	0.055	9	0.026907833	0.02729977
1600	3	16	2	3.4236	0.055	10	0.019026818	0.019303961
1601	3	16	2	3.4236	0.055	11	0.015419429	0.015644027
1602	3	16	2	3.4236	0.055	12	0.013898253	0.014100694
1603	3	16	2	3.4236	0.055	13	0.013160348	0.01335204
1604	3	16	2	3.4236	0.055	14	0.012417073	0.012597939
1605	3	16	2	3.4236	0.055	15	0.011117619	0.011279557
1606	3	16	2	3.4236	0.055	16	0.008812637	0.008941001
1801	3	16	3	3.4236	0.055	1	0.140404105	0.138361882
1802	3	16	3	3.4236	0.055	2	0.139468369	0.137439756
1803	3	16	3	3.4236	0.055	3	0.137548311	0.135547626
1804	3	16	3	3.4236	0.055	4	0.132123403	0.130201625
1805	3	16	3	3.4236	0.055	5	0.119909978	0.118165848
1806	3	16	3	3.4236	0.055	6	0.09865996	0.097224919
1807	3	16	3	3.4236	0.055	7	0.071286856	0.070249966
1808	3	16	3	3.4236	0.055	8	0.046235645	0.045563132
1809	3	16	3	3.4236	0.055	9	0.029465673	0.029037085
1810	3	16	3	3.4236	0.055	10	0.020459413	0.020161824
1811	3	16	3	3.4236	0.055	11	0.016257189	0.016020723
1812	3	16	3	3.4236	0.055	12	0.014478861	0.014268261
1813	3	16	3	3.4236	0.055	13	0.013684048	0.01348501
1814	3	16	3	3.4236	0.055	14	0.013016202	0.012826877
1815	3	16	3	3.4236	0.055	15	0.011896862	0.011723818
1816	3	16	3	3.4236	0.055	16	0.009865139	0.009721647





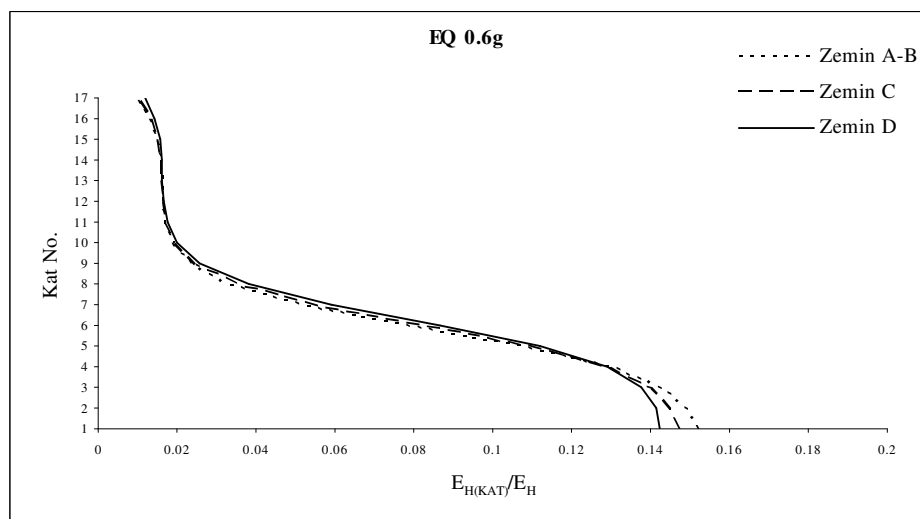
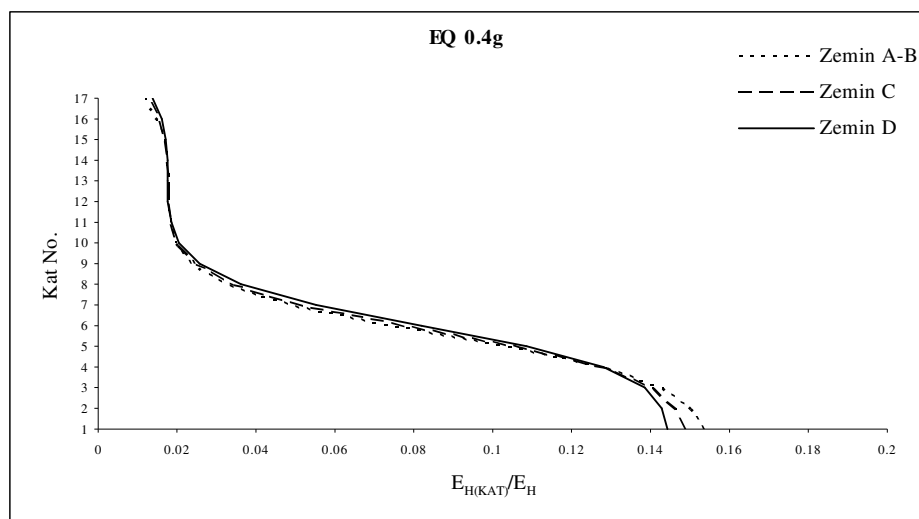
17 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

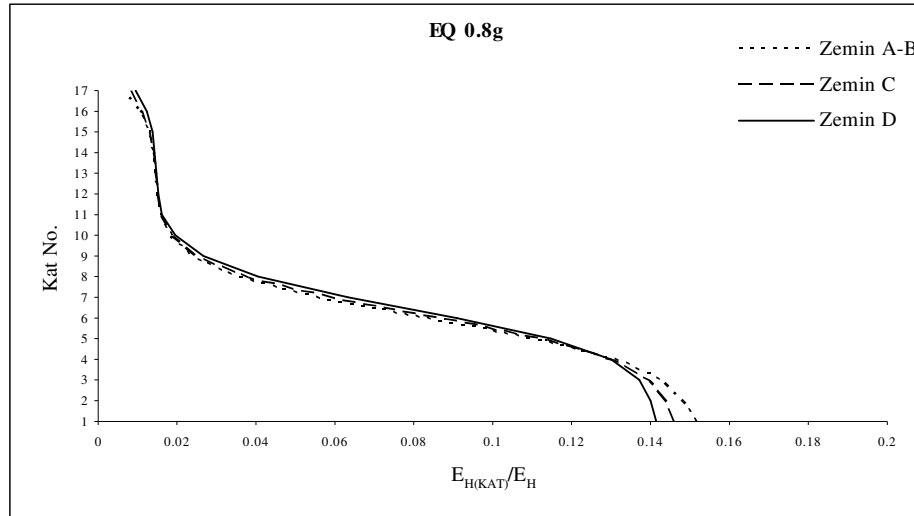
Veri No.	EQ	Kat Sayısı	Zemin Tipi	Period (sec)	(η)	Kat No.	$E_{H(KAT)}/E_H$ NN Output	Ölçeklendirilmiş Output
137	1	17	1	3.5307	0.0535	1	0.15390088	0.153918655
138	1	17	1	3.5307	0.0535	2	0.150594128	0.150611522
139	1	17	1	3.5307	0.0535	3	0.143400823	0.143417387
140	1	17	1	3.5307	0.0535	4	0.128761624	0.128776496
141	1	17	1	3.5307	0.0535	5	0.104684803	0.104696894
142	1	17	1	3.5307	0.0535	6	0.07514603	0.07515471
143	1	17	1	3.5307	0.0535	7	0.04931316	0.049318855
144	1	17	1	3.5307	0.0535	8	0.032617542	0.032621309
145	1	17	1	3.5307	0.0535	9	0.02388293	0.023885688
146	1	17	1	3.5307	0.0535	10	0.019959065	0.01996137
147	1	17	1	3.5307	0.0535	11	0.018491306	0.018493442
148	1	17	1	3.5307	0.0535	12	0.018113093	0.018115185
149	1	17	1	3.5307	0.0535	13	0.018055113	0.018057198
150	1	17	1	3.5307	0.0535	14	0.017836076	0.017838136
151	1	17	1	3.5307	0.0535	15	0.017086091	0.017088065
152	1	17	1	3.5307	0.0535	16	0.015454861	0.015456646
153	1	17	1	3.5307	0.0535	17	0.012586988	0.012588441

347	1	17	2	3.5307	0.0535	1	0.15361071	0.148900543
348	1	17	2	3.5307	0.0535	2	0.151273785	0.146635275
349	1	17	2	3.5307	0.0535	3	0.145434694	0.140975228
350	1	17	2	3.5307	0.0535	4	0.132616503	0.128550082
351	1	17	2	3.5307	0.0535	5	0.11026003	0.106879125
352	1	17	2	3.5307	0.0535	6	0.08105518	0.078569784
353	1	17	2	3.5307	0.0535	7	0.053850917	0.052199685
354	1	17	2	3.5307	0.0535	8	0.035379655	0.034294808
355	1	17	2	3.5307	0.0535	9	0.025398468	0.024619674
356	1	17	2	3.5307	0.0535	10	0.020792262	0.020154709
357	1	17	2	3.5307	0.0535	11	0.018998365	0.018415818
358	1	17	2	3.5307	0.0535	12	0.018494796	0.01792769
359	1	17	2	3.5307	0.0535	13	0.018430105	0.017864982
360	1	17	2	3.5307	0.0535	14	0.018289449	0.01772864
361	1	17	2	3.5307	0.0535	15	0.017694884	0.017152305
362	1	17	2	3.5307	0.0535	16	0.016300406	0.015800586
363	1	17	2	3.5307	0.0535	17	0.013752766	0.013331065
557	1	17	3	3.5307	0.0535	1	0.15335302	0.144185538
558	1	17	3	3.5307	0.0535	2	0.151885262	0.142805523
559	1	17	3	3.5307	0.0535	3	0.147277445	0.138473163
560	1	17	3	3.5307	0.0535	4	0.136187924	0.128046575
561	1	17	3	3.5307	0.0535	5	0.1156436	0.108730397
562	1	17	3	3.5307	0.0535	6	0.087095323	0.081888743
563	1	17	3	3.5307	0.0535	7	0.05874434	0.055232588
564	1	17	3	3.5307	0.0535	8	0.038455559	0.036156676
565	1	17	3	3.5307	0.0535	9	0.02710271	0.025482504
566	1	17	3	3.5307	0.0535	10	0.021721019	0.020422531
567	1	17	3	3.5307	0.0535	11	0.019547029	0.018378503
568	1	17	3	3.5307	0.0535	12	0.018886699	0.017757648
569	1	17	3	3.5307	0.0535	13	0.018794897	0.017671333
570	1	17	3	3.5307	0.0535	14	0.018714906	0.017596124
571	1	17	3	3.5307	0.0535	15	0.018257775	0.017166321
572	1	17	3	3.5307	0.0535	16	0.017080186	0.016059128
573	1	17	3	3.5307	0.0535	17	0.014833453	0.013946705
767	2	17	1	3.5307	0.0535	1	0.149304068	0.15261792
768	2	17	1	3.5307	0.0535	2	0.146287487	0.149534385
769	2	17	1	3.5307	0.0535	3	0.140300492	0.143414507
770	2	17	1	3.5307	0.0535	4	0.127900779	0.130739578
771	2	17	1	3.5307	0.0535	5	0.106438973	0.10880142
772	2	17	1	3.5307	0.0535	6	0.078194018	0.079929559
773	2	17	1	3.5307	0.0535	7	0.051567677	0.052712239
774	2	17	1	3.5307	0.0535	8	0.033298541	0.034037613
775	2	17	1	3.5307	0.0535	9	0.02335735	0.023875774
776	2	17	1	3.5307	0.0535	10	0.018737722	0.019153612
777	2	17	1	3.5307	0.0535	11	0.01690195	0.017277095
778	2	17	1	3.5307	0.0535	12	0.016322954	0.016685247
779	2	17	1	3.5307	0.0535	13	0.016131565	0.01648961
780	2	17	1	3.5307	0.0535	14	0.015785831	0.016136203
781	2	17	1	3.5307	0.0535	15	0.014874522	0.015204667
782	2	17	1	3.5307	0.0535	16	0.013020497	0.013309491
783	2	17	1	3.5307	0.0535	17	0.009862186	0.01008108
977	2	17	2	3.5307	0.0535	1	0.148757014	0.147388068
978	2	17	2	3.5307	0.0535	2	0.146663284	0.145313605
979	2	17	2	3.5307	0.0535	3	0.141915886	0.140609895
980	2	17	2	3.5307	0.0535	4	0.131220952	0.130013382
981	2	17	2	3.5307	0.0535	5	0.111564048	0.110537372
982	2	17	2	3.5307	0.0535	6	0.08404492	0.08327149
983	2	17	2	3.5307	0.0535	7	0.056377619	0.0558588
984	2	17	2	3.5307	0.0535	8	0.036352971	0.03601843
985	2	17	2	3.5307	0.0535	9	0.025063203	0.024832557
986	2	17	2	3.5307	0.0535	10	0.019678559	0.019497465
987	2	17	2	3.5307	0.0535	11	0.017471821	0.017311035
988	2	17	2	3.5307	0.0535	12	0.016747873	0.01659375

989	2	17	2	3.5307	0.0535	13	0.016546016	0.01639375
990	2	17	2	3.5307	0.0535	14	0.016284569	0.016134709
991	2	17	2	3.5307	0.0535	15	0.015541563	0.01539854
992	2	17	2	3.5307	0.0535	16	0.013941201	0.013812907
993	2	17	2	3.5307	0.0535	17	0.011116545	0.011014244
1187	2	17	3	3.5307	0.0535	1	0.148268477	0.142497236
1188	2	17	3	3.5307	0.0535	2	0.147000965	0.141279061
1189	2	17	3	3.5307	0.0535	3	0.143375323	0.137794544
1190	2	17	3	3.5307	0.0535	4	0.134278334	0.129051649
1191	2	17	3	3.5307	0.0535	5	0.116460423	0.111927287
1192	2	17	3	3.5307	0.0535	6	0.089948701	0.086447514
1193	2	17	3	3.5307	0.0535	7	0.061511284	0.059117003
1194	2	17	3	3.5307	0.0535	8	0.039736492	0.038189778
1195	2	17	3	3.5307	0.0535	9	0.026978429	0.025928313
1196	2	17	3	3.5307	0.0535	10	0.020727839	0.019921024
1197	2	17	3	3.5307	0.0535	11	0.018089471	0.017385352
1198	2	17	3	3.5307	0.0535	12	0.017185409	0.01651648
1199	2	17	3	3.5307	0.0535	13	0.01694973	0.016289975
1200	2	17	3	3.5307	0.0535	14	0.016753242	0.016101134
1201	2	17	3	3.5307	0.0535	15	0.016159482	0.015530486
1202	2	17	3	3.5307	0.0535	16	0.014792383	0.014216601
1203	2	17	3	3.5307	0.0535	17	0.012284739	0.011806564
1397	3	17	1	3.5307	0.0535	1	0.144939447	0.151784534
1398	3	17	1	3.5307	0.0535	2	0.141966618	0.148671308
1399	3	17	1	3.5307	0.0535	3	0.13687617	0.143340452
1400	3	17	1	3.5307	0.0535	4	0.126406715	0.132376553
1401	3	17	1	3.5307	0.0535	5	0.107506238	0.112583459
1402	3	17	1	3.5307	0.0535	6	0.080945931	0.084768782
1403	3	17	1	3.5307	0.0535	7	0.053948356	0.056496187
1404	3	17	1	3.5307	0.0535	8	0.034193476	0.035808339
1405	3	17	1	3.5307	0.0535	9	0.022966252	0.024050884
1406	3	17	1	3.5307	0.0535	10	0.017567918	0.018397602
1407	3	17	1	3.5307	0.0535	11	0.015307763	0.016030706
1408	3	17	1	3.5307	0.0535	12	0.014490135	0.015174463
1409	3	17	1	3.5307	0.0535	13	0.014137422	0.014805093
1410	3	17	1	3.5307	0.0535	14	0.0136411	0.014285331
1411	3	17	1	3.5307	0.0535	15	0.012547529	0.013140114
1412	3	17	1	3.5307	0.0535	16	0.010455678	0.01094947
1413	3	17	1	3.5307	0.0535	17	0.007005855	0.007336722
1607	3	17	2	3.5307	0.0535	1	0.144130139	0.146317403
1608	3	17	2	3.5307	0.0535	2	0.142052515	0.14420825
1609	3	17	2	3.5307	0.0535	3	0.13810476	0.140200585
1610	3	17	2	3.5307	0.0535	4	0.129215803	0.131176732
1611	3	17	2	3.5307	0.0535	5	0.112137945	0.113839707
1612	3	17	2	3.5307	0.0535	6	0.086634166	0.087948893
1613	3	17	2	3.5307	0.0535	7	0.058971697	0.059866629
1614	3	17	2	3.5307	0.0535	8	0.037541565	0.038111282
1615	3	17	2	3.5307	0.0535	9	0.024877183	0.025254709
1616	3	17	2	3.5307	0.0535	10	0.01862713	0.018909809
1617	3	17	2	3.5307	0.0535	11	0.015946351	0.016188346
1618	3	17	2	3.5307	0.0535	12	0.014962029	0.015189087
1619	3	17	2	3.5307	0.0535	13	0.014593747	0.014815216
1620	3	17	2	3.5307	0.0535	14	0.014187349	0.014402651
1621	3	17	2	3.5307	0.0535	15	0.013274697	0.013476149
1622	3	17	2	3.5307	0.0535	16	0.011450736	0.011624508
1623	3	17	2	3.5307	0.0535	17	0.008343426	0.008470043
1817	3	17	3	3.5307	0.0535	1	0.143405924	0.141226133
1818	3	17	3	3.5307	0.0535	2	0.142129822	0.139969429
1819	3	17	3	3.5307	0.0535	3	0.13921229	0.137096243
1820	3	17	3	3.5307	0.0535	4	0.131788406	0.129785204
1821	3	17	3	3.5307	0.0535	5	0.116520283	0.114749158
1822	3	17	3	3.5307	0.0535	6	0.092300658	0.090897675
1823	3	17	3	3.5307	0.0535	7	0.064273397	0.063296433

1824	3	17	3	3.5307	0.0535	8	0.041227604	0.040600938
1825	3	17	3	3.5307	0.0535	9	0.027018693	0.026608005
1826	3	17	3	3.5307	0.0535	10	0.019809282	0.019508179
1827	3	17	3	3.5307	0.0535	11	0.016639966	0.016387036
1828	3	17	3	3.5307	0.0535	12	0.015448687	0.015213865
1829	3	17	3	3.5307	0.0535	13	0.015039068	0.014810472
1830	3	17	3	3.5307	0.0535	14	0.014701655	0.014478188
1831	3	17	3	3.5307	0.0535	15	0.013949791	0.013737752
1832	3	17	3	3.5307	0.0535	16	0.012374125	0.012186037
1833	3	17	3	3.5307	0.0535	17	0.009595101	0.009449254



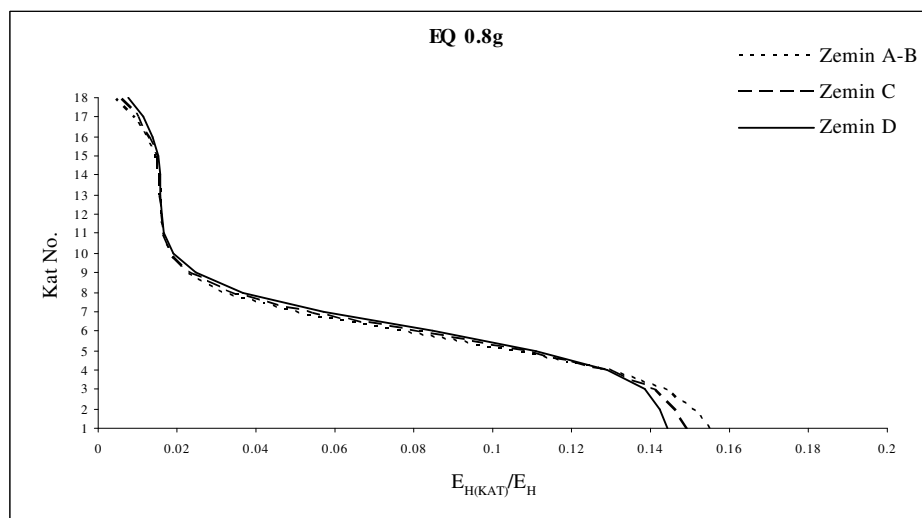
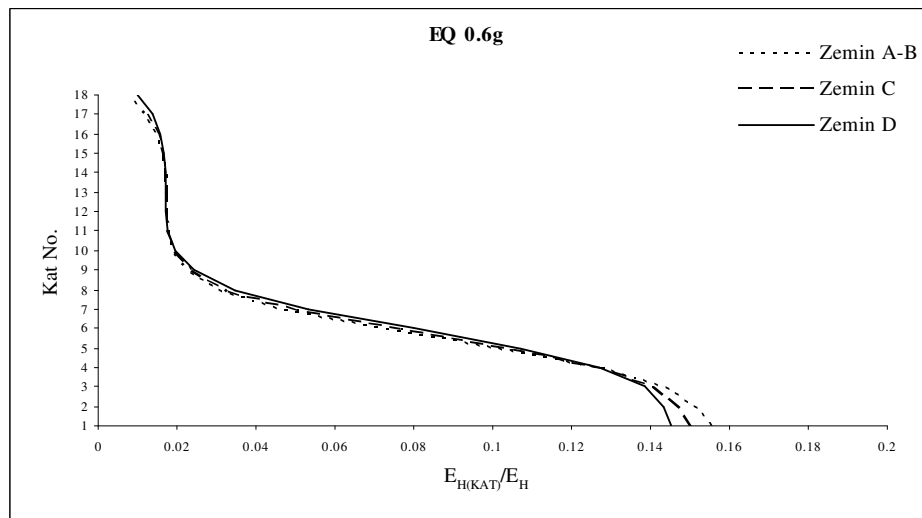
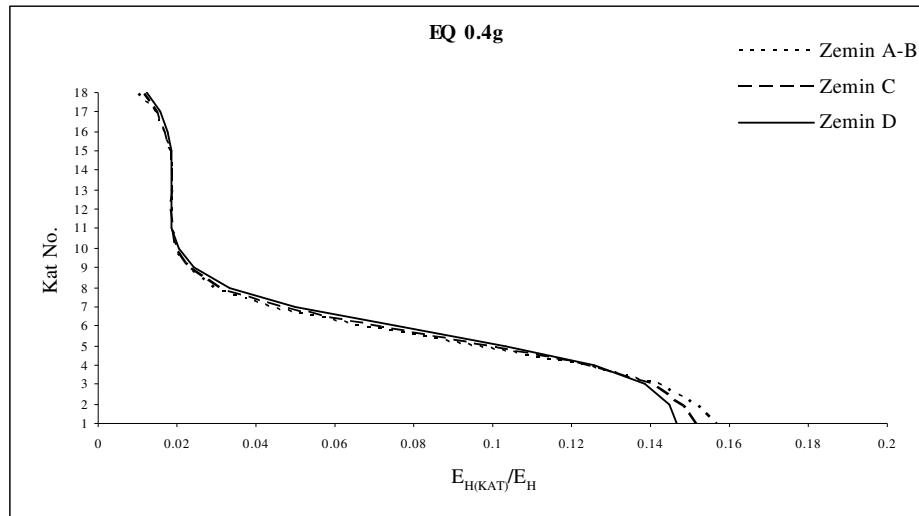


18 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat Sayısı	Zemin Tipi	Period (sec)	(η)	Kat No.	$E_{H(KAT)}/E_H$ NN Output	Ölçeklendirilmiş Output
154	1	18	1	3.6256	0.0536	1	0.156285584	0.156913319
155	1	18	1	3.6256	0.0536	2	0.151769033	0.152378627
156	1	18	1	3.6256	0.0536	3	0.142437976	0.143010091
157	1	18	1	3.6256	0.0536	4	0.124754815	0.125255904
158	1	18	1	3.6256	0.0536	5	0.09797923	0.098372772
159	1	18	1	3.6256	0.0536	6	0.068178204	0.068452048
160	1	18	1	3.6256	0.0536	7	0.044477717	0.044656366
161	1	18	1	3.6256	0.0536	8	0.030205457	0.03032678
162	1	18	1	3.6256	0.0536	9	0.02309107	0.023183817
163	1	18	1	3.6256	0.0536	10	0.020059725	0.020140296
164	1	18	1	3.6256	0.0536	11	0.019060103	0.01913666
165	1	18	1	3.6256	0.0536	12	0.018941458	0.019017538
166	1	18	1	3.6256	0.0536	13	0.019058492	0.019135042
167	1	18	1	3.6256	0.0536	14	0.019002928	0.019079255
168	1	18	1	3.6256	0.0536	15	0.018452653	0.01852677
169	1	18	1	3.6256	0.0536	16	0.017090118	0.017158762
170	1	18	1	3.6256	0.0536	17	0.014575763	0.014634308
171	1	18	1	3.6256	0.0536	18	0.010579154	0.010621646
364	1	18	2	3.6256	0.0536	1	0.156135802	0.151744476
365	1	18	2	3.6256	0.0536	2	0.152719533	0.148424289
366	1	18	2	3.6256	0.0536	3	0.144921462	0.140845539
367	1	18	2	3.6256	0.0536	4	0.129165338	0.125532557
368	1	18	2	3.6256	0.0536	5	0.10387308	0.100951645
369	1	18	2	3.6256	0.0536	6	0.073863486	0.071786072
370	1	18	2	3.6256	0.0536	7	0.048509758	0.047145419
371	1	18	2	3.6256	0.0536	8	0.032553388	0.031637822
372	1	18	2	3.6256	0.0536	9	0.024359387	0.023674278
373	1	18	2	3.6256	0.0536	10	0.02075844	0.020174608
374	1	18	2	3.6256	0.0536	11	0.019492002	0.018943788
375	1	18	2	3.6256	0.0536	12	0.019273771	0.018731695
376	1	18	2	3.6256	0.0536	13	0.019391073	0.018845699
377	1	18	2	3.6256	0.0536	14	0.01940879	0.018862916
378	1	18	2	3.6256	0.0536	15	0.018999975	0.0184656
379	1	18	2	3.6256	0.0536	16	0.017854866	0.017352697
380	1	18	2	3.6256	0.0536	17	0.015640881	0.01520098
381	1	18	2	3.6256	0.0536	18	0.012017923	0.011679918
574	1	18	3	3.6256	0.0536	1	0.156001857	0.146893027
575	1	18	3	3.6256	0.0536	2	0.153573399	0.144606364
576	1	18	3	3.6256	0.0536	3	0.147181348	0.138587541
577	1	18	3	3.6256	0.0536	4	0.13329106	0.125508296

578	1	18	3	3.6256	0.0536	5	0.109651238	0.103248785
579	1	18	3	3.6256	0.0536	6	0.079772905	0.075115026
580	1	18	3	3.6256	0.0536	7	0.052909812	0.049820448
581	1	18	3	3.6256	0.0536	8	0.035182093	0.033127837
582	1	18	3	3.6256	0.0536	9	0.025787419	0.024281711
583	1	18	3	3.6256	0.0536	10	0.021536341	0.020278851
584	1	18	3	3.6256	0.0536	11	0.019957454	0.018792154
585	1	18	3	3.6256	0.0536	12	0.019613599	0.018468376
586	1	18	3	3.6256	0.0536	13	0.019713186	0.018562148
587	1	18	3	3.6256	0.0536	14	0.019788882	0.018633424
588	1	18	3	3.6256	0.0536	15	0.019505423	0.018366516
589	1	18	3	3.6256	0.0536	16	0.018558681	0.017475054
590	1	18	3	3.6256	0.0536	17	0.016624665	0.015653964
591	1	18	3	3.6256	0.0536	18	0.013360594	0.012580479
784	2	18	1	3.6256	0.0536	1	0.151843924	0.155943493
785	2	18	1	3.6256	0.0536	2	0.147821546	0.151812517
786	2	18	1	3.6256	0.0536	3	0.139986433	0.143765867
787	2	18	1	3.6256	0.0536	4	0.124775216	0.128143969
788	2	18	1	3.6256	0.0536	5	0.100429431	0.103140882
789	2	18	1	3.6256	0.0536	6	0.071282024	0.073206537
790	2	18	1	3.6256	0.0536	7	0.046363953	0.047615714
791	2	18	1	3.6256	0.0536	8	0.030536696	0.031361143
792	2	18	1	3.6256	0.0536	9	0.022362559	0.022966317
793	2	18	1	3.6256	0.0536	10	0.018748191	0.019254365
794	2	18	1	3.6256	0.0536	11	0.017448736	0.017919827
795	2	18	1	3.6256	0.0536	12	0.017170109	0.017633677
796	2	18	1	3.6256	0.0536	13	0.01718192	0.017645807
797	2	18	1	3.6256	0.0536	14	0.017023279	0.017482884
798	2	18	1	3.6256	0.0536	15	0.016334228	0.016775228
799	2	18	1	3.6256	0.0536	16	0.014770641	0.015169427
800	2	18	1	3.6256	0.0536	17	0.011980343	0.012303795
801	2	18	1	3.6256	0.0536	18	0.007651959	0.007858551
994	2	18	2	3.6256	0.0536	1	0.151413636	0.150508083
995	2	18	2	3.6256	0.0536	2	0.14842846	0.147540761
996	2	18	2	3.6256	0.0536	3	0.142002319	0.141153053
997	2	18	2	3.6256	0.0536	4	0.128635464	0.127866139
998	2	18	2	3.6256	0.0536	5	0.105957146	0.105323453
999	2	18	2	3.6256	0.0536	6	0.077033071	0.076572363
1000	2	18	2	3.6256	0.0536	7	0.050704685	0.050401438
1001	2	18	2	3.6256	0.0536	8	0.033153053	0.032954776
1002	2	18	2	3.6256	0.0536	9	0.023794349	0.023652043
1003	2	18	2	3.6256	0.0536	10	0.019537903	0.019421053
1004	2	18	2	3.6256	0.0536	11	0.017933784	0.017826528
1005	2	18	2	3.6256	0.0536	12	0.017540001	0.017435101
1006	2	18	2	3.6256	0.0536	13	0.017549665	0.017444706
1007	2	18	2	3.6256	0.0536	14	0.017470479	0.017365994
1008	2	18	2	3.6256	0.0536	15	0.016936309	0.016835019
1009	2	18	2	3.6256	0.0536	16	0.015607327	0.015513985
1010	2	18	2	3.6256	0.0536	17	0.013133773	0.013055225
1011	2	18	2	3.6256	0.0536	18	0.009185213	0.00913028
1204	2	18	3	3.6256	0.0536	1	0.151027906	0.145433999
1205	2	18	3	3.6256	0.0536	2	0.148972561	0.143454781
1206	2	18	3	3.6256	0.0536	3	0.14382977	0.138502473
1207	2	18	3	3.6256	0.0536	4	0.1322195	0.127322235
1208	2	18	3	3.6256	0.0536	5	0.1113128	0.107189897
1209	2	18	3	3.6256	0.0536	6	0.082935243	0.079863413
1210	2	18	3	3.6256	0.0536	7	0.05539974	0.053347795
1211	2	18	3	3.6256	0.0536	8	0.036071391	0.034735346
1212	2	18	3	3.6256	0.0536	9	0.025405179	0.024464199
1213	2	18	3	3.6256	0.0536	10	0.020417806	0.019661553
1214	2	18	3	3.6256	0.0536	11	0.018457484	0.01777384
1215	2	18	3	3.6256	0.0536	12	0.017918752	0.017255061
1216	2	18	3	3.6256	0.0536	13	0.017906404	0.017243171

1217	2	18	3	3.6256	0.0536	14	0.017889762	0.017227144
1218	2	18	3	3.6256	0.0536	15	0.017492758	0.016844846
1219	2	18	3	3.6256	0.0536	16	0.016378786	0.015772134
1220	2	18	3	3.6256	0.0536	17	0.014203455	0.013677374
1221	2	18	3	3.6256	0.0536	18	0.01062425	0.010230739
1414	3	18	1	3.6256	0.0536	1	0.147574325	0.155447386
1415	3	18	1	3.6256	0.0536	2	0.143773937	0.151444247
1416	3	18	1	3.6256	0.0536	3	0.137107017	0.144421649
1417	3	18	1	3.6256	0.0536	4	0.124095291	0.130715749
1418	3	18	1	3.6256	0.0536	5	0.102258223	0.107713679
1419	3	18	1	3.6256	0.0536	6	0.074235258	0.078195693
1420	3	18	1	3.6256	0.0536	7	0.048437283	0.051021402
1421	3	18	1	3.6256	0.0536	8	0.031067913	0.03272538
1422	3	18	1	3.6256	0.0536	9	0.021742762	0.022902734
1423	3	18	1	3.6256	0.0536	10	0.017469137	0.018401111
1424	3	18	1	3.6256	0.0536	11	0.015819653	0.016663628
1425	3	18	1	3.6256	0.0536	12	0.01534749	0.016166276
1426	3	18	1	3.6256	0.0536	13	0.015228577	0.016041019
1427	3	18	1	3.6256	0.0536	14	0.014944581	0.015741872
1428	3	18	1	3.6256	0.0536	15	0.014096889	0.014848955
1429	3	18	1	3.6256	0.0536	16	0.012314803	0.012971795
1430	3	18	1	3.6256	0.0536	17	0.009240509	0.009733488
1431	3	18	1	3.6256	0.0536	18	0.004598602	0.004843937
1624	3	18	2	3.6256	0.0536	1	0.146861652	0.149720439
1625	3	18	2	3.6256	0.0536	2	0.144056054	0.146860227
1626	3	18	2	3.6256	0.0536	3	0.138688052	0.141387733
1627	3	18	2	3.6256	0.0536	4	0.127414926	0.129895166
1628	3	18	2	3.6256	0.0536	5	0.107349745	0.109439399
1629	3	18	2	3.6256	0.0536	6	0.079948725	0.081504994
1630	3	18	2	3.6256	0.0536	7	0.053049126	0.054081772
1631	3	18	2	3.6256	0.0536	8	0.033962361	0.034623467
1632	3	18	2	3.6256	0.0536	9	0.023352786	0.023807368
1633	3	18	2	3.6256	0.0536	10	0.018358972	0.018716345
1634	3	18	2	3.6256	0.0536	11	0.016362949	0.016681468
1635	3	18	2	3.6256	0.0536	12	0.015757646	0.016064382
1636	3	18	2	3.6256	0.0536	13	0.015633633	0.015937955
1637	3	18	2	3.6256	0.0536	14	0.015435534	0.015736
1638	3	18	2	3.6256	0.0536	15	0.014755072	0.015042292
1639	3	18	2	3.6256	0.0536	16	0.013223965	0.01348138
1640	3	18	2	3.6256	0.0536	17	0.010479836	0.010683835
1641	3	18	2	3.6256	0.0536	18	0.006214801	0.006335777
1834	3	18	3	3.6256	0.0536	1	0.146222259	0.144399022
1835	3	18	3	3.6256	0.0536	2	0.144307838	0.142508472
1836	3	18	3	3.6256	0.0536	3	0.140116352	0.138369249
1837	3	18	3	3.6256	0.0536	4	0.130476872	0.128849964
1838	3	18	3	3.6256	0.0536	5	0.112230015	0.110830625
1839	3	18	3	3.6256	0.0536	6	0.085737083	0.084668032
1840	3	18	3	3.6256	0.0536	7	0.057987644	0.057264599
1841	3	18	3	3.6256	0.0536	8	0.037174894	0.036711362
1842	3	18	3	3.6256	0.0536	9	0.025161984	0.02484824
1843	3	18	3	3.6256	0.0536	10	0.019351615	0.01911032
1844	3	18	3	3.6256	0.0536	11	0.016951073	0.016739711
1845	3	18	3	3.6256	0.0536	12	0.016179345	0.015977606
1846	3	18	3	3.6256	0.0536	13	0.016027684	0.015827836
1847	3	18	3	3.6256	0.0536	14	0.015896423	0.015698212
1848	3	18	3	3.6256	0.0536	15	0.015364669	0.015173088
1849	3	18	3	3.6256	0.0536	16	0.014064946	0.013889571
1850	3	18	3	3.6256	0.0536	17	0.011634072	0.011489007
1851	3	18	3	3.6256	0.0536	18	0.007741613	0.007645083

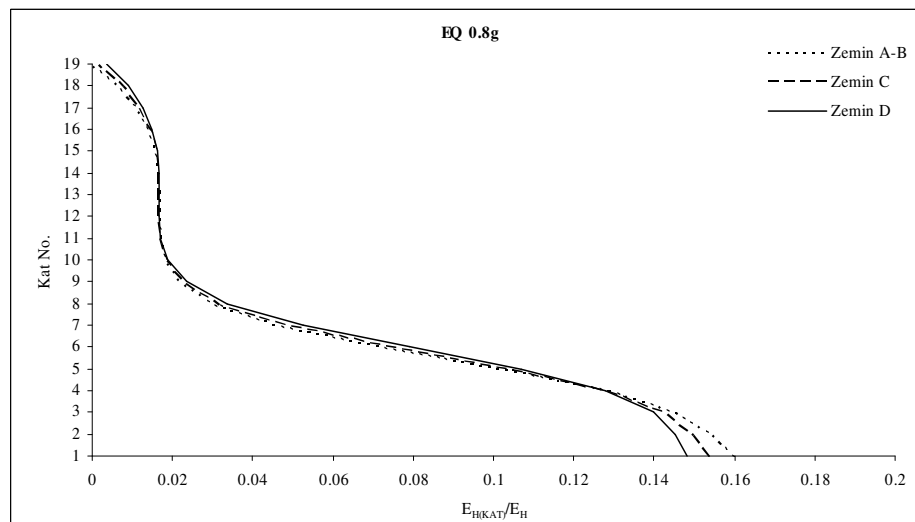
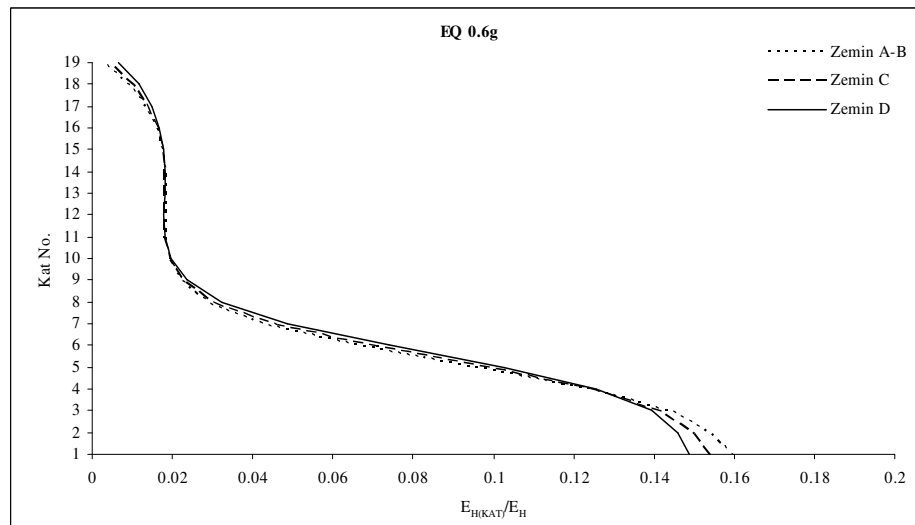
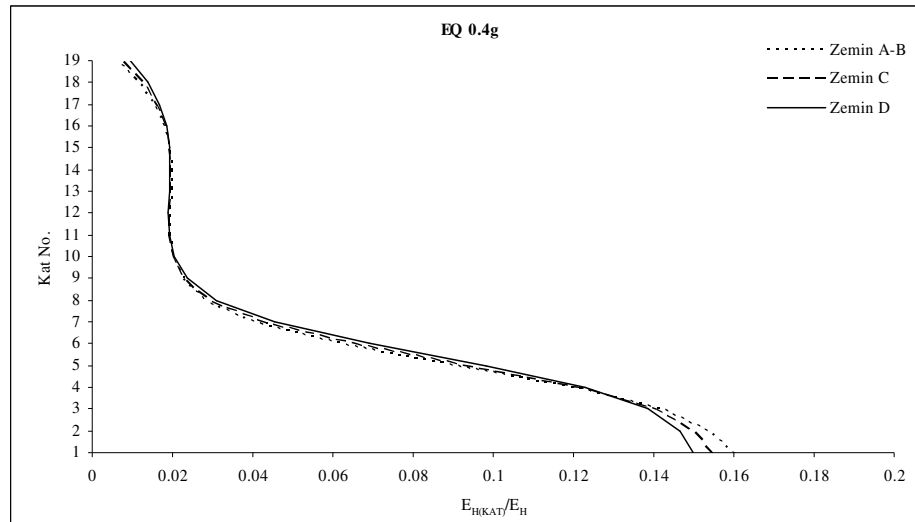


19 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat Sayısı	Zemin Tipi	Period (sec)	(η)	Kat No.	$E_{H(KAT)}/E_H$ NN Output	Ölçeklendirilmiş Output
172	1	19	1	3.7083	0.0553	1	0.158343345	0.1605194
173	1	19	1	3.7083	0.0553	2	0.152350446	0.154444142
174	1	19	1	3.7083	0.0553	3	0.140725144	0.142659078
175	1	19	1	3.7083	0.0553	4	0.120158004	0.121809292
176	1	19	1	3.7083	0.0553	5	0.091379417	0.092635211
177	1	19	1	3.7083	0.0553	6	0.062079276	0.062932409
178	1	19	1	3.7083	0.0553	7	0.040578816	0.041136476
179	1	19	1	3.7083	0.0553	8	0.028340964	0.028730443
180	1	19	1	3.7083	0.0553	9	0.022482815	0.022791788
181	1	19	1	3.7083	0.0553	10	0.020118779	0.020395264
182	1	19	1	3.7083	0.0553	11	0.019456838	0.019724226
183	1	19	1	3.7083	0.0553	12	0.019512134	0.019780282
184	1	19	1	3.7083	0.0553	13	0.019731117	0.020002329
185	1	19	1	3.7083	0.0553	14	0.019756939	0.020028452
186	1	19	1	3.7083	0.0553	15	0.019298198	0.019563406
187	1	19	1	3.7083	0.0553	16	0.018058334	0.018306503
188	1	19	1	3.7083	0.0553	17	0.015709598	0.015925489
189	1	19	1	3.7083	0.0553	18	0.011917799	0.012081581
190	1	19	1	3.7083	0.0553	19	0.006445648	0.006534228
382	1	19	2	3.7083	0.0553	1	0.158288049	0.155061496
383	1	19	2	3.7083	0.0553	2	0.153545214	0.150415339
384	1	19	2	3.7083	0.0553	3	0.143626034	0.140698352
385	1	19	2	3.7083	0.0553	4	0.125029685	0.122481072
386	1	19	2	3.7083	0.0553	5	0.097420633	0.095434805
387	1	19	2	3.7083	0.0553	6	0.067440835	0.066066117
388	1	19	2	3.7083	0.0553	7	0.044148626	0.043248697
389	1	19	2	3.7083	0.0553	8	0.03035524	0.029736477
390	1	19	2	3.7083	0.0553	9	0.023561891	0.023081604
391	1	19	2	3.7083	0.0553	10	0.020717371	0.020295067
392	1	19	2	3.7083	0.0553	11	0.019834783	0.01943047
393	1	19	2	3.7083	0.0553	12	0.019811967	0.019408118
394	1	19	2	3.7083	0.0553	13	0.020038788	0.019630316
395	1	19	2	3.7083	0.0553	14	0.020137569	0.019727083
396	1	19	2	3.7083	0.0553	15	0.019814919	0.019411011
397	1	19	2	3.7083	0.0553	16	0.018783086	0.018400211
398	1	19	2	3.7083	0.0553	17	0.016723983	0.016383081
399	1	19	2	3.7083	0.0553	18	0.013298856	0.013027771
400	1	19	2	3.7083	0.0553	19	0.008230687	0.008062912
592	1	19	3	3.7083	0.0553	1	0.158236243	0.149953133
593	1	19	3	3.7083	0.0553	2	0.154618922	0.146525165
594	1	19	3	3.7083	0.0553	3	0.14627836	0.138621203
595	1	19	3	3.7083	0.0553	4	0.129632133	0.122846347
596	1	19	3	3.7083	0.0553	5	0.103429638	0.098015461
597	1	19	3	3.7083	0.0553	6	0.073094175	0.069267952
598	1	19	3	3.7083	0.0553	7	0.048079738	0.045562933
599	1	19	3	3.7083	0.0553	8	0.032619152	0.030911654
600	1	19	3	3.7083	0.0553	9	0.024777596	0.023480577
601	1	19	3	3.7083	0.0553	10	0.021382533	0.020263232
602	1	19	3	3.7083	0.0553	11	0.020240108	0.019180609
603	1	19	3	3.7083	0.0553	12	0.020116363	0.019063342
604	1	19	3	3.7083	0.0553	13	0.020335936	0.019271421
605	1	19	3	3.7083	0.0553	14	0.020493234	0.019420486
606	1	19	3	3.7083	0.0553	15	0.020291109	0.019228941
607	1	19	3	3.7083	0.0553	16	0.019449054	0.018430964
608	1	19	3	3.7083	0.0553	17	0.017659451	0.016735041
609	1	19	3	3.7083	0.0553	18	0.014584889	0.013821422
610	1	19	3	3.7083	0.0553	19	0.009919361	0.009400117
802	2	19	1	3.7083	0.0553	1	0.154175749	0.160093304
803	2	19	1	3.7083	0.0553	2	0.148851769	0.15456498
804	2	19	1	3.7083	0.0553	3	0.138965874	0.144299645

805	2	19	1	3.7083	0.0553	4	0.120991738	0.125635629
806	2	19	1	3.7083	0.0553	5	0.094320034	0.097940214
807	2	19	1	3.7083	0.0553	6	0.065075457	0.067573176
808	2	19	1	3.7083	0.0553	7	0.042098381	0.043714196
809	2	19	1	3.7083	0.0553	8	0.028383107	0.029472504
810	2	19	1	3.7083	0.0553	9	0.021596201	0.022425103
811	2	19	1	3.7083	0.0553	10	0.018737991	0.01945719
812	2	19	1	3.7083	0.0553	11	0.01782695	0.018511182
813	2	19	1	3.7083	0.0553	12	0.017751522	0.018432858
814	2	19	1	3.7083	0.0553	13	0.017883856	0.018570272
815	2	19	1	3.7083	0.0553	14	0.017820507	0.018504492
816	2	19	1	3.7083	0.0553	15	0.017235605	0.01789714
817	2	19	1	3.7083	0.0553	16	0.015805963	0.016412626
818	2	19	1	3.7083	0.0553	17	0.013189338	0.013695569
819	2	19	1	3.7083	0.0553	18	0.009064153	0.009412052
820	2	19	1	3.7083	0.0553	19	0.003262642	0.003387868
1012	2	19	2	3.7083	0.0553	1	0.153807735	0.154292799
1013	2	19	2	3.7083	0.0553	2	0.149658929	0.150130909
1014	2	19	2	3.7083	0.0553	3	0.141354337	0.141800126
1015	2	19	2	3.7083	0.0553	4	0.125317438	0.125712652
1016	2	19	2	3.7083	0.0553	5	0.10009175	0.100407409
1017	2	19	2	3.7083	0.0553	6	0.070598341	0.070820987
1018	2	19	2	3.7083	0.0553	7	0.045986813	0.046131842
1019	2	19	2	3.7083	0.0553	8	0.030640041	0.03073667
1020	2	19	2	3.7083	0.0553	9	0.022816738	0.022888695
1021	2	19	2	3.7083	0.0553	10	0.019414426	0.019475654
1022	2	19	2	3.7083	0.0553	11	0.018250796	0.018308353
1023	2	19	2	3.7083	0.0553	12	0.018084639	0.018141673
1024	2	19	2	3.7083	0.0553	13	0.018224221	0.018281695
1025	2	19	2	3.7083	0.0553	14	0.018240327	0.018297852
1026	2	19	2	3.7083	0.0553	15	0.01780467	0.017860821
1027	2	19	2	3.7083	0.0553	16	0.016600775	0.016653129
1028	2	19	2	3.7083	0.0553	17	0.014292035	0.014337108
1029	2	19	2	3.7083	0.0553	18	0.010543185	0.010576435
1030	2	19	2	3.7083	0.0553	19	0.005129014	0.005145189
1222	2	19	3	3.7083	0.0553	1	0.153474886	0.148894936
1223	2	19	3	3.7083	0.0553	2	0.150382071	0.145894416
1224	2	19	3	3.7083	0.0553	3	0.143527789	0.139244678
1225	2	19	3	3.7083	0.0553	4	0.129369074	0.125508483
1226	2	19	3	3.7083	0.0553	5	0.105761732	0.102605623
1227	2	19	3	3.7083	0.0553	6	0.076351267	0.074072816
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1229	2	19	3	3.7083	0.0553	8	0.033169159	0.032179335
1230	2	19	3	3.7083	0.0553	9	0.024191084	0.023469181
1231	2	19	3	3.7083	0.0553	10	0.020167096	0.019565275
1232	2	19	3	3.7083	0.0553	11	0.018706853	0.018148609
1233	2	19	3	3.7083	0.0553	12	0.0184242	0.01787439
1234	2	19	3	3.7083	0.0553	13	0.018553044	0.01799939
1235	2	19	3	3.7083	0.0553	14	0.018633304	0.018077255
1236	2	19	3	3.7083	0.0553	15	0.018329982	0.017782984
1237	2	19	3	3.7083	0.0553	16	0.017332776	0.016815536
1238	2	19	3	3.7083	0.0553	17	0.015312326	0.014855381
1239	2	19	3	3.7083	0.0553	18	0.011927463	0.011571527
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1432	3	19	1	3.7083	0.0553	1	0.150135923	0.160161992
1433	3	19	1	3.7083	0.0553	2	0.14518291	0.154878216
1434	3	19	1	3.7083	0.0553	3	0.136697666	0.145826328
1435	3	19	1	3.7083	0.0553	4	0.121099378	0.129186387
1436	3	19	1	3.7083	0.0553	5	0.096737755	0.103197897
1437	3	19	1	3.7083	0.0553	6	0.068044527	0.072588537
1438	3	19	1	3.7083	0.0553	7	0.04383564	0.046762981
1439	3	19	1	3.7083	0.0553	8	0.02860617	0.030516488
1440	3	19	1	3.7083	0.0553	9	0.020796557	0.02218535

1441	3	19	1	3.7083	0.0553	10	0.017374382	0.018534642
1442	3	19	1	3.7083	0.0553	11	0.016169145	0.01724892
1443	3	19	1	3.7083	0.0553	12	0.015932661	0.016996643
1444	3	19	1	3.7083	0.0553	13	0.015955209	0.017020697
1445	3	19	1	3.7083	0.0553	14	0.015781536	0.016835427
1446	3	19	1	3.7083	0.0553	15	0.01505061	0.016055689
1447	3	19	1	3.7083	0.0553	16	0.013413474	0.014309225
1448	3	19	1	3.7083	0.0553	17	0.010518758	0.0112212
1449	3	19	1	3.7083	0.0553	18	0.006071729	0.006477199
1450	3	19	1	3.7083	0.0553	19	-3.5773E-06	-3.81621E-06
1642	3	19	2	3.7083	0.0553	1	0.149454924	0.153993105
1643	3	19	2	3.7083	0.0553	2	0.145624204	0.150046065
1644	3	19	2	3.7083	0.0553	3	0.138603497	0.142812176
1645	3	19	2	3.7083	0.0553	4	0.124871044	0.128662739
1646	3	19	2	3.7083	0.0553	5	0.102149779	0.105251545
1647	3	19	2	3.7083	0.0553	6	0.073635323	0.075871251
1648	3	19	2	3.7083	0.0553	7	0.048022295	0.049480486
1649	3	19	2	3.7083	0.0553	8	0.031118914	0.032063836
1650	3	19	2	3.7083	0.0553	9	0.022171976	0.022845226
1651	3	19	2	3.7083	0.0553	10	0.018136983	0.01868771
1652	3	19	2	3.7083	0.0553	11	0.016643992	0.017149385
1653	3	19	2	3.7083	0.0553	12	0.016302285	0.016797302
1654	3	19	2	3.7083	0.0553	13	0.016329933	0.016825789
1655	3	19	2	3.7083	0.0553	14	0.016242962	0.016736178
1656	3	19	2	3.7083	0.0553	15	0.015674166	0.01615011
1657	3	19	2	3.7083	0.0553	16	0.014279688	0.014713289
1658	3	19	2	3.7083	0.0553	17	0.011707889	0.012063398
1659	3	19	2	3.7083	0.0553	18	0.007639343	0.00787131
1660	3	19	2	3.7083	0.0553	19	0.001920775	0.001979099
1852	3	19	3	3.7083	0.0553	1	0.1488413	0.148280916
1853	3	19	3	3.7083	0.0553	2	0.146016912	0.145467161
1854	3	19	3	3.7083	0.0553	3	0.140330825	0.139802482
1855	3	19	3	3.7083	0.0553	4	0.1283767	0.127893364
1856	3	19	3	3.7083	0.0553	5	0.107403967	0.106999593
1857	3	19	3	3.7083	0.0553	6	0.079385833	0.079086947
1858	3	19	3	3.7083	0.0553	7	0.05255871	0.052360827
1859	3	19	3	3.7083	0.0553	8	0.033924512	0.033796787
1860	3	19	3	3.7083	0.0553	9	0.023719994	0.023630689
1861	3	19	3	3.7083	0.0553	10	0.018986286	0.018914803
1862	3	19	3	3.7083	0.0553	11	0.017155345	0.017090756
1863	3	19	3	3.7083	0.0553	12	0.016679693	0.016616894
1864	3	19	3	3.7083	0.0553	13	0.016692846	0.016629998
1865	3	19	3	3.7083	0.0553	14	0.016675398	0.016612616
1866	3	19	3	3.7083	0.0553	15	0.016251015	0.01618983
1867	3	19	3	3.7083	0.0553	16	0.0150796	0.015022826
1868	3	19	3	3.7083	0.0553	17	0.012813003	0.012764762
1869	3	19	3	3.7083	0.0553	18	0.009115154	0.009080835
1870	3	19	3	3.7083	0.0553	19	0.003772116	0.003757914

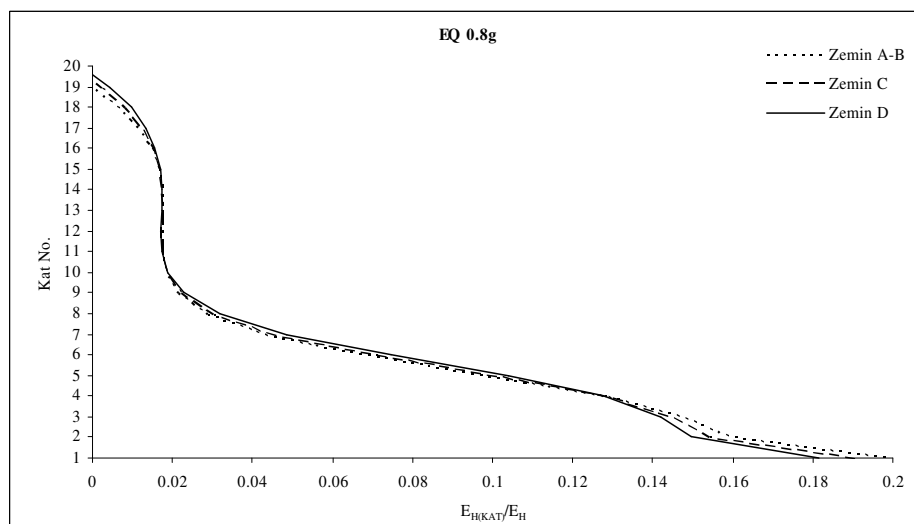
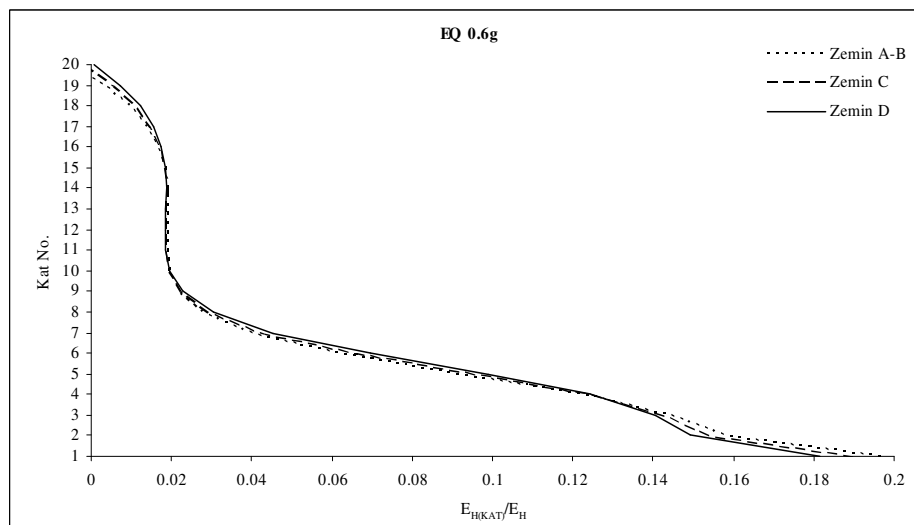
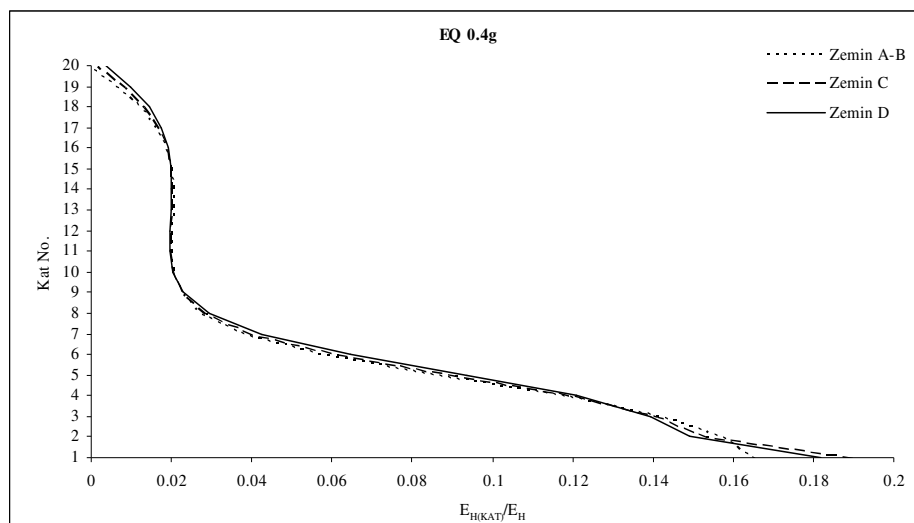


20 Katlı yapı için $E_{H(KAT)}/E_H$ sonuçları.

Veri No.	EQ	Kat Sayısı	Zemin Tipi	Period (sec)	(η)	Kat No.	$E_{H(KAT)}/E_H$ NN Output	Ölçeklendirilmiş Output
191	1	20	1	3.7788	0.0586	1	0.160214012	0.165542254
192	1	20	1	3.7788	0.0586	2	0.15250667	0.157578588
193	1	20	1	3.7788	0.0586	3	0.138517869	0.143124562
194	1	20	1	3.7788	0.0586	4	0.115344304	0.119180313
195	1	20	1	3.7788	0.0586	5	0.08522734	0.088061748
196	1	20	1	3.7788	0.0586	6	0.056896757	0.058788974
197	1	20	1	3.7788	0.0586	7	0.037445468	0.038690793
198	1	20	1	3.7788	0.0586	8	0.026858174	0.027751397
199	1	20	1	3.7788	0.0586	9	0.021963409	0.022693846
200	1	20	1	3.7788	0.0586	10	0.020094083	0.020762353
201	1	20	1	3.7788	0.0586	11	0.019671579	0.020325798
202	1	20	1	3.7788	0.0586	12	0.019836125	0.020495816
203	1	20	1	3.7788	0.0586	13	0.020099989	0.020768455
204	1	20	1	3.7788	0.0586	14	0.020139984	0.02080978
205	1	20	1	3.7788	0.0586	15	0.019681511	0.02033606
206	1	20	1	3.7788	0.0586	16	0.018437084	0.019050247
207	1	20	1	3.7788	0.0586	17	0.016083248	0.016618129
208	1	20	1	3.7788	0.0586	18	0.012286081	0.01269468
209	1	20	1	3.7788	0.0586	19	0.006806145	0.007032498
210	1	20	1	3.7788	0.0586	20	-0.00029643	-0.00030629
401	1	20	2	3.7788	0.0586	1	0.160192538	0.189863186
402	1	20	2	3.7788	0.0586	2	0.153901685	0.153300944
403	1	20	2	3.7788	0.0586	3	0.141779256	0.141225834
404	1	20	2	3.7788	0.0586	4	0.120563597	0.120092989
405	1	20	2	3.7788	0.0586	5	0.09127312	0.090916844
406	1	20	2	3.7788	0.0586	6	0.061895135	0.061653533
407	1	20	2	3.7788	0.0586	7	0.040615054	0.040456516
408	1	20	2	3.7788	0.0586	8	0.02860778	0.028496112
409	1	20	2	3.7788	0.0586	9	0.022897803	0.022808423
410	1	20	2	3.7788	0.0586	10	0.020618858	0.020538374
411	1	20	2	3.7788	0.0586	11	0.020012213	0.019934097
412	1	20	2	3.7788	0.0586	12	0.020116631	0.020038108
413	1	20	2	3.7788	0.0586	13	0.020397674	0.020318054
414	1	20	2	3.7788	0.0586	14	0.020514708	0.020434631
415	1	20	2	3.7788	0.0586	15	0.020194207	0.02011538
416	1	20	2	3.7788	0.0586	16	0.019158347	0.019083564
417	1	20	2	3.7788	0.0586	17	0.017094144	0.017027419
418	1	20	2	3.7788	0.0586	18	0.013664722	0.013611383
419	1	20	2	3.7788	0.0586	19	0.008590648	0.008557115
420	1	20	2	3.7788	0.0586	20	0.001830584	0.001823438
611	1	20	3	3.7788	0.0586	1	0.160167843	0.182032503
612	1	20	3	3.7788	0.0586	2	0.155156849	0.149181561
613	1	20	3	3.7788	0.0586	3	0.144777317	0.139201757
614	1	20	3	3.7788	0.0586	4	0.125543722	0.120708873
615	1	20	3	3.7788	0.0586	5	0.097367485	0.093617738
616	1	20	3	3.7788	0.0586	6	0.067228509	0.064639454
617	1	20	3	3.7788	0.0586	7	0.044129567	0.042430081
618	1	20	3	3.7788	0.0586	8	0.030579644	0.029401983
619	1	20	3	3.7788	0.0586	9	0.023950305	0.023027948
620	1	20	3	3.7788	0.0586	10	0.021199734	0.020383305
621	1	20	3	3.7788	0.0586	11	0.020375126	0.019590454
622	1	20	3	3.7788	0.0586	12	0.020399822	0.019614199
623	1	20	3	3.7788	0.0586	13	0.020683281	0.019886741
624	1	20	3	3.7788	0.0586	14	0.020863932	0.020060435
625	1	20	3	3.7788	0.0586	15	0.020666101	0.019870223
626	1	20	3	3.7788	0.0586	16	0.019820825	0.0190575
627	1	20	3	3.7788	0.0586	17	0.018026391	0.017332172
628	1	20	3	3.7788	0.0586	18	0.014947534	0.014371885
629	1	20	3	3.7788	0.0586	19	0.010277979	0.009882161
630	1	20	3	3.7788	0.0586	20	0.003891834	0.003741955

821	2	20	1	3.7788	0.0586	1	0.156436977	0.198928921
822	2	20	1	3.7788	0.0586	2	0.149531426	0.158597943
823	2	20	1	3.7788	0.0586	3	0.137462146	0.145796868
824	2	20	1	3.7788	0.0586	4	0.116890443	0.123977844
825	2	20	1	3.7788	0.0586	5	0.088475306	0.093839816
826	2	20	1	3.7788	0.0586	6	0.059695645	0.063315162
827	2	20	1	3.7788	0.0586	7	0.038632721	0.040975133
828	2	20	1	3.7788	0.0586	8	0.026666785	0.028283668
829	2	20	1	3.7788	0.0586	9	0.020952781	0.022223208
830	2	20	1	3.7788	0.0586	10	0.018657731	0.019789002
831	2	20	1	3.7788	0.0586	11	0.018022901	0.019115681
832	2	20	1	3.7788	0.0586	12	0.018076318	0.019172337
833	2	20	1	3.7788	0.0586	13	0.018263949	0.019371344
834	2	20	1	3.7788	0.0586	14	0.018220195	0.019324937
835	2	20	1	3.7788	0.0586	15	0.017638246	0.018707703
836	2	20	1	3.7788	0.0586	16	0.016204846	0.017187392
837	2	20	1	3.7788	0.0586	17	0.013582046	0.014405564
838	2	20	1	3.7788	0.0586	18	0.009448272	0.010021147
839	2	20	1	3.7788	0.0586	19	0.003631997	0.003852215
840	2	20	1	3.7788	0.0586	20	-0.0036574	-0.003879164
1031	2	20	2	3.7788	0.0586	1	0.156060911	0.189775622
1032	2	20	2	3.7788	0.0586	2	0.150490784	0.153812321
1033	2	20	2	3.7788	0.0586	3	0.140171648	0.143265427
1034	2	20	2	3.7788	0.0586	4	0.121584425	0.124267959
1035	2	20	2	3.7788	0.0586	5	0.094347413	0.096429789
1036	2	20	2	3.7788	0.0586	6	0.064921112	0.066354009
1037	2	20	2	3.7788	0.0586	7	0.042115292	0.043044833
1038	2	20	2	3.7788	0.0586	8	0.028634355	0.029266354
1039	2	20	2	3.7788	0.0586	9	0.022010652	0.022496457
1040	2	20	2	3.7788	0.0586	10	0.019250149	0.019675026
1041	2	20	2	3.7788	0.0586	11	0.018404604	0.018810819
1042	2	20	2	3.7788	0.0586	12	0.018387962	0.018793809
1043	2	20	2	3.7788	0.0586	13	0.01859304	0.019003414
1044	2	20	2	3.7788	0.0586	14	0.018633573	0.019044841
1045	2	20	2	3.7788	0.0586	15	0.018203016	0.018604781
1046	2	20	2	3.7788	0.0586	16	0.016996437	0.017371571
1047	2	20	2	3.7788	0.0586	17	0.01468206	0.015006113
1048	2	20	2	3.7788	0.0586	18	0.01092623	0.011167387
1049	2	20	2	3.7788	0.0586	19	0.005500248	0.005621646
1050	2	20	2	3.7788	0.0586	20	-0.00150865	-0.001541945
1241	2	20	3	3.7788	0.0586	1	0.155717861	0.181419303
1242	2	20	3	3.7788	0.0586	2	0.151350018	0.149253141
1243	2	20	3	3.7788	0.0586	3	0.142648154	0.140671836
1244	2	20	3	3.7788	0.0586	4	0.12602018	0.124274234
1245	2	20	3	3.7788	0.0586	5	0.100190799	0.098802706
1246	2	20	3	3.7788	0.0586	6	0.070433259	0.069457441
1247	2	20	3	3.7788	0.0586	7	0.045952723	0.045316071
1248	2	20	3	3.7788	0.0586	8	0.030846998	0.030419628
1249	2	20	3	3.7788	0.0586	9	0.023202199	0.022880744
1250	2	20	3	3.7788	0.0586	10	0.019907527	0.019631718
1251	2	20	3	3.7788	0.0586	11	0.018812345	0.018551709
1252	2	20	3	3.7788	0.0586	12	0.018703095	0.018443973
1253	2	20	3	3.7788	0.0586	13	0.018909247	0.018647269
1254	2	20	3	3.7788	0.0586	14	0.01901957	0.018756064
1255	2	20	3	3.7788	0.0586	15	0.018724032	0.01846462
1256	2	20	3	3.7788	0.0586	16	0.017725216	0.017479642
1257	2	20	3	3.7788	0.0586	17	0.015699666	0.015482155
1258	2	20	3	3.7788	0.0586	18	0.012308629	0.012138099
1259	2	20	3	3.7788	0.0586	19	0.007280456	0.007179589
1260	2	20	3	3.7788	0.0586	20	0.000597162	0.000588889
1451	3	20	1	3.7788	0.0586	1	0.152763018	0.200239017
1452	3	20	1	3.7788	0.0586	2	0.146334193	0.159811692
1453	3	20	1	3.7788	0.0586	3	0.135841653	0.148352781

1454	3	20	1	3.7788	0.0586	4	0.117721762	0.128564033
1455	3	20	1	3.7788	0.0586	5	0.091314189	0.099724301
1456	3	20	1	3.7788	0.0586	6	0.062563518	0.068325669
1457	3	20	1	3.7788	0.0586	7	0.040049478	0.043738068
1458	3	20	1	3.7788	0.0586	8	0.026637258	0.029090572
1459	3	20	1	3.7788	0.0586	9	0.020011945	0.021855061
1460	3	20	1	3.7788	0.0586	10	0.017227015	0.018813638
1461	3	20	1	3.7788	0.0586	11	0.016339328	0.017844193
1462	3	20	1	3.7788	0.0586	12	0.016253431	0.017750385
1463	3	20	1	3.7788	0.0586	13	0.016342549	0.017847711
1464	3	20	1	3.7788	0.0586	14	0.016194646	0.017686186
1465	3	20	1	3.7788	0.0586	15	0.015469624	0.01689439
1466	3	20	1	3.7788	0.0586	16	0.013829536	0.015103248
1467	3	20	1	3.7788	0.0586	17	0.010927036	0.011933424
1468	3	20	1	3.7788	0.0586	18	0.006467391	0.007063043
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1661	3	20	2	3.7788	0.0586	1	0.152032897	0.190402665
1662	3	20	2	3.7788	0.0586	2	0.146880442	0.154527412
1663	3	20	2	3.7788	0.0586	3	0.138025037	0.145210973
1664	3	20	2	3.7788	0.0586	4	0.121863052	0.128207554
1665	3	20	2	3.7788	0.0586	5	0.096909012	0.101954342
1666	3	20	2	3.7788	0.0586	6	0.067936351	0.071473291
1667	3	20	2	3.7788	0.0586	7	0.043836713	0.046118965
1668	3	20	2	3.7788	0.0586	8	0.028837822	0.030339193
1669	3	20	2	3.7788	0.0586	9	0.021205639	0.022309659
1670	3	20	2	3.7788	0.0586	10	0.017894593	0.018826231
1671	3	20	2	3.7788	0.0586	11	0.016765858	0.017638731
1672	3	20	2	3.7788	0.0586	12	0.016598628	0.017462795
1673	3	20	2	3.7788	0.0586	13	0.016704925	0.017574626
1674	3	20	2	3.7788	0.0586	14	0.016649361	0.017516169
1675	3	20	2	3.7788	0.0586	15	0.016089422	0.016927079
1676	3	20	2	3.7788	0.0586	16	0.014693334	0.015458306
1677	3	20	2	3.7788	0.0586	17	0.012115093	0.012745836
1678	3	20	2	3.7788	0.0586	18	0.008035809	0.008454174
1679	3	20	2	3.7788	0.0586	19	0.00229872	0.002418398
1680	3	20	2	3.7788	0.0586	20	-0.00485888	-0.005111849
1871	3	20	3	3.7788	0.0586	1	0.151371761	0.181474165
1872	3	20	3	3.7788	0.0586	2	0.147365758	0.149534807
1873	3	20	3	3.7788	0.0586	3	0.140010055	0.142070837
1874	3	20	3	3.7788	0.0586	4	0.125742358	0.127593137
1875	3	20	3	3.7788	0.0586	5	0.102407469	0.103914785
1876	3	20	3	3.7788	0.0586	6	0.073536005	0.074618368
1877	3	20	3	3.7788	0.0586	7	0.047978541	0.048684728
1878	3	20	3	3.7788	0.0586	8	0.031305202	0.031765978
1879	3	20	3	3.7788	0.0586	9	0.022549921	0.02288183
1880	3	20	3	3.7788	0.0586	10	0.018636257	0.01891056
1881	3	20	3	3.7788	0.0586	11	0.017222721	0.017476219
1882	3	20	3	3.7788	0.0586	12	0.016948657	0.017198121
1883	3	20	3	3.7788	0.0586	13	0.01705388	0.017304893
1884	3	20	3	3.7788	0.0586	14	0.017074281	0.017325594
1885	3	20	3	3.7788	0.0586	15	0.016661708	0.016906949
1886	3	20	3	3.7788	0.0586	16	0.015490293	0.015718292
1887	3	20	3	3.7788	0.0586	17	0.013218059	0.013412614
1888	3	20	3	3.7788	0.0586	18	0.00951162	0.00965162
1889	3	20	3	3.7788	0.0586	19	0.00415355	0.004214686
1890	3	20	3	3.7788	0.0586	20	-0.00274341	-0.002783791



EK-13 4-, 9- ve 20- Katlı Yapılar İçin Verilen Yaklaşım Göre Hesaplanan Z_f Değerleri.

4- katlı yapı için

m = 3904		kNs2/m	39.04	kNs2/cm	F _y =36 ksi = 248 Mpa (N/mm2)		24.800	kN/cm2		
0.6g		E _H		cm/sn2	kNcm	kN cm				
1	Eh/m	7730.7	301807.8	Kat No.	E _{H(KAT)/EH}	E _{H(KAT)}	E _{H(Kiriş)}	θ _{pa} %10 için	Z _f (cm ³)	Z _f (inc ³)
				1	0.382	115211.65	28802.912	0.1	5807.039	354.369
				2	0.338	102059.33	25514.832	0.1	5144.119	313.915
				3	0.214	64664.81	16166.202	0.1	3259.315	198.896
				4	0.066	19871.98	4967.996	0.1	1001.612	61.122
0.6g		E _H								
2	Eh/m	7730.7	301807.8	Kat No.	E _{H(KAT)/EH}	E _{H(KAT)}	E _{H(Kiriş)}	θ _{pa} %5 için	Z _f (cm ³)	Z _f (inc ³)
				1	0.382	115211.65	28802.912	0.05	11614.077	708.737
				2	0.338	102059.33	25514.832	0.05	10288.239	627.829
				3	0.214	64664.81	16166.202	0.05	6518.630	397.793
				4	0.066	19871.98	4967.996	0.05	2003.224	122.245
0.8g		E _H								
3	Eh/m	13983	545901.6	Kat No.	E _{H(KAT)/EH}	EH(KAT)	EH(Kiriş)	θ _{pa} %10 için	Z _f (cm ³)	Z _f (inc ³)
				1	0.375	204518.24	51129.559	0.1	10308.379	629.058
				2	0.339	185246.70	46311.676	0.1	9337.031	569.783
				3	0.221	120882.52	30220.631	0.1	6092.869	371.811
				4	0.065	35254.17	8813.542	0.1	1776.924	108.435
0.8g		E _H								
4	Eh/m	13983	545901.6	Kat No.	E _{H(KAT)/EH}	EH(KAT)	EH(Kiriş)	θ _{pa} %5 için	Z _f (cm ³)	Z _f (inc ³)
				1	0.375	204518.24	51129.559	0.05	20616.758	1258.117
				2	0.339	185246.70	46311.676	0.05	18674.063	1139.566
				3	0.221	120882.52	30220.631	0.05	12185.738	743.622
				4	0.065	35254.17	8813.542	0.05	3553.848	216.870

9- katlı yapı için

m =		9006	kNs2/m		90.06	kNs2/cm				
0.6g		E _H								
1	Eh/m	4737.5	426658.0	Kat No.	E _{H(KAT)/E_H}	E _{H(KAT)}	E _{H(KIRIS)}	θ _{pa} %10 için	Z _f (cm ³)	Z _f (inc ³)
				1	0.171	73034.42	14606.884	0.1	2944.936	179.712
				2	0.149	63476.56	12695.312	0.1	2559.539	156.193
				3	0.134	57221.61	11444.321	0.1	2307.323	140.802
				4	0.124	52838.57	10567.715	0.1	2130.588	130.017
				5	0.115	49126.52	9825.303	0.1	1980.908	120.883
				6	0.105	44865.25	8973.049	0.1	1809.082	110.397
				7	0.091	38698.27	7739.653	0.1	1560.414	95.223
				8	0.069	29532.67	5906.534	0.1	1190.833	72.669
			9	0.042	17864.17	3572.835	0.1	720.330	43.957	
0.6g		E _H								
2	Eh/m	4737.5	426658.0	Kat No.	E _{H(KAT)/E_H}	E _{H(KAT)}	E _{H(KIRIS)}	θ _{pa} %5 için	Z _f (cm ³)	Z _f (inc ³)
				1	0.171	73034.42	14606.884	0.05	5889.873	359.423
				2	0.149	63476.56	12695.312	0.05	5119.078	312.386
				3	0.134	57221.61	11444.321	0.05	4614.646	281.604
				4	0.124	52838.57	10567.715	0.05	4261.175	260.034
				5	0.115	49126.52	9825.303	0.05	3961.816	241.766
				6	0.105	44865.25	8973.049	0.05	3618.165	220.795
				7	0.091	38698.27	7739.653	0.05	3120.828	190.445
				8	0.069	29532.67	5906.534	0.05	2381.667	145.339
			9	0.042	17864.17	3572.835	0.05	1440.659	87.915	
0.8g		E _H								
3	Eh/m	8897.7	801327.6	Kat No.	E _{H(KAT)/E_H}	E _{H(KAT)}	E _{H(KIRIS)}	θ _{pa} %10 için	Z _f (cm ³)	Z _f (inc ³)
				1	0.179	143813.91	28762.781	0.1	5798.948	353.875
				2	0.153	122305.00	24460.999	0.1	4931.653	300.949
				3	0.135	108162.70	21632.540	0.1	4361.399	266.150
				4	0.123	98325.60	19665.121	0.1	3964.742	241.944

5	0.113	90333.44	18066.687	0.1	3642.477	222.278
6	0.102	81851.56	16370.313	0.1	3300.466	201.408
7	0.088	70381.54	14076.308	0.1	2837.965	173.184
8	0.067	53773.42	10754.684	0.1	2168.283	132.317
9	0.040	32380.39	6476.078	0.1	1305.661	79.677

4	0.8g		E_H							
	Eh/m	8897.7	801327.6	Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}$	$E_{H(KIRIS)}$	θ_{m} %5 için	Z_f (cm ³)	Z_f (inc ³)
				1	0.179	143813.91	28762.781	0.05	11597.896	707.750
				2	0.153	122305.00	24460.999	0.05	9863.306	601.898
				3	0.135	108162.70	21632.540	0.05	8722.798	532.300
				4	0.123	98325.60	19665.121	0.05	7929.484	483.889
				5	0.113	90333.44	18066.687	0.05	7284.954	444.557
				6	0.102	81851.56	16370.313	0.05	6600.933	402.815
				7	0.088	70381.54	14076.308	0.05	5675.931	346.368
				8	0.067	53773.42	10754.684	0.05	4336.566	264.635
				9	0.040	32380.39	6476.078	0.05	2611.322	159.353

20- katlı yapı için

m = 11067 kNs2/m 110.67 kNs2/cm

0.6g		E_H								
1	Eh/m	5243.7	580317.4	Kat No.	$E_{H(KAT)/E_H}$	$E_{H(KAT)}$	$E_{H(KIRIS)}$	θ_{pa} %10 için	Z_r (cm ³)	Z_r (inc ³)
				1	0.199	115441.92	23088.384	0.1	4654.916	284.062
				2	0.159	92037.15	18407.430	0.1	3711.175	226.471
				3	0.146	84608.47	16921.693	0.1	3411.632	208.191
				4	0.124	71946.51	14389.301	0.1	2901.069	177.035
				5	0.094	54456.88	10891.376	0.1	2195.842	133.999
				6	0.063	36742.89	7348.579	0.1	1481.568	90.411
				7	0.041	23778.58	4755.717	0.1	958.814	58.511
				8	0.028	16413.51	3282.701	0.1	661.835	40.388
				9	0.022	12896.52	2579.303	0.1	520.021	31.734
				10	0.020	11483.90	2296.781	0.1	463.061	28.258
				11	0.019	11093.16	2218.633	0.1	447.305	27.296
				12	0.019	11126.04	2225.208	0.1	448.631	27.377
				13	0.019	11241.53	2248.306	0.1	453.287	27.661
				14	0.019	11214.60	2242.920	0.1	452.202	27.595
				15	0.019	10856.41	2171.281	0.1	437.758	26.714
				16	0.017	9974.14	1994.829	0.1	402.183	24.543
				17	0.014	8359.80	1671.960	0.1	337.089	20.570
				18	0.010	5815.45	1163.089	0.1	234.494	14.310
				19	0.004	2235.51	447.102	0.1	90.141	5.501
				20	0.000	0.00	0.000	0.1	0.000	0.000

0.6g		E_H								
2	Eh/m	5243.7	580317.4	Kat No.	$E_{H(KAT)/E_H}$	$E_{H(KAT)}$	$E_{H(KIRIS)}$	θ_{pa} %5 için	Z_r (cm ³)	Z_r (inc ³)
				1	0.199	115441.92	23088.384	0.05	9309.832	568.123
				2	0.159	92037.15	18407.430	0.05	7422.351	452.941
				3	0.146	84608.47	16921.693	0.05	6823.263	416.383
				4	0.124	71946.51	14389.301	0.05	5802.138	354.070
				5	0.094	54456.88	10891.376	0.05	4391.684	267.998
				6	0.063	36742.89	7348.579	0.05	2963.137	180.822
				7	0.041	23778.58	4755.717	0.05	1917.628	117.021
				8	0.028	16413.51	3282.701	0.05	1323.670	80.776
				9	0.022	12896.52	2579.303	0.05	1040.042	63.467
				10	0.020	11483.90	2296.781	0.05	926.121	56.516
				11	0.019	11093.16	2218.633	0.05	894.610	54.593
				12	0.019	11126.04	2225.208	0.05	897.261	54.754
				13	0.019	11241.53	2248.306	0.05	906.575	55.323
				14	0.019	11214.60	2242.920	0.05	904.403	55.190
				15	0.019	10856.41	2171.281	0.05	875.517	53.428
				16	0.017	9974.14	1994.829	0.05	804.366	49.086
				17	0.014	8359.80	1671.960	0.05	674.177	41.141
				18	0.010	5815.45	1163.089	0.05	468.988	28.619
				19	0.004	2235.51	447.102	0.05	180.283	11.002
				20	0.000	0.00	0.000	0.05	0.000	0.000

0.8g			E _H							
3	Eh/m	7659.1	847632.0	Kat No.	E _{H(KAT)/EH}	E _{H(KAT)}	E _{H(KIRIS)}	θ _{pa} %10 için	Z _f (cm ³)	Z _f (inc ³)
				1	0.200	169728.99	33945.798	0.1	6843.911	417.643
				2	0.160	135461.50	27092.299	0.1	5462.157	333.323
				3	0.148	125748.56	25149.711	0.1	5070.506	309.422
				4	0.129	108974.98	21794.996	0.1	4394.153	268.149
				5	0.100	84529.50	16905.901	0.1	3408.448	207.997
				6	0.068	57915.02	11583.004	0.1	2335.283	142.508
				7	0.044	37073.78	7414.757	0.1	1494.911	91.225
				8	0.029	24658.10	4931.620	0.1	994.278	60.675
				9	0.022	18525.05	3705.010	0.1	746.978	45.584
				10	0.019	15947.04	3189.408	0.1	643.026	39.240
				11	0.018	15125.31	3025.062	0.1	609.891	37.218
				12	0.018	15045.79	3009.159	0.1	606.685	37.022
				13	0.018	15128.29	3025.658	0.1	610.012	37.225
				14	0.018	14991.38	2998.275	0.1	604.491	36.888
				15	0.017	14320.22	2864.045	0.1	577.428	35.237
				16	0.015	12802.00	2560.399	0.1	516.209	31.501
				17	0.012	10115.15	2023.030	0.1	407.869	24.890
				18	0.007	5986.86	1197.372	0.1	241.406	14.732
				19	0.000	341.83	68.366	0.1	13.784	0.841
				20	0.000	0.00	0.000	0.1	0.000	0.000

0.8g			E _H							
4	Eh/m	7659.1	847632.0	Kat No.	E _{H(KAT)/EH}	E _{H(KAT)}	E _{H(KIRIS)}	θ _{pa} %10 için	Z _f (cm ³)	Z _f (inc ³)
				1	0.200	169728.99	33945.798	0.05	13687.822	835.285
				2	0.160	135461.50	27092.299	0.05	10924.314	666.645
				3	0.148	125748.56	25149.711	0.05	10141.013	618.845
				4	0.129	108974.98	21794.996	0.05	8788.305	536.297
				5	0.100	84529.50	16905.901	0.05	6816.895	415.994
				6	0.068	57915.02	11583.004	0.05	4670.566	285.017
				7	0.044	37073.78	7414.757	0.05	2989.821	182.451
				8	0.029	24658.10	4931.620	0.05	1988.556	121.350
				9	0.022	18525.05	3705.010	0.05	1493.956	91.167
				10	0.019	15947.04	3189.408	0.05	1286.052	78.480
				11	0.018	15125.31	3025.062	0.05	1219.783	74.436
				12	0.018	15045.79	3009.159	0.05	1213.370	74.045
				13	0.018	15128.29	3025.658	0.05	1220.023	74.451
				14	0.018	14991.38	2998.275	0.05	1208.982	73.777
				15	0.017	14320.22	2864.045	0.05	1154.857	70.474
				16	0.015	12802.00	2560.399	0.05	1032.419	63.002
				17	0.012	10115.15	2023.030	0.05	815.738	49.780
				18	0.007	5986.86	1197.372	0.05	482.811	29.463
				19	0.000	341.83	68.366	0.05	27.567	1.682
				20	0.000	0.00	0.000	0.05	0.000	0.000

EK-14 3-, 4-, 5-, 6-, 7-, 8-, 9-, 10-, 11-, 12-, 13-, 14-, 15-, 16-, 17-, 18-, 19- ve 20- Katlı Yapılar için Verilen Yaklaşım Göre Hesaplanan Z_f Değerler ve Kat No. – Z_f/m grafikleri.

3- katlı yapı için

E_H/m : 1.5697 (cm/sn)²

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.41	0.64
2	0.38	0.59
3	0.21	0.34

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.32	12931.31
2	0.30	11930.34
3	0.17	6785.19

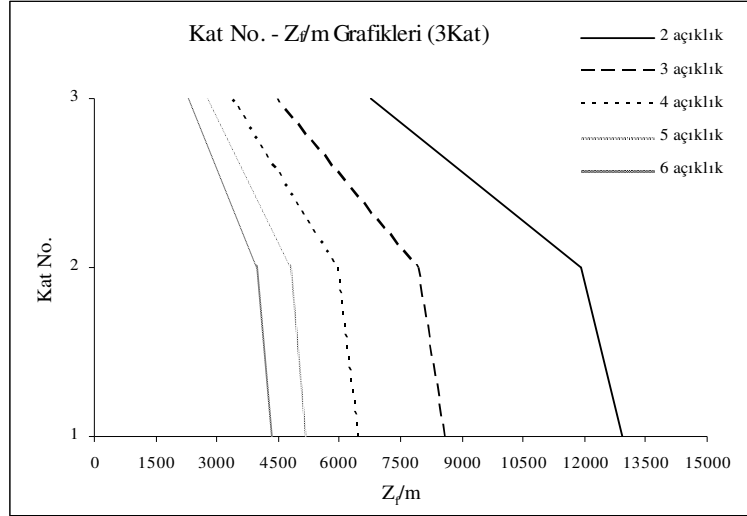
Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.16	6465.66
2	0.15	5965.17
3	0.08	3392.60

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.11	4310.437
2	0.10	3976.781
3	0.06	2261.732

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.21	8620.87
2	0.20	7953.56
3	0.11	4523.46

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.13	5172.52
2	0.12	4772.14
3	0.07	2714.08

$F_y = 248000$ kN/m² ; Z_f mm olarak ; m ise ton (kNsn²/m) olarak kullanılacaktır.



4- katlı yapı için

E_H/m : 1.3983 (cm/sn)²

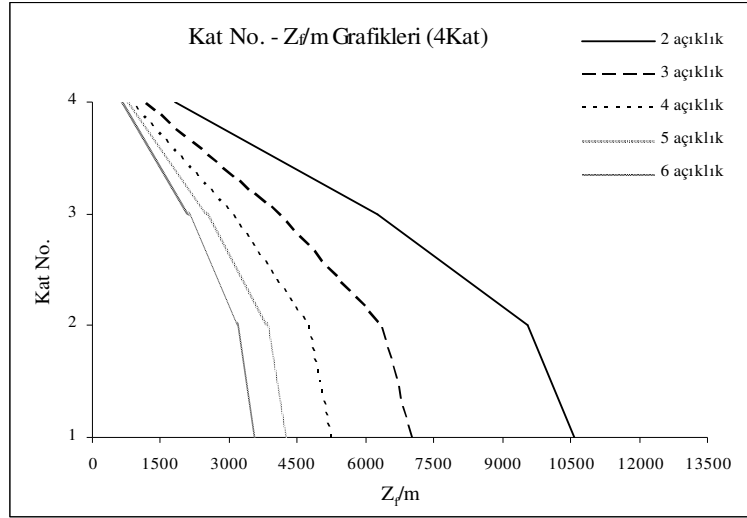
Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.37	0.52
2	0.34	0.47
3	0.22	0.31
4	0.06	0.09

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.26	10561.86
2	0.24	9566.63
3	0.15	6242.69

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.17	7041.24
2	0.16	6377.75
3	0.10	4161.80

	4	0.05	1820.62		4	0.03	1213.75
	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m		Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
4 açıklık için	1	0.13	5280.93	5 açıklık için	1	0.10	4224.75
	2	0.12	4783.32		2	0.09	3826.65
	3	0.08	3121.35		3	0.06	2497.08
	4	0.02	910.31		4	0.02	728.25
	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m		Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
6 açıklık için	1	0.09	3520.621		1	0.09	3520.621
	2	0.08	3188.877		2	0.08	3188.877
	3	0.05	2080.898		3	0.05	2080.898
	4	0.02	606.8729		4	0.02	606.8729

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn2/m) olarak kullanılacaktır.



5- katlı yapı için

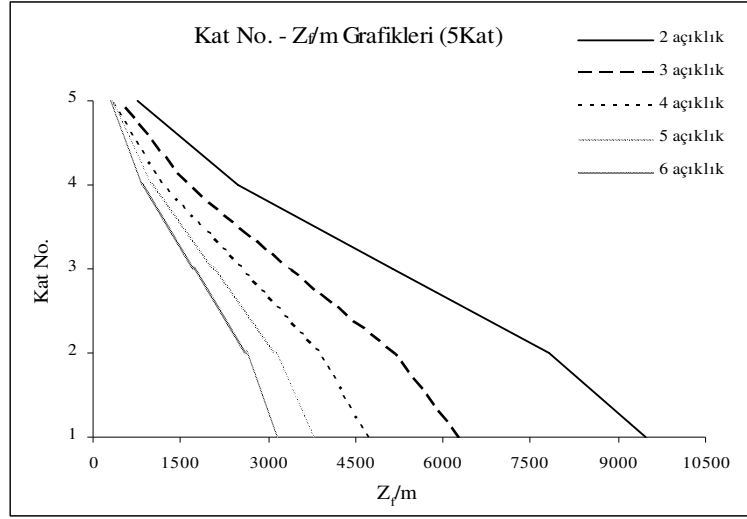
E_H/m : 1.2722 (cm/sn)²

$E_{H(KAT)}/E_H$:	Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
	1	0.37	0.47
	2	0.30	0.39
	3	0.20	0.25
	4	0.10	0.12
	5	0.03	0.04

	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m		Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
2 açıklık için	1	0.23	9462.98	3 açıklık için	1	0.16	6308.66
	2	0.19	7815.76		2	0.13	5210.50
	3	0.13	5139.15		3	0.08	3426.10
	4	0.06	2475.48		4	0.04	1650.32
	5	0.02	756.07		5	0.01	504.05
	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m		Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
4 açıklık için	1	0.12	4731.49	5 açıklık için	1	0.09	3785.19
	2	0.10	3907.88		2	0.08	3126.30
	3	0.06	2569.58		3	0.05	2055.66
	4	0.03	1237.74		4	0.02	990.19
	5	0.01	378.04		5	0.01	302.43
	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m		Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
6 açıklık için	1	0.08	3154.33		1	0.08	3154.33
	2	0.06	2605.25		2	0.06	2605.25

3	0.04	1713.05
4	0.02	825.16
5	0.01	252.02

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn^2/m) olarak kullanılacaktır.



6- katlı yapı için

E_H/m : 1.1683 (cm/sn)²

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.35	0.406
2	0.26	0.305
3	0.18	0.210
4	0.11	0.134
5	0.07	0.077
6	0.03	0.036

2 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
	1	0.20	8194.13
	2	0.15	6157.89
	3	0.10	4227.07
	4	0.07	2697.10
	5	0.04	1558.43
	6	0.02	718.81

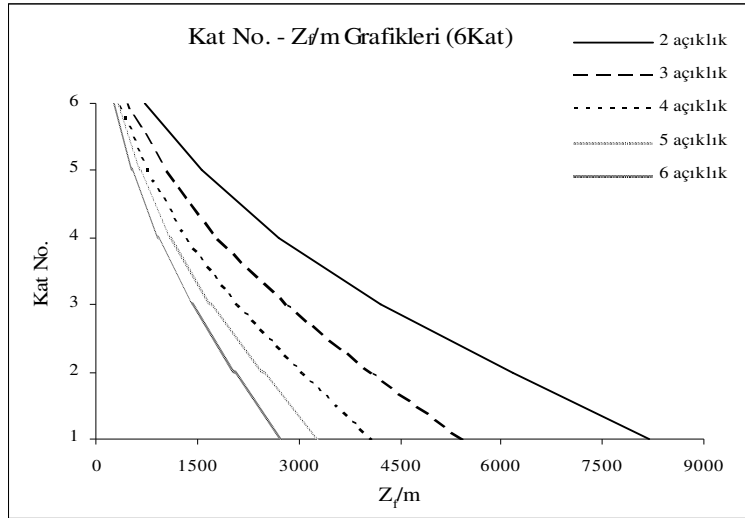
4 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
	1	0.10	4097.07
	2	0.08	3078.94
	3	0.05	2113.54
	4	0.03	1348.55
	5	0.02	779.22
	6	0.01	359.40

6 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
	1	0.07	2731.38
	2	0.05	2052.63
	3	0.03	1409.02
	4	0.02	899.03
	5	0.01	519.48
	6	0.01	239.60

3 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
	1	0.14	5462.76
	2	0.10	4105.26
	3	0.07	2818.05
	4	0.04	1798.07
	5	0.03	1038.95
	6	0.01	479.21

5 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
	1	0.08	3277.65
	2	0.06	2463.15
	3	0.04	1690.83
	4	0.03	1078.84
	5	0.02	623.37
	6	0.01	287.52

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn^2/m) olarak kullanılacaktır.



7- katlı yapı için

E_H/m : 1.0719 (cm/sn)²

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.29	0.311
2	0.22	0.233
3	0.16	0.175
4	0.12	0.133
5	0.09	0.101
6	0.07	0.073
7	0.04	0.046

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.16	6266.13
2	0.12	4695.74
3	0.09	3534.74
4	0.07	2691.33
5	0.05	2036.67
6	0.04	1467.08
7	0.02	920.02

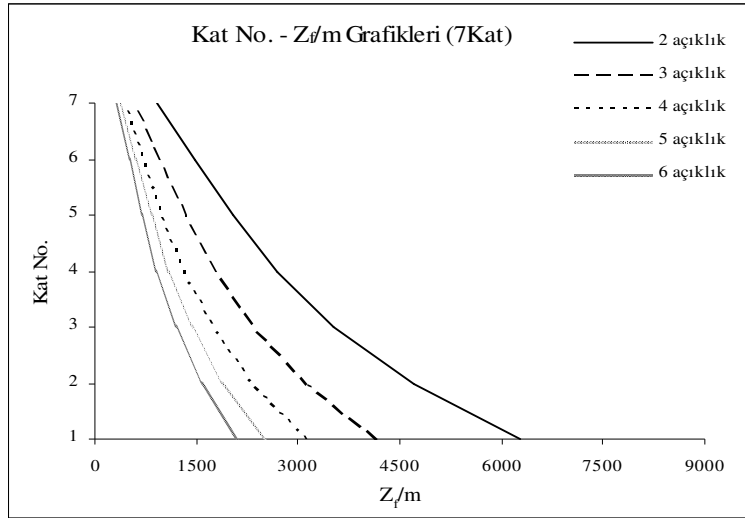
Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.08	3133.06
2	0.06	2347.87
3	0.04	1767.37
4	0.03	1345.66
5	0.03	1018.34
6	0.02	733.54
7	0.01	460.01

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.05	2088.71
2	0.04	1565.25
3	0.03	1178.25
4	0.02	897.11
5	0.02	678.89
6	0.01	489.03
7	0.01	306.67

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.10	4177.42
2	0.08	3130.49
3	0.06	2356.49
4	0.04	1794.22
5	0.03	1357.78
6	0.02	978.06
7	0.02	613.35

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.06	2506.45
2	0.05	1878.29
3	0.04	1413.90
4	0.03	1076.53
5	0.02	814.67
6	0.01	586.83
7	0.01	368.01

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn²/m) olarak kullanılacaktır.



8- katlı yapı için

E_H/m : 0.9784 (cm/sn)²

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.22	0.220
2	0.18	0.175
3	0.15	0.144
4	0.13	0.123
5	0.11	0.106
6	0.09	0.090
7	0.07	0.072
8	0.05	0.049

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.11	4437.02
2	0.09	3528.63
3	0.07	2911.33
4	0.06	2475.89
5	0.05	2133.02
6	0.04	1809.54
7	0.04	1442.29
8	0.02	987.67

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.06	2218.51
2	0.04	1764.31
3	0.04	1455.67
4	0.03	1237.94
5	0.03	1066.51
6	0.02	904.77
7	0.02	721.15
8	0.01	493.84

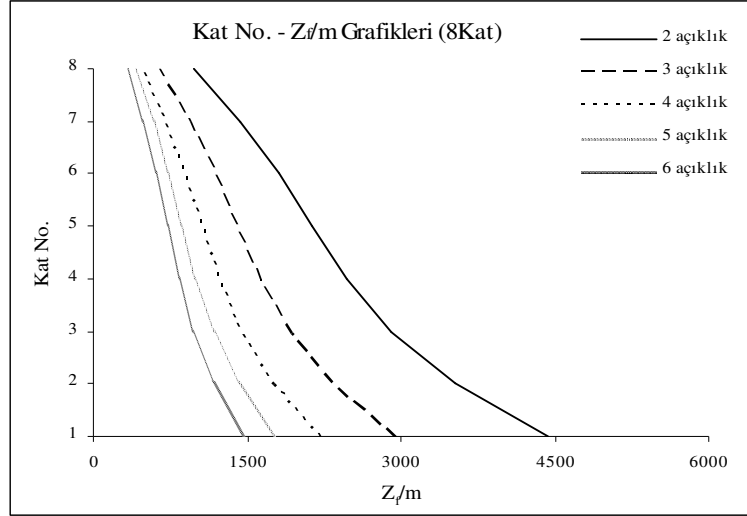
Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.04	1479.01
2	0.03	1176.21
3	0.02	970.44
4	0.02	825.30

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.07	2958.01
2	0.06	2352.42
3	0.05	1940.89
4	0.04	1650.59
5	0.04	1422.01
6	0.03	1206.36
7	0.02	961.53
8	0.02	658.45

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.04	1774.81
2	0.04	1411.45
3	0.03	1164.53
4	0.02	990.35
5	0.02	853.21
6	0.02	723.82
7	0.01	576.92
8	0.01	395.07

5	0.02	711.01
6	0.01	603.18
7	0.01	480.76
8	0.01	329.22

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn²/m) olarak kullanılacaktır.



9- katlı yapı için

E_H/m : 0.8898 (cm/sn)²

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.18	0.160
2	0.15	0.136
3	0.13	0.120
4	0.12	0.109
5	0.11	0.100
6	0.10	0.091
7	0.09	0.078
8	0.07	0.060
9	0.04	0.036

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.08	3219.49
2	0.07	2737.98
3	0.06	2421.39
4	0.05	2201.17
5	0.05	2022.25
6	0.05	1832.37
7	0.04	1575.60
8	0.03	1203.80
9	0.02	724.88

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.04	1609.75
2	0.03	1368.99
3	0.03	1210.69
4	0.03	1100.58
5	0.03	1011.13
6	0.02	916.19
7	0.02	787.80

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.05	2146.33
2	0.05	1825.32
3	0.04	1614.26
4	0.04	1467.44
5	0.03	1348.17
6	0.03	1221.58
7	0.03	1050.40
8	0.02	802.53
9	0.01	483.26

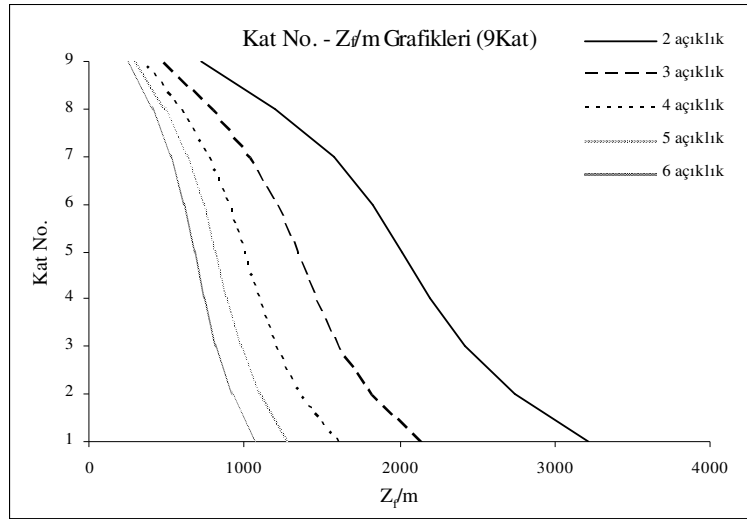
Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.03	1287.80
2	0.03	1095.19
3	0.02	968.55
4	0.02	880.47
5	0.02	808.90
6	0.02	732.95
7	0.02	630.24

8	0.01	601.90
9	0.01	362.44

8	0.01	481.52
9	0.01	289.95

	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
6 açıklık için	1	0.03	1073.16
	2	0.02	912.66
	3	0.02	807.13
	4	0.02	733.72
	5	0.02	674.08
	6	0.02	610.79
	7	0.01	525.20
	8	0.01	401.27
	9	0.01	241.63

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn²/m) olarak kullanılacaktır.



10- katlı yapı için

E_H/m : 0.8114 (cm/sn)²

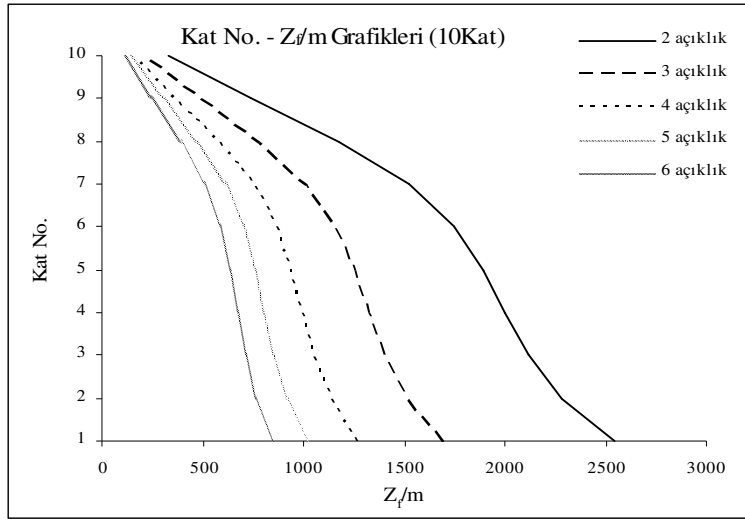
	Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
$E_{H(KAT)}/E_H$:	1	0.16	0.126
	2	0.14	0.113
	3	0.13	0.105
	4	0.12	0.099
	5	0.12	0.094
	6	0.11	0.087
	7	0.09	0.076
	8	0.07	0.058
	9	0.05	0.037
	10	0.02	0.017

	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
2 açıklık için	1	0.06	2543.80
	2	0.06	2282.69
	3	0.05	2115.26
	4	0.05	1998.06
	5	0.05	1891.54
	6	0.04	1751.14
	7	0.04	1525.07
	8	0.03	1176.62

	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
3 açıklık için	1	0.04	1695.87
	2	0.04	1521.79
	3	0.03	1410.17
	4	0.03	1332.04
	5	0.03	1261.02
	6	0.03	1167.43
	7	0.03	1016.72
	8	0.02	784.41

		9	0.02	740.58			9	0.01	493.72
		10	0.01	334.70			10	0.01	223.13
		Kat No.	E_{HKIRIS}/m	Z_f/m			Kat No.	E_{HKIRIS}/m	Z_f/m
4 açıklık için		1	0.03	1271.90	5 açıklık için		1	0.03	1017.52
		2	0.03	1141.34			2	0.02	913.08
		3	0.03	1057.63			3	0.02	846.10
		4	0.02	999.03			4	0.02	799.22
		5	0.02	945.77			5	0.02	756.61
		6	0.02	875.57			6	0.02	700.46
		7	0.02	762.54			7	0.02	610.03
		8	0.01	588.31			8	0.01	470.65
		9	0.01	370.29			9	0.01	296.23
		10	0.00	167.35			10	0.00	133.88
		Kat No.	E_{HKIRIS}/m	Z_f/m			Kat No.	E_{HKIRIS}/m	Z_f/m
6 açıklık için		1	0.02	847.93	6 açıklık için		1	0.02	847.93
		2	0.02	760.90			2	0.02	760.90
		3	0.02	705.09			3	0.02	705.09
		4	0.02	666.02			4	0.02	666.02
		5	0.02	630.51			5	0.02	630.51
		6	0.01	583.71			6	0.01	583.71
		7	0.01	508.36			7	0.01	508.36
		8	0.01	392.21			8	0.01	392.21
		9	0.01	246.86			9	0.01	246.86
		10	0.00	111.57			10	0.00	111.57

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn^2/m) olarak kullanılacaktır.



11- katlı yapı için

E_H/m : 0.748 (cm/sn^2)

$E_{H(KAT)}/E_H$	Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
:	1	0.15	0.109
	2	0.14	0.101

3	0.13	0.097
4	0.12	0.093
5	0.12	0.089
6	0.11	0.082
7	0.09	0.070
8	0.07	0.053
9	0.04	0.033
10	0.02	0.016
11	0.01	0.006

	Kat No.	$E_{H(KIRIS)}/m$	Zf/m
2 açıklık için	1	0.05	2188.24
	2	0.05	2039.46
	3	0.05	1946.01
	4	0.05	1875.68
	5	0.04	1793.66
	6	0.04	1656.11
	7	0.04	1415.60
	8	0.03	1058.93
	9	0.02	658.94
	10	0.01	330.98
	11	0.00	116.55

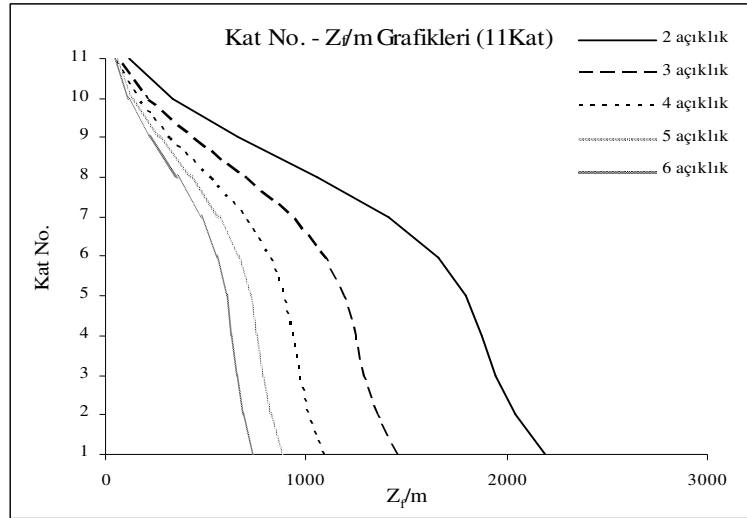
	Kat No.	$E_{H(KIRIS)}/m$	Zf/m
4 açıklık için	1	0.03	1094.12
	2	0.03	1019.73
	3	0.02	973.01
	4	0.02	937.84
	5	0.02	896.83
	6	0.02	828.05
	7	0.02	707.80
	8	0.01	529.46
	9	0.01	329.47
	10	0.00	165.49
	11	0.00	58.27

	Kat No.	$E_{H(KIRIS)}/m$	Zf/m
6 açıklık için	1	0.02	729.41
	2	0.02	679.82
	3	0.02	648.67
	4	0.02	625.23
	5	0.01	597.89
	6	0.01	552.04
	7	0.01	471.87
	8	0.01	352.98
	9	0.01	219.65
	10	0.00	110.33
	11	0.00	38.85

	Kat No.	$E_{H(KIRIS)}/m$	Zf/m
3 açıklık için	1	0.04	1458.83
	2	0.03	1359.64
	3	0.03	1297.34
	4	0.03	1250.45
	5	0.03	1195.77
	6	0.03	1104.07
	7	0.02	943.73
	8	0.02	705.95
	9	0.01	439.29
	10	0.01	220.65
	11	0.00	77.70

	Kat No.	$E_{H(KIRIS)}/m$	Zf/m
5 açıklık için	1	0.02	875.30
	2	0.02	815.79
	3	0.02	778.41
	4	0.02	750.27
	5	0.02	717.46
	6	0.02	662.44
	7	0.01	566.24
	8	0.01	423.57
	9	0.01	263.58
	10	0.00	132.39
	11	0.00	46.62

$F_y = 248000 \text{ kN/m}^2$; Zf mm olarak ; m ise ton (kNsn^2/m) olarak kullanılacaktır.



12- katlı yapı için

E_H/m : 0.7014 (cm/sn)²

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.1417	0.099
2	0.1354	0.095
3	0.1314	0.092
4	0.1277	0.090
5	0.1218	0.085
6	0.1104	0.077
7	0.0910	0.064
8	0.0650	0.046
9	0.0396	0.028
10	0.0214	0.015
11	0.0105	0.007
12	0.0040	0.003

Kat No.	$E_{H(KRIS)}/m$	Z_f/m
1	0.0497	2004.01
2	0.0475	1915.01
3	0.0461	1858.50
4	0.0448	1806.04
5	0.0427	1722.24
6	0.0387	1561.92
7	0.0319	1287.28
8	0.0228	919.12
9	0.0139	560.36
10	0.0075	302.56
11	0.0037	148.54
12	0.0014	56.24

Kat No.	$E_{H(KRIS)}/m$	Z_f/m
1	0.0248	1002.01
2	0.0237	957.50
3	0.0230	929.25
4	0.0224	903.02
5	0.0214	861.12
6	0.0194	780.96

Kat No.	$E_{H(KRIS)}/m$	Z_f/m
1	0.0331	1336.01
2	0.0317	1276.67
3	0.0307	1239.00
4	0.0299	1204.02
5	0.0285	1148.16
6	0.0258	1041.28
7	0.0213	858.18
8	0.0152	612.75
9	0.0093	373.58
10	0.0050	201.71
11	0.0025	99.03
12	0.0009	37.50

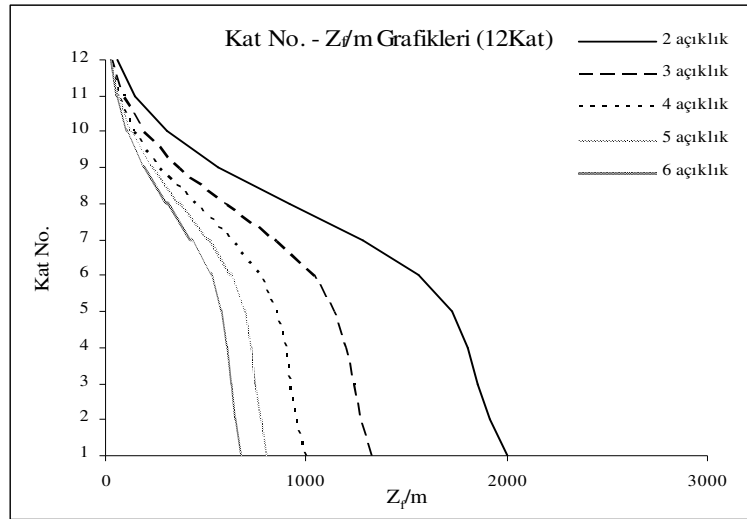
Kat No.	$E_{H(KRIS)}/m$	Z_f/m
1	0.0199	801.60
2	0.0190	766.00
3	0.0184	743.40
4	0.0179	722.41
5	0.0171	688.89
6	0.0155	624.77

7	0.0160	643.64
8	0.0114	459.56
9	0.0069	280.18
10	0.0038	151.28
11	0.0018	74.27
12	0.0007	28.12

7	0.0128	514.91
8	0.0091	367.65
9	0.0056	224.15
10	0.0030	121.03
11	0.0015	59.42
12	0.0006	22.50

Kat No.	$E_{H(KIRIS)}/m$	Z_d/m
1	0.0166	668.00
2	0.0158	638.34
3	0.0154	619.50
4	0.0149	602.01
5	0.0142	574.08
6	0.0129	520.64
7	0.0106	429.09
8	0.0076	306.37
9	0.0046	186.79
10	0.0025	100.85
11	0.0012	49.51
12	0.0005	18.75

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn^2/m) olarak kullanılacaktır.



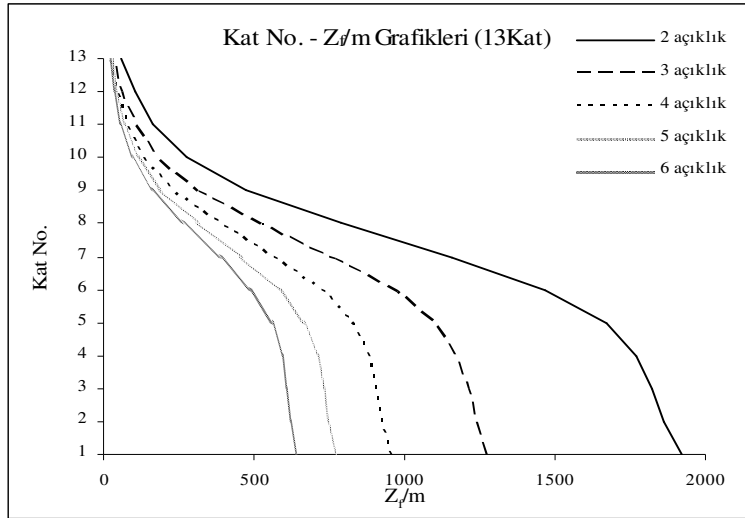
13- katlı yapı için

E_H/m : 0.6714 (cm/sn^2)

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.1417	0.095
2	0.1376	0.092
3	0.1346	0.090
4	0.1308	0.088
5	0.1232	0.083
6	0.1086	0.073
7	0.0855	0.057
8	0.0582	0.039
9	0.0351	0.024
10	0.0204	0.014
11	0.0122	0.008
12	0.0077	0.005

	13	0.0044	0.003
	Kat No.	$E_H(KIRIS)/m$	Z_f/m
2 açıklık için	1	0.0476	1918.45
	2	0.0462	1861.82
	3	0.0452	1822.01
	4	0.0439	1770.23
	5	0.0414	1667.97
	6	0.0365	1470.18
	7	0.0287	1157.16
	8	0.0195	787.91
	9	0.0118	475.68
	10	0.0068	275.82
	11	0.0041	165.60
	12	0.0026	103.57
	13	0.0015	59.16
	Kat No.	$E_H(KIRIS)/m$	Z_f/m
3 açıklık için	1	0.0317	1278.96
	2	0.0308	1241.21
	3	0.0301	1214.68
	4	0.0293	1180.15
	5	0.0276	1111.98
	6	0.0243	980.12
	7	0.0191	771.44
	8	0.0130	525.27
	9	0.0079	317.12
	10	0.0046	183.88
	11	0.0027	110.40
	12	0.0017	69.05
	13	0.0010	39.44
	Kat No.	$E_H(KIRIS)/m$	Z_f/m
4 açıklık için	1	0.0238	959.22
	2	0.0231	930.91
	3	0.0226	911.01
	4	0.0220	885.11
	5	0.0207	833.99
	6	0.0182	735.09
	7	0.0143	578.58
	8	0.0098	393.95
	9	0.0059	237.84
	10	0.0034	137.91
	11	0.0021	82.80
	12	0.0013	51.79
	13	0.0007	29.58
	Kat No.	$E_H(KIRIS)/m$	Z_f/m
5 açıklık için	1	0.0190	767.38
	2	0.0185	744.73
	3	0.0181	728.81
	4	0.0176	708.09
	5	0.0165	667.19
	6	0.0146	588.07
	7	0.0115	462.87
	8	0.0078	315.16
	9	0.0047	190.27
	10	0.0027	110.33
	11	0.0016	66.24
	12	0.0010	41.43
	13	0.0006	23.66
	Kat No.	$E_H(KIRIS)/m$	Z_f/m
6 açıklık için	1	0.0159	639.48
	2	0.0154	620.61
	3	0.0151	607.34
	4	0.0146	590.08
	5	0.0138	555.99
	6	0.0122	490.06
	7	0.0096	385.72
	8	0.0065	262.64
	9	0.0039	158.56
	10	0.0023	91.94
	11	0.0014	55.20
	12	0.0009	34.52
	13	0.0005	19.72

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn^2/m) olarak kullanılacaktır.



14- katlı yapı için

E_H/m : 0.6559 (cm/sn)²

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.1434	0.094
2	0.1404	0.092
3	0.1377	0.090
4	0.1329	0.087
5	0.1229	0.081
6	0.1045	0.069
7	0.0783	0.051
8	0.0513	0.034
9	0.0312	0.020
10	0.0195	0.013
11	0.0135	0.009
12	0.0103	0.007
13	0.0082	0.005
14	0.0060	0.004

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.0470	1896.37
2	0.0460	1856.34
3	0.0452	1820.61
4	0.0436	1757.55
5	0.0403	1624.87
6	0.0343	1381.78
7	0.0257	1035.49
8	0.0168	678.21
9	0.0102	412.50
10	0.0064	257.77
11	0.0044	178.25
12	0.0034	136.73
13	0.0027	108.67
14	0.0020	78.91

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.0235	948.19

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.0314	1264.25
2	0.0307	1237.56
3	0.0301	1213.74
4	0.0291	1171.70
5	0.0269	1083.24
6	0.0228	921.19
7	0.0171	690.33
8	0.0112	452.14
9	0.0068	275.00
10	0.0043	171.85
11	0.0029	118.83
12	0.0023	91.15
13	0.0018	72.44
14	0.0013	52.60

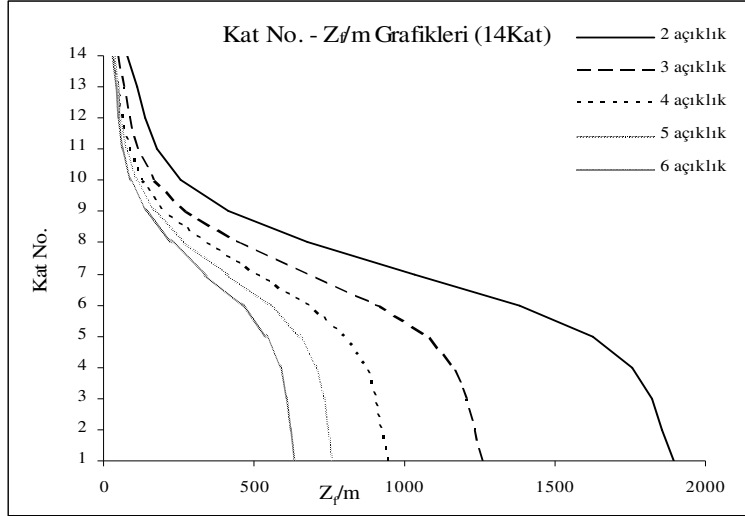
Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.0188	758.55

2	0.0230	928.17
3	0.0226	910.30
4	0.0218	878.78
5	0.0201	812.43
6	0.0171	690.89
7	0.0128	517.75
8	0.0084	339.10
9	0.0051	206.25
10	0.0032	128.88
11	0.0022	89.12
12	0.0017	68.36
13	0.0013	54.33
14	0.0010	39.45

2	0.0184	742.54
3	0.0181	728.24
4	0.0174	703.02
5	0.0161	649.95
6	0.0137	552.71
7	0.0103	414.20
8	0.0067	271.28
9	0.0041	165.00
10	0.0026	103.11
11	0.0018	71.30
12	0.0014	54.69
13	0.0011	43.47
14	0.0008	31.56

Kat No.	$E_H/KIRIS/m$	Z_f/m
1	0.0157	632.12
2	0.0153	618.78
3	0.0151	606.87
4	0.0145	585.85
5	0.0134	541.62
6	0.0114	460.59
7	0.0086	345.16
8	0.0056	226.07
9	0.0034	137.50
10	0.0021	85.92
11	0.0015	59.42
12	0.0011	45.58
13	0.0009	36.22
14	0.0007	26.30

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn^2/m) olarak kullanılacaktır.



15- katlı yapı için

E_H/m : 0.6528 (cm/sn)²

$E_{H(KAT)}/E_H$	Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
	1	0.1458	0.095
	2	0.1433	0.094
	3	0.1402	0.092
	4	0.1338	0.087
	5	0.1207	0.079
	6	0.0986	0.064
	7	0.0705	0.046
	8	0.0451	0.029
	9	0.0281	0.018
	10	0.0189	0.012
	11	0.0145	0.009
	12	0.0124	0.008
	13	0.0111	0.007
	14	0.0096	0.006
	15	0.0074	0.005

2 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
	1	0.0476	1919.40
	2	0.0468	1885.76
	3	0.0458	1845.02
	4	0.0437	1761.20
	5	0.0394	1588.99
	6	0.0322	1298.10
	7	0.0230	928.50
	8	0.0147	593.06
	9	0.0092	369.34
	10	0.0062	248.59
	11	0.0047	190.49
	12	0.0040	162.79
	13	0.0036	145.63
	14	0.0031	126.73
	15	0.0024	97.59

4 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
	1	0.0238	959.70
	2	0.0234	942.88
	3	0.0229	922.51
	4	0.0218	880.60
	5	0.0197	794.49
	6	0.0161	649.05
	7	0.0115	464.25
	8	0.0074	296.53
	9	0.0046	184.67
	10	0.0031	124.29
	11	0.0024	95.25
	12	0.0020	81.40
	13	0.0018	72.82
	14	0.0016	63.36
	15	0.0012	48.79

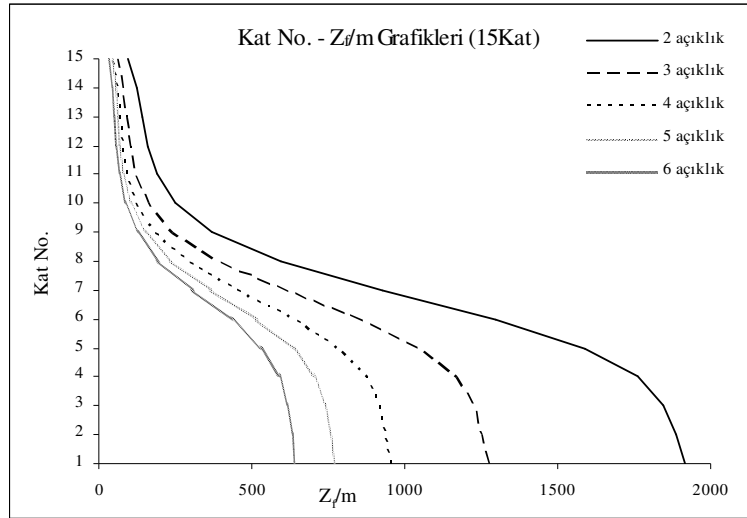
6 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
	1	0.0159	639.80
	2	0.0156	628.59

3 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
	1	0.0317	1279.60
	2	0.0312	1257.17
	3	0.0305	1230.01
	4	0.0291	1174.14
	5	0.0263	1059.32
	6	0.0215	865.40
	7	0.0154	619.00
	8	0.0098	395.37
	9	0.0061	246.23
	10	0.0041	165.72
	11	0.0031	126.99
	12	0.0027	108.53
	13	0.0024	97.09
	14	0.0021	84.48
	15	0.0016	65.06

5 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
	1	0.0190	767.76
	2	0.0187	754.30
	3	0.0183	738.01
	4	0.0175	704.48
	5	0.0158	635.59
	6	0.0129	519.24
	7	0.0092	371.40
	8	0.0059	237.22
	9	0.0037	147.74
	10	0.0025	99.43
	11	0.0019	76.20
	12	0.0016	65.12
	13	0.0014	58.25
	14	0.0013	50.69
	15	0.0010	39.03

3	0.0153	615.01
4	0.0146	587.07
5	0.0131	529.66
6	0.0107	432.70
7	0.0077	309.50
8	0.0049	197.69
9	0.0031	123.11
10	0.0021	82.86
11	0.0016	63.50
12	0.0013	54.26
13	0.0012	48.54
14	0.0010	42.24
15	0.0008	32.53

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn²/m) olarak kullanılacaktır.



16- katlı yapı için

E_H/m : 0.6599 (cm/sn)²

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.1487	0.098
2	0.1460	0.096
3	0.1420	0.094
4	0.1336	0.088
5	0.1171	0.077
6	0.0918	0.061
7	0.0631	0.042
8	0.0399	0.026
9	0.0257	0.017
10	0.0185	0.012
11	0.0153	0.010
12	0.0139	0.009
13	0.0132	0.009
14	0.0123	0.008
15	0.0107	0.007
16	0.0080	0.005

	Kat No.	$E_{H(KIRIS)}/m$	Zf/m
2 açıklık için	1	0.0490	1977.61

	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
3 açıklık için	1	0.0327	1318.41

2	0.0482	1942.82
3	0.0469	1889.59
4	0.0441	1776.79
5	0.0386	1558.27
6	0.0303	1221.27
7	0.0208	839.39
8	0.0132	530.65
9	0.0085	342.25
10	0.0061	246.69
11	0.0051	203.69
12	0.0046	185.45
13	0.0044	175.54
14	0.0041	163.82
15	0.0035	142.94
16	0.0026	106.84

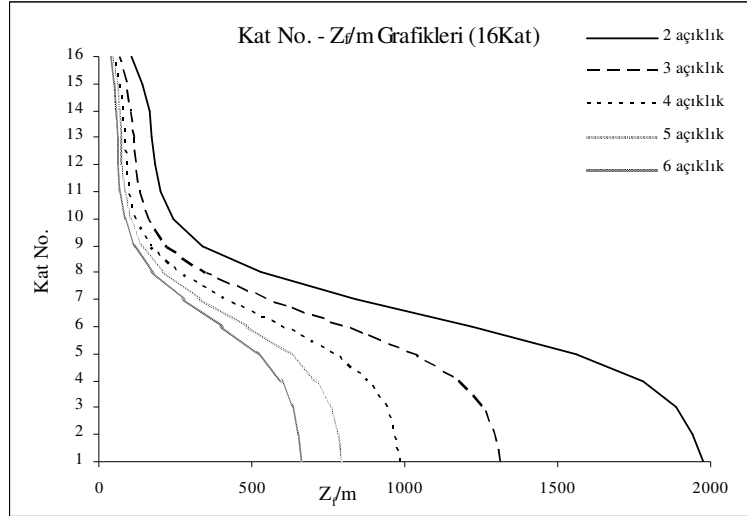
2	0.0321	1295.22
3	0.0312	1259.73
4	0.0294	1184.53
5	0.0258	1038.85
6	0.0202	814.18
7	0.0139	559.59
8	0.0088	353.77
9	0.0057	228.17
10	0.0041	164.46
11	0.0034	135.79
12	0.0031	123.63
13	0.0029	117.03
14	0.0027	109.21
15	0.0024	95.29
16	0.0018	71.23

Kat No.	$E_H/KRIS/m$	Z_f/m
1	0.0245	988.81
2	0.0241	971.41
3	0.0234	944.80
4	0.0220	888.39
5	0.0193	779.14
6	0.0151	610.64
7	0.0104	419.70
8	0.0066	265.33
9	0.0042	171.12
10	0.0031	123.34
11	0.0025	101.84
12	0.0023	92.72
13	0.0022	87.77
14	0.0020	81.91
15	0.0018	71.47
16	0.0013	53.42

Kat No.	$E_H/KRIS/m$	Z_f/m
1	0.0196	791.04
2	0.0193	777.13
3	0.0187	755.84
4	0.0176	710.72
5	0.0155	623.31
6	0.0121	488.51
7	0.0083	335.76
8	0.0053	212.26
9	0.0034	136.90
10	0.0024	98.68
11	0.0020	81.48
12	0.0018	74.18
13	0.0017	70.22
14	0.0016	65.53
15	0.0014	57.17
16	0.0011	42.74

Kat No.	$E_H/KRIS/m$	Z_f/m
1	0.0163	659.20
2	0.0161	647.61
3	0.0156	629.86
4	0.0147	592.26
5	0.0129	519.42
6	0.0101	407.09
7	0.0069	279.80
8	0.0044	176.88
9	0.0028	114.08
10	0.0020	82.23
11	0.0017	67.90
12	0.0015	61.82
13	0.0015	58.51
14	0.0014	54.61
15	0.0012	47.65
16	0.0009	35.61

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn2/m) olarak kullanılacaktır.



17- katlı yapı için

E_H/m : 0.6754 (cm/sn)²

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.1518	0.103
2	0.1487	0.100
3	0.1433	0.097
4	0.1324	0.089
5	0.1126	0.076
6	0.0848	0.057
7	0.0565	0.038
8	0.0358	0.024
9	0.0241	0.016
10	0.0184	0.012
11	0.0160	0.011
12	0.0152	0.010
13	0.0148	0.010
14	0.0143	0.010
15	0.0131	0.009
16	0.0109	0.007
17	0.0073	0.005

2 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
	1	0.0513	2066.76
	2	0.0502	2024.37
	3	0.0484	1951.79
	4	0.0447	1802.50
	5	0.0380	1532.99
	6	0.0286	1154.25
	7	0.0191	769.28
	8	0.0121	487.58
	9	0.0081	327.49
	10	0.0062	250.51
	11	0.0054	218.28
	12	0.0051	206.62
	13	0.0050	201.59

3 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
	1	0.0342	1377.84
	2	0.0335	1349.58
	3	0.0323	1301.19
	4	0.0298	1201.66
	5	0.0253	1021.99
	6	0.0191	769.50
	7	0.0127	512.85
	8	0.0081	325.05
	9	0.0054	218.32
	10	0.0041	167.01
	11	0.0036	145.52
	12	0.0034	137.75
	13	0.0033	134.40

14	0.0048	194.52
15	0.0044	178.92
16	0.0037	149.09
17	0.0025	99.90

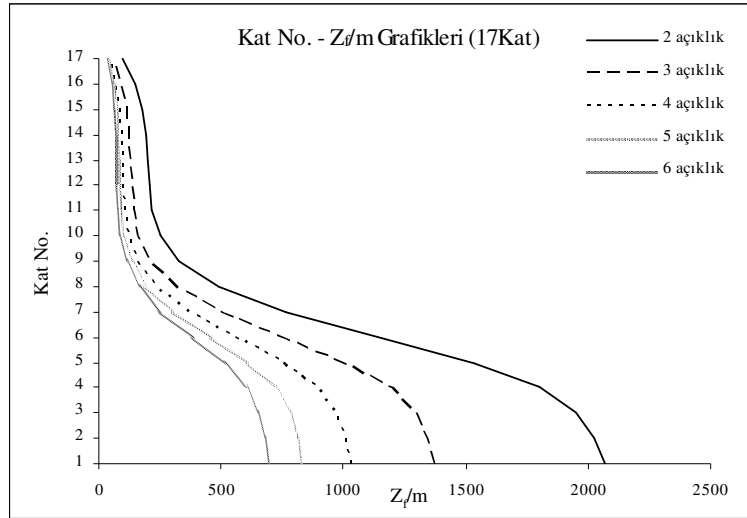
14	0.0032	129.68
15	0.0030	119.28
16	0.0025	99.40
17	0.0017	66.60

4 açıklık için	Kat No.	$E_H(KIRIS)/m$	Z_f/m
	1	0.0256	1033.38
	2	0.0251	1012.19
	3	0.0242	975.89
	4	0.0224	901.25
	5	0.0190	766.49
	6	0.0143	577.12
	7	0.0095	384.64
	8	0.0060	243.79
	9	0.0041	163.74
	10	0.0031	125.25
	11	0.0027	109.14
	12	0.0026	103.31
	13	0.0025	100.80
	14	0.0024	97.26
	15	0.0022	89.46
	16	0.0018	74.55
	17	0.0012	49.95

5 açıklık için	Kat No.	$E_H(KIRIS)/m$	Z_f/m
	1	0.0205	826.71
	2	0.0201	809.75
	3	0.0194	780.71
	4	0.0179	721.00
	5	0.0152	613.19
	6	0.0115	461.70
	7	0.0076	307.71
	8	0.0048	195.03
	9	0.0032	130.99
	10	0.0025	100.20
	11	0.0022	87.31
	12	0.0020	82.65
	13	0.0020	80.64
	14	0.0019	77.81
	15	0.0018	71.57
	16	0.0015	59.64
	17	0.0010	39.96

6 açıklık için	Kat No.	$E_H(KIRIS)/m$	Z_f/m
	1	0.0171	688.92
	2	0.0167	674.79
	3	0.0161	650.60
	4	0.0149	600.83
	5	0.0127	511.00
	6	0.0095	384.75
	7	0.0064	256.43
	8	0.0040	162.53
	9	0.0027	109.16
	10	0.0021	83.50
	11	0.0018	72.76
	12	0.0017	68.87
	13	0.0017	67.20
	14	0.0016	64.84
	15	0.0015	59.64
	16	0.0012	49.70
	17	0.0008	33.30

Fy = 248000 kN/m² ; Zf mm olarak ; m ise ton (kNsn²/m) olarak kullanılacaktır.



18- katlı yapı için

E_H/m : 0.6982 $(cm/sn)^2$

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.1554	0.109
2	0.1514	0.106
3	0.1444	0.101
4	0.1307	0.091
5	0.1077	0.075
6	0.0782	0.055
7	0.0510	0.036
8	0.0327	0.023
9	0.0229	0.016
10	0.0184	0.013
11	0.0167	0.012
12	0.0162	0.011
13	0.0160	0.011
14	0.0157	0.011
15	0.0148	0.010
16	0.0130	0.009
17	0.0097	0.007
18	0.0048	0.003

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.0543	2188.18
2	0.0529	2131.83
3	0.0504	2032.98
4	0.0456	1840.04
5	0.0376	1516.25
6	0.0273	1100.73
7	0.0178	718.21
8	0.0114	460.66
9	0.0080	322.39
10	0.0064	259.03
11	0.0058	234.57
12	0.0056	227.57

2 açıklık için

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.0362	1458.79
2	0.0352	1421.22
3	0.0336	1355.32
4	0.0304	1226.69
5	0.0251	1010.83
6	0.0182	733.82
7	0.0119	478.81
8	0.0076	307.11
9	0.0053	214.93
10	0.0043	172.68
11	0.0039	156.38
12	0.0038	151.71

3 açıklık için

13	0.0056	225.80
14	0.0055	221.59
15	0.0052	209.02
16	0.0045	182.60
17	0.0034	137.02
18	0.0017	68.19

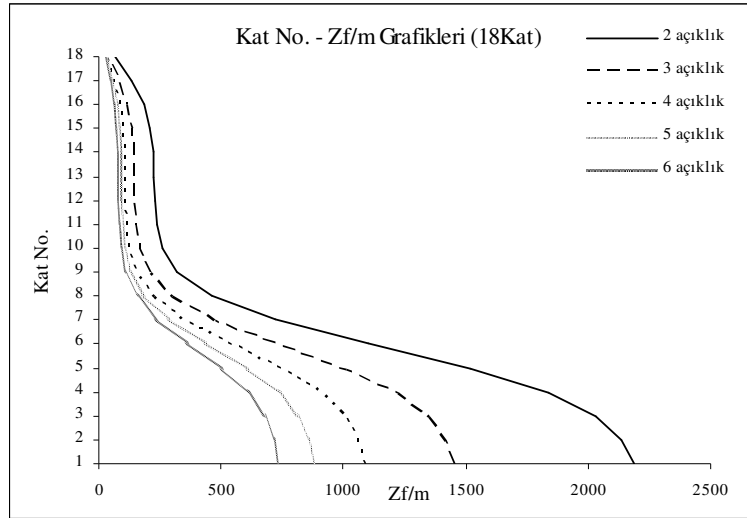
13	0.0037	150.54
14	0.0037	147.73
15	0.0035	139.35
16	0.0030	121.73
17	0.0023	91.34
18	0.0011	45.46

Kat No.	E_{HKIRIS}/m	Zf/m
1	0.0271	1094.09
2	0.0264	1065.92
3	0.0252	1016.49
4	0.0228	920.02
5	0.0188	758.12
6	0.0136	550.37
7	0.0089	359.11
8	0.0057	230.33
9	0.0040	161.20
10	0.0032	129.51
11	0.0029	117.28
12	0.0028	113.78
13	0.0028	112.90
14	0.0027	110.80
15	0.0026	104.51
16	0.0023	91.30
17	0.0017	68.51
18	0.0008	34.09

Kat No.	E_{HKIRIS}/m	Zf/m
1	0.0217	875.27
2	0.0211	852.73
3	0.0202	813.19
4	0.0183	736.02
5	0.0150	606.50
6	0.0109	440.29
7	0.0071	287.28
8	0.0046	184.27
9	0.0032	128.96
10	0.0026	103.61
11	0.0023	93.83
12	0.0023	91.03
13	0.0022	90.32
14	0.0022	88.64
15	0.0021	83.61
16	0.0018	73.04
17	0.0014	54.81
18	0.0007	27.27

Kat No.	E_{HKIRIS}/m	Zf/m
1	0.0181	729.39
2	0.0176	710.61
3	0.0168	677.66
4	0.0152	613.35
5	0.0125	505.42
6	0.0091	366.91
7	0.0059	239.40
8	0.0038	153.55
9	0.0027	107.46
10	0.0021	86.34
11	0.0019	78.19
12	0.0019	75.86
13	0.0019	75.27
14	0.0018	73.86
15	0.0017	69.67
16	0.0015	60.87
17	0.0011	45.67
18	0.0006	22.73

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn²/m) olarak kullanılacaktır.



19- katlı yapı için

E_H/m : 0.728 $(\text{cm/sn})^2$

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.1602	0.117
2	0.1549	0.113
3	0.1458	0.106
4	0.1292	0.094
5	0.1032	0.075
6	0.0726	0.053
7	0.0468	0.034
8	0.0305	0.022
9	0.0222	0.016
10	0.0185	0.013
11	0.0172	0.013
12	0.0170	0.012
13	0.0170	0.012
14	0.0168	0.012
15	0.0161	0.012
16	0.0143	0.010
17	0.0112	0.008
18	0.0065	0.005
19	0.0000	0.000

2 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Zf/m
	1	0.0583	2350.90
	2	0.0564	2273.34
	3	0.0531	2140.47
	4	0.0470	1896.23
	5	0.0376	1514.76
	6	0.0264	1065.47
	7	0.0170	686.40
	8	0.0111	447.93
	9	0.0081	325.64
	10	0.0067	272.06
	11	0.0063	253.18
	12	0.0062	249.48

3 açıklık için	Kat No.	$E_{H(KIRIS)}/m$	Zf/m
	1	0.0389	1567.26
	2	0.0376	1515.56
	3	0.0354	1426.98
	4	0.0314	1264.15
	5	0.0250	1009.84
	6	0.0176	710.31
	7	0.0113	457.60
	8	0.0074	298.62
	9	0.0054	217.09
	10	0.0045	181.37
	11	0.0042	168.79
	12	0.0041	166.32

13	0.0062	249.83
14	0.0061	247.11
15	0.0058	235.67
16	0.0052	210.03
17	0.0041	164.71
18	0.0024	95.07
19	0.0000	0.00

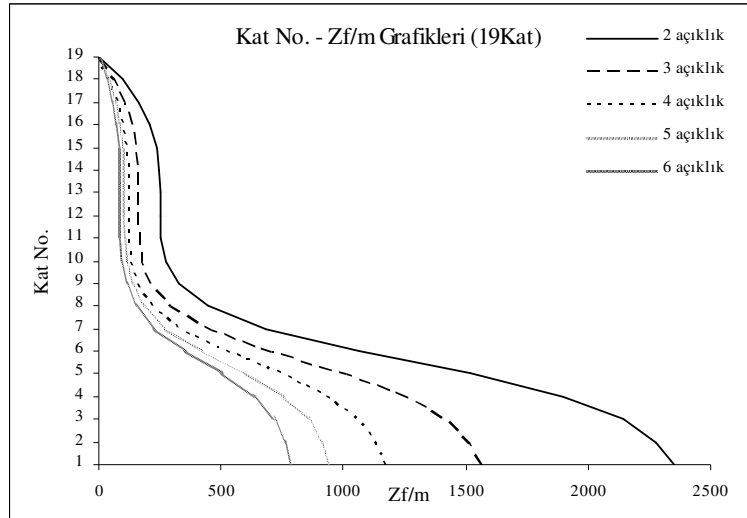
13	0.0041	166.56
14	0.0041	164.74
15	0.0039	157.11
16	0.0035	140.02
17	0.0027	109.81
18	0.0016	63.38
19	0.0000	0.00

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.0292	1175.45
2	0.0282	1136.67
3	0.0265	1070.24
4	0.0235	948.11
5	0.0188	757.38
6	0.0132	532.74
7	0.0085	343.20
8	0.0056	223.96
9	0.0040	162.82
10	0.0034	136.03
11	0.0031	126.59
12	0.0031	124.74
13	0.0031	124.92
14	0.0031	123.56
15	0.0029	117.83
16	0.0026	105.02
17	0.0020	82.35
18	0.0012	47.54
19	0.0000	0.00

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.0233	940.36
2	0.0226	909.34
3	0.0212	856.19
4	0.0188	758.49
5	0.0150	605.91
6	0.0106	426.19
7	0.0068	274.56
8	0.0044	179.17
9	0.0032	130.26
10	0.0027	108.82
11	0.0025	101.27
12	0.0025	99.79
13	0.0025	99.93
14	0.0025	98.85
15	0.0023	94.27
16	0.0021	84.01
17	0.0016	65.88
18	0.0009	38.03
19	0.0000	0.00

Kat No.	$E_{H(KIRIS)}/m$	Z_f/m
1	0.0194	783.63
2	0.0188	757.78
3	0.0177	713.49
4	0.0157	632.08
5	0.0125	504.92
6	0.0088	355.16
7	0.0057	228.80
8	0.0037	149.31
9	0.0027	108.55
10	0.0022	90.69
11	0.0021	84.39
12	0.0021	83.16
13	0.0021	83.28
14	0.0020	82.37
15	0.0019	78.56
16	0.0017	70.01
17	0.0014	54.90
18	0.0008	31.69
19	0.0000	0.00

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn^2/m) olarak kullanılacaktır.



20- katlı yapı için

E_H/m : 0.7659 (cm/sn)²

$E_{H(KAT)}/E_H$:

Kat No.	$E_{H(KAT)}/E_H$	$E_{H(KAT)}/m$
1	0.0767	0.059
2	0.0612	0.047
3	0.0568	0.044
4	0.0492	0.038
5	0.0382	0.029
6	0.0262	0.020
7	0.0167	0.013
8	0.0111	0.009
9	0.0084	0.006
10	0.0072	0.006
11	0.0068	0.005
12	0.0068	0.005
13	0.0068	0.005
14	0.0068	0.005
15	0.0065	0.005
16	0.0058	0.004
17	0.0046	0.004
18	0.0027	0.002
19	0.0002	0.000
20	0.0000	0.000

2 açıklık için

Kat No.	$E_{H(KIRIS)}/m$	Zf/m
1	0.0294	1184.11
2	0.0234	945.04
3	0.0218	877.28
4	0.0189	760.26
5	0.0146	589.72
6	0.0100	404.04
7	0.0064	258.64
8	0.0043	172.03
9	0.0032	129.24
10	0.0028	111.25
11	0.0026	105.52

3 açıklık için

Kat No.	$E_{H(KIRIS)}/m$	Zf/m
1	0.0196	789.41
2	0.0156	630.03
3	0.0145	584.85
4	0.0126	506.84
5	0.0097	393.15
6	0.0067	269.36
7	0.0043	172.43
8	0.0028	114.68
9	0.0021	86.16
10	0.0018	74.17
11	0.0017	70.35

12	0.0026	104.97
13	0.0026	105.54
14	0.0026	104.59
15	0.0025	99.90
16	0.0022	89.31
17	0.0018	70.57
18	0.0010	41.77
19	0.0001	2.38
20	0.0000	0.00

12	0.0017	69.98
13	0.0017	70.36
14	0.0017	69.72
15	0.0017	66.60
16	0.0015	59.54
17	0.0012	47.05
18	0.0007	27.84
19	0.0000	1.59
20	0.0000	0.00

Kat No.	E_{HKIRIS}/m	Zf/m
4 açıklık için		
1	0.0147	592.05
2	0.0117	472.52
3	0.0109	438.64
4	0.0094	380.13
5	0.0073	294.86
6	0.0050	202.02
7	0.0032	129.32
8	0.0021	86.01
9	0.0016	64.62
10	0.0014	55.63
11	0.0013	52.76
12	0.0013	52.48
13	0.0013	52.77
14	0.0013	52.29
15	0.0012	49.95
16	0.0011	44.66
17	0.0009	35.28
18	0.0005	20.88
19	0.0000	1.19
20	0.0000	0.00

Kat No.	E_{HKIRIS}/m	Zf/m
5 açıklık için		
1	0.0117	473.64
2	0.0094	378.02
3	0.0087	350.91
4	0.0075	304.10
5	0.0058	235.89
6	0.0040	161.62
7	0.0026	103.46
8	0.0017	68.81
9	0.0013	51.70
10	0.0011	44.50
11	0.0010	42.21
12	0.0010	41.99
13	0.0010	42.22
14	0.0010	41.83
15	0.0010	39.96
16	0.0009	35.73
17	0.0007	28.23
18	0.0004	16.71
19	0.0000	0.95
20	0.0000	0.00

Kat No.	E_{HKIRIS}/m	Zf/m
6 açıklık için		
1	0.0098	394.70
2	0.0078	315.01
3	0.0073	292.43
4	0.0063	253.42
5	0.0049	196.57
6	0.0033	134.68
7	0.0021	86.21
8	0.0014	57.34
9	0.0011	43.08
10	0.0009	37.08
11	0.0009	35.17
12	0.0009	34.99
13	0.0009	35.18
14	0.0009	34.86
15	0.0008	33.30
16	0.0007	29.77
17	0.0006	23.52
18	0.0003	13.92
19	0.0000	0.79
20	0.0000	0.00

$F_y = 248000 \text{ kN/m}^2$; Z_f mm olarak ; m ise ton (kNsn^2/m) olarak kullanılacaktır.

